ARTS2050

METROPOLITAN TRANSPORTATION PLAN UPDATE ▸ *Future Mobility*

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Augusta Regional Transportation Study

FUTURE MOBILITY 2050

Draft Metropolitan Transportation Plan

July 10, 2020

wsp

MODERN MOBILITY partners

ARTS MPO

The Augusta Regional Transportation Study (ARTS) as a federally-designated agency was established as a bi-state Metropolitan Planning Organization (MPO) in 1970. The ARTS MPO working collaboratively with partner agencies is responsible for making policy about local transportation and deciding how to spend Federal funds for carrying out the transportation planning process. The ARTS MPO is also responsible for overseeing multimodal and long range transportation planning within the ARTS planning area to ensure continued accessibility, connectivity, efficiency, mobility, and safety for the movement of people and freight.

The ARTS planning area includes Richmond County, and the Cities of Hephzibah and Blythe in Georgia; the Fort Gordon Military Reservation; parts of Columbia County, including the City of Grovetown; and, parts of Aiken and Edgefield Counties in South Carolina, including the Cities of Aiken, North Augusta, New Ellenton and Burnettown.

ARTS METROPOLITAN TRANSPORTATION PLAN UPDATE
Future Mobility 2050

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The Augusta Regional Transportation Study (ARTS) Metropolitan Planning Organization (MPO) is committed to enforcing the principle that "No person in the United States shall, on the grounds of race, color, age, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, national origin, or disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity as provided by Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and any other related non-discrimination Civil Rights laws and authorities under any program or activity receiving federal financial assistance."

The ARTS MPO is also committed to taking positive and realistic affirmative steps to ensure the protection of rights and opportunities for all persons affected by its plans and programs.

The opinions, findings, and conclusions in this publication are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia, State of South Carolina or the Federal Highway Administration.

Prepared in cooperation with the Georgia Department of Transportation, South Carolina Department of Transportation and the Federal Highway Administration.

Planning & Development Department

Robert H. Sherman III, Director

ARTS Future Mobility 2050 – Metropolitan Transportation Plan

A Blueprint supporting Regional Population and Economic Growth

The Augusta Planning and Development Department (APDD) recently completed a 12-month metropolitan transportation planning process – Future Mobility 2050. The Future Mobility 2050 Metropolitan Transportation plan (MTP) updated the 2040 Transportation Vision Long Range Transportation Plan (LRTP) for the Augusta Regional Transportation Study (ARTS). ARTS is the regional Metropolitan Planning Organization (MPO), serving Richmond and Columbia counties in Georgia, and Aiken and Edgefield counties in South Carolina. In September 2020, elected officials from Augusta Richmond County, Columbia County, Blythe, Grovetown, Hephzibah in Georgia; and, the City of Aiken, City of North Augusta, Burnettown, City of New Ellenton and Aiken County in South Carolina; along with the Georgia Department of Transportation and South Carolina Department of Transportation, as the ARTS Policy Committee plans to adopt this plan.

ARTS Future Mobility 2050 MTP, as a regional blueprint and policy guide for future transportation infrastructure, recommends multi-modal transportation capital improvements over the next thirty (30) years. With the establishment of the National Cyber Command at Fort Gordon, UNISYS expansion in downtown Augusta, and Project Jackson in North Augusta; the Augusta-Richmond GA and Aiken SC Metro Area is projected to grow 35% in population and 31% in employment opportunities over the next thirty years.

The region is estimated to receive $3.1 billion, in federal, state and local funds for transportation infrastructure over the next 30 years which will be used for transportation improvements in Richmond and Columbia Counties in Georgia and Aiken and Edgefield Counties in South Carolina. The recommended transportation improvements include highways/roads, traffic safety and maintenance, traffic signal operations, bridge, freight and railroad, public transit, pedestrian and bike paths. During the planning process, APDD conducted a successful public participation process across the region reaching diverse groups of people, chambers of commerce, environmental, business, and non-profit organizations. A total of 1,624 persons participated in the transportation planning process.

The Augusta Planning and Development Department acknowledges the work of various departments within the City of Augusta, and participation of our regional partnerships with the Georgia Department of Transportation, South Carolina Department of Transportation, Aiken County, Columbia County, Edgefield County, Lower Savannah Council of Governments, the public and other agencies to develop this plan. This partnership of collaborative effort aims to ensure our regional transportation system provides safe, accessible and efficient mobility for all travelers, regional economic growth and enhance the quality of life.

With warmest regards,

Robert H. Sherman III, ARTS MPO Director

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The preparation of this report was financed in part through grant(s) from the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) and U.S. Department of Transportation, under the State Planning and Research Program, Section 505 [or Metropolitan Planning Program, Section 104(f) of Title 23, U.S. Code]. The contents of this report do not necessarily reflect the official view or policy of the FHWA, FTA, Georgia Department of Transportation or South Carolina Department of Transportation.

A Note to Readers

The geographic information system (GIS) maps are created as visual aids to spatially display regional transportation facilities in which we plan to invest and their relationship to the existing and future populations and jobs that the facilities are designed to serve to foster regional economic growth. However, the maps in these documents are for illustrative purposes only and are subject to change and interpretation.

This version of the plan is a draft technical report designed to include transportation data compilation, analysis, and key findings that is the foundation of the final Future Mobility 2050 Metropolitan Transportation Plan update. Some parts of this document, such as some of the appendices, will not be completed until the final draft. In addition, some of the graphics in this version of the document are drafts or lower-resolution images that will be upgraded in the final version.

Acknowledgements

The ARTS Metropolitan Transportation Plan Update: Future Mobility 2050 was developed in collaboration with the following Metropolitan Planning Organization (MPO) committees, local, state, regional and federal entities:

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List of Acronyms

AACOA	Aiken Area Council on Aging
AADT	Annual Average Daily Traffic
AARP	American Association of Retired Persons
ACPDD	Aiken County Planning & Development Department
ACS	American Community Survey
ADA	American with Disabilities Act of 1990
AGS	Augusta Regional Airport
AHCDD	Augusta Housing and Community Development Department
AIK	Aiken Municipal Airport
AIKR	Aiken Railway Company, LLC
AMC	Agriculture, Mining and Construction
APA	American Planning Association
APDD	Augusta Planning & Development Department
ARC	Aiken Railway Company
ARPA	Archaeological Resources Protection Act
ARTS	Augusta Regional Transportation Study
AT	Augusta Transit
ATMS	Advanced Traffic/Transportation Management System
BFE	Best Friend Express
BPAC	Bicycle and Pedestrian Advisory Committee
CAC	Citizens Advisory Committee
CAV	Connected and Automated Vehicles
CCPD	Columbia County Planning Department
CCCT	Columbia County Commission Transit
CEDS	CSRA Economic Development Strategy
CES	Cost Estimation System
CHAMP	Coordinated Highway Assistance & Maintenance Program
CIP	Capital Improvement Plan
CMAQ	Congestion Mitigation Air Quality
CMP	Congestion Management Process
CMS	Congestion Management System

CO	Carbon Monoxide
CSD (or CSS)	Context Sensitive Design/Solutions
CSRA	Central Savannah River Area
CSRA-RC	Central Savannah River Area Regional Commission
CSX	CSX Transportation Inc.
CT	Census Tract
DNL	Daniel Field Airport
DRI	Development of Regional Importance
ECBPD	Edgefield County Building & Planning Department
EDA	Economic Development Administration
EJ	Environmental Justice
EDL	Electronic Logging Device
EOP	Emergency Operations Plans
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAST Act	Fixing America's Surface Transportation Act
FBO	Fixed Based Operator
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GA	Georgia
GAC	General Aviation Commission
GDOT	Georgia Department of Transportation
GEARS	Georgia Electronic Accident Reporting System
GHPD	Georgia Historic Preservation Division
GIS	Geographic Information Systems
GOMs	Goals, Objectives, and Measures of Effectiveness
GPBO	Georgia Planning and Budget Office
GPS	Global Positioning System
GRIP	Governors Road Improvement Program
GSFIC	Georgia State Financing and Investment Commission
GSTDM	Georgia Statewide Travel Demand Model
GTIB	Georgia Transportation Infrastructure Bank

HBP	Highway Bridge Program
HERO	Highway Emergency Response Operators
HH	Households
HHS	Health and Human Services
HOV	High Occupancy Vehicle
HPMS	Highway Performance Monitoring System
HUD	US Department of Health and Human Services
IRI	International Roughness Index
ITS	Intelligent Transportation Systems
LEP	Limited English Proficiency
LMIG	Local Maintenance & Improvement Grant
LOS	Level of Service
LRTP	Long Range Transportation Plan
LSCOG	Lower Savannah Council of Governments
MAP-21	Moving Ahead for Progress in the 21st Century Act
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MTCUW	Manufacturing, Transportation, Commerce, Utility and Wholesale
MTP	Metropolitan Transportation Plan
NAACP	National Association for the Advancement of Colored People
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NBI	National Bridge Inventory
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHS	National Highway System
NHTS	National Household Travel Survey
NPC	Not Presently Congested
NPDES	National Pollutant Discharge Elimination System
NPMRDS	National Performance Management Research Data Set
NS	Norfolk Southern Railway Inc.
NSA	National Security Agency

NTD	National Transit Database
OFM	Office of Financial Management
OPB	Georgia Governor's Office of Planning and Budgeting
PC	Policy Committee
PE	Preliminary Engineering
PHED	Peak Hour Excessive Delay per Capita
PL	Planning
PM	Particulate Matter
PPP	Public Participation Plan
RCTS	Richmond County Transit System
REMI	Regional Economic Models, Inc.
RFAO	South Carolina Revenue and Fiscal Affairs Office
RIRP	Regionally Important Resources Plan
RITIS	Regional Integrated Transportation Information System
ROW	Right-of-Way
RTOP	Regional Traffic Operations Program
RTSO	Regional Traffic Signal Operations
RUCEST	Right-of-Way Utility Cost Estimation Tool
SC	South Carolina
SCDNR	South Carolina Department of Natural Resources
SCDOT	South Carolina Department of Transportation
SCDPS	South Carolina Department of Public Safety
SGR	State of Good Repair
SPLOST	Special-Purpose Local-Option Sales Tax
SRS	Savannah River Site
SRTA	State Road and Tollway Authority
SRTS	Safe Routes to School
STIP	State Transportation Improvement Plan
STRAHNET	Strategic Highway Network
SWM	Statewide Model
TAM	Transit Asset Management
TAPA	GDOT's Traffic Analysis and Data Application
TAP	Transportation Alternatives Program
TAZ	Traffic Analysis Zone
TCAC	Transit Citizens Advisory Committee

TCC	Technical Coordinating Committee
TDM	Travel Demand Model
TDM	Travel Demand Management
TIA	Transportation Investment Act (Georgia)
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TNC	Transportation Network Companies
TOD	Transit-Oriented Development
TSM&O	Transportation System Management and Operations
TSPLOST	Transportation Special-Purpose Local-Option Sales Tax
TTI	Travel Time Index
UPWP	Unified Planning Work Plan
USDOT	U.S. Department of Transportation
V/C Ratio	Volume to Capacity Ratio
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles Traveled
WHO	World Health Organization
WIM	Weigh in Motion
YOE	Year-of-Expenditure

1 INTRODUCTION AND OVERVIEW

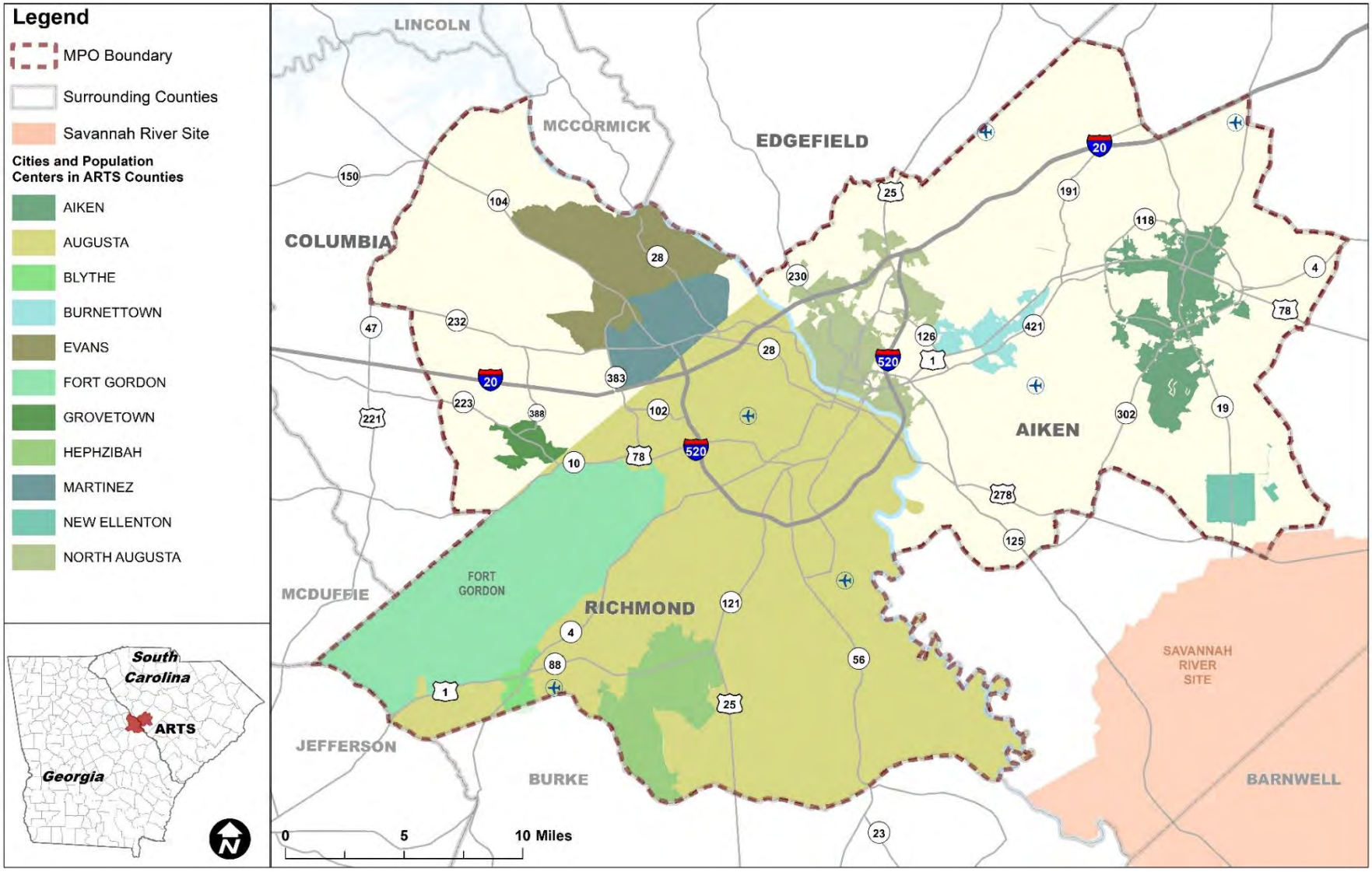
The Augusta Regional Transportation Study (ARTS) Metropolitan Planning Organization (MPO) is in the final stage of updating its Metropolitan Transportation Plan (MTP) for 2050. This MTP document is the official multimodal transportation plan developed and adopted through the metropolitan transportation planning process for the ARTS MPO. Updated every 5 years, the MTP envisions and evaluates what the ARTS planning area would look like in the next 10, 20, or 30 years. The MTP recommends transportation projects to improve, maintain, and operate roadways and bridges, public transit, aviation, freight, multi-use trails, and sidewalks. To be eligible for federal funding, projects must be in the MTP first then in the Transportation Improvement Program (TIP). This chapter describes an overview of the ARTS MPO and 2050 MTP then discusses current demographics with future projections, and existing and future land use as important foundations to this MTP update.

1.1 Augusta Regional Transportation Study (ARTS)

ARTS, as the MPO, is the designated bi-state regional planning entity responsible for long-range transportation planning and project selection for programming federal-aid funds in the Augusta GA – Aiken SC Metropolitan Area. ARTS is comprised of elected and appointed officials from four (4) counties; Richmond and Columbia Counties in Georgia (GA); and Aiken and Edgefield Counties in South Carolina (SC). **Figure 1-1** depicts the boundaries of the ARTS MPO, also referred to as the "ARTS planning area," which includes all of Richmond County, the eastern portion of Columbia County, most of Aiken County, and a small portion of Edgefield County.

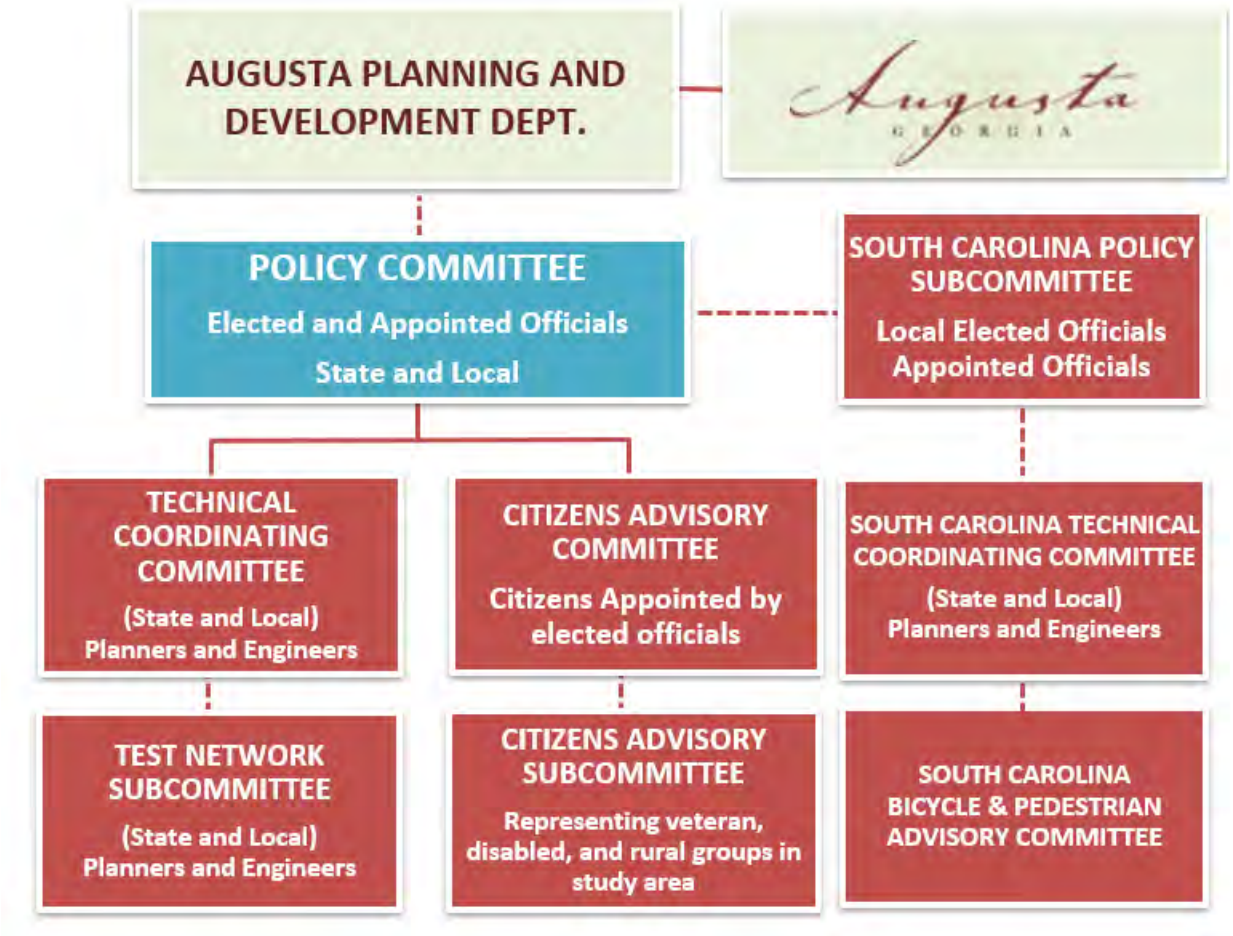
Other key partners in ARTS include representatives from local, state, and federal agencies who are jointly responsible for long-range transportation planning in the region. ARTS is the forum for regional cooperation and coordination in the discussion and decision-making process for programming federal aid funds for transportation investments in the ARTS planning area over the next 30 years.

The ARTS MPO functions through a four-committee structure that includes the Policy Committee (PC); South Carolina Policy Subcommittee; Technical Coordinating Committee (TCC), which includes the Test Network Subcommittee (TNSC); and Citizens Advisory Committee (CAC). Each of these four committees convenes independently or jointly several times per year. The committee structure for the ARTS MPO is presented in **Figure 1-2.**



Source: ESRI

Figure 1-1. ARTS Planning Area (2019)



Source: ARTS

Figure 1-2. ARTS Committee Structure and Framework (2020)

1.2 2050 Metropolitan Transportation Plan (MTP)

The MTP is the official multimodal transportation plan developed and adopted through the metropolitan transportation planning process for the ARTS planning area. MTP and Long Range Transportation Plan (LRTP) are interchangeable terms, and the ARTS MPO prefers to use MTP from this update onwards. The ARTS MPO approved its 2040 LRTP in 2015 which served as the basis for this MTP update. While some priorities from the 2040 LRTP have changed or been met since 2015, many of the original priorities remain. The MTP goals and priorities are discussed in Chapter 3 of this MTP document and in Technical Report #3: Development of Goals, Objectives and Measures of Effectiveness.

The MTP planning process and policy document are federally mandated and serve as a prerequisite for receiving federal transportation funding. The MTP is a long range planning document, but it also contributes to the annual Unified Planning Work Program (UPWP) and the 4-Year Transportation Improvement Program (TIP). The UPWP is an annual work program that documents the planning priorities for the ARTS planning area and describes all planning activities to be performed with transportation and transit planning funds. The TIP is a multi-year intermodal program including planning for transportation system infrastructure needs, financing and capital improvement programming and project implementation.

The ARTS MTP covers a 30-year planning horizon and is updated at least once every five years. The MTP can be amended at any time, and the ARTS Policy Committee must approve any update or amendment to the MTP. Interested parties, including the public, have an opportunity to review and comment on the MTP. Projects must be included in the MTP before being placed in the ARTS TIP.

The ARTS 2050 MTP includes long-range and short-range strategies and actions that lead to the development of an integrated multimodal transportation system in the ARTS planning area. In addition, the 2050 MTP:

- Identifies near-term demand for passenger and goods movement,
- Identifies Congestion Management System strategies,
- Identifies pedestrian, walkway, and bicycle facilities,
- Assesses capital investment and other measures to preserve the existing transportation system,
- Reflects a multimodal evaluation of the transportation, socioeconomic, environmental, and financial impact of the transportation plan,
- Reflects consideration of local plans, goals, and objectives,
- Outlines, as appropriate, transportation enhancement activities, and
- Includes a financial plan demonstrating that the identified projects can be implemented using current and proposed revenue sources.

A key outcome of this plan update is identifying or confirming local community visions and priorities, reflecting input from all transportation users through a continuing, cooperative, and comprehensive public engagement process. As shown in **Figure 1-3**, the MTP Update engaged the public continually during the plan development process, and;

1. **Recorded** existing transportation conditions in the ARTS planning area
2. **Assessed** existing and future transportation needs
3. **Recommended** projects to address identified needs
4. **Prioritized** projects using study goals, needs and public input
5. **Drafted** short-, medium-, and long-term project programs based on available and potential funding.

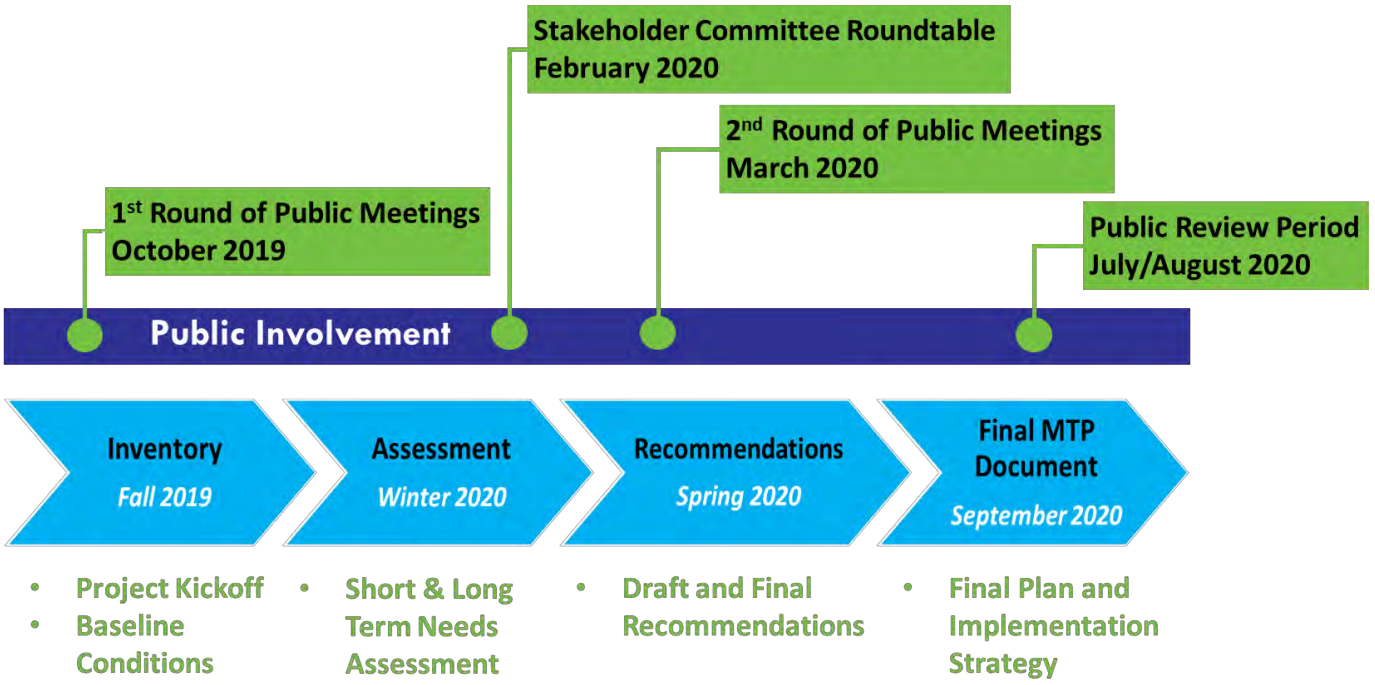


Figure 1-3. ARTS 2050 MTP Plan Development Process (2019)

1.2.1 Organization of the 2050 MTP

This 2050 MTP document is a summarized compilation of the six (6) Technical Reports that were developed during the plan development process. The individual Technical Reports, stand-alone documents with more in-depth analyses on each topic, are attached as appendices to the 2050 MTP.

- **Chapter 1 Introduction and Overview** describes key land use and demographics for both existing and future conditions. These are important foundations to the 2050 MTP (from ***Technical Report #2***).
- **Chapter 2 Public Involvement** summarizes the public involvement process and outcomes from the two (2) rounds of public engagement periods (from ***Technical Report #1***).
- **Chapter 3 2050 MTP Goals, Objectives, and Performance Measures** defines Goals, Objectives, and Measures of Effectiveness (GOMs) based on the 2040 LRTP, latest federal requirements and statewide guidelines, and public and stakeholder input (from ***Technical Report #3***).
- **Chapter 4 Regional Transportation Network** identifies current and future multimodal transportation needs of the ARTS planning area based on regional travel patterns, system inventory, multifaceted analyses, and public input (from ***Technical Report #2*** and ***Technical Report #5***).
- **Chapter 5 Project Development, Evaluation, and Ranking** summarizes how a list of the Universe of Projects (unconstrained "wish list" projects) was developed based on the identified needs (from ***Technical Report #5***), the project prioritization process (from ***Technical Report #4***), and the evaluation of the Universe of Projects list.
- **Chapter 6 Financial Plan and Project Recommendations** summarizes funding forecasts and identifies a list of financially constrained projects prioritized for short-, mid-, and long-terms throughout the horizon of the MTP 2050 (from ***Technical Report #6***).

1.3 Demographics and Future Trends

ARTS is centrally located in the Central Savannah River Area (CSRA) in the principal jurisdiction of the City of Augusta. The region bisects the banks of the Savannah River bordering the States of Georgia and South Carolina. The region is home to the Augusta National Golf Club, which hosts the Masters Golf Tournament each year. This historic, world-renowned sporting event draws thousands of golfing fans and tourists to the region. The region is also home of the famed musician James Brown. Also, President Woodrow Wilson's boyhood home is in the Augusta Downtown Historic District. The National Cyber Command at Fort Gordon, Georgia and Aiken's equestrian and horse community in South Carolina also add some unique characteristics to the region.

This section reviews changes in population, demographic characteristics, and employment opportunities in the four-county area from the previous 2040 LRTP. Assessment of existing population, employment, development patterns, and other socioeconomic characteristics of the region is key to understanding the existing demand for transportation services and to identifying infrastructure needs. The socioeconomic make-up of the area also establishes which areas need improvements the most.

All socioeconomic data and existing conditions come from the United States Census' American Community Survey (ACS) unless otherwise noted. Population demographic estimates derive from the 2013-2017 ACS 5-Year Estimates because these are the most reliable data with the largest sample size available for population analysis.

1.3.1 Population

Table 1-1 includes a summary of key demographic characteristics for the four counties that are part of the ARTS planning area. Statistics are from the 2013-2017 ACS 5-Year Estimate, the most recent data at the time of this report's publication. Richmond County has the largest population with nearly 202,000 residents, while Edgefield County has the smallest population with about 27,000 residents. Columbia County has the highest average household size (3.13) in the four-county area. Richmond County has the largest share of minority and low-income populations in the four-county area with nearly 130,000 (64 percent) minority residents and 47,000 (24 percent) low-income residents.

Table 1-1. Demographic Summary (2013-2017 ACS 5-Year Estimate)

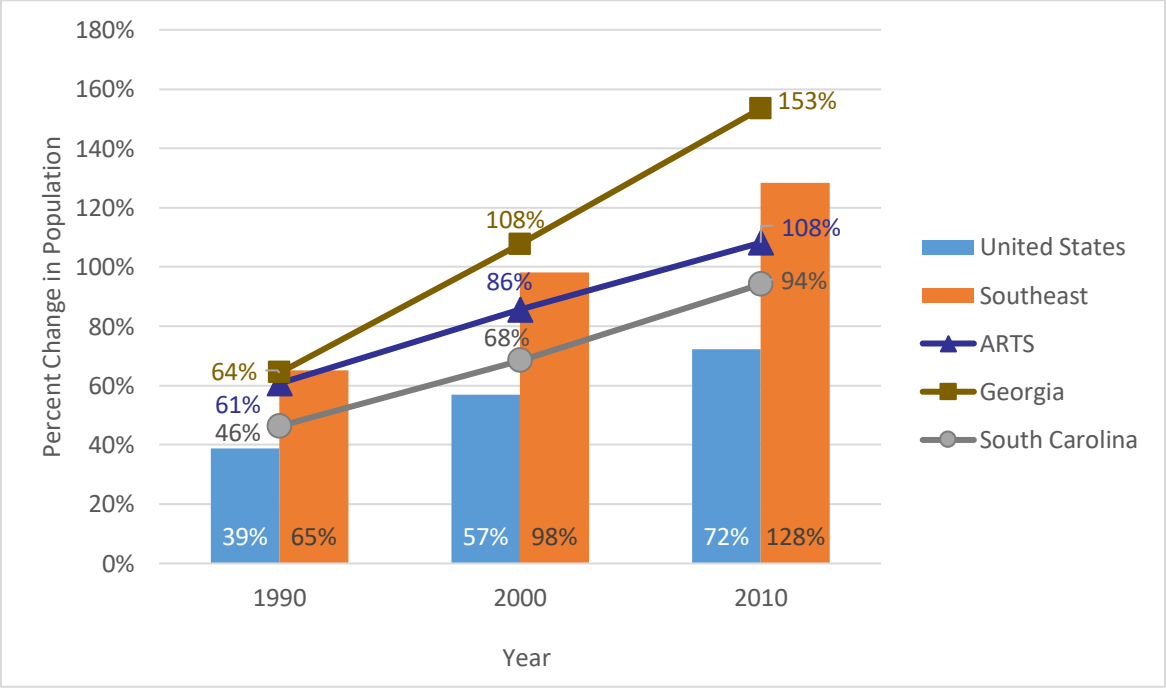
Demographic Characteristic	Georgia		South Carolina		Four-County Area
	Columbia County	Richmond County	Aiken County	Edgefield County	
Total Population	143,723	201,568	165,707	26,620	537,618
Population Density	0.77 per acre	0.97 per acre	0.24 per acre	0.08 per acre	0.38 per acre
Number of Households	45,823	72,361	65,703	9,054	192,941
Percent population in Occupied Housing Units	99.7% (143,225)	95.3% (192,160)	98.3% (162,971)	89.4% (23,787)	97.1% (522,143)
Average Household Size	3.13	2.66	2.48	2.63	2.76*
Median Age	36.4	33.7	41.0	42.6	37.1*
Percent Workers (Age 16 or More) without Access to Vehicles	1.0%	3.6%	1.7%	2.5%	2.2%
Percent Low Income Population (Income below Poverty Threshold)	8.6% (12,269)	24.2% (46,692)	16.7% (27,183)	15.5% (3,715)	17.2% (89,859)
Median Household Income	$74,162	$39,430	$47,413	$47,500	$51,575*

Demographic Characteristic	Georgia		South Carolina		Four-County Area
	Columbia County	Richmond County	Aiken County	Edgefield County	
Total Minority Population	42,918 (30%)	129,926 (64%)	55,262 (33%)	11,580 (44%)	239,686 (45%)
Percentage Population with Disability	11.2%	16.7%	14.1%	16.7%	14.4%
Percent Population High School Graduate or Higher (Age 25+)	92.3%	83.0%	86.2%	81.5%	86.4%
Percent Population with Bachelor's Degree or Higher (Age 25+)	34.4%	21.0%	25.8%	19.5%	26.0%

Source: 2013-2017 ACS 5-Year Estimate
**Weighted average of the respective numbers for four-counties based on their populations.*

Historic Population Growth

It is important to assess the history of changes in population to accurately understand where the ARTS planning area is now and how populations may change in the future. **Figure 1-4** compares percent changes in population at different geographical levels such as the ARTS planning area, States of Georgia and South Carolina, Southeast Region, and United States from 1990 to 2010. Population in the southeastern portion of the United States has grown rapidly since 1990, as depicted in **Figure 1-4**. This graph shows the change in population over recent decades relative to the year 1960, an established base year with robust available population data selected for calculating growth rates compared to a historic reference point. Although the four-county region exhibited a slower increase in population growth than Georgia during this time frame, the growth rate still exceeded that of South Carolina and the United States overall, with its 2010 population growing to more than double what it was in 1960.

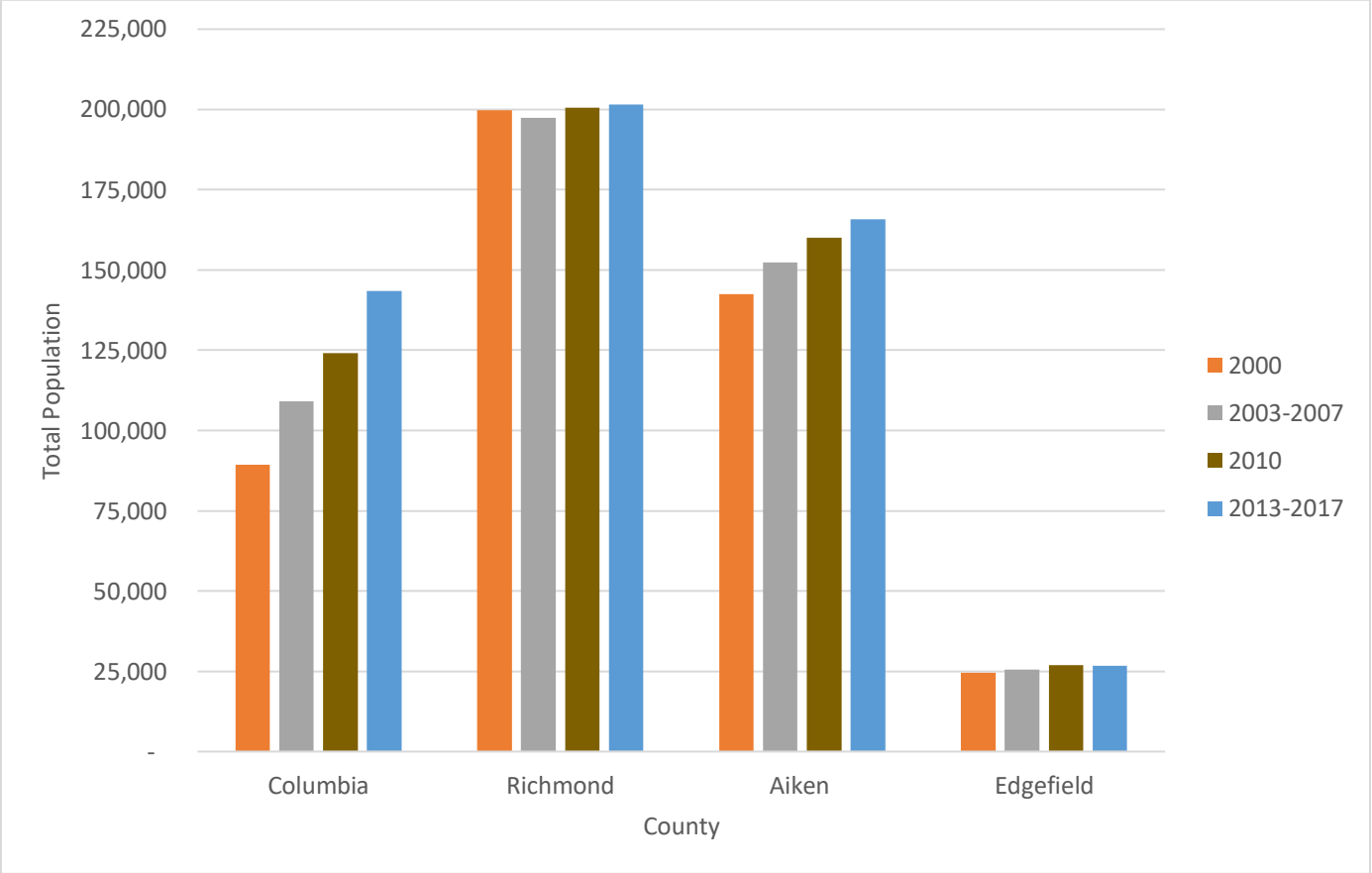


Source: ARTS 2040 LRTP (2015), 1990-2010 US Census

Figure 1-4. Population Change (1990 – 2010) Relative to Base Year 1960

As of 2017, the ARTS planning area remains the second-most populous MPO in Georgia behind Atlanta and the fourth-most populous MPO in South Carolina behind Columbia, Charleston, and Greenville. While the ARTS planning area has grown considerably in the last few decades, it is especially important to see where the growth is occurring in more recent years.

Figure 1-5 illustrates more recent changes in the population from 2000 onward in the four-county area. Population in Richmond and Edgefield Counties has stayed stable since 2000. Edgefield County experienced a minor decrease of just under two percent in population after 2010, but since then it changed course and rose by over half percent. However, Columbia County has experienced rapid growth in the past few years. It grew from under 90,000 in 2000 to about 143,723 (2013-2017 ACS 5-year estimates), an increase of over 60 percent. Aiken County also grew, albeit at a slower pace from Columbia County, from about 142,552 in 2000 to about 165,707 (2013-2017 ACS 5-year estimates), an increase of 16.2 percent.



Source: 2000 US Census, 2003-2007 ACS 5-Year Estimate, 2010 US Census, 2013-2017 ACS 5-Year Estimate
** 2017 refers to the ACS 5-year period estimate for 2013-2017*

Figure 1-5. Population by County (2000-2017*)

Population Density and Distribution

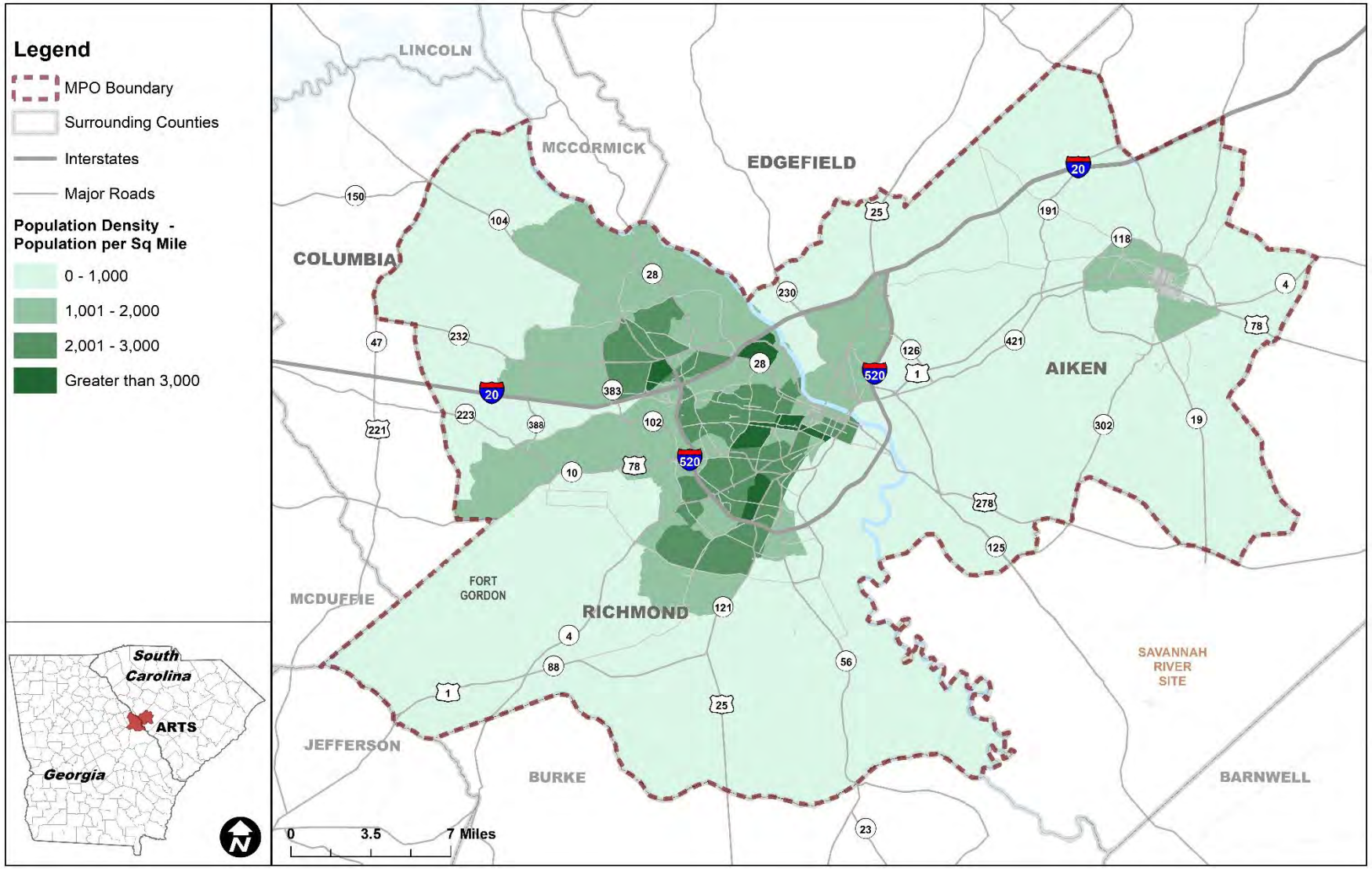
Population density measures how many people live in a specific area, such as a square mile or an acre. Urban areas tend to have a higher number of people within a given geographic area, and rural areas tend to have a smaller number of people per area. Per the 2013-2017 ACS 5-year estimate population statistics, Columbia County and Richmond County both are more densely populated than the four-county area. Conversely, Aiken and Edgefield Counties have lower population densities than the averages for the four-county area, the State of Georgia, and the State of South Carolina. Richmond County has the highest population density with nearly one person for each acre of land area in the County. Edgefield County, on the other hand has the lowest population density in the four-county area with only about 1 person for every 12 acres of land area. **Table 1-2** presents the comparison of population densities of the four counties and their respective states.

Table 1-2. Population Density (2013-2017 ACS 5-Year Estimate)

	Georgia		South Carolina		Four-County Area	Georgia	South Carolina
	Columbia County	Richmond County	Aiken County	Edgefield County			
Total Population	143,723	201,568	165,707	26,620	537,618	10,201,635	4,893,444
Land Area (acres)	185,658	207,571	685,459	320,262	1,398,950	36,808,634	19,238,848
Population Density	0.77 per acre	0.97 per acre	0.24 per acre	0.08 per acre	0.38 per acre	0.28 per acre	0.25 per acre

Source: 2013-2017 ACS 5-Year Estimate

Census tracts in northern Richmond County near Downtown Augusta and those in the eastern part of Columbia County are more densely populated than the rest of the ARTS planning area. Census tracts in the cities of North Augusta and Aiken were also understandably denser than the rest of Aiken County.

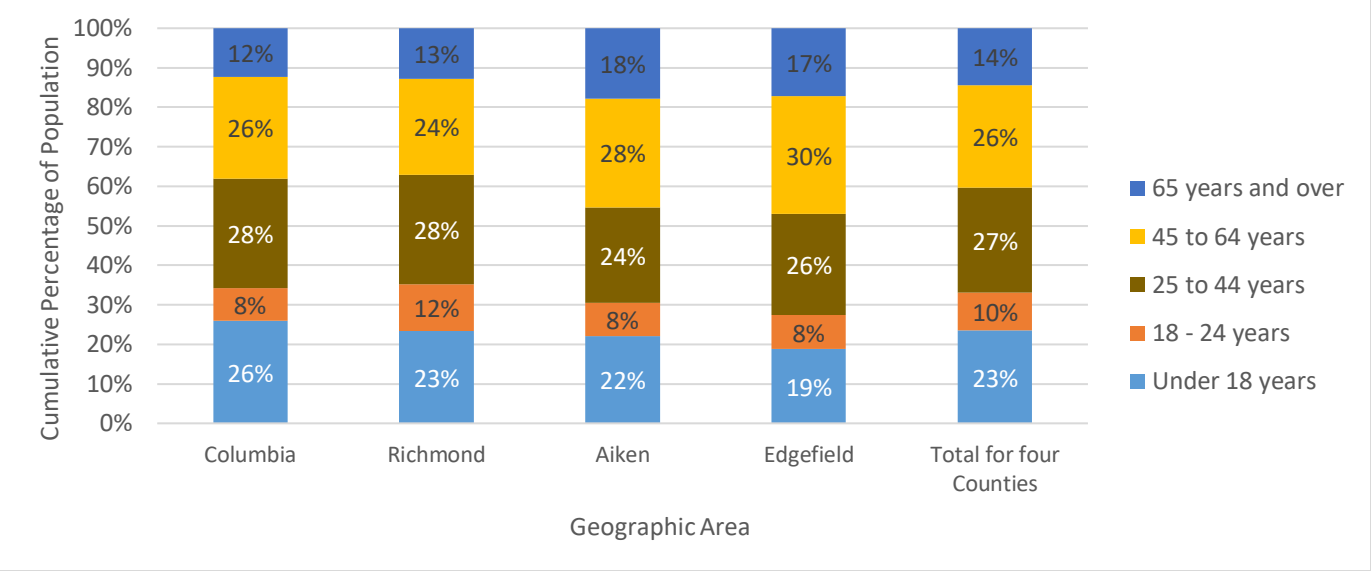


Source: 2013-2017 ACS 5-Year Estimate

Figure 1-6. Population Density by Census Tract (2013-2017 ACS 5-Year Estimate)

Age/Generations

Figure 1-7 illustrates the 2017 age distribution in counties in the ARTS planning area. Columbia and Richmond Counties have higher proportions of the population in younger age groups, and Aiken and Edgefield Counties have higher proportions of the population in older age groups.

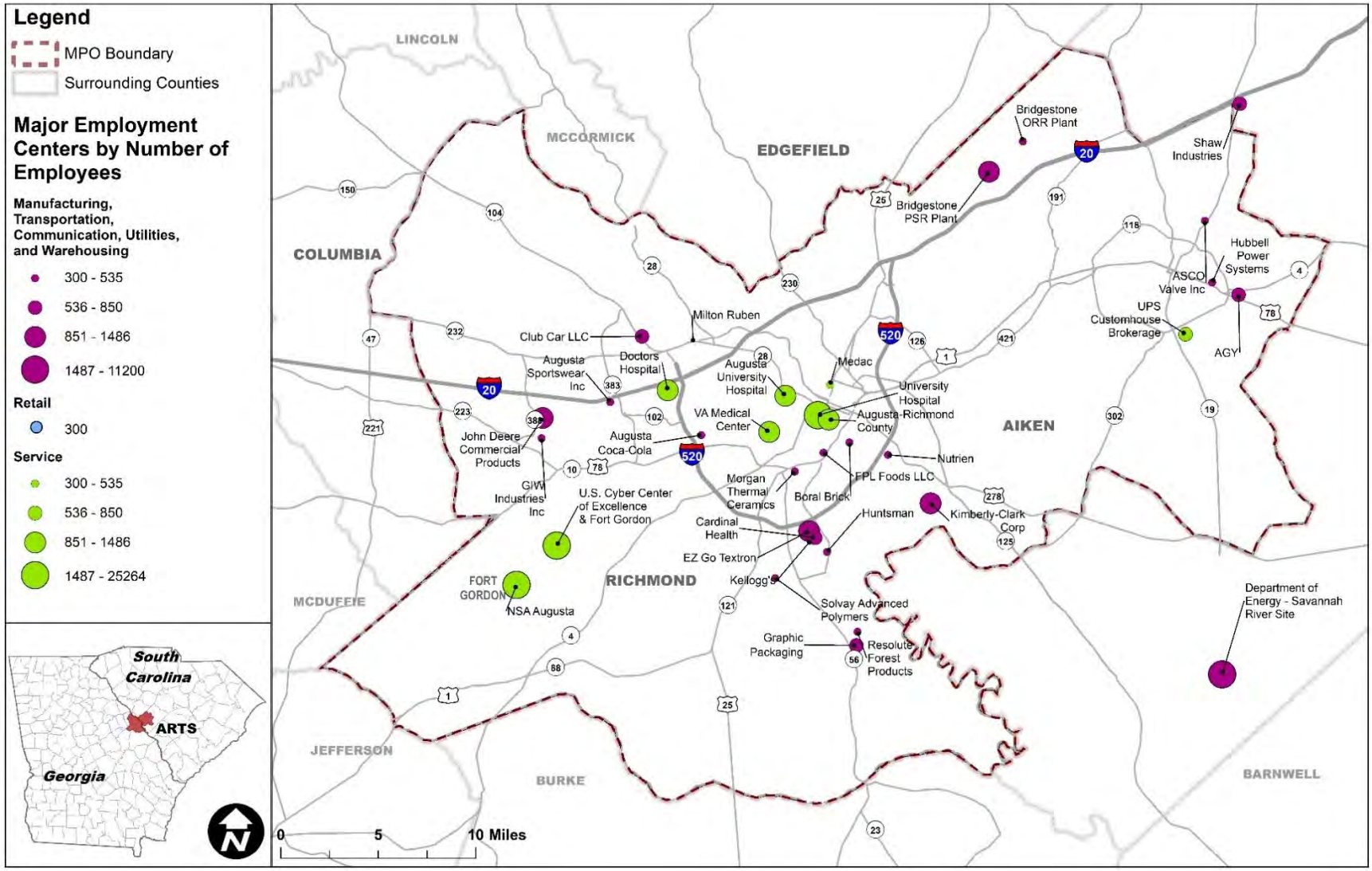


Source: 2013-2017 ACS 5-Year Estimate

Figure 1-7. Population Age Groups by County (2013-2017 ACS 5-Year Estimate)

1.3.2 Jobs and Economy

Transportation plays a critical role in developing and shaping communities by providing access to employment and other activities. In other words, transportation infrastructure forms the foundation of opportunities for economic growth in the region. According to the 2017 National Household Travel Survey (NHTS), trips made to and from work, as well as trips due to work-related business, accounted for 16 percent of annual person miles traveled and 13 percent of all person trips. Thus, in addition to the number of housing units provided, the presence of employment sites within an area is a significant contributor to overall traffic. This section analyzes current employment data, collected from the Georgia Department of Labor and South Carolina Department of Employment and Workforce, to understand the nature of current employment opportunities within the ARTS planning area. **Figure 1-8** illustrates major employment centers within and in close proximity to the ARTS planning area, such as the US Cyber Center of Excellence, Fort Gordon, Savannah River Site, and Augusta University Hospital, by their sectors and number of employees.

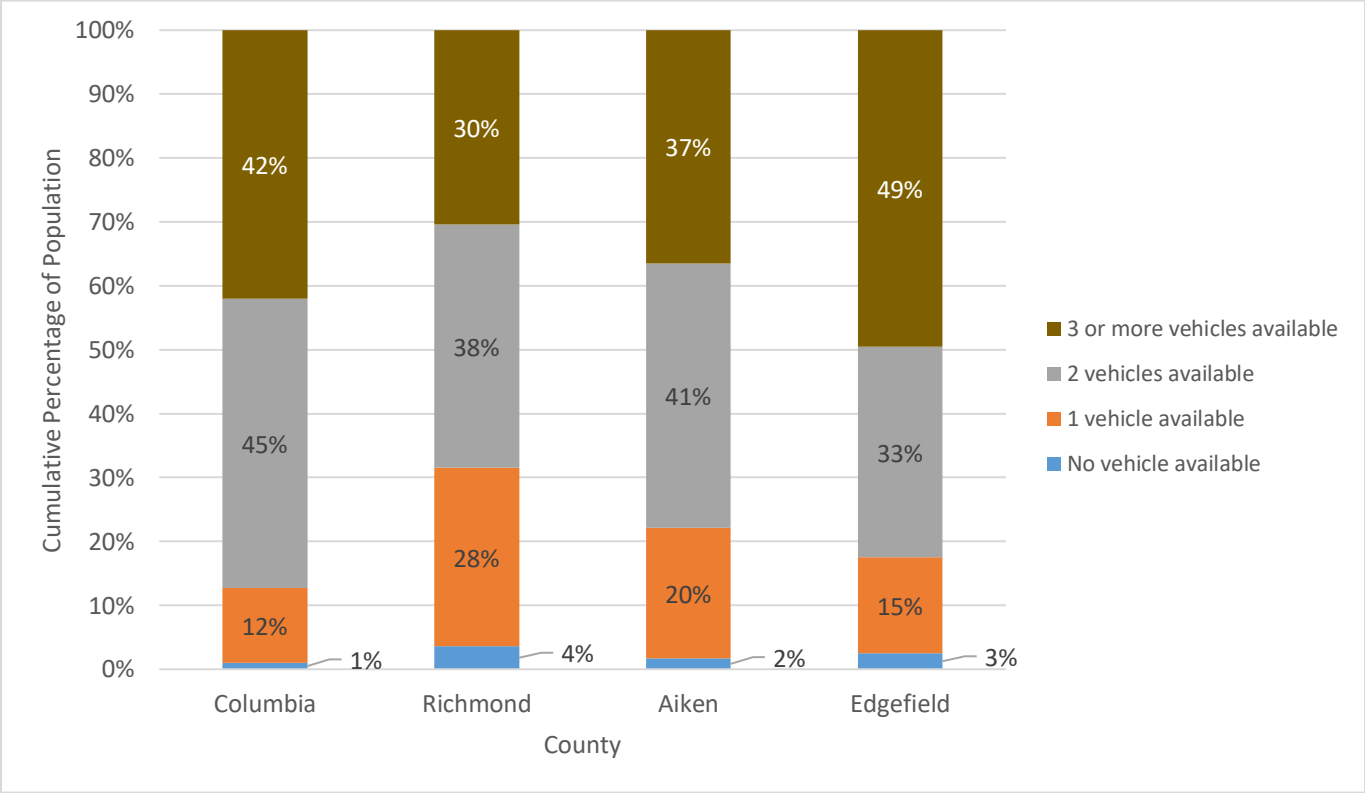


Source: Augusta Economic Development Authority, Development Authority of Columbia County, Aiken Chamber of Commerce

Figure 1-8. ARTS Planning Area Employment Centers (2019)

Vehicle Availability

The four counties in the ARTS planning area contain approximately 193,000 households. **Figure 1-9** illustrates the percentage of these households without access to a vehicle. Richmond County has the highest percentage of such households at nearly 4 percent, while Columbia County has the smallest with about one percent of households without access to a vehicle.



Source: 2013-2017 ACS 5-Year Estimate

Figure 1-9. Percent Households by Number of Vehicles Available (2013-2017 ACS 5-Year Estimate)

Employment Status

Table 1-3 provides a summary of employment status in the ARTS planning area relative to state and national levels. Columbia and Edgefield Counties have lower unemployment rates than do the rest of the planning area, Georgia, South Carolina, and United States. Richmond County has the highest unemployment rate compared to the other counties in the ARTS planning area.

Table 1-3. Employment Status of Residents (2013-2017 ACS 5-Year Estimate)

Area	Population 16 Years and Over	Civilian Labor - Employed	Civilian Labor - Unemployed	Armed Forces	Not in Labor Force
Columbia County	111,009	56.9%	3.5%	3.3%	36.3%
Richmond County	159,145	49.5%	6.5%	3.4%	40.6%
Aiken County	133,252	53.1%	5.3%	0.3%	41.4%
Edgefield County	22,350	46.6%	3.7%	0.1%	49.7%

Area	Population 16 Years and Over	Civilian Labor - Employed	Civilian Labor - Unemployed	Armed Forces	Not in Labor Force
Four-County Area	425,756	52.4%	5.2%	2.2%	40.2%
South Carolina	3,926,466	55.5%	4.3%	0.8%	39.3%
Georgia	7,985,333	57.7%	4.7%	0.6%	37.1%
United States	255,797,692	58.9%	4.1%	0.4%	36.6%

Source: 2013-2017 ACS 5-Year Estimate

Employment Sectors

Statistics shown in **Table 1-4** reflect the proportions of jobs located within a geographic area, regardless of employee's county of residence. The ARTS planning area has similar job shares to the states of Georgia and South Carolina and the nation in various sectors, including Retail, Information, Transportation and Warehousing, and Utilities, and Other Services except Public Administration. Notably, Edgefield County has comparatively higher shares of jobs in the Agriculture, Forestry, Fishing and Hunting and Mining, and Manufacturing industries than the other ARTS planning area counties, both states, and the country. Likewise, Richmond and Columbia Counties have comparatively higher shares of jobs in the Educational Services, and Health Care and Social Assistance sector. Richmond County also has a notably higher proportion of jobs in Arts, Entertainment, and Recreation, and Accommodation and Food Services.

1.3.3 Future Trends

Future projections of socioeconomic data are an integral part of developing the MTP and will be used as foundations for estimating existing as well as future travel demand within the area. A base year of 2015 and future horizon year of 2050 were used in this process. Socioeconomic data projections were developed in close coordination with local planning partners and GDOT during the planning process for forecasting future population, household and employment within the ARTS planning area.

The 2050 population and employment projections use the following data sources for reference:

- Georgia Governor's Office of Planning and Budgeting (OPB)
- South Carolina Revenue and Fiscal Affairs Office (RFAO)
- American Community Survey (ACS)
- Projections from Local Comprehensive Plans
- Woods & Poole
- REMI Data
- Georgia Statewide Travel Demand Model (GSTDM) 2015/2050
- 2010/2040 ARTS LRTP Projections

Using the above data sources, blended annual growth rates were estimated for population and employment for four counties respectively. For Edgefield County's population, the annual growth rate of 1.08% from Edgefield County 2019 Comprehensive Plan was used per the County's direction, as it was assumed to be a more likely indicator of the future growth for the County.

The total control numbers for population and employment were calculated for all four counties using the recommended annual growth rates, which were approved by the local planning partners. Household Size Trends (population/household) were used to project 2050 households based on 2050 population projections and estimated

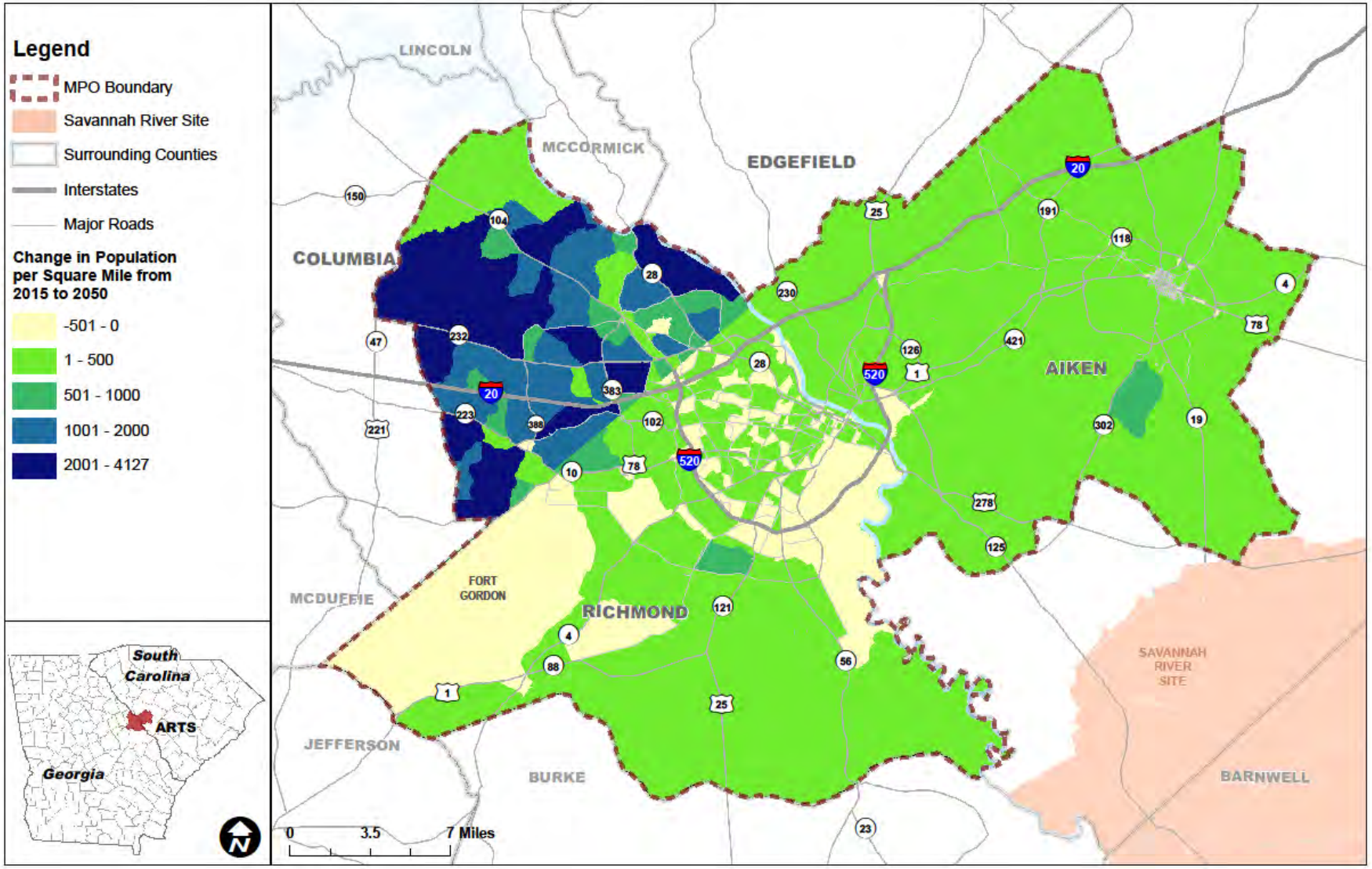
household size in 2050. The 2050 control totals for population, households, and employment are shown in **Table 1-4.**

Table 1-4. 2050 Control Totals for Population and Employment Projections (Model Run 2019)

County	2050 Total Population	2050 Total Household	2050 Total Employment	Population Growth (2015 – 2050)	Households Growth (2015 – 2050)	Employment Growth (2015 – 2050)
Columbia	263,005	96,975	50,357	125,223 (91%)	46,868 (94%)	19,733 (64%)
Richmond	205,836	77,248	150,359	12,958 (7%)	5,440 (8%)	23,049 (18%)
Aiken	197,142	89,062	64,556	33,715 (21%)	15,491 (21%)	20,850 (48%)
Edgefield	34,669	13,556	10,469	10,859 (46%)	4,457 (49%)	1,170 (13%)
Grand Total	**700,652**	**276,841**	**275,741**	182,755 (35%)	72,256 (35%)	64,802 (31%)

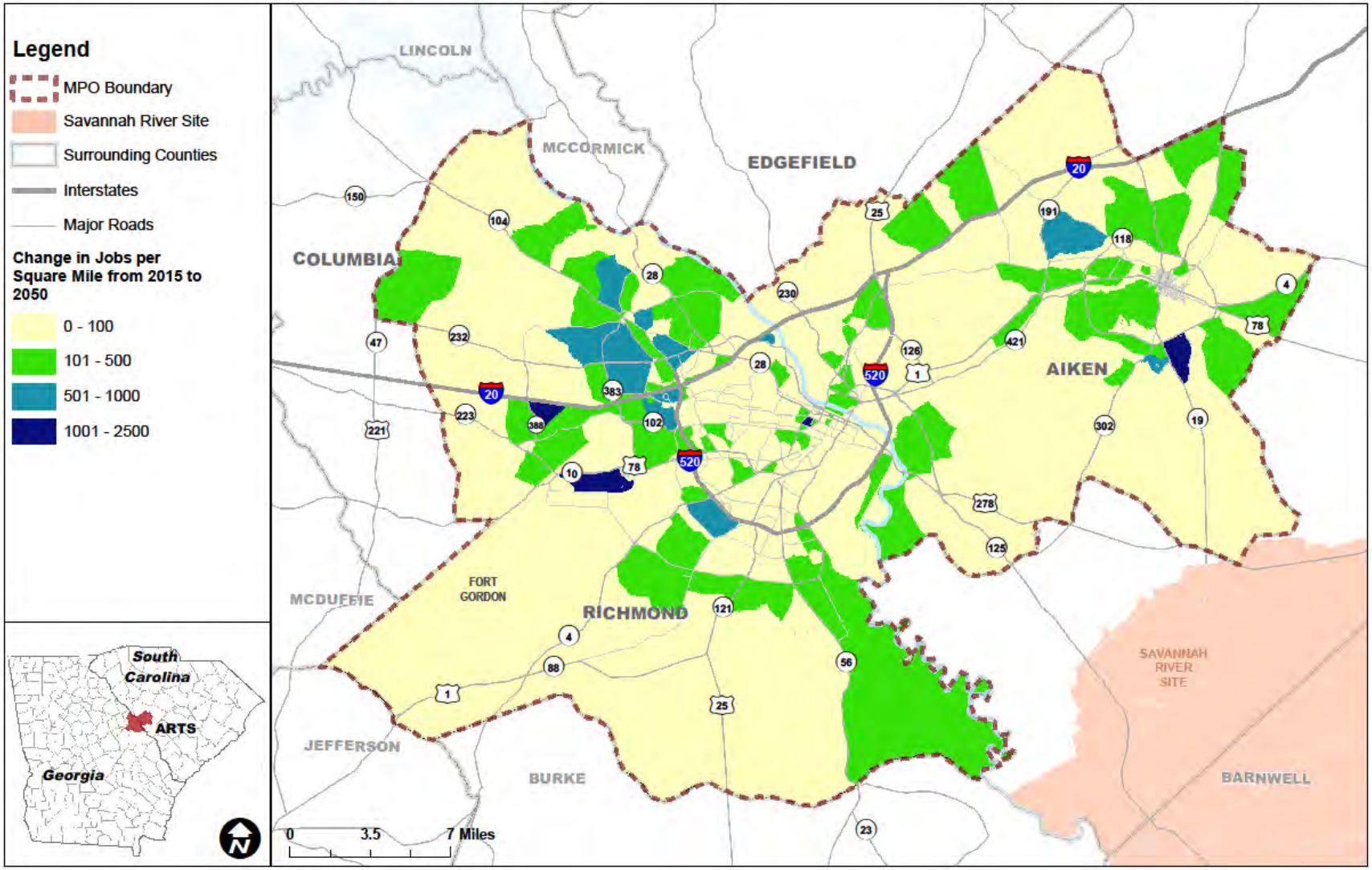
Source: OPB, RFAO, ACS, Edgefield County (2019), Woods & Poole, REMI, GSTDM, ARTS MPO (2010)

The future forecast indicates that significant population and employment growth is expected in Columbia and Aiken Counties. Columbia County is expected to nearly double its population from the 2015 estimates, adding nearly 125,000 residents to the County by 2050. Similarly, employment growth of nearly 64 percent is expected in Columbia County. Aiken is not far behind with nearly 48 percent growth in the number of jobs. Population in Richmond County, on the other hand, is projected to stay relatively stable with an increase of about 7 percent, but the number of jobs in Richmond County is expected to grow by 18 percent, adding nearly 23,000 jobs. **Figure 1-10** and **Figure 1-11** illustrate growth in population and employment in the ARTS planning area. High growth in population and employment may also suggest some capacity and operational improvements to accommodate this growth. With growth patterns spread across the planning area, it is essential to accommodate inter-county connections, including those for transit and non-motorized modes.



Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019), GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019)

Figure 1-10. Modeled Population Growth per Square Mile for Traffic Analysis Zones (TAZ) in the ARTS Planning Area, 2015 to 2050



Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019), GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019)

Figure 1-11. Modeled Job Growth per Square Mile for TAZs in the ARTS Planning Area, 2015 and 2050

1.4 Environmental Justice Considerations

Historically, minority and low income populations have been underrepresented in the transportation decision-making process. This section describes the methods by which these populations were identified in the ARTS planning area and how these populations were engaged in the MTP Update process. Specifically, identification of underrepresented population centers helped inform potential sites for information distribution, public engagement activities and meetings.

Executive Order 12898 defines Environmental Justice (EJ) populations as persons belonging to any of the following groups:

- Black/African American;
- Hispanic;
- Asian American;
- American Indian or Alaskan Native; and
- Low Income – a person whose household income is at or below the poverty guidelines established by the US Department of Health and Human Services (HUD).

The ARTS MTP outreach process went beyond the federal definition of EJ populations for minority and low income to include other groups such as senior population, population with limited English proficiency (LEP) and households without access to a vehicle. Areas that exceed the threshold for low-income or minority EJ status were areas of focus for EJ outreach during the MTP Update. EJ outreach included coordination with organizations that represent the interests of Environmental Justice populations of concern, including churches, neighborhood and advocacy groups. Preliminary inquiry into the ARTS planning area's population indicates the presence of minority communities consisting of Black/African American, Asian and Hispanic persons.

At a minimum, the EJ component of the engagement strategy also included:

- Distribution of study information via public libraries and social and community organizations as they express interest or are identified through the stakeholder process.
- Translation services, as needed, to ensure suitable communication.
- Distribution of notification of public involvement opportunities to EJ media outlets.

Considering the reach of the transportation systems to such populations, it is important to provide comprehensive transportation solutions to all residents of the ARTS planning area. Actively engaging this population in the planning process itself is also important.

1.4.1 Environmental Justice Assessment

Environmental Justice thresholds for the five categories discussed in this section are summarized in **Table 1-5**. These thresholds were derived from the four-county area average in each category. **Figure 1-17** illustrates the number of categories that exceed their respective threshold for each census tract. While any census tract that exceeds the EJ threshold for at least one category will be considered an EJ area, census tracts with higher numbers of categories exceeding their thresholds indicate a potentially more sensitive area that will likely need some special attention in the planning process. Any project recommendations made in these areas would be assessed further for any impacts to specific EJ neighborhoods and communities.

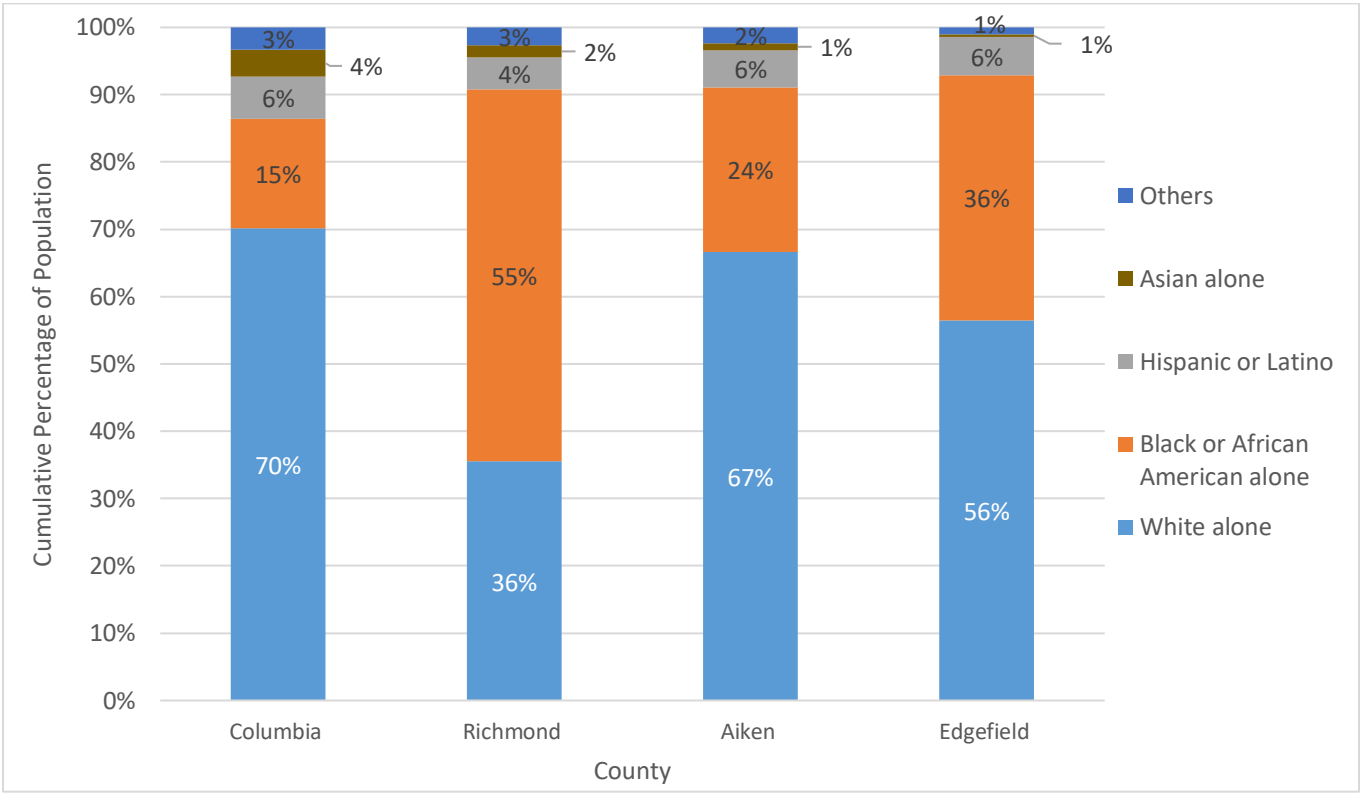
Table 1-5. Environmental Justice Thresholds in the ARTS Planning Area (2013-2017 ACS 5-Year Estimate)

Demographic	ARTS Planning Area	Threshold
Total Population	460,015	-
Occupied Household Units	165,311	-
Minority Population	211,252	45.9%
Seniors	65,245	14.2%
Population with Income below Poverty Line	78,145	17.5%
Population that can Speak English less than "Very Well"	11,477	2.7%
Housing Units without a Vehicle	11,184	6.8%

Source: 2013-2017 ACS 5-Year Estimate

1.4.2 Race and Ethnicity

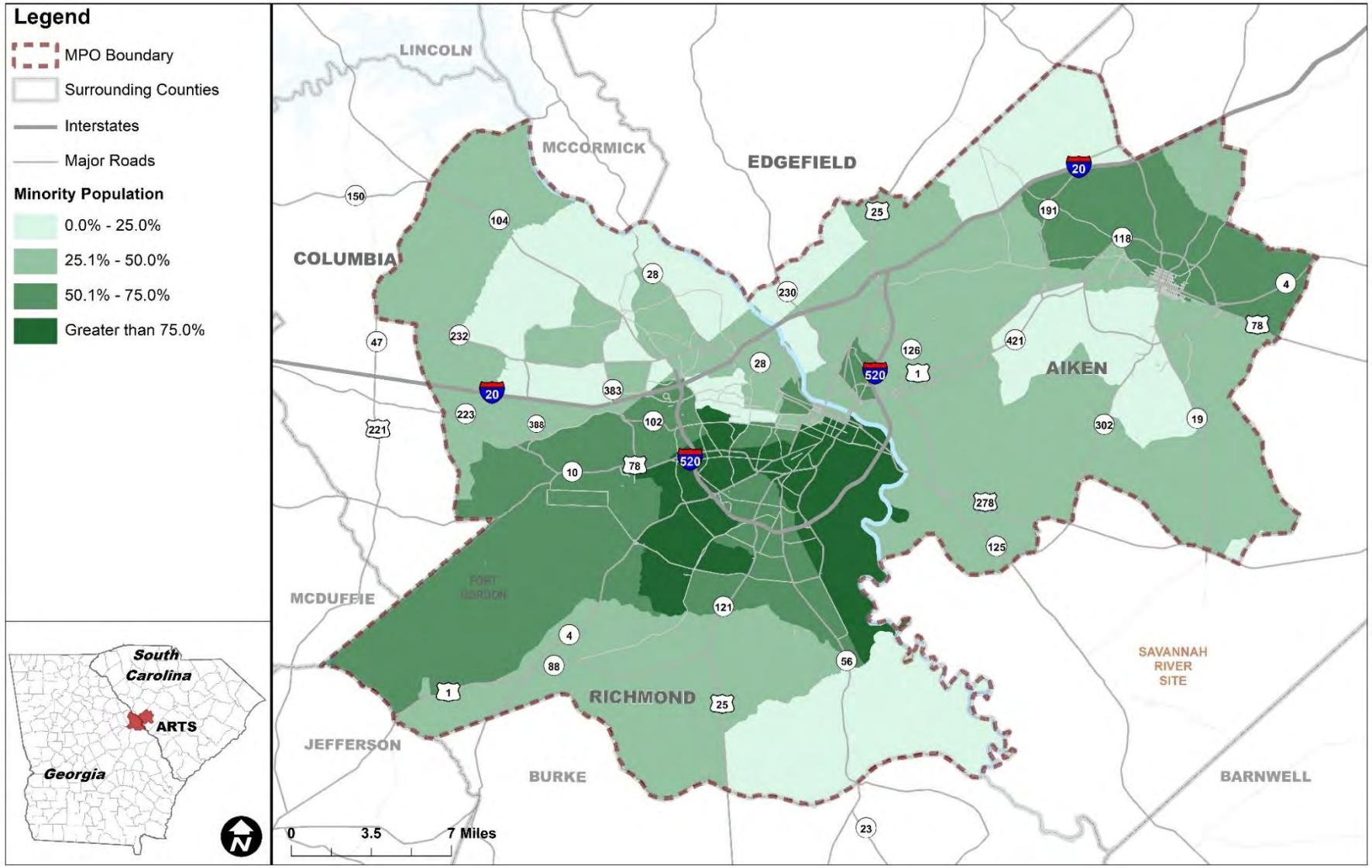
Figure 1-12 summarizes racial composition for each of the counties in the ARTS planning area. Richmond County has the highest proportion of minority communities at nearly 65 percent of the population; the majority of the population in Richmond County is Black or African American (nearly 55 percent). Columbia County has the lowest percentage of minority population, about 30 percent. Aiken County has a comparable share of minority population with about 34 percent.



Source: 2013-2017 ACS 5-Year Estimate

Figure 1-12. Racial Composition by County (2013-2017 ACS 5-Year Estimate)

Figure 1-13 provides further details about geographical distribution of minority populations in the ARTS planning area. In many Richmond County census tracts, minority populations make up 50 percent or more of the population Some census tracts in southeastern parts of Columbia County bordering Richmond County and the Cities of Aiken and North Augusta also have minority populations of 50 percent or more. In some areas in the eastern and central parts of Richmond County, minority populations make up 75 percent or more of the population.

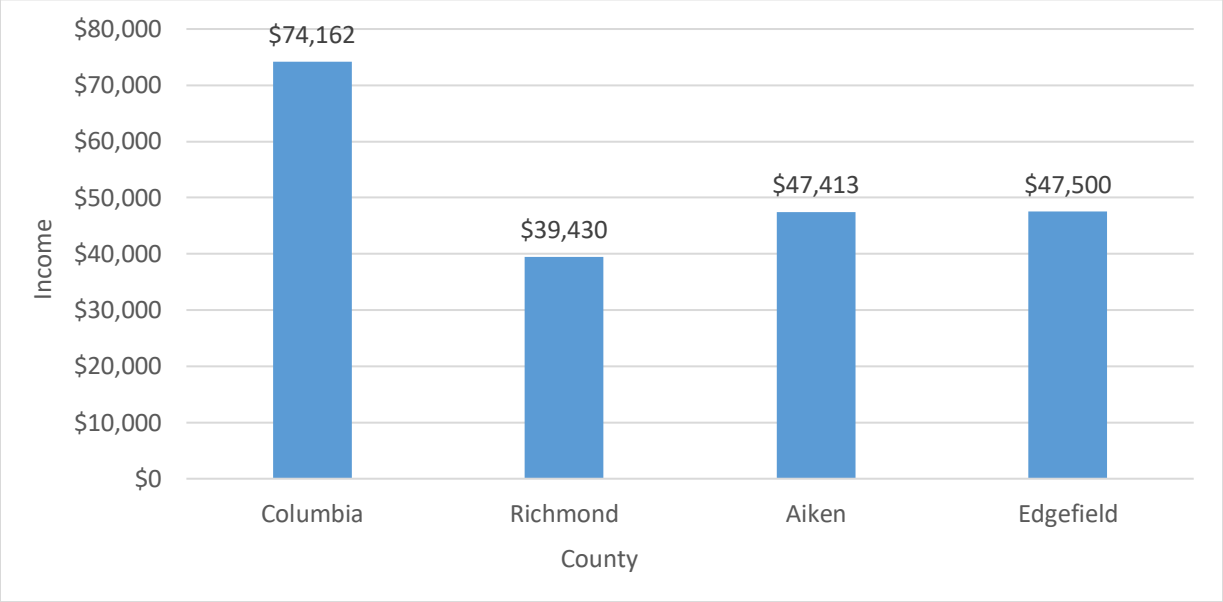


Source: 2013-2017 ACS 5-Year Estimate

Figure 1-13. Percent Minority Population in ARTS Planning Area by Census Tract (2013-2017 ACS 5-Year Estimate)

1.4.3 Income

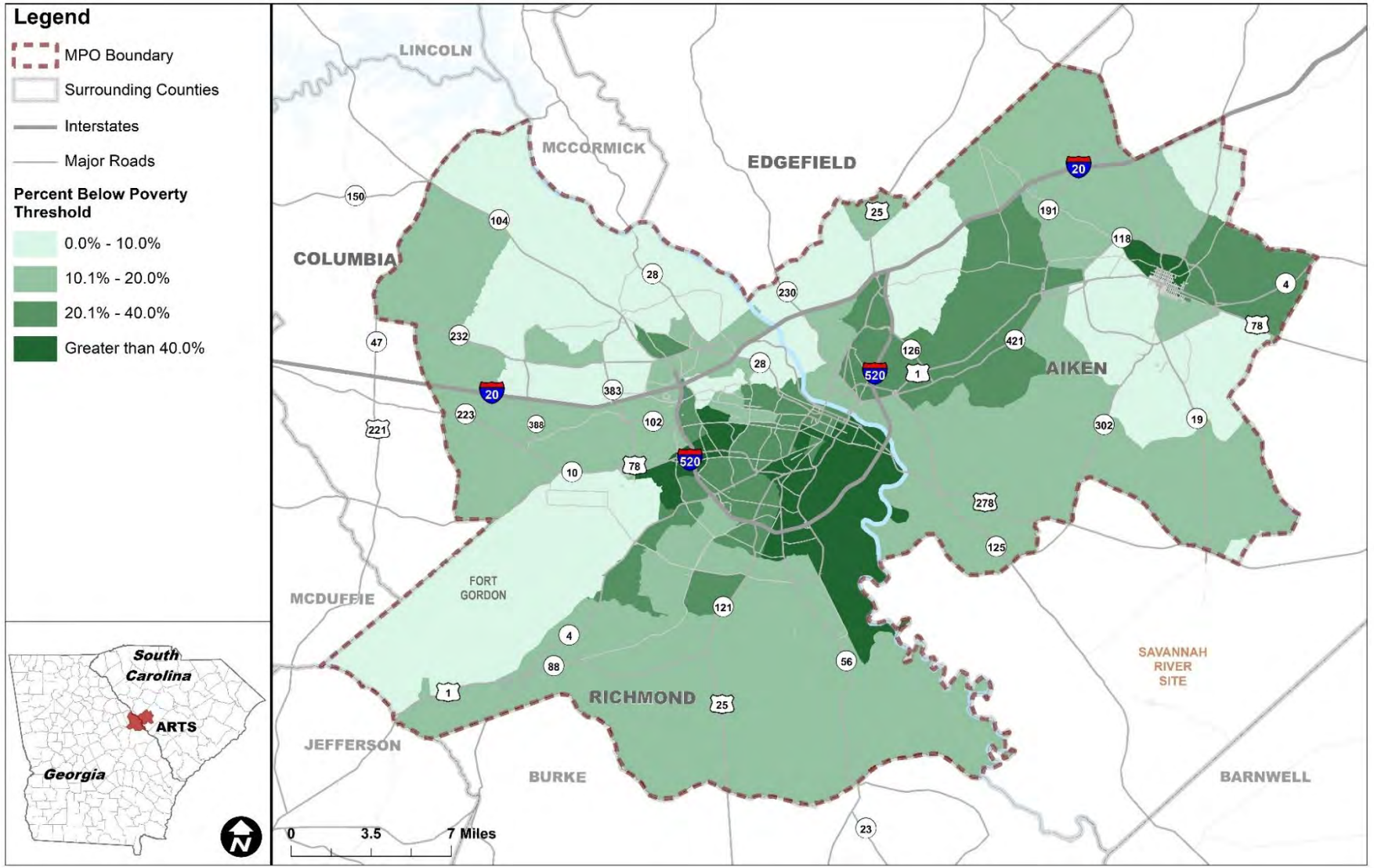
Columbia County has the highest median household income at nearly $74,000, while Richmond County has the lowest at about $39,000 (see **Figure 1-14**). Nearly 30 percent of households in Richmond County have incomes below $30,000, compared to about 13 percent of households in Columbia County. Columbia County has just above 30 percent of households with incomes above $100,000, while about 13 percent of households in Richmond County have incomes at this level.



Source: 2013-2017 ACS 5-Year Estimate

Figure 1-14. Median Income by County (2013-2017 ACS 5-Year Estimate)

ACS provides an estimate of population with household income below poverty line (also known as poverty threshold). **Figure 1-15** illustrates the geographic distribution of individuals below the poverty threshold in the ARTS planning area. Census tracts in the northeastern portion of the City of Augusta, tracts northeast of Fort Gordon, and the City of Aiken have higher concentrations of individuals below the poverty threshold. Nearly 20 percent of the individuals in Richmond County have incomes below the poverty threshold, while large portions of Columbia, Aiken, and Edgefield Counties have populations with 10 percent or fewer individuals below the poverty threshold.

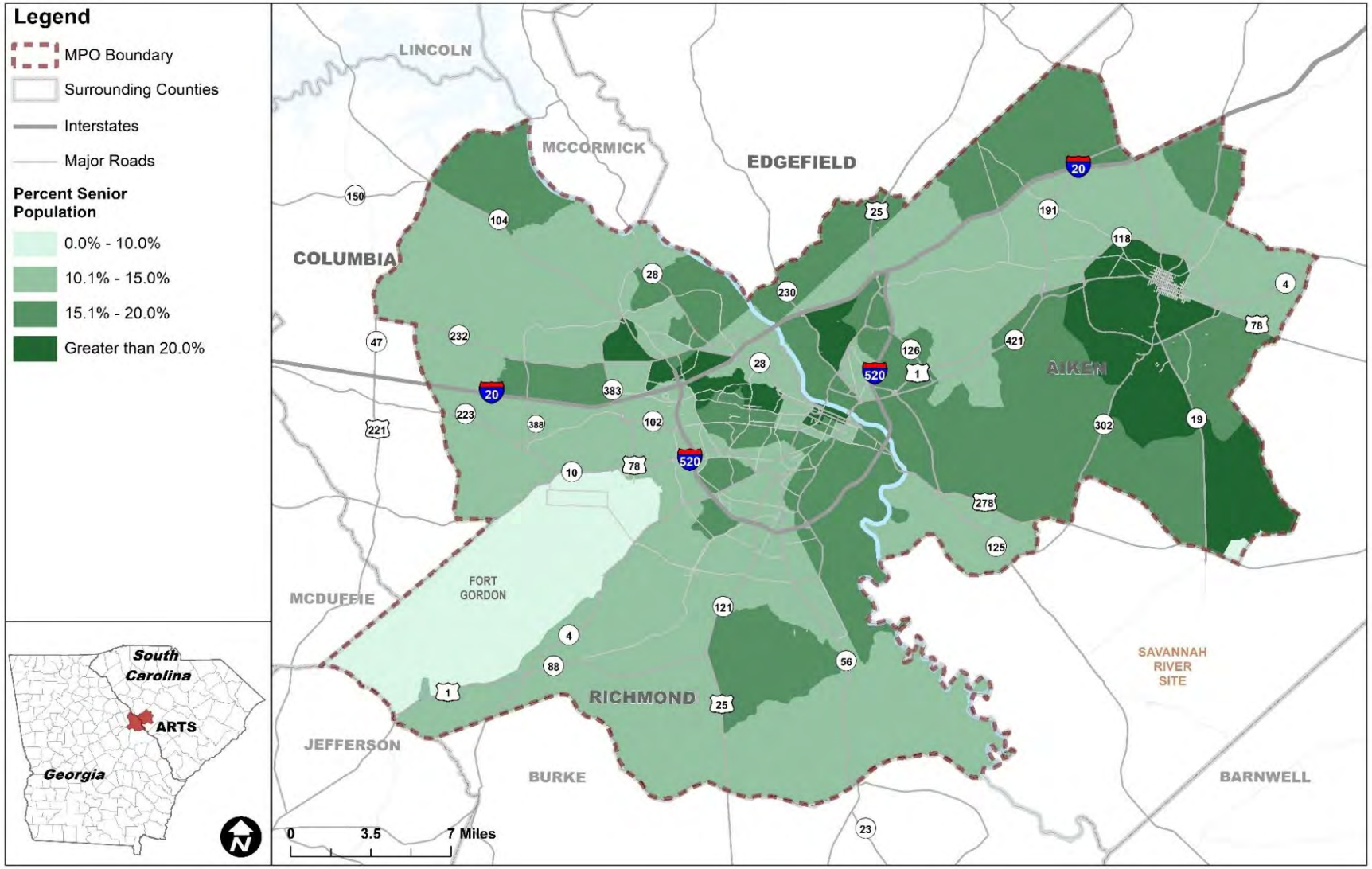


Source: 2013-2017 ACS 5-Year Estimate

Figure 1-15. Population Below Poverty Threshold in ARTS Planning Area by Census Tract (2013-2017 ACS 5-year Estimate)

1.4.4 Senior Population

Figure 1-16 illustrates the geographical distribution of the senior population age 65 or above in the ARTS planning area. Census tracts near the City of Aiken, northern parts of the City of Augusta, and eastern parts of Columbia County have higher shares of senior populations.

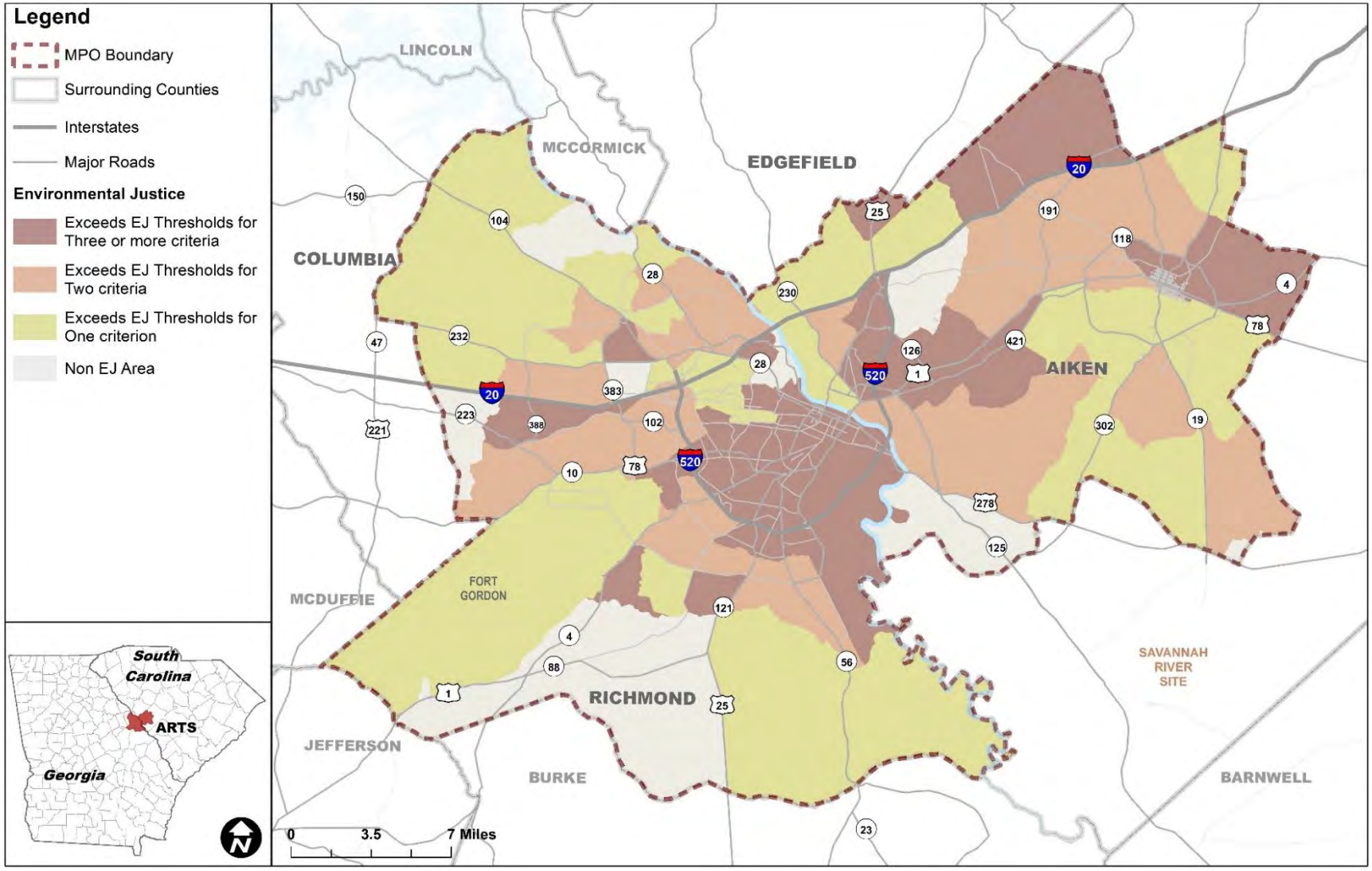


Source: 2013-2017 ACS 5-Year Estimate

Figure 1-16. Percent Senior Population-Age 65 or Above by Census Tract (2013-2017 ACS 5-year Estimate)

1.4.5 Population with Limited English Proficiency

The Census defines the LEP population as individuals greater than 5 years of age and speaking English less than "very well". The LEP population in the ARTS planning area includes people speaking Spanish, Asian, and Indo-European languages. The LEP population needs to be given special attention during the planning process to effectively include all groups within the ARTS planning area. About 2.7 percent of the population in the ARTS planning area was identified as LEP. The planning process for the MTP update has incorporated translations of project-related surveys and key materials into Spanish and Korean languages to widen the reach of public input.



Source: ARTS 2040 LRTP (2015), 2013-2017 ACS 5-Year Estimate

Figure 1-17. Environmental Justice Areas by Census Tract (2013-2017 ACS 5-Year Estimate)

1.5 Land Use

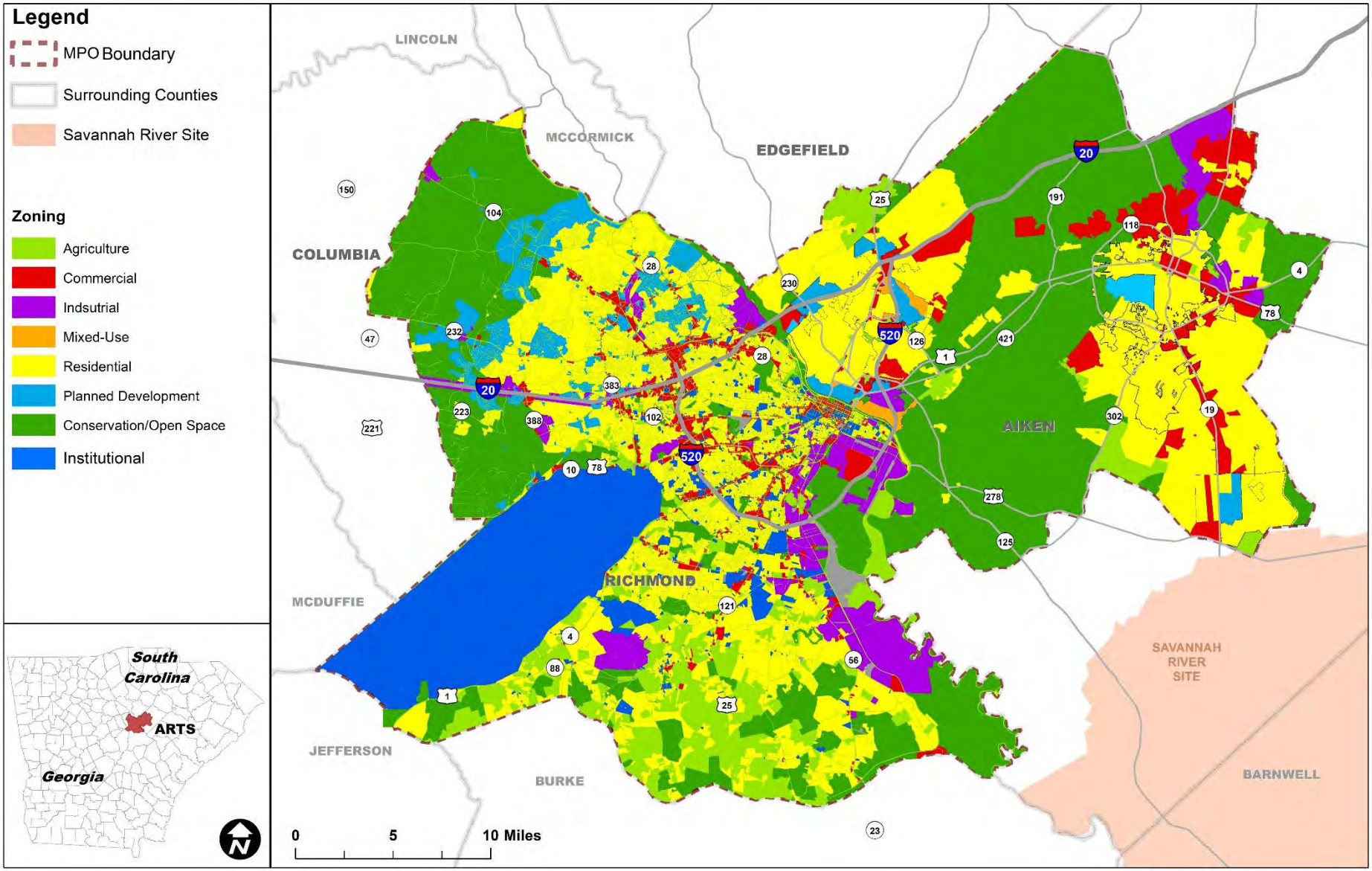
Linking land use and transportation decisions would allow for effective mobility and efficient movement of persons and goods and promote coordinated land use and development patterns. This section summarizes existing and future land uses and expected growth in the ARTS planning area to identify key areas for consideration during this MTP update.

1.5.1 Existing Zoning

Figure 1-18 illustrates the existing development patterns. These land uses are based on each individual county's and city's adopted zoning maps, and categories have been combined to simplify the display and emphasize the primary land use within each zone. There are several limitations to this type of map: zoning is not land use, so there may be clusters of existing land uses not depicted here. In addition, several areas within the ARTS boundary do not have publicly available zoning information, such as Fort Gordon.

There are large swaths of residential land use throughout central Augusta, eastern Columbia County, Edgefield County, and the southeastern portion of Aiken County. Areas that permit multifamily residential development ("Residential MF") are likely denser and may require additional mobility infrastructure including sidewalks, trails and bicycle facilities. Likewise, areas marked for "planned development" may require transportation infrastructure improvements in anticipation of future demand.

Commercial and business development typically cluster along arterial and collector streets, especially near areas of higher residential density. Large employers and industrial land uses are generally located along railroad lines, interstate highways or in the center of the city or county.



Source: ARTS MPO, Aiken County, Columbia County

Figure 1-18. ARTS Planning Area General Zoning Categories (2019)

1.5.2 Future Land Use

Chapter 3 of the Technical Report #2 describes the existing and future land use in the ARTS planning area in further detail. A summary of the future land uses is provided below.

In Columbia County, planned concentrated density in southeastern Columbia County may indicate a need for future capacity improvements and corridor enhancements. Activity centers and town centers may indicate a need for additional mobility infrastructure for vehicles as well as pedestrians and cyclists. The City of Grovetown aims for radial open space corridors, land uses that transition from a dense urban character to a suburban residential character, and mixed use in the north part of the city.

Richmond County's future land use plan calls for commercial, industrial, and office development primarily centered on the interstates, while continuing to strengthen employment centers in the urban center of Augusta. Low density and rural residential land uses are prescribed mostly outside of I-520. These development patterns will determine locations with the greatest need for increased connectivity.

Unincorporated Aiken County's land use goals include preservation of rural and agricultural land. Development should be highly context-sensitive and located primarily in existing urban areas. The City of Aiken, on the other hand, has primarily residential land uses with some commercial clusters and corridors. These locations may require additional connectivity and increased transportation infrastructure capacity.

The City of North Augusta sets forth a future land use plan illustrating large areas of mixed-use development and a primary commercial corridor, indicating that these locations will need additional connectivity and mobility capacity in the future. Abundant residential land use may indicate a large portion of people commuting outside of the area for work and recreation.

The portion of Edgefield County within the ARTS planning area is primarily residential with only a small neighborhood commercial corridor. This may indicate a high demand for transportation infrastructure during commuting hours for the people who live in Edgefield and work elsewhere.

Chapter 1 Key Points

- The Augusta Regional Transportation Study (ARTS) Metropolitan Planning Organization (MPO) is in the final stage of updating its Metropolitan Transportation Plan (MTP) for 2050. Updated every 5 years, the MTP is the official multimodal transportation plan developed and adopted through the metropolitan transportation planning process for the bi-state ARTS planning area: all of Richmond County and the eastern portion of Columbia County in Georgia; and part of Aiken County and a small portion of Edgefield County in South Carolina.
- As of 2017, the ARTS planning area remains the second-most populous MPO in Georgia behind Atlanta and the fourth-most populous MPO in South Carolina behind Columbia, Charleston, and Greenville. Areas in northern Richmond County near Downtown Augusta and those in the eastern part of Columbia County are more densely populated than the rest of the ARTS planning area.
- Significant population and employment growth is expected in Columbia and Aiken Counties. Columbia County is expected to nearly double its population with employment growth of nearly 64 percent by 2050. Aiken is expected to have nearly 48 percent growth in the number of jobs. Meanwhile, growth in Richmond County is projected to stay relatively stable with an increase of about 7 percent in population and 18 percent in employment.

2 PUBLIC INVOLVEMENT

This chapter describes stakeholder engagement and outreach strategies implemented in support of the Augusta Regional Transportation Study 2050 Metropolitan Transportation Plan Update (ARTS MTP or 2050 MTP). Public participation is a critical component of the continuing, cooperative and comprehensive Metropolitan Transportation Planning process as well as community ownership of the 2050 MTP. This is the public's plan, so outputs of the final 2050 MTP process reflect robust engagement with as many population groups as possible. In particular, public outreach efforts ensure that traditionally under-represented population groups are included in the planning process.

Although public involvement is a mandatory component of the MTP update process, the ARTS MPO strived to go beyond what is required to seek true engagement with the community about the region's transportation future. Multi-pronged strategies gave constituents ample opportunity to contribute as well as options for *how* to provide input. Members of the ARTS community participated through digital media or through pen-and-paper feedback forms, and materials were provided in multiple languages. The ARTS MPO utilized more traditional public meeting formats, but it also engaged with the public at cultural and arts festivals, at meetings for special interest or community groups, through TV segments, radio podcasts and social media, and via email outreach.

The MTP Update reached out to stakeholders and the public throughout the course of the planning process (as shown in Figure 1-3). The MTP Update remained visible and accessible to the public through the project webpage, community-based outreach, and updates on social media. At key milestones in the MTP update process, including at the initiation of data collection and the development of goals, objectives, and measures of effectiveness, the public were consulted for input into the decision-making process.

This chapter contains three major sections: **Section 2.1** presents the plans and goals for the public involvement process. **Section 2.2** discusses the process and results of the first round of public outreach, and **Section 2.3** discusses the process and results from stakeholder engagement, the second round of public outreach, and the third public involvement presentation. More detailed discussion including outreach materials used in promoting engagement activities and during actual public meetings and other engagement events is included in **Technical Report #1**.

2.1 Public Involvement Process

Planned public outreach activities followed the recommendations in the ARTS Public Participation Plan Update, adopted December 2017. The ARTS Public Participation Plan includes five components, which formed the basis for the MTP outreach efforts.

Public engagement took place throughout the MTP process, and concentrated public coordination occurred during two education and outreach phases, presented in detail in **Technical Report #1**. The first phase took place during existing conditions data collection and encompassed an initial set of public meetings and outreach opportunities.

The purpose of these preliminary engagement efforts was to outline the MTP process for the public and gain insight into the public's thoughts on transportation options and desired goals for the draft MTP.

The second phase of public involvement took place alongside project prioritization. The purpose of this later outreach effort was to maintain robust engagement with stakeholders and partners, gather more detailed information about potential projects, and seek feedback on proposed recommendations.

The primary goals of the public involvement for this project are:

- To inform and involve the public throughout the MTP update process.
- To consult with local officials and staff to gather their ideas for transportation solutions.
- To consult with community stakeholders and gather their ideas for issue identification and the creation of solutions.

In delivering a robust public involvement process, several strategies were employed to generate interest and active participation, including:

- Branding strategy with project logo and slogan "Future Mobility 2050"
- A series of public workshop meetings held in convenient locations throughout the ARTS area
- MetroQuest Surveys, interactive, visual and online
- Project website with the domain name FutureMobility2050.com
- Social media including Facebook and Twitter

Please see **Technical Report #1 - Appendix 1. Public Engagement Materials** for specific descriptions and samples of each of these participation strategies.

2.2 First Round of Public Engagement

The first round of public engagement was a general outreach effort to make the community aware of, excited for, and thinking about the current and upcoming transportation planning process. The primary objective of the first round of engagement was to educate people about the MTP document and why it is important to the region's transportation future. A series of public meetings took place throughout the ARTS region, and there were additional opportunities to learn and get involved digitally.

Public engagement opportunities were extensively advertised in local print and visual media sources. The project also has a Facebook page with general information and links to specific event pages for each public engagement opportunity. Partner counties and cities linked to these events on their own social media pages. A print flyer appeared on the project website and in local newspapers, and the same flyer appeared as a public announcement on the Augusta-Richmond Municipal Building internal TV network.

2.2.1 Public Meetings

The first round of public engagement workshops took place from Tuesday, October 8 to Thursday, October 10, 2019. The Team held two concurrent meetings from 5:30 pm to 8:00 pm on both October 8 and October 10 including two in Richmond County, one in Columbia County, and one in Aiken County. The four public meetings had comparable

set ups and agendas. Each venue had a sign-in table at the entrance of the room, seating and a screen for a brief presentation, and several stations around the room with interactive display boards. Each location had telephone jacks to allow call-in participation and were along public transit routes to the extent possible.

Figure 2-1. Photos from the First Round of Public Meetings

Participants indicated their visions for the ARTS planning area's transportation future using sticky notes. The most common visions were for more and improved greenways, transit routes, bike lanes, and sidewalks. People also noted the importance of reducing vehicle congestion and conflict with at-grade trains. Meeting attendees submitted written comments about what they would like to see in the region. These comments were similar to those that appeared on the visioning board: people wrote about the importance of bicycle infrastructure and greenway implementation. Additional topics included a need to consider jobs and development when thinking about transportation needs.

2.2.2 Festivals

As a kick-off event for the first round of public involvement, the Team set up a booth at the Arts in the Heart of Augusta Festival on September 20-22, 2019 (see **Figure 2-2**). Arts in the Heart is an annual event that celebrates creativity and culture. With food vendors from over 20 countries, a juried arts and crafts market, and ongoing performances on four stages, the Festival regularly draws thousands of visitors. Over the course of the two-and-a-half-day event, over 500 festival attendees visited the ARTS MPO booth to learn about the MTP planning process. Visitors filled out digital and paper versions of the MetroQuest survey, and to date this event remains the single biggest driver of survey responses: over 360 people completed the survey.

Figure 2-2. Outreach at the Arts in the Heart of Augusta Festival

2.2.3 Speaker's Bureaus

The Team attended various special interest meetings and local events in Fall 2019 to conduct initial outreach and educate the community about the MTP process and its importance:

- Senior Explosion – September 25
- Age Friendly Augusta – October 10
- Latin Family Fiesta – October 12
- GDOT Intersection Control Evaluation Workshop – October 22
- Breckenridge Homeowners Association – October 23
- Richmond County Neighborhood Association Alliance – November 2
- Aiken Rotary – November 4

2.2.4 MetroQuest Survey

During the first round of public engagement meetings, festivals and events, residents had the opportunity to talk to the project team and share their feedback through a paper and online survey. The project team used MetroQuest, an online survey tool to administer the survey (see **Figure 2-3**). The survey was available in English, Spanish, and Korean. A paper survey was developed to be used at events that the project team hosted and attended. The paper surveys were also available in English, Spanish, and Korean. The survey was open from September 20th through November 1st, 2019, and a total of 1,010 surveys were collected during the six-week comment period.

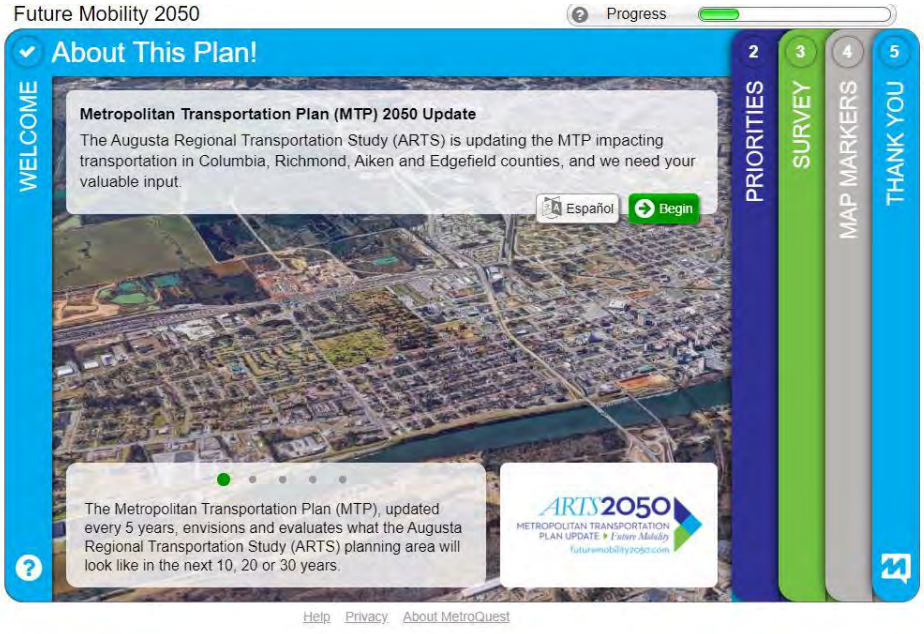


Figure 2-3. MetroQuest Survey Welcome Page

2.2.5 Social Media Outreach

To increase awareness of the upcoming public meetings, the Team purchased advertising space on Facebook from October 1 to October 11. The advertisements were programmed to show up in someone's Facebook feed if they were within a certain geography of where each public meeting would be taking place.

2.3 Second Round of Public Engagement

A second round of public engagement sought more focused input on project types and locations. This process took place after initial data collection and inventory of existing conditions. Engagement tools included the following:

- A stakeholder meeting was conducted on February 12, 2020 to gather valuable local inputs from the stakeholders in the ARTS planning area.
- The second round of **public meetings** was conducted in a workshop setting to allow attendees the opportunity to interact with, identify, and discuss project-related issues with staff and other participants. Engaging, easy-to-understand materials and exercises were developed and available at the public meetings to provide attendees with knowledge about the MTP Update and encourage active participation in the process.
- The Team continued to use **social media channels** such as Facebook and the project website to advertise meetings, post materials, promote the project survey, and increase awareness about the MTP process.

2.3.1 Stakeholder Involvement

The stakeholder outreach process included key policy and decision-making groups operating within the ARTS area. These include, but are not limited to: city, county, and regional governing bodies; roadway, transit, rail, and aviation agencies; local transportation advocacy groups; community and neighborhood associations; tourism boards, chambers of commerce, and developers; and boards of education and local universities.

The ARTS MPO has identified a preliminary group of stakeholders based on previous 2040 LRTP outreach efforts and ongoing collaboration within local communities. Additional groups were included based on input from partner counties and cities within the ARTS planning area including local media outlets, active community and advocacy groups, and municipal departments interested in the region's transportation future. Further, members of this committee served as champions for the MTP Update process, informing their constituents about the effort and opportunities to get involved. They also provided the Team with useful information on effective ways to engage the public. The momentum generated by this committee can also be critical for the future implementation of the plan.

A stakeholder outreach meeting took place on February 12, 2020 at the beginning of the second public involvement period. This meeting, which was publicly advertised and had a call-in option, provided the study team with insight into stakeholder transportation needs, environmental and cultural concerns, and other issues relevant to the study. After a brief staff presentation on the latest status of the MTP update, stakeholders were asked to provide feedback at three interactive stations including funding allocation, goals ranking, and a draft Universe of Projects.

Stakeholder feedback indicated a desire for less funding for widening projects and more funding for operational, median, and corridor improvements as well as bicycle and pedestrian improvements. Highest ranking priorities were given to mobility, accessibility, and connectivity as well as economic vitality. These outputs dictated the priorities that were discussed with the broader public, and ultimately directed the evaluation framework that was applied during the plan's development.

2.3.2 Public Meetings

During the second round of public engagement, seven workshops took place during 4pm – 7pm from Monday, March 9 to Thursday, March 12, 2020. On March 10, 11 and 12, two meetings were held simultaneously. Overall, there were two meetings in Richmond County, two meetings in Columbia County, two meetings in Aiken County and one meeting in Edgefield County.

Once attendees signed in and were settled, the meetings began with a brief presentation on the MTP planning process, progress to date, and the timeline moving forward. The remainder of the meeting allowed attendees to interact with proposed project lists and provide feedback. This feedback shaped the universe of recommendations included in the final MTP document.


Figure 2-4. Photos from the Second Round of Public Meetings

2.3.3 Media Outreach

Prior to the second round of public meetings, ARTS staff and the project Team advertised public involvement opportunities through a variety of media strategies including United States Postal Service's Every Door Direct Mail®, Local News Channel 6, a local podcast Makin' A Difference in a segment called "Transportation Talks." These measures functioned as an advertisement for upcoming public meetings and also promoted the second MetroQuest Survey, discussed in **Section 2.3.4** of this report.

2.3.4 MetroQuest Survey

During the second round of public engagement, the project team used a second MetroQuest survey to gather additional input (see **Figure 2-5**). The Team developed a new MetroQuest survey with project-specific questions. The interactive survey allowed participants to make decisions about funding and project prioritization.

The survey was open from Monday, March 9th through Monday, March 30th, 2020, and a total of 200 surveys were collected during the three-week comment period. All survey responses were collected via the online survey. A paper survey was developed to be used at events and roadshows that the project team hosted, attended and planned to host/attend. The paper surveys were also available in English, Spanish, and Korean.

Throughout the month of March 2020, the Team planned to go into the community with paper and digital versions of the MetroQuest survey along with the funding allocation and priority ranking activities from the second round of public meetings. ARTS staff were going to engage members of the public at area libraries and transit stations, local events, and community group meetings. Unfortunately, COVID-19 (The 2019 Novel Coronavirus Disease) made it unsafe and impractical to convene in large groups, and the supplemental outreach efforts, initially planned throughout the ARTS planning area and in an effort to engage traditionally underrepresented populations, were cancelled. Despite the project Team's efforts to promote the survey via the project website and social media, the Team acknowledges that in-person engagement likely would have solicited more responses and a more diverse set of respondents.

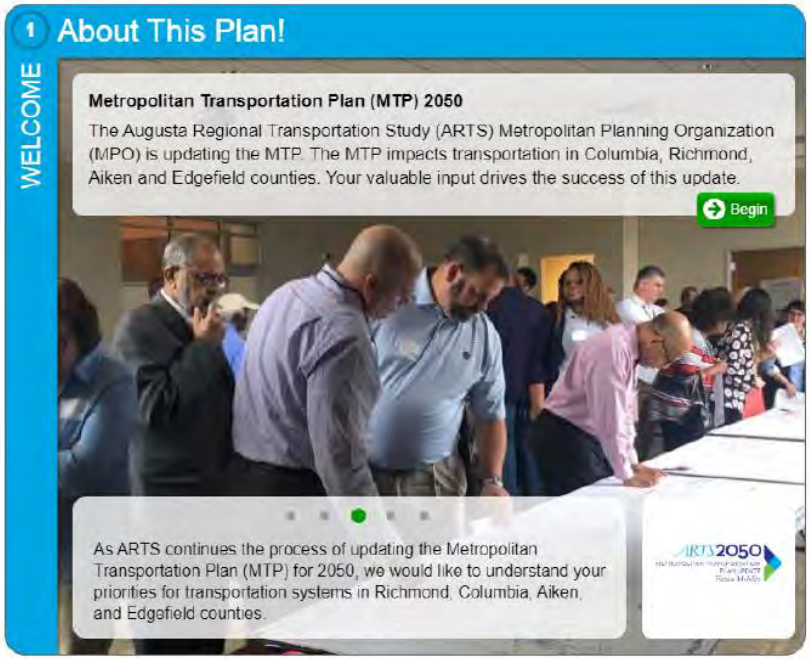


Figure 2-5. Second MetroQuest Survey Welcome Page

The first survey screen asked participants to rank the eight transportation goals from the 2040 LRTP. The highest percentage of respondents chose "Safety and Security" as their highest priority. An analysis of average rankings of the seven priority options shows that respondents rated "Safety and Security" and "Reduce Traffic Congestion" as number one and number two priorities, respectively.

The second survey screen asked participants to distribute funds to the different project categories. Each participant was directed to drag coins to invest in Widening/Capacity, Safety/Operations, Bridges/Maintenance, Public Transit, and Bicycle/Pedestrian. Each user had a total of 100 ARTS dollars to distribute based on personal preference. The MetroQuest respondents generally wanted far less investment in road widenings and new capacity and more investment in all other project categories.

The third survey screen featured an interactive map where participants could add markers in locations that needed improvements within the study area. Participants could add comments to each marker if they have specific concern or need. Participants chose from six types of improvement markers: widening, safety, maintenance, public transit, bike/pedestrian, and other. Over the course of the survey response period, respondents placed 679 markers on the map. Locations needing bike and/or pedestrian improvements received the highest number of responses (153).

For a complete report of the MetroQuest survey responses, see **Technical Report #1 - Appendix 3. Second MetroQuest Survey Results: Full Report.**

2.3.5 Social Media Outreach

The Team continued to use social media channels such as Facebook and the project website to advertise meetings, post materials, promote the project survey, and increase awareness about the MTP process. The Team purchased advertising space on Facebook from Monday, March 2 to Thursday, March 12 of 2020. The advertisements were programmed to show up in someone's Facebook feed if they were within a certain geography of where each public meeting would be taking place.

Chapter 2 Key Points

- Public participation is a critical component of the continuing, cooperative and comprehensive MTP process as well as community ownership of the 2050 MTP. The MTP Update reached out to stakeholders and the public throughout the course of the planning process and remained visible and accessible to the public through the project webpage, community-based outreach, and updates on social media.
- The first round of engagement, conducted between late September and early November of 2019, included outreach at the 2019 Arts in the Heart of Augusta Festival, a series of public meetings, outreach at various special interest meetings and local events, the MetroQuest Online Survey (Phase 1), paper survey, and social media outreach to educate people about the MTP document and why it is important to the region's transportation future.
- A stakeholder meeting, held on February 12, 2020, provided the study team with insight into stakeholder transportation needs, environmental and cultural concerns, and other issues relevant to the study.
- The second round of public meetings was conducted in March 2020 as a workshop setting to allow attendees the opportunity to interact with, identify, and discuss project-related issues with staff and other participants. This round of outreach also included a variety of media strategies through USPS mail, local TV news, and a podcast interview; the MetroQuest Online Survey (Phase 2); and social media outreach.
- A one month (30 days) public review period of draft MTP document in July/August 2020 was implemented to listen to and reflect public feedback before the adoption of the final MTP.

3 2050 MTP GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

This chapter first defines what performance based planning means for the ARTS MPO. This chapter then refines and identifies the 2050 MTP Goals, Objectives, and Measures of Effectiveness (GOMs) based on the previous 2040 Long Range Transportation Plan (LRTP), latest federal requirements and statewide guidelines, and public and stakeholder input.

While similar, goals, objectives, and measures of effectiveness are distinct concepts. A **goal** is general, it can be abstract, and is hard to measure; it generally addresses a unique theme. An **objective** is a measurable and precise step that can be taken to meet a goal. There can be multiple objectives within a goal. A **measure of effectiveness** quantitatively assesses the degree to which the stated objectives and goals have been achieved.

3.1 Performance Based Planning

Performance-based planning refers to the application of performance management principles within the planning processes to achieve desired performance outcomes for the region's multimodal transportation system. In addition to the MAP-21 requirements, Federal Highway Administration (FHWA)'s Performance-Based Planning and Programming (PBPP) Guidebook (2013) developed a framework for a PBPP process in order to help practitioners advance performance-based approaches in their own planning and programming activities. **Figure 3-1** illustrates the elements involved in ARTS MPO's performance-based planning process, and how they relate to some of the MPO's existing plans and activities. The cyclical PBPP process includes three phases:

- **Plan and Strategize**: Set the vision, goals, objectives, and performance measures, and identify and acquire necessary data. Then identify trends and targets that will guide ARTS MPO's decision making.
- **Program**: Identify strategies and analyze alternatives to develop investment priorities and allocate ARTS MPO discretionary funds, specifically in the MTP, TIP, and UPWP.
- **Monitor and Evaluate**: Review and report on the outcomes of ARTS investment decisions with respect to performance measures and targets and determine what framework or strategy adjustments are needed.

With the first step of the performance based planning process already defined, the following sections describe setting the vision, goals, objectives, and project evaluation criteria for the MTP update and identify federally mandated performance measures and targets beyond the MTP. In summary, MTP goals and objectives were determined based on national planning goals, and the project evaluation criteria were developed to evaluate progress toward or away from achieving each goal. By implementing prioritized MTP projects, the ARTS MPO should be moving in the right direction toward meeting federally mandated statewide/MPO targets. As part of the performance based planning, the MPO will closely monitor and keep track of the MTP performance with regard to meeting short-term statewide/MPO targets utilizing the big data sources (such as NPMRDS and HERE). A periodical update of a Congestion Management Process (CMP) and its strategies is one of the key activities during the

monitoring and evaluation phase to tackle congestion while the area continues to grow in the future. The latest CMP for the ARTS MPO was adopted and updated in 2018. Depending on the performance evaluation, the MTP goals, objectives, performance measures, and priorities will be updated to continue to meet short/long term targets. It is important to note that PBPP is a continuous process that can be accomplished over several planning cycles.

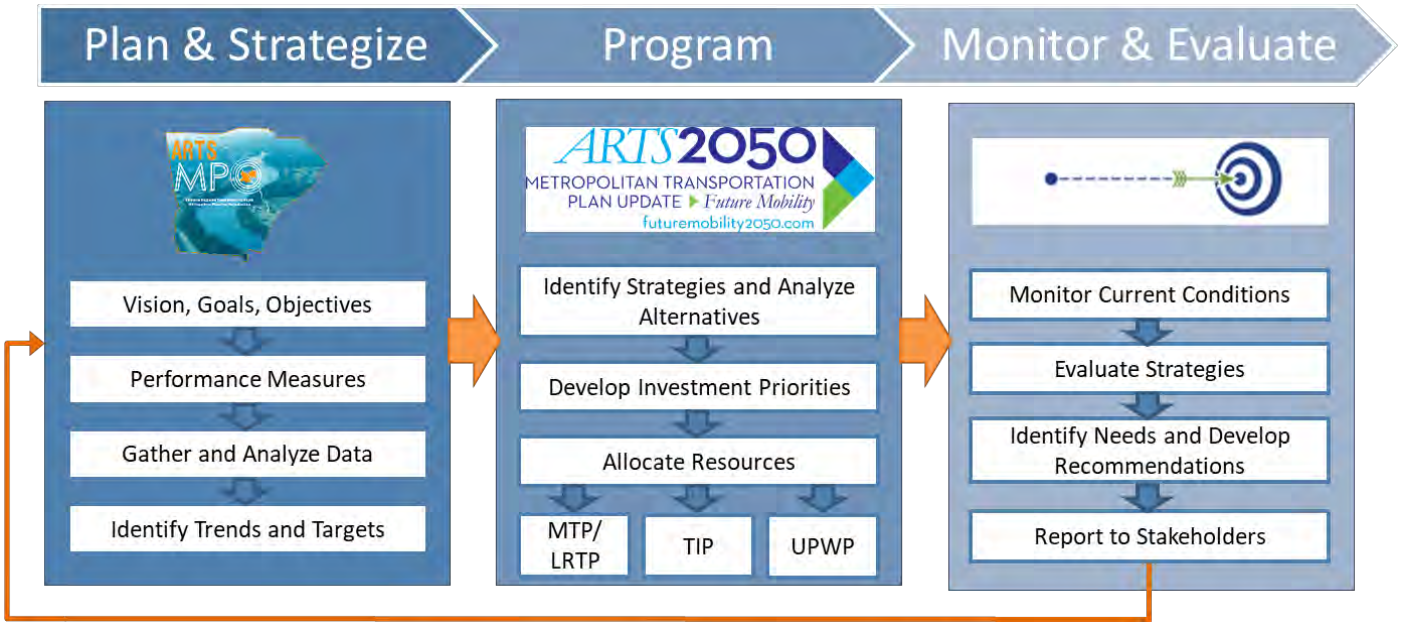


Figure 3-1. Proposed ARTS Performance Based Planning Framework

In addition to the Reference to the most recent CMP would suffice. Recommend referring to the periodical update of the Congestion Management Plan (CMP) and its strategies to tackle congestion while the area continues to grow in the future.

3.2 National Guidance & Historical Context

National guidance on goals and objectives is drawn from the Fixing America's Surface Transportation Act (FAST Act), the federal transportation bill signed into law on December 4, 2015. The FAST Act expanded the scope of metropolitan planning processes to include transportation system resilience and reliability, stormwater impacts, and enhancing travel/tourism. Goals from the FAST Act, listed below, served as a guiding framework during the 2050 MTP Goal Setting process.

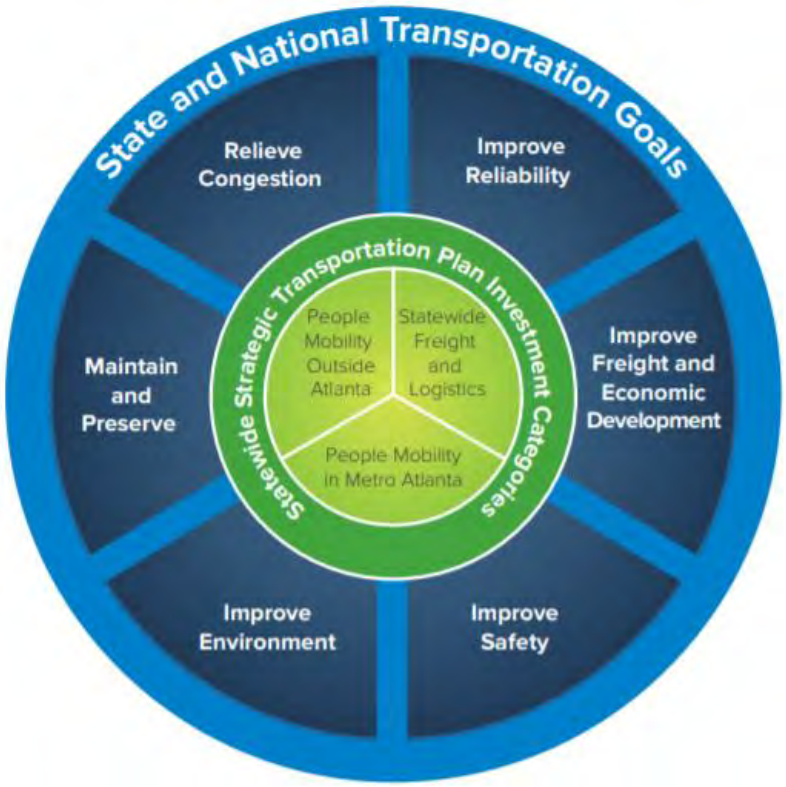
- Safety - To achieve a significant reduction in traffic fatalities and serious injuries on public roads;
- Infrastructure Condition - To maintain the highway infrastructure asset system in a state of good repair;
- Congestion Reduction - To achieve a significant reduction in congestion on the National Highway System (NHS);
- System Reliability - To improve the efficiency of the surface transportation system;

- Freight Movement and Economic Vitality - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development;
- Environmental Sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment including impacts to air quality; and,
- Reduced Project Delivery Delays - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

The ARTS MPO stated that goals would transition from the 2012 federal guidance used in the 2040 LRTP to the guidance used in this 2050MTP.

3.3 Statewide Goals

Goals from the Georgia and South Carolina Departments of Transportation (GDOT and SCDOT) also served as a reference in the goal setting process for the 2050 MTP. **Figure 3-2** and **Table 3-1** illustrate GDOT and SCDOT's statewide goals, respectively. Goals from both DOTs offer comparable themes on traffic movement, safety, maintaining the system, protecting the environment, and supporting economic development. While the goals are similar, GDOT specifically highlights freight movement as one of its goals while SCDOT emphasizes equity as a separate goal.



Source: 2040 GDOT Statewide Transportation Plan (2016)

Figure 3-2. Statewide Goals - GDOT

Table 3-1. Statewide Goals - SCDOT

Goal	Description
Mobility and System Reliability	Provide surface transportation infrastructure and services that will advance the efficient and reliable movement of people and goods throughout the state.
Safety and Security	Improve the safety and security of the transportation system by implementing transportation improvements that reduce fatalities and serious injuries as well as enabling effective emergency management operations.
Infrastructure Condition	Maintain surface transportation infrastructure assets in a state of good repair.
Economic and Community Vitality	Provide an efficient and effective interconnected transportation system that is coordinated with state and local planning efforts to support thriving communities and South Carolina's economic competitiveness in global markets.
Environment	Partner to sustain South Carolina's natural and cultural resources by minimizing and mitigating the impacts of state transportation improvements.
Equity	Manage a transportation system that recognizes the diversity of the state and strives to accommodate the mobility needs of all of South Carolina's citizens.

Source: 2040 SCDOT Statewide Multimodal Transportation Plan (2014)

3.4 Federally Mandated Performance Measures & Targets

As required by the current federal transportation legislation, Fixing America's Surface Transportation Act (FAST Act), approved in 2015, MPO's must use a coordinated performance-based planning approach in their MTPs. Each state has established statewide targets for the federally mandated performance measures, PM1 – Highway Safety, PM2 – Pavement and Bridge Condition, and PM3 Freight Movement/Congestion Mitigation Air Quality (CMAQ). Federal regulations also require MPOs to develop a Transit Asset Management Plan (TAM) with the establishment of public transit performance measures and targets.

The following are the FHWA-required performance measures and the associated targets set by Georgia and South Carolina. This section also includes the FTA-required TAM performance measures and targets. The ARTS MPO chose to adopt these targets set by GDOT, SCDOT, and local transit agencies.

3.4.1 Georgia's Statewide Performance Measure Targets

This section presents the Georgia Statewide Performance Measure targets for highway safety (**Table 3-2**), pavement and bridges (**Table 3-3**), and freight movement/CMAQ (**Table 3-4**).

Table 3-2. Georgia Statewide Performance Measure Targets for PM1 - Highway Safety (Maximum)

Performance Measures	Georgia Statewide Performance (5-Year Rolling Average 2012-2016)	Georgia Statewide Performance (5-Year Rolling Average 2013-2017)	2019 Georgia Statewide Performance Target (5-Year Rolling Average 2015-2019)
Number of Fatalities	≤1,305.2	≤1376.6	≤1,655.0
Rate of Fatalities per 100 Million Vehicle Miles Traveled	≤1.148	≤1.172	≤1.310
Number of Serious Injuries	≤17,404.6	≤23,126.8	≤24,324.0
Rate of Serious Injuries per 100 Million Vehicle Miles Traveled	≤15.348	≤19.756	≤18.900
Number of Combined Non-Motorized Fatalities and Non-Motorized Serious Injuries	≤1,138.0	≤978.4	≤1,126.0

Source: GDOT FY 2018-2021 Statewide Transportation Improvement Program System Performance Report (2018)

Table 3-3. Georgia Statewide Performance Measure Targets for PM2 - Pavement and Bridge Condition

Performance Measures	Georgia Performance (Baseline)	Georgia 2-Year Target (2019)	Georgia 4-Year Target (2021)
Percent of Interstate Pavements in Good Condition	60%	N/A	≥50%
Percent of Interstate Pavements in Poor Condition	4%	N/A	≤5%
Percent of Non-Interstate NHS Pavements in Good Condition	44%	≥40%	≥40%
Percent of Non-Interstate NHS Pavements in Poor Condition	10%	≤12%	≤12%
Percent of NHS Bridges (by Deck Area) in Good Condition	49.1%	≥60%	≥60%
Percent of NHS Bridges (by Deck Area) in Poor Condition	1.35%	≤10%	≤10%

Source: GDOT FY 2018-2021 Statewide Transportation Improvement Program System Performance Report (2018)

Table 3-4. Georgia Statewide Performance Measure Targets for PM3 - Freight Movement/CMAQ

Performance Measures	Georgia Performance (Baseline)	Georgia 2-Year Target (2019)	Georgia 4-Year Target (2021)
Percent of Person-Miles on the Interstate System that are Reliable	80.4%	≥73.0%	≥67%
Percent of Person-Miles on the Non-Interstate NHS that are Reliable	84.9%	N/A	≥81.0%
Truck Travel Time Reliability Index	1.44	≥1.66	≥1.78
Annual Hours of Peak Hour Excessive Delay per Capita (PHED)	20.4 Hours	N/A	≤24.6 Hours
Percent Non-Single Occupancy Vehicle Travel	22.1%	≥22.1%	≥22.1%
CMAQ VOC Cumulative Emission Reductions	839.000 kg/day	≥205.700 kg/day	≥386.600 kg/day
CMAQ NOx Cumulative Emission Reductions	1,594.000 kg/day	≥563.300 kg/day	≥1,085.000 kg/day

Source: GDOT FY 2018-2021 Statewide Transportation Improvement Program System Performance Report (2018)

3.4.2 South Carolina's Statewide Performance Measure Targets

This section presents the South Carolina Performance Measure targets for highway safety (**Table 3-5**), pavement and bridges (**Table 3-6**), and freight movement/CMAQ (**Table 3-7**).

Table 3-5. South Carolina Statewide Performance Measure Targets for PM1 – Highway Safety

Measure	2016-2020 Targets
Number of Fatalities	≤1,011
Fatality Rate	≤1.82
Number of Serious Injuries	≤2,781
Serious Injury Rate	≤4.98
Number of Non-Motorized Fatalities and Serious Injuries	≤380

Source: FAST Act Safety Performance Narrative (2015)

Table 3-6. South Carolina Statewide Performance Measure Targets for PM2 - Pavement and Bridge Condition

Measure	2-Year Target	4-Year Target
Percent of Pavements of the Interstate System in Good Condition	N/A	≥71.0%
Percent of Pavements of the Interstate System in Poor Condition	N/A	≤3.0%
Percent of Pavements of the Non-Interstate NHS in Good Condition	≥14.9%	≥21.1%
Percent of Pavements of the Non-Interstate NHS in Poor Condition	≤4.3%	≤4.6%
Percent of NHS Bridges in Good Condition	≥42.2%	≥42.7%
Percent of NHS Bridges in Poor Condition	≤4.0%	≤6.0%

Source: FAST Act Safety Performance Narrative (2015)

Table 3-7. South Carolina Statewide Performance Measure Targets for PM3 - Freight Movement/CMAQ

Measure	2-Year Target	4-Year Target
Interstate: Percent of Person-Miles Traveled on the Interstate that are Reliable	≥91%	≥90%
Non-Interstate: Percent of Person-Miles Traveled on the Non-Interstate NHS that are Reliable	N/A	≥81%

Source: FAST Act Safety Performance Narrative (2015)

3.4.3 Transit Asset Management (TAM) Measures and Targets

Federal regulations require that MPOs establish four-year State of Good Repair (SGR) transit performance targets specific to the MPO's planning area. The selection of such performance targets comes through coordination with public transit agencies serving the existing MPO area. In September of 2019, ARTS MPO adopted the following Augusta Transit performance targets as selected from the State of Georgia Group Transit Asset Management Plan and the Lower Savannah Council of Governments (LSCOG) performance targets developed on behalf of the Best Friend Express of Aiken County. The set of TAM targets, shown in **Table 3-8**, are being incorporated into this MTP update.

Table 3-8. Georgia and South Carolina TAM Performance Targets

Asset Category/Class	Performance Measures	Georgia's Augusta Transit FY 19-22 Targets	South Carolina's LSCOG FY 17-21 Targets
Rolling Stock	Age - % of revenue vehicles within a particular asset class that have met or exceed their Useful Life Benchmark (ULB)	Bus: ≥15% Cutaway: ≥10%	14 passenger Cutaway: ≥20%*
Equipment	Age - % of non-revenue vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Automobile: ≥55% Trucks and other Rubber Tire Vehicle: ≥55%	N/A
Facilities	Condition - % of facilities with a condition rating below 3.0 on the FTA TERM Scale.	Administration: ≤25% Maintenance: ≤25% Passenger/Parking Facilities: ≤10%	Administration: 0%

* LSCOG has a fleet of 5 revenue vehicles; therefore, only one vehicle would represent 20%.

3.5 Community Vision

Community visioning is an important tool with which the Augusta Regional Transportation Study Metropolitan Planning Organization (ARTS MPO) can define its aspirations and document a roadmap to achievements. The community visioning process entails public and stakeholder engagement and collaboration, fostered through meetings, surveys, and workshops. The community visioning process results in goals and priorities for the future. A community vision describes what the future should look and feel like. Ideally, the community vision creates a sense of ownership of future decision-making and planning processes.

The community visioning process that took place for the 2050 MTP Update guided the document's goals and objectives. The visioning process included discussions with ARTS staff, county leaders, elected officials, and stakeholders to ensure that the new vision and goals maintain the direction established in the previous LRTP and respond to changing conditions and federal requirements. The first phase of the visioning and goal setting process took place in September and October 2019 through a series of four public meetings and outreach to groups such as AARP Age-Friendly Augusta and neighborhood associations. Community members also provided input during events such as the Arts in the Heart of Augusta Festival in September 2019. **There were 976 attendees among 11 engagement events.** For a detailed report presenting the results of the Fall 2019 visioning period, see **Technical Report #1.**

Participants in public meetings indicated their visions for the ARTS planning area's transportation future by placing sticky notes on a poster board. The most common visions were for more and improved greenways, transit routes, bike lanes, and sidewalks. People also noted the importance of reducing vehicle congestion and conflict with at-grade rail crossings. Meeting attendees submitted written comments about what they would like to see in

the region. These comments were similar to those that appeared on the visioning board (see **Figure 3-3**): people wrote about the importance of bicycle infrastructure and greenway implementation. Additional topics included a need to consider jobs and regional development when thinking about transportation needs.

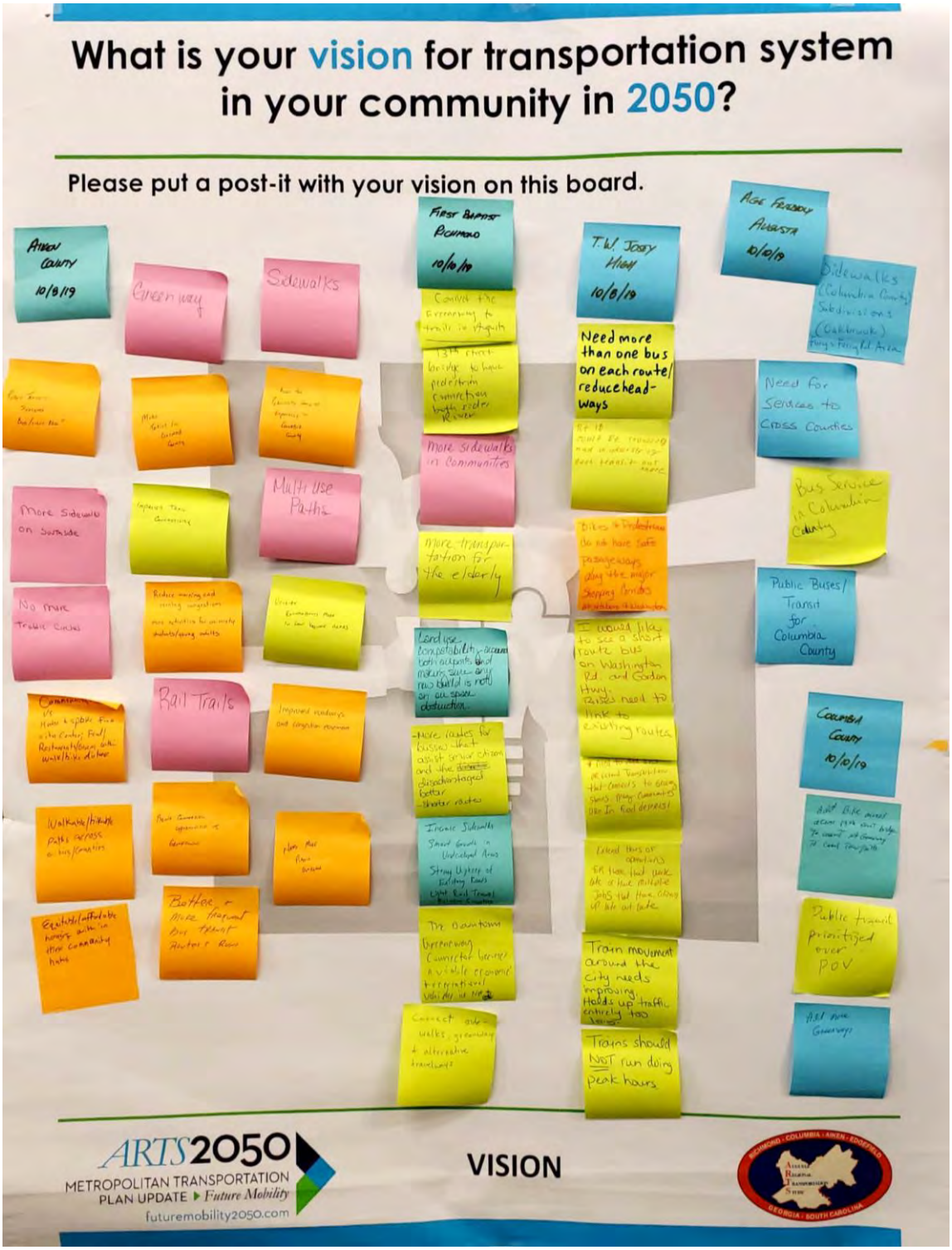


Figure 3-3. Community Vision from Public Meetings in October 2019

When presented with the 11 overarching long range transportation goals, the majority of meeting participants agreed that these are, in fact, priorities. However, some people disagreed with the importance of freight movement, mobility and accessibility, and maintaining the system, as illustrated in **Figure 3-4**.

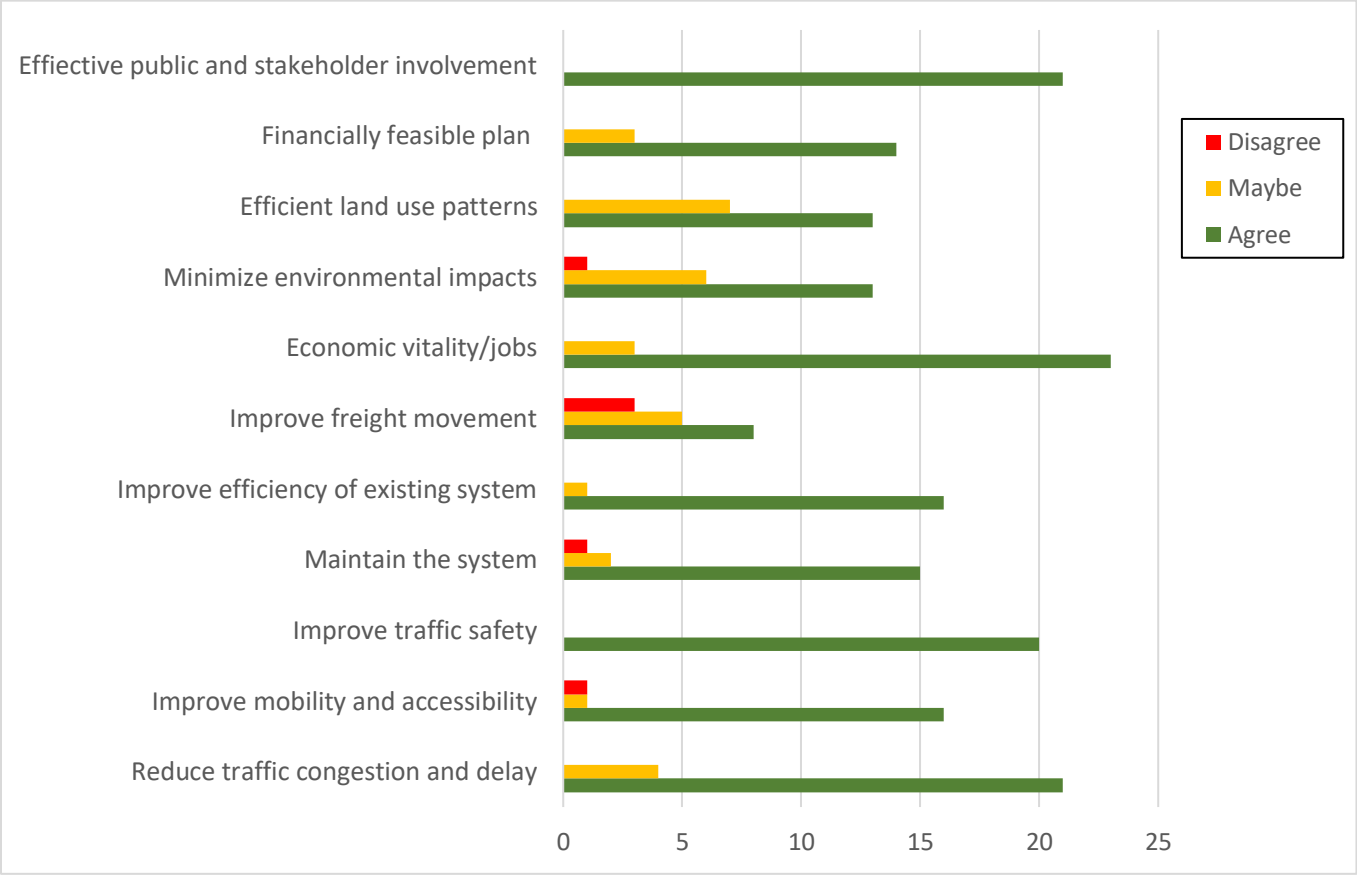


Figure 3-4. Public Input on Goals, October 2019

An online survey tool also collected input. Over 1,000 community members participated in this online survey, which was also made available in digital and paper forms during the in-person public outreach events throughout September and October of 2019.

Figure 3-5 illustrates responses from this survey regarding investment priorities in the ARTS planning area. All seven of the categories presented received responses. Survey responses identified "Improve Safety" and "Reduce Congestion and Delay" as some of the key investment priorities in the region, and nearly one third of the respondents selected these as one of their top two priorities. Most respondents selected "Improve Safety," "Reduce Congestion and Delay," "Boost Economic Potential," "Improve Access to Transit" and "Maintain Existing System" as one of their top 5 investment priorities. Nearly 47 percent of participants added "Connect to Bike/Ped" as one of their top 5 priorities as well. For a detailed report of the Fall 2019 survey results, see **Technical Report #1.**

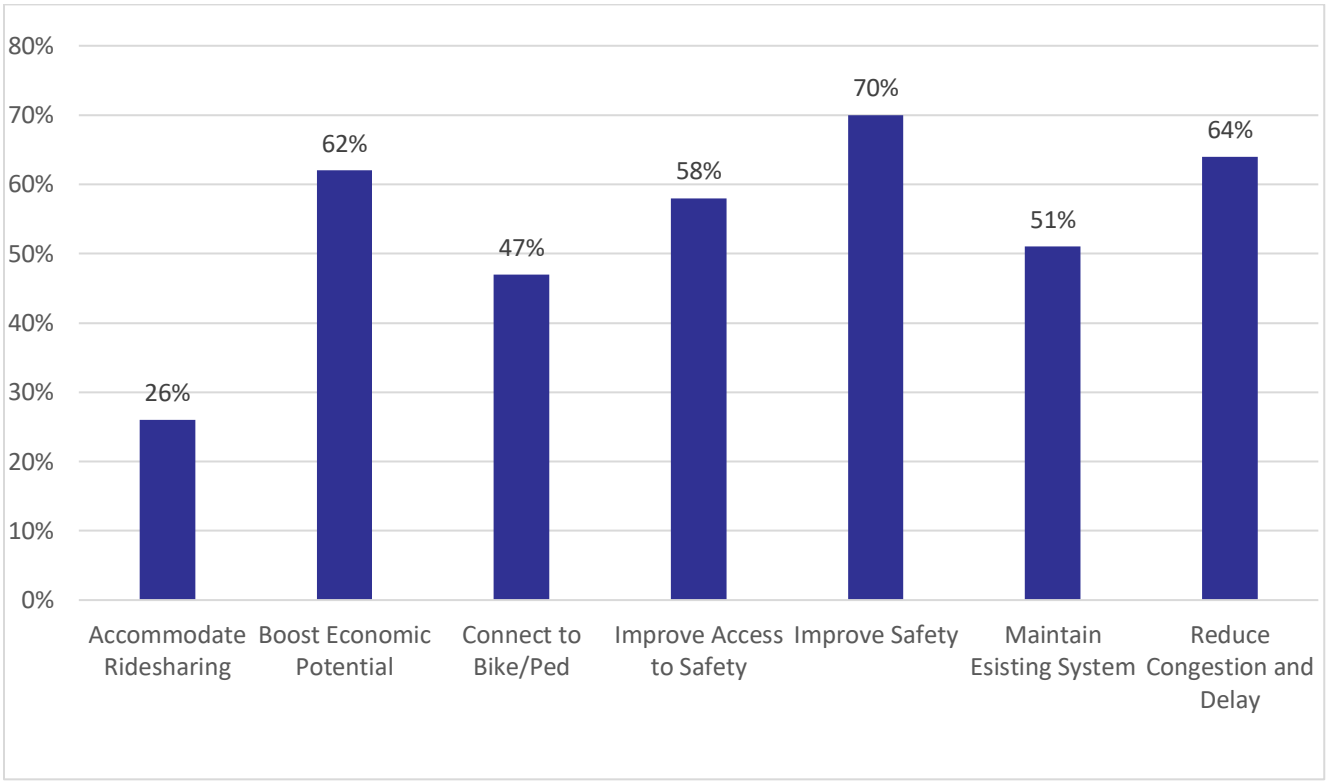


Figure 3-5. Percent Survey Respondents that Ranked each Factor in Top 5 Priorities, October 2019

3.6 Goals, Objectives, and Performance Evaluation Criteria

The goals and objectives from the 2040 LRTP were updated for the 2050 MTP Update based on national guidance, statewide frameworks from Georgia and South Carolina, and local vision. This report presents a higher-level vision for transportation infrastructure in the ARTS planning area and includes measures of effectiveness to use when evaluating projects against these goals and objectives. Future phases of the 2050 MTP update process will focus on defined projects and location-specific priorities. The following sections include nine (9) goals identified for the 2050 MTP, updated to reflect regional priorities. One or more objectives have then been defined to achieve each goal, then performance measures (or measures of effectiveness) were identified to measure individual projects' ability to work towards achieving the goals and objectives as well as the statewide performance measure targets.

Figure 3-6. ARTS 2050 MTP Goals

3.6.1 Goal 1: Reduce Traffic Congestion and Delay

GOAL 1

REDUCE TRAFFIC CONGESTION & DELAY

The first goal of the 2050 MTP is to **reduce traffic congestion and delay**. Objectives to achieve this goal include the following:

- Maximize existing transportation facilities through active management and integrated systems in real time.
- Implement projects that improve street network connectivity to provide alternative routes and system redundancy.
- Continue to implement and promote strategies and policies such as Transportation Demand Management (TDM), public transit, and alternative transportation modes to reduce demand for single-occupant motor vehicle travel.
- Support regional connectivity and ridesharing through investment in intercity bus service, intercity bus facilities, and commuter vanpool.

Goal 1 includes four individual project evaluation criteria – three quantitative and one qualitative. The measures are: Operational Efficiency and Reliability; Level of Service (LOS) and Annual Average Daily Traffic (AADT); Travel

Demand Management and Congestion Mitigation; and Intercity Transportation. Further detail on each metric is provided below.

Operational Efficiency and Reliability

Under this evaluation metric, projects receive scores based on whether the project type is anticipated to manage and integrate systems, improve traffic operations and safety, provide accurate real-time information and reduce the demand for single occupant motor vehicle travel.

LOS and AADT

Under this evaluation metric, projects receive scores based on a two-part measure. If the project type is anticipated to promote the reduction of travel delay and congestion, then it gets a score based on the roadways volume to capacity (V/C) ratio and Average Annual Daily Traffic (AADT).

Travel Demand Management and Congestion Mitigation

Under this evaluation metric, projects receive scores based on whether the project type is related to travel demand management, mass transit, or alternative transportation to help reduce single-occupant vehicle trips and thereby mitigate congestion. This metric accounts for 3% of the overall project score.

Intercity Transportation

Under this evaluation metric, projects receive scores based on whether they provide for intercity transportation facilities. This metric accounts for 3% of the overall project score.

3.6.2 Goal 2: Mobility, Accessibility and Connectivity

The second goal of the 2050 MTP is to **improve mobility, accessibility, and connectivity for all users of the transportation network including public transit and non-motorized modes**. Objectives to achieve this goal include the following:

- Prioritize transportation improvements that support access to the urban core.
- Increase access, expand, and improve the reliability of public transportation.
- Promote investment in infrastructure for non-motorized modes such as bicycles and pedestrians.

Goal 2 includes three individual performance measures – one quantitative and two qualitative. The measures are: Urban Core Proximity; Addresses Public Transportation Improvements; and Supports Bicycles and Pedestrians. Further detail on each measure is provided below.

Urban Core Proximity

Under this evaluation metric, projects receive scores based on whether they are located within the urban core (yes or no), regardless of project type. This metric accounts for 10% of the overall project score.

Addresses Public Transportation Improvements

Under this evaluation metric, projects receive scores based on whether they are of a project type that addresses public transportation routing, scheduling, or system improvements. This metric accounts for 5% of the overall project score.

Supports Bicycles and Pedestrians

Under this evaluation metric, projects receive scores based on whether they are of a type that includes bicycle lane facilities (marked shared lanes, paved shoulders, bicycle lanes, shared use paths, etc.), mid-block crossings, sidewalks, curb ramps, multi-use trails, or other bicycle- or pedestrian-related improvement types. Projects will receive additional points for providing both bicycle and pedestrian facilities and for providing separated multi-use trails. This metric accounts for 5% of the overall project score.

3.6.3 Goal 3: Safety and Security

The third goal of the 2050 MTP is to **improve traffic safety and improve the security** of transportation systems. Objectives to achieve this goal include the following:

- Reduce the number and severity of crashes, injuries, and fatalities across all modes by coordinating safety improvements with planning initiatives.
- Reduce vulnerability of existing transportation infrastructure to natural disaster by supporting development of regional preparedness plans.
- Continue to educate all users of the transportation network on safety and sharing the road.
- Coordinates safety improvements with planning initiatives (Policy-Level).
- Improve transportation system resiliency when (re)constructing roads, highways, and bridges (Policy-Level).

Goal 3 includes two quantitative performance measures. The measures are: Crashes and Critical Transportation Network. Further detail on each measure is provided below. Goal 3 also includes objectives that are policy-level recommendations and therefore do not have specific performance measures associated with them.

Crashes

Under this evaluation metric, projects located on roadways with high crash rates receive higher scores. Additional points are added for projects located where a fatality has occurred, as these are considered high-priority areas for improvements. If a project is located in a place where at least one fatality has occurred, the project will receive a minimum score of 6 or the score based on crash rate, whichever is greater. If the project is located in a place where more than one fatality has occurred, it automatically gets the maximum score of 10.

Critical Transportation Network

Under this evaluation metric, projects will be evaluated based on whether they are located along the Department of Defense's Strategic Highway Network (STRAHNET). This metric accounts for 5% of the overall project score.

3.6.4 Goal 4: Maintenance and System Preservation

The fourth goal of the 2050 MTP is to **maintain and preserve the existing transportation system** to provide safe and reliable movement of persons and goods/freight. Objectives to achieve this goal include the following:

- Adequately fund routine maintenance and rehabilitation of roadways, pavement, and bridges.

- Provide viable public transportation options to meet daily travel needs.
- Monitor and manage transportation assets to prioritize improvements.

Goal 4 includes four individual performance measures – two quantitative and two qualitative. The measures are: Improvement to Existing Facilities; Bridge Sufficiency Rating; New or Improved Public Transit; and Pavement Quality. Further detail on each measure is provided below.

Improvement to Existing Facilities

Under this evaluation metric, projects receive scores based on whether they are intended to improve or sustain the conditions of existing transportation facilities in order that it may still operate under good conditions. This metric accounts for 3.75% of the overall project score.

Bridge Sufficiency Rating

Under this evaluation metric, projects receive scores based on Bridge Sufficiency Ratings. The thresholds for low, medium, and high scores are based on federal repair/replacement funding thresholds. Therefore, projects with lower sufficiency rating receive higher scores on this measure. This metric accounts for 3.75% of the overall project score.

New or Improved Public Transit

Under this evaluation metric, projects receive scores based on whether they are of a project type that includes new transit routes, facilities, and systems and improvements to existing facilities and systems. This metric accounts for 3.75% of the overall project score.

Pavement Quality

Under this evaluation metric, projects will be evaluated on the International Roughness Index (IRI). This metric accounts for 3.75% of the overall project score.

3.6.5 Goal 5: Economic Vitality

The fifth goal of the 2050 MTP is to **enhance the economic vitality of the region and promote job opportunities**. Objectives to achieve this goal include the following:

- Provide transportation linkages to employment, business, retail activity, and other activity centers.
- Address the needs of the local freight industry and the intermodal movement of goods via rail and truck.
- Promote investments in transportation facilities that provide access to tourist destinations.
- Enhance the appearance of transportation facilities whenever possible (Policy-Level)

Goal 5 includes three quantitative performance measures. The measures are: Employment Density; Freight Volumes; and Travel and Tourism. Goal 5 also includes one policy-level objective that therefore does not have a specific performance measure associated with it. Further detail on each measure is provided below.

Employment Density

Under this evaluation metric, projects receive scores based on the employment density around the project. This metric accounts for 5% of the overall project score.

Freight Volumes

Under this evaluation metric, projects receive scores (low, medium, or high) based on the level of truck traffic on the roadway where the project is located. This metric accounts for 5% of the overall project score.

Travel and Tourism

Under this evaluation metric, projects receive scores based on whether they are around activity, travel, or tourism locations. This metric accounts for 5% of the overall project score.

3.6.6 Goal 6: Environmental Stewardship

GOAL 6

ENVIRONMENTAL STEWARDSHIP

The sixth goal of the 2050 MTP is to **enhance the social and environmental fabric of the region.** Objectives to achieve this goal include the following:

- Minimize disruption or displacement of residential or commercial areas from restructured or new transportation facilities.
- Minimize impact on environmental resources, wetlands, wildlife, historic properties, and water quality.
- Reduce mobile emissions and meet air quality standards with projects including managed lanes, operational projects, transit, and non-motorized vehicles such as bicycles, and pedestrians.
- Serve Environmental Justice populations through direct benefits or access to the project.
- Reduce or mitigate the stormwater impacts of surface transportation.

Goal 6 includes five individual performance measures – two quantitative and three qualitative. The measures are: Displacement; Environment and History; Emissions Reduction; Environmental Justice; and Stormwater Impacts. Further detail on each measure is provided below.

Displacement

Under this evaluation metric, projects receive a score of low, medium, or high, based on the anticipated level of disruption or displacement that may potentially take place. The projects' proximity to residential and commercial locations is assessed under this performance measure. Projects with lower anticipated impact receive a higher score. This metric accounts for 2% of the overall project score.

Environment and History

Under this evaluation metric, projects receive scores based on whether they are located within a historical or environmentally sensitive buffer area. This metric accounts for 2% of the overall project score.

Emissions Reduction

Under this evaluation metric, projects receive scores based on the degree to which they are anticipated to achieve these outcomes (low, medium, high), based on project type. This metric accounts for 2% of the overall project score.

Environmental Justice

Under this evaluation metric, projects receive scores based on a two-part measure. One measure is the percent of census tracts (CTs) exceeding the MPO average for each Environmental Justice (EJ) category around the projects, and the other is the number of different EJ categories around the projects. A project gets two scores from the two measures, and the higher score is selected as the final score. This metric accounts for 2% of the overall project score.

Stormwater Impacts

Under this evaluation metric, projects receive a score based on whether they are of a project type that is anticipated to improve stormwater impacts (yes or no). This metric accounts for 2% of the overall project score.

3.6.7 Goal 7: Land Use and Transportation Integration

The seventh goal of the 2050 MTP is to **promote efficient land use and development patterns that improve safety and economic vitality to meet existing and future multimodal transportation needs**. Objectives to achieve this goal include the following:

- Provide transportation services that conform with regional and local land use plans.
- Discourage development in conservation or preservation areas by limiting access to those areas (Policy-Level).
- Promote redevelopment of the urban fringe through improved accessibility (Policy-Level).
- Promote the concentration of future employment and other activity centers along existing and planned major travel corridors (Policy-Level).
- Preserve and enhance the natural and built environments through context-sensitive solutions that exercise flexibility and creativity to shape effective transportation solutions (Policy Level).
- Protect adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit, and roadway facilities (Policy-Level).

Goal 7 includes one quantitative performance measure: Growth Projections. Further detail is provided below. Goal 7 also includes objectives that are policy-level recommendations and therefore do not have specific performance measures associated with them.

Growth Projections

Under this evaluation metric, projects receive a score based on the expected population growth of the area by 2050. This metric accounts for 5% of the overall project score.

3.6.8 Goal 8: Financial Feasibility

The eighth goal of the 2050 MTP is to **develop a financially and politically feasible plan** and gain broad support by increasing the safety and security of the transportation system for all users. Objectives to achieve this goal include the following:

- Prioritize projects with high project readiness and available funding.

Under Goal 8, one qualitative performance measure is included: Project Readiness. Further detail is provided below.

Project Readiness

Under this evaluation metric, projects receive a score based on whether they are in progress and have allocated funding secured (yes or no). This metric accounts for 5% of the overall project score.

3.6.9 Goal 9: Effective Engagement and Coordination

GOAL 9

EFECTIVE ENGAGEMENT AND COORDINATION

The ninth goal of the 2050 MTP is to **promote effective public and stakeholder engagement and coordinate strategies throughout the planning process**. Objectives to achieve this goal include the following:

- Foster coordination with local, state, and federal partners to implement community priorities (Policy-Level).
- In partnership with local communities, equitably and strategically focus resources in areas of need and importance (Policy-Level).

Goal 9, Promote Effective Engagement and Coordination, and its associated objectives are policy-level ideas and therefore do not have specific performance measures associated with them.

Chapter 3 Key Points

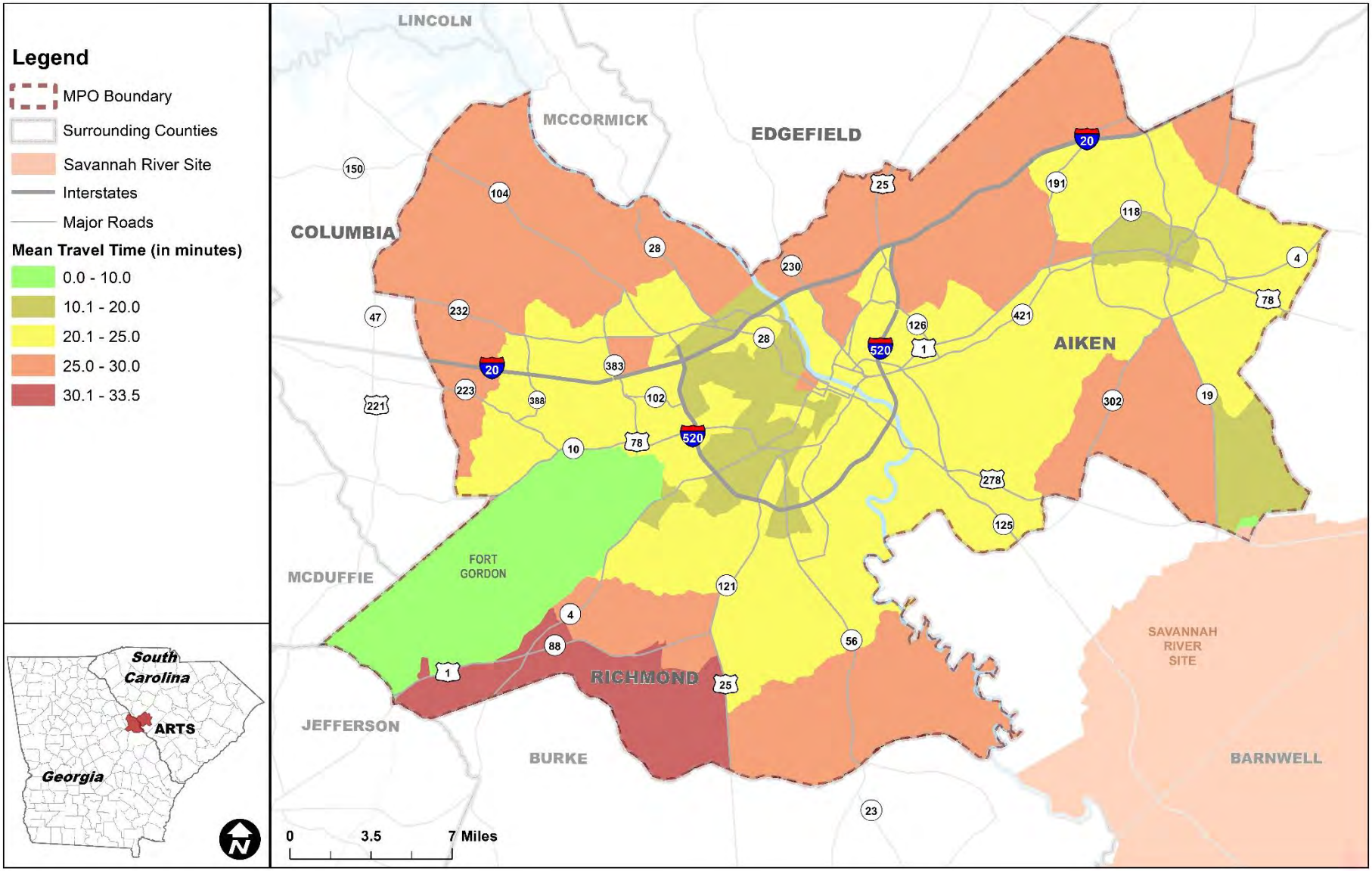
- This MTP update is one of the important steps in the ARTS MPO's performance-based planning process, defined as the application of performance management principles within the planning processes to achieve desired performance outcomes for the region's multimodal transportation system.
- 2050 MTP Goals, Objectives, and Measures of Effectiveness (GOMs) were selected to align with the Community Vision based on the previous 2040 Long Range Transportation Plan (LRTP), latest federal requirements and statewide guidelines, and public and stakeholder input.
- The nine goals of the MTP are: 1) Reduce Traffic Congestion and Delay, 2) Mobility, Accessibility, and Connectivity, 3) Safety and Security, 4) Maintenance and System Preservation, 5) Economic Vitality, 6) Environmental Stewardship, 7) Land Use and Transportation Integration, 8) Financial Feasibility, and 9) Effective Engagement and Coordination.
- Once the Goals and Objectives were defined, the project evaluation criteria were identified to measure individual projects' ability to work towards achieving the Goals and Objectives as well as the statewide performance measure targets. Goal 9, Effective Engagement and Coordination, and some of the objectives are established for the policy level and do not have associated project evaluation criteria.

4 REGIONAL TRANSPORTATION NETWORK NEEDS

Information about regional travel patterns helps shape an understanding of the ARTS planning area's transportation needs. Factors such as commuting flows, travel time, and other system characteristics are critical to understand current and future needs. This chapter presents an inventory of existing transportation systems and summarizes the ARTS planning area's current and future transportation and land use needs through 2050. These needs were identified based on spatial and technical analyses, such as travel demand modeling and crash analysis, as well as input from the community and stakeholders.

4.1 Commute Statistics

Commute times among the four ARTS planning area counties show similar trends, illustrated in **Figure 4-1**. In all counties, the majority of workers travel to work between 7:00 a.m. and 9:00 a.m. However, all four counties also demonstrate early-morning commuters, indicated by the nearly 30 percent of employees from each county that travel to work before 7:00 a.m.

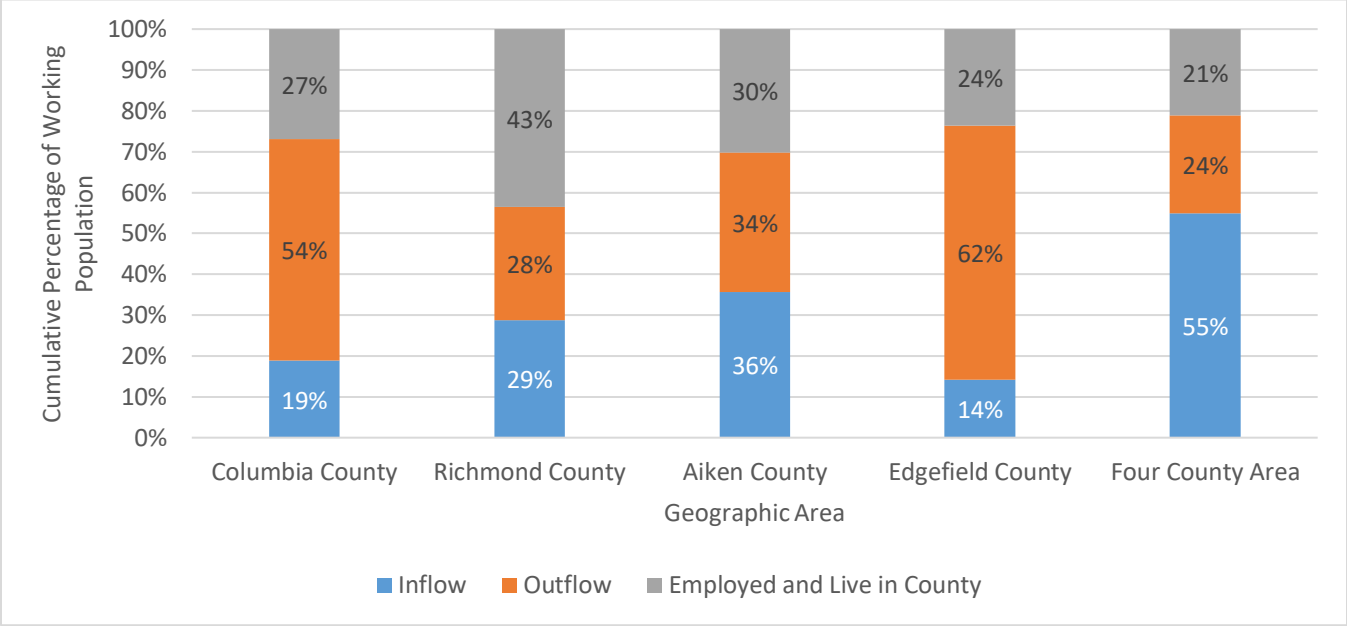


Source: 2013-2017 ACS 5-Year Estimate

Figure 4-1. Mean Commute Time to Work by Census Tracts in ARTS Planning Area (2013-2017 5-Year Estimate)

4.1.1 Work and Home Locations

Figure 4-2 presents data detailing where employees live in relation to their county of employment. Columbia and Edgefield Counties have the largest percentage of population commuting outside of these respective counties.



Source: Longitudinal Employer-Household Dynamics (2017)

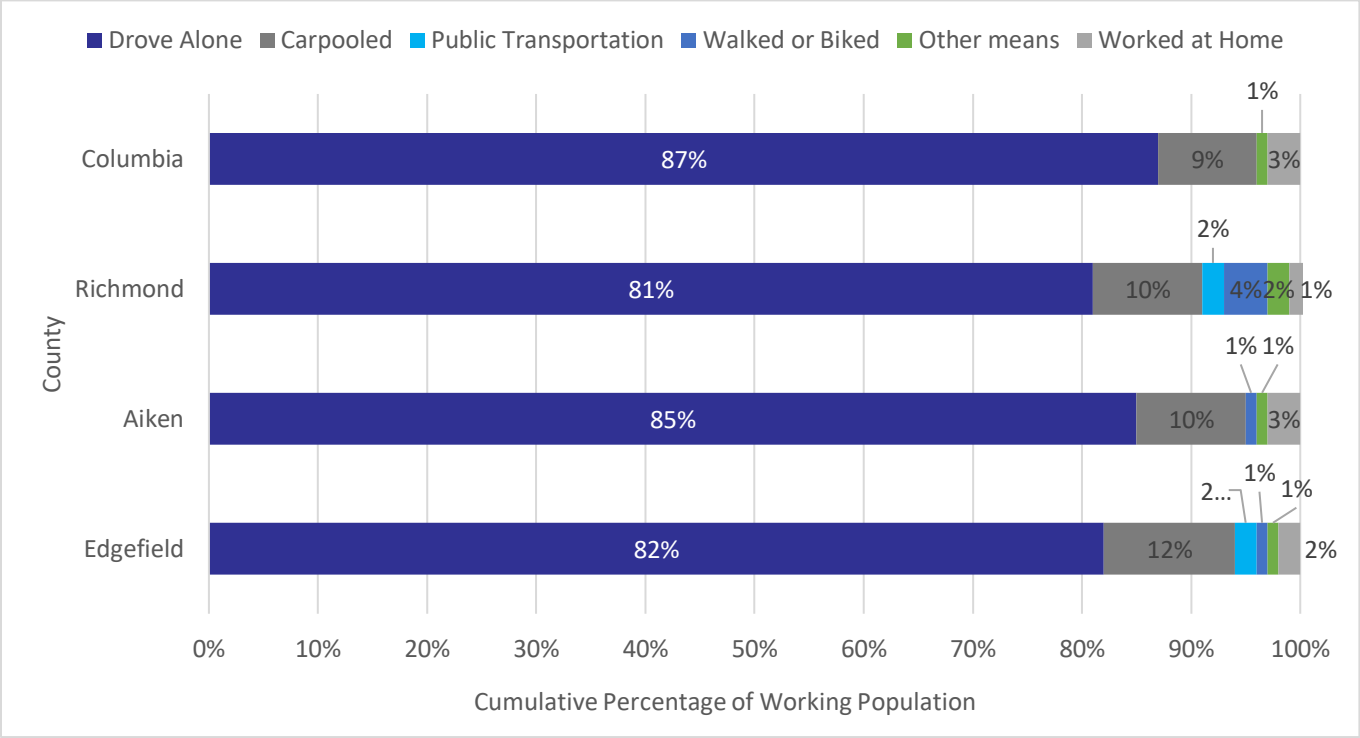
Figure 4-2. Employee Flow by County of Employment (2017)

By contrast, Richmond County has the smallest proportion of employees working elsewhere and has the largest proportion of employees commuting in from outside of the county's borders. Aiken County has an almost equal number of employees coming in for work as are leaving for employment. Overall, the majority of employees within the four-county area also live in the four-county area.

Most workers who reside in Richmond and Aiken Counties are employed within each respective county. Nearly 74 percent workers residing in Columbia County commute outside their county for work, with largest destination being Richmond County. Similarly, nearly 81 percent of workers living in Edgefield County travel outside of their county for work. Workers from Edgefield County seem least dependent on the four-county area for employment with nearly 39 percent travelling outside of the four-county area for work. Average commute times for Columbia and Richmond Counties have slightly increased when comparing 2008-2012 ACS data to 2013-2017 ACS data, and average commute times for Aiken and Edgefield Counties have slightly decreased.

4.1.2 Journey to Work by Travel Mode

The journey to work trips in the ARTS planning area are predominantly made by private vehicle, as shown in **Figure 4-3**. Use of private automobile averages 95 percent of mode split, with vehicle use in Richmond County being slightly lower at 91 percent of workers using private vehicles. This difference may be due to a slightly higher share of those walking to work. Carpooling makes up approximately 11 percent of private vehicle trips for counties within the ARTS planning area. Edgefield County has the highest percentage of workers carpooling at 12 percent. It is important to note that smaller sample sizes of public transportation, walking and biking, and other transportation modes may indicate that there are certain statistical uncertainties involved with these smaller groups.



Source: 2013-2017 ACS 5-Year Estimate

Figure 4-3. Journey to Work by Travel Mode (2013-2017 ACS 5-Year Estimates)

As a whole, the working population predominantly uses driving alone as the mode of choice. However, planning for future commuting needs will need to account for the 10 percent of Richmond County, 5 percent of Aiken County, 4 percent of Edgefield County, and 4 percent of Columbia County that travel by other modes or work at home. It will also be important to consider the nearly 10 percent of people who carpool to work. Less than ideal transportation systems, compounded by a sprawling development pattern that further separates population and employment locations, could limit the job potential and quality of life for ARTS planning area residents and employees.

4.1.3 Park and Ride

The ARTS planning area includes a nearly 220-space park and ride facility in the City of North Augusta at I-20 and US 25. This facility offers commuters an opportunity to carpool to their destinations. There is also a park and ride facility at Wheeler Road/Marks Church Road in Augusta. Currently, existing bus routes in ARTS planning area do not serve a park and ride facility. In the future, bus service in the ARTS planning area could connect these park and ride facilities with employment centers.

The 2040 LRTP identified some locations for park and ride facilities in the ARTS planning area such as US 1 (Deans Bridge Rd) Southwest park and ride at Tobacco Road; Walmart/Southpointe Plaza park and ride; and US 78 (Gordon Highway) park and ride. However, these are yet to be funded.

4.2 Summary of Needs

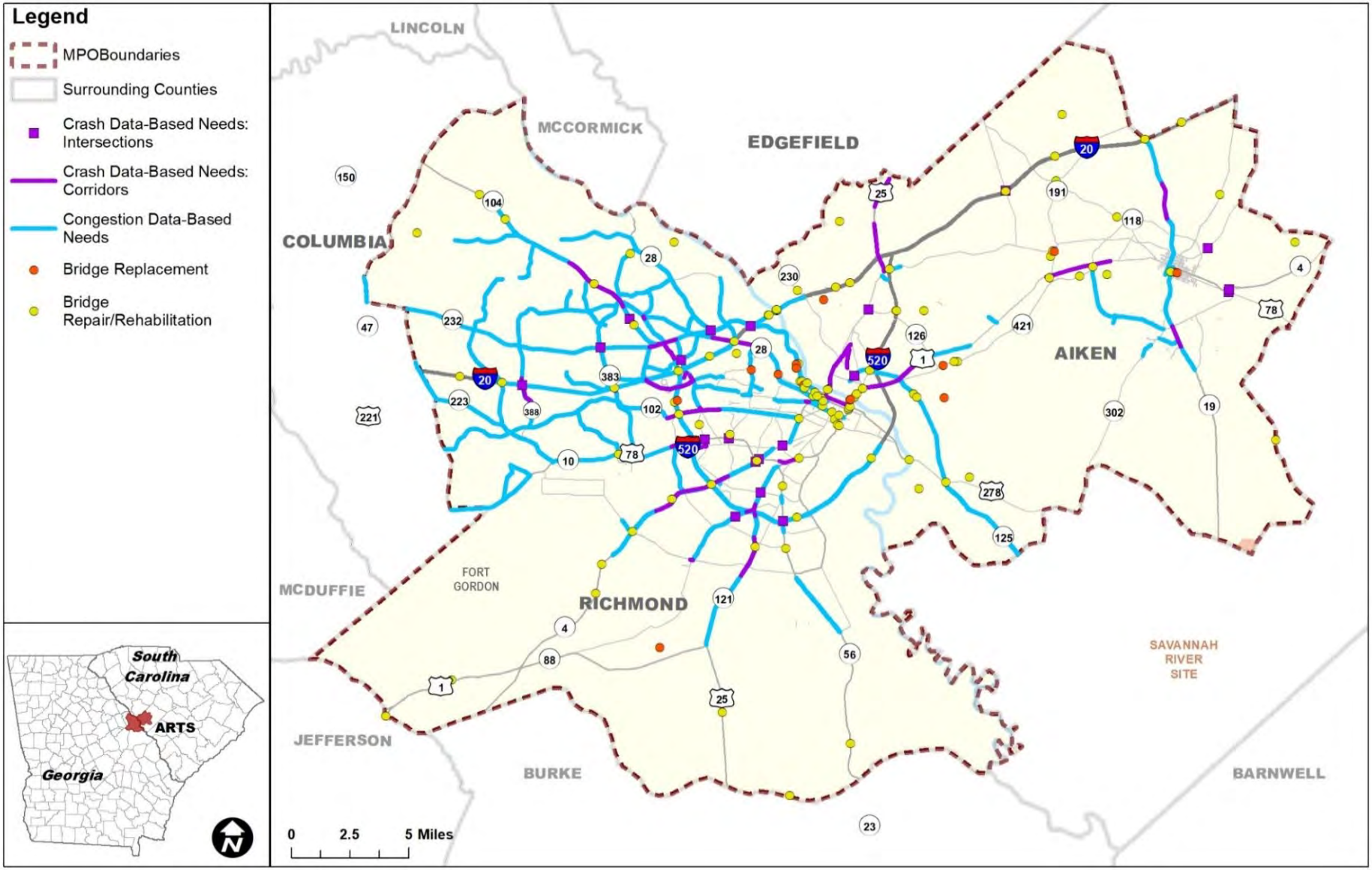
Table 4-1 summarizes the needs identified for the 2050 MTP. **Figure 4-4** shows locations of capacity, safety, and bridge needs identified based on the needs assessment. These needs for each individual category are described in more detail in the following sections of this report.

Table 4-1. Summary of Needs

Traffic Safety Needs
• Perform safety assessment of high crash areas. • Implement safety improvements for high crash intersections and corridors.
Capacity, Level of Service and Congestion Needs
• Carryover projects from the 2040 LRTP. • Consider implementing alternate solutions to improve the efficiency of existing infrastructure through operational improvements before widening to add capacity. • Continue implementing the 2002 Advanced Transportation Management System (ATMS) Master Plan to address safety and congestion. • Continue implementing mitigation strategies on seriously congested roadways identified in the annual congestion management process surveys. • Monitor congestion levels near southeast Columbia County, southern parts of Augusta, Aiken, and other areas with anticipated growth in population and employment. • Perform access management studies and implement appropriate solutions for major corridors with high numbers of driveways.
Transit
• Improve vehicle frequency, add bus stops, and extend hours of service for fixed route as well as on-demand transit. • Carry forward identified projects with park and ride facilities. • Develop a regional transit development plan to explore potential improvements to transit, including but not limited to improvements to bus stops/bus amenities, inter-county transit services, expansion of fixed route services, transit in south Augusta, transit in rural areas, improved transit reliability, expansion of transit in Columbia County, integration of ride-share services with transit service, and transit connections or circulators near college campuses. • Implement educational outreach and travel training programs. • Consider transit expansion in areas expected to grow in the future.
Active Transportation
• Carry forward projects in the 2040 LRTP's short term project list. • Focus on areas with high demand for active transportation and provide trails with regional connectivity. • Include pedestrian and bicycle safety improvements in other roadway projects. • Assess corridors with high numbers of crashes involving bicycles or pedestrians to identify specific safety improvements. • Continue implementation of previously identified projects, including those in the 2040 LRTP, 2012 ARTS Bike and Pedestrian Plan, and the 2016 ADA Transition Plan. Continue maintenance of existing facilities.

Table 4-1. Summary of Needs, Continued

Transportation System Maintenance & Operations
• Explore future opportunities to implement or expand upon TSM&O strategies, especially arterial management, bottleneck mitigation, congestion pricing, integrated corridor management, emergency transportation operations, freeway management, incentives, managed lanes, planned special events traffic management, road weather management, real time traveler information, traffic incident management, transit operations and management, and work zone management.
Emerging Issues
• Establish regional policies to manage pick-up and drop-off locations for ridesharing services. • Look for ways to expand electric vehicle charging facilities in the future. • Take advantage of opportunities to pilot the integration of Connected and Automated Vehicle technologies.
Freight and Intermodal
• Reduce congestion on major freight facilities to ensure timely movement of goods in the region. • Study truck parking conditions in the ARTS planning area and identify suitable locations. • Consider grade separation at rail crossings, especially for crossings with major roads. • Manage airport leakage and improve ground access at airports for general vehicles as well as transit. • Improve intermodal linkage and accessibility among different transportation modes
Quality of Life
• Adopt age-friendly designs for infrastructure to enable seniors to age in place. • Adopt a Complete Streets policy. • Adopt a Context Sensitive Solutions approach to design. • Improve the Land Use and Transportation Connection by focusing transportation improvements around population and activity centers and providing mobility connections to community attractions using multiple transportation modes.
Maintenance
• Carry forward bridge projects from the 2040 LRTP and include identified bridge replacement projects. • Create a lump sum program for bridge repair/rehabilitation projects. • Continue to maintain existing multimodal infrastructure.



Source: GDOT's Travel Demand Model (2015 & 2050), ARTS CMP (2018), US FHWA National Bridge Inventory (2019), Crash Analysis using GDOT, ARTS MPO, SCDOT data (2012-2017)

Figure 4-4. Locations of Current and Future Transportation Needs in ARTS Planning Area

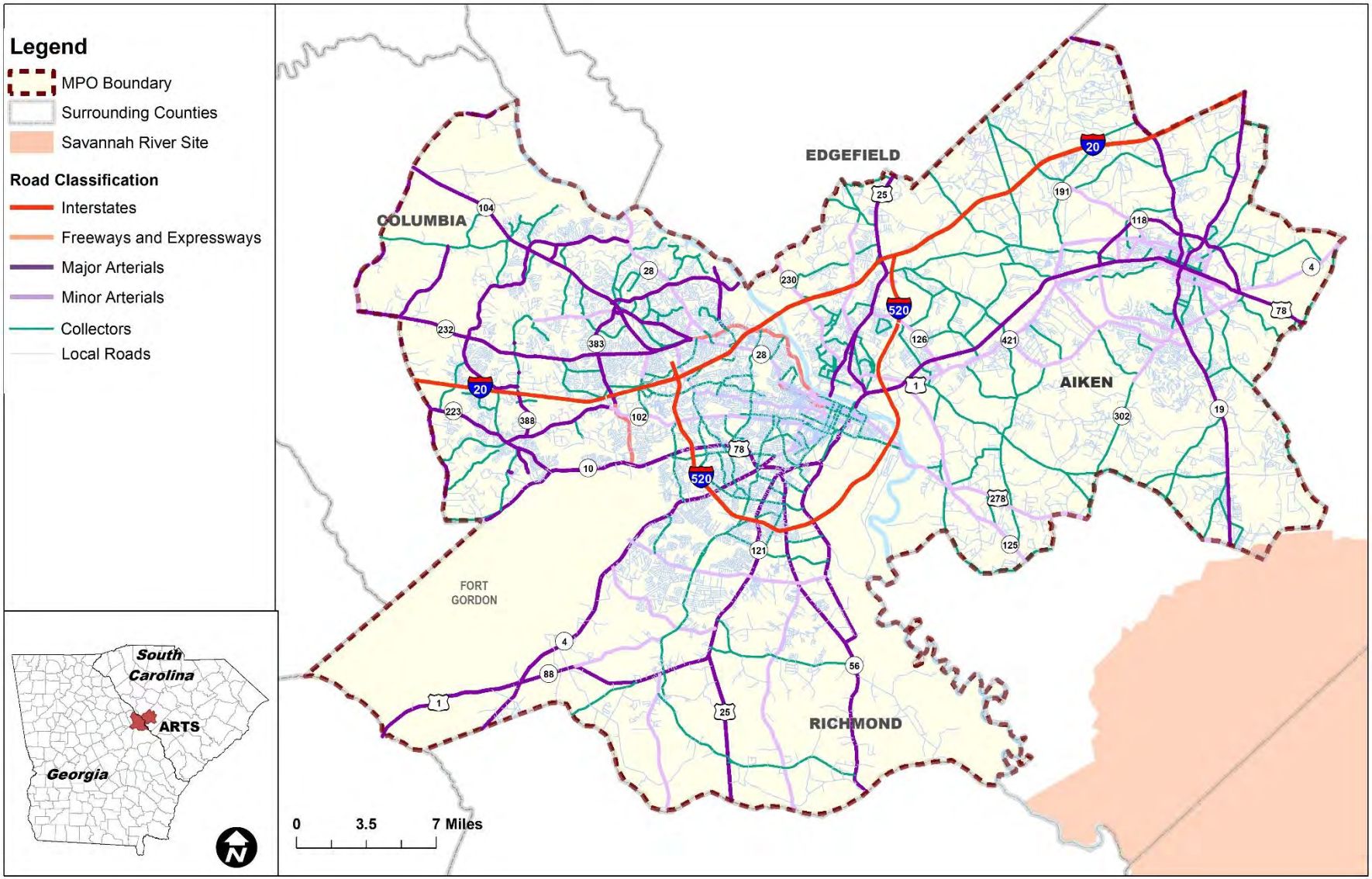
4.3 Roads and Highways

This section includes a summary of roads and highway-related needs in the ARTS planning area including needs identified for traffic congestion, safety, bridges, and pavement quality.

4.3.1 Roadway Network and Inventory

Streets and highways are categorized by functional classifications based on the character of traffic service they are intended to provide to motor vehicles and their users. Each class has specific design criteria according to its intended purposes. For example, high speed limited access highways will have more lanes, fewer entry and exit points, and higher design speeds when compared to a local road designed for low speeds with multiple access points. There are three highway functional classifications as defined by the FHWA: arterials, which include interstates, freeways and expressways, and principal and minor arterials; collectors, including major and minor; and local roads.

The ARTS planning area's highway classifications, simplified to include expressways, arterials, collectors, and local roads, are presented in **Figure 4-5.** ARTS planning area has two interstates – I-20 and I-520. I-20 connects ARTS planning area with other major regions in southeastern US like Columbia, SC to the east and Atlanta GA, Birmingham AL, Jackson MS, Dallas TX to the west. I-520 is an auxiliary circumferential interstate. GA 104 or Riverwatch Parkway acts as a Freeway/Expressway. The ARTS planning area also includes several US Highways such as US 1, US 25, US 78 and US 278, which are mostly classified as Principal or Minor Arterials.



Sources: ARTS; Columbia County; GDOT, SCDOT

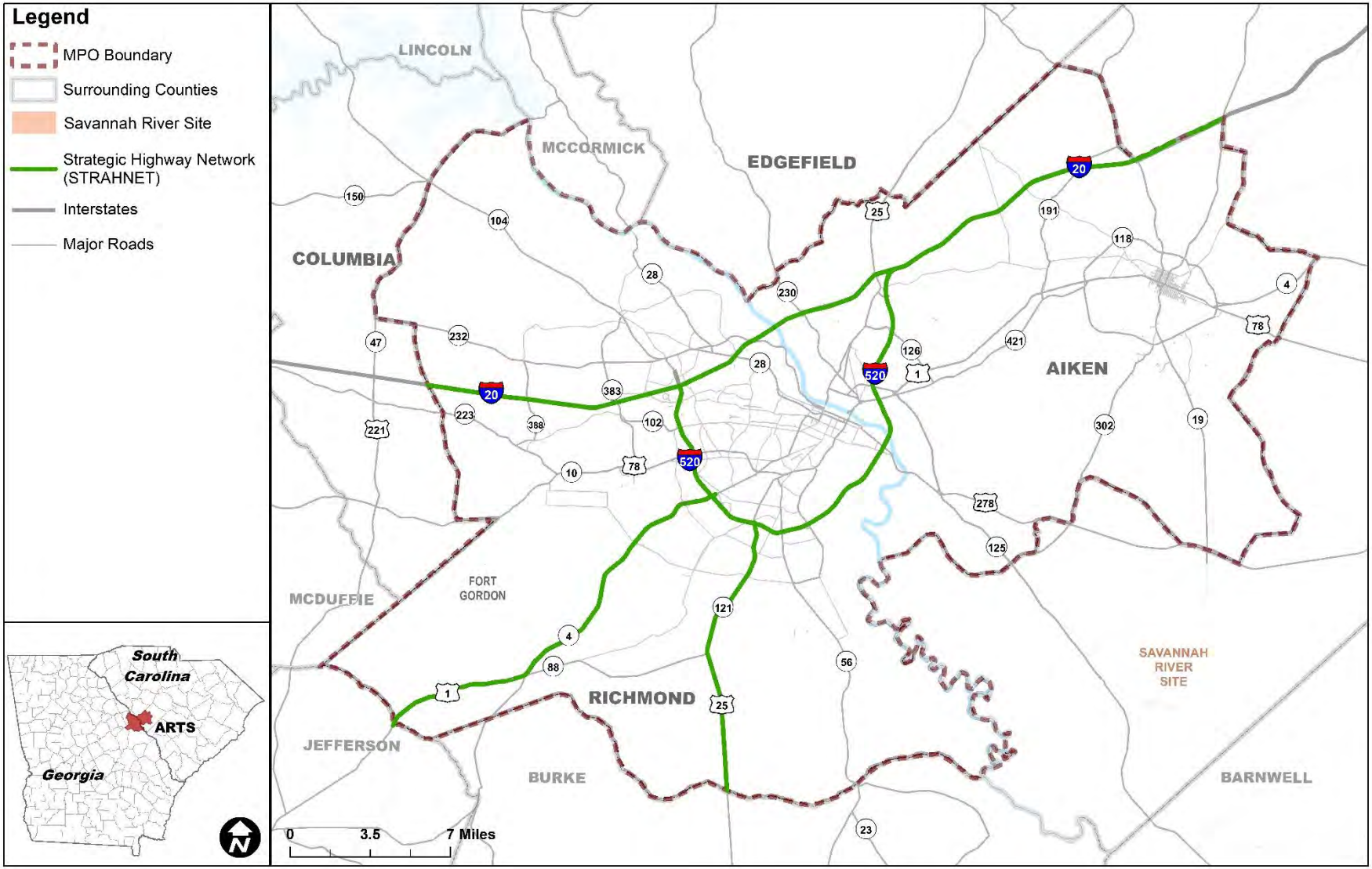
Figure 4-5. Roadway Classification (2019)

4.3.1.1 Security and Evacuation Routes

Goals and objectives for the MTP Update include "Improve transportation network security benefitting all users"; "Improve Transportation System Resiliency"; and, "Reduce vulnerability of existing transportation infrastructure to natural disasters". It is important for a region to have a plan of action to have a resilient infrastructure in case of – (1) Natural disasters; (2) Intentional physical as well as technological harm, such as a terrorist attack or cyber-attack; and, (3) unintentional harm, such as hazardous materials spillage after a crash or landslide after heavy rains. While agencies in the ARTS planning area are responsible for securing their respective transportation systems, ARTS coordinates closely with agencies including, but not limited to: GDOT, SCDOT, Augusta-Richmond County, Columbia County, Aiken County, Edgefield County, Augusta Transit, Best Friend Express, and Columbia County Commission Transit. To maintain a secure transportation system, cross-agency coordination is required at state, county, and local levels.

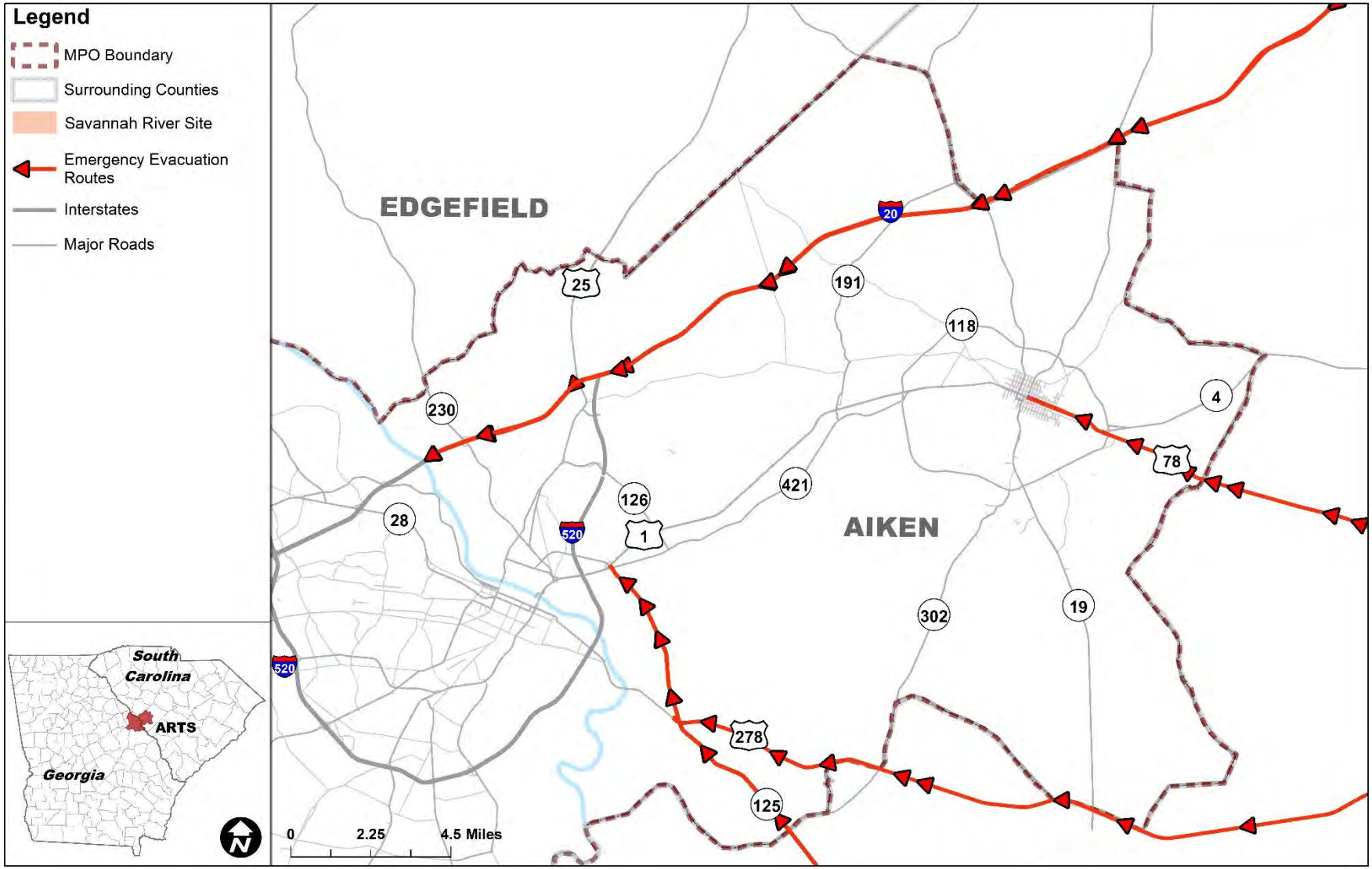
Major roadways such as those on the Strategic Highway Network (STRAHNET) are key in evacuating large numbers of people during emergencies. STRAHNET is a network of highways and includes interstates and arterials (for long-distance travel) and connectors (to connect individual installations to the routes). **Figure 4-6** illustrates STRAHNET routes in the ARTS planning area. I-20 and I-520 are STRAHNET interstate routes; Gordon Highway (US Highway 78) from the I-520 to Fort Gordon is classified as a STRAHNET Connector; and US Highway 1 (Deans Bridge Road) and US Highway 25 (Peach Orchard Road) south of their intersections with I-520 are classified as Non-Interstate STRAHNET Routes.

South Carolina's designated evacuation routes funnel a large portion of traffic through the ARTS planning area (see **Figure 4-7**). Routes originating at Bluffton, Hilton Head Island, Oakatie, and Beaufort all terminate at Atomic Road (SR-278) in North Augusta. Routes that originate at Edisto Beach and John's Island terminate at SR-78 in downtown Aiken. In addition, evacuation routes that begin in the coastal region in northern South Carolina direct traffic inland and to I-20. The evacuation routes then consolidate on I-20 and continue south towards Augusta and the ARTS planning area. Georgia has designated evacuation routes, which are primarily designed to move populations in coastal areas inland towards Macon and Atlanta in case of hurricanes.



Source: Highway Performance Monitoring System (2017)

Figure 4-6. STRAHNET Routes (2017)



Source: SCDOT

Figure 4-7. Evacuation Routes in South Carolina (2017)

4.3.2 Roadway Capacity

The ARTS MPO adopted an updated Congestion Management Process (CMP) in 2018. This latest CMP identifies seriously congested corridors and proposes congestion management processes to improve travel conditions. Of the 53 corridors surveyed in the ARTS planning area for the 2018 CMP, 31 corridors were categorized as *Seriously Congested*. The 2018 CMP analysis indicates five (5) *Seriously Congested* corridors in Aiken County, 10 in Columbia County, and 16 in Richmond County. There were no corridors surveyed in Edgefield County. A detailed list of the CMP corridors is provided in **Technical Report #2**.

Recommendations from the CMP were supplemented by the results of the MPO's travel demand model, maintained by GDOT and its consultant, HNTB. The statewide model is mostly run for areas outside of the MPOs and has been applied to the ARTS planning area. GDOT develops this model for ARTS, which is used to assess existing and anticipated future traffic conditions in the ARTS planning area. This model covers the entire four-county area. Outputs of the model also provide details needed to assess capacity of major transportation facilities in the model area. As the regional travel demand model is supposed to provide traffic movements across this multi-county area, it is an appropriate tool for general traffic patterns on major roadways and corridors. Thus, some of the smaller local roadway facilities are not included in the model network.

The travel demand model was developed for the base year of 2015, which is expected to mimic existing conditions in the ARTS planning area and the future year 2050, which is a horizon year for this MTP update. Development of socioeconomic forecasts for 2050 is discussed in further detail in Chapter 3 and in Chapter 2 of **Technical Report #2**. Results from the travel demand model were compared against the CMP corridors to validate the recommendations of CMP and to identify any corridors that were not surveyed in CMP but stand a chance of being congested in the future.

Level of Service (LOS) is used as a proxy to identify potential segments with traffic congestion. The model estimates the LOS by taking a ratio of estimated Volume on a roadway segment with its Capacity (V/C ratio). LOS A through F indicate varying levels of traffic, from free flow conditions in LOS A to heavily congested stop-and-go conditions in LOS F. LOS A through C generally indicate free flow to near-free flow of traffic. Generally, levels A through D are considered acceptable, and LOS E and F are considered unacceptable. In 2015, the model output indicates that over 60 percent of Vehicle Miles Traveled (VMT) enjoyed a LOS of C or better and just under 10 percent of VMT was on roadway segments that exceeded their capacity. On the other hand, by 2050, only about 39 percent of VMT would experience a LOS C or better, a drop of nearly 24 percentage points from 2015. While just under 10 percent of VMT was on roadways with LOS F in 2015, more than a quarter of total VMT in 2050 was estimated to be on roadways with LOS F. Change in total vehicle hours of delay from 2015 to 2050 is even more drastic, with nearly a 300 percent increase in the total delay.

Table 4-2 summarizes travel demand model results for the existing network (2015 base year) and the future network (2050 Existing + Committed Projects). The 2050 Existing + Committed Projects scenario uses the 2050 socioeconomic forecasts and assumes that only the projects for which the construction is expected to start in the near future (i.e. projects with committed funding for construction in the Transportation Improvement Program (TIP)) would be built by 2050. It keeps the rest of the network similar to the existing conditions.

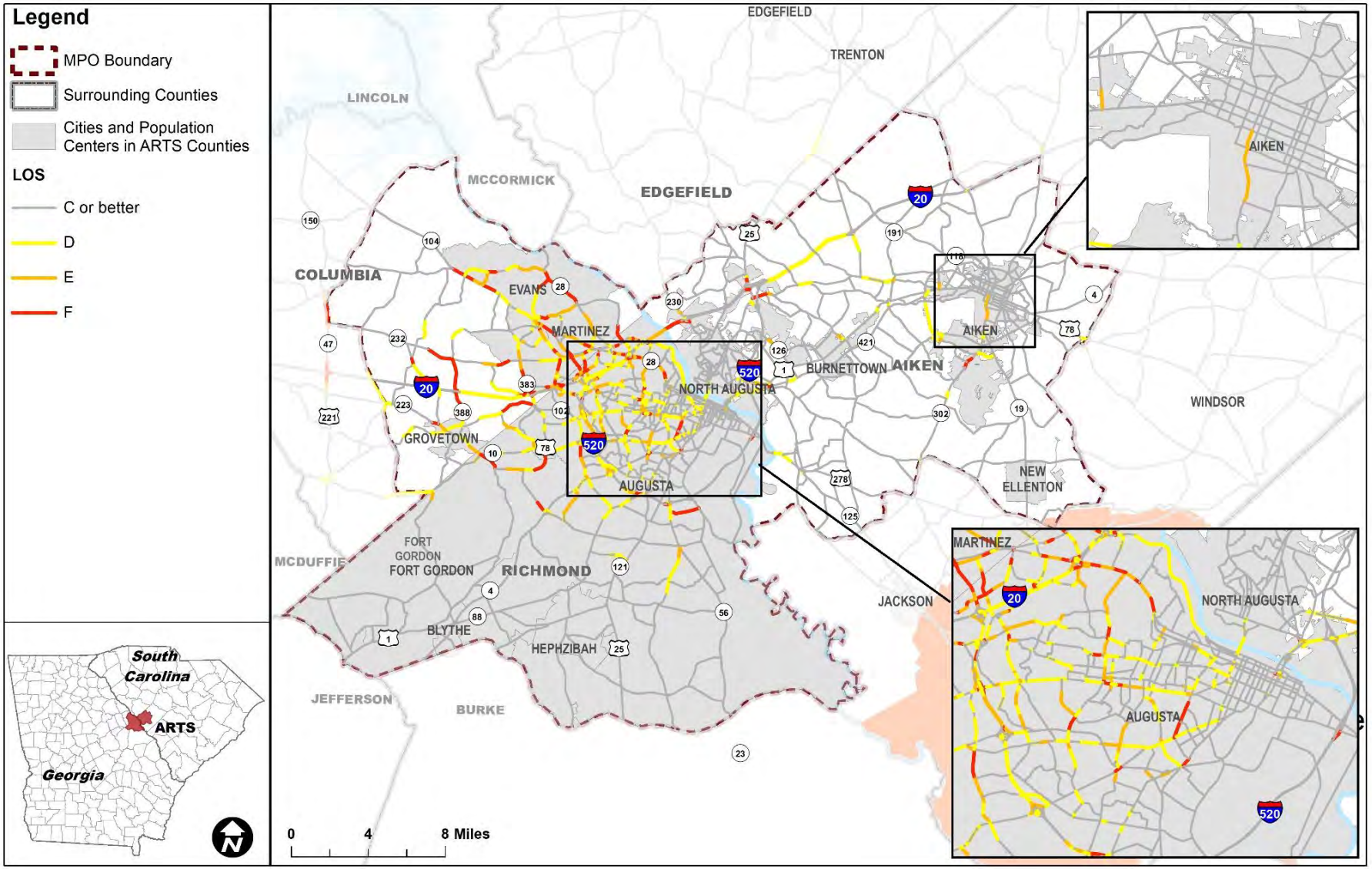
Table 4-2. Summary of Travel Demand Model Results, 2015 and 2050

LOS by Vehicle Miles Traveled (VMT)	2015 Base Year Network		2050 Existing + Committed Projects Network	
	VMT	%*	VMT	%*
A-C	6,495,490	64%	5,156,130	36%
D	1,977,140	19%	2,185,190	15%
E	891,050	9%	2,282,920	16%
F	767,400	8%	4,626,960	33%
Total Vehicle Miles Traveled	**10,131,070**		**14,251,210**	
Vehicle Hours Traveled	**377,840**		**923,360**	
Vehicle Hours of Delay	**114,700**		**530,010**	

Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019), GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019)

**Total percentages might not add up to 100 due to rounding*

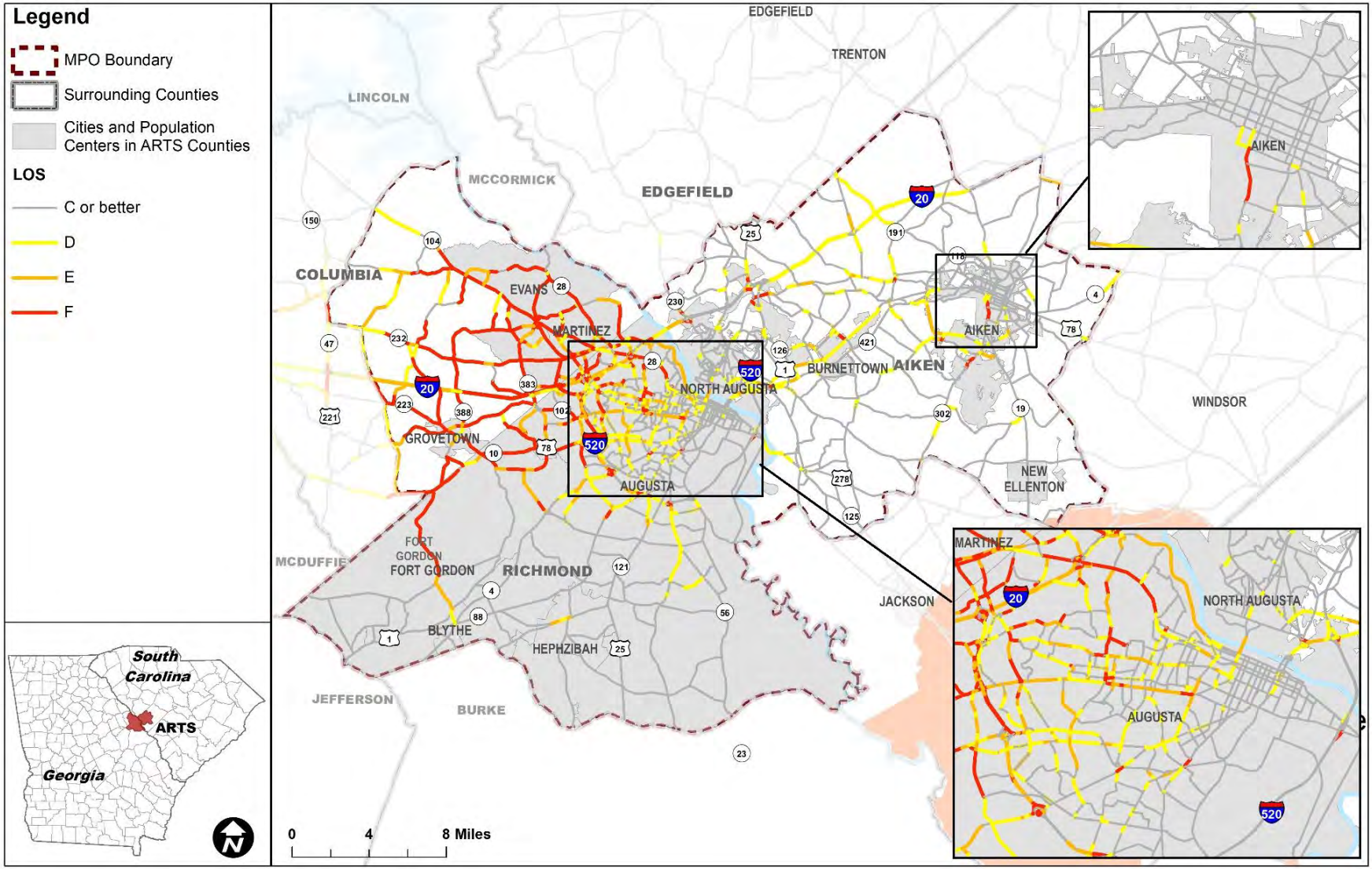
Figure 4-8 illustrates LOS for roadways in the ARTS planning area. Based on the outputs from the 2015 travel demand model, highest traffic volumes are observed on major facilities such as interstates – I-20 and I-520, US and State highways such as US 1, US 25, US 78, GA 25, and GA 104. Segments with LOS E or F are mostly on major facilities in the northern parts of Richmond County and the eastern parts of Columbia County.



Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019)

Figure 4-8. Level of Service on 2015 Model Network

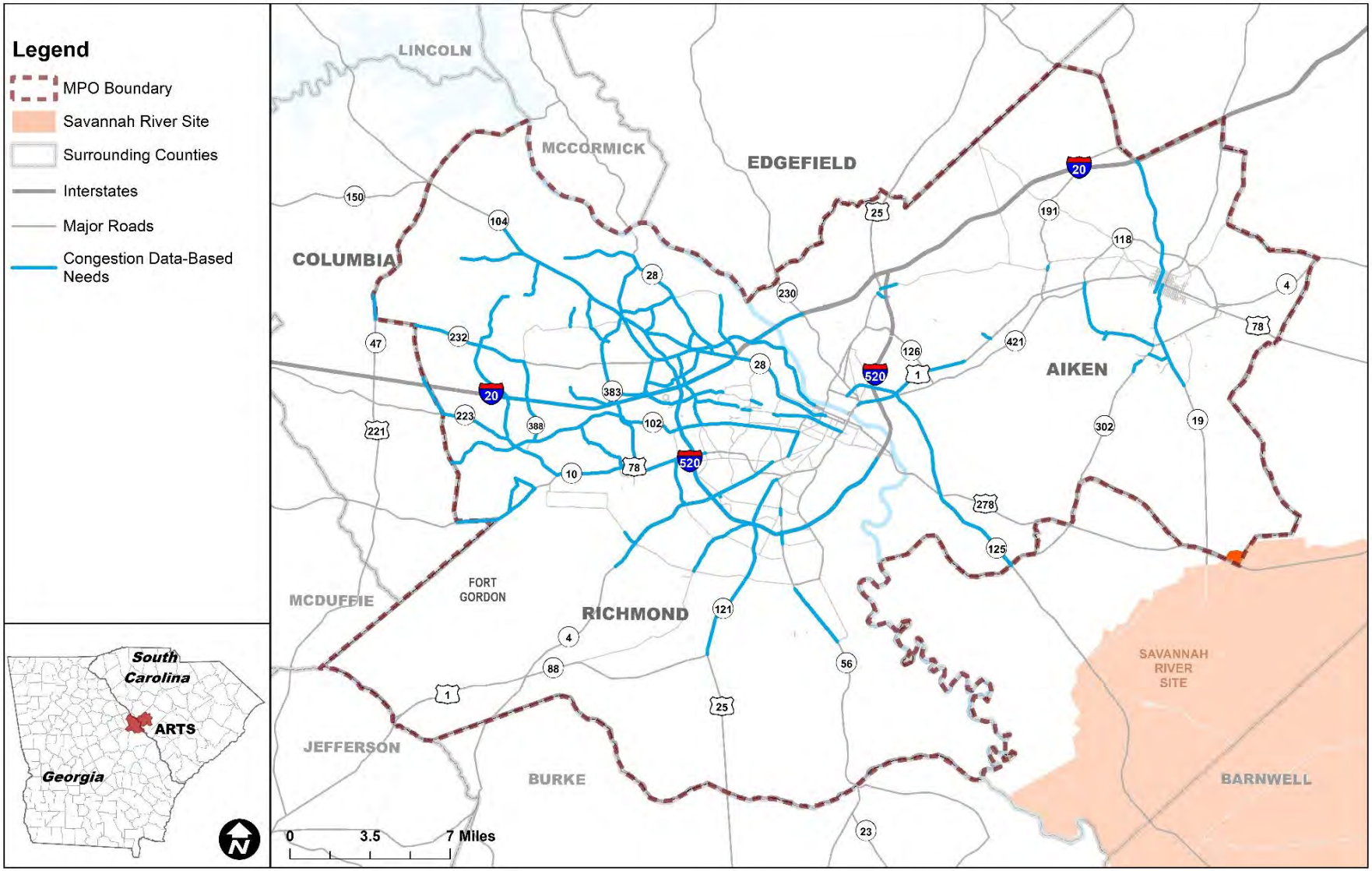
Figure 4-9 shows the LOS in 2050 for roads in the ARTS planning area. The traffic volume on roads that connect Richmond County and Columbia County exceed the roadways' design capacity, which is in line with the expected growth in this part of the ARTS planning area. Congested roads from the model results were also compared against the CMP corridors to verify roadway congestion needs for the ARTS planning area.



Source: GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019)

Figure 4-9. Projected Level of Service on 2050 Existing + Committed Projects Model Network

Figure 4-10 shows roadways with traffic congestion needs identified in the ARTS planning area based on the latest CMP findings and the MPO's 2015 and 2050 travel demand model outputs. These corridors are either identified as congested/at the risk of congestion in the CMP or anticipated to operate at LOS E and F in 2050 from the travel demand model output. Some of the CMP corridors were estimated to have LOS D based on MPO's 2050 model with existing and committed projects (third network). Operational improvements, rather than adding lane capacity, would be recommended for such corridors.



Source: GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019)

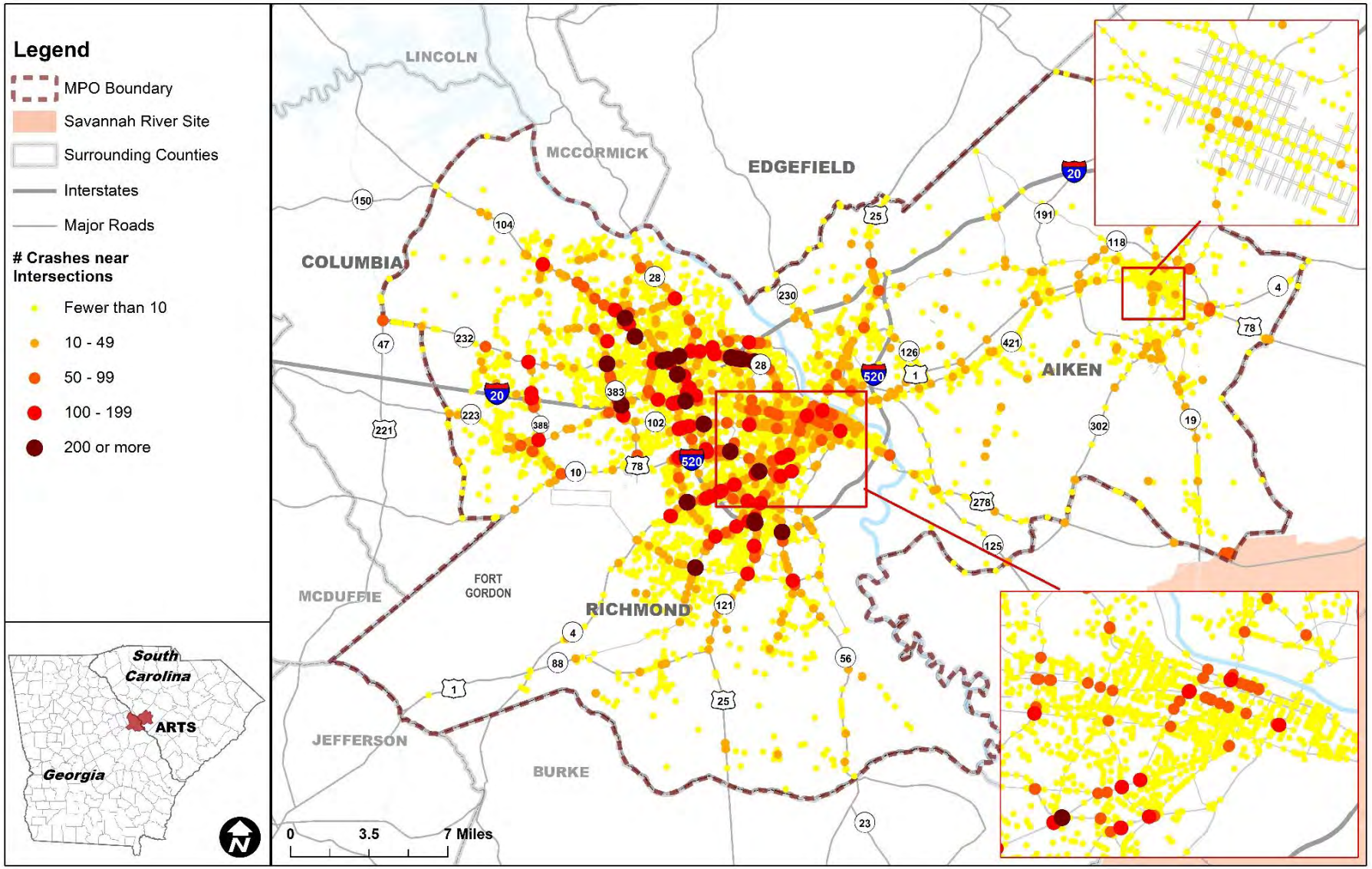
Figure 4-10. Projected Roadway Congestion Related Identified Needs in ARTS Planning Area, 2050

4.3.3 Traffic Safety

Chapter 5 in **Technical Report #2** provides a detailed assessment of safety conditions in the ARTS planning area. This section summarizes such safety needs in the region. Within the ARTS planning area, there were 89,604 crashes, 32,086 injuries, and 321 fatalities reported during the last 6-year period (2012-2017). The project team analyzed this data to identify locations with a higher number of crashes. Such locations in the ARTS planning area include interstates, state routes, and US highways as shown in **Figure 4-11.** These maps identify the following intersections and road segments with a higher number of crashes that may need safety improvements:

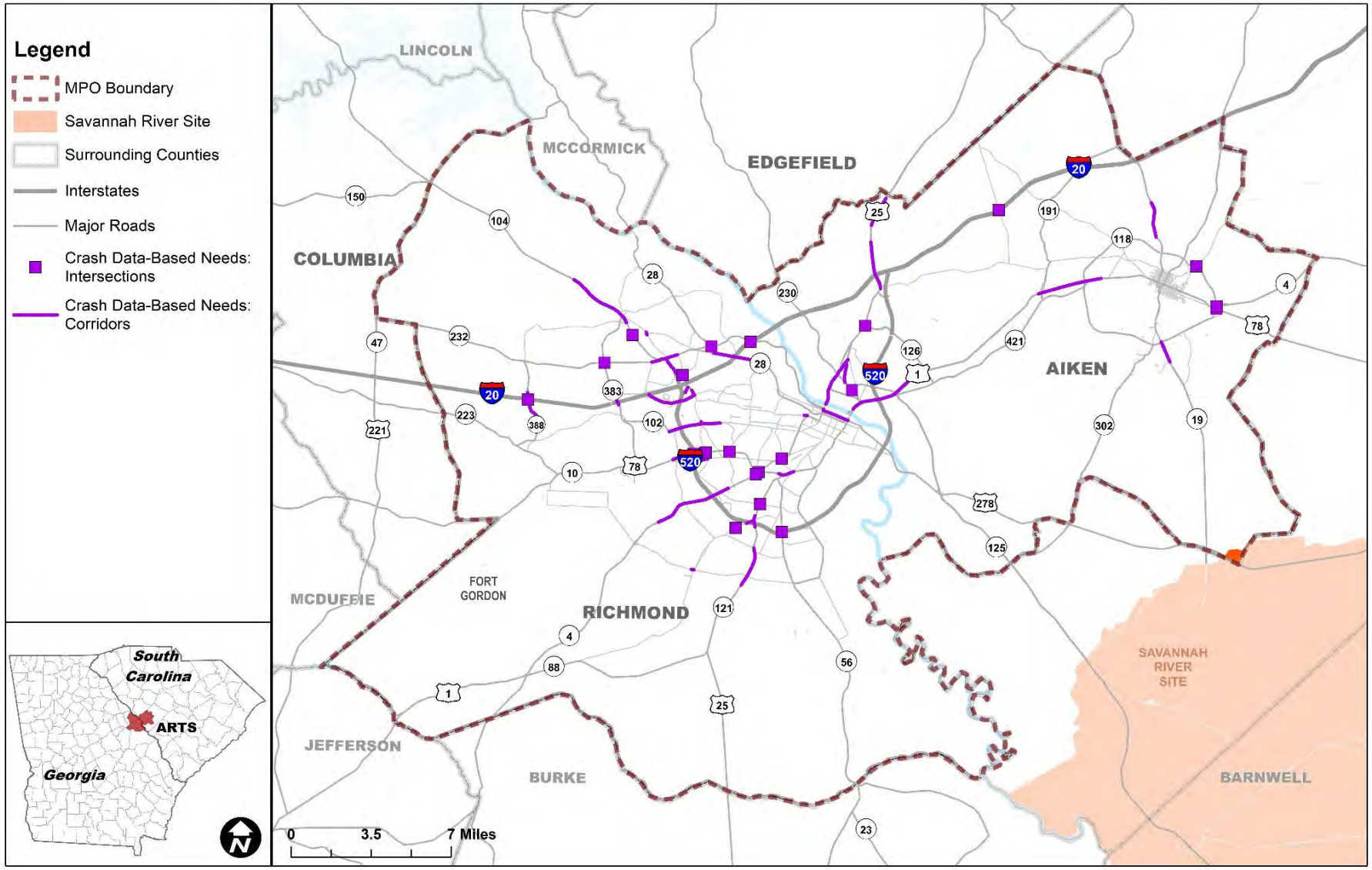
- I-20
- I-520
- GA 232/Columbia Road
- GA 28/GA 101/Washington Road
- Wrightsboro Road
- GA 4
- US 25/GA 121
- GA 56
- Windsor Spring Road

Figure 4-12 illustrates identified high crash locations in the ARTS planning area. The high numbers of crashes at these locations also correlates with high traffic volumes. These locations will need to be studied further, including an assessment of the roadway geometry, pavement, and lighting conditions, to understand potential causes for these crashes and to come up with the most appropriate solutions.



Source: ARTS MPO, SCDOT Crash Data (2012-2017), GDOT Crash Data (2012-2017)

Figure 4-11. Relative Crash Density in the ARTS Planning Area (2012-2017)



Source: ARTS MPO, SCDOT Crash Data (2012-2017), GDOT Crash Data (2012-2017)

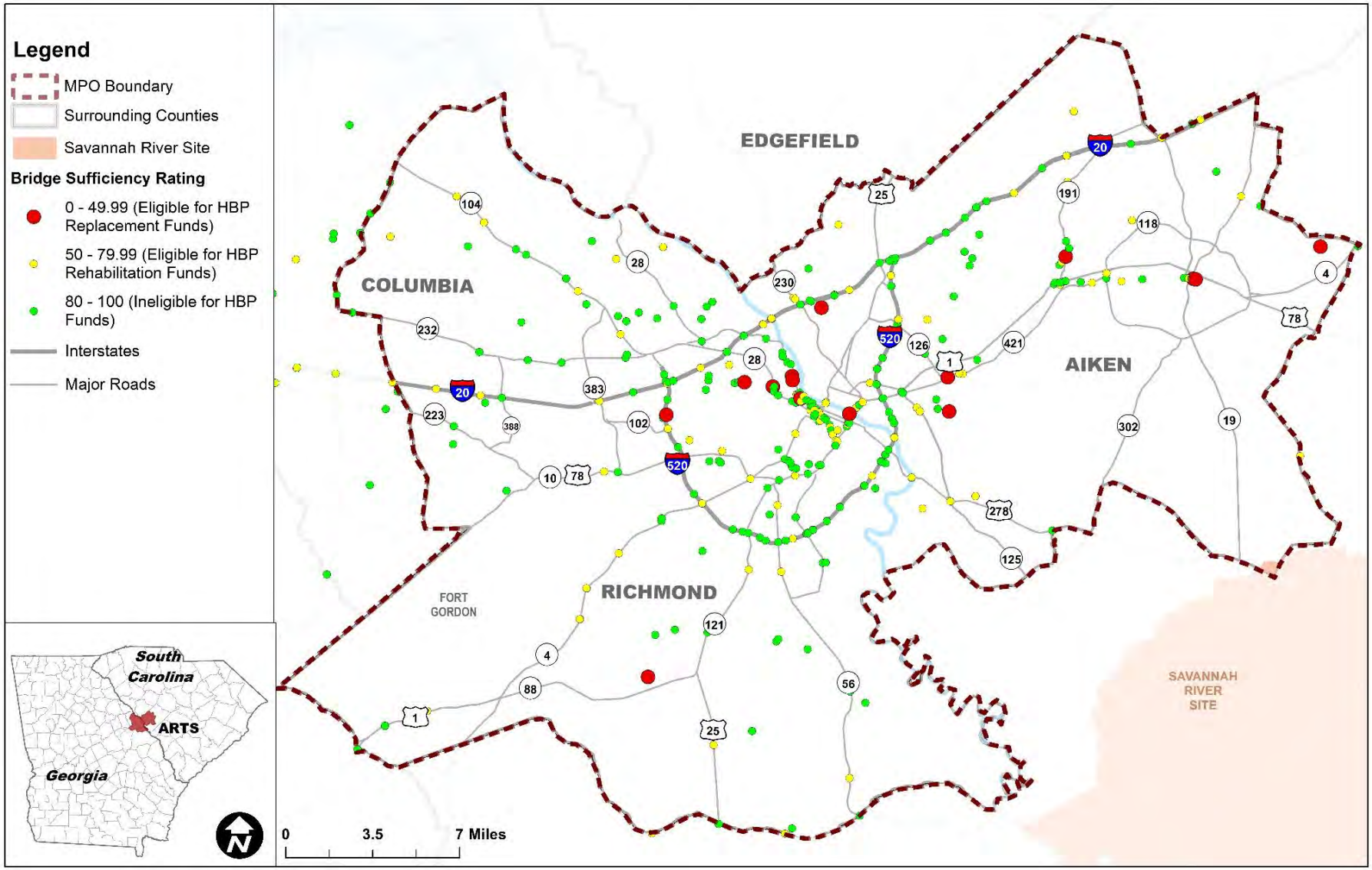
Figure 4-12. Identified Safety Needs in the ARTS Planning Area

4.3.4 Bridge Conditions

Within the ARTS planning area, there are a total of 389 bridges. 246 of these are in Georgia, and 143 are in South Carolina. Needs for repair or replacement were identified based on bridge sufficiency rating. Sufficiency Ratings are on a scale of 0 (an entirely deficient bridge) to 100 (a completely sufficient bridge). Bridges with sufficiency ratings less than 50 are eligible for Highway Bridge Program (HBP) Replacement funds. There are 15 of these bridges within the ARTS planning area, seven (7) in Georgia and eight (8) in South Carolina. Bridges with sufficiency ratings between 50 and 80 are eligible for HBP Rehabilitation funds. There are 102 of these bridges in this category within the ARTS boundary, 61 in Georgia and 41 in South Carolina. **Figure 4-13** shows bridges that are eligible to receive HBP Replacement or Rehabilitation funds.

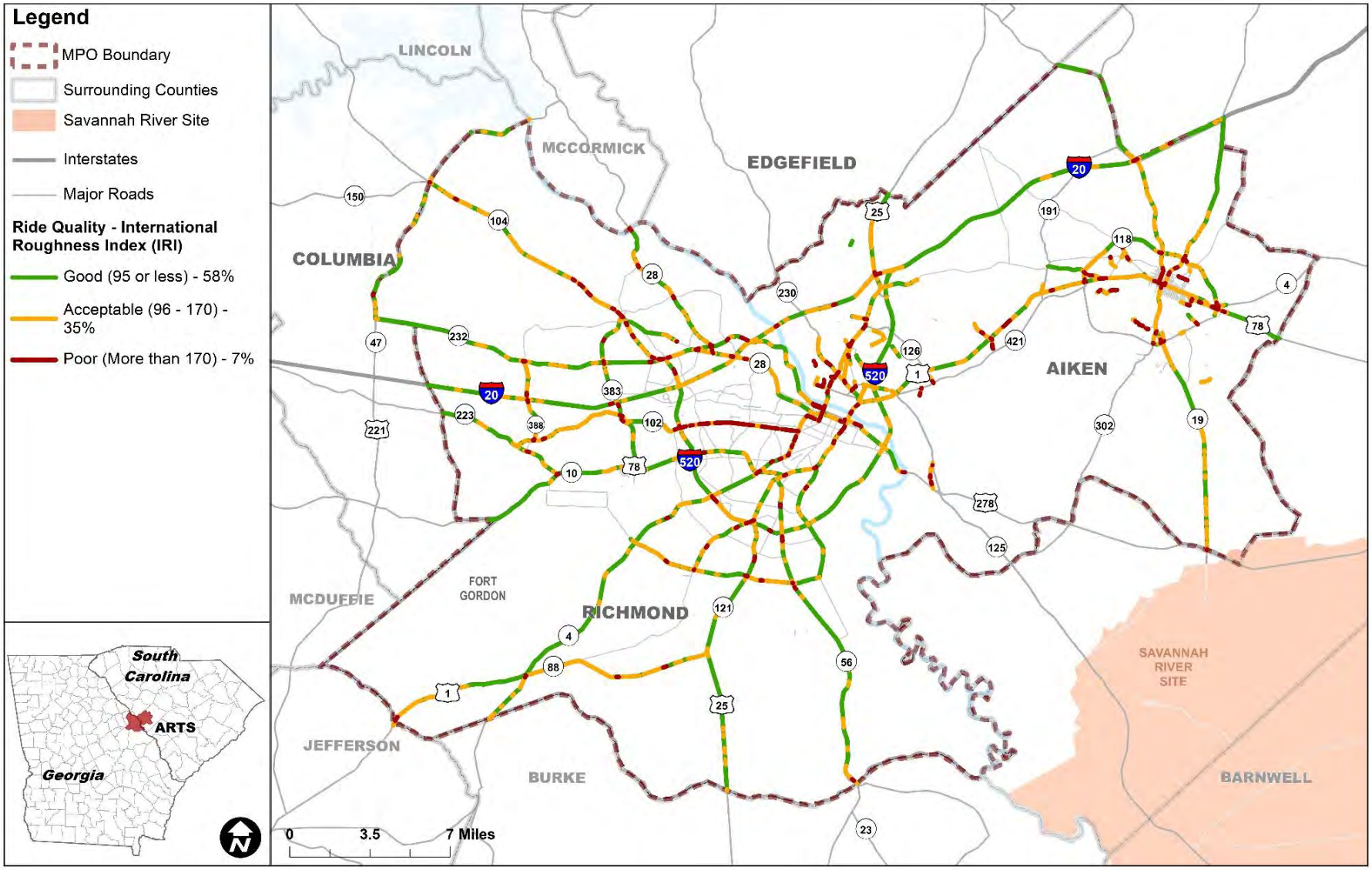
4.3.5 Pavement Quality

Quality of pavement can impact several ride quality characteristics such as comfort, roadway capacity, useful life and safety as well. Roughness of a road surface is measured using the International Roughness Index (IRI). IRI is usually reported in inches per mile, with higher ratings indicating rougher roads. FHWA considers a roadway with IRI of 95 inches per mile or less to have good ride quality, and a roadway with an IRI of 170 inches per mile or less to have acceptable ride quality. **Figure 4-14** shows IRI for major roadways in the ARTS planning area, as collected from Highway Performance Monitoring System (HPMS).



Source: US Federal Highway Administration National Bridge Inventory (2019)

Figure 4-13. Bridges Identified for Repair or Replacement (2019)



Source: Highway Performance Monitoring System (2017)

Figure 4-14. Pavement Quality (2017)

4.4 Aviation and Freight

This section includes a summary of aviation and freight related needs identified in the ARTS planning area.

4.4.1 Aviation and Air Cargo

Planning for the future and constructing needed airside and landside improvements is important for each of the three airports situated in the ARTS planning area. Ground access to each of these airports will be critical to their continued success. Managing airport ground access improvements are also dependent on the projected growth and subsequent increase in passenger landside traffic. Chapter 6 of **Technical Report #2** includes further details about the airports in the ARTS planning area. Aviation needs will be important when considering future economic growth. When roadway and transit projects are proposed, the benefits of providing improved access to the airports for both passenger flights and freight movement should be considered.

While the ARTS planning area is served by several commercial and general aviation airports, it is Augusta Regional Airport that is the subject of the "Summary Report for Augusta Regional Airport at Bush Field" as a part of the Georgia Statewide Aviation System Plan (2018). The planning document recommends several improvements to its landside as well as airside infrastructure, including improvements to parking facilities and bus shelters. As the primary commercial airport serving the region, it is city-owned and operated and managed by the Augusta Airport Commission. Airlines serving Augusta include Delta; Endeavor, a subsidiary of Delta; Piedmont, a subsidiary of American Airlines; and, Skywest. Atlanta GA and Charlotte NC are the most frequent destinations followed by Dallas TX. As of January 7, 2020, direct flights from Augusta to Washington D.C. were made available at the Augusta Regional Airport. For transportation improvements, the Commission staff shared with us during a meeting on March 5, 2020 that their priorities include seeking to improve the direct connectivity between the US Cyber Center of Excellence at Fort Gordon and the Airport, as well as improved access to the Airport via multimodal and transit alternatives.

4.4.2 Freight

Freight is a significant component of transportation demand within the ARTS planning area. Trucking and railways are the primary and secondary freight movement modes, respectively. The navigable waterways within the ARTS planning area are not used for freight transport. I-20 and I-520 are the two routes within the ARTS planning area with the highest volumes of freight by weight and value. I-20 provides primary truck access through the ARTS planning area, while I-520 provides radial access to the City of Augusta. Some of the key freight needs in the ARTS planning area are:

- **Improving Congestion on Freight Facilities: Technical Report #2 (Existing Conditions)** lists I-20, I-520, US 1/GA 4, US 4, US 19, US 25 and US 78 as part of the designated freight corridors in Georgia and South Carolina. Facilities with expected freight movement would need special attention to ensure timely movement of goods in the region.
- **Deliveries and Curb Management:** Curbside freight delivery, especially in downtown areas and core business districts, can affect operations and safety at these locations. While the project team did not receive any specific comments and concerns about any adverse effects of curbside deliveries, a policy

regarding curb management could proactively address any concerns that may arise due to expected growth.

- **Truck Parking:** While more truck parking may be needed to support the level of freight traffic in the region, careful consideration to maintain residential air quality and noise levels is necessary. **Technical Report #2** discusses the existing conditions that may require additional consideration when considering new truck parking locations.
- **Grade Separations at Rail Crossings:** Of the nearly 600 railroad crossings in the four-county area, over 90 percent of railroad crossings are at-grade, meaning they intersect with roadways at street level. At-grade railroad crossings can block vehicular traffic, including that for emergency vehicles, while the train is passing through. At-grade crossings can also pose safety challenges for motorists, pedestrians, and bicyclists. Further study is needed to identify key railroad crossings that should be grade separated to improve vehicle/rail operations as well as traffic safety.

Identifying and Analyzing Goods Movement

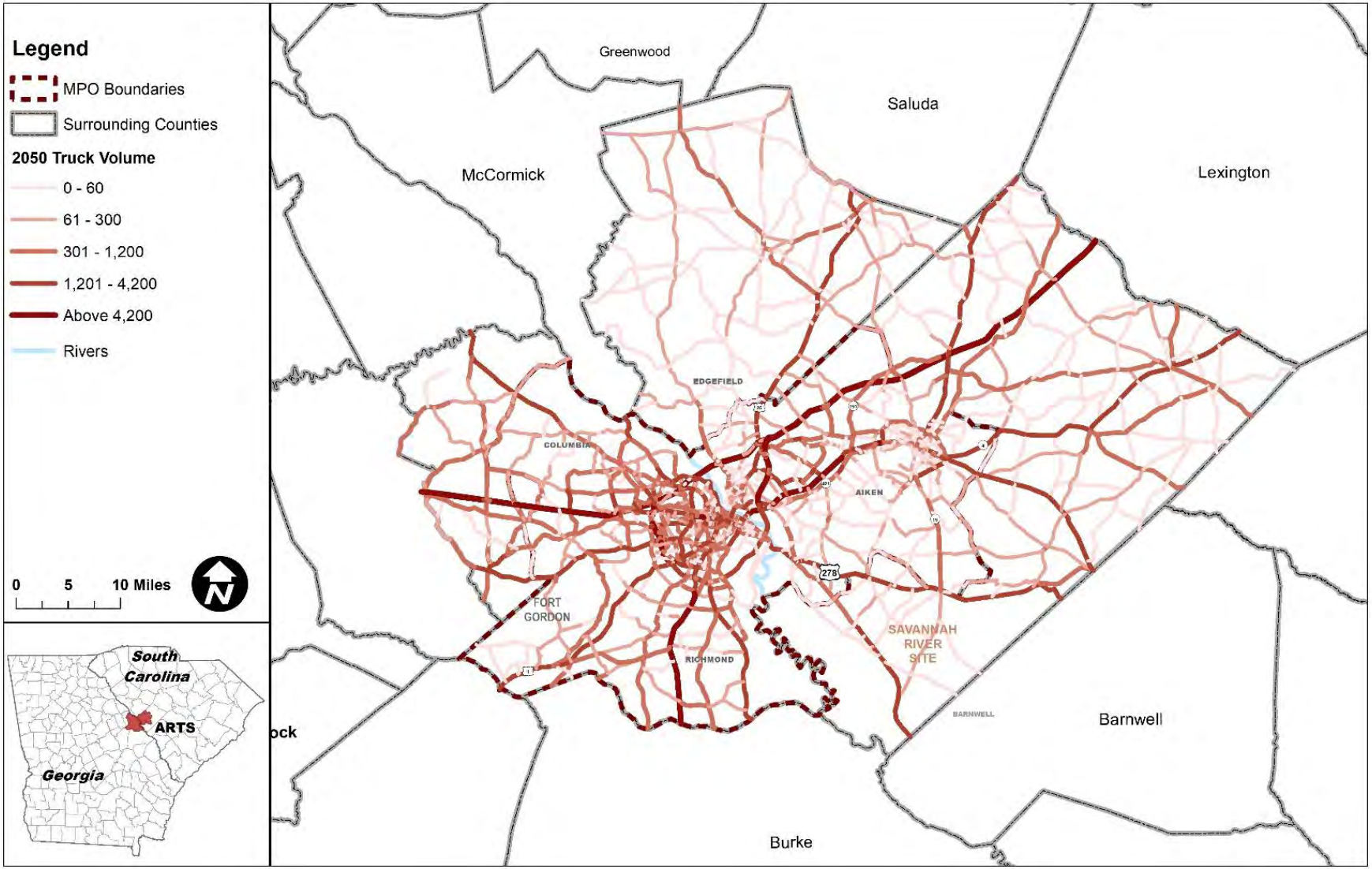
The 2050 MTP uses the 2050 Travel Demand Model projections to analyze future freight patterns and demand. Freight volumes are anticipated to continue to increase with increasing total traffic volumes. The map in **Figure 4-15** shows projected freight volumes in the year 2050, according to the Travel Demand Model (2050 No-Build Existing + Committed).

To address the anticipated needs related to freight and freight corridors, the 2050 MTP identifies several project recommendations including:

- I-20: widenings, frontage collector, intersection, bridge, and safety improvements
- I-520: intersection, operational, widening, and safety improvements
- US 1/GA 4: widening, bridge, intersection, operational, and safety improvements
- US 25: widening, extension, operational, bridge, and safety improvements
- US 78: widening, operational, intersection, and freight corridor improvements

Performance-Based Planning, Project Prioritization, and Programming

When identifying project recommendations, roadway conditions related to freight such as traffic volume and level of service (LOS) were evaluated. When scoring and prioritizing projects in the project prioritization process, two metrics were included related to freight: (1) under the Safety & Security goal, projects scored higher if located on the Department of Defense's Strategic Highway Network (STRAHNET); and, (2) under the Economic Vitality goal, projects scored higher if they had higher daily truck volumes. Including these freight-related metrics in the project prioritization process advanced freight-supportive improvements in the project list. The 2050 MTP project recommendations list then feeds into subsequent project programming.



Source: GDOT – ARTS Travel Demand Model, Third Network Analysis (2019)

Figure 4-15. Projected 2050 Truck Traffic Volumes

4.5 Transit

The availability of transit is essential to the region's ability to provide mobility options to residents, workers, and visitors, to accommodate future growth, and to expand employment opportunities. In addition to serving as an alternative to the private motor vehicle as a transportation mode, transit is especially important for people without access to a vehicle, people with disabilities, young people, and aging seniors. Many people in these demographic categories rely on transit as a primary form of transportation. For some ARTS planning area residents, transit may not be a choice but is a necessity for access to jobs, errands, and childcare. This section summarizes transit related needs identified in the ARTS planning area.

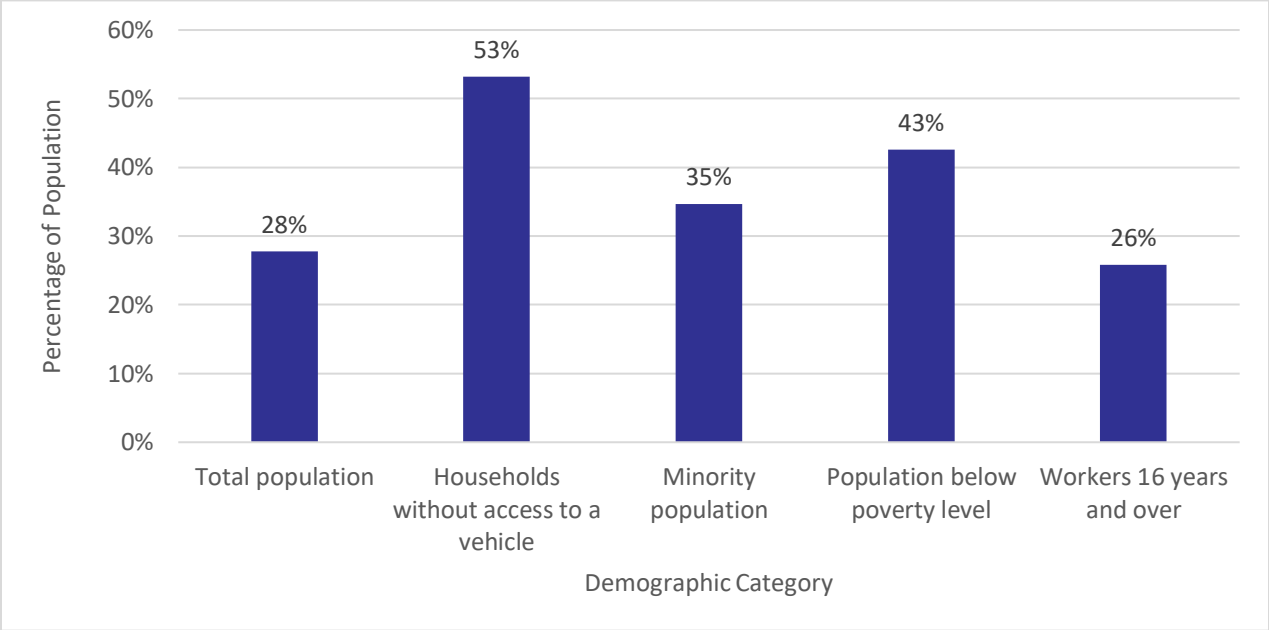
4.5.1 Access to Fixed Route Transit

Table 4-3 and **Figure 4-16** present the limited reach of fixed transit routes in the ARTS planning area. Areas within one half-mile of fixed route transit services can be assumed to have walkable access to transit, although this assumption over-estimates the true accessibility; not all roadways within the half-mile radius will be easily crossed, such as highways or busy corridors that lack pedestrian facilities, and property boundaries and private ownership prevent pedestrian access in many locations. These assumptions apply to the rest of this report. Even with these limitations, and assuming it is an over-estimation, approximately 28 percent of the population living in the ARTS planning area, and only 26 percent of the area's nearly 200,000 workers, have access to fixed route transit. Among households without access to a vehicle, one-half are within one-half mile of fixed route transit. **Figure 4-17** illustrates fixed transit routes in the ARTS planning area as well as locations of fixed transit routes in relationship to the ARTS planning area's Environmental Justice populations. This map is useful when identifying priority areas for improvements to existing transit corridors and new bus routes.

Table 4-3. Demographic Summary of Area Around Fixed Transit Routes (2013-2017)

	Total Population	Households without Access to a Vehicle	Minority Population	Population below Poverty Level	Workers 16 Years and Over
Total for ARTS Planning Area	460,015	11,184	211,252	78,145	195,850
Total for 1/2 mile around Transit Routes	127,785	5,947	73,187	33,266	50,657
Percent of Total ARTS Planning Area within 1/2 miles of Fixed Routes	**28%**	**53%**	**35%**	**43%**	**26%**

Source: 2013-2017 ACS 5-Year Estimate



Source: *2013-2017 ACS 5-Year Estimate*

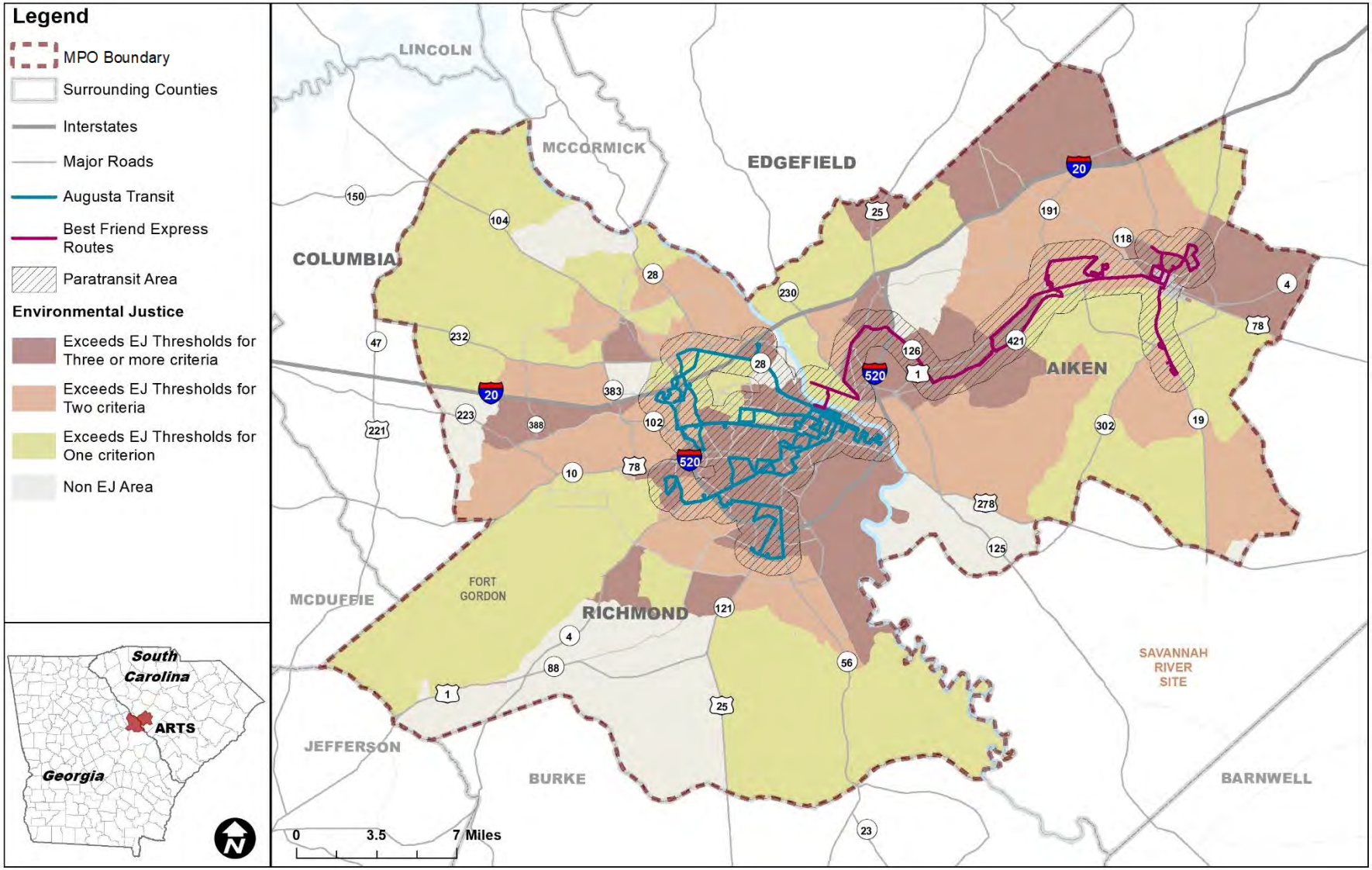
Figure 4-16. Demographic Summary within Half-Mile of Fixed Route Transit in the ARTS Planning Area (2013-2017)

Table 4-4 shows employment within one half-mile of a fixed transit route in the ARTS planning area. In 2015, nearly 57 percent of employment in the ARTS planning area was within one half-mile of fixed transit routes. This percentage is projected to drop to nearly 54 percent for 2050. The slight drop of the percent of employment may be because areas of fastest population/employment growth are away from fixed transit routes.

Table 4-4. Current and Projected Future Employment around Fixed Transit Routes, 2015 and 2050

	Employment - 2015	Employment - 2050
Total employment for 1/2 mile around Transit Routes	112,629	137,858
Total Employment in ARTS Planning Area	197,880	255,011
Percent of Employment in ARTS Planning Area within Half-Mile of Fixed Route Transit	57%	54%

Source: Georgia Statewide Travel Demand Model (GSTDM), OPB, RFAO, ACS, Edgefield County (2019), Woods & Poole, REMI, GSTDM, ARTS MPO (2010)



Source: Augusta Transit, Best Friend Express, ARTS, 2013-2017 ACS 5-Year Estimate

Figure 4-17. Fixed Transit Routes and Environmental Justice Populations in the ARTS Planning Area and Paratransit Service Area (2013-2017)

4.5.2 On-Demand Transit and Microtransit Needs

Microtransit is a form of on-demand transportation that may provide curb-to-curb service, corner-to-corner service, or in some cases, stop-to-stop service. **Table 4-5** summarizes the senior population and population with disabilities within paratransit service areas (3/4 mile around fixed transit routes as required by the Americans with Disabilities Act (ADA)[1]). Nearly 60 percent of seniors and people with disabilities live outside the service area for paratransit around fixed transit routes. Paratransit/on-demand transit service is available in Columbia County and the non-urban areas of Richmond and Aiken Counties where fixed routes are not provided, however, their operating hours are limited. This factor limits their potential usability for residents. Paratransit in the area follows the on-demand model, and many of these services require reservations in advance.

Table 4-5. Reach of Paratransit Service (2013-2017)

	With a Disability	Population 65 Years and Over
Total for ARTS Planning Area	63,061	65,245
Total for 3/4 Mile around Transit Routes	25,480	24,656
Percent of Total ARTS Planning area within 3/4 miles of fixed routes (paratransit service area)	40%	38%

Source: 2013-2017 ACS 5-Year Estimate

4.5.3 Transit Related Themes in Public Input

The project team received input from public and stakeholder outreach regarding transit improvements in the ARTS planning area, primarily from an online survey on the MetroQuest platform. The survey received nearly 200 markers requesting improvement in transit access, of which about 50 percent were in Richmond County, and about 25 percent each were in Aiken County and Columbia County. Some of the themes that emerged from these comments are listed below.

- Inter-county transit services
- More frequent buses
- More transit stops
- Extended schedule to serve workers
- Transit in South Augusta
- Transit in rural areas
- Ride-share
- Reliable transit
- Transit in Columbia County
- Transit connections/circulators near college campuses

[1] National Aging and Disability Transportation Center, https://www.nadtc.org/about/transportation-aging-disability/ada-and-paratransit/

4.6 Active Transportation

Well-connected networks of pedestrian and bicycle infrastructure are essential to enable and promote non- motorized transportation across the ARTS planning area by providing pedestrians and bicyclists safe and secure spaces for travel. Bicycle and pedestrian improvements can provide effective mobility throughout the region, enhance the social and environmental fabric of the area, increase safety and security for users, and address congestion and air quality issues. ARTS developed a Regional Bicycle and Pedestrian Plan for the area in 2012, which included a comprehensive assessment of pedestrian and bicycle infrastructure in the ARTS planning area. High priority needs identified in this 2012 plan were integrated into the Universe of Projects list for the 2050 MTP (see **Section 5.1**). Recognizing the time that has passed since the 2012 study has been completed, the 2050 MTP identifies high demand areas for active transportation where the ARTS MPO should focus future study.

Source: http://billsmith.org/2018/10/03/draft-active-transportation-plan-available-now/

4.6.1 Safe Routes to School

Safe Routes to School (SRTS) is a national program that provides funding to local communities. Eligible projects include those that encourage walking and biking to school through infrastructure improvements (such as connected sidewalks and bike lanes) and programs (such as "walking buses" for students that live near one another), traffic safety enforcement measures, and bike safety classes. **Figure 4-18** shows a half-mile radius around each school in the ARTS planning area. Program guidelines recommend a one-half mile as a distance that students in all grades can comfortably walk[2]. These buffered areas reflect reasonable walking distances for children to get to school and therefore are suitable areas to improve pedestrian and bicycle infrastructure.

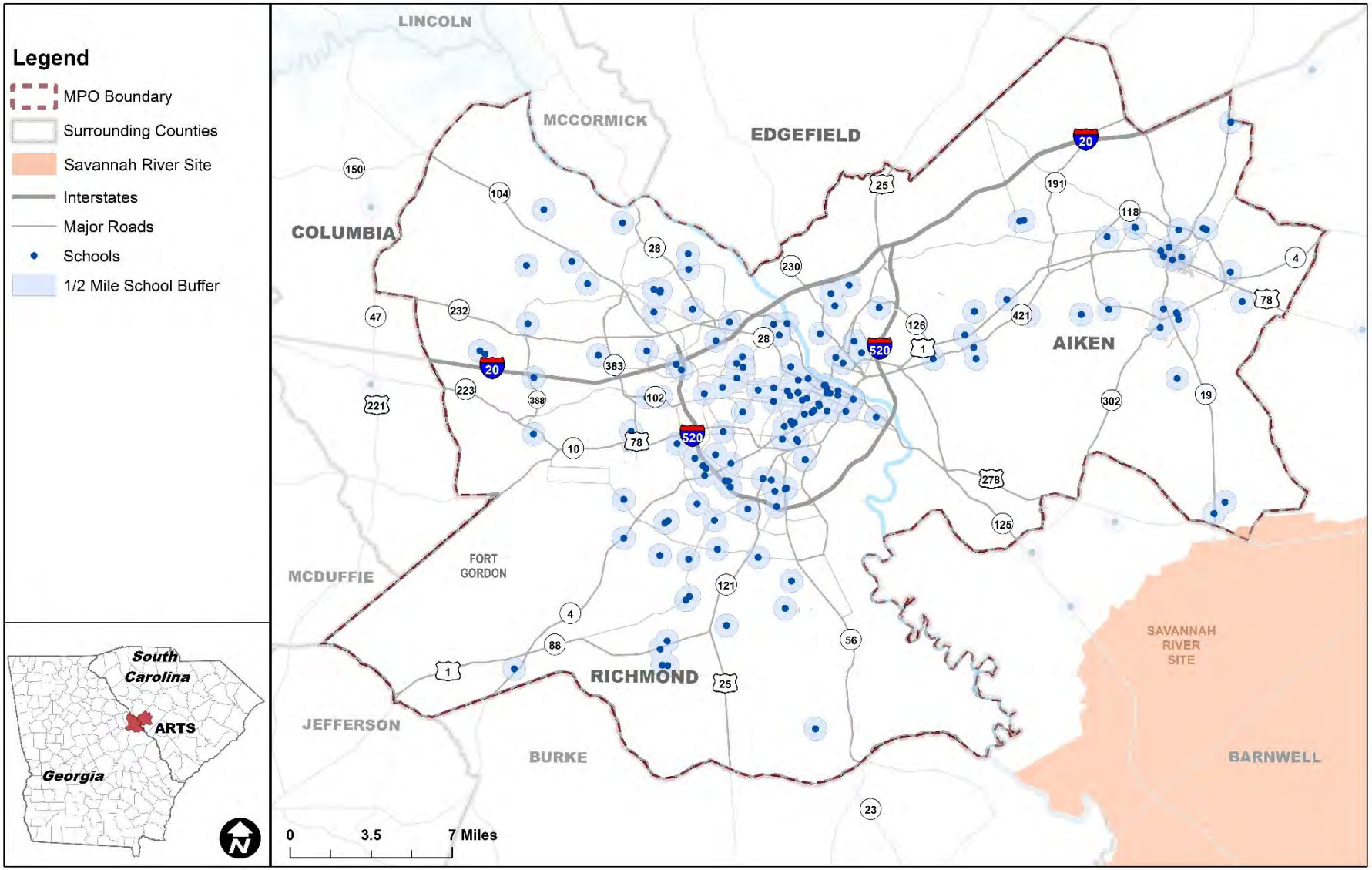
4.6.2 High Demand Areas for Active Transportation

High demand for pedestrian or bicycle activity can be considered near key points of interest such as parks, community centers, schools, grocery stores, libraries, and other municipal buildings. The project team identified high demand areas for pedestrian and bicycles near such points of interest in the ARTS planning area. The color gradients indicated on **Figure 4-19,** are based on the number of points of interest within a half-mile radius around these points of interest. Downtowns of Augusta, North Augusta, Aiken, and Grovetown have concentrations of points of interest, as it would be expected. These areas may potentially be where the ARTS MPO should study further to provide more active transportation facilities such as continuous sidewalks, pedestrian walkways, greenways, and bikeway facilities.

4.6.3 Bicycle and Pedestrian Safety

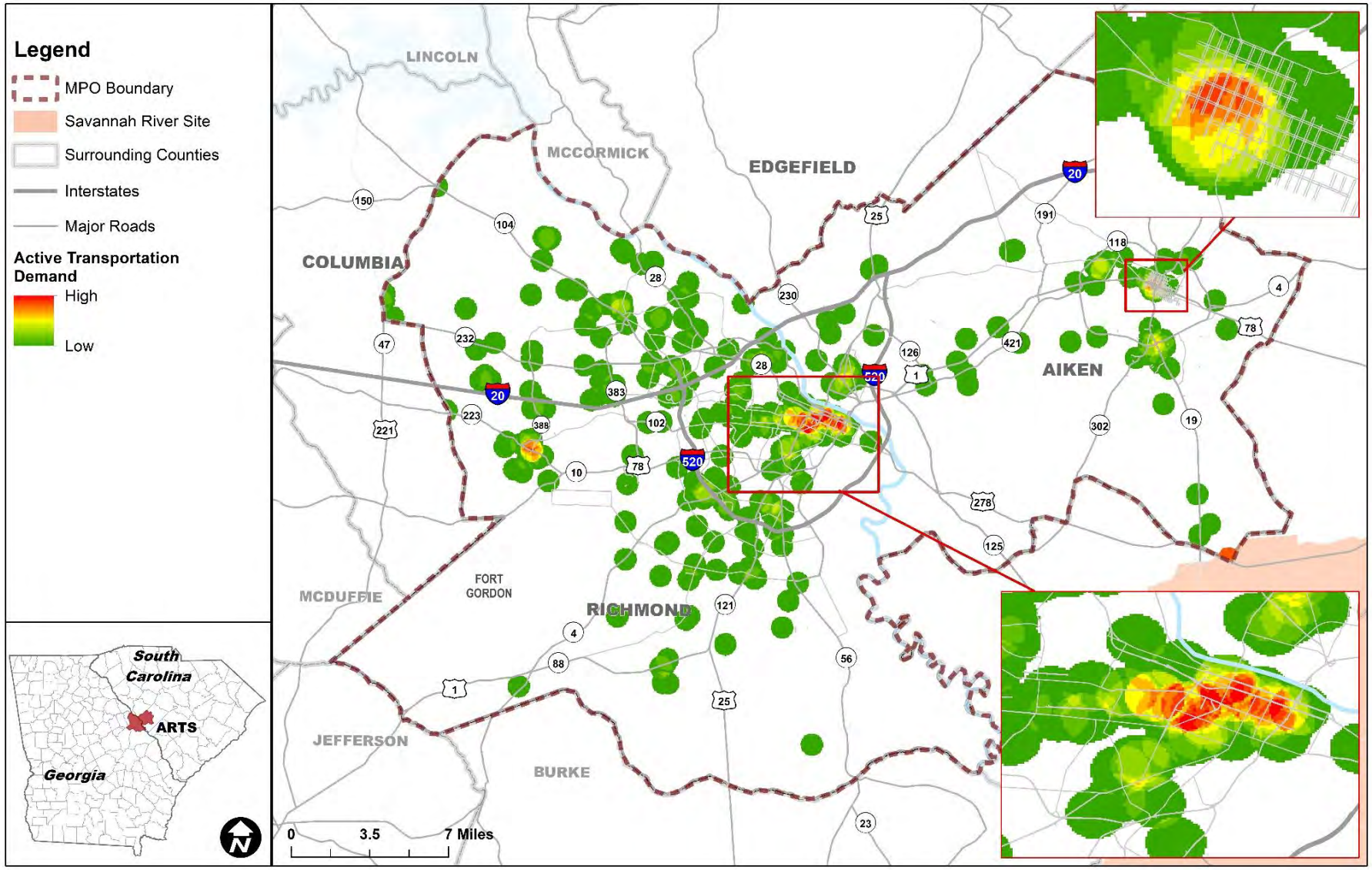
GDOT and SCDOT crash data for 2012 through 2017 enumerates crashes involving pedestrians and bicyclists. **Figure 4-20** shows pedestrian- or bicycle-related high-crash locations in the ARTS planning area, which include, streets in downtown Augusta, Deans Bridge Road, Wrightsboro Road, US 25 and Washington Road.

[2] Safe Routes Partnership Research Blog, 2018: https://www.saferoutespartnership.org/blog/too-far-walk



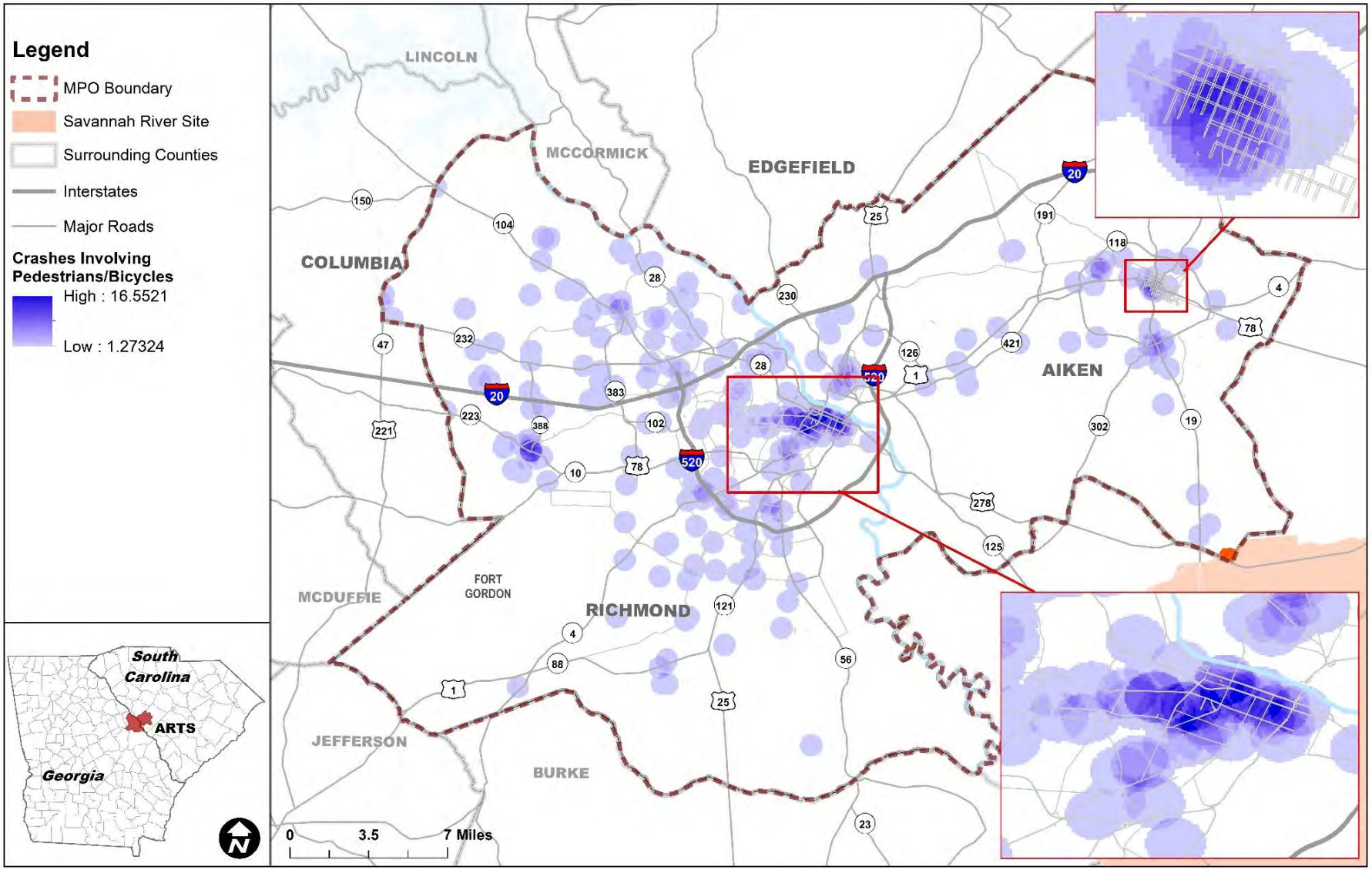
Source: ARTS MPO

Figure 4-18. Half-Mile Areas around Schools in ARTS Planning Area



Source: ARTS

Figure 4-19. Areas with High Demand of Active Transportation, 2012-2017



Source: ARTS, GDOT Crash Data (2012-2017), SCDOT Crash Data (2012-2017)

Figure 4-20. Areas with Crashes involving Pedestrians or Bicyclists (2012-2017)

4.7 Transportation System Management and Operations (TSM&O)

This section summarizes Transportation System Management and Operations (TSM&O) and Intelligent Transportation Systems (ITS) needs identified in the ARTS planning area.

Based on the existing conditions related to TSM&O documented **in Technical Report #2**, some opportunities exist to initiate or expand upon TSM&O programs, projects, and initiatives in the ARTS planning area:

Source: Ohio Department of Transportation

- Arterial Management – Opportunities exist to explore programs, projects, and initiatives in Aiken, Edgefield, and Columbia Counties through traffic signal phasing and timing, signal coordination, and intersection improvements.
- Bottleneck Mitigation – Opportunities exist to explore programs, projects, and initiatives in Aiken, Edgefield, and Columbia Counties.
- Congestion Pricing – Not currently used within ARTS planning area but could be an option to consider in the future. Congestion pricing - sometimes called value pricing - is a way of harnessing the power of the market to reduce the waste associated with traffic congestion (FHWA Website).
- Integrated Corridor Management – Not currently used within ARTS planning area but could be an option to consider in the future.
- Emergency Transportation Operations – Opportunities exist to explore programs, projects, and initiatives in Aiken and Edgefield counties. An example is coordinated traffic signals with first responder vehicle priority.
- Freeway Management – Opportunities exist to explore programs, projects, and initiatives in Edgefield and Columbia Counties. An example is dynamic lane management.
- Institutionalized programs that provide grants, loans, tax credits or direct financial incentives – Not currently used within ARTS planning area but could be an option to consider in the future.
- Managed Lanes – Not currently used within ARTS planning area but could be an option to consider in the future.
- Planned Special Events Traffic Management – Currently utilized in Richmond County during Masters week events, but opportunities exist to further explore broader applications.
- Road Weather Management – Dynamic signs are used in Aiken, Columbia, and Richmond counties, and opportunity exists in Edgefield counties.
- Real Time Traveler Information – Dynamic signs are used in Aiken, Columbia, and Richmond counties, and opportunity exists in Edgefield County.
- Traffic Incident Management – Not currently used within ARTS planning area but could be an option to consider in the future.

- Transit Operations and Management – Opportunities exist to explore programs, projects, and initiatives in Aiken, Edgefield, and Columbia Counties.
- Work Zone Management – Opportunities exist to explore programs, projects, and initiatives in Aiken and Edgefield counties. An example is email notification and media blasts regarding major road works.

The identified project recommendations include numerous intersection and operational improvements that can be considered in the TSM&O category. The project list contains a wide variety of such projects throughout the ARTS planning area. Additionally, in the project prioritization process, two project evaluation metrics were related to TSM&O and measured projects' ability to improve operational efficiency and reliability and to address travel demand management and congestion mitigation.

4.8 Emerging Technologies and Shared Mobility

Recent advancements in technologies have made it necessary to assess the potential for shared mobility services, emerging technologies such as electric vehicles, connected and automated vehicles, and upcoming data sources with a vast wealth of information that can inform major decisions. The following sections briefly discuss such technologies and potential needs regarding emerging technologies in transportation.

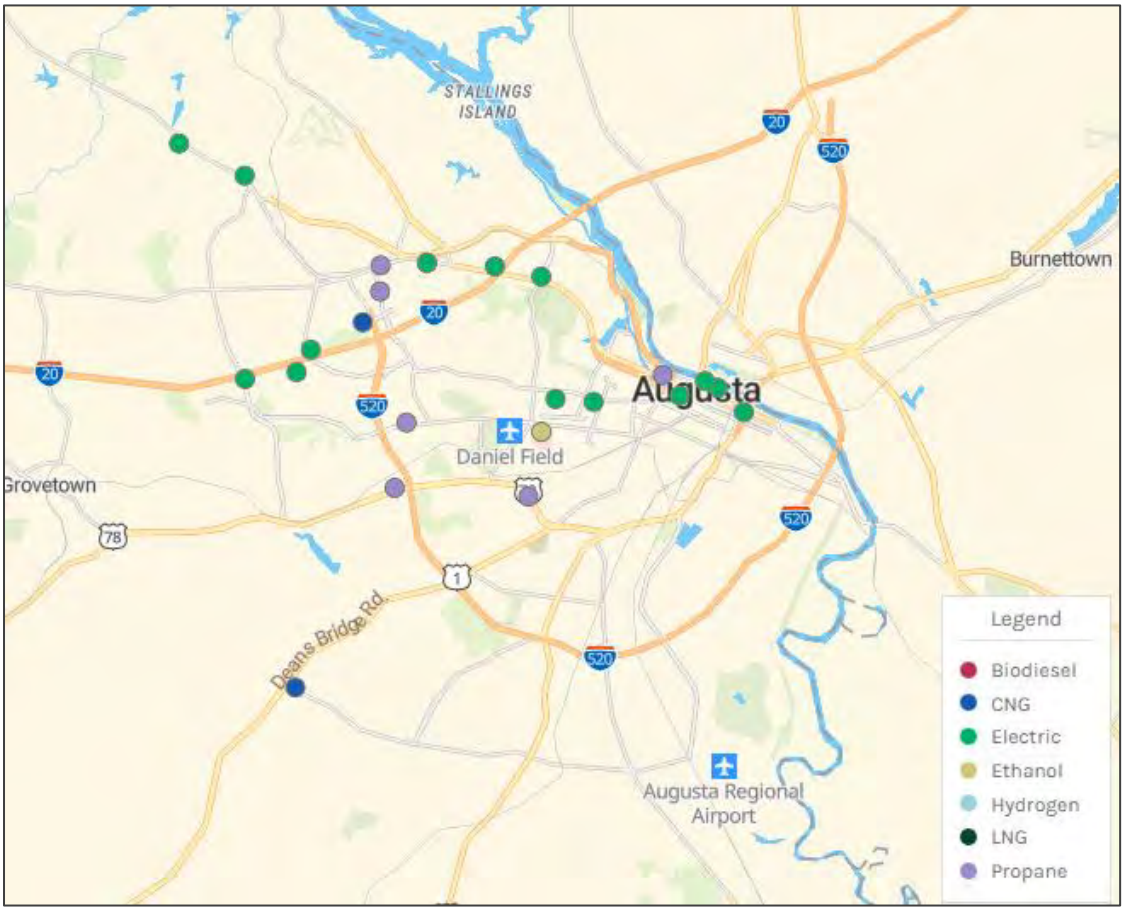
4.8.1 Ridesharing Services

In addition to various ride-hailing taxi services, mobile application-based services such as Uber and Lyft operate in ARTS planning area. Transportation Network Companies (TNCs), also known as a Mobility-as-a-Service (MaaS), such as Uber and Lyft can potentially operate around the clock, depending on driver availability. TNCs can play a major role in providing last mile connectivity to transit riders and to areas not currently served by transit directly. In connecting a rider to a destination that is not on the extended transit system, TNCs can extend the de facto service footprint of transit. Ride sharing services also play an important role in providing an alternative mode of access to major venues such as airports and sport tournaments. It is important to have regional policies in managing pick-up and drop-off for such services.

While curbside pick-up and drop-off provides convenience for ridesharing users, it can hold up the traffic flow on some busy streets. It is important to have regional policies to manage pick-up and drop-off locations for ridesharing services.

4.8.2 Electric Vehicles

While electric vehicles were invented in the 19th century, limitations in battery storage restricted their common use. Advancement in battery technologies over the years has made their single-charge traveling capacity similar to that of conventional gasoline powered cars. Electric cars are also becoming more affordable with this advancement in technology which makes owning such a vehicle within reach of many consumers. Electric-powered vehicles provide environmental benefits over vehicles powered by internal combustion engines by reducing greenhouse gas emissions. This aspect is very important for a growing region such as the ARTS planning area to minimize emissions. A network of charging stations is key to support longer distance travels using electric vehicles. Alternative Fuels Data Center of US Department of Energy provides a list of charging stations throughout the country. **Figure 4-21** shows alternative fueling stations including electric charging outlets in the ARTS planning area.



Source: Alternative Fuel Data Center, US Department of Energy

Figure 4-21. Alternative Fueling Stations in the ARTS Planning Area (2020)

4.8.3 Connected and Automated Vehicles

Connected and Automated Vehicles (CAV) is a transformative technology that has great potential to change our daily commute. "Connected vehicle" combines leading edge technologies — advanced wireless communications, on-board computer processing, advanced vehicle-sensors, GPS navigation, smart infrastructure, and others — to provide the capability for vehicles to identify threats and hazards on the roadway and communicate this information over wireless networks to give drivers alerts and warnings. "Automated vehicles" are those in which at least some aspect of a safety-critical control function (e.g., steering, throttle, or braking) occurs without direct driver input. Automation has the potential to significantly impact our driving safety, personal mobility, energy consumption, operating efficiency, environmental sustainability, and land use (Institute of Transportation Engineers Website).

Source: WSP

Since the last LRTP, the advancement of CAV technology has emerged as a very real consideration for a long-range plan—bringing us even closer to the anticipated disruption that we must be prepared for. The ARTS MPO will need to be prepared to take advantage of opportunities to pilot technologies and integrate advancements by having first-hand knowledge of how these technologies can bring benefits to the community and the transportation system.

4.8.4 Emerging Data Sources

The prevalence and use of big data has been transforming how we analyze various transportation data to make decisions to plan, design, operate, and maintain the transportation system. As an affiliate member of the I-95 Corridor Coalition's Vehicle Probe Project, the ARTS MPO can access HERE real-time travel time data. This data has been used to measure congestion by calculating a Travel Time Index (TTI) in the ARTS Congestion Management Process (CMP) 2018 Update. The MPO also has access to National Performance Management Research Data Set (NPMRDS) that includes average travel times on the National Highway System for their use in its performance measures and management activities.

While ARTS is not currently maximizing the use of big data (e.g., Regional Integrated Transportation Information System (RITIS) or National Performance Management Research Data Set (NPMRDS)) as part of its day-to-day activities, these datasets have tremendous potential to better understand the system wide performance of transportation systems with a capability of pinpointing congested locations and areas based on real-time travel time data.

4.9 Environment and Quality of Life

This section summarizes potential environmental health and quality of life needs identified in the ARTS planning area including age-friendly designs, complete streets, and context sensitive solutions.

4.9.1 Environmental Health and Air Quality

All of the ARTS planning area is currently classified as in attainment according to the National Ambient Air Quality Standards (NAAQS) for six common air pollutants. These pollutants are considered harmful to public health and the environment and come from numerous and diverse sources. The six (6) criteria pollutants include: Carbon Monoxide (CO), Oxides of Nitrogen (NO2), Sulfur Dioxide (SO2), Ozone (O3), Lead (Pb), and Particulate Matter (PM). In the ARTS planning area, there are two (2) active air quality monitoring stations, namely in Augusta (Bungalow Road) and Evans (Riverside Park) both situated in Georgia.

The MPO is evaluating the feasibility of establishing the Environmental Protection Agency (EPA) Advance Program in Richmond County or the ARTS planning area. The EPA Advance Program is a federal initiative that "promotes local actions in attainment areas to reduce ozone and/or fine particle pollution (PM2.5) to help these areas continue to maintain the National Ambient Air Quality Standards (NAAQS)." The program focuses on giving those areas in attainment tools to proactively maintain and improve local air quality standards. Improving local air quality positively impacts long-term health protection.

There are two Advance Programs: Ozone and Particulate Matter (PM). States, regions and cities may choose to align with one program or with both. The State of South Carolina is already a state participant in the Ozone and PM Advance Program. Richmond County in Georgia could be considered as the new area of participation. Below are some of the potential benefits from Richmond County's participation in the Advanced Programs (2019 ARTS Air Quality Technical Memorandum):

- Effectively and demonstrably contributes to the health and economic well-being of the county through proactively improving air quality;
- Creates a conduit for state, local agencies and EPA to collaboratively work together in developing a coordinated response to air quality issues;
- Voluntary compliance attracts like-minded community stakeholders who in turn proactively advance policies and interventions to maintain attainment and communication;
- Efficiently directs available resources toward actions to address air quality problems quickly and effectively; and,
- Ozone Advance participants may receive Preferred Status when applying for existing EPA grants and programs. This status creates the potential for program participants to take advantage of funding opportunities that are available for additional reduction activities.

4.9.2 Age-Friendly Designs

The popularity of the Augusta-Aiken area as a retirement community, combined with the trend toward increasing life expectancy, creates demand for an urban environment that meets the changing mobility needs of the aging. ARTS can plan for the future by coordinating land use, mobility, access to services, alternatives to driving, and safety in an age-friendly way. There are many groups in the region actively working to achieve this goal, including AARP Age-Friendly Augusta, the Senior Citizens Council, and the Area Agency on Aging. The MPO can focus on ensuring ADA-compliance of sidewalks and public spaces, access to mobility through public transit, bicycle and pedestrian facilities and providing zoning regulations and building codes that encourage residents to age in place. More innovative strategies may include rideshare programs, inter-generational events and networking, transportation linkages between residential areas and medical facilities, and lifecycle considerations of proposed future development to strive for age friendly design and amenities.

4.9.3 Complete Streets

Complete Streets are designed and operated to enable safe access for all road users, including pedestrians, bicyclists, and transit riders, of all ages and abilities. Complete Streets is now a standard transportation planning practice with many state DOTs formally adopting *Complete Street Policies.* GDOT formally adopted a Complete Streets policy in 2012 and incorporated Complete Streets standards into its Design Manual in 2019[3]. In 2003, SCDOT passed a resolution in support of incorporating bicycle and pedestrian infrastructure into the department's planning, design, construction, and operation[4]. In early 2019, the South Carolina House introduced a bill that would direct SCDOT to implement a Complete Streets Policy[5].

Source: https://www.weymouth.ma.us/planning-community-development/pages/complete-streets

The corridors and the areas with a high demand of pedestrian and bicycle activities discussed in **Section 4.6** should be prioritized for the application of the *Complete Streets Policies*. Applying Complete Streets concepts is one of the

[3] GDOT Design Policy Manual, 2019: http://www.dot.ga.gov/PartnerSmart/DesignManuals/DesignPolicy/GDOT-DPM.pdf
[4] SCDOT Bicycle/Pedestrian Resolution, 2003: https://www.scdot.org/projects/pdf/Bike_Ped/bike_resolution.pdf
[5] South Carolina General Assembly, 123rd Session, 2019-2020: https://www.scstatehouse.gov/sess123_2019-2020/bills/3656.htm

ways that can enhance the vitality and livability of a community by making it easy to cross the street, walk to shops, bicycle to work, and walk to and from transit stations. Coupled with effective and visually appealing signage for wayfinding, additional lighting for safety and security, and roadway restriping, these improvements not only enhance the safety of all users traveling in the ARTS planning area, they also attract more businesses and visitors and thus making the community economically viable.

4.9.4 Context Sensitive Solutions

Context Sensitive Design (CSD) or Context Sensitive Solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its unique setting. Such an approach leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions. It is part of the design of transportation projects spanning from initial programming, environmental studies, design, and construction, all the way through operation and maintenance, including long range planning. Similar to *Complete Street Policies*, many state DOTs have been providing *Context Sensitive Design Guidelines and Principles* including GDOT[6] and SCDOT[7].

The ARTS planning area includes plenty of uniquely historic and environmentally sensitive areas including the Augusta Canal National Heritage Area, Aiken's history of horse training concentrated near downtown, and the Augusta National Golf Club that holds the annual Masters Tournament. These areas and other areas with a unique community feel and setting should be prioritized for the application of the *Context Sensitive Design Guidelines and Principles*.

Chapter 4 Key Points

- Commute statistics show similar trends among the four ARTS planning area counties. While most workers travel to work between 7:00 a.m. and 9:00 a.m., nearly 30 percent of employees from each county travel to work before 7:00 a.m.
- After an inventory of existing transportation systems in the ARTS planning area, current and future transportation and land use needs through 2050 were identified based on spatial and technical analyses, such as travel demand modeling and crash analysis, as well as input from the community and stakeholders.
- The current and future needs in the ARTS planning area were identified in the categories of roads and highways; aviation and freight; transit; active transportation; transportation system management and operations; emerging technologies and shared mobility; and environment and quality of life, as shown in **Table 4-1**.

[6] GDOT Context Sensitive Design Online Manual, 2018: http://www.dot.ga.gov/PartnerSmart/DesignManuals/ContextSensitiveDesign/GDOT_CSD_Manual.pdf
[7] SCDOT Roadway Design Manual, 2017:https://www.scdot.org/business/pdf/roadway/2017_SCDOT_Roadway_Design_Manual.pdf

5 PROJECT DEVELOPMENT, EVALUATION, AND RANKING

This chapter summarizes how a list of the Universe of Projects and the project prioritization process were developed. The Universe of Projects, also known as fiscally-unconstrained projects (i.e., not limited by the availability of funding), was developed based on the assessment of existing needs, analysis of travel demand models to assess existing and future travel patterns, public and stakeholder input, and improvements recommended in previous plans or studies. Individual projects were then carefully evaluated relative to the MTP goals and objectives using a project prioritization tool developed during the MTP process. The result of this process was a prioritized project list constrained to available funding, discussed in detail in Chapter 6.

5.1 Universe of Projects

The project team compiled projects from state, regional, and locally published plans. These projects were compared against the needs identified based on public and stakeholder input and current as well as expected future conditions. Projects were then added to address unmet, identified needs to create a Universe of Projects of nearly 700 projects. From the Universe of Projects, some of the smaller projects, projects that require further study or projects for which delivery is dependent on future information, were separated from the list and grouped into project packages to be addressed by lump sum. This approach allows the 2050 MTP to adapt to the changing demand and proactively deliver projects in upcoming amendments to the plan. The remaining projects (the Universe of Projects minus the projects addressed by lump sum programs) make up the fiscally unconstrained project list. **Figure 5-1** summarizes the process of developing the Universe of Projects. **Technical Report #5** includes a fiscally unconstrained list of around 370 projects and their locations by project category. The fiscally unconstrained projects were prioritized based on criteria informed by the public and stakeholder input received during public outreach, and matched to available funds to create a fiscally-constrained program of projects. Further methodology is discussed in **Technical Report #6**.

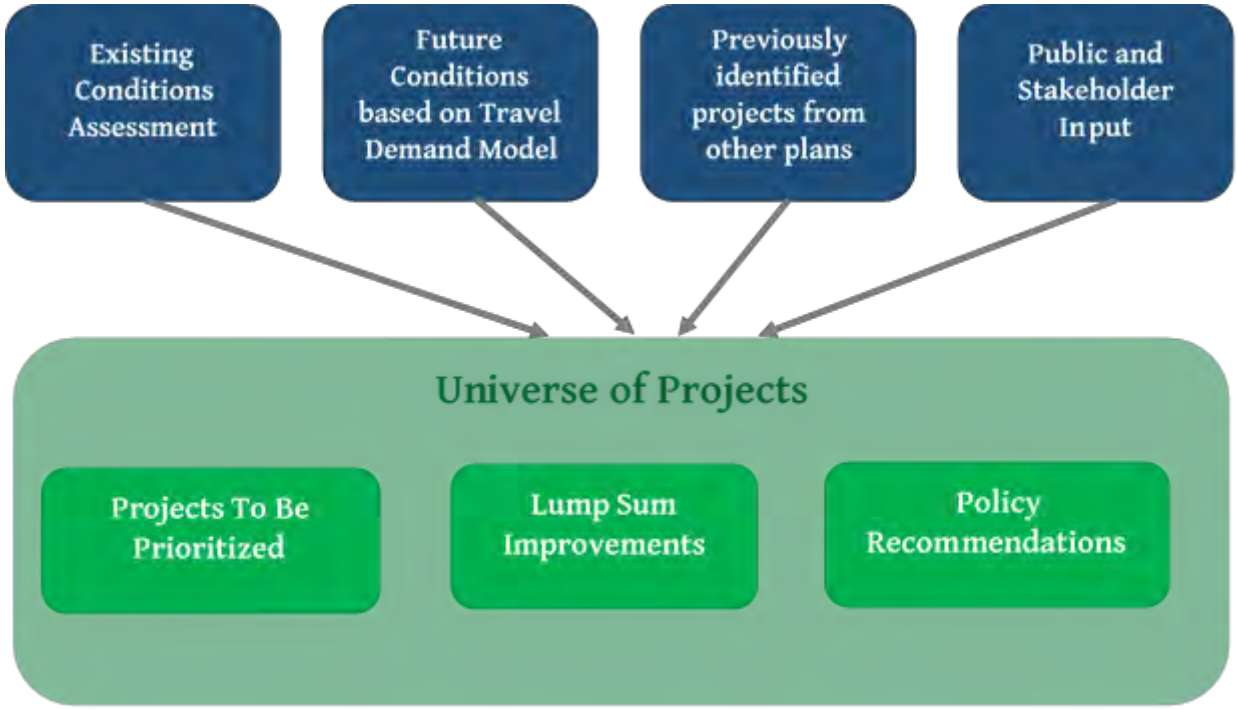


Figure 5-1. Universe of Projects

5.2 Project Prioritization Framework

Project prioritization was undertaken with a four-step process called the Project Prioritization Framework, as shown in **Figure 5-2**. First, the study team, Augusta Regional Transportation Study (ARTS) Metropolitan Planning Organization (MPO), and partner counties identified the draft Universe of Projects based on a data-driven needs assessment and a comprehensive review of previous proposals. The Universe of Projects is a list of potential improvements that address the needs identified throughout the planning process. It is not a fiscally constrained project list. Therefore, the project prioritization process evaluates the relative benefits of each project such that the most impactful projects are ultimately included in the fiscally constrained plan. To evaluate the project, a scoring methodology was developed, and projects received raw scores according to the selected project evaluation criteria metrics that align with the goals and objectives of the plan. Weights for each goal and corresponding metric were weighted based on priorities indicated through the stakeholder and public input process. The projects were then ranked according to their weighted scores. More detail on each step in the project prioritization process appears in the following sections of this report.

At the end of this section, the Federal Highway Administration (FHWA)'s Infrastructure Voluntary Evaluation Sustainability Tool (INVEST) and South Carolina's Aiken County Project Prioritization Tool are carefully reviewed to ensure that the ARTS 2050 MTP project prioritization criteria incorporate key elements from these relevant tools.

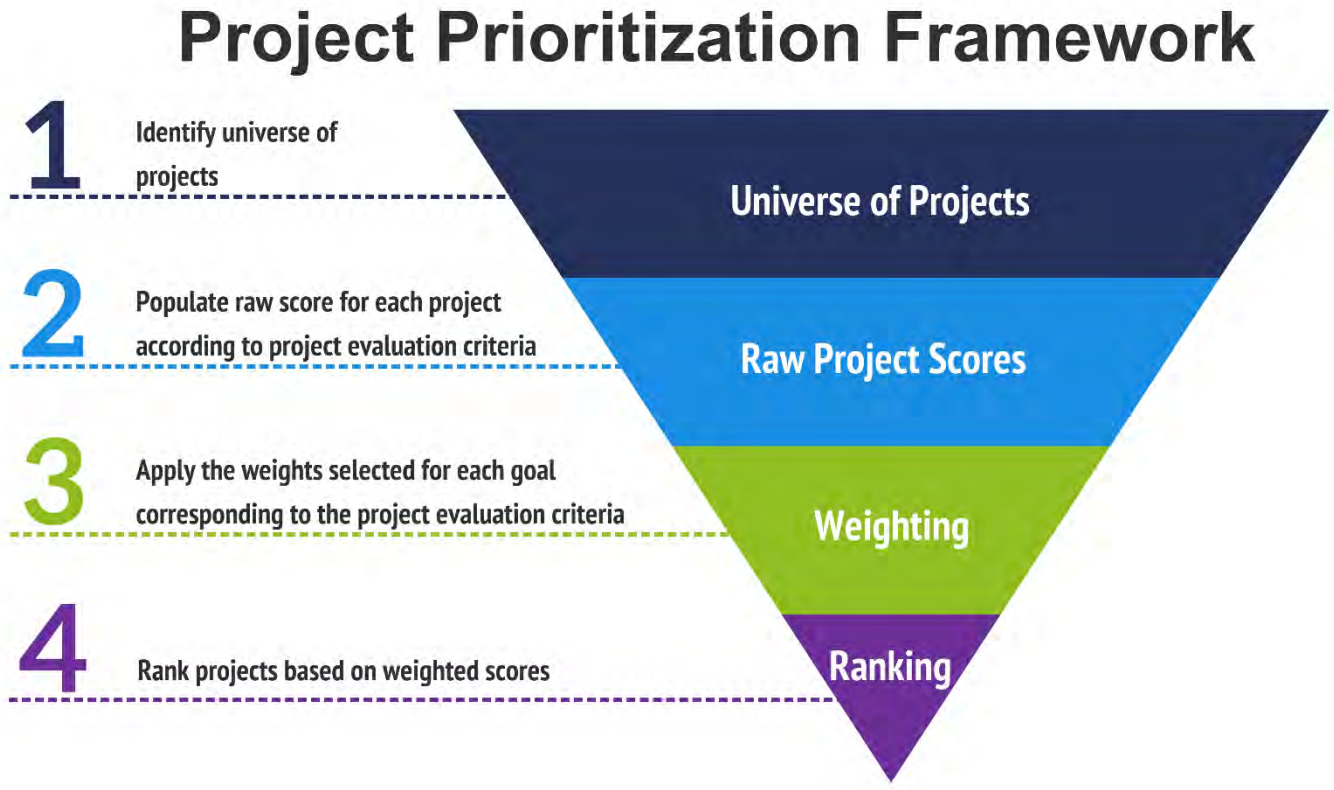


Figure 5-2: Project Prioritization Framework Summary

Project evaluation and prioritization was conducted using the following four (4) steps.

Step 1: Identify Universe of Projects

The project team compiled projects from state, regional, and locally published plans. These projects were compared against the needs identified based on public and stakeholder input and current as well as expected future conditions. Projects were then added to address unmet, identified needs to create a Universe of Projects. The needs assessment is described on further detail in **Technical Report #5: Needs Assessment**. The Universe of Projects is a list of potential improvements that address the needs identified throughout the planning process. Since it is not a fiscally constrained project list, the following steps in the project prioritization process evaluate the relative benefits of each project in order to develop a fiscally constrained plan that includes the highest performing projects at the top of the list.

Project evaluation criteria were developed that allow for measurement of each project's ability to address established MTP goals and objectives. A total of 23 project evaluation criteria were identified and are shown in **Table 5-1**. The specific scoring thresholds were established by looking at the raw data for the projects and setting tiers based on the range of the data. Details for each of the 23 evaluation criteria are described in **Technical Report #3: Development of Goals, Objectives and Measures of Effectiveness**, which lists the specific scoring and data thresholds for each metric.

Step 2: Populate Raw Scores for Each Project According to Project Evaluation Criteria

Each project received a raw score determined by the project evaluation criteria described in this report. The project evaluation criteria have numerical values related to each objective, and projects gain points according to how well they meet each objective.

Step 3: Apply Weights Selected for Each Goal Corresponding to the Project Evaluation Criteria

Once these raw scores are populated, the value for each project evaluation criterion is weighed by the Goals and Objectives detailed in **Technical Report #3: Goals, Objectives and Measures**. **Figure 5-3** and **Table 5-1** illustrate the weighted goals and present the project prioritization framework, respectively. Stakeholder and public input in the planning process helped to determine these weights. Input methods include the MetroQuest survey, input received in public meetings, and stakeholder recommendations (See **Technical Report #1: Public Outlook Towards MTP Process, Potential Goals, and Transportation in the ARTS Planning Area**). The priorities indicated by these various sources were generally consistent and resulted in the selected category weightings. Each project received an overall score, which is the sum of the weighed scores for each project evaluation metric.

Step 4: Rank the Projects in Order by Score

The final step in the project prioritization process is to rank each project according to its weighted score, resulting in a prioritized project list.

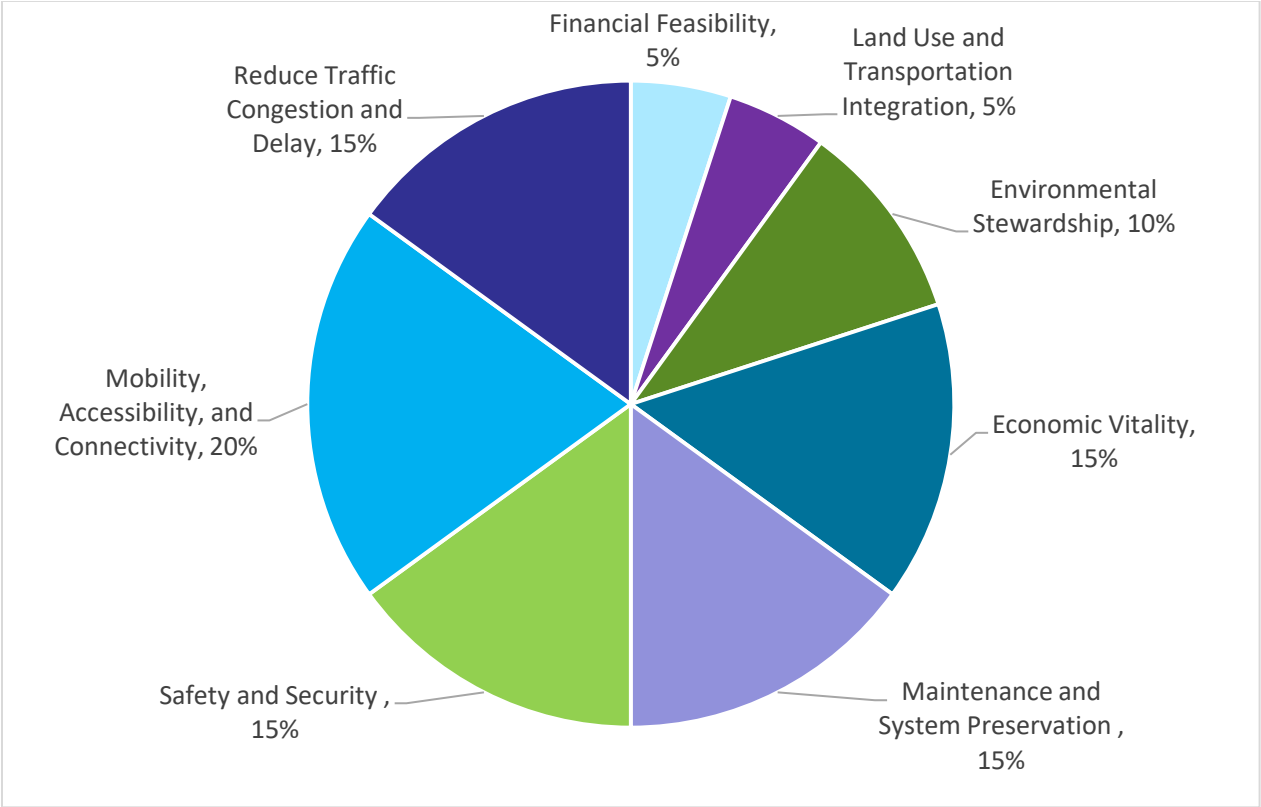


Figure 5-3: Summary of Plan Goals in Project Evaluation by Weight

Table 5-1: Performance Measures Matrix: National, States, and ARTS MTP Goals, Weight of MTP Goals, Objectives, and Project Evaluation Criteria

National Planning Factors	GDOT Goals	SCDOT Goals	ARTS MTP Goals (Weights)	ARTS MTP Objectives/Project Prioritization Criteria (Weights)	ARTS MTP Project Evaluation Metrics	Data Sources
Promote efficient system management and operation	Improve Reliability	Mobility and System Reliability	1. Reduce Traffic Congestion and Delay (15%)	Maximize existing transportation facilities through active management and integrated systems in real time. (3%)	Project types that align with this objective are: Operational, Intersection, ATMS/ITS, Safety.	Qualitative metric
Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight	Relieve Congestion			Implement projects that improve street network connectivity to provide alternative routes and system redundancy. (6%)	Criteria 1: Project types that align with this objective are: Widening, Operational, Intersection, Extension, Bridge, High Occupancy Vehicle (HOV), ATMS/ITS. Criteria 2: For these project types, the following volume and volume to capacity ratio (V/C) thresholds were used: V/C >=1 & V >=10,000 V/C >=1 & V <10,000 1> V/C >=0.75 V/C <0.75	Criteria 1: Qualitative metric Criteria 2: ARTS Travel Demand Model (2050 No Build E+C)
				Continue to implement and promote strategies and policies such as Transportation Demand Management (TDM), public transit, and alternative transportation modes to reduce demand for single-occupant motor vehicle travel. (3%)	Project types that align with this objective are: Transit, HOV, and Pedestrian/Bicycle.	Qualitative metric
				Support regional connectivity and ridesharing through investment in intercity bus service, intercity bus facilities, and commuter vanpool. (3%)	Project types that align with this objective are: Transit.	Qualitative metric

Table 5-1: Performance Measures Matrix: National, States, and ARTS MTP Goals, Weight of MTP Goals, Objectives, and Project Evaluation Criteria, Continued

National Planning Factors	GDOT Goals	SCDOT Goals	ARTS MTP Goals (Weights)	ARTS MTP Objectives/Project Prioritization Criteria (Weights)	ARTS MTP Project Evaluation Metrics	Data Sources
Increase the accessibility and mobility of people and for freight	Improve Reliability	Mobility and System Reliability	2. Mobility, Accessibility and Connectivity (20%)	Prioritize transportation improvements that support access to the urban core. (10%)	Project located within the urban core: Yes/No.	GIS data from ARTS MPO; Urban core analysis based on urbanized areas and major road boundaries
				Increase access, expand, and improve the reliability of public transportation. (5%)	Project types that align with this objective are: Transit.	Qualitative metric
				Promote investment in infrastructure for non-motorized modes such as bicycles and pedestrians. (5%)	Project types that align with this objective are: Pedestrian/Bicycle.	Qualitative metric
Increase the safety of the transportation system for motorized and non-motorized users	Improve Safety	Safety and Security	3. Safety and Security (15%)	Reduce the number and severity of crashes, injuries, and fatalities across all modes by coordinating safety improvements with planning initiatives. (10%)	Criteria 1: Crash Rate (crashes /mile) when the project is located: > = 100 < 100 and >=75 < 75 and >=50 < 50 and >=25 < 25 Criteria 2: Fatalities where the project is located: 1 >1	Crash Analysis using GDOT, ARTS MPO, SCDOT data (2012-2017)

Table 5-1: Performance Measures Matrix: National, States, and ARTS MTP Goals, Weight of MTP Goals, Objectives, and Project Evaluation Criteria, Continued

National Planning Factors	GDOT Goals	SCDOT Goals	ARTS MTP Goals (Weights)	ARTS MTP Objectives/Project Prioritization Criteria (Weights)	ARTS MTP Project Evaluation Metrics	Data Sources
Increase the security of the transportation system for motorized and non-motorized users				Reduce vulnerability of existing transportation infrastructure to natural disaster by supporting development of regional preparedness plans. (5%)	Project located along the Department of Defense's Strategic Highway Network (STRAHNET): Yes/No.	STRAHNET
Emphasize the preservation of the existing transportation system	Maintain and Preserve	Infrastructure Condition	4. Maintenance and System Preservation (15%)	Adequately fund routine maintenance and rehabilitation of roadways and pavement. (3.75%)	Project types that align with this objective are: Bridge, Railroad, Aviation, Safety.	Qualitative metric
				Adequately fund routine maintenance and rehabilitation of bridges. (3.75%)	Bridge sufficiency rating: Sufficiency rating < 10 Sufficiency rating 10-19 Sufficiency rating 20-29 Sufficiency rating 30-39 Sufficiency rating 40-49 Sufficiency rating 50-59 Sufficiency rating 60-69 Sufficiency rating 70-79 Sufficiency rating >= 80 Non-bridge project	US FHWA National Bridge Inventory (2019)
				Provide viable public transportation options to meet daily travel needs. (3.75%)	Project types that align with this objective are: Transit.	Qualitative metric
				Monitor and manage transportation assets to prioritize improvements. (3.75%)	Pavement quality: Project located on roadways with International Roughness Index (IRI) > 170: Yes/No.	FHWA Highway Performance Monitoring System GIS Data (2017)

Table 5-1: Performance Measures Matrix: National, States, and ARTS MTP Goals, Weight of MTP Goals, Objectives, and Project Evaluation Criteria, Continued

National Planning Factors	GDOT Goals	SCDOT Goals	ARTS MTP Goals (Weights)	ARTS MTP Objectives/Project Prioritization Criteria (Weights)	ARTS MTP Project Evaluation Metrics	Data Sources
Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency	Improve Freight and Economic Development	Economic and Community Vitality	5. Economic Vitality (15%)	Provide transportation linkages to employment, business, retail activity, and other activity centers. (5%)	Employment density (jobs/sq. mile): >= 3 >= 2 and < 3 >= 1 and < 2 >= 0.2 and < 1 < 0.2	Socio-economic data from ARTS Travel Demand Model (2015 and 2050)
				Address the needs of the local freight industry and the intermodal movement of goods via rail and truck. (5%)	Freight volumes (trucks/day): >10,000 > 2,500 and <= 10,000 <= 2,500	ARTS Travel Demand Model
				Enhance the visual appeal of transportation facilities. (5%)	Within ½ mile of an activity, travel, or tourism location	GIS data for urban core boundaries, airports, regional attractors like golf and equestrian centers - ARTS MPO

Table 5-1: Performance Measures Matrix: National, States, and ARTS MTP Goals, Weight of MTP Goals, Objectives, and Project Evaluation Criteria, Continued

National Planning Factors	GDOT Goals	SCDOT Goals	ARTS MTP Goals (Weights)	ARTS MTP Objectives/Project Prioritization Criteria (Weights)	ARTS MTP Project Evaluation Metrics	Data Sources
Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns	Improve Environment	Environment; Equity	6. Environmental Stewardship (10%)	Minimize disruption or displacement of residential or commercial areas from restructured or new transportation facilities. (2%)	Displacement: Low Medium High	Google Satellite Imagery
				Minimize impact on environmental resources, wetlands, wildlife, historic properties, and water quality. (2%)	Environment and History: Environmental feature within 150 ft	ARTS MPO; National Park Service's National Register of Historic Places (2019); Columbia County Historic Resource Survey (2018)
				Reduce mobile emissions and meet air quality standards with projects including managed lanes, operational projects, transit, and non-motorized vehicles such as bicycle, and pedestrians. (2%)	Project types that are related to emissions reduction are: Operational, Intersection, Transit, HOV, and Pedestrian/Bicycle.	Qualitative metric

Table 5-1: Performance Measures Matrix: National, States, and ARTS MTP Goals, Weight of MTP Goals, Objectives, and Project Evaluation Criteria, Continued

National Planning Factors	GDOT Goals	SCDOT Goals	ARTS MTP Goals (Weights)	ARTS MTP Objectives/Project Prioritization Criteria (Weights)	ARTS MTP Project Evaluation Metrics	Data Sources
				Serve Environmental Justice populations through direct benefits or access to the project. (2%)	Environmental Justice: Criteria 1: Percent of Census tracts exceeding MPO average for each EJ category within half-mile of project Criteria 2: Number of different Environmental Justice categories within half-mile of project	American Community Survey (ACS) Five Year Data (2013-2017)
				Reduce or mitigate the stormwater impacts of surface transportation. (2%)	Project types that are related to storm water impacts are: Transit, HOV, and Pedestrian/Bicycle.	Qualitative metric
			7. Land Use and Transportation Integration (5%)	Provide transportation services that conform with regional and local land use plans. (5%)	2050 Population and Employment Growth within half-mile of each Project: >=5,000 >=2,500 and < 5,000 >=1,000 and < 2,500 >=500 and <1,000 >=100 and <500 <100	Socio-economic data from ARTS Travel Demand Model (2015 and 2050)
			8. Financial Feasibility (5%)	Prioritize projects with high project readiness and available funding. (5%)	Project has allocated funding	Project in TIP, TIA project list or SPLOST

5.3 Summary of Infrastructure Voluntary Evaluation Sustainability Tool (INVEST)

The Federal Highway Administration (FHWA) developed INVEST, to help make the nation's transportation systems more sustainable – economically, socially, and environmentally. It is a free, web-based self-evaluation tool to help transportation agencies to identify, prioritize, and communicate balanced choices between the different and sometimes competing goals of highway infrastructure programs. Among INVEST's four modules, the System Planning for Regions module and its criteria were reviewed in this section due to its relevance to the update of ARTS 2050 MTP. **Table 5-2** summarizes criteria and descriptions of the INVEST System Planning for Region Module and compares the criteria with the ARTS 2050 MTP Measures of Effectiveness.

Table 5-2: INVEST Criteria and Descriptions of System Planning for Regions Module and Corresponding ARTS 2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal

INVEST Criteria	INVEST Criteria Meaning	2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal
SPR-01 Integrated Planning: Economic Development and Land Use (for Regions)	Integrate statewide and metropolitan LRTP with regional and/or local land use plans and economic development forecasts and goals. Proactively encourage and facilitate sustainability through the coordination of transportation, land use, and economic development planning.	• Metric 22: Growth Projections (Weight 5 percent) (Goal 7 Land Use and Transportation Integration)
SPR-02 Integrated Planning: Natural Environment (for Regions)	Integrate ecological considerations into the transportation planning process, including the development of LRTP, corridor plans, and the TIP. Proactively support and enhance long-term ecological function through the coordination of transportation and natural resource planning.	• Metric 18: Environment and History (Weight 2 percent) (Goal 6 Environmental Stewardship) • Metric 21: Stormwater Impacts (Weight 2 percent) (Goal 6 Environmental Stewardship)
SPR-03 Integrated Planning: Social (for Regions)	The agency's LRTP is consistent with and supportive of the community's vision and goals. When considered in an integrated fashion, these plans, goals and visions support sustainability principles. The agency applies context-sensitive principles to the planning process to achieve solutions that balance multiple objectives to meet stakeholder needs.	• Metric 17: Displacement (Weight 2 percent) (Goal 6 Environmental Stewardship) • Metric 18: Environment and History (Weight 2 percent) (Goal 6 Environmental Stewardship) • Metric 20: Environmental Justice (Weight 2 percent) (Goal 6 Environmental Stewardship)

Table 5-2: INVEST Criteria and Descriptions of System Planning for Regions Module and Corresponding ARTS 2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal, Continued

INVEST Criteria	INVEST Criteria Meaning	2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal
SPR-04 Integrated Planning: Bonus (for Regions)	The agency has a continuing, cooperative, and comprehensive (3-C) transportation planning process. Planners and professionals from multiple disciplines and agencies (e.g., land use, transportation, economic development, energy, natural resources, community development, equity, housing, and public health) work together to incorporate and apply all three sustainability principles when preparing and evaluating plans.	N/A (Not a project-level criteria)
SPR-05 Access and Affordability (for Regions)	Enhance accessibility and affordability of the transportation system to all users and by multiple modes.	• Metric 1: Improve Operational Efficiency and Reliability (Weight: 3 percent) (Goal 1 Reduce Traffic Congestion and Delay) • Metric 2: LOS & AADT (Weight: 6 percent) (Goal 1 Reduce Traffic Congestion and Delay) • Metric 4: Intercity Transportation (Weight: 3 percent) Goal 1 Reduce Traffic Congestion and Delay • Metric 5: Urban Core Proximity (Weight: 10 percent) (Goal 2 Mobility, Accessibility and Connectivity) • Metric 6: Addresses Public Transportation Improvements (Weight 5 percent) (Goal 2 Mobility, Accessibility and Connectivity) • Metric 7: Supports Bicycles and Pedestrians (Weight 5 percent) (Goal 2 Mobility, Accessibility and Connectivity) • Metric 12: New or Improved Public Transit (Weight 3.75 percent) (Goal 4 Maintenance and System Preservation) • Metric 23: Project Readiness (Weight 5 percent) (Goal 8 Financial Feasibility)

Table 5-2: INVEST Criteria and Descriptions of System Planning for Regions Module and Corresponding ARTS 2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal, Continued

INVEST Criteria	INVEST Criteria Meaning	2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal
SPR-06 Safety Planning (for Regions)	Agency integrates quantitative measures of safety into regional planning policies, ordinances, activities, projects, and programs, and across all modes and jurisdictions.	• Metric 8: Crashes (Weight 10 percent) (Goal 3 Safety and Security) • Metric 9: Critical Transportation Network (Weight 5 percent) (Goal 3 Safety and Security)
SPR-07 Multimodal Transportation and Public Health (for Regions)	Expand travel choices and modal options by enhancing the extent and connectivity of multimodal infrastructure. Support and enhance public health by investing in active transportation modes.	• Metric 6: Addresses Public Transportation Improvements (Weight 5 percent) (Goal 2 Mobility, Accessibility and Connectivity) • Metric 7: Supports Bicycles and Pedestrians (Weight 5 percent) (Goal 2 Mobility, Accessibility and Connectivity)
SPR-08 Freight and Goods Access & Mobility (for Regions)	Implement a transportation plan that meets freight access and mobility needs while also supporting triple bottom line sustainability principles.	• Metric 15: Freight Volumes (Weight 5 percent) (Goal 5 Economic Vitality)
SPR-09 Travel Demand Management (for Regions)	Reduce vehicle travel demand throughout the system.	• Metric 3: Travel Demand Management & Congestion Mitigation (Weight: 3 percent) • Metric 4: Intercity Transportation (Weight: 3 percent) Goal 1 Reduce Traffic Congestion and Delay • Metric 6: Addresses Public Transportation Improvements (Weight 5 percent) (Goal 2 Mobility, Accessibility and Connectivity) • Metric 7: Supports Bicycles and Pedestrians (Weight 5 percent) (Goal 2 Mobility, Accessibility and Connectivity)
SPR-10 Air Quality & Emissions (for Regions)	To plan, implement, and monitor multimodal strategies to reduce emissions and to establish a process to document emissions reductions.	• Metric 19: Emissions Reduction (Weight 2 percent)
SPR-11 Energy and Fuels (for Regions)	Reduce the energy and fossil fuel consumption from the transportation sector and document it in the transportation planning process.	• Metric 3: Travel Demand Management & Congestion Mitigation (Weight: 3 percent) • Metric 19: Emissions Reduction (Weight 2 percent)

Table 5-2: INVEST Criteria and Descriptions of System Planning for Regions Module and Corresponding ARTS 2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal, Continued

INVEST Criteria	INVEST Criteria Meaning	2050 MTP Equivalent Measure of Effectiveness (Weight) and Goal
SPR-12 Financial Sustainability (for Regions)	Evaluate and document that financial commitments made across transportation system plans are reasonable and affordable.	• Metric 23: Project Readiness (Weight 5 percent) (Goal 8 Financial Feasibility)
SPR-13 Analysis Methods (for Regions)	Agencies adopt and incentivize best practices in land use, socioeconomic and transportation systems analysis methods.	• Metric 22: Growth Projections (Weight 5 percent) (Goal 7 Land Use and Transportation Integration)
SPR-14 Transportation Systems Management and Operations (for Regions)	Optimize the efficiency of the existing transportation system.	• Metric 1: Improve Operational Efficiency and Reliability (Weight: 3 percent) (Goal 1 Reduce Traffic Congestion and Delay)
SPR-15 Linking Asset Management and Planning (for Regions)	Leverage transportation asset management data and methods within the transportation planning process to make informed, cost-effective program decisions and better use existing transportation assets.	• Metric 10: Improvement to Existing Facilities (Weight 3.75 percent) (Goal 4 Maintenance and System Preservation) • Metric 11: Bridge Sufficiency Rating (Weight 3.75 percent) (Goal 4 Maintenance and System Preservation) • Metric 13: Pavement Quality (Weight 3.75 percent) (Goal 4 Maintenance and System Preservation)
SPR-16 Infrastructure Resiliency (for Regions)	Anticipate, assess, and plan to respond to vulnerabilities and risks associated with current and future hazards (including those associated with climate change) to ensure multi-modal transportation system reliability and resiliency. Identify a range of vulnerability and risks to both existing and planned transportation infrastructure.	• Metric 9: Critical Transportation Network (Weight 5 percent) (Goal 3 Safety and Security) • Metric 21: Stormwater Impacts (Weight 2 percent) (Goal 6 Environmental Stewardship)
SPR-17 Planning and Environmental Linkages (for Regions)	Integrate system planning process information, analysis, and decisions with the project-level environmental review process, and reference it in NEPA documentation.	N/A (Not a project-level criteria)

These elements are well reflected in the ARTS 2050 MTP goals, objectives, and project prioritization criteria. Some of the INVEST criteria that were not quantified in the project prioritization process, such as analysis methods, linking asset management and planning, and planning and environmental linkages, are reiterated as part of policy recommendations in Chapter 6 and in **Technical Report #6 Financial Plan**.

5.4 Summary of Aiken County Project Prioritization Tool

For the previous 2040 LRTP, the Aiken County Transportation Coordinating Subcommittee developed the Aiken County Project Prioritization tool to evaluate and rank road widening, intersection, and new construction projects. The criteria included:

- Traffic Volume and Congestion
- Public Safety
- Financial Viability
- Potential for Economic Development
- Traffic Status
- Truck Traffic
- Pavement Quality Index
- Environmental Impact
- Livability
- Alternative Transportation Solutions
- Serves to Implement Comprehensive Plan
- Serves to Implement LRTP
- Financial Viability and Maintenance Cost
- Improves Air Quality

As shown in **Table 5-3**, there is substantial overlap between these criteria when compared with the ARTS 2050 MTP project evaluation criteria, as similar, corresponding criteria are included in each project prioritization process.

Table 5-3. Aiken County Project Prioritization Tool and Corresponding ARTS 2050 MTP Equivalent Measure of Effectiveness

Aiken County Project Prioritization Criteria (Weight)	2050 MTP Equivalent Measure of Effectiveness (Weight)
Traffic Volume and Congestion (30 percent for widening, 25 percent for intersection, and 40 percent for new construction projects)	• Metric 1: Improve Operational Efficiency and Reliability (3 percent) • Metric 2: LOS & AADT (6 percent) • Metric 3: Travel Demand Management & Congestion Mitigation (3 percent)
Public Safety (10 percent for widening, 20 percent for intersection, and not ranked for new construction projects)	• Metric 8: Crashes (10 percent) • Metric 9: Critical Transportation Network (5 percent)
Financial Viability (14 percent for widening, not ranked for intersection, and not ranked for new construction projects)	• Metric 23: Project Readiness (5 percent)
Potential for Economic Development (10 percent for widening, 7 percent for intersection, and 20 percent for new construction projects)	• Metric 14: Employment Density (5 percent) • Metric 15: Freight Volumes (5 percent) • Metric 16: Travel and Tourism (5 percent)
Truck Traffic (8 percent for widening, 10 percent for intersection, and not ranked for new construction projects)	• Metric 15: Freight Volumes (5 percent)
Pavement Quality Index (6 percent for widening, not ranked for intersection, and not ranked for new construction projects)	• Metric 13: Pavement Quality (3.75 percent)
Environmental Impact (10 percent for widening, 8 percent for intersection, and 15 percent for new construction projects)	• Metric 17: Displacement (2 percent) • Metric 18: Environment and History (2 percent) • Metric 19: Emissions Reduction (2 percent) • Metric 20: Environmental Justice (2 percent) • Metric 21: Stormwater Impacts (2 percent)
Livability (12 percent for widening, 10 percent for intersection, and 10 percent for new construction projects)	• Metric 1: Improve Operational Efficiency and Reliability (3 percent) • Metric 3: Travel Demand Management & Congestion Mitigation (3 percent) • Metric 6: Addresses Public Transportation Improvements (5 percent) • Metric 7: Supports Bicycles and Pedestrians (5 percent)
Alternative Transportation Solutions (yes/no: Documented and considered for each project, points not assigned for widening, not ranked for intersection, and yes/no: Documented and considered for each project, points not assigned for new construction projects)	• Metric 3: Travel Demand Management & Congestion Mitigation (3 percent) • Metric 4: Intercity Transportation (3 percent) • Metric 6: Addresses Public Transportation Improvements (5 percent) • Metric 7: Supports Bicycles and Pedestrians (5 percent)

Table 5-3. Aiken County Project Prioritization Tool and Corresponding ARTS 2050 MTP Equivalent Measure of Effectiveness, Continued

Aiken County Project Prioritization Criteria (Weight)	2050 MTP Equivalent Measure of Effectiveness (Weight)
Serves to Implement Comprehensive Plan (yes/no: Project must support Comprehensive Plan for widening, not ranked for intersection, and yes/no: Project must support Comprehensive Plan for new construction projects)	• Metric 5: Urban Core Proximity (10 percent) • Metric 22: Growth Projections (5 percent)
Serves to Implement LRTP (yes/no: Project must be in LRTP for widening, not ranked for intersection, and yes/no: Project must be in LRTP for new construction projects)	N/A (all are MTP projects)
Traffic Status (not ranked for widening, 20 percent for intersection, and not ranked for new construction projects)	• Metric 1: Improve Operational Efficiency and Reliability (3 percent) • Metric 2: LOS & AADT (6 percent)
Financial Viability and Maintenance Cost (not ranked for widening, not ranked for intersection, and 15 percent for new construction projects)	• Metric 23: Project Readiness (5 percent)
Improves Air Quality (not ranked for widening, not ranked for intersection, and not ranked (Documented and considered for each project, points not assigned) for new construction projects)	• Metric 19: Emissions Reduction (2 percent)

5.5 Project Evaluation

Using the project prioritization tool developed during the MTP process, individual projects were evaluated relative to the MTP goals and objectives. Project prioritization scoring sheet, in **Appendix 2**, includes raw scores of each project for identified evaluation criteria.

Chapter 5 Key Points

- The Universe of Projects, also known as fiscally-unconstrained projects, were developed based on the assessment of existing needs, analysis of travel demand models to assess existing and future travel patterns, public and stakeholder input, and improvements recommended in previous plans or studies. Individual projects were then carefully evaluated relative to the MTP goals and objectives using a project prioritization tool developed during the MTP process.
- Project prioritization was undertaken with a four-step process called the Project Prioritization Framework: 1) Identify Universe of Projects, 2) Populate Raw Scores for Each Project according to Project Evaluation Criteria, 3) Apply Weights Selected for Each Goal Corresponding to the Project Evaluation Criteria, and 4) Rank the Projects based on Weighted Scores.
- The ARTS 2050 MTP project prioritization criteria incorporate key elements from FHWA's INVEST and South Carolina's Aiken County Project Prioritization Tool.

6 FINANCIAL PLAN AND PROJECT RECOMMENDATIONS

This chapter first provides an updated picture of potential funding sources for the 2050 MTP based on the previous 2040 Long Range Transportation Plan (LRTP), latest federal and state legislation, and current funding. It also describes the cost estimation methodology used to develop planning level cost estimates for each project identified. Finally, this chapter identifies the fiscally constrained short-, medium-, and long-range programs of projects for the ARTS MPO through 2050.

6.1 Funding

Continued economic and population growth in and around the ARTS planning area place ever greater demands on the current transportation network. Though ARTS engages innovative and creative planning efforts to achieve a safe, livable, and economically prosperous region, these outcomes are all dependent on the availability of funds. Simply adding to the transportation network to mitigate congestion and other negative consequences of unrestrained development, would widen the gap between transportation needs and available resources. Undeniably, funding transportation, public transit and non-motorized transportation improvements remains a consistent challenge for many MPOs.

Federal planning regulations require that the financial plan presented in MTPs be financially constrained (i.e., a balanced budget).[i] Per CFR 450.324 "Development and content of the metropolitan transportation plan", the financial plan needs to demonstrate that the proposed improvements can be implemented within expected funding levels.[ii] The estimated costs for all transportation improvements presented in an MTP cannot exceed the amount of reasonably expected revenues from identified funding sources. The financial constraint requirement ensures realistic assumptions are made when committing funds for projects.

The ARTS financial plan is a pragmatic forecast of costs and revenue streams that are reasonably expected (i.e., to be incurred or made available) through 2050. The financial plan documents the methods used to calculate funding availability (i.e., revenues) and project expenditures (i.e., costs) to achieve financial constraint in the 2050 MTP.

Projects for the 2050 MTP were identified through a thorough assessment of issues and needs affecting the ARTS planning area. Input provided by citizens, local jurisdictions, and other stakeholders guided the project selection process. Coordination between ARTS, GDOT, SCDOT, partner counties, and other federal and county agencies identified potential revenue sources that are reasonably expected over the next 30 years.

Funding for transportation improvements is accessible from a variety of federal, state and local sources. Funding sources expected to finance projects in the 2050 MTP update are described in the next sections. Details for each of these funding sources are described in **Technical Report #6: Financial Plan.**

6.1.1 Federal Grant Programs and Revenue Sources for Transportation Improvements

Federal funds make up the largest share of funding for transportation improvements in the ARTS planning area. Federal funds are authorized by Congress to assist states in building, improving and maintaining multimodal transportation networks and services within each state. Federal funds, typically, come from gas taxes or motor fuel fees. Federal funds for surface transportation are administered by the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and Federal Railroad Administration (FRA).

The Fixing America's Surface Transportation Act (FAST Act) was signed into law on December 4, 2015, by President Barack Obama. The FAST Act is the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. It authorized federal transportation funds for fiscal years 2016 through 2020 for roadway, transit, rail projects and programs. As the FAST Act is supposed to expire in September 2020, its reauthorization or another legislation with long-term funding authorization is in the works to ensure certainty of long-term funding for surface transportation. Without reauthorization of the FAST Act or a similar legislation, funding levels will need to be determined by Congress each year.

The Transportation Improvement Program (TIP) is a multi-year intermodal program including planning for transportation system infrastructure needs, financing and capital improvement programming and project implementation. Projects must be in the MTP to be eligible for federal aid funding and then included in the TIP. The ARTS TIP includes all transportation projects for highways, roads, bridges, Intelligent Transportation System (ITS) and traffic signals, bicycle and pedestrian, public transit and freight. It includes all identified phases of a project proposed for financing with federal funds. Whether a project is scheduled to be completed on one year or phased over several years, it must advance to the TIP in order to be eligible for federal funding.

The Federal Transit Administration (FTA) issues various competitive grants and cooperative agreements to fund public transit operations, maintenance programs, and capital purchases. Depending on the grant, the FTA may fund up to 100% of the project cost. FTA grants disbursed to MPOs or public transit providers in the ARTS planning area include the following:

- Section 5303 (Urban Planning)
- Section 5307 (Large Urban Public Transportation
- Section 5310 (Enhanced Mobility of Seniors and Individuals with Disabilities)
- Section 5311 (Other than Urbanized Areas), and Section 5339 (Bus and Bus Facilities Program).

When preparing a long-range transportation plan with the horizon year of 2050, it must be recognized that unforeseen mitigating factors will likely arise that will challenge the validity of the estimates of reasonably expected revenues from identified funding sources. This 2050 MTP update presents the best available projections for available funds in the future, but also acknowledges that situations beyond current knowledge could have an impact on these funds. For example, transportation budget allocations from the federal, state or local level could increase or decrease as a result of political, fiscal, or policy decisions. There may also be impacts resulting from natural disasters, economic recessions, the introduction of new transportation technologies, potential new sources of energy and changing patterns of how Americans use transportation in the future. As this 2050 MTP is being published, the nation is facing a public health crisis with the COVID-19 pandemic. We understand that in the short-term, transportation has been impacted in many ways; from less public transit ridership to stay-at-home orders resulting in less daily commutes to social distancing policies encouraging people to avoid gathering in large crowds. What is not yet clearly known is the long-term effects of the pandemic on tax revenues, available funding for transportation and how future allocation of funds may change as a result.

Looking to the future, a built-in remedy to these challenges is the requirement that the MTP be updated every five years. This will reduce the impact of these changes over time by incorporating the best available information and most recent budget projections for the new horizon years.

6.1.2 State Grant Programs and Revenue Sources for Transportation Improvements

States are often the second largest contributor to transportation project funding after the federal government. Funding initiatives at the state level are presented in this section.

Georgia

Georgia Transportation Investment Act of 2010

Georgia House Bill 277 (also known as Transportation Investment Act of 2010 (TIA)) allows each of Georgia's 12 economic development regions to impose, via referendum, a 1 percent sales tax for 10 years to fund multimodal transportation projects. In 2012, the Central Savannah River Area (CSRA), which includes Richmond and Columbia Counties, voted to implement the 1 percent Transportation Special Purpose Local Option Sales Tax (TSPLOST), beginning January 1, 2013. This special tax has created a source of discretionary funds for participating regions to finance additional local transportation improvements. The current 10-year TIA TSPLOST will run through 2022, and the voters also passed the new TSPLOST for the next period (2023-2032) on Tuesday, June 9, 2020.

GDOT serves as the agency responsible for managing the budget, schedule, execution and delivery of all projects contained in the approved investment lists. The Georgia State Financing and Investment Commission (GSFIC) is the agency responsible for receiving SPLOST funds and distributing a 25% local share back to the counties. GSFIC is also responsible for investing 75% of SPLOST funds received and disbursing such funds as GDOT invoices for work completed. Projected and actual SPLOST collections for the CSRA and for Richmond and Columbia Counties, specifically, are shown in **Table 6-1**.

Table 6-1: TIA Budgeted Funds and Revenue

	TIA Period (2013-2022)	Annual Average
Originally Approved Budget (2011 Dollars)	$713,019,813	$71,301,981
Richmond County	$39,116,820	3,911,682
Columbia County	$24,530,990	2,453,099
Tax Revenue Collected to Date	$478,330,617	$59,791,327

Source: Coordination with CSRA

The 2011 CSRA TIA was originally budgeted at $713,019,813 in 2011 Dollars (nearly $891,274,766 in 2020 dollars).[iii] As of February 2020, $478,330,617 tax revenues were collected, and $200,476,725 was spent on transportation projects across the area served by the CSRA Regional Commission (CSRA-RC). Total tax collections in 2020 were below the original anticipated collections by nearly 15 percent, and future TIA projections may be adjusted to reflect this reality.

Projected TIA funding is based on coordination with CSRA-RC. Assumptions include:

- Total TIA allocation to Columbia and Richmond Counties includes 75 percent as regional projects funds and 25 percent as local discretionary funds (LDF).
- Projects identified for the regional projects fund were included in the MTP in tiers appropriate with the proposed bands in the approved project list for the upcoming TIA.

- Columbia and Richmond Counties were assumed to use local discretionary funds towards resurfacing and maintenance.

Table 6-2 summarizes available TIA funds in Columbia in Richmond Counties. It also includes annual LDF estimate, adjusted due to revenue shortfall of about 15%.

Table 6-2: Summary of TIA 2 Revenue in Columbia and Richmond Counties

County	Regional TIA Funds (75%)	LDF Estimate (25%)	TIA 2022 Total Estimated Funds	GDOT Additional Funds	Total Funding TIA + GDOT Funds $	Annual LDF Estimate	Annual Adjusted LDF (-15%)
Columbia County	$ 121,840,202	$ 37,185,177	$ 159,025,379	$ 45,500,000	$ 204,525,379	$ 3,718,518	$ 3,160,740
Richmond County	$ 295,581,149	$ 49,250,590	$ 344,831,739	$ 29,948,543	$ 374,780,282	$ 4,925,059	$ 4,186,300

Source: CSRA, As received on April 28th, 2020

Georgia Bills and Programs

- The Transportation Funding Bill, House Bill 170 (HB 170), was passed March 31, 2015 and made effective July 1, 2015. HB 170 established a 26 cents per gallon state excise tax on gasoline, and 29 cents per gallon state excise tax on diesel.
- Georgia House Bill 106 authorizes individual counties to conduct their own TSPLOST, if the county is not currently in a TIA region. Columbia and Richmond Counties in the ARTS planning area are included in the CSRA TIA TSPLOST and are not eligible for additional TSPLOSTs under HB106.
- The Georgia Transportation Infrastructure Bank (GTIB), established by House Bill 1019 in April 2008, provides loans and grants to state, regional, and local government entities. These loans fund much-needed transportation improvement projects through which economic value and vitality is increased in local communities. Go! Transit Capital Program
- The GO! Transit Capital Program is a competitive funding program administered by State Road and Toll Authority (SRTA). This program is designed to address some of the critical capital-related public transportation needs throughout Georgia.

South Carolina Programs

- The South Carolina Transportation Infrastructure Bank (SCTIB) was established by the state in 1997 to assist in financing major qualified projects (i.e., exceeding $100 million) by providing loans and other financial assistance for constructing and improving highway and other transportation facilities as necessary for public purposes, including economic development.
- South Carolina Capital Project Sales Tax (CPST) is a 1 percent local sales and use tax used to fund specific capital projects, including transportation facilities such as roads and bridges. Aiken County's CPST collections began in May 2019 and will conclude in April 2026. Of the $162,860,685 in projected total collections, approximately 19 percent, or $30,075,000, was dedicated to transportation projects. The CPST is projected to contribute $72,857,130 in revenues for transportation through 2050.

Local Funding Sources

Local matching funds are necessary to securing federal funds and are, in some cases, the sole source of funding for smaller places. Local funds for transportation improvement projects may come from a variety of sources, which include general revenues, sales taxes, property taxes or millage, and vehicle fees.

6.1.3 Projected Federal and State Revenues

Georgia

Table 6-3 presents the Georgia federal and state revenue amounts anticipated for 2021-2050. These estimates were provided by Georgia Department of Transportation (GDOT) and are based on historical data. An inflation factor of 1 percent was applied to produce available revenues to the year 2050. The projects funding estimate totaled $1,201,144,185 and the maintenance funding estimate totaled $243,459,658. The total Georgia fe]deral and state funds estimate for ARTS through 2050 is $1,444,603,843.

Table 6-3: Projected Combined State and Federal Funding, Georgia

	Projects Estimate	Maintenance Estimate	Subtotal Estimate
Tier 1 Totals (2021-2024)	$140,208,201	$28,418,771	$168,626,970
Tier 2 Totals (2025-2034)	$375,935,660	$76,198,318	$452,133,979
Tier 3 Totals (2035-2050)	$685,000,324	$138,842,569	$823,842,894
All Tiers Total	**$1,201,144,185**	**$243,459,658**	**$1,444,603,843**

Source: GDOT, ARTS
Note: Estimates are based on historical revenue data with a 1% inflation rate

South Carolina

South Carolina federal and state totals originate from annual Guideshare amounts provided by SCDOT. Guideshare funds are synonymous with Surface Transportation Block Grant (STBG) grants in other states. The Guideshare amount for FY 2021 through 2050 is projected to be $105,300,000, with the assumption that the Emma's Law penalty remains intact ($108,000,000 if penalty is reversed).

Other federal and state funds for South Carolina are as follows:

- Federal: Transportation Alternatives Program (TAP) = $4,057,993 (TAP)
- State: State Infrastructure Bank (SIB) = $30,000,000

State funding for maintenance in Aiken County was assumed to be nearly $15,535,143 per year ($3,770,930 per year for operations and $11,764,213 per year for resurfacing/preservation). Funding for part of the County within MPO boundary was estimated to be nearly 44.5 percent of the total state funding for operations and maintenance.

These base figures do not take into account annual inflation factors. Guideshare, TAP, maintenance and SIB base figures were held constant for 2021-2024. From FY 2024 an inflation factor of 2% was applied to produce available revenues to the year 2050. The total South Carolina federal and state funds estimate for ARTS is $443,192,530.

Table 6-4: Projected South Carolina Federal and State Funding, Year after Year

Year	Tier	*Projects Estimate (Guideshare)*	*State Infrastructure Bank*	TAP	Resurfacing/ Preservation/ Operation	Total Estimate
2021-2024	**1**	$14,040,000	$4,000,000	$541,064	$27,651,856	$46,232,920
2025-2035	**2**	$43,566,435	$12,412,089	$1,678,940	$85,804,331	$143,461,793
2036-2050	**3**	$76,982,141	$21,932,233	$2,966,698	$151,616,745	$253,497,815
Total Funding		**$134,588,577**	**$38,344,324**	**$5,186,700**	**$265,072,930**	**$443,192,530**

Source: Coordination with Aiken County

6.1.4 Projected Local Revenues

Local Match for Federal or State Funds in Georgia

Table 6-3 presented federal and state funding estimates for highway related investments in the Georgia portion of the ARTS planning area. While the total estimated grant for Columbia County and Richmond County is $1,444,603,843, of which about $169,104,439 (**Table 6-6**) is for local projects and requires a 20% local match of $42,276,110; for every $8 in federal and state grants an additional $2 local match is required.

To receive the maximum federal and state grant, Columbia and Richmond Counties are expected to provide $42,276,110 from local funding sources. The required pro rata population distributions from each county are based on the American Community Survey's 2018 population estimates, as listed in **Table 6-5**. **Table 6-6** presents projected yearly local matching funds through 2050 in Georgia. **Table 6-7** includes GDOT's Local Maintenance and Improvement Grant (LMIG) funding available for Columbia and Richmond Counties and their local match for the federal funds.

Table 6-5: Columbia and Richmond County 2018 Population and Share of Local Georgia Matching Funds

	2018 Population	Share of ARTS GA Population	Share of Local Match
Columbia County	154,291	43%	$18,330,518
Richmond County	201,554	57%	$23,945,592
Total	**355,845**	**100%**	**$42,276,110**

Source: 2018 Population Estimates, American Community Survey, US Census

Table 6-6: Projected Georgia Annual Local Matching Funds through 2050h

	Federal Grant	Assumed Local Match	Local Columbia County Match	Local Richmond County Match
Tier 1 (2021-2024)	$20,000,000	$5,000,000	$2,167,952	$2,832,048
Tier 2 (2025-2034)	$52,834,173	$13,208,543	$5,727,098	$7,481,445
Tier 3 (2035-2050)	$96,270,266	$24,067,566	$10,435,467	$13,632,099
Total Funding	**$169,104,439**	**$42,276,110**	**$18,330,518**	**$23,945,592**

Source: Coordination with ARTS

Table 6-7: LMIG Grant and Local Match in Columbia and Richmond Counties

	Federal Grant	Assumed Local Match	Local Columbia County Match	Local Richmond County Match
Tier 1 (2021-2024)	$16,384,000	$4,096,000	$1,775,987	$2,320,013
Tier 2 (2025-2034)	$43,281,755	$10,820,439	$4,691,639	$6,128,800
Tier 3 (2035-2050)	$78,864,602	$19,716,150	$8,548,735	$11,167,416
Total Funding	**$138,530,356**	**$34,632,589**	**$15,016,361**	**$19,616,229**

Source: Coordination with ARTS

South Carolina

Estimates of local revenues for the South Carolina portion of ARTS were derived from the Aiken County Government. Local match base figures were held constant for 2021-2024. From FY 2025 an inflation factor of 2% was applied to produce available revenues to the year 2050. Local match figures for the period 2021-2050 were estimated at $93,121,913 (**Table 6-8**).

Local estimated CPST amounts for the South Carolina side of ARTS are as follows:

Tier 1 (2021-2024) = $ 9,714,284
Tier 2 (2025-2034) = $27,124,017
Tier 3 (2035-2050) = $56,283,611

Local maintenance funding of nearly $1,000,000 was assumed to be provided by Aiken County Transportation Committee (Aiken CTC). Of the total funding available in Aiken County about 44.5 percent was assumed to be available for use in part of Aiken County within MPO boundary. Funding for resurfacing for the period 2021-2050 was estimated at $17,062,793:

Tier 1 (2021-2024) = $ 1,779,956
Tier 2 (2025-2034) = $ 4,969,954
Tier 3 (2035-2050) = $10,312,884

Table 6-8: Projected Local Revenues, South Carolina, Year-after-Year

	CPST (Total Local)	Aiken CTC - Resurfacing	Total Local Funding
Tier 1 (2021-2024)	$9,714,284	$1,779,956	$11,494,240
Tier 2 (2025-2034)	$27,124,017	$4,969,954	$32,093,971
Tier 3 (2035-2050)	$56,283,611	$10,312,884	$66,596,496
Total Funding	**$93,121,913**	**$17,062,793**	**$110,184,706**

Source: Coordination with Aiken County

6.1.5 Transit Funding

Transit funding in Georgia (**Table 6-9**) and South Carolina (**Table 6-10** and **Table 6-11**) were developed based on coordination with staff at ARTS and transit agencies such as Augusta Transit (AT) and Best Friend Express (BFE). Transit funding estimates from the LRTP 2040 served as reference in these estimates as well.

Table 6-9: Summary of Federal, State and Local Funding in Georgia

	Urbanized Area			Rural			By County		
	GA Federal Transit	Total State & Local Transit	Total	GA Federal Rural transit	Total State & Local Transit	Total	Federal, State and Local by Richmond County	Federal, State and Local by Columbia County	Grand Total
Tier 1 (2021-2024)	$10,028,185	$5,378,034	$15,406,218	$1,982,624	$1,562,624	$3,545,248	$16,842,218	$2,109,248	$18,951,466
Tier 2 (2025-2034)	$27,502,563	$14,459,956	$41,962,518	$4,909,083	$3,894,688	$8,803,771	$45,436,486	$5,329,804	$50,766,289
Tier 3 (2035-2050)	$49,807,810	$26,271,492	$76,079,303	$8,092,787	$6,291,069	$14,383,855	$81,700,761	$8,762,397	$90,463,153
Total	**$87,338,558**	**$46,109,480**	**$133,448,039**	**$14,984,491**	**$11,748,383**	**$26,732,874**	**$143,979,463**	**$16,201,449**	**$160,180,912**

Source: ARTS

Table 6-10: Federal Funding in South Carolina

	FTA Section 5303 Planning	FTA Section 5307 Operating	FTA Section 5307 Capital	FTA Section 5307 Planning	FTA Section 5310 Capital	FTA Section 5339	Total SC Federal Transit
Tier 1 (2021-2024)	$192,000	$1,000,000	$2,240,000	$100,000	$384,000	$255,313	$4,171,313
Tier 2 (2025-2034)	$480,000	$2,132,480	$4,776,758	$200,000	$818,872	$907,416	$9,315,526
Tier 3 (2035-2050)	$768,000	$3,888,817	$8,710,950	$300,000	$1,493,307	$1,654,775	$16,815,851
Total	**$1,440,000**	**$7,021,298**	**$15,727,707**	**$600,000**	**$2,696,178**	**$2,817,506**	**$30,302,689**

Source: Coordination with Best Friend Express

Table 6-11: State and Local Funding for Transit in South Carolina

	FTA 5303 Planning Local Match	FTA 5307 Local Match Planning	5307 Operating	5307 Capital	FTA 5307 Local Match	FTA 5310 Local Match Capital	FTA 5339 Local Match	ASLS Local Match	SC Transit State & Local	Total SC Federal Transit	Grand Total
Tier 1 (2021-2024)	$48,000	$25,000	$1,000,000	$560,000	$1,585,000	$96,000	$63,828	$532,500	$2,261,500	$4,171,313	$6,432,813
Tier 2 (2025-2034)	$120,000	$50,000	$2,132,480	$1,194,190	$3,379,981	$204,719	$226,854	$1,125,367	$4,830,068	$9,315,526	$14,145,594
Tier 3 (2035-2050)	$192,000	$75,000	$3,888,817	$2,177,737	$6,163,555	$373,329	$413,693	$2,050,219	$8,779,097	$16,815,851	$25,594,949
Total	**$360,000**	**$150,000**	**$7,021,298**	**$3,931,927**	**$11,128,535**	**$674,045**	**$704,376**	**$3,708,086**	**$15,870,666**	**$30,302,689**	**$46,173,355**

Source: Best Friend Express

6.2 Cost Estimation Methodology

A cost estimation methodology for projects in the ARTS planning area was developed based on the Atlanta Regional Commission (ARC)'s Cost Estimation Tool, which is in turn founded on GDOT's statewide Right-of-Way and Utility Relocation Cost Estimation Tool (RUCEST). The ARC's tool facilitates cost development for all roadway projects inclusive of bridge widening, new turn lanes, and signal improvements and facilitates cost estimation for multimodal and non-motorized transportation projects. Although the tool has its origins in the Atlanta Metropolitan area, RUCEST originates from statewide historical bid data for projects funded throughout Georgia wholly or in part from federal, state, and county funds. In addition, cost estimates for the ARTS 2050 MTP were checked against local project costs, published planning documents, and costs estimated in the ARTS 2040 LRTP.

Federal planning regulations require that all project cost estimates include the cost of the total project inclusive of preliminary design, Right-of Way (ROW) acquisition, and construction. For this document's cost estimation, preliminary engineering costs are 10% of construction totals, utility relocation costs are 3% of construction totals, and ROW acquisition varies based on acreage and land use type. In addition, all baseline project cost estimates account for inflation and are in 2019 dollars based on the U.S. Bureau of Labor Statistics' Consumer Price Index (CPI). Once programmed by funding availability, project costs will be converted to Year of Expenditure (YOE) dollars.

Risk contingencies vary by project type and follow ARC's best practices recommendations as shown in **Table 6-12**. Corresponding contingency percentages were added to construction cost estimates based on project type.

Table 6-12: Contingencies by Project Types

Project Type	Contingency
Freeway Widening	35%
Surface Street Widening/Extension	20%
Intersections	10%
Bridges	10%
Non-Motorized Elements	10%
Intelligent Transportation Systems	5%

Projects that originated from prior plans and brought forward into the ARTS 2050 MTP retained their cost estimates and were escalated to 2019 prices.

The 2050 MTP financial strategy provides two groups of projects. The first is a prioritized list of projects with individual cost estimates and corridor locations for each. The second is a lump sum funding strategy that groups some projects together for delivery flexibility and efficiency. A total funding allocation will be available for different types of projects. For example, there will be a safety lump sum allocation to allow the ARTS planning area to allocate money towards safety projects based on arising needs.

Establishing lump sums will keep the number of projects in the plan manageable and will make the composition of constrained and unconstrained lists reasonable. Scale and intent of some of the projects can make it difficult to accurately evaluate their need, intent, and delivery timeline in a regional-scale study. There are unprioritized lists of projects for these lump sums to provide some flexibility in adapting to the changing demand and allow proactive project delivery in upcoming amendments to the plan.

General methodology for this consolidation process included:

- **Safety projects**: All corridor or intersection improvements will first require a safety audit, so funding will be set aside to conduct project-specific studies.
- **Bridge maintenance**: Bridges with sufficiency ratings less than 50 and bridge projects identified in a previous plan were carried forward as specific projects in the unconstrained list. However, other bridge maintenance projects identified based on their sufficiency rating were grouped together in a separate lump sum category.
- **Road maintenance**: Most of the maintenance projects were grouped together as a lump sum or a funding bucket, as their need and timeline for implementation can depend on many factors that are unlikely to be captured in a region-wide plan.
- **Transit**: Transit projects with specific details available (such as location for park and ride facilities) were listed as specific projects. However, other policy recommendations and identified needs in other plans were kept as a part of a lump sum, as these do not have specific details attached to them which can be evaluated at this point.
- **Pedestrian/Bicycle projects**: Projects in the TIP were kept as specific projects in the list, but the rest of the projects were grouped together for a lump sum fund.

6.2.1 Summary of Cost Estimation

Table 6-13 includes the summary of total costs by types of improvement for projects in the Universe of Projects list. Each project type has an in-depth cost estimation process which can be found in **Technical Report # 6**. All costs are in 2019 dollars. Capacity projects were estimated to form a majority of funding needs in the identified projects, with nearly 85 percent share of total costs in Georgia and nearly two thirds of the total cost of improvements in South Carolina. Actual costs may increase depending on inflation and the timeline of various elements such as planning/engineering, right-of-way acquisition, utilities and construction. Other costs for the recommended lump sum programs such as transit capital, operations or maintenance, safety improvements, pedestrian and bicycle improvements, maintenance and state of good repair are not included in **Table 6-13**. Costs for elements of projects were also marked up with inflation factors based on their recommended tier (**Table 6-14**). Average factor for each tier was developed based on 3 percent inflation for Georgia and 2 percent inflation for South Carolina. Using an average factor for each tier provides flexibility in deciding the starting date for each project based on the conditions at the time of its delivery.

Table 6-13. Summary of Costs for Universe of Projects (2019 Dollars)

Project Type	Cost for All Projects in Universe of Projects		Total Cost for Projects not in TIP / TIA	
	Georgia	South Carolina	Georgia	South Carolina
Bridge	$66,016,906	$86,824,950	$2,588,700	$3,972,500
Capacity	$2,313,803,881	$398,082,844	$1,974,910,873	$398,082,844
Pedestrian/Bicycle	$57,834,500	$690,000	$0	$0
Operational	$551,421,500	$278,038,800	$261,744,200	$249,434,100
Safety	$3,157,100	$21,418,150	$3,057,100	$21,418,150
Transit	$40,588,600	$1,401,000	$40,588,600	$1,401,000
Total Cost	**$3,032,822,487**	**$786,455,744**	**$2,282,889,473**	**$674,308,594**

Source: ARTS

Table 6-14. Inflation Factors for Cost by Tier

Summary	Georgia (with 3% inflation)	South Carolina (with 2% inflation)
Tier 1 (2021-2024)	1.00	1.00
Tier 2 (2025-2034)	1.18	1.12
Tier 3 (2035-2050)	1.74	1.45

Note: Based on inflation rate assumption of 3% for Georgia and 2% for South Carolina

6.3 Recommendations

The Universe of Projects list was compiled from state or locally published plans, existing and future needs assessment and public and stakeholder input. Travel demand model results for the year 2050 also informed identification of roadway capacity and operational improvement needs. From the Universe of Projects, some of the smaller projects, including those that require further study or projects for which delivery is dependent on future information, were separated from the list and grouped into project packages to be addressed by lump sum. These lump sum categories included funding set aside specifically to fund a grouping of project types. This portion of funding can only be used to fund the respective type of improvements. Lump sum categories such as transit improvements, pedestrian or bicycle improvements, maintenance, safety improvements were created as a part of the MTP update.

The pedestrian projects were identified based on the needs identified in the 2012 Bicycle and Pedestrian Plans and potential demand for pedestrian and bicycle improvements based on proximity to activity centers. As a more recent study with detailed assessment of existing pedestrian/bicycle infrastructure is not available, this MTP update recommends a new bicycle and pedestrian plan. Lump sum funding bucket for pedestrian/bicycle improvements, recommended in this MTP, can be used to deliver priority projects identified in the new bicycle and pedestrian plan. Stakeholder and public outreach also indicated several transit needs. Transit needs such as increased service hours, new routes, expansion of service area, inter-county service, and improved amenities would need to be explored further to come up with appropriate solutions. The lump sum bucket for transit is expected to help deliver some of these transit improvements. Similarly, while high crash areas were identified in the plan, the appropriate solutions can be determined with further analysis and field study for such locations. Safety studies are included in the plan and will be funded with the identified revenue. However, specific amounts will not be identified for delivery of each project separately. The lump sum bucket for safety will help fund some of these high priority projects based on further assessment. This approach will allow the 2050 MTP to adapt to the changing demand and proactively deliver projects in upcoming amendments to the plan. The remaining projects (the Universe of Projects minus the projects addressed by lump sum programs) make up the fiscally unconstrained project list.

6.3.1 Projected Federal, State and Local Year-of-Expenditure Revenues

Technical Report 5: Needs Assessment included projects identified through the development process. Costs for these projects were compared against the projected revenues in the ARTS planning area. Federal, state and local funding sources identified in **Section 6.1** are summarized in **Table 6-15** and **Table 6-16**. As specific funding sources were identified for maintenance related improvements, funding available for other improvements was separated in **Table 6-16**. The total cost of all projects in the Universe of Projects list, not including projects in the ongoing TIP or TIA projects list, far exceeds the total projected revenue. Thus, results from the project prioritization process were used in combination with the estimated cost for each project to identify high priority projects which can be funded in the MTP Update.

Table 6-15: Summary of Federal, State and Local Year-of-Expenditure Revenues for ARTS Planning Area (2021-2050)

Revenue source (MTP 2050)	Georgia	Richmond	Columbia	South Carolina	Total Funding
Federal and State	$1,201,144,185	$680,339,516	$520,804,669	$178,119,600	$1,379,263,786
Local Match and SPLOST for projects	$337,928,000	$138,101,959	$199,826,041	$93,121,913	$431,049,913
Transit - Federal, State, Local	$160,180,912	$143,979,463	$16,201,449	$46,173,355	$206,354,267
TIA - Local Discretionary Funds	$86,852,548	$49,966,164	$36,886,384	$0	$86,852,548
Total YOE dollars for non-maintenance projects	**$1,699,253,097**	**$962,420,938**	**$736,832,159**	**$317,414,868**	**$2,016,667,966**
Federal and State - Maintenance, including LMIG	$243,459,658	$137,897,871	$105,561,787	$265,072,930	$508,532,587
SPLOST - Maintenance and Resurfacing	$462,218,800	$462,218,800	$0	$17,062,793	$479,281,593
Total YOE dollars	**$2,491,784,103**	**$1,612,503,773**	**$879,280,330**	**$599,550,591**	**$3,091,334,695**

Source: Coordination with ARTS, GDOT, Aiken County, Best Friend Express, Columbia County

Table 6-16: Total Year of Expenditure Dollars for Non-Maintenance Projects by Funding Tiers

Total YOE dollars for non-maintenance projects by tier	Georgia	Richmond	Columbia	South Carolina	Total Funding
Tier 1	$188,521,000	$112,590,813	$75,930,187	$34,728,163	$223,249,163
Tier 2	$536,040,510	$301,517,936	$234,522,575	$93,151,271	$629,191,782
Tier 3	$974,691,587	$548,312,189	$426,379,397	$189,535,434	$1,164,227,021
Total YOE dollars for non-maintenance projects	**$1,699,253,097**	**$962,420,938**	**$736,832,159**	**$317,414,868**	**$2,016,667,966**

Source: Coordination with ARTS, GDOT, Aiken County, Best Friend Express, Columbia County

6.3.2 Fiscally Constrained Plan

The multimodal transportation investments presented in the 2050 MTP are meant to provide a well-rounded transportation system heading into the future. Limited funding is available moving into the coming years, and the constrained tiers are meant to strike a balance of various multimodal projects. The financially constrained plan provides financial and project phasing detail. Planning level cost estimates, YOE dollars, and anticipated revenues are also presented. Anticipated costs and revenues are based on the best available information, which was provided by GDOT, SCDOT, and local jurisdictions. The following sections provide the draft project lists for the ARTS 2050 MTP Update. Some of the assumptions for the funding allocation include:

- Any projects in ongoing TIP and TIA 2012 were included in the 2050 MTP.
- Projects in the approved list for TIA 2022 were also included in the MTP.
- Funding sources for any projects in the ongoing TIP were considered to be separate from the funding duration and levels summarized in the previous section.
- Funding allocation for each project type for each of Tiers 1, 2, and 3 was done separately for three geographical areas: Columbia County, Richmond County, and the ARTS planning area in South Carolina.

- Ranking from the project prioritization tool along with the cost of each project and available budget for that project category formed the basis for creating a constrained list of projects.
- The same project could be broken down to several project elements (PE, ROW, construction) and listed in multiple tiers depending on the cost of project by elements and available budget for that project category in each tier in that geographical area.
- Projects which could not be funded within the projected revenues are included as priority unfunded projects.

Funding Allocation

Improvements identified as a part of the 2050 MTP Update include a list of specific projects and lump sum buckets for improvements that need further information. A lump sum bucket was created for maintenance related improvements with specifically identified revenue sources. Total projected revenue of nearly $1.9 billion is available for other projects. Estimated costs for identified projects provide a summary of funding needed for various types of improvements. Capacity improvement projects formed the largest portion of the funding needs with nearly 87 percent of the total cost of improvements in Georgia and nearly 59 percent of the total cost of improvements in South Carolina. However, this does not account for other improvements such as lump sum buckets for pedestrian/bicycle, safety improvements, transit operations/additional improvements. Public and stakeholder input during the 2050 MTP Update suggested increased investment in pedestrian/bicycle improvements and transit service in the ARTS planning area. **Table 6-17** summarizes funding allocation used in the 2050 MTP update for the five funding categories.

Table 6-17. Percentage Funding Allocation by Location

Item	Richmond County – Percent Allocation	Columbia County – Percent Allocation	South Carolina – Percent Allocation
Widening / Capacity	54.5%	68%	42%
Pedestrian / Bicycle	7.0%	7%	6%
Bridges	2.0%	1%	5%
Public Transit	17.5%	7%	19%
Safety / Operations	19.0%	17%	28%
Total Funding	100%	100%	100%

Source: Funding Allocation in LRTP 2040, Public Input during outreach for the MTP update, Estimated costs for identified projects

Table 6-18 shows the funding levels based on the percentage funding allocation.

Table 6-18. Funding Allocation by Project Type

Item	Richmond County	Columbia County	Georgia	South Carolina	Total Allocated Funding
Widening Capacity	$1,025,565,280	$524,519,411	$501,045,868	$133,314,245	$1,158,879,524
Pedestrian / Bicycle	$118,947,717	$67,369,466	$51,578,251	$19,044,892	$137,992,609
Bridges	$26,616,740	$19,248,419	$7,368,322	$15,870,743	$42,487,484
Public Transit	$220,001,915	$168,423,664	$51,578,251	$60,308,825	$280,310,740
Safety / Operations	$308,121,445	$182,859,978	$125,261,467	$88,876,163	$396,997,608
Total Funding	$1,699,253,097	$962,420,938	$736,832,159	$317,414,868	$2,016,667,966

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County

Table 6-19 shows the summary of funding allocation and the proposed funding lump sum buckets for 2021 to 2050.

Table 6-19. Summary of Funding Allocation by Project Types and Lump Sum Buckets by Location

Project type	Georgia	Richmond County	Columbia County	South Carolina	Total Allocated Funding
Widening / Capacity Projects	$1,025,565,280	$524,519,411	$501,045,868	$133,314,245	$1,158,879,524
Operations Budget (67% of Safety / Operations)	$206,441,368	$122,516,185	$83,925,183	$59,547,029	$265,988,398
Bridges	$26,616,740	$19,248,419	$7,368,322	$15,870,743	$42,487,484
Safety studies / defined projects	$3,466,641	$2,584,627	$882,014	$2,614,151	$6,080,791
Safety Lump Sum (33% of Safety / Operations – safety studies)	$98,213,436	$57,759,166	$40,454,270	$26,714,983	$124,928,420
Ped/Bike Lump Sum	$118,947,717	$67,369,466	$51,578,251	$19,044,892	$137,992,609
Transit Lump Sum (funding from FTA and State/Local match)	$160,180,912	$143,979,463	$16,201,449	$46,173,355	$206,354,267
Other transit improvements	$59,821,003	$24,444,201	$35,376,802	$14,135,470	$73,956,473
Maintenance Lump Sum	$792,531,006	$650,082,835	$142,448,171	$282,135,723	$1,074,666,729
Total Funding	**$2,491,784,103**	**$1,612,503,773**	**$879,280,330**	**$599,550,591**	**$3,091,334,695**

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County

Table 6-20 provides funding details by tiers. Funding projections by tiers were used while identifying projects that could be funded using the projected revenue.

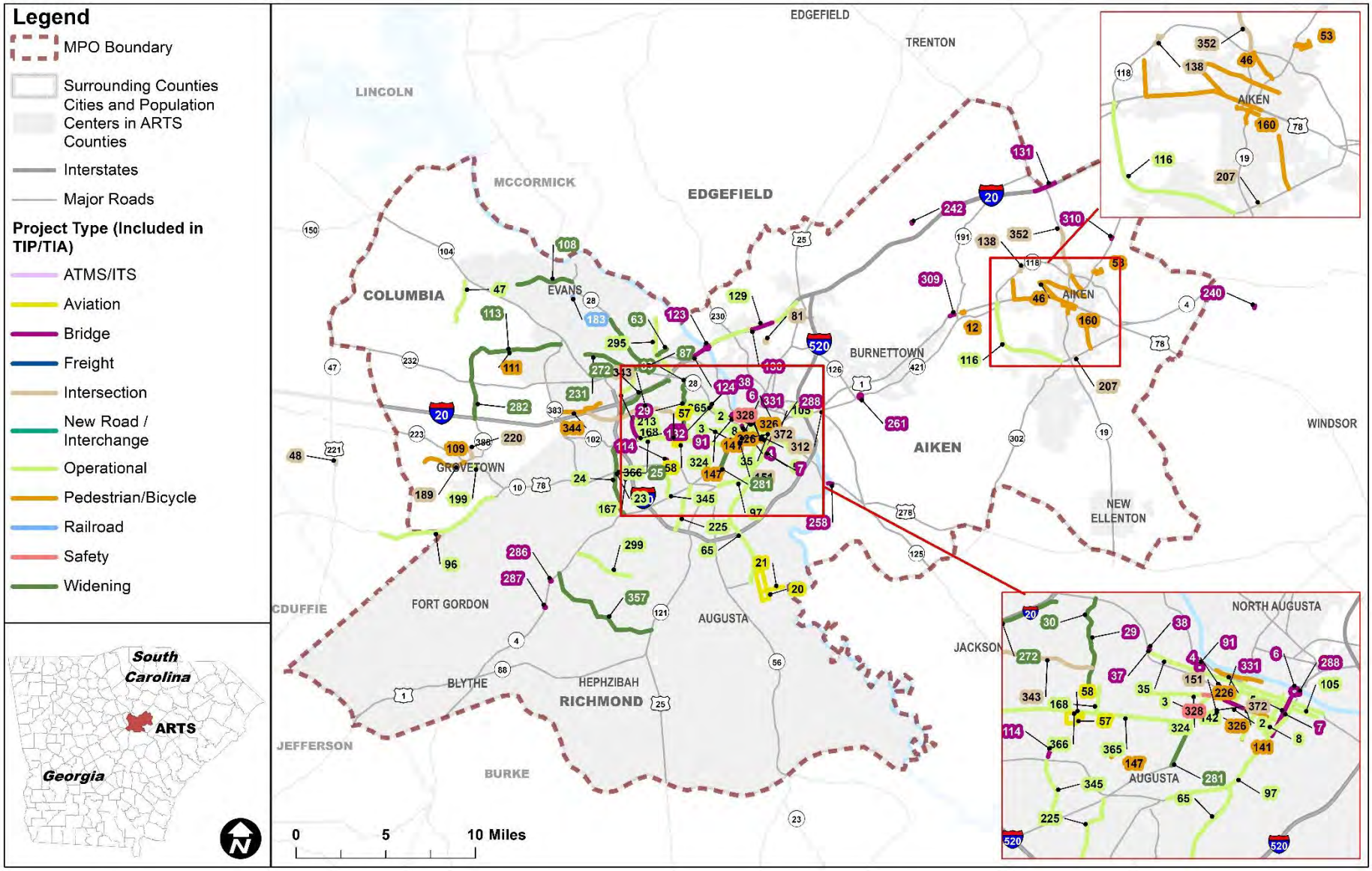
Table 6-20. Summary of Funding Allocation by Project Types and Lump Sum Buckets by Tier

Project type	Tier 1		Tier 2		Tier 3	
	Georgia	South Carolina	Georgia	South Carolina	Georgia	South Carolina
Widening / Capacity Projects	$112,994,521	$14,585,828	$323,802,626	$39,123,534	$588,768,133	$79,604,882
Operations Budget	$22,981,259	$6,515,003	$65,095,354	$17,475,179	$118,364,755	$35,556,847
Bridges	$3,011,118	$1,736,408	$8,375,584	$4,657,564	$15,230,038	$9,476,772
Safety studies / defined projects	$1,638,900	$660,700	$1,353,410	$319,425	$474,331	$1,634,025
Safety Lump Sum	$9,680,227	$2,548,182	$30,708,481	$8,287,752	$57,824,727	$15,879,049
Ped/Bike Lump Sum	$13,196,470	$2,083,690	$37,522,836	$5,589,076	$68,228,411	$11,372,126
Transit Lump Sum	$18,951,466	$6,432,813	$50,766,290	$14,145,594	$90,463,156	$25,594,948
Available for other transit improvements	$6,067,039	$165,538	$18,415,929	$3,553,147	$35,338,035	$10,416,785
Maintenance Lump Sum	$108,454,079	$29,431,811	$282,095,632	$82,178,880	$401,981,295	$170,525,032
Total Funding	**$296,975,079**	**$64,159,974**	**$818,136,142**	**$175,330,152**	**$1,376,672,882**	**$360,060,466**

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County

Projects in TIP 2017-2022, TIA (2013-2022) and TIA (2023-2032)

Funded projects in ongoing TIP 2017-2022, TIA (2013-2022) or the proposed projects to be funded through TIA (2023-2032) were also included in the 2050 MTP update (**Figure 6-1** and **Table 6-21**). These projects were categorized as Tier 0.



Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019)

Figure 6-1. Projects in TIP (2017-2022), TIA (2013-2022) or TIA (2023-2032) (Tier 0)

Table 6-21. Projects in TIP (2017-2022), TIA (2013-2022) or TIA (2023-2032) (Tier 0)

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	Source	County	State	Estimated Cost (2019$)
0011418	Project_7	5th Street Bridge (Bridge Repair and Replacement)	Bridge	2017 TIA	Richmond	GA	$10,252,300
0011422	Project_4	15th Street over Augusta Canal (Bridge Repair and Restoration)	Bridge	2017 TIA	Richmond	GA	$1,670,700
0011416	Project_331	Walton Way over Hawks Gully (Bridge Repair and Restoration)	Bridge	2017 TIA	Richmond	GA	$548,856
0011390	Project_114	Highland Avenue Bridge Repair and Restoration Over CSX Railroad	Bridge	2017 TIA, Augusta Comp Plan (2018)	Richmond	GA	$1,790,700
0014907	Project_286	SR 4/US 1 at North Fork Spirit Creek Bridge Replacement	Bridge	2017-2022 TIP	Richmond	GA	$2,974,200
0011373	Project_132	I-20/SR 47 Bridge Replacement	Bridge	2017 TIA	Richmond	GA	$5,759,400
0013297	Project_288	SR 4/US 25 BU at Savannah River Bridge Replacement	Bridge	2017-2022 TIP	Richmond	GA	$20,177,200
0011381	Project_29	Berckmans Road over Rae's Creek	Bridge	2017 TIA	Richmond	GA	$5,602,600
210327	Project_124	I-20 Bridge over Savannah River from GA to SC	Bridge	2040 LRTP@2017-2022 TIP	Richmond	GA	$36,300
	Project_37	Broad Street over Rae's Creek (Bridge repair and restoration)- 1	Bridge	CSRA TIA 2022 Project List	Richmond	GA	$3,270,600
	Project_38	Broad Street over Rae's Creek (Bridge repair and restoration)- 2	Bridge	CSRA TIA 2022 Project List	Richmond	GA	$2,493,900
0013604	Project_287	SR 4/US 1 Bridge Replacement from SR 4/US 1 to South Prong Creek	Bridge	2040 LRTP@2017-2022 TIP	Richmond	GA	$906,400
0008351	Project_281	SR 388 Widening from CR 571/Wrightsboro Rd to I-20, widen from 2 to 4 lanes	Capacity	2017 TIA	Columbia	GA	$9,226,000
0012865	Project_113	Hereford Farms Rd between Belair Rd & Lewiston Rd/Columbia Road	Capacity	Needs based project	Columbia	GA	$39,771,500
	Project_231	Riverwatch Pkwy between Pleasant Home Rd and Old Evans Road, widen from 4 to 6 lanes	Capacity	Needs based project	Columbia	GA	$33,704,600
0008350	Project_282	SR 388 Widening from I-20 to SR 232/Columbia Rd from I-20 to SR 232 Columbia Road, widen 2 to 4 lanes	Capacity	2017 TIA	Columbia	GA	$28,579,700
	Project_87	Fury's Ferry Rd between Savannah River and Evans to Locks Rd, widen from 4 to 6 lanes	Capacity	TIA 1	Columbia	GA	$32,560,209
	Project_272	Skinner Mill Road widening and improvements from Boy Scout Rd to Walton Way Ext	Capacity	CSRA TIA 2022 Project List	Richmond	GA	$22,628,500
0013704	Project_108	Hardy McManus Road widening, widen from 2 to 4 lanes	Capacity	CSRA TIA 2022 Project List	Columbia	GA	$33,300,500

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	Source	County	State	Estimated Cost (2019$)
0011413	Project_30	Berckmans Road Realignment and Widening from Wheeler Road to Washington Road, widen from 2 to 4 lanes	Capacity	2017 TIA	Richmond	GA	$18,712,600
	Project_63	Dennis Road widening and improvements	Capacity	CSRA TIA 2022 Project List	Richmond	GA	$6,589,400
	Project_25	Barton Chapel Road Widening from Augusta West Pkwy to Deans Bridge Road, widen from 2 to 4 lanes	Capacity	2040 LRTP	Richmond	GA	$56,964,200
0012869	Project_357	Willis Foreman Road from SR 4/US 1 to SR 121/US 25 (Peach Orchard Road), widen from 2 to 4 lanes	Capacity	2017-2022 TIP	Richmond	GA	$56,855,800
	Project_3	15th Street improvements, Part II from Walton Way to Government Street	Operational	CSRA TIA 2022 Project List	Richmond	GA	$8,289,100
0011389	Project_105	Greene Street Improvements from 13th Street to East Boundary Street from 13th Street to East Boundary Street	Operational	2017 TIA, Augusta Comp Plan (2018)	Richmond	GA	$11,071,500
	Project_199	Old Wrightsboro Rd to Newmantown Rd realignment and improvements at Robinson Ave	Operational	CSRA TIA 2022 Project List	Columbia, Richmond	GA	$9,839,400
	Project_5	5th Street, from Laney Walker Boulevard to Reynolds Street	Operational	2017 TIA	Richmond	GA	$5,735,000
	Project_151	Laney Walker Road/RA Dent Boulevard/Augusta Avenue Intersection	Operational	CSRA TIA 2022 Project List	Richmond	GA	$3,832,100
	Project_2	13th Street from RA Dent to Reynolds Street	Operational	2017 TIA	Richmond	GA	$3,429,700
	Project_142	James Brown Reconstruction	Operational	2017 TIA, Augusta Comp Plan (2018)	Richmond	GA	$6,940,400
0011415	Project_8	6th Street, from Laney Walker Boulevard to Reynolds Street	Operational	2017 TIA	Richmond	GA	$7,668,700
	Project_35	Broad Street Improvements from Washington Road to Sand Bar Ferry Road	Operational	2017 TIA@CSRA TIA 2022 Project List@Augusta Comp Plan (2018)	Richmond	GA	$17,038,900
	Project_324	Walton Way between Gordon Highway and Milledge Road	Operational	Needs based project	Richmond	GA	$15,576,600
	Project_365	Wrightsboro between Highland and 15th	Operational	Needs based project	Richmond	GA	$8,537,100
222710	Project_97	Gordon Highway US 78 Median Barrier (US 25 to Walton Way) from Us 25 to Walton Way	Operational	2017 TIA	Richmond	GA	$15,963,300
	Project_220	Reconstruct Whiskey Road from Wrightsboro Road project improvements to Guy Drive intersection	Operational	CSRA TIA 2022 Project List	Columbia	GA	$2,369,700
	Project_58	Daniel Field Airport commercial hanger development	Operational	CSRA TIA 2022 Project List	Richmond	GA	$2,678,800

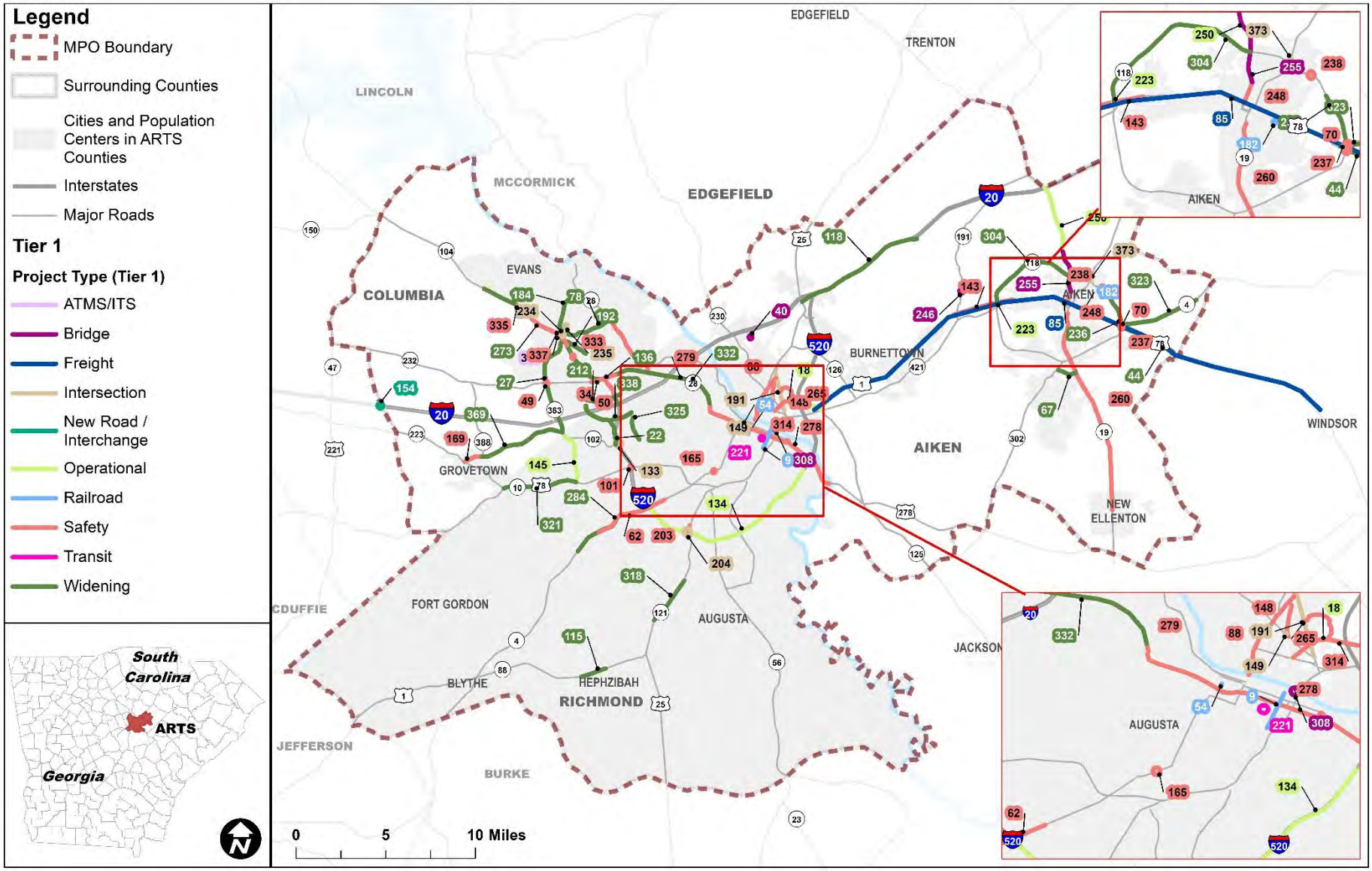
GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	Source	County	State	Estimated Cost (2019$)
	Project_65	Doug Bernard Parkway improvements from Gordon Highway to Highway 56	Operational	CSRA TIA 2022 Project List	Richmond	GA	$12,242,600
	Project_24	Barton Chapel Road improvements from Deans Bridge Rd to Augusta West Parkway	Operational	CSRA TIA 2022 Project List	Richmond	GA	$20,706,100
0012866	Project_343	Wheeler Road Intersection from Wheeler Road to Robert C Daniel Parkway including intersection improvements and turn lanes	Operational	2040 LRTP, 2017-2022 TIP	Richmond	GA	$591,900
	Project_57	Daniel Field Airport airfield improvements	Operational	CSRA TIA 2022 Project List	Richmond	GA	$4,018,200
	Project_213	Pleasant Home Road from Riverwatch Parkway to Walton Way Extension	Operational	2017 TIA	Richmond	GA	$339,000
	Project_295	Stevens Creek Rd bn Evans to Locks Rd & I-20	Operational	2017-2022 TIP	Columbia, Richmond	GA	$12,076,800
	Project_168	Monte Sano Avenue improvements from Wrightsboro Road to Walton Way	Operational	CSRA TIA 2022 Project List	Richmond	GA	$9,209,100
	Project_20	Augusta Regional Airport apron expansion	Operational	CSRA TIA 2022 Project List	Richmond	GA	$7,212,100
	Project_225	Richmond Hill Road improvements from Lumpkin to Deans Bridge	Operational	CSRA TIA 2022 Project List	Richmond	GA	$9,533,300
	Project_21	Augusta Regional Airport runway rehabilitation	Operational	CSRA TIA 2022 Project List	Richmond	GA	$1,648,500
	Project_366	Wrightsboro between Jackson and Highland	Operational	Needs based project	Richmond	GA	$8,075,100
ARTS_C_84	Project_189	Old Berzelia Road and Harlem Grovetown Road Roundabout	Operational	2040 LRTP@CSRA TIA 2022 Project List	Columbia	GA	$1,140,000
	Project_345	Wheeless Road improvements from Gordon Highway to Deans Bridge Rd	Operational	CSRA TIA 2022 Project List	Richmond	GA	$6,632,900
	Project_48	Clary Cut Rd/Old Union Rd alignment with Intersection at 221	Operational	CSRA TIA 2022 Project List	Columbia	GA	$9,447,900
	Project_96	Gordon Highway improvements	Operational	CSRA TIA 2022 Project List	Columbia, Richmond	GA	$15,454,500
	Project_299	Tobacco Road improvements from Deans Bridge to Peach Orchard	Operational	CSRA TIA 2022 Project List	Richmond	GA	$19,193,900
	Project_372	Wrightsboro Road/RA Dent Boulevard intersection improvement	Operational	CSRA TIA 2022 Project List	Richmond	GA	$5,073,200
	Project_47	Clanton Road improvements from William Few Pkwy to Washington Rd	Operational	CSRA TIA 2022 Project List	Columbia	GA	$8,803,800
	Project_167	Milledgeville Road improvements from North Leg to Barton Chapel	Operational	CSRA TIA 2022 Project List	Richmond	GA	$1,480,200

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	Source	County	State	Estimated Cost (2019$)
0012868	Project_23	Barton Chapel Road from Barton Chapel Road to Gordon Highway (SR 10/US 78)	Operational	2040 LRTP@2017-2022 TIP	Richmond	GA	$2,196,000
245205	Project_183	North Belair Road at CSX Railroad	Operational	2040 LRTP@2017-2022 TIP	Columbia	GA	$2,631,900
	Project_11	ACP Rail lead track	Operational	CSRA TIA 2022 Project List	Richmond	GA	$13,000,000
0013705	Project_226	River Levee Trail Extension Phase 3D from Augusta Levee to Hawk's Gully	Pedestrian/Bicycle	2040 LRTP, 2017-2022 TIP	Richmond	GA	$1,366,100
	Project_111	Hereford Farm Road	Pedestrian/Bicycle	2017-2022 TIP	Columbia	GA	$43,567,100
0013707	Project_141	James Brown Blvd. Streetscape Phase III from Twiggs Street to Laney Walker Boulevard	Pedestrian/Bicycle	2040 LRTP@2017-2022 TIP	Richmond	GA	$715,900
0015959	Project_326	Walton Way Accessible Sidewalk Renovation from 7th Street to 11th Street	Pedestrian/Bicycle	2017-2022 TIP	Richmond	GA	$3,847,900
0015958	Project_147	Kissingbower Road sidewalk installation between Marschalk Road and White Road	Pedestrian/Bicycle	2017-2022 TIP	Richmond	GA	$336,100
0012867	Project_344	Wheeler Road Multimodal corridor improvements from I-20 to CR 804 Augusta West Pkwy	Pedestrian/Bicycle	2017-2022 TIP	Columbia	GA	$3,437,700
0013706	Project_109	Harlem Grovetown Rd. Sidewalk Construction from Old Berzelia Road to Elementary School Campus	Pedestrian/Bicycle	2040 LRTP@2017-2022 TIP@Grovetown Comp Plan (2016)	Columbia	GA	$4,563,700
	Project_328	Walton Way between Chafee Ave & 15th St	Safety	Needs based project	Richmond	GA	$50,000
	Project_91	Goodrich Road at Canal Spillway measured 13.2 miles northeast of Hephzibah	Safety	Needs based project	Richmond	GA	$50,000
	Project_6	5th Street at Savannah River at the South Carolina state line	Bridge	CSRA TIA 2022 Project List	Aiken, Richmond	GA & SC	$7,941,000
	Project_123	I-20 Bridge at Savannah River and Widening from Richmond to Aiken	Bridge	2040 LRTP@2017-2022 TIP	Aiken, Richmond	GA & SC	$7,949,100
P030396/SC-24	Project_131	I-20 WB over SC 19 bridge replacement	Bridge	2017-2022 TIP	Aiken	SC	$18,910,900
P030257/SC-23	Project_130	I-20 WB over abandoned railroad bridge replacement	Bridge	2017-2022 TIP, Aiken County Comp Plan (2014)	Aiken	SC	$12,236,000
P030429/SC-21	Project_309	US 1 over Horse Creek bridge replacement	Bridge	2017-2022 TIP, Aiken County Comp Plan (2014)	Aiken	SC	$19,480,100
P030428/SC-22	Project_310	US 1 over Shaw's Creek bridge replacement	Bridge	2017-2022 TIP	Aiken	SC	$16,797,600
P028422/SC-19	Project_261	SC 421 at Little Horse Creek, 1 mile east of Clearwater	Bridge	2017-2022 TIP	Aiken	SC	$2,237,200

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	Source	County	State	Estimated Cost (2019$)
	Project_240	Hatchaway Bridge Road / S-1304 over Shaw's Creek	Bridge	2017-2022 TIP@Aiken County Comp Plan (2014)	Aiken	SC	$792,400
SC-17	Project_242	S-2-144 Bridge Rehabilitation/ Maintenance from S-2-144 to Bettis Academy	Bridge	2040 LRTP@2017-2022 TIP@Aiken County Comp Plan (2014)	Aiken	SC	$761,300
	Project_258	SC 28 Bridge Replacement/Rehabilitation from SC 28 to Savannah River	Bridge	2040 LRTP@2017-2022 TIP@Aiken County Comp Plan (2014)	Aiken	SC	$3,691,900
	Project_352	Eagle Road at Whiskey Road Intersection	Operational	2017-2022 TIP, Aiken County Comp Plan (2014), LSCOG LRTP	Aiken	SC	$2,241,000
24745/ SC-8	Project_116	Hitchcock Parkway (SC-118) Corridor Improvements	Operational	2040 LRTP@2017-2022 TIP@Aiken County Comp Plan (2014)@City of Aiken Comp Plan (2017)	Aiken	SC	$10,513,800
	Project_138	Intersection SC 118 and S-1303 Croft Mill Road/Hudson Road	Operational	2017-2022 TIP, Aiken County Comp Plan (2014)	Aiken	SC	$1,854,500
042131RD01	Project_207	Pine Log Road and Collier Street	Operational	2040 LRTP; 2017-2022 TIP	Aiken	SC	$826,800
P0292420/SC-18	Project_129	I-20 Rehabilitation and Maintenance Work from Mile Marker 1 to Mile Marker 5	Operational	2040 LRTP@Aiken County Comp Plan (2014), 2017-2022 TIP	Aiken	SC	$5,644,800
	Project_312	US 1, SC 421	Operational	2017-2022 TIP, Aiken County Comp Plan (2014)	Aiken	SC	$532,200
039169ARD01	Project_81	Five Notch Road and Pisgah Road	Operational	2017-2022 TIP	Aiken	SC	$1,918,400
	Project_160	Main Street (SC 19) Pedestrian Walkways Phase II (New Ellenton)	Pedestrian/Bicycle	2017-2022 TIP	Aiken	SC	$110,300
	Project_46	City of Aiken Bike Infrastructure Phase 1	Pedestrian/Bicycle	2040 LRTP@2017-2022 TIP@Aiken County Comp Plan (2014)	Aiken	SC	$246,400
39788	Project_53	Crosland Park Sidewalks	Pedestrian/Bicycle	2040 LRTP@2017-2022 TIP@Aiken County Comp Plan (2014)	Aiken	SC	$246,400
	Project_13	Aiken/North Augusta Bicycle Route	Pedestrian/Bicycle	2017-2022 TIP	Aiken	SC	$45,400
	Project_12	Aiken County Recreation Center walking track	Pedestrian/Bicycle	2017-2022 TIP@Aiken County Comp Plan (2014)	Aiken	SC	$41,500

Funding Priorities Tier 1 (2021 - 2024)

Tier 1 projects are programmed to commence preliminary engineering, ROW acquisition, or construction during the 2021 - 2024 planning period. **Figure 6-2** and **Table 6-22** show Tier 1 projects.



Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019)

Figure 6-2. Locations of Tier 1 Projects (2021 – 2024)

Table 6-22. List of Tier 1 Projects (2021 – 2024)

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 1
	Project_22	Augusta West Parkway Widening from Wrightsboro Road to Wheeler Road	Capacity	Richmond	GA	PE, ROW	$2,876,742
	Project_27	Belair Rd between Washington Rd and Wrightsboro Rd, widen from 5 to 6 lanes	Capacity	Columbia	GA	PE, ROW	$8,397,597
ARTS_C_114	Project_78	Evans to Locks Road Widening and Roundabout from Town Centre Boulevard to Fury's Ferry Road, widen from 2 to 4 lanes	Capacity	Columbia	GA	PE	$4,881,636
ARTS_R_214	Project_115	Highway 88 Widening from Keysville Road to Windsor Spring Road, widen from 2 to 4 lanes	Capacity	Richmond	GA	PE, ROW	$4,937,815
	Project_136	SR 232 between Richmond County line and Washington Rd, widen from 4 to 6 lanes	Capacity	Columbia	GA	PE	$868,313
	Project_154	Louisville Road and I-20 New Interchange	Capacity	Columbia	GA	PE, ROW	$4,560,000
245200	Project_184	North Belair Road Widening from Evans-to-Locks Road (SC 11236) to SR 28 (Fury's Ferry Road), widen from 2 to 4 lanes	Capacity	Columbia	GA	PE	$2,860,443
	Project_192	Old Evans Rd between Bobby Jones and Washington Rd, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$8,920,600
	Project_212	Pleasant Home Rd between Flowing Wells Rd & Washington Rd, widen from 2 to 4 lanes	Capacity	Richmond, Columbia	GA	PE, ROW	$1,860,153
	Project_273	SR 104 between Hardy McManus and Pleasant Home, widen from 5 to 6 lanes	Capacity	Columbia	GA	PE, ROW	$10,209,452
0008356	Project_284	SR 4/ US 1 (Deans Bridge Road) from Meadowbrook Drive to Tobacco Road, widen from 4 to 6 lanes	Capacity	Richmond	GA	PE, ROW	$4,416,151
0008355	Project_318	US 25/SR 121(Peach Orchard Road) from Tobacco Road to Brown Road, widen from 4 to 6 lanes	Capacity	Richmond	GA	All	$2,674,300
0008354	Project_321	US 78 / SR 10 from Robinson Avenue to Fort Gordon Gate 1, widen from 4 to 6 lanes	Capacity	Richmond	GA	PE, ROW	$13,012,017
	Project_325	Jackson Rd between Walton Way and Wrightsboro, widen from 2 to 4 lanes	Capacity	Richmond	GA	All	$13,080,991
	Project_332	Washington between Pleasant and Broad St, widen from 4 to 6 lanes	Capacity	Richmond	GA	PE, ROW	$7,629,107
	Project_338	Wheeler between Walton and Flowing Wells, widen from 5 to 6 lanes	Capacity	Richmond	GA	PE, ROW	$8,357,607
0008355	Project_369	Wrightsboro Road from SR 388 (Horizon South Parkway) to SR 383 (Jimmie Dyess Parkway), widen from 2 to 4 lanes	Capacity	Columbia	GA	PE	$5,526,891

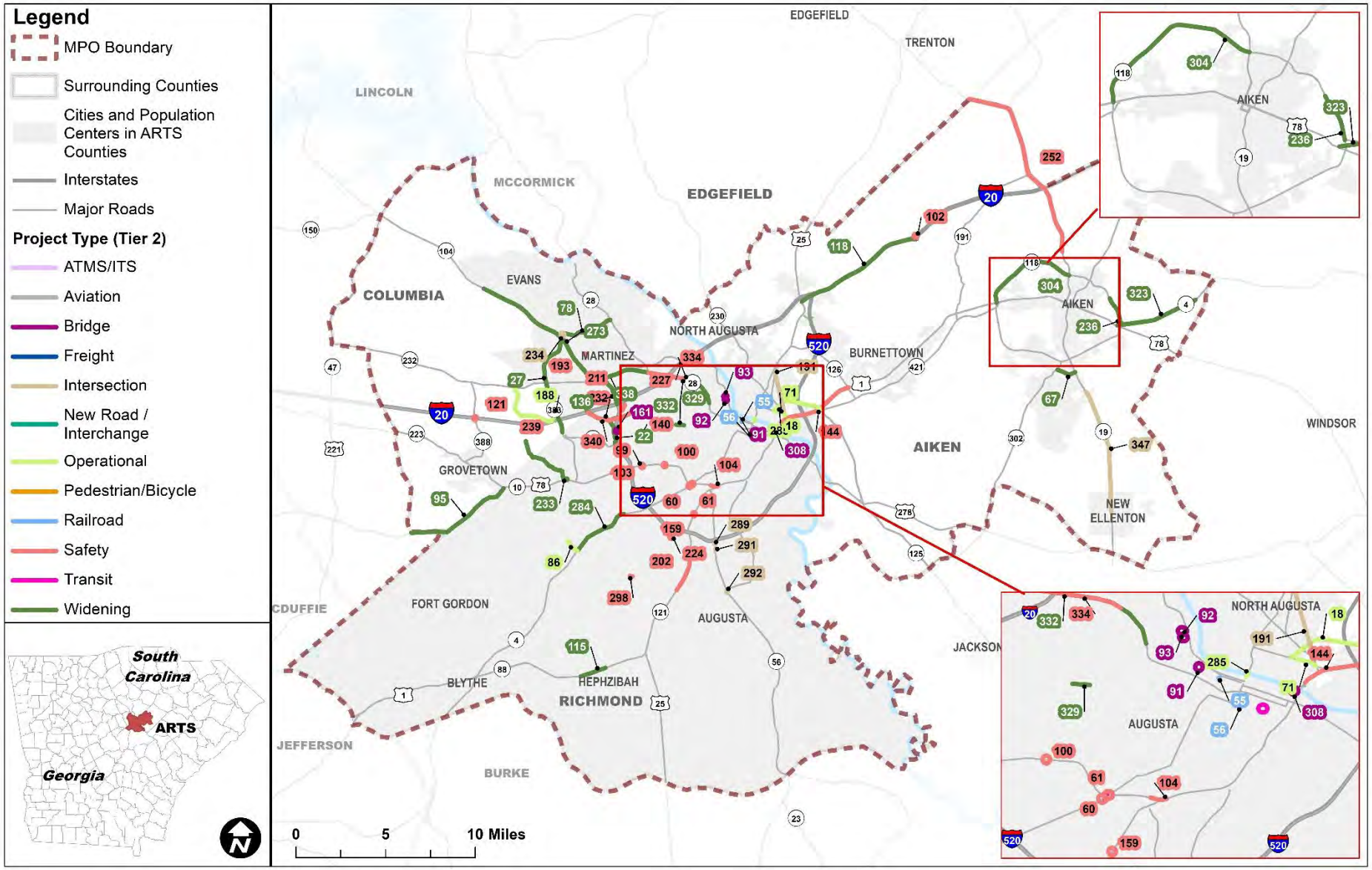
GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 1
	Project_9	6th Street Rail Corridor Improvements - Quiet Zone from Taylor Street to Savannah River	Operational	Richmond	GA	Policy	$0
	Project_133	I-520 and Wrightsboro Road Interchange Improvements	Operational	Richmond	GA	All	$2,745,000
	Project_134	I-520 between Deans Bridge Rd and Laney Walker Blvd	Operational	Richmond	GA	All	$3,620,200
	Project_145	Jimmie Dyess Pkwy between Powell Rd & Gordon Hwy	Operational	Richmond	GA	All	$947,300
	Project_204	Peach Orchard at Windsor Spring at I-520 Intersection	Operational	Richmond	GA	All	$1,703,100
	Project_234	Roundabout at intersection of Evans Town Center Blvd and Evans to Locks Rd	Operational	Columbia	GA	PE	$139,707
	Project_235	Roundabout at intersection of North Belair Rd and Ronald Reagan Dr/Industrial Park	Operational	Columbia	GA	All	$2,328,400
	Project_300	Traffic signal at Kroger site	Operational	Columbia	GA	All	$428,200
	Project_34	Bobby Jones Expressway between Marsella Ave and Washington Rd	Safety	Richmond	GA	PE	$50,000
	Project_49	Columbia Rd, N Belair Rd	Safety	Columbia	GA	PE	$50,000
	Project_50	Columbia Rd betweenn Davis Rd & Flowing Wells Rd	Safety	Columbia	GA	PE	$59,200
LR-88	Project_54	CSX at 15th Street Rail Crossing Safety Improvements	Safety	Richmond	GA	All	$10,000
	Project_62	Deans Bridge Rd between south of Morgan Rd to Lyman St	Safety	Richmond	GA	PE	$175,000
	Project_101	Gordon Hwy and I-520	Safety	Richmond	GA	PE	$50,000
	Project_165	Milledgeville Rd and Olive Rd	Safety	Richmond	GA	PE	$50,000
	Project_169	Wrightsboro Road between Jimmie Dyess Pkwy and Harlem Grovetown Road / Robinson Ave	Safety	Columbia	GA	PE	$247,000
	Project_203	Peach Orchard Rd between Silverdale Rd & Reedale Ave	Safety	Richmond	GA	PE	$50,000
	Project_278	SR 28 between 15th St and Savannah River	Safety	Richmond	GA	PE	$264,600
	Project_279	SR 28 between Evans to Locks and 15th St	Safety	Richmond	GA	PE	$427,400
	Project_333	Washington Rd at Owens Rd	Safety	Columbia	GA	PE	$50,000
	Project_335	Washington Rd between Halali Farm Rd & Ronald Reagan Dr	Safety	Columbia	GA	PE	$105,700
	Project_337	Washington Rd between Riverwatch Pkwy and Ronald Reagan Dr	Safety	Columbia	GA	PE	$50,000
	Project_221	Relocate the primary Augusta Transit hub from Broad Street to downtown Augusta	Transit	Richmond	GA	PE	$990,000

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 1
	Project_308	US 1 at Savannah River at the Georgia/South Carolina state line	Bridge	Aiken, Richmond	GA & SC	PE	$292,969
	Project_40	S-2025 at Pole Branch at North Augusta	Bridge	Aiken	SC	All	$159,700
	Project_246	S-2-33 at Gregg Canal at Graniteville	Bridge	Aiken	SC	All	$377,800
	Project_255	SC 19 Install wildlife friendly culvert at Long Branch Stream crossing from south of Shiloh Heights Rd to South of I-20	Bridge	Aiken	SC	All	$24,400
	Project_44	Charleston Highway from SC 302 (Pine Log Road) to S-507 (Old Dibble Road)	Capacity	Aiken	SC	All	$6,073,300
	Project_67	Dougherty Road improvements	Capacity	Aiken	SC	PE, ROW	$703,093
	Project_118	I-20 from Exit 1 to US 25 (Edgefield Road), widen to 6 lanes	Capacity	Aiken	SC	PE, ROW	$1,532,727
	Project_236	Rudy Mason Parkway from S-912 (North of Willow Run Road) to S-783 (North of Old Wagener Road), widen from 2 to 4 lanes	Capacity	Aiken	SC	PE, ROW	$1,597,083
	Project_304	University Parkway (S-2131) from US 1/US 78 Richland Avenue to SC 118, widen from 3 to 5 lanes	Capacity	Aiken	SC	PE, ROW	$2,433,881
	Project_323	Wagener Road from US 78 to S-260 (Wright's Mill Road), widen from 2 to 4 lanes	Capacity	Aiken	SC	PE, ROW	$2,076,890
	Project_18	Atomic Rd between E Buena Vista Ave and Jefferson Davis Hwy	Operational	Aiken	SC	PE	$864,479
	Project_85	Freight corridor improvements on U.S. 78	Operational	Aiken	SC	PE	$951,183
	Project_149	Knox Avenue and Martintown Road	Operational	Aiken	SC	All	$1,785,400
	Project_182	Norfolk Southern at Park Avenue SE/Williamsburg Lane/Staubes Lane	Operational	Aiken	SC	All	$29,300
	Project_191	Old Edgefield Road (S-197) from US 25 (Knox Ave) to SC 230 (Martintown Rd)	Operational	Aiken	SC	PE	$205,155
	Project_223	Richland Avenue West and University Parkway Intersection	Operational	Aiken	SC	All	$917,400
	Project_250	SC 19 Add raised median with dedicated left turns at Hedge Rd at Williams Lane, at Allan Ave, at Sassafras Rd, at Mayfield Rd, at Reynolds Pond Rd and at Good Springs Rd*	Operational	Aiken	SC	All	$1,157,800
	Project_373	York St./Columbia Hwy and Rutland Ave/Aldrich St	Operational	Aiken	SC	All	$502,100
	Project_70	E Pine Log Rd at Charleston Hwy	Safety	Aiken	SC	PE	$50,000
	Project_88	Georgia Ave between Savannah River & Knox Ave	Safety	Aiken	SC	PE	$111,900

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 1
	Project_143	Jefferson Davis Hwy between Chalk Bed Rd & Gregg Hwy	Safety	Aiken	SC	PE	$140,700
	Project_148	Knox Ave between Lecompte Ave and Martintown Rd	Safety	Aiken	SC	PE	$50,000
	Project_237	Rudy Mason Pkwy at Wagener Rd	Safety	Aiken	SC	PE	$50,000
	Project_238	Rudy Mason Pkwy at Wire Rd	Safety	Aiken	SC	PE	$50,000
	Project_248	SC 19 (Laurens St) at SC 118 (Rutland Dr)	Safety	Aiken	SC	PE	$50,000
	Project_260	SC 421 (Augusta Hwy) at Old Cherokee Dr (S-385)	Safety	Aiken	SC	PE	$50,000
	Project_265	Seymore Dr (S-879) from SC 125 (Atomic Rd) to Old Edgefield Rd (S-197)	Safety	Aiken	SC	PE	$58,100
	Project_314	US 25 (Martintown Rd) at SC 125 (Atomic Rd)	Safety	Aiken	SC	PE	$50,000

Funding Priorities Tier 2 (2025 - 2034)

Tier 2 projects are programmed to commence in the medium-range planning horizon (2025 - 2034). **Figure 6-3** and **Table 6-23** identify Tier 2 financially constrained projects in Georgia and South Carolina.



Source: GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019)

Figure 6-3. Locations of Tier 2 Projects (2025 – 2034)

Table 6-23. List of Tier 2 Projects (2025 – 2034)

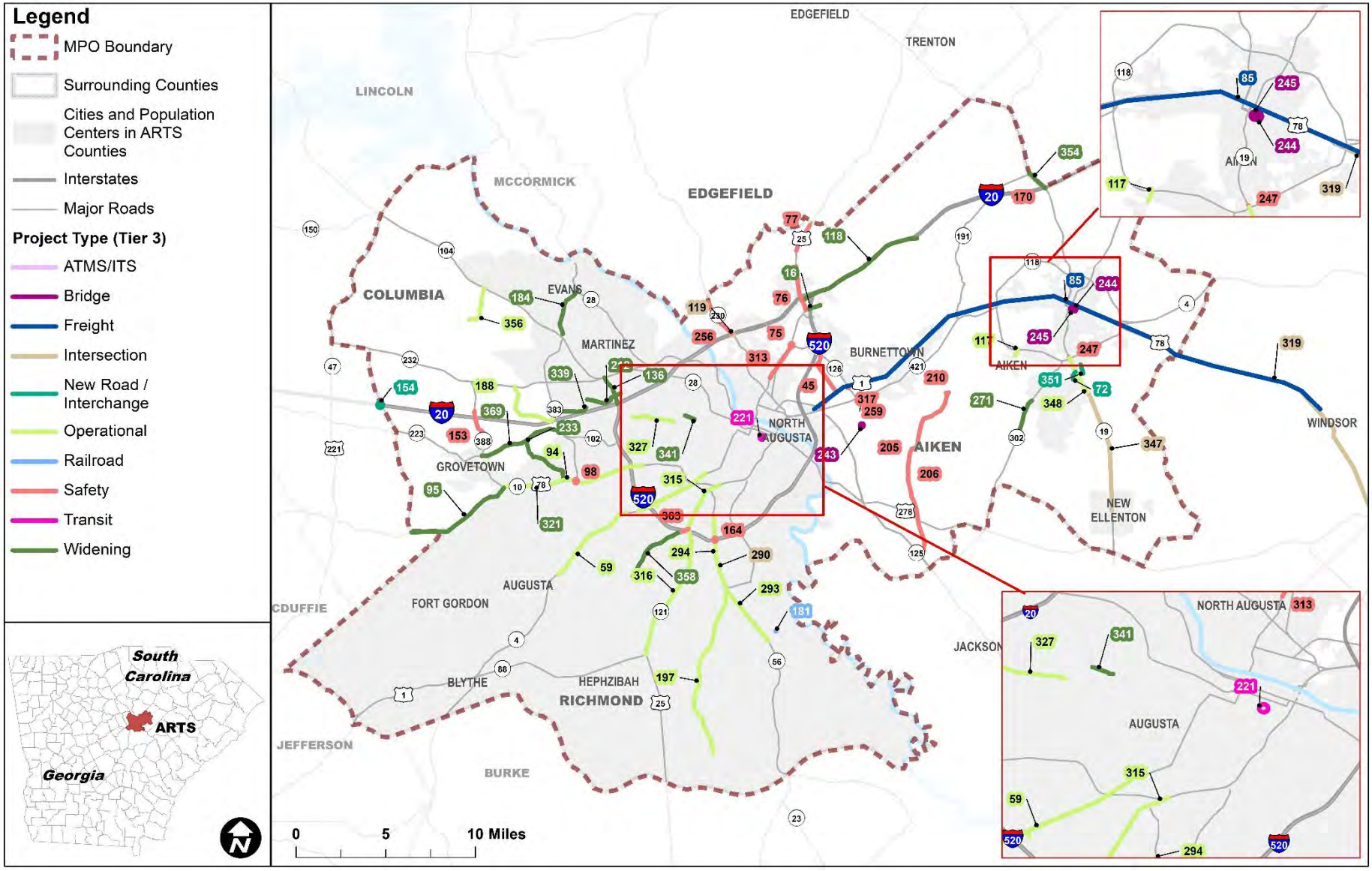
GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 2
	Project_91	Goodrich Road at Canal Spillway measured 13.2 miles northeast of Hephzibah	Bridge	Richmond	GA	All	$252,900
	Project_92	Goodrich Road at Canal Spillway measured 13.7 miles northeast of Hephzibah	Bridge	Richmond	GA	All	$265,600
	Project_93	Goodrich Road at Canal Spillway measured 13.9 miles northeast of Hephzibah	Bridge	Richmond	GA	All	$186,600
	Project_161	Marks Church Road at Rae's Creek measured 11 miles north of Hephzibah	Bridge	Richmond	GA	All	$125,800
	Project_22	Augusta West Parkway Widening from Wrightsboro Road to Wheeler Road	Capacity	Richmond	GA	Construction	$9,974,158
	Project_27	Belair Rd between Washington Rd and Wrightsboro Rd, widen from 5 to 6 lanes	Capacity	Columbia	GA	Construction	$29,659,151
ARTS_C_114	Project_78	Evans to Locks Road Widening and Roundabout from Town Centre Boulevard to Fury's Ferry Road, widen from 2 to 4 lanes	Capacity	Columbia	GA	ROW, Construction	$49,358,764
221790	Project_95	Gordon Highway from Old Louisville Road to SR 223, widen from 2 to 4 lanes	Capacity	Richmond	GA	PE, ROW	$9,728,855
ARTS_R_214	Project_115	Highway 88 Widening from Keysville Road to Windsor Spring Road, widen from 2 to 4 lanes	Capacity	Richmond	GA	Construction	$21,050,685
	Project_136	SR 232 between Richmond County line and Washington Rd, widen from 4 to 6 lanes	Capacity	Columbia	GA	ROW	$1,055,026
	Project_233	Robinson Ave between Gordon Hwy & Wrightsboro Rd, widen from 2 to 4 lanes	Capacity	Columbia, Richmond	GA	PE, ROW	$2,475,975
	Project_273	SR 104 between Hardy McManus and Pleasant Home, widen from 5 to 6 lanes	Capacity	Columbia	GA	Construction	$46,378,048
0008356	Project_284	SR 4/ US 1 (Deans Bridge Road) from Meadowbrook Drive to Tobacco Road, widen from 4 to 6 lanes	Capacity	Richmond	GA	Construction	$18,826,749
	Project_329	Walton Way between Lake Forest Dr & Highland Ave, widen from 2 to 4 lanes	Capacity	Richmond	GA	All	$3,146,600
	Project_332	Washington between Pleasant and Broad St, widen from 4 to 6 lanes	Capacity	Richmond	GA	Construction	$32,736,293
	Project_338	Wheeler between Walton and Flowing Wells, widen from 5 to 6 lanes	Capacity	Richmond	GA	Construction	$36,915,393
	Project_86	Ft Gordon Access near Tobacco Rd & Deans Bridge Rd	Operational	Richmond	GA	All	$2,897,800
	Project_188	Old Belair Road from Columbia Road to Belair Road	Operational	Columbia	GA	PE	$1,226,523

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 2
	Project_234	Roundabout at intersection of Evans Town Center Blvd and Evans to Locks Rd	Operational	Columbia	GA	Construction	$1,412,593
LR-62	Project_285	SR 4/15th Street Pedestrian Improvements from John C Calhoun Expressway to 15th Street CSX Overpass	Operational	Richmond	GA	All	$3,285,600
LR-84	Project_289	SR 56 at Apple Valley Drive Safety Improvements from SR 56 (Mike Padgett Highway) to Apple Valley Drive	Operational	Richmond	GA	All	$274,500
LR-83	Project_291	SR 56 at Marvin Griffin Road Safety Improvements from SR 56 (Mike Padgett Highway) to Marvin Griffin Road	Operational	Richmond	GA	All	$486,800
LR-85	Project_292	SR 56 at Old Waynesboro Road Safety Improvements from SR 56 (Mike Padgett Highway) to Old Waynesboro Road	Operational	Richmond	GA	All	$4,016,400
LR-89	Project_55	CSX Railroad at Broad Street Rail Crossing Safety Improvements	Safety	Richmond	GA	All	$10,000
LR-90	Project_56	CSX Railroad at Walton Way/12th Street Rail Crossing Improvements	Safety	Richmond	GA	All	$20,000
ARTS_R_25	Project_60	Deans Bridge Rd at Richmond Hill Rd	Safety	Richmond	GA	PE	$50,000
	Project_61	Deans Bridge Rd at Gordon Hwy	Safety	Richmond	GA	PE	$50,000
	Project_99	Gordon Hwy at North Leg Rd	Safety	Richmond	GA	PE	$50,000
	Project_100	Gordon Hwy at Highland Ave	Safety	Richmond	GA	PE	$50,000
	Project_103	Gordon Hwy between Barton Chapel Rd & Milledgeville Rd	Safety	Richmond	GA	PE	$50,000
	Project_104	Gordon Hwy between Lionel St & Old Savannah Rd	Safety	Richmond	GA	PE	$50,000
	Project_121	I-20 at Lewiston Rd	Safety	Columbia	GA	PE	$50,000
	Project_140	Jackson Rd north of Wrightsboro Rd	Safety	Richmond	GA	PE	$50,000
	Project_159	Lumpkin Rd & Peach Orchard Rd	Safety	Richmond	GA	PE	$50,000
	Project_193	Old Evans Rd between Riverwatch Pkwy & Panacea Ln	Safety	Columbia	GA	PE	$50,000
	Project_202	Peach Orchard Rd between Byrd Rd & Rosier Rd	Safety	Richmond	GA	PE	$89,000
	Project_211	Pleasant Home Rd & Davis Rd	Safety	Richmond	GA	PE	$50,000
	Project_224	Richmond Hill Rd & Windsor Spring Rd	Safety	Richmond	GA	PE	$50,000
	Project_227	River Watch Pkwy at I-20	Safety	Richmond	GA	PE	$50,000
	Project_232	Robert C Daniel Jr Pkwy between Agerton Ln and Walton Way Ext	Safety	Richmond	GA	PE	$50,000
	Project_239	S Belair Rd between S Old Belair Rd & Belair Frontage Rd	Safety	Columbia	GA	PE	$50,000
	Project_298	Tobacco Rd between Talbot Dr and Windsor Spring Rd	Safety	Richmond	GA	PE	$50,000

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 2
	Project_334	Washington Rd between Fury's Ferry Rd & Berckmans Rd	Safety	Richmond	GA	PE	$119,000
	Project_340	Wheeler Rd between I-20 & Jackson Rd	Safety	Richmond	GA	PE	$108,200
	Project_221	Relocate the primary Augusta Transit hub from Broad Street to downtown Augusta	Transit	Richmond	GA	ROW	$2,200,000
	Project_306	US 1 (Deans Bridge Rd) Southwest Park and Ride at Walmart / Southpointe Plaza	Transit	Richmond	GA	All	$2,938,000
	Project_308	US 1 at Savannah River at the Georgia/South Carolina state line	Bridge	Aiken, Richmond	GA & SC	Construction	$3,222,631
	Project_67	Dougherty Road improvements	Capacity	Aiken	SC	Construction	$3,123,007
	Project_118	I-20 from Exit 1 to US 25 (Edgefield Road), widen to 6 lanes	Capacity	Aiken	SC	33% ROW	$567,677
	Project_236	Rudy Mason Parkway from S-912 (North of Willow Run Road) to S-783 (North of Old Wagener Road), widen from 2 to 4 lanes	Capacity	Aiken	SC	Construction	$6,808,617
	Project_304	University Parkway (S-2131) from US 1/US 78 Richland Avenue to SC 118, widen from 3 to 5 lanes	Capacity	Aiken	SC	Construction	$14,312,119
	Project_323	Wagener Road from US 78 to S-260 (Wright's Mill Road), widen from 2 to 4 lanes	Capacity	Aiken	SC	Construction	$8,854,110
	Project_18	Atomic Rd between E Buena Vista Ave and Jefferson Davis Hwy	Operational	Aiken	SC	Construction	$9,456,221
34298/ SC-12	Project_71	East Buena Vista Ave from Barton Road to Martintown Road	Operational	Aiken	SC	All	$1,961,300
	Project_191	Old Edgefield Road (S-197) from US 25 (Knox Ave) to SC 230 (Martintown Rd)	Operational	Aiken	SC	Construction	$2,074,345
	Project_347	Whiskey Road Intersection from Twin Lakes Drive to George Avenue	Operational	Aiken	SC	PE	$177,822
	Project_102	Bettis Academy Rd at I-20	Safety	Aiken	SC	PE	$50,000
	Project_144	Jefferson Davis Hwy between Savannah River & Belvedere Clearwater Rd	Safety	Aiken	SC	PE	$186,000
	Project_252	SC 19 Implement consistent and/or more visible signage/address markers, including deer crossing signs from the Aiken/Edgefield County line to south of Shiloh Heights Rd	Safety	Aiken	SC	All	$50,000
	Project_120	I-20 and US 1 (Columbia Highway) Park and Ride in Aiken County (Exit 22) from I-20 to US 1	Transit	Aiken	SC	All	$1,401,000

Funding Priorities Tier 3 (2035 - 2050)

Long Range transportation projects for Tier 3 cover the years 2035 through 2050. **Figure 6-4** and **Table 6-24** present financially constrained projects in Georgia and South Carolina.



Source: ARTS Travel Demand Model Update, Fifth Network Analysis (2020)

Figure 6-4. Locations of Tier 3 Projects (2035 – 2050)

Table 6-24. List of Tier 3 projects (2035 – 2050)

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 3
221790	Project_95	Gordon Highway from Old Louisville Road to SR 223, widen from 2 to 4 lanes	Capacity	Richmond	GA	Construction	$41,475,645
	Project_136	SR 232 between Richmond County line and Washington Rd, widen from 4 to 6 lanes	Capacity	Columbia	GA	Construction	$11,722,204
	Project_154	Louisville Road and I-20 New Interchange	Capacity	Columbia	GA	Construction	$19,440,000
245200	Project_184	North Belair Road Widening from Evans-to-Locks Road (SC 11236) to SR 28 (Fury's Ferry Road), widen from 2 to 4 lanes	Capacity	Columbia	GA	ROW, Construction	$28,922,257
	Project_212	Pleasant Home Rd between Flowing Wells Rd & Washington Rd, widen from 2 to 4 lanes	Capacity	Richmond, Columbia	GA	Construction	$14,155,847
	Project_233	Robinson Ave between Gordon Hwy & Wrightsboro Rd, widen from 2 to 4 lanes	Capacity	Columbia, Richmond	GA	Construction	$24,210,525
0008354	Project_321	US 78 / SR 10 from Robinson Avenue to Fort Gordon Gate 1, widen from 4 to 6 lanes	Capacity	Richmond	GA	Construction	$55,472,283
	Project_339	Wheeler Rd between Belair Rd & Flowing Wells Rd, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$13,491,000
	Project_341	Wheeler Rd between Berckmans Rd & Monte Sano Ave, widen from 2 to 4 lanes	Capacity	Richmond	GA	All	$4,836,400
	Project_358	Windsor Spring between SR 25 and Tobacco Rd, widen from 4 to 6 lanes	Capacity	Richmond	GA	All	$38,614,300
0008355	Project_369	Wrightsboro Road from SR 388 (Horizon South Parkway) to SR 383 (Jimmie Dyess Parkway), widen from 2 to 4 lanes	Capacity	Columbia	GA	ROW, Construction	$55,883,009
	Project_59	Deans Bridge between MLK and Willis Foreman	Operational	Richmond	GA	PE / Partial Improvement	$3,936,164
	Project_94	Gordon Highway between Savannah River and SR 223	Operational	Richmond	GA	PE / Partial Improvement	$2,417,553
	Project_188	Old Belair Road from Columbia Road to Belair Road	Operational	Columbia	GA	Construction	$13,416,477
	Project_197	Old Waynesboro Road from SR 56 (Mike Padgett Highway) to Hephzibah-McBean Road	Operational	Richmond	GA	PE / Partial Improvement	$2,975,348
LR-82	Project_290	SR 56 at Dixon Airline Road Safety Improvements	Operational	Richmond	GA	All	$5,617,800
	Project_293	SR 56 between International Blvd and Tobacco Rd	Operational	Richmond	GA	PE / Partial Improvement	$1,398,581
	Project_294	SR 56 between Lumpkin Rd and Tobacco Rd	Operational	Richmond	GA	PE / Partial Improvement	$1,296,983

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 3
	Project_315	US 25 between Gordon Hwy and I-520	Operational	Richmond	GA	PE / Partial Improvement	$1,244,430
	Project_316	US 25 between I-520 and Tobacco Rd	Operational	Richmond	GA	PE / Partial Improvement	$3,226,295
	Project_327	Walton Way between Bransford and Jackson	Operational	Richmond	GA	All	$8,296,400
	Project_356	William Few Pkwy between Washington Rd & Berkley Hills Pass/Whispering Pines Way	Operational	Columbia	GA	All	$8,229,000
	Project_98	Gordon Hwy & Jimmie Dyess Pkwy	Safety	Richmond	GA	PE	$50,000
	Project_153	Lewiston Rd between William Few Pkwy & Wrightsboro Rd	Safety	Columbia	GA	PE	$82,000
	Project_164	Mike Padgett Hwy at I-520	Safety	Richmond	GA	PE	$50,000
LR-87	Project_181	Norfolk Southern at Doug Barnard Pkwy Rail Crossing Safety Improvements	Safety	Richmond	GA	All	$40,000
	Project_363	Windsor Springs Rd between Nottingham Dr & Peach Orchard Rd	Safety	Richmond	GA	PE	$50,000
	Project_221	Relocate the primary Augusta Transit hub from Broad Street to downtown Augusta	Transit	Richmond	GA	Construction	$7,810,000
	Project_243	S-2-145 at tributary to Horse Creek @ 3 miles north of Beach Island	Bridge	Aiken	SC	All	$805,400
	Project_244	S-2-166 at NS Railroad at Union Street in Aiken	Bridge	Aiken	SC	All	$468,500
0041511RD01	Project_245	S-2-180 at abandoned railroad at Fairfield Street in Aiken	Bridge	Aiken	SC	All	$378,900
	Project_16	Ascauga Lake Rd between US 25/Edgefield Rd & Blanchard Rd, widen from 2/3 to 4 lanes	Capacity	Aiken	SC	All	$6,635,729
	Project_72	East Gate Connector from Dougherty Road to East Gate Drive	Capacity	Aiken	SC	All	$7,794,700
	Project_118	I-20 from Exit 1 to US 25 (Edgefield Road), widen to 6 lanes	Capacity	Aiken	SC	ROW/2, Construction	$14,929,896
	Project_271	Silver Bluff Road Widening from Richardson Lake Road to Anderson Pond Road	Capacity	Aiken	SC	All	$12,554,333
	Project_351	Whiskey/Centennial Parkway Extension from Centennial Parkway to East Gate Drive	Capacity	Aiken	SC	All	$7,554,100
	Project_354	Widen from 2 to 4 lanes from south of Shiloh Heights Rd to South of I-20 on SC 19	Capacity	Aiken	SC	All	$3,656,200
	Project_85	Freight corridor improvements on U.S. 78	Operational	Aiken	SC	Construction	$9,617,517
	Project_117	Huntsman Dr between Pine Log Rd & Hitchcock Pkwy	Operational	Aiken	SC	All	$1,471,600

GDOT PI / ARTS / SCDOT	Project ID	Project Description	Funding category	County	State	Elements	Cost in Tier 3
	Project_119	I-20 and Martintown Road	Operational	Aiken	SC	All	$2,801,900
	Project_319	US 78 (Charleston Highway) from SC-302 (East Pine Log Rd) to Aiken/Barnwell county line	Operational	Aiken	SC	PE / Partial Improvement	$1,854,540
	Project_346	Whiskey Road additional curb and gutter, plantable median islands from Pine Log Road to Twin Lakes Drive	Operational	Aiken	SC	All	$994,500
	Project_347	Whiskey Road Intersection from Twin Lakes Drive to George Avenue	Operational	Aiken	SC	Construction	$1,797,978
	Project_348	Whiskey Road option 2: convert to two lanes with plantable median and angled parking from Georgia Avenue to US 278	Operational	Aiken	SC	All	$4,325,200
	Project_45	Cherokee Dr (S-386) from US 1/78 (Davis Hwy) to SC 126 (Belvedere Clearwater)	Safety	Aiken	SC	PE	$105,700
	Project_75	Edgefield Rd at Belvedere Clearwater Rd	Safety	Aiken	SC	PE	$50,000
	Project_76	Edgefield Rd bn Ascauga Lake Rd & Sweetwater Rd	Safety	Aiken	SC	PE	$104,300
	Project_77	Edgefield Rd from Ridge Rd to Stephens Rd	Safety	Edgefield	SC	PE	$67,400
	Project_170	Edgefield Highway near I-20	Safety	Aiken	SC	PE	$21,600
	Project_205	Pine Log Rd (S-65) at Storm Branch Rd (S-145)	Safety	Aiken	SC	PE	$50,000
	Project_206	Pine Log Rd (S-65) from SC 125 (Atomic Rd) to S-87 (Piney Heights Rd)	Safety	Aiken	SC	PE	$429,100
	Project_210	Piney Heights Rd (S-87) at Pine Log Rd (S-65)	Safety	Aiken	SC	PE	$50,000
	Project_247	SC 118 Bell Pkwy at Trolley Line safety improvements	Safety	Aiken	SC	PE	$50,000
	Project_256	SC 191 (Main) at SC 421 (Augusta)	Safety	Aiken, Edgefield	SC	PE	$50,000
	Project_259	SC 302 (Silver Bluff Rd) at Gray Mare Hollow Rd (S-146)	Safety	Aiken	SC	PE	$50,000
	Project_313	US 25 (Edgefield Hwy) at SC 126/S-805	Safety	Aiken	SC	PE	$50,000
	Project_317	US 25 Bus (Georgia Ave) at SC 125 (Buena Vista)	Safety	Aiken	SC	PE	$50,000

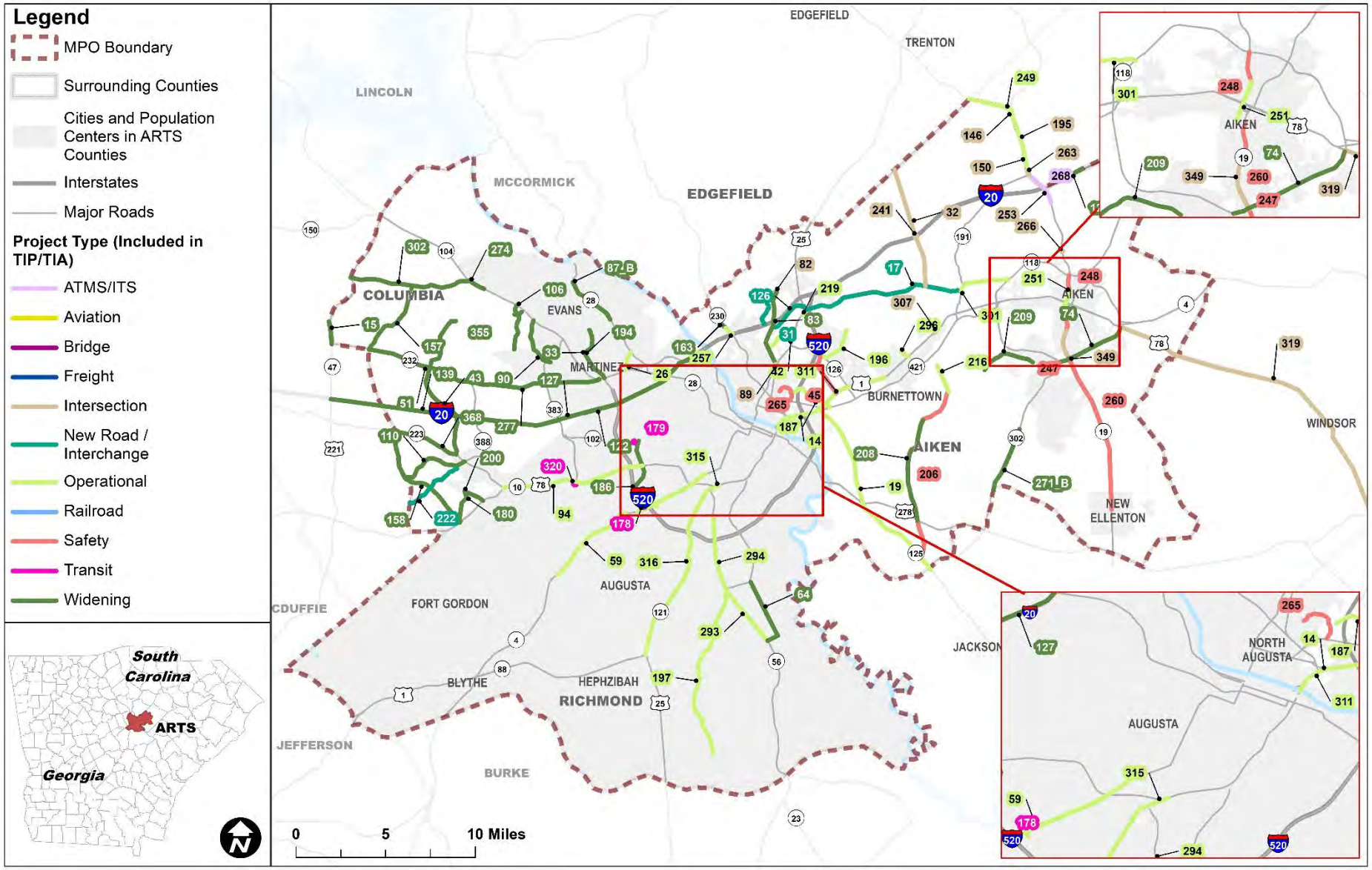
High Priority Unfunded Projects

Current funding forecasts do not permit inclusion of all identified transportation improvement projects in the constrained Tiers 1, 2, or 3. Despite the current lack of funding for these identified projects, future availability of funds may result in their progression through the transportation planning process and facilitate construction at a future date. Unfunded high priority projects address similar needs and issues as financially constrained projects in Tiers 1 through 3. Traffic safety improvements, congestion reduction, and additional bike and pedestrian facilities are some examples of unfunded high priority projects identified during the Future Mobility 2050 MTP update process. **Table 6-25** summarizes total estimated cost of improvements which could not be funded within the available funding from 2021 to 2050. **Figure 6-5** and **Table 6-26** list high priority unfunded transportation projects in Georgia and South Carolina.

Table 6-25. Summary of Expenditures for Priority Unfunded Projects

Location	Transit	Capacity	Safety	Operational	Total Expenditures
Georgia - Columbia County	$0	$981,471,691	$0	$3,739,900	$985,211,591
Georgia - Richmond County	$26,650,600	$318,840,200	$0	$180,437,145	$525,927,945
Georgia	$26,650,600	$1,300,311,891	$0	$184,177,045	$1,511,139,536
South Carolina	$0	$296,875,382	$19,343,350	$206,457,860	$522,676,592
Total Expenditures	$26,650,600	$1,597,187,273	$19,343,350	$390,634,905	$2,033,816,128

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County



Source: GDOT – ARTS Travel Demand Model Update, Sixth Network Analysis (2020)

Figure 6-5. Locations of Unfunded Priority Projects

Table 6-26. List of Unfunded Priority Projects

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	County	State	Elements	Cost in Unfunded Priority
	Project_15	Appling Harlem Rd between Scotts Ferry Rd & Columbia Rd, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$9,365,200
	Project_33	Blue Ridge Dr between Riverwatch Pkwy & Evans to Locks Rd, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$12,025,400
	Project_43	Chamblin Rd/William Few Pkwy between Columbia Rd & Wrightsboro Rd, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$47,032,000
	Project_51	Columbia Rd between Hereford Farm Rd & Louisville Rd, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$44,987,600
	Project_64	Doug Barnard Widening from Tobacco Road to Mike Padgett Highway, widen from 2 to 4 lanes	Capacity	Richmond	GA	All	$41,802,300
	Project_87_B	Fury's Ferry Rd between Evans to Locks Rdand Washington Road, widen from 4 to 6 lanes	Capacity	Columbia	GA	All	$25,881,191
	Project_90	Gibbs Rd / Cox Rd / Owens Rd between Washington Rd & Bohler Dr, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$21,278,900
	Project_106	Halali Farm Road Widening and New Alignment from SR 104 (Washington Road) to Hereford Farm Road	Capacity	Columbia	GA	All	$33,258,900
	Project_110	Harlem Grovetown Road Widening from Louisville Road to Wrightsboro Road, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$69,986,500
	Project_122	I-20 between County Line and I-520, widen from 4 to 6 lanes	Capacity	Richmond	GA	All	$183,812,700
	Project_139	Interstate 20 from SR 47 (Appling Harlem Highway) to SR 383 (Belair Road), widen from 4 to 6 lanes	Capacity	Columbia	GA	All	$230,239,700
	Project_157	Louisville Road Widening 4 from Tubman Road to Columbia Road	Capacity	Columbia	GA	All	$35,800,700
	Project_158	Louisville Road Widening and Extension from Gordon Highway to Fort Gordon Gate, widen from 0 to 2 lanes	Capacity	Columbia	GA	All	$64,387,000
	Project_180	Newmantown Rd between Parham Rd & Gordon Hwy, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$14,058,500
	Project_186	North Leg Road Widening from Lumpkin Road to Sibley Road, widen from 2 to 4 lanes	Capacity	Richmond	GA	All	$59,650,200
ARTS_C_OLDEVANS	Project_194	Old Evans Road Widening from Riverwatch Parkway to SR 104 (Washington Road, widen from 4 to 6 lanes	Capacity	Columbia	GA	All	$64,068,900
	Project_200	Parham Rd bn Newmantown Rd & Gordon Hwy, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$8,453,200
	Project_222	Reynolds Farm Road Paving from Old Louisville Road to Old Berzelia Road	Capacity	Columbia	GA	All	$13,486,000

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	County	State	Elements	Cost in Unfunded Priority
	Project_274	SR 104 from Old Washington Rd to William Few Pkwy, widen from 5 to 6 lanes	Capacity	Columbia	GA	All	$7,002,500
	Project_277	SR 232 between Washington and Hereford, widen from 5 to 6 lanes	Capacity	Columbia	GA	All	$53,268,600
	Project_302	Tubman Rd/ Old Washington Rd Widening from Scotts Ferry Rd to Washington Road, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$71,763,100
	Project_355	William Few Pkwy between Columbia Rd & Clanton Rd, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$25,156,700
Includes ARTS_C_81	Project_368	Wrightsboro Rd between Chamblin Rd & Louisville Rd, widen from 2 to 4 lanes, widen from 2 to 4 lanes	Capacity	Columbia	GA	All	$29,246,100
	Project_26	Baston Road between Fury's Ferry Rd and Washington Rd	Operational	Columbia	GA	All	$3,739,900
	Project_59	Deans Bridge between MLK and Willis Foreman	Operational	Richmond	GA	Partial	$43,056,336
	Project_94	Gordon Highway between Savannah River and SR 223	Operational	Richmond	GA	Partial	$26,444,847
	Project_197	Old Waynesboro Road from SR 56 (Mike Padgett Highway) to Hephzibah-McBean Road	Operational	Richmond	GA	Partial	$32,546,352
	Project_293	SR 56 between International Blvd and Tobacco Rd	Operational	Richmond	GA	Partial	$15,298,619
	Project_294	SR 56 between Lumpkin Rd and Tobacco Rd	Operational	Richmond	GA	Partial	$14,187,217
	Project_315	US 25 between Gordon Hwy and I-520	Operational	Richmond	GA	Partial	$13,612,370
	Project_316	US 25 between I-520 and Tobacco Rd	Operational	Richmond	GA	Partial	$35,291,405
	Project_178	New Transit Hub at Walmart on Deans Bridge Road	Transit	Richmond	GA	All	$11,000,000
	Project_179	New Transit Hub at Walmart on Wrightsboro Road	Transit	Richmond	GA	All	$11,000,000
	Project_320	US 78 (Gordon Highway) Park and Ride from US 78 to Jimmie Dyess Parkway	Transit	Richmond	GA	All	$4,650,600
	Project_17	Ascauga Lake Road from Blanchard Road to S 80 (Canal Street)	Capacity	Aiken	SC	All	$62,758,115
	Project_31	Bergen-Five Notch Collector from Bergen Road to Gregory Lake Road	Capacity	Aiken	SC	All	$8,157,600
	Project_74	East Pine Log Road Widening from Silver Bluff Road to Charleston Hwy	Capacity	Aiken	SC	All	$36,870,700
	Project_83	Five Notch Road from US 25 Business Road (Georgia Avenue) to Walnut Lane, widen from 2 to 4 lanes	Capacity	Aiken	SC	All	$28,377,100
	Project_125	I-20 from US 25 (Edgefield Road) to Bettis Academy Road, widen to 6 lanes	Capacity	Aiken	SC	All	$31,626,200
	Project_126	I-20 Frontage Collector from Five Notch Road to US 25 (Edgefield Road)	Capacity	Aiken	SC	All	$9,789,100
	Project_127	I-20 construct one new HOV Lane in each direction from Louisville Road to Riverwatch Parkway	Capacity	Columbia, Richmond	SC	All	$134,300,000

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	County	State	Elements	Cost in Unfunded Priority
	Project_163	Martintown Road from I-20 to Old Martintown Road, widen from 2 to 4 lanes	Capacity	Aiken	SC	All	$6,864,000
	Project_201	Pawnee-Neilson Connector from Tyler Street to Pawnee Street	Capacity	Aiken	SC	All	$8,157,200
	Project_208	Pine Log Road from US 278 (Williston Road) to S-66 (Huber Clay Road), widen from 2 to 4 lanes	Capacity	Aiken	SC	All	$23,454,600
	Project_209	Pine Log Road Widening from Hillman Street to Town Creek Road, widen from 2 to 4 lanes	Capacity	Aiken	SC	All	$26,104,400
	Project_215	Powderhouse- South Centennial Ave Connector from Whiskey Road to Powderhouse Road	Capacity	Aiken	SC	All	$29,607,700
	Project_271_B	Silver Bluff Road Widening from Anderson Pond Road to Storm Branch Road	Capacity	Aiken	SC	All	$25,108,667
	Project_14	Aiken-Augusta Highway from Savannah River to I-520 (Palmetto Parkway)	Operational	Aiken	SC	All	$10,818,800
	Project_19	Atomic Rd between Jefferson Davis Hwy and Silver Bluff Rd	Operational	Aiken	SC	All	$41,122,100
	Project_32	Bettis Academy Road (S-144) from Ascauga Lake Road (S-33) to Aiken/Edgefield county line	Operational	Aiken	SC	All	$7,083,300
	Project_42	Celeste Avenue from US 25 (Edgefield Road) to S-45 (Five Notch Road)	Operational	Aiken	SC	All	$1,717,300
	Project_82	Five Notch Road and Walnut Lane	Operational	Aiken	SC	All	$4,709,700
	Project_89	Georgia/Knox Ave and Five Notch/Bradyville Road	Operational	Aiken	SC	All	$4,229,700
	Project_146	Johnson Highway realignment with SC 19 from the Aiken/Edgefield County line to south of Shiloh Heights Rd on SC 19	Operational	Aiken	SC	All	$182,800
	Project_150	Lake Shore northbound turn lane on SC 19 from the Aiken/Edgefield County line to south of Shiloh Heights Rd on SC 19	Operational	Aiken	SC	All	$182,800
	Project_187	Old Aiken Rd (S-365) from SC 421 (Augusta Rd) to Carolina Springs Rd (S-68)	Operational	Aiken	SC	All	$2,524,200
	Project_195	Old Friar Road northbound left turn lane on SC 19 from the Aiken/Edgefield County line to south of Shiloh Heights Rd on SC 19	Operational	Aiken	SC	All	$182,800
	Project_196	Old Sudlow Lake Rd (S-1760) from SC 126 (Belvedere Clearwater) to Blanchard Rd (S-1761)	Operational	Aiken	SC	All	$2,188,100
	Project_216	Project Rd (S-285) from Pine Log Rd (S-56) to Baker Street (S-1294)	Operational	Aiken	SC	All	$1,580,200
	Project_219	Ramp from I-520 to US 25/Edgefield Rd	Operational	Aiken	SC	All	$279,800
	Project_241	S-144 Bettis Academy at S-780 Whaley Pond, realign at 90 degrees	Operational	Aiken	SC	All	$1,703,100
	Project_249	SC 19 10 foot shoulder (6 foot paved, 4 foot grass) from the Aiken/Edgefield County line to south of Shiloh Heights Rd	Operational	Aiken	SC	All	$6,702,900

GDOT PI / SCDOT ID / ARTS ID	Project ID	Project Description	Funding category	County	State	Elements	Cost in Unfunded Priority
	Project_251	SC 19 between S Boundary and I-20	Operational	Aiken	SC	All	$8,235,100
	Project_253	SC 19 Improve intersection turning radii for all ramp termini from south of Shiloh Heights Rd to South of I-20	Operational	Aiken	SC	All	$365,600
	Project_257	SC 230 (W Martintown Road) operational and signal improvements from I-20 to Edgefield County Line	Operational	Aiken	SC	All	$643,900
	Project_263	SC-19 Edgefield Hwy Intersection	Operational	Aiken	SC	All	$13,200,700
	Project_266	Shiloh Church/ SC 19 intersection improvement with traffic signal/turn lane and roundabout	Operational	Aiken	SC	All	$304,700
	Project_268	Signal at ramp entrance/exits from south of Shiloh Heights Rd to South of I-20 on SC 19	Operational	Aiken	SC	All	$365,600
	Project_296	Sudlow Lake Rd between US 1 / US 78 & Brevard Rd / Pride Ave	Operational	Aiken	SC	All	$1,785,800
	Project_301	Trolley Line Road from Robert M Bell Parkway to Ascauga Lake Road	Operational	Aiken	SC	All	$11,547,000
	Project_307	US 1 at Highland Ave, add left-turn lane	Operational	Aiken	SC	All	$2,833,300
	Project_311	US 1/78 between Martintown and S-67	Operational	Aiken	SC	All	$22,249,700
	Project_319	US 78 (Charleston Highway) from SC-302 (East Pine Log Rd) to Aiken/Barnwell county line	Operational	Aiken	SC	Partial	$18,751,460
	Project_349	Whiskey Road Phase II from Silver Bluff Road to Powderhouse Road	Operational	Aiken	SC	All	$40,967,400
	Project_45	Cherokee Dr (S-386) from US 1/78 (Davis Hwy) to SC 126 (Belvedere Clearwater)	Safety	Aiken	SC	Partial	$3,044,300
	Project_206	Pine Log Rd (S-65) from SC 125 (Atomic Rd) to S-87 (Piney Heights Rd)	Safety	Aiken	SC	Partial	$9,885,900
	Project_247	SC 118 Bell Pkwy at Trolley Line safety improvements	Safety	Aiken	SC	Partial	$1,700,000
	Project_248	SC 19 (Laurens St) at SC 118 (Rutland Dr)	Safety	Aiken	SC	Partial	$1,700,000
	Project_260	SC 421 (Augusta Hwy) at Old Cherokee Dr (S-385)	Safety	Aiken	SC	Partial	$1,700,000
	Project_265	Seymore Dr (S-879) from SC 125 (Atomic Rd) to Old Edgefield Rd (S-197)	Safety	Aiken	SC	Partial	$1,313,150

6.3.3 Projected Expenditures

Table 6-27 summarizes project expenditures by tiers and by counties/states. **Table 6-28** summarizes funding allocation by tiers for project expenditure, lump sum buckets, and funds set aside for priority projects that arise in the planning horizon years (leftover amounts) for the ARTS planning area. The funding leftover after programming identified projects would be used to cover potential cost overruns, adjusted inflation, and new priority projects that arise in the future. These funds might be used in some of the following ways for each project category:

- Operational Improvement Leftover: Some of this funding may be used to conduct some exploratory studies on the corridors in the unfunded high-priority projects or to identify any short-range or long-term operational improvements in those corridors.
- Bridge Leftover: These funds may be used to perform any maintenance or rehabilitation of the remaining bridges in each County based on their respective need.
- Safety Lumpsum: Safety audits and detailed safety studies are programmed in the MTP. A safety lumpsum amount will help delivering these projects based on identified improvements recommended by safety studies/audits.
- Pedestrian/Bicycle Lumpsum: A detailed pedestrian/bicycle study can be conducted in the ARTS planning area to update priorities from the 2012 Bike Ped Plan. This lumpsum can be used to fund high-priority projects from the recommended study.
- Transit Lumpsum: While some of the capital transit improvements were recommended in this study, any leftover funding may be used to support any capital improvements related to service modifications. In the case of Augusta Transit, funding is allocated for relocating its existing hub at Broad Street to Downtown Augusta, with preliminary engineering in Tier 1. The purpose and need for this project may need to be revisited in case of major service modifications for Augusta Transit.

Table 6-27. Summary of Project Expenditures by Tier

Location	Tier 1 (2021-2024)	Tier 2 (2025-2034)	Tier 3 (2035-2050)	Total Expenditure
GA - Columbia County	$50,296,989	$155,235,298	$309,792,097	$515,324,384
GA - Richmond County	$69,460,118	$179,671,960	$332,578,839	$581,710,917
GA Total	$119,757,107	$334,907,258	$642,370,936	$1,097,035,301
SC Total	$22,229,376	$56,551,152	$114,095,104	$192,875,632
Total Expenditure	**$141,986,483**	**$391,458,410**	**$756,466,040**	**$1,289,910,933**

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County

Table 6-28. Summary of Funding Allocation by Tiers for Project Expenditure, Lump Sum Buckets and Leftover Amounts for Georgia and South Carolina

Project type	Tier 1 (2021-2024)	Tier 2 (2025-2034)	Tier 3 (2035-2050)	Total Funding Allocation
Widening / Capacity Projects	$119,486,790	$346,144,500	$614,450,280	$1,080,081,570
Operations Projects	$18,355,224	$31,326,142	$123,893,778	$173,575,145
Bridge Projects	$854,869	$4,683,350	$2,394,040	$7,932,260
Safety studies / defined projects	$2,299,600	$1,672,835	$2,108,356	$6,080,791
Transit Projects	$990,000	$7,631,582	$13,619,585	$22,241,167
Widening / Capacity Projects Leftover	$8,093,559	$16,781,660	$53,922,735	$78,797,955
Operational Improvement Leftover	$11,141,038	$51,244,391	$30,027,824	$92,413,253
Bridges Leftover	$3,892,657	$8,349,798	$22,312,769	$34,555,224
Safety Lump Sum	$12,228,410	$38,996,234	$73,703,776	$124,928,420
Ped/Bike Lump Sum	$15,280,160	$43,111,912	$79,600,537	$137,992,609
Transit Lump Sum (FTA Apportionment and Local match)	$25,384,279	$64,911,884	$116,058,104	$206,354,267
Available for other transit improvements	$5,242,577	$14,337,494	$32,135,235	$51,715,306
Maintenance Lump Sum	$137,885,890	$364,274,512	$572,506,327	$1,074,666,729
Total Funding	**$361,135,053**	**$993,466,294**	**$1,736,733,348**	**$3,091,334,695**

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County

Expenditures by Improvement Type

Approximately $2.8 billion of improvements have been identified in the ARTS 2050 MTP update. This total amount accounts for all multimodal projects that are programmed in the MTP and lump sum buckets that have been defined to have flexibility in project delivery. **Table 6-29** and **Table 6-30** show a breakdown of the improvements by project type for Georgia and South Carolina, respectively. The plurality of project funding is slated for roadway capacity improvements, accounting for 41 percent of total project costs in Georgia and around 42 percent in South Carolina. Although substantial investments in capacity improvements are proposed to address roadway congestion for vehicles, widening and new roadway infrastructure projects also accommodate multimodal pedestrian and bicycle improvements.

GDOT and SCDOT require that applicable roadway projects include bicycle and pedestrian infrastructure. Additionally, the proposed lump sum buckets (nearly 5 percent in Georgia and 6 percent in South Carolina) will also help deliver multimodal improvements in the ARTS planning area. Transit improvement projects include park and ride lots, transfer stations, and transit systems. In addition, the transit lump sum bucket (9 percent of total expenditures in Georgia and around 19 percent in South Carolina) can be used for continued operations and additional improvements.

Projected expenditures also have funding allocated to Bridge Improvement/Maintenance, which is an important objective in the MTP update. Funding in the lump sum will be used to maintain a state of good repair on transportation infrastructure, including bridge repair. Expenditures also include operational, median, and corridor improvements, accounting for 12 percent of the total amount in Georgia and about 28 percent in South Carolina. These projects tackle congestion by increasing roadway efficiency and traffic safety. **Table 6-29** and **Table 6-30** summarize project expenditures for each improvement type for both South Carolina and Georgia through 2050.

Table 6-29. Summary of Projected Expenditures by Improvement Types in Georgia

Funding Categories	Lump sum bucket / Leftovers	Assigned to projects	Total Allocation	Percentage Allocation
Pedestrian / Bicycle	$118,947,717	$0	$118,947,717	7%
Transit	$199,325,485	$20,676,430	$220,001,915	13%
Capacity Improvement	$74,450,958	$951,114,322	$1,025,565,280	60%
Safety / Operational Improvement	$185,907,098	$122,214,347	$308,121,445	18%
Bridge	$23,586,538	$3,030,203	$26,616,740	2%
Total Allocated Funding	**$602,217,796**	**$1,097,035,301**	**$1,699,253,097**	**100%**
Maintenance	$792,531,006	$0	$792,531,006	
Total Funding	**$1,394,748,802**	**$1,097,035,301**	**$2,491,784,103**	

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County

Table 6-30. Summary of Projected Expenditures by Improvement Types in South Carolina

Funding Categories	Lump sum bucket / Leftovers	Assigned to projects	Total Allocation	Percentage Allocation
Pedestrian / Bicycle	$19,044,892	$0	$19,044,892	6%
Transit	$58,744,088	$1,564,737	$60,308,825	19%
Capacity Improvement	$4,346,997	$128,967,248	$133,314,245	42%
Safety / Operational Improvement	$31,434,574	$57,441,589	$88,876,163	28%
Bridge	$10,968,686	$4,902,057	$15,870,743	5%
Total Allocated Funding	**$124,539,237**	**$192,875,632**	**$317,414,868**	**100%**
Maintenance	$282,135,723	$0	$282,135,723	
Total Funding	**$406,674,960**	**$192,875,632**	**$599,550,591**	

Source: Coordination with ARTS, GDOT, SCDOT, Aiken County, Columbia County

6.3.4 Recommendation Highlights by Area

It is important to emphasize that this MTP document represents the official multimodal transportation plan developed and adopted through the metropolitan transportation planning process for the four-county area served by the ARTS MPO. As such, the recommendations encompass the entire study area as a cohesive unit. In this case, the ARTS MPO, is a bi-state regional planning entry responsible for long-range transportation planning and project selection for programming federal-aid funds in the entire Augusta GA – Aiken SC Metropolitan Area.

With that regional perspective in mind, there are some highlights and differences between the recommendations for each county in the ARTS planning area.

Augusta Richmond County

As the core of the MPO, Augusta is an urban area where safety and maintenance, transit and movement of goods are the priorities for future transportation investments. Many of the highest recommended projects in Augusta Richmond County are designated as safety improvements along major corridors serving high traffic counts. Also

notable is the high ranking of the transit project to relocate the Augusta Transit hub from the western edge of the downtown on Broad Street to a more central location in downtown Augusta.

As a center of business and commerce, projects that serve the freight and airport sectors are also recommended for future consideration. Augusta serves as a rail, trucking and air service destination with future needs to improve the service and safety in the movement of goods and people.

With the Augusta Transit receiving designated funding, future investment in transit in Augusta is identified in the MTP. Augusta features a popular and extensive bicycle and pedestrian network, with recommendations to continue these investments.

Columbia County

With a projection to double in population during the planning period covered by this MTP, Columbia County is on track to become the most populous county in the ARTS planning area by 2050 with over 300,000 residents. This clearly results in the critical need to recommend projects that begin to provide future capacity for the anticipated growth. With a suburban development pattern, the County's transportation needs and the recommendations of this MTP are in the areas of capacity and safety, primarily along the major corridor serving the County, Washington Road.

Two important operational projects, in the form of roundabouts, are highly ranked in Tier 1 in Columbia County. One is planned for the intersection of Evans to Locks Road and Evans Town Center Boulevard and the other is at the intersection of North Belair Road and Ronald Reagan Drive at Industrial Parkway.

An emerging area of the County around Grovetown is expected to increase in traffic and development as Fort Gordon continues its strong growth in employment and development. Therefore, safety and capacity projects along Wrightsboro Road are very high on the recommended project list for Tier 1.

Aiken County

Aiken County is also projected to grow through the planning horizon to nearly 200,000 residents by 2050. Exhibiting a combination of urban areas in Aiken and North Augusta and more rural suburban development in the unincorporated areas of Aiken County, the transportation recommendations in Tier 1 are concentrated on operational and safety projects. While there are some challenges with right-of-way in the City of Aiken, there are several key corridors designated for projects in the MTP. These include Knox Avenue, Atomic Road, Old Edgefield Road and Georgia Avenue.

With the Best Friend Express Transit service, Aiken has future investment in transit identified in the MTP. Also, Aiken County and the City of North Augusta have an extensive existing and planned bicycle and pedestrian network, with recommendations to continue these investments.

Edgefield County

Comprising a very small portion of study area, the future transportation focus for eastern Edgefield County is on future growth along selected corridors. While no projects have been recommended in Tier 1 for Edgefield County, the County works closely with its partners in Aiken County and the City of North Augusta on transportation projects addressing safety and capacity for roadways that are shared by the jurisdictions.

6.3.5 Policy Recommendations

This section discusses additional policy considerations along with the project recommendations. Policy recommendations related to safety; access management; Mobility-as-a-Service (MaaS) or ride hailing; context

sensitive solutions, traffic system management and operations, TDM and other cost-effective solutions, transit, age-friendly design, complete streets, integrated planning and financial incentives are discussed below.

Safety

Beyond corridor and intersection safety audits, the ARTS planning area should set aside funds to implement small-scale safety projects at locations with a history of crashes, injuries, and fatalities. Safety improvement projects can include:

- Pedestrian safety measures in pedestrian crash hot spots
- Pedestrian hybrid beacons along high-frequency crash corridors
- Roadway safety signage to warn motorists of animal crossings
- Enhanced safety measures at at-grade railroad crossings

Source: Unknown Author (CC BY-NC)

Access Management

Effective corridor access management balances overall safety and corridor mobility for all users with the access needs of adjacent land uses. Access management can preserve the flow of people and freight while enabling safe access to businesses and neighborhoods. Strategies include closing, consolidating, or improving driveways, median openings, and intersections, adding or redesigning medians, and planning spacing of intersections, median openings, and driveways.

Specific policies to improve access management include:

- Provide minimum driveway spacing requirements based on posted speed limit.
- Establish zoning regulations at a local level that identify the maximum number of vehicular access points to public streets that a development requires based on the number of residential units or the number of required parking spaces in the development.
- For large developments, require inter-parcel access and/or connectivity to support joint-use driveways.

Despite the safety and efficiency advantages of properly managed access, local business owners often expect economic damage from the closure of median breaks, relocation of driveways, or limits on the number of roadway access points. However, better access management can ultimately improve system mobility, resulting in improved access to and from destinations. In implementing new access management programs, it is important to communicate to affected landowners that well-planned access helps maintain property values while promoting safe and efficient transportation for all users.

This MTP recommends further study on key corridors that may benefit from access management. Ideal corridors for study include those with both high levels of traffic congestion and many commercial driveways located close together. Routes that are likely to need access management considerations because of a high density of commercial curb cuts are: Deans Bridge Road between Martin Luther King Jr Boulevard and Willis Foreman Road; US 1 between Martintown Road and State Route 67; and, Gordon Highway between the Savannah River and Wrightsboro Road. An access management study is likely to cost $200,000 per corridor, and the ARTS MPO should consider establishing a funding source from which to pay for studies.

Mobility-as-a-Service (MaaS) or Ride Hailing

Transportation Network Companies (TNCs) such as Uber or Lyft can provide transportation alternatives to privately owned vehicles, and, when used strategically, can augment a region's existing public transit services. Combination of transit and ride hailing systems can effectively improve first- and last-mile connectivity of the users. Despite their many benefits, ride hailing can also have detriments: when TNC drivers idle their vehicles or drive without passengers until their next pick-up location, the vehicles add to the number of cars on the road. Ride hailing vehicles also contribute to air pollution, wear on roadway infrastructure, and road blockages during curbside drop-offs and pick-ups.

Source: https://tomorrow.norwalkct.org/the-challenges-of-ride-hailing-services-for-a-city/

To retain the benefits of ride hailing while minimizing disturbances to the roadway system and environment, municipalities should consider policies that regulate rideshare services and their drivers. Policies include:

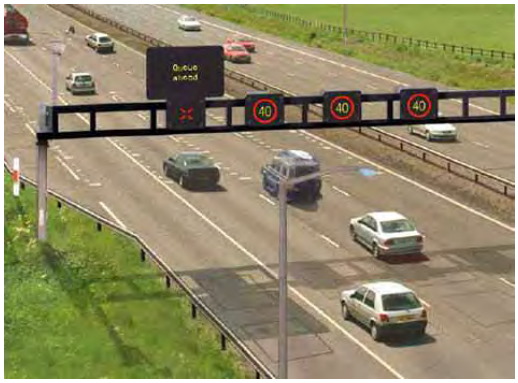
- Fee structures that incentivize shared, shorter, and less frequent trips. Pricing should penalize inefficient routes and cruising for passengers. Pricing should reward shared trips and serving transit-poor neighborhoods.
- Surcharges that can help cities cover the cost of TNC program management, as well as support transit and accessibility improvements.
- All vehicle travel should be priced to account for congestion, pollution, etc. Coordinate regionally for better connections.
- Utilize rideshare as an extension of the region's transit system to extend trip length and service coverage. Offer discounts for rides that begin at or terminate at a transit stop.

Context Sensitive Solutions

Context Sensitive Solutions (CSS) is a stakeholder-centric approach to transportation planning. CSS emphasizes collaboration in providing transportation facilities that fit the scenic, aesthetic, historic, community, and environmental framework while improving or maintaining safety, mobility, and infrastructure conditions. It is integrated into the project implementation process throughout programming, design, construction, operation, and maintenance.

CSS enhances the social, economic, and environmental integrity of the area, promotes efficient land use, and increases users' safety and security. Mitigating the potential impact of the new transportation infrastructure on context sensitive areas should also be a priority to preserve wetlands, historical/archeological resources, water resources, threatened and endangered species habitat and other environmentally sensitive subjects in the ARTS planning area.

Transportation Systems Management and Operations (TSM&O)



Source: https://www.roadtraffic-technology.com/projects/m42/

Traffic operational improvements include both engineering and policy strategies. Engineering strategies include:

- Traffic surveillance and control systems
- Motorist information systems
- Traffic control centers
- Computerized signal systems
- Channelization
- Bottleneck removal
- Variable speed limits
- Computerized Signal Systems

In addition, Intelligent Transportation Systems (ITS) or Advanced Traffic Management Systems (ATMS) use the latest computerized technology to monitor and control traffic. Through use of cameras, regulating traffic signals, and speed sensors, local jurisdictions can improve traffic flow, reduce congestion, and decrease emergency vehicle response times.

The ARTS planning area should prioritize operational improvements, including engineering solutions and ITS/ATMS, before implementing road widening projects. Operational improvements tend to be less expensive and decrease impacts to surrounding land uses.

Transportation Demand Management and Other Cost-Effective Solutions

Source: https://www.spcmobility.org/

The ARTS MPO should identify and promote more cost-effective solutions. Within the umbrella of transportation systems management and operations, Transportation Demand Management (TDM) is defined a set of strategies aimed at maximizing traveler choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability. TDM incorporates policies that reduce the demand placed on the transportation system. This can include strategies like car or van pooling, telecommuting, alternative work schedules, parking management, and employer paid transit passes. The U.S. Department of Transportation, Federal Highway Administration Office of Operations also recommends TDM as the preferred way of addressing congestion as part of their 21st Century Operations using 21st Century Technology.

A streamlined TDM outreach/marketing program could encourage single occupant vehicle (SOV) drivers to consider alternative transportation modes and non-motorized modes such as bicycle and walking. TDM strategies may also include Educational Outreach programs. For example, this program could be linked with national or regional Safe Routes to School programs with an attempt to educate students, parents, and teachers about broader impacts of transportation choices and to increase awareness on the health benefits of more active choices through course materials and safety pamphlets. In addition, such programs may provide incentives to target other population groups to encourage alternative travel modes to the personal vehicle. For example, travel training programs targeted at seniors or persons with disabilities enable these groups regain travel independence through transit.

Emerging Technologies in Transportation

Continuous technological innovations in transportation and big data require the ARTS planning area to adopt policies and technology to accommodate the emerging needs of future transportation systems. "New Mobility," the bundle of transportation, technology, and mobility changes that will become the bedrock of future transportation systems, is already transforming the way we move around, live, and interact with each other. For examples, connected and automated vehicle (CAV) technologies will significantly impact future travel demand and behavior, transportation system capacity, safety, freight delivery, land use, complete streets, and urban design policies.

In order to implement emerging technologies successfully throughout the ARTS planning area, it is imperative to first identify priority roadway corridors or smart cities for potential pilot deployments. Such smart corridors and small areas that are most suitable for technology pilots will serve as ARTS MPO's living laboratories for testing safety and effectiveness of various new technologies. The ARTS MPO should invest in emerging technology readiness studies such as connected and automated vehicle (CAV) technologies.

Transit


Source: Nathaniel Minor/CPR News

The availability of public transportation adds additional mobility options to residents, workers, and visitors. Many times, public transportation serves as the only available transportation mode for citizens to commute large distances. Limiting the mobility of citizens hinders their economic opportunity as well as personal and social activities. The sporadic and low-density development patterns throughout the ARTS planning area can make public transit planning difficult. However, it is necessary to use innovative ways to improve service in a cost-effective manner. General strategies include implementing ITS/ATMS and signal prioritization to improve bus efficiency and schedule adherence. Buses can also be outfitted with bike racks to expand both bus and bicycle access areas.

Public transit is critical to the region, especially in ARTS Environmental Justice areas. The Unified Planning Work Program (UPWP) is the primary mechanism for ensuring all minorities and low-income residents have their transportation needs met. The UPWP conducts several activities regularly to ensure everyone is connected to transportation options, opportunities for employment, and improved mobility:

- Collecting building permit data to monitor changes in residential units and occupancy
- Using Department of Labor data to develop annual employment estimates
- Conducting socioeconomic analysis at the scale of Traffic Analysis Zones (TAZ)
- Documenting and improving upon community outreach and engagement for minority and low-income residents.

Based on input from stakeholders and residents through the 2050 MTP update process, the ARTS MPO should initiate policies to increase transit access within the region. Currently, only a small portion of the ARTS planning area is within a quarter mile of the region's fixed-route transit lines. Transit services should operate more frequently on existing routes, operate later in the evenings, and serve a larger coverage area.

Augusta Transit can do several things to better meet the needs of its ridership. The service can:

- Expand weekday service to 10 pm.
- Ensure all stations are ADA compliant and have full pedestrian access including sidewalks, appropriate curb cuts, and rumble strips where necessary.

- Expand the bus fleet by ten buses and reduce bus headway. With 10 new buses, the fleet will be able to shorten headways to 30 minutes on each line. Currently some lines (like the Grey, Brown, and Pink lines) have headways as short as 40 minutes. However, other lines (like the Red and Blue lines), have 70 and 80 minute headways.
- Introduce at least one new route that serves South Augusta. Large portions of the county west and south of I-520 are Environmental Justice communities and live more than ¾ mile from the nearest fixed-route transit line.
- Replace bus shelters. The average cost of a bus shelter is approximately $4,500 and costs below $10,000.
- Install bus and transit stop amenities like trash cans, advanced fare box technology, solar panels, phone charging stations, and real-time vehicle approach signs.
- Develop rural transit service as a feeder service to connect to mainline Augusta Transit services.
- Form partnerships with local businesses and community agencies, and explore ways to provide transit to underserved areas to stimulate socio-economic revitalization.

Best Friend Express can also implement strategies to increase frequency, service hours, and coverage area:

- Add vehicles to the fleet to reduce wait times from the existing 2-hour headways.
- Extend operating hours to 10 pm.
- Operate on Saturdays.
- Enhance ADA offerings by adding more ADA compatible vehicles.
- Expand service area to Northeast Aiken County.

Age Friendly Design

The ARTS planning area, like many of the communities in the United States, has a large population of retired residents. As life expectancies increase and aging citizens continue to be active and engaged in the community, there is an increased demand for an urban environment that meets the mobility needs of this growing population of seniors.

By focusing on an age-friendly design of the transportation network that encompasses all ages, ARTS can ensure citizens can maintain an active, safe, and healthy lifestyle. There is a particular need for ADA compliance, not only through transportation projects that enhance mobility such as public transit, bicycle, and pedestrian infrastructure, but also in developments that ensure citizens can age-in-place through mobility in homes, businesses, and recreational destinations.

Complete Streets

Complete Streets is a standard transportation planning practice that has been adopted in many states, counties, and local municipalities. This strategy designs roads for all users at all ages and ability levels, encompassing cars, pedestrians, bicyclists, and public transit riders from childhood to retirement. Complete Streets policies also promote efficient land uses and development patterns and safety improvements to the built environment.

Complete Streets are one of the ways that can enhance liveliness and livability of a community by making it easy to cross the street, walk to shops, bicycle to work, and walk to and from transit stations. In the long term, ARTS MPO should adopt a Complete Streets approach to support beatification and community improvement efforts. Coupled with effective and visually appealing signage for wayfinding, additional lighting for safety and security, and roadway restriping, these improvements would not only enhance the safety of all users traveling major corridors in the ARTS planning area, but also attract more businesses and visitors making the community economically viable.

Source: http://www.walksacramento.org/2343/

Integrated Planning and Financial Incentives

Along with the policies of Context Sensitive Design and Complete Streets, the ARTS MPO should further promote a streamlined continuing, cooperative, comprehensive (3-C) transportation planning process. As included in FHWA's INVEST evaluation criteria, planners and professionals from multiple disciplines and agencies (e.g., land use, transportation, economic development, energy, natural resources, community development, equity, housing, and public health) should work together to incorporate and apply all three sustainability principles when preparing and evaluating plans.

The ARTS MPO should develop local and regional land use/economic development strategies coordinated with relevant transportation plans and programs to balance land use and transportation needs. Institutionalized programs that provide grants, loans, tax credits or direct financial incentives could also be considered to support positive development patterns (such as mixed-use developments or transit-oriented developments) in certain parts of the ARTS planning area. Further, planning and environmental linkages should be considered to integrate system planning process information, analysis, and decisions in the ARTS planning area with the project-level environmental review process, and reference it in National Environmental Policy Act (NEPA) documentation.

Asset Management

At the time of this analysis, HPMS was the only available data source to evaluate pavement quality of the roads in the ARTS planning area. Considering the substantial amount of maintenance funding available from GDOT and SCDOT, the ARTS MPO should invest in implementing a GIS-based asset management database to systemically evaluate state of good repair and prioritize their maintenance needs.

6.3.6 Financially Constrained Capacity TDM Results

The capacity projects (roadway widening, new facilities, and extensions) recommended in Tiers 1, 2, and 3 are modeled in the Travel Demand Model (TDM) in order to determine the projects' effectiveness on improving the Level of Service (LOS) of the ARTS planning area roadways. The LOS grades the quality of the roadway based on the amount of vehicles it handles on a daily basis (measured in volume/capacity). Generally, levels A through D are considered acceptable, LOS E is at the capacity, and F is considered failing. **Table 6-31** provides a breakdown of the LOS for the four main models run in the TDM.

The initial model, called the 1st Network, uses existing conditions to model baseline roadway congestion for 2015. The second model, called the 3rd Network, accounts for roadway conditions in 2050 if no capacity improvements are made beyond projects with committed funding. The final model, called the 6th Network, shows roadway congestion levels as a result of the financially constrained capacity projects presented in this chapter.

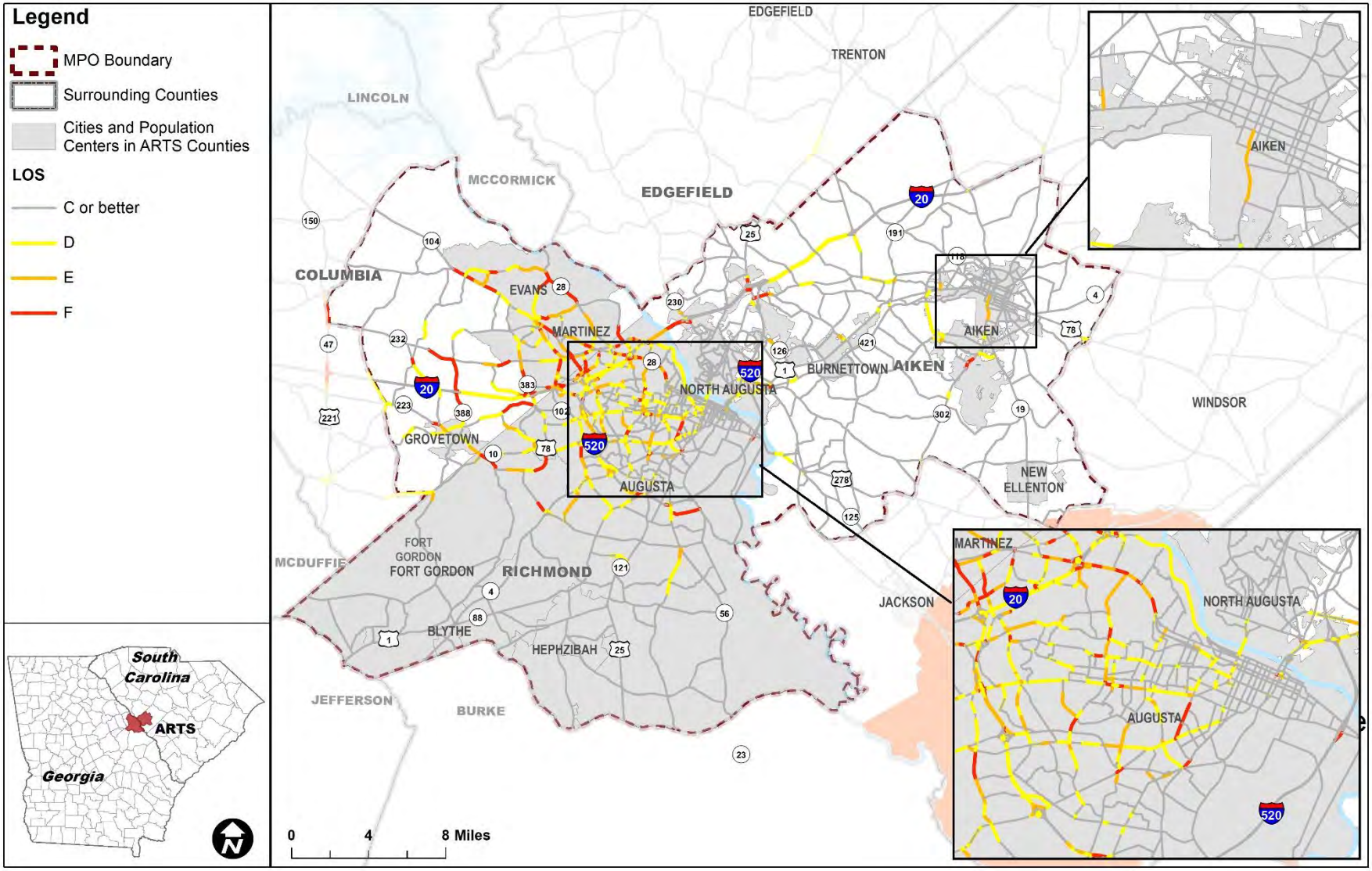
Table 6-31. Summary of Travel Demand Model Results, 2015 and 2050

Network	2015 Base Year		2050 Existing + Committed Projects		2050 Constrained Projects	
LOS by Vehicle Miles Traveled (VMT)	VMT	%*	VMT	%*	VMT	%*
A-C	6,495,490	64%	5,156,130	36%	5,676,920	40%
D	1,977,140	19%	2,185,190	15%	2,418,740	17%
E	891,050	9%	2,282,920	16%	3,168,070	22%
F	767,400	8%	4,626,960	33%	2,908,690	21%
Total Vehicle Miles Traveled	**10,131,070**		**14,251,210**		14,172,420	
Vehicle Hours Traveled	**377,840**		**923,360**		746,870	
Vehicle Hours of Delay	**114,700**		**530,010**		355,160	

Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019), GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019), GDOT – ARTS Travel Demand Model Update, Sixth Network Analysis (2020)

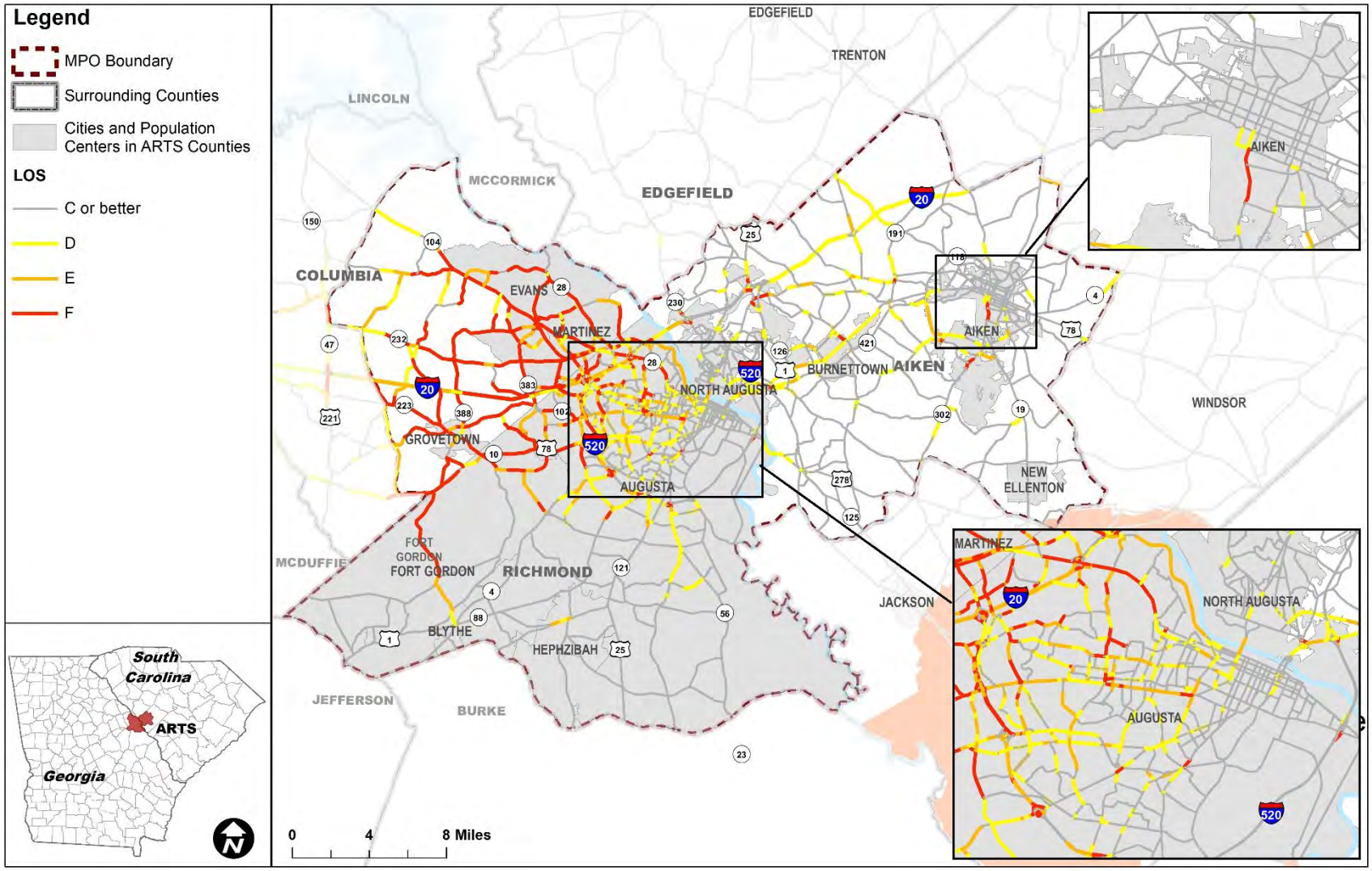
**Total percentages might not add up to 100 due to rounding*

As shown in **Table 6-31**, the financially constrained capacity projects will improve the ARTS planning area's vehicle miles traveled on roads with LOS A-C from nearly 36 percent in 3rd network model to about 40 percent in 6th network model. Similarly, vehicle miles traveled on roads with LOS F will reduce from approximately 33 percent in 3rd network model to about 21 percent in 6th network model. **Figure 6-6**, **Figure 6-7**, and **Figure 6-8** show LOS on 1st network, 3rd network, and 6th network models, respectively.



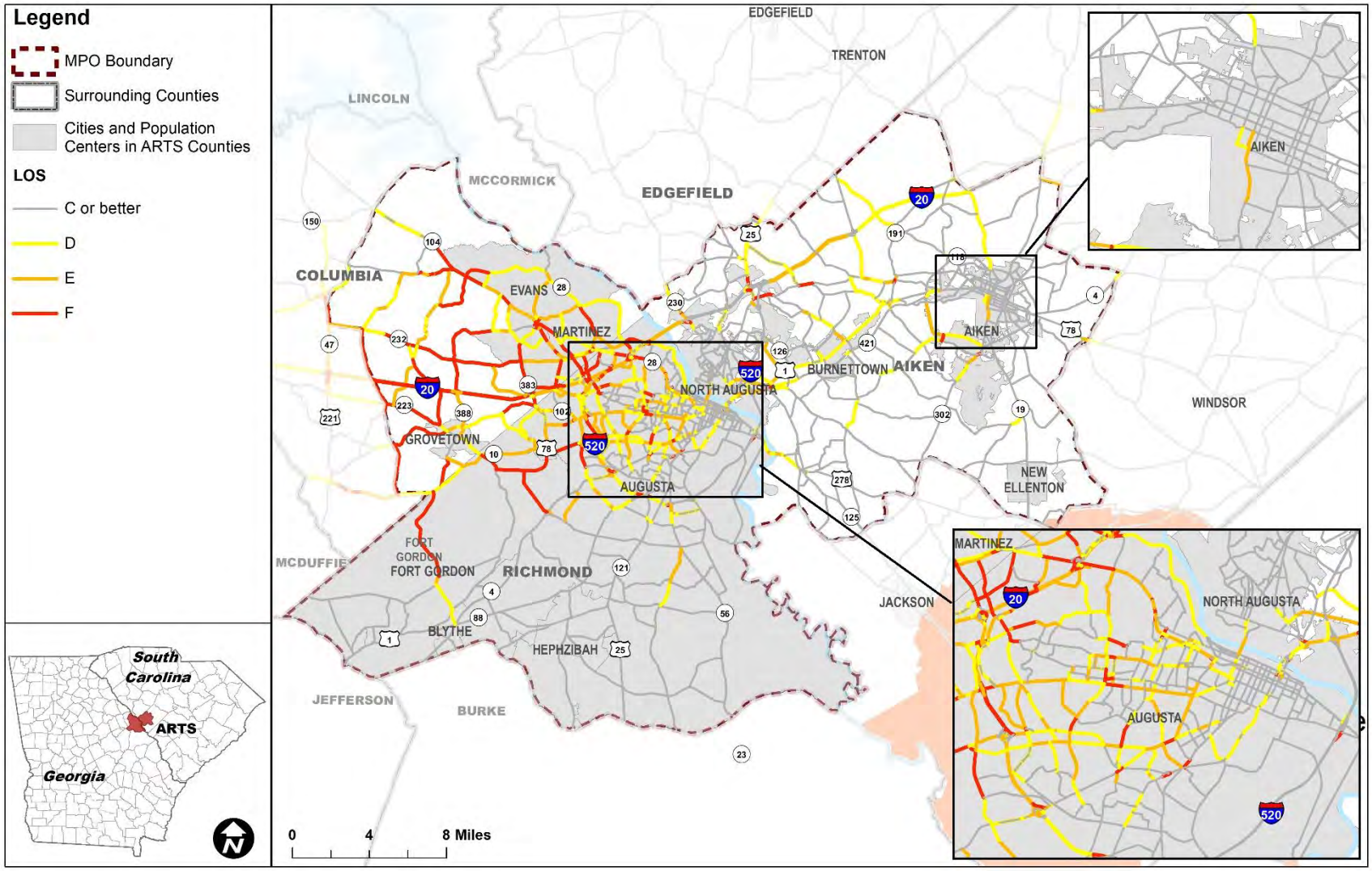
Source: GDOT – ARTS Travel Demand Model Update, First Network Analysis (2019)

Figure 6-6. Level of Service on 2015 Model Network



Source: GDOT – ARTS Travel Demand Model Update, Third Network Analysis (2019)

Figure 6-7. Projected Level of Service on 2050 Existing + Committed Projects Model Network



Source: GDOT – ARTS Travel Demand Model Update, Sixth Network Analysis (2020)

Figure 6-8. Projected Level of Service on 2050 Constrained Projects List

Chapter 6 Key Points

- Potential federal, state, and local funding sources for the 2050 MTP were identified based on the previous 2040 Long Range Transportation Plan (LRTP), latest federal and state legislation, and current funding available to finance projects in the 2050 MTP update. Federal planning regulations require that the financial plan presented in MTPs be financially constrained (i.e., a balanced budget).
- Planning level cost estimates for each project were developed based on the Atlanta Regional Commission (ARC)'s Cost Estimation Tool, which is in turn founded on GDOT's statewide Right-of-Way and Utility Relocation Cost Estimate Tool (RUCEST).
- The fiscally constrained short-, medium-, and long-range programs of projects (Tier 1, Tier 2, and Tier 3 projects) for the ARTS MPO through 2050 were then recommended. Project prioritization was determined by their inclusion in the 2040 LTRP, needs assessment analysis, the potential costs within the constrained budget, a mix of short-term and long-term improvements, and a variety of improvement types. Projects were also reviewed by local engineers to ensure particular needs are being met and that the implementation of a project is consistent with surrounding transportation improvements.
- Additional policy considerations were also recommended along with the project recommendations.

[i] U.S. Department of Transportation Financial Planning & Fiscal Constraint overview: https://www.transit.dot.gov/regulations-and-guidance/transportation-planning/financial-planning-fiscal-constraint

[ii] Full text of the Code of Federal Regulations relating to Metropolitan Transportation Plans: https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&rgn=div5&view=text&node=23:1.0.1.5.11&idno=23#se23.1.450_1324

[iii] Project costs were converted from 2011 dollars to 2020 dollars using the RSMeans® historical cost index: https://www.rsmeansonline.com/references/unit/refpdf/hci.pdf




Augusta Regional Transportation Study

FUTURE MOBILITY 2050

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