GHMPO

Gainesville-Hall
Metropolitan Planning Organization

Regional Freight Study
FINAL REPORT

February 2018

CDM Smith
CDM Smith Inc.

High Street Consulting Group
HSC

GHMPO

Gainesville - Hall Metropolitan Planning Organization

A Resolution by the Gainesville-Hall Metropolitan Planning Organization Policy Committee Adopting the Gainesville-Hall Regional Freight Study

WHEREAS, the Gainesville-Hall Metropolitan Planning Organization (GHMPO) is the designated Metropolitan Planning Organization for transportation planning within the Gainesville Metropolitan Area Boundary which includes all of Hall County and a portion of Jackson County following the 2010 Census; and

WHEREAS, the Fixing America's Surface Transportation (FAST) Act directs GHMPO to increase the accessibility and mobility options available to people and for freight;

WHEREAS, the FAST Act furthermore directs GHMPO to enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;

WHEREAS, the Gainesville-Hall Regional Freight Study makes recommendations to improve the area's freight system;

WHEREAS, GHMPO did develop the Regional Freight Study in conformance with GHMPO's Participation Plan and through appropriate technical and review processes; and

WHEREAS, GHMPO did conduct a required 30-day public comment period on the Regional Freight Study, and no significant comments were received.

NOW, THERE, BE IT RESOLVED that the Gainesville-Hall Metropolitan Planning Organization adopts the Gainesville-Hall Regional Freight Study.

A motion was made by PC member Danny Dunagan and seconded by PC member Ralph Richardson, Jr. and approved this the 13th of February, 2018.

Lamar Scroggs

Mayor Lamar Scroggs, Chairperson
Policy Committee

Subscribed and sworn to me this the February 13, 2018.

MORGAN EWING
NOTARY PUBLIC
HALL COUNTY, GEORGIA
MY COMMISSION EXPIRES MAY 22, 2020

Notary Public

My commission expires 5/22/2020

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1. INTRODUCTION

The Gainesville-Hall Metropolitan Planning Organization's (GHMPO) Regional Freight Study was developed based on the guidance provided by the federal transportation bill, Fixing America's Surface Transportation (FAST) Act to place the GHMPO in a competitive position to pursue funding and grants provided by the FAST Act, other federal and state funding opportunities. Aside from the Fast Act, the GHMPO Regional Freight Study was developed to align with the following regional-and state-level planning documents:

- GHMPO Regional Transportation Plan: 2015 Update;
- GHMPO FY 2018-2021 Transportation Improvement Plan (TIP);
- Hall County Comprehensive Plan;
- Jackson County Comprehensive Plan;
- 2013 Georgia Statewide Strategic Transportation Plan; and,
- Georgia Statewide Freight and Logistics Plan.

The GHMPO Regional Freight Study provides an assessment of the current freight infrastructure within the GHMPO study area and identifies specific freight projects and policies. Identify the GHMPO freight system needs and issues, while identifying projects targeted to improve the system allows the GHMPO to pursue funding opportunities at the federal, state, and local levels. Funding for transportation projects has been increased through the FAST Act and Georgia Transportation Funding Act (HB 170). The FAST Act authorizes $6.2 billion for the formula program nationally and Georgia's apportionment totals $206.5 million ($41.3 million annual average) through FY2020 for improvements on the Primary Highway Freight System (PHFS), while HB 170 is projected to generate more than $900 million annually to assist in improving roadways throughout Georgia.

To provide a local understanding of freight issues and needs, a Freight Advisory Committee (FAC) was assembled during the GHMPO Regional Freight Study. The GHMPO FAC consisted of local public sector and private sector freight industry members, who assisted in the development of the plan goals and objectives for moving freight within the GHMPO study area.

A series of technical memorandums were developed to provide a comprehensive assessment and analysis of the issues and needs impacting the movement of freight in the GHMPO study area:

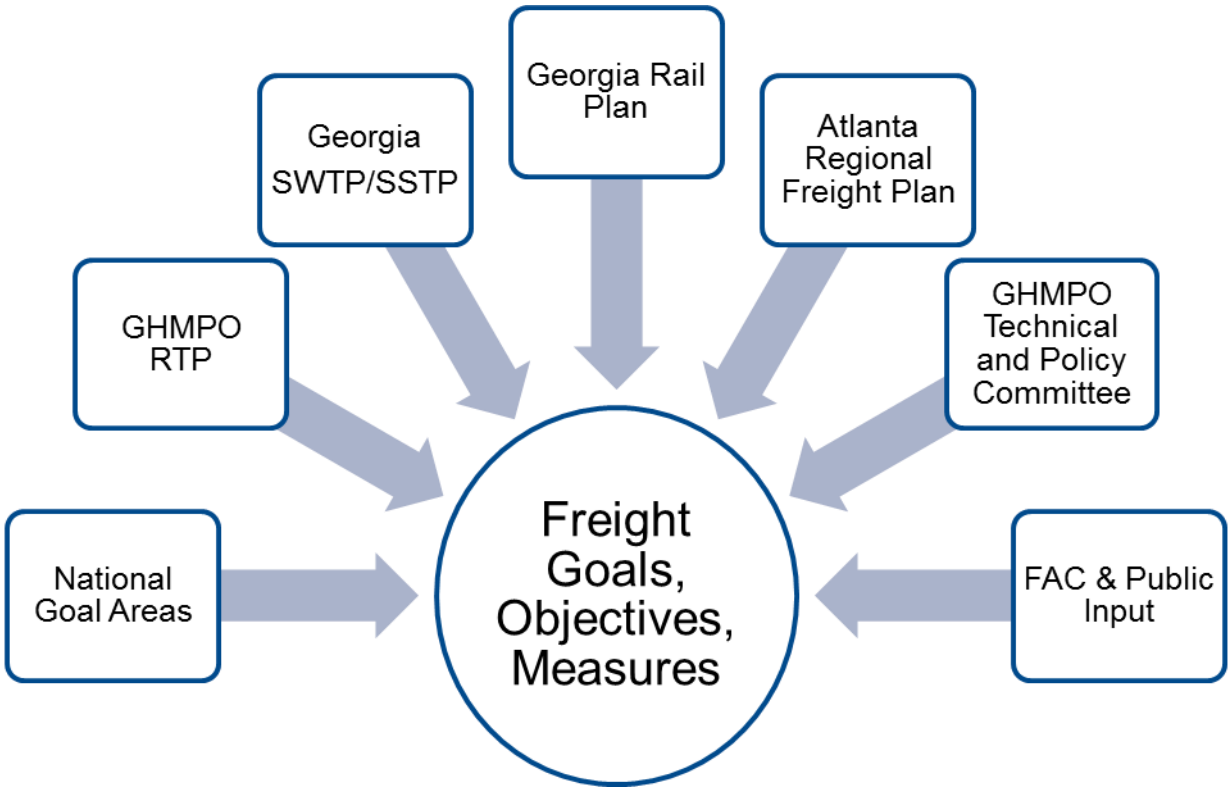
- GHMPO Regional Freight Goals and Objectives;
- GHMPO Regional Freight Mobility Performance Measures;
- GHMPO Regional Freight Mobility Plan Assessment of Freight Trends, Opportunities and Needs;
- Freight Mobility on the GHMPO Freight Network;
- GHMPO Regional Freight Mobility Priority Freight Projects and Policies; and,
- Financial Plan.

2. GHMPO REGIONAL FREIGHT MOBILITY PLAN GOALS AND OBJECTIVES

A key component of the GHMPO Regional Freight Study is the establishment of goals and objectives that create the Study's strategic framework. A goal is a broad statement that defines a desired end state when the plan is implemented. An objective is a specific, measurable statement that supports the achievement of a goal. Goals and objectives provide a foundation for the development of performance measures and establish the strategic direction that will drive investment decisions over the life of the GHMPO Regional Freight Study.

This memorandum provides a review and synthesis of existing federal and state-level freight transportation goals. As shown in **Figure 2-1**, this information will be used to inform the development of the Gainesville-Hall Regional Freight Study goals and objectives.

Figure 2-1: Goals and Objectives Development Process



2.1 National Freight Goals

The Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed by President Obama in July 2012. MAP-21 did not significantly change the existing MPO planning goals or the process of

administering federal planning funds to MPOs. However, MAP-21 did include provisions to improve national, state, and regional freight policy and planning and to improve the condition and performance of the national freight network. The majority of the MAP-21 freight provisions impact federal and state transportation agencies. The most significant freight related change for MPOs is the new requirement to establish, monitor, and set targets for freight performance in coordination with its state DOT. As part of MAP-21, Congress established the following National Freight Transportation Goals. As part of MAP-21 requirements, state freight plans must demonstrate how they adhere to each of the following six National Freight Transportation Goals:

1. Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness
2. Reduce congestion on the freight transportation system
3. Improve the safety, security, and resilience of the freight transportation system
4. Improve the state of good repair of the freight transportation system
5. Use advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system
6. Reduce adverse environmental and community impacts of the freight transportation system

The Fixing America's Surface Transportation (FAST) Act was signed by President Obama in December 2015 and provides long-term funding for surface transportation planning and investment. The FAST Act establishes a national policy of maintaining and improving the condition and performance of the National Multimodal Freight Network to ensure that the Network provides a foundation for the U.S. to compete in the global economy. The FAST Act specifies goals associated with this national policy related to the condition, safety, security, efficiency, productivity, resiliency, and reliability of the Network, and to reduce the adverse environmental impacts of freight movement on the Network. The FAST Act continues the requirements developed under MAP-21 to establish, monitor, and set targets for freight performance.

2.2 State Transportation Goals

The following transportation goals and related freight objectives for the 2040 Statewide Transportation Plan (SWTP) and 2015 Statewide Strategic Transportation Plan (SSTP) reflect desired, long-term outcomes for transportation investment in Georgia.

- Supporting Georgia's economic growth and competitiveness
  - Improved access to jobs, encouraging growth in private sector employment, workforce
  - Reduction in traffic congestion
  - Improved efficiency, reliability of commutes in major metropolitan areas
  - Efficiency and reliability of freight, cargo, and goods movement
  - Border to border and interregional connectivity
  - Support for local connectivity to statewide transportation network
- Ensuring safety and security
- Maximizing the value of Georgia's assets
- Optimized throughput of people and goods through network assets throughout the day
- Minimizing impact on the environment

These goals are consistent with the national transportation goals established in MAP-21. The goals also support Governor Deal's vision for a lean and responsive state government that allows communities, individuals, and businesses to prosper, including the Governor's goals to:

- Reduce injury and loss of life on Georgia's roads
- Improve the movement of people and goods across and within the State
- Leverage public-private partnerships and improve intergovernmental cooperation for successful infrastructure development
- Expand Georgia's role as a major logistics hub for global commerce

2.3 Gainesville-Hall RTP Goals and Objectives

In 2015, the Gainesville-Hall MPO updated it Regional Transportation Plan. During the planning process, the following goals and objectives (freight related only listed) were developed:

- Develop a financially feasible plan that will increase the likelihood of successful implementation through agency, stakeholder, and public coordination
- Develop a plan that includes public participation from business owners, Chamber of Commerce, and other business groups
- Preserve the existing roadway, transit, bicycle, and pedestrian system assets by identifying adequate funding in the financial element of the plan
- Engage local residents in the decision-making process of the plan
- Engage Federal, State, Regional, and Local resource agencies in the decision-making process of the plan
- Develop a plan that includes public participation from all groups, with special emphasis in reaching minorities, low income, persons with disabilities, and senior citizens
- Provide a more integrated multimodal and intermodal transportation system that includes increasing travel options by prioritizing transit, pedestrian, and bicycle travel throughout the region
- Establish and utilize measurable criteria to evaluate how well the multimodal transportation system is operating and addressing identified needs
- Maintain and improve transportation system safety and security for motorists, transit riders, pedestrians, and bicyclists
- Reduce the incidence of crashes on the system, particularly at high-crash locations
- Review traffic crash data to systematically identify potential safety problems on roadway sections, bridges, and intersections with traffic and develop a list of projects necessary to eliminate deficiencies
- Take steps to continually monitor and maintain the transportation system
- Develop a transportation system that conserves energy, promotes the attainment of air quality standards, protects the natural environment, and minimizes adverse impacts
- Develop a plan that reduces vehicle miles of travel (VMT), vehicle hours and greenhouse gas emission to improve air quality in the Atlanta nonattainment area
- Provide a transportation system that provides for the movement of people and goods safely and efficiently and advances the region's economic competitiveness

- Develop a plan that will support existing businesses' and industries' transportation needs, economic development, and accessibility to jobs
- Designate, prepare and maintain a map of the Truck Route System
- Consider freight and truck utilization and impacts on adjacent land uses
- Proposed transportation projects should consider incorporating features to enhance freight movement and provide adequate design to accommodate large freight vehicles
- Develop a transportation system that is efficient by integrating transportation land use decisions and other comprehensive planning tools
- Promote orderly development in the region by coordinating transportation planning activities with local agencies responsible for land use management
- Develop the roadway system to provide an acceptable balance between land use and travel mobility
- Encourage jurisdictions to consider establishing appropriate guidelines for determining where property access may or may not be allowed along the roadway system (access management), and coordinate traffic signals along congested corridors using advanced technologies

2.4 State Rail Plan Goals

In 2015, Georgia DOT updated the state's Rail Plan. Based on suggestions obtained through the outreach effort, GDOT developed the following vision statement for rail transportation:

"A safe and energy efficient state rail system that enables the economic wellbeing of Georgians by expanding access and enhancing mobility for people and goods in an environmentally sustainable manner."

Rail service goals aligned with the vision were developed based on the rail-related benefits, issues and obstacles that had been identified. These goals are as follows:

- Enhance safety and security – Typical initiatives could include minimizing grade crossing accidents, hazmat spills, theft from trains and rail facilities, and upgrading deficient rail infrastructure.

- Provide for a reliable, enhanced and interconnected passenger rail system – Typical initiatives could include improvements to on-time performance and reliability for existing services, ADA compliance at rail stations, and expansion of intercity and commuter passenger services.

- Promote and expand intermodal connectivity – Typical initiatives could include new or improved freight intermodal facilities and highway connectors and better linkages between intercity and urban mass transit passenger services with improved access for pedestrians and cyclists.

- Develop an energy efficient and environmentally sustainable rail system – Typical initiatives could include the retrofitting to lower emission diesel electric locomotives and implementing strategies and policies to encourage the diversion of passengers and freight highways to rail.

- Preserve and improve the existing infrastructure – Typical initiatives could include projects to accommodate the higher maximum loaded car weights on Georgia short lines (i.e., 286,000 pounds) and upgrading track and bridges to improve operating efficiency and main line capacity, and improved access to rail users through new sidings and additional car storage capacity.

- Enhance economic development and competitiveness – Typical initiatives could entail promoting new rail-served development to attract new rail-oriented industries and the implementation of industrial access funding aimed at lowering transportation costs for rail shippers.

2.5 Atlanta Regional Freight Plan

In 2015, the Atlanta Regional Commission (ARC) updated the Atlanta Regional Freight Mobility Plan and it serves as the guiding planning document supporting the region's freight and goods movement strategies. The plan builds on previous planning efforts while evaluating recent changes and identifying potential future freight needs in the region. The following points are structured around the Atlanta Region's Plan goals, with freight objectives identified under each:

2.5.1 Competitive Economy

Regional Plan Goal: Building the region as a globally recognized hub of innovation and prosperity

Freight Objectives:

- Ensure a productive operating environment for freight transportation in the region
- Maintain and strengthen the connections and capabilities of the region as a global trade gateway
- Support and exploit staging hubs and intermodal transfer facilities for their contribution to the economic competitiveness of the region
- With this fits the RP policy: maintain and improve the economic viability and accessibility of key intermodal freight facilities

Regional Plan Goal: Developing a highly educated and skilled workforce, able to meet the needs of 21st century employers

Freight Objectives:

- Recognize and develop access to logistics employment as an entry step onto ladders of individual economic opportunity
- Support the introduction and proliferation of education and training in the transportation and logistics field, especially targeting high school and community college programs for job preparation

2.5.2 World Class Infrastructure

Regional Plan Goal: Ensuring a comprehensive transportation network, incorporating regional transit and 21st Century technology

Freight Objectives:

- Protect, manage, and invest in the regional truck route system
- Ensure competitive freight performance in six key dimensions: travel time, reliability, cost, safety, sustainability, and risk management
- Manage the critical role of first, last and transfer miles in the end-to-end performance of the region's supply chains
- Plan for the impact and promote the appropriate use of information, connected vehicle technologies, and driverless vehicle technologies to improve the productivity, safety, and visibility of freight movement
- Plan and preserve industrial land uses for job creation and efficient service to markets and population

Regional Plan Goal: Secured, long term water supply

Freight Objectives:

- Understand the intensity of water demand in industrial processes and incorporate in development planning

2.5.3 Healthy, Livable Communities

Regional Plan Goal: Developing additional walkable, vibrant centers that support people of all ages and abilities

Freight Objectives:

- Plan and design our community centers for the timely and fuel efficient supply of goods necessary for living and working
- Encourage the alignment of land use planning and the siting of freight producing and staging facilities for compatibility and safe, productive function
- Facilitate the redevelopment of outmoded industrial areas to attract modern facilities and accessible, sustainable jobs
- Know and protect the supply systems for food, fuel, medicine and other vital goods to provide system resiliency that withstands disruptions of transportation

Regional Planning Goal: Promoting health, arts, and other aspects of a high quality of life

Freight Objectives:

- Promote the adoption of efficient freight vehicles and technologies offering safer, environmentally cleaner performance

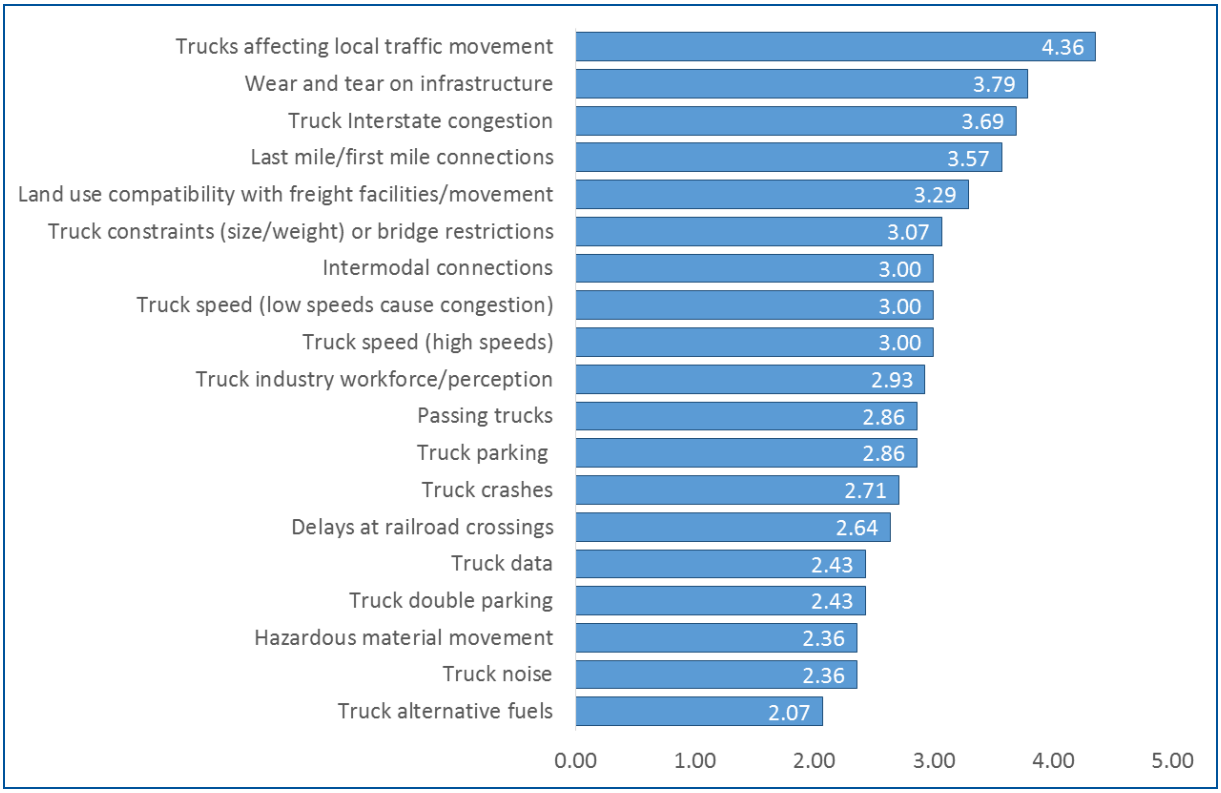
- Define and adopt commercially viable methods to deliver goods on a 24-hour clock
- Accommodate and inform freight logistics planning for events in public spaces, including unrelated activity affected by the event

2.6 Questions to Assist in Developing Freight Goals and Objectives

Members of the FAC were asked four questions related to the freight movement in the region. The questions were developed in order to obtain information that provides a basis for the development of meaningful freight goals and objectives for the region. This section describes the questions and the results of the responses to these questions.

1. The first question asked respondents to rank a list of 20 freight issues on a scale of 1, being low, and 5, being high. **Figure 2-2** illustrates the results of this question.

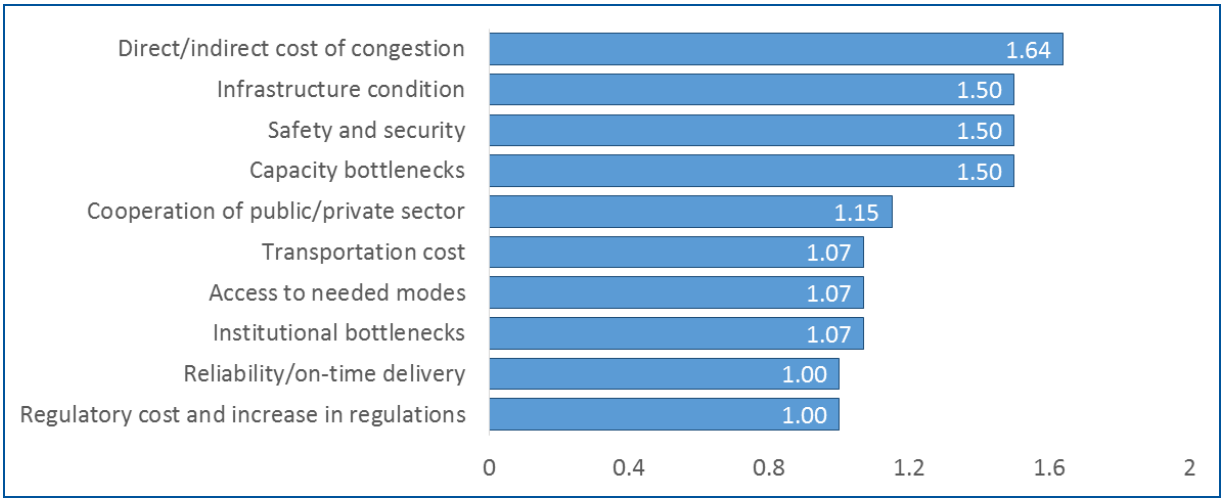
Figure 2-2: Freight Issues Ranked by Importance



Trucks affecting local traffic movement has the highest average ranking of 4.36. The wear and tear on infrastructure has the second highest average ranking of 3.79. Truck interstate congestion ranked third highest at a close 3.69. Last and first mile connections ranks fourth highest at 3.57.

2. The second question asked participants to rate the importance of 10 factors on a scale from 1-3 (Neutral - Critical) for moving freight more efficiently and supporting the regional economy. **Figure 2-3** illustrates the results of this question.

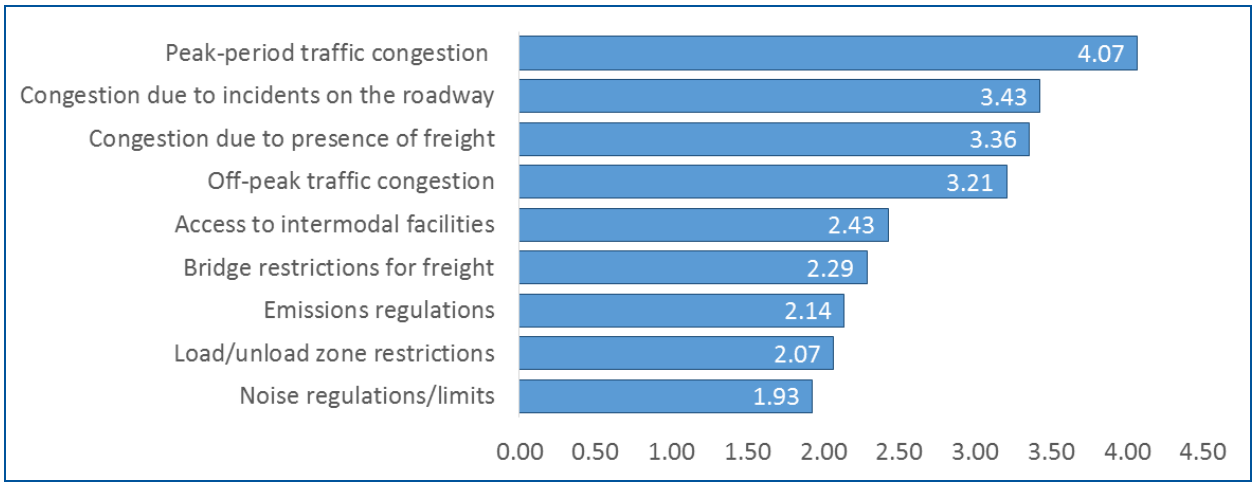
Figure 2-3: Factors for Moving Freight More Efficiently and Supporting the Regional Economy Ranked by Importance



The most important factor based on the average ranking is direct/indirect cost of congestion. The infrastructure condition, safety and security, and capacity bottlenecks also ranked relatively high in importance. It should be noted that no single issue was given the average ranking over 1.64.

3. The third question asked respondents how often they've encountered a list of nine barriers to freight-related productivity with 1 being never and 5 being always. **Figure 2-4** illustrates the results of this question.

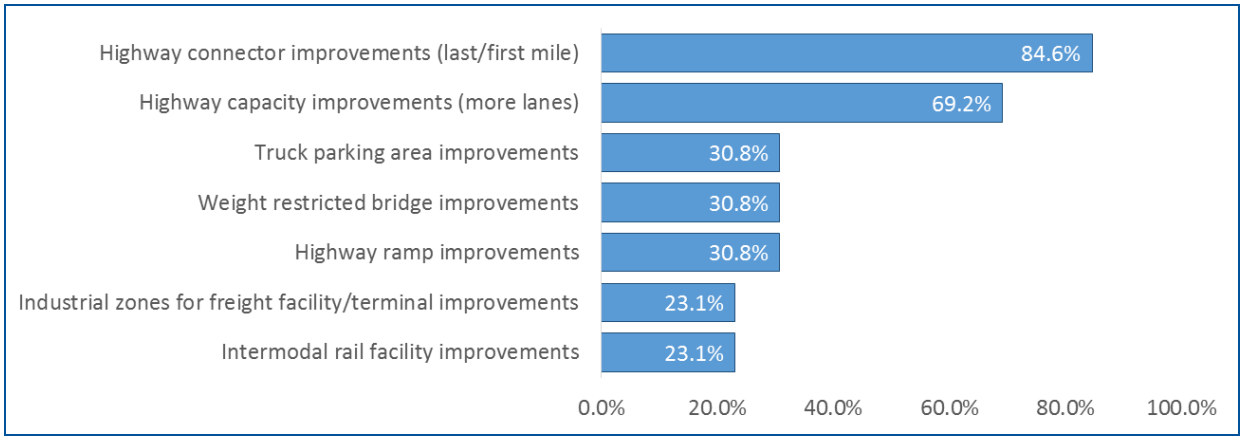
Figure 2-4: Barriers to Freight-Related Productivity



The top three ranked barriers, indicating those most encountered, are related to congestion and include: peak-period traffic congestion, congestion due to presence of freight, and congestion due to incidents on the roadway. The most frequently encountered barrier, according to the respondents is peak-period traffic congestion.

4. The fourth question asked respondents to choose up to three (from a list of seven) improvements to the Hall County transportation system that would benefit freight movement the most for the respondent's company or just in general. **Figure 2-5** illustrates the results of this question.

Figure 2-5: Most Frequently Selected Improvements



The most frequently selected improvement at 84.6 percent is highway connector improvements (last/first mile). The next most frequent is highway capacity improvements (more lanes) at 69.2 percent followed by truck parking area improvements at 30.8 percent. Industrial zones for freight facility/terminal improvements and intermodal rail facility improvements are the least frequently selected at only 23.1 percent.

2.7 Goals and Objectives

The Regional Freight Study goals and objectives must be consistent with the GHMPO 2040 RTP, and align with federal and state goals and objectives. Based on the review, the following are the goals and objectives for the GHMPO Regional Freight Study:

- **Safety Goal** – Improve the safety, security, and resiliency on the Truck Route System
  - Mitigate safety issues that arise from freight movement through the use of context sensitive solutions
  - Provide alternative routes in case of emergencies and extreme weather events
  - Reduce the incidence of crashes on the system, particularly at high-crash locations
  - Identify opportunities to provide safe, convenient, and suitable areas to accommodate truck parking
  - Maintain pavements along high truck traffic corridors and intersections to eliminate rutting and cracking
- **Mobility Goal** – Reduce congestion and bottlenecks on the Truck Route System
  - Designate, prepare and maintain a map of the Truck Route System (GHMPO RTP)
  - Proposed transportation projects should consider incorporating features to enhance freight movement and provide adequate design to accommodate large freight vehicles (GHMPO RTP)

- Improve the existing system through investments designed to reduce congestion and freight bottlenecks
- Improve freight mobility and last/first mile connectivity between freight modes and major generators and gateways (ARC)
- Provide efficient local connectivity to statewide transportation network (SWTP)
- Plan for the impact and promote the appropriate use of information, connected vehicle technologies, and driverless vehicle technologies to improve the productivity, safety, and visibility of freight movement
- Plan for the impact and promote the appropriate use of information, connected vehicle technologies, and driverless vehicle technologies to improve the productivity, safety, and visibility of freight movement

- **Community Goal** – Develop a transportation system that is efficient by integrating transportation land use decisions and other comprehensive planning tools or policies (GHMPO RTP)
  - Consider freight and truck utilization and impacts on adjacent land uses (GHMPO RTP)
  - Promote orderly development in the region by coordinating transportation planning activities with local agencies responsible for land use management
  - Review load/unload policies in downtown business districts and identify if improvements can be made to improve safety, accessibility, and travel times
  - Reduce truck idling on the Truck Route System
  - Improve air quality through investments designed to reduce congestion
- **Economic Competitiveness Goal** – Strengthen regional economic competitiveness
  - Support existing and emerging businesses' and industries' transportation needs, economic development, and accessibility to jobs (GHMPO RTP)
  - Coordinate with regional jurisdictions to identify the top 10 first and last mile freight connection improvements
  - Promote and leverage regional rail access to retain and attract major industries
  - Coordinate with agencies who own critical freight bridges to ensure weight restrictions are not imposed or, if needed, improvements are made

3. GHMPO REGIONAL FREIGHT MOBILITY PERFORMANCE MEASURES

Performance measurement is a critical element of accountability for public resources which allow agencies to understand current transportation system conditions and track progress over time. Moving Ahead for Progress in the 21st Century (MAP-21) and the Fixing America's Surface Transportation (FAST) Act include performance measure requirements for states and metropolitan planning organizations (MPOs). The U.S. Department of Transportation's Federal Highway Administration (FHWA) recently finalized new performance measures to assess safety, infrastructure condition, system performance, freight movement, and the Congestion Mitigation and Air Quality (CMAQ) program. The final rules call for an increased level of transparency and accountability in establishing and achieving performance targets for safety, infrastructure condition, system performance, freight movement, and the CMAQ program. The freight-specific performance measures included in the GHMPO Regional Freight Study are directly tied to the goals and objectives to help improve safety, efficiency, and economic competitiveness in the GHMPO region. The performance measures also meet the requirements outlined in MAP-21 and the FAST Act.

The Federal Register on February 13, 2017 published a March 21, 2017 effective date for the performance measure rules. With the passing of the effective date of the rules, Georgia Department of Transportation (GDOT) must establish statewide targets for each of the 12 measures listed in the final rules within one year. GDOT must report them in a Baseline Performance Report due to FHWA by October 1, 2018. GDOT will establish the performance targets in coordination with GHMPO and GHMPO may agree to support the GDOT targets or establish a quantifiable target specific to the GHMPO planning area.

3.1.1 What are Performance Measures?

The following definitions from FHWA provide a contextual background about the discussion included in this technical memorandum.

- **Performance Management:** "Performance management is the practice of setting goals and objectives; an on-going process of selecting measures, setting targets, and using measures in decision-making to achieve desired performance outcomes; and reporting results."
- **Performance Based Planning and Programming:** "Involves using data to support long-range and short-range investment decision-making. It generally starts with a vision and goals, selection of performance measures, and use of data and analysis tools to inform development of investment priorities, which are then carried forward into shorter-term investment planning and programming."
- **Performance Measure:** "A metric used to assess progress toward meeting an objective."

3.1.2 Why use Performance Measures?

In addition to being required by Federal law, there are several other reasons GHMPO is using performance measures in the Regional Freight Study:

- To monitor performance and judge how well the transportation system is doing.
- To report transportation system performance to local decision-makers, GDOT, and FHWA.
- To provide data and information necessary to make informed project and program decisions.

Performance measures provide a snapshot of current performance and track whether it's getting better, staying the same, or getting worse over time. The performance measures in this report are aligned with the GHMPO Regional Freight Study goals and objectives and FHWA's requirements. Thus, GHMPO will use performance measures to monitor performance in the following areas:

- **Safety** – Improve the safety, security, and resiliency on the Truck Route System.
- **Mobility** – Reduce Congestion and bottlenecks on the Truck Route System.
- **Economic Competitiveness** – Strengthen Regional Economic Competitiveness.
- **Community** – Develop a transportation system that is efficient by integrating transportation land use decisions and other comprehensive planning tools or policies.

3.1.3 What are good performance measure characteristics?

There is broad consensus across numerous industries and professions that performance measures should be:

- **Relevant** – clearly relates to the activity being measured.
- **Understandable** – clear, concise, and easy for the public to comprehend.
- **Timely** – data is available frequently enough to inform decision makers.
- **Reliable** – data is verifiable and unbiased.
- **Cost effective or feasible** – data collection, recording, analyzing, and reporting is not cost prohibitive.

3.1.4 How were performance measures selected?

The following process assisted in identifying performance measures for the GHMPO Regional Freight Study:

1. **Define desired performance measures** based on GHMPO Regional Freight Study goals and objectives by:

    a. Coordinating and obtaining input from GDOT, GHMPO committees, and from private freight and logistic businesses to ensure the measures represent a balanced approach.

2. **Assess each performance measure** by answering the following questions:

    a. Is the measure meaningful?

b. Is the measure useful in assessing progress in achieving the objectives?

c. Is the measure simple enough to be understood by the public?

d. Is the measure focused on public and private sector needs and demands?

e. Is reliable data available to track the measure?

f. Is the data cost-effective to collect and report?

g. Can the data be compared over a given time period?

3. **Select measures** that are focused on achieving the GHMPO Regional Freight Study objectives.

4. **Determine the amount of information needed** for each measure by answering the following questions:

   a. What performance information is currently being used? Is it useful information for the GHMPO Regional Freight Study?

   b. What other information needs to be collected? Is data currently available or is new data required?

   c. What resources (time and cost) will be needed to collect and process the data?

   d. How often will the data need to be collected to assess progress?

5. **Define each performance measure** by identifying:

   a. The data source to assess the measure.

   b. The method used to calculate the measure.

   c. The reporting period for the measure.

3.1.5 How will the performance measures be used?

The GHMPO Regional Freight Study performance measures will be used at the strategic level, decision-making level, and project selection level.

- **Strategic Level** – Performance measures assist in informing and monitoring how the GHMPO Regional Freight Study objectives are being met.
- **Decision-Making Level** – Performance measures assist in informing and assessing programmatic funding levels for preservation, modernization, and expansion activities.
- **Project Selection Level** – Performance measures can be used as criteria in the project selection process to ensure the GHMPO Regional Freight Study objectives are being addressed.

3.2 Performance Measures by Goal Area

This section provides recommended performance measures along with data sources for four GHMPO Regional Freight Study goal areas. The performance measures are intended to address national requirements identified in MAP- 21 and the FAST Act, where applicable, and local GHMPO regional values and desires based on input from the Freight Advisory Committee (FAC) and other regional planning documents.

3.2.1 Safety

Improving safety in the GHMPO region is a goal of GDOT, GHMPO, and the Georgia Department of Public Safety (DPS). The DPS is the lead agency for the Motor Carrier Safety Assistance Program (MCSAP) in Georgia. The Department of Public Safety's Motor Carrier Compliance Division (MCCD) is responsible for implementing MCSAP guidelines. It is DPS's mission to *"reduce the number of fatal and injury related crashes on Georgia's Highways by the effective and fair regulations of the commercial motor carrier industry and to raise awareness of the general public about sharing the roads safely with commercial motor vehicles."*

Roadway safety is affected by several factors including driver behavior, enforcement, education, infrastructure conditions, and technology innovations. Improving safety requires coordination among federal, state, regional, and local agencies as well as private stakeholders.

The Safety goal is to **improve the safety, security, and resiliency on the Truck Route System** and the recommended safety performance measures and data sources are shown in **Table 3-1**.

Table 3-1: Safety Performance Measures

Performance Measure	Data Source
Number of fatalities involving trucks in GHMPO region	GDOT
Number of serious injuries involving trucks in GHMPO region	GDOT

3.2.1.1 Data Sources

Safety data that includes fatalities and serious injuries in the GHMPO area is readily available through GDOT.

3.2.1.2 Implementation Strategies

The American Association of State Highway and Transportation Officials (AASHTO) adopted its Strategic Highway Safety Plan in 2005. The plan includes strategies in 22 highway safety emphasis areas. The National Cooperative Highway Research Program (NCHRP) developed guides corresponding to AASHTO SHSP emphasis areas for state and local agencies. Key strategies identified in the NCHRP Report 500 - Volume 13: A Guide for Reducing Collisions Involving Heavy Trucks include the following:

- Reduce truck driver fatigue
  - Increase efficiency of use of existing parking spaces
  - Create additional parking spaces

  - Incorporate rumble strips into new and existing roadways
- Increase public knowledge about sharing the road
  - Incorporate Share the Road information into driver materials
  - Promulgate Share the Road information through print and electronic media
- Identify and correct unsafe roadway and operational characteristics
  - Identify and treat truck crash roadway segments
  - Install interactive truck rollover signing
  - Modify speed limits and increase enforcement to reduce truck and other vehicle speeds
- Improve and enhance truck safety data
  - Increase the timeliness, accuracy, and completeness of truck safety data
- Promote industry safety initiatives
  - Perform safety consultations with carrier safety management
  - Promote development and deployment of truck safety technologies

Implementing these strategies with public and private partners in the GHMPO region will assist in identifying projects and programs that will reduce fatalities and serious injuries involving trucks in the GHMPO region.

3.2.2 Mobility

Freight mobility relies on an efficient and integrated transportation system. Transportation is essential for manufacturing, agricultural, retail, and wholesale businesses in the GHMPO region. While the entire GHMPO region accommodates freight movement, the 2040 Regional Transportation Plan (RTP) noted that there are two major non-interstate freight routes. First, EE Butler Parkway serves significant truck traffic between the industrial areas in the eastern portion of the City of Gainesville and I-985. Second, US 129, the other common route for freight traffic, traverses north out of Gainesville into White County. The RTP also noted that while these are the two major freight corridors, truck movements between industrial areas and I-985 interchanges and inside the City of Gainesville are ongoing challenges in the GHMPO area. Eliminating and reducing congestion caused by freight bottlenecks will improve mobility for all system users and in turn make it more efficient for local companies to receive raw materials and ship final goods to the market. Addressing freight bottlenecks in the GHMPO region over the next decade is crucial due to the growth the GHMPO region is projected to experience.

The GHMPO region has been growing rapidly over the last 20 years. The 2040 RTP projects a population of 394,000 (105% increase) and employment of 230,000 (139% increase) by 2040. To realize the gains in population and employment, improving travel time reliability is crucial for existing industries and businesses and equally important in attracting new businesses into the region because they must operate efficiently to remain competitive. Unreliable travel times are caused by recurring congestion (bottlenecks and poor traffic signal timing) and nonrecurring congestion (roadway crashes, disruptive weather, and work zones). Trucks delayed by congested roadways increases business costs and makes it more difficult for local industries and businesses to be competitive. This was reiterated in the FAC survey results. The highest rated freight issue ranked by the FAC was “trucks affecting local traffic movement” and the number one factor for moving freight more efficiently to support the

regional economy was the “direct/indirect cost of congestion”. Reliable travel times will improve safety, freight efficiencies, and quality of life for residents who experience less roadway delay.

The Mobility goal is to **reduce congestion and bottlenecks on the Truck Route System** and the recommended mobility performance measures and data sources are shown in **Table 3-2**.

Table 3-2: Mobility Performance Measures

Performance Measure	Data Source
Percentage of roadway system mileage providing for dependable Truck Travel Time Reliability (TTTR)	National Performance Management Research Data Set (NPMRDS)

3.2.2.1 Data Sources

FHWA has acquired a national data set of average travel times to determine system performance on the National Highway System (NHS). This data set - National Performance Management Research Data Set (NPMRDS) - is being made available to States and MPOs to calculate the freight system performance measure. GDOT will establish the TTTR performance target in coordination with GHMPO, and GHMPO will either agree to support the GDOT TTTR target or establish a quantifiable TTTR target specific to the GHMPO planning area.

3.2.2.2 Implementation Strategies

FHWA’s draft National Freight Strategic Plan identifies strategies and future consideration to address infrastructure bottlenecks and improve truck travel time reliability. The strategies included in the draft Plan range from the very large, such as creating large discretionary and formula funding programs dedicated to freight projects, to the more narrowly focused, such as to codify a multimodal National Freight Policy. All of these strategies are relevant to the FAST Act's National Multimodal Freight Policy goals, and the following are some tactics recommended in the draft Plan for U.S. DOT to implement to reduce congestion and improve freight transportation system performance pertinent to the GHMPO region include:

- Facilitate multijurisdictional, multimodal collaboration and solutions. Because freight transcends modal, local, regional, State, and international borders, it is critical for State and local agencies to participate in multijurisdictional collaboration when creating policies that affect freight movement and planning for/programming freight projects.
- Improve coordination between public and private sectors. To identify and respond to critical freight system needs, it is essential to facilitate public and private sector partnerships to achieve the best planning process outcomes.
- Facilitate intermodal connectivity. Intermodal connectivity is critical to ensure the safe, resilient, and efficient flow of freight movement across the overall freight transportation system. U.S. DOT encourages the use of existing resources to support intermodal solutions, including TIGER grants, Railroad Rehabilitation & Improvement Financing, and Transportation Infrastructure Finance and Innovation Act loans. Surface Transportation Program funds could help support projects that improve connectivity.

Other specific strategies to combat congestion promoted by FHWA include:

- Provide alternatives as to how, when, where, and whether to travel. The goal of this strategy is to reduce the number of vehicles on a given road. This may take the form of promoting alternative commute options such as employee telecommuting options or making transit easier and more attractive to use. Also of interest in managing demand are driver incentive programs that promote ridesharing and off-peak use.
- Invest in new highway capacity. Add new lanes to exiting roadways or construct new roadway alignments to maintain or improve system performance.
- Improve the management and operation of the system. Improve the day-to-day operation of the system by retiming traffic signals, applying access management techniques, removing operational deficiencies, and improving response time and management of traffic disrupting events like work zones, crashes, and special events. Provide real time information about the system so that travelers can make immediate decisions about when, where, and how to travel, and transportation agencies can make real-time adjustments to improve system operations.

3.2.3 Economic Competitiveness

Economic competitiveness is directly tied to Mobility discussed in the previous section. Transportation infrastructure investments that reduce congestion increase the efficient movement of goods and people and create the following economic benefits:

- Improve attraction and retention of businesses and skilled, innovative workers.
- Improve just-in-time inventory management.
- Increase worker productivity due to fewer hours spent in congestion.

The Georgia Competitiveness Initiative–a partnership between public and private sectors–was created by Governor Nathan Deal to enhance the state's economic development strategy. Rather than focusing on specific business sectors, this effort concentrated on the key factors that drive economic development across all industries throughout the state. As a result, the Initiative centered on the following six key areas that, together, have and will continue to form the foundation for long-term economic success:

- Business Climate
- Education and Workforce Development
- Innovation
- Infrastructure
- Global Commerce
- Government Efficiency and Effectiveness

Meetings organized by the Georgia Department of Community Affairs and held in each of the state's economic development regions provided the opportunity for discussions with key business, community and government leaders. Hall County is located in region 2, and the portion of Jackson County included in the GHMPO region is in region 5. The highest ranking issues in these two regions included "Infrastructure: Multi-modal transportation". Some of the transportation related input from region 2 and 5 meetings included the following:

- Conduct cluster analyses for each county in the region
- Link regional transportation options to increase access, speed commerce, and reduce costs and increase connectivity between northeast and northwest Georgia
- Emphasize cargo-rail enhancements in smaller communities

Completed in July 2017, the Hall County Comprehensive Plan, Hall County Forward, is a policy document that presents updated community goals to achieve the County's vision for growth and development over the next 20 years. Based on a community survey, Hall County citizens noted the following economic development priorities:

- Focus on occupying existing industrial parks/redeveloping existing areas such as Chicopee Mill
- Attract high-tech businesses; 'clean' industry
- Commercial development should be centered around cities and major corridors with the available infrastructure and sufficient access
- Need varied, higher quality businesses & higher paying jobs
- Promote small businesses

The Economic Competitiveness goal is to **support economic development and competitiveness through the provision of a safe, reliable, and accessible multimodal transportation system to move people and goods**. The recommended economic competitiveness performance measures and data sources are shown in **Table 3-3**.

Table 3-3: Economic Competitiveness Performance Measures

Performance Measure	Data Source
Number of projects that address freight bottlenecks	Review RTP projects
Change in 2040 annual hours of truck delay relative to no-build	GHMPO Travel Demand Model
Number of projects that serve a freight industry cluster	Review RTP projects

3.2.3.1 Data Sources

Data for the number of projects that address freight bottlenecks and number of projects that serve a freight industry cluster will be determined by creating GIS maps. The bottleneck map will overlay the freight bottlenecks identified in the GHMPO Regional Freight Study with projects included in the financially constrained GHMPO 2040 Regional Transportation Plan (RTP). The freight cluster map will overlay the GHMPO regional land use categories with projects included in the financially constrained GHMPO 2040 RTP. Projects addressing a bottleneck or accessing a freight cluster will be identified from the maps. The GHMPO may want to consider adding criteria to the project selection process to award points to a project that eliminates freight bottlenecks and serve freight clusters.

To determine the change in 2040 annual hours of truck delay to no-build conditions, the GHMPO travel demand model was used. The GHMPO travel demand model will be simulated using the 2040 no-build conditions, comparing the model results when running the projects contained in the 2040 RTP.

3.2.3.2 Implementation Strategies

Number of projects that address freight bottlenecks. As the heaviest business users of the transportation system, freight needs are useful indicators of where investments can have significant economic impacts. Tracking the number of projects that address freight bottlenecks is a useful measure to ensure the freight bottleneck delays are reduced or eliminated.

Change in 2040 annual hours of truck delay relative to no-build. Evaluating a project's change in 2040 annual hours of truck delay over the new build will provide useful information during the project selection process.

Number of projects that serve a freight industry cluster. Industry clusters are regional concentrations of related industries that can lead to higher productivity and economies of scale for the businesses involved and often focus on exporting a good or service. Transportation investments that serve these highly productive areas are likely to support considerable economic development, relative to transportation investments elsewhere. Tracking the number of projects that serve a freight industry clusters is a useful measure to ensure freight needs in these areas are addressed, such as last and first mile needs, intersection or interchange ramp improvements, etc.

3.2.4 Community

Mitigating the impacts of freight movement, such as air quality, noise, and congestion, on GHMPO communities is vital to sustaining the quality of life of GHMPO residents. The movement of freight is projected to grow, and GHMPO will need to coordinate with other public and private agencies to update, develop, and implement strategies to protect against any potential adverse freight impacts.

Land use patterns, especially industrial locations, are critical decisions that directly impact how freight moves across the transportation system. While not always easy, planning and zoning efforts should provide a balance between competing land uses while accommodating freight transportation needs. A balanced approach that develops freight and industrial related facilities within existing corridors in concentrated areas will improve freight efficiency. Consequently, it is critical to link transportation and land use planning so it supports transportation investments that promote development in designated growth areas that are equipped to accommodate efficient freight movement, and, in return, it will mitigate land use, air, noise, and congestion impacts.

As each Comprehensive Plan in the GHMPO region is updated, GHMPO should coordinate with the municipality to ensure the plan provides a balance between competing land uses and addresses freight transportation needs.

The Community goal is to **develop a transportation system that is efficient by integrating transportation and land use decisions and other comprehensive planning tools or policies**. The recommended community performance measures and data sources are shown in **Table 3-4**.

Table 3-4: Community Performance Measures

Performance Measure	Data Source
Number of comprehensive plans that integrate freight planning and land-use decision-making activities	Review county and city comprehensive plans

3.2.4.1 Data Sources and Gaps

The number of comprehensive plans that integrate freight planning and land-use decision-making activities can be determined by reviewing the plans that have been completed.

3.2.4.2 Implementation Strategies

As mentioned earlier, as part of the Hall County Comprehensive Plan update process, a survey was conducted with local residents and businesses. Based on this community survey, Hall County citizens noted the following land use and natural resource priorities:

- Land Use
  - Balance development with preservation of green space and agriculture
  - Plan for parks, trails, green & open space
  - Don't become overdeveloped ("not another Gwinnett")
  - Need coordinated county/city planning
  - Protect residential areas (e.g. prevent encroachment by commercial uses, have adequate buffer requirements between dissimilar uses, etc.)
- Natural Resources
  - Protect Lake Lanier (water quality and shoreline) and its tributaries
  - Preserve more green space, protect tree canopy
  - Identify funding sources for green space acquisition / trail dedication
  - Consistently enforce environmental protection standards

As noted in FHWA's Freight and Land Use Handbook, if freight planning and land-use decision-making activities are well integrated, both the public and private sector may benefit through reduced congestion, improved air quality and safety, enhanced community livability, improved operational efficiency, reduced transportation costs, and greater access to facilities and markets. The freight community can be considered "a good neighbor" when such a balance between economic activity and external impacts is achieved. Public agencies can encourage this balance through:

- Adoption of appropriate and coordinated land use policies,
- Effective transportation systems and services,
- Effective operations and management policies of transportation infrastructure and terminals, and
- Continuous education and outreach programs to engage community and industry representatives.[1]

[1] FHWA Freight and Land Use Handbook

4. GHMPO REGIONAL FRIEGHT MOBILITY PLAN ASSESSMENT OF FREIGHT TRENDS, OPPORTUNITIES AND NEEDS

The Gainesville-Hall Metropolitan Planning Organization (GHMPO) Regional Freight Study provides the blueprint for improving movement of freight and enhancing the economic competitiveness for the GHMPO study area. Freight movement within, to/from and through the region can have a significant impact on the GHMPO area's economic competitiveness and freight network. New sources of funding opportunities from the federal and state level make the identification of local freight transportation needs a high priority for the GHMPO to assist in continued growth of the local economy. The GHMPO Regional Freight Study evaluates the GHMPO freight system trends, needs, and issues which will assist in identifying freight investment strategies for the GHMPO area.

4.1 Methodology

The assessment of the regional freight trends and needs provides a system-level summary of the GHMPO Freight System. This analysis considers available data to understand and evaluate the freight movement conditions and needs in the GHMPO region. Qualitative and quantitative analysis is based on existing conditions, including but not limited to:

- Regional freight overview;
- Commodity flow (i.e., directional flow and volume);
- Freight land use designations;
- GHMPO regional freight network;
- Traffic operations of roadway network (i.e., level of service and volume to capacity ratio);
- Safety (i.e., accident locations and crash rate at rail crossings and intersections; and,
- Regional freight system opportunities and needs.

Other plans, studies, and databases from state, local and regional sources were also used in this analysis, including:

- GHMPO Regional Transportation Plan Update (2015);
- City of Gainesville Transportation Master Plan (2013);
- Hall County Comprehensive Plan (2017);
- Jackson County Comprehensive Plan (2015);
- Georgia Freight and Logistics Plan, GDOT (2012);
- Georgia State Rail Plan, GDOT (2015);
- Atlanta Regional Freight Plan, Atlanta Regional Commission (2016); and,
- Atlanta Aerotropolis Blueprint (2016).

4.2 Regional Multimodal Overview

4.2.1 Highway System Profile

4.2.1.1 Roadway Network

The identification of highway functional classification may be used to predict the amount of commercial truck utilization. Understanding the roadway types can assist in identifying and preparing for the intended use of the roadway, including designing the roadway to accommodate the commercial trucks. As shown in **Table 4-1**, the GHMPO roadway system consists of 2,029 miles of roadways across all functional classes. Urbanized roadways account for 1,124 miles, or 55 percent of the GHMPO study area's mileage. Urbanized Local roadways contain the highest number of miles with 821, or about 40 percent of the total miles for the GHMPO study area. Rural roadways consist of 878 miles, or 43 percent of the total mileage, with Rural Local roadways comprising 601 miles.

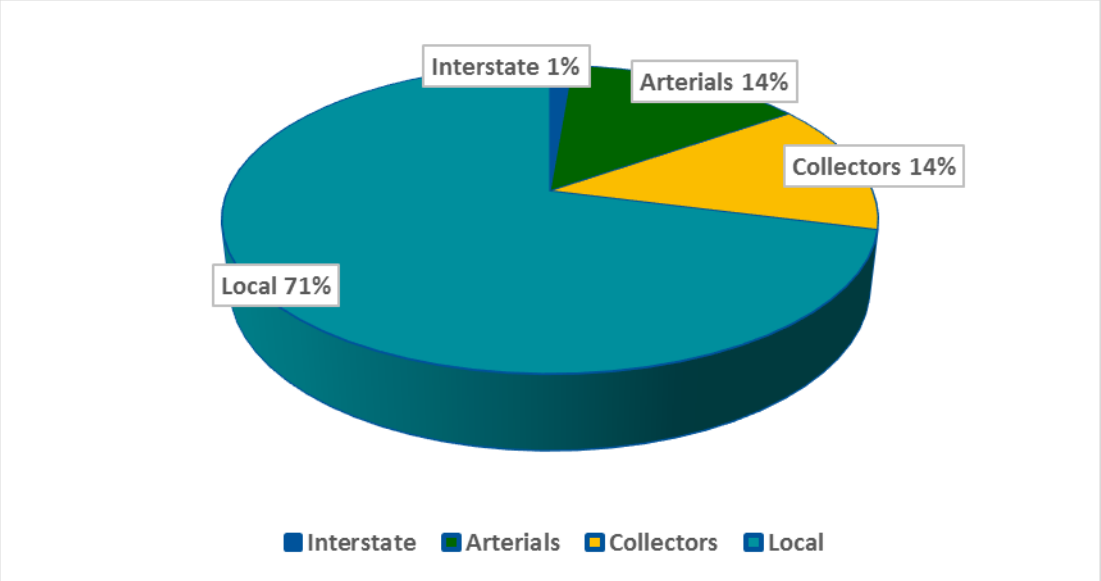
As shown in **Figure 4-1**, the GHMPO roadway network is mostly made up of local roadways and contains over 71 percent of local roadways on the entire system. Collectors and Arterial roadways make up 19 and nine percent of the GHMPO roadways respectively, while Interstates, which carry the highest volumes of vehicles, make up only one percent of the GHMPO roadway system. A map of the GHMPO roadway functional classes is shown in **Figure 4-2**.

Table 4-1: Miles by Functional Class in the GHMPO Study Area, 2017

Functional Class	Total Miles		Percent
Rural Interstates	7.97	878.25	43.3%
Rural Principal Arterials	46.61		
Rural Minor Arterials	43.90		
Rural Major Collectors	110.76		
Rural Minor Collectors	67.78		
Rural Local	601.23		
Urbanized Interstate	18.17	1,124.58	55.4%
Urbanized Freeway	0.01		
Urbanized Principal Arterial	77.06		
Urbanized Minor Arterial	113.46		
Urbanized Collector	94.24		
Urbanized Local	821.64		
Small Urban Interstate	-	27.12	1.3%
Small Urban Freeway	-		
Small Urban Principal Arterial	2.18		
Small Urban Minor Arterial	1.42		
Small Urban Collector	5.03		
Small Urban Local	18.49		
Total	2,029.96	2,029.96	100.0%

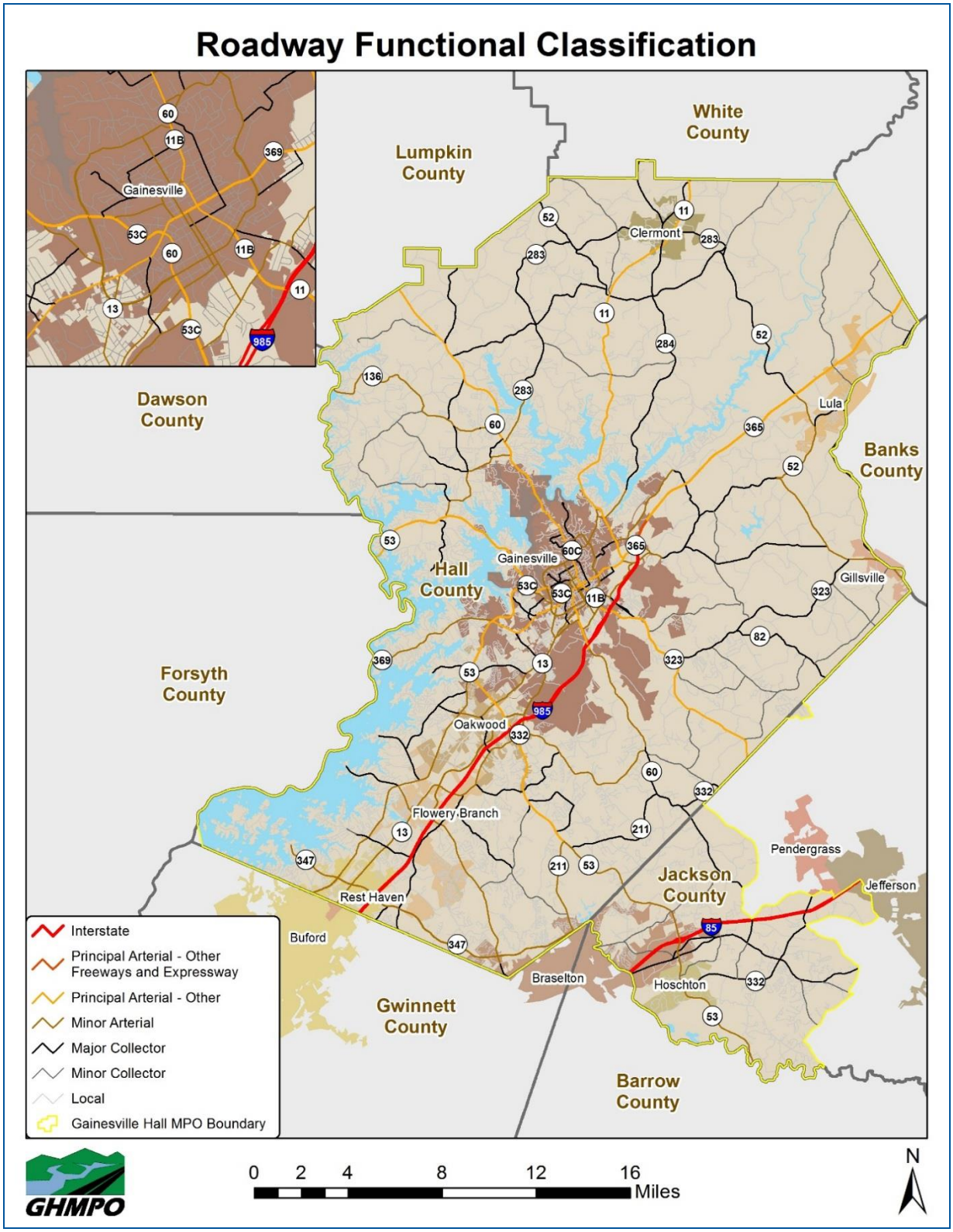
Source: Georgia Department of Transportation

Figure 4-1: Percent of Roadway Miles by Functional Class in GHMPO Study Area



Source: Georgia Department of Transportation

Figure 4-2: GHMPO Roadway Functional Classification



Source: CDM Smith

4.2.1.2 Pavement Condition

The condition of pavement surfaces directly impacts the speeds at which trucks can travel, increases driver fatigue, and levels of cargo damage related to vibration and jarring motions. Due to these potential consequences, it is critical for the GHMPO Regional Freight Study to consider the existing pavement conditions within the GHMPO study area. Currently, the Georgia Department of Transportation (GDOT) uses the Pavement Condition Evaluation System (PACES) to evaluate pavement conditions and roadway deficiencies on the state highway system.

As shown in **Table 4-2**, the PACES ratings scale and treatment associated with the condition of the roadway are outlined by GDOT. Roadway sections with ratings of 75 and below get referred to the district and general office for a local consideration and conditions check/verification. For interstates or other state routes with major distresses, the state maintenance office requests detailed pavement and/or base evaluations from the Office of Materials and Research, Pavement Design Section.

Table 4-2: GDOT PACES Scale and Treatments

State	Rating Scale	Preferred Treatments
Excellent	100-91	Do Nothing
Good	90-81	Do Nothing
Fair	80-71	Minor Preventative Maintenance
Poor	70-55	Major Preventative Maintenance
Bad	54-0	Major Rehab/Reconstruction

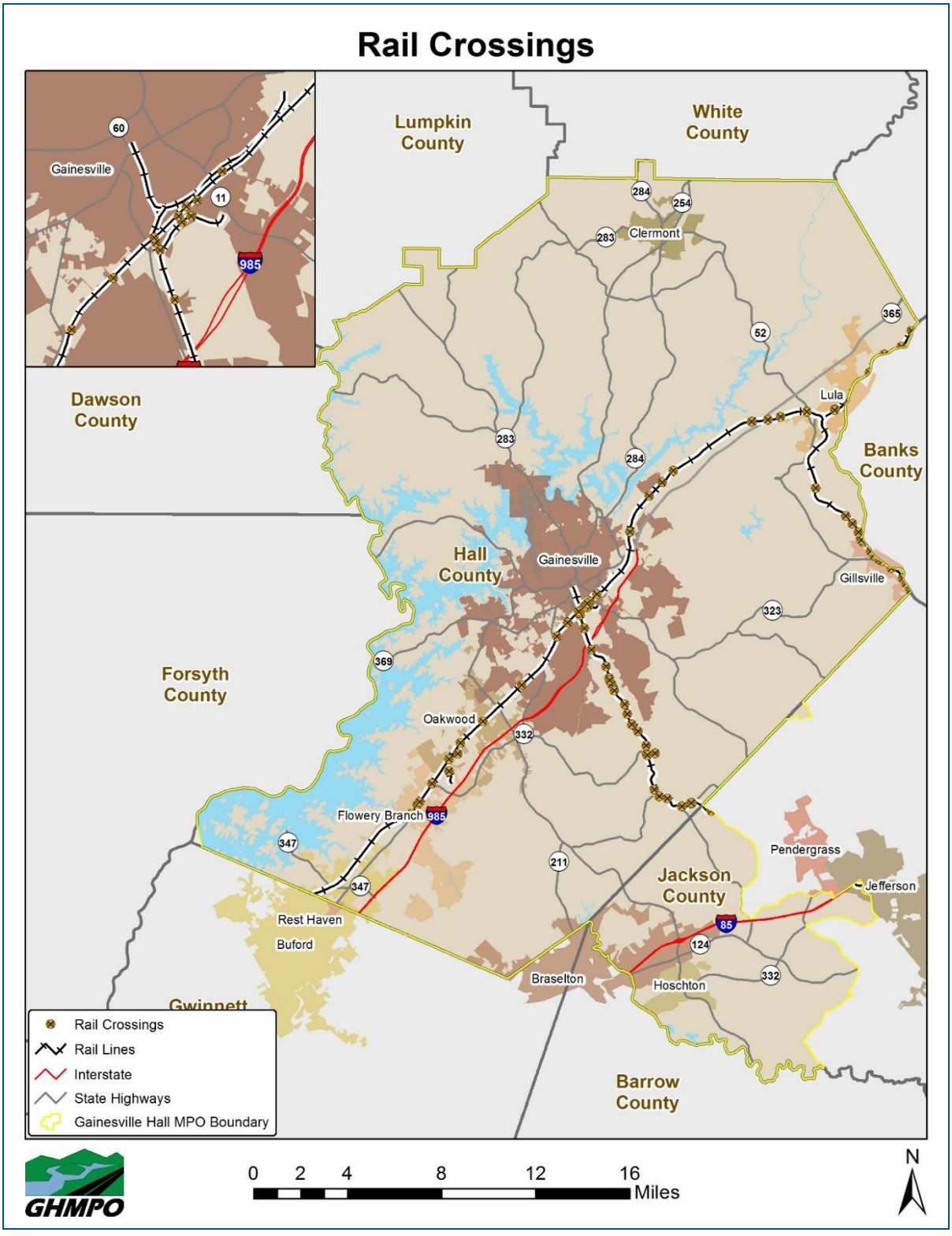
Source: GDOT, http://www.dot.ga.gov/BuildSmart/research/Documents/05-19b.pdf

4.2.1.3 Railroad Crossings

The presence of railroad crossings (i.e., at-grade) on roadways presents safety and/or operational concerns to commercial motor vehicles traveling these roadway and railroad crossings. Grade separation crossings refers to the separation of roadway and railroad at different elevations. At grade separated crossings, the main concern is not the crossing interaction between train and commercial motor vehicles, but the clearance height of the crossing. The ability for commercial motor vehicles to travel across a raised track, fully exit the path of a potential train before reaching a stop bar or have the line of sight to identify warning signalizations are three leading causes of commercial motor vehicle and train related accidents. Commercial motor vehicle operators, based upon the type of cargo being transported, may be required to come to a complete stop before proceeding across an at-grade crossing. This has the potential to adversely affect the flow of commercial motor vehicle and passenger vehicles.

According to the Federal Railroad Administration (FRA), there are 73 at-grade crossings in Hall County and one at-grade crossing in the portion of Jackson County within the GHMPO study area. All of the at-grade crossings within the GHMPO study area occur with Class I railroads. **Figure 4-3** displays the at-grade railroad crossings in the GHMPO study area.

Figure 4-3: Rail Crossings in the GHMPO Study Area



Source: Federal Railroad Administration, 2015.

4.2.1.4 Bridges

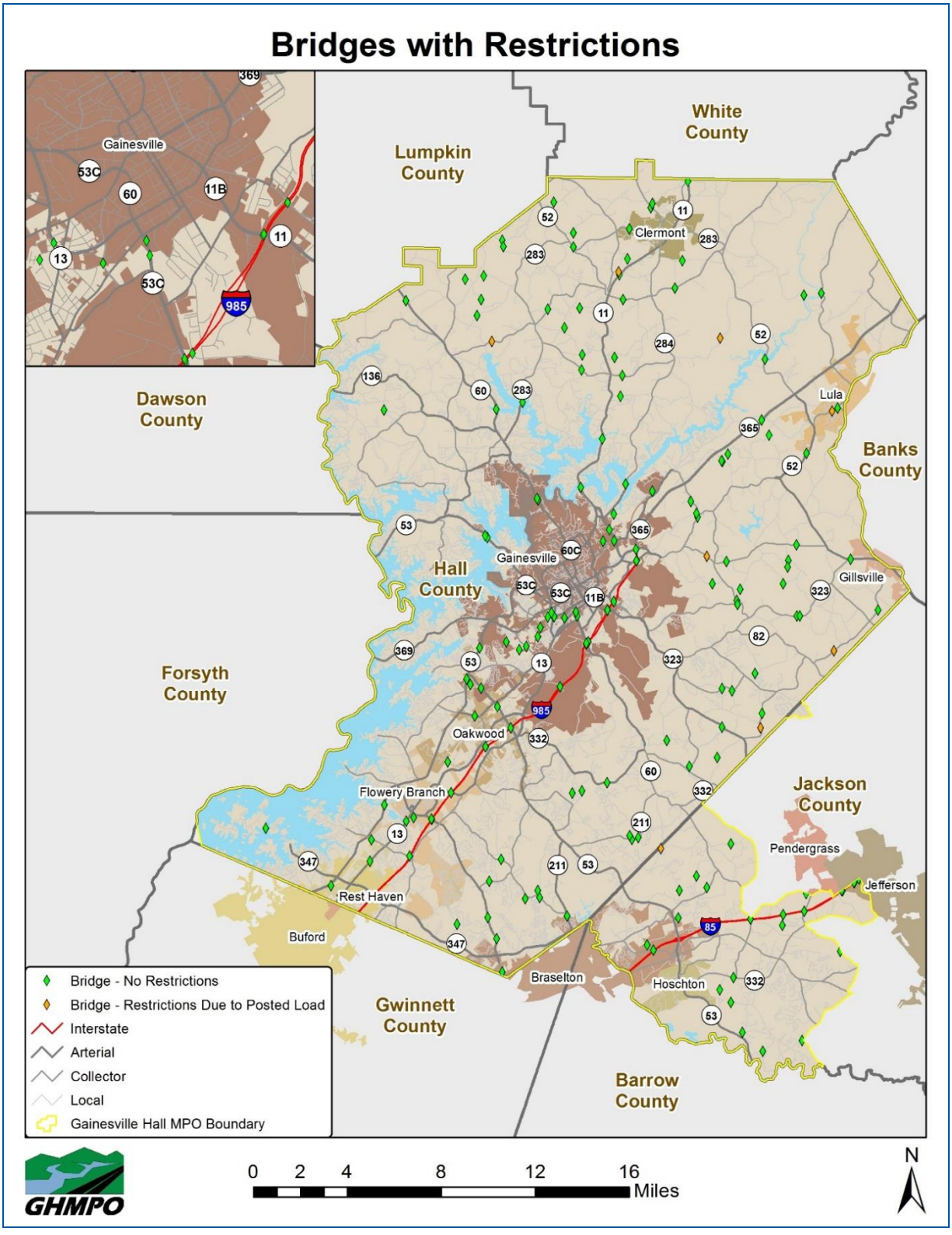
Bridges have two physical characteristics which impact a commercial motor vehicle operator's route: Vertical Minimum Clearance and Weight-Load Restrictions. Vertical Minimum Clearance is the distance from the road surface to the lowest point on the overhead obstruction (bridge) within the boundaries of the travel lane. As an example, a common commercial motor vehicle, the single trailer 3- or 4 -axle truck, is an FHWA vehicle classification 8 and has an operating height of 13 feet and 6 inches. Interstate design standards have a minimum vertical clearance standard of 15 feet. Other functional classes may not define clearance standards or include structures built prior to standards being introduced.

A bridge with fatigue damage may be restricted by what vehicle types and weights may cross it safely. A bridge is "load posted" when its capacity to carry heavy loads is diminished. In the GHMPO study area, there are a total of eight bridges with restrictions on carrying capacity, seven in Hall County and one in Jackson County. **Table 4-3** lists all the bridges in the GHMPO study area that contain bridge restrictions, while the bridges are displayed in **Figure 4-4**.

Table 4-3: Bridges with Weight Restrictions in GHMPO Study Area

Bridge Name/Description	County	General Location	Lanes	Average Daily Traffic	Average Daily Truck Traffic	Maximum Operating Weight (In Metric Tons)	Difference in Operating Maximum and Posted Weight Restriction
Cobb Street Bridge (Over Norfolk Southern Railroad)	Hall	From NW of Wall St to Main St	2	490 (2012)	5	6.3	Greater than 39.9% below
Cooper Bridge Rd Bridge (over Walnut Creek)	Jackson	4 miles N of Braselton	2	600 (2011)	6	16.2	Greater than 39.9% below
Bryant Quarters Rd Bridge (over North Oconee River)	Hall	8 miles NE of Candler	2	490 (2012)	5	20.7	Between 30 to 39.9% below
Hupert Stephens Rd Bridge (over Wahoo Creek)	Hall	7.1 miles SW of Clermont	2	1,580 (2012)	16	26.1	Between 10 to 19.9% below
Green Circle Bridge (over East Fork Little River)	Hall	2 miles SW of Clermont	2	490 (2012)	34	27	Between 10 to 19.9% below
Glade Farm Rd Bridge (over Flat Creek)	Hall	4 miles SE of Clermont	2	490 (2012)	5	27.9	Between 0.1 to 9.9% below
Joe Chandler Rd Bridge (over North Oconee River)	Hall	4.7 miles E of Gainesville	2	2,470 (2012)	25	28.8	Between 10 to 19.9% below
Mangum Mill Rd Bridge (over Pond Fork Creek Tributary)	Hall	4 miles NE of Candler	2	490 (2012)	5	29.7	Between 10 to 19.9% below

Figure 4-4: Bridges with and without Weight Restrictions in GHMPO Study Area

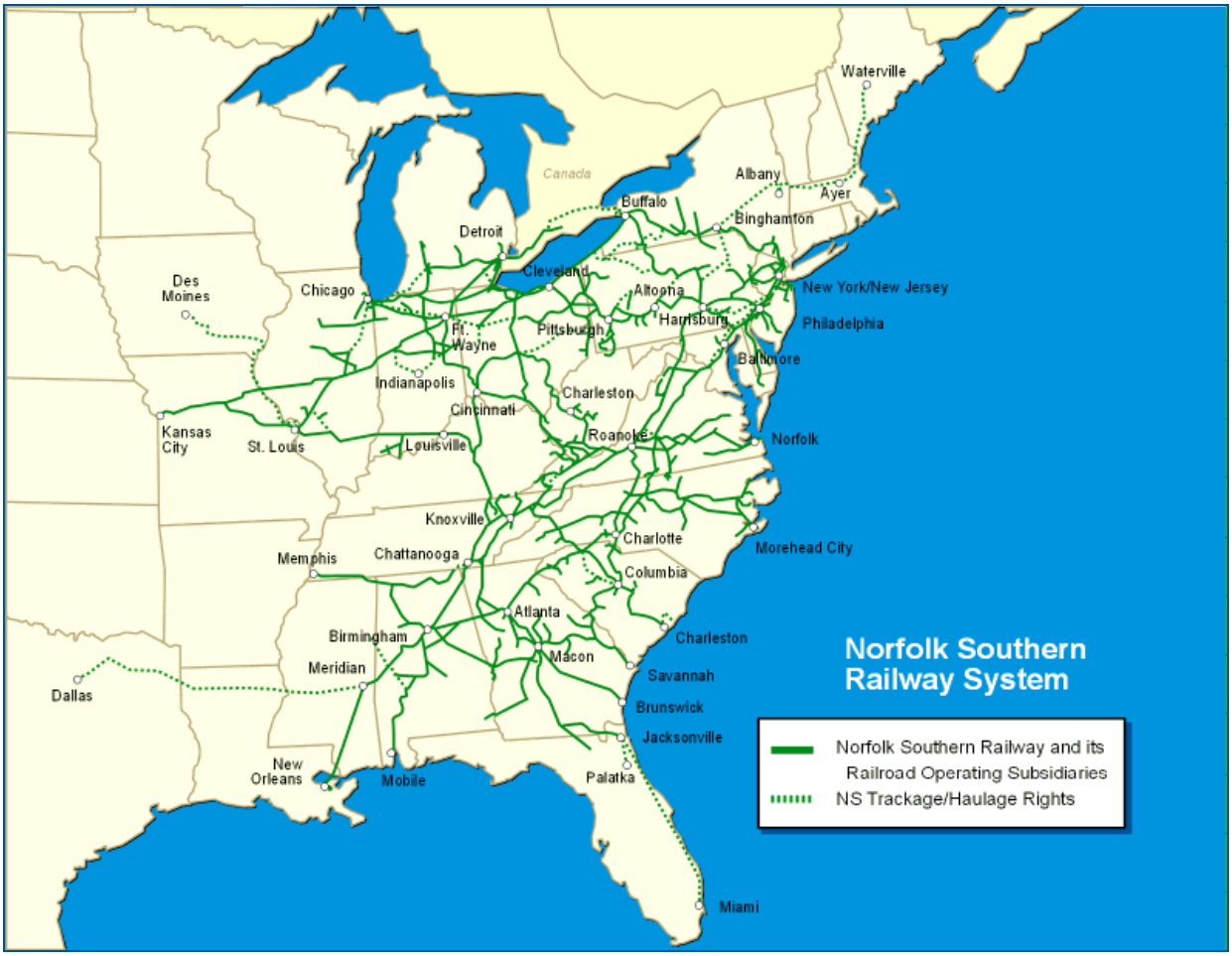


Source: CDM Smith

4.2.1.5 Rail System Profile

Rail is a major component for moving freight in Georgia. The GHMPO study area is served by two Class I railroads, CSX and Norfolk Southern (NS). These two Class I railroads connect Hall County and Georgia to a larger rail network, with CSX and NS operating primarily east of the Mississippi River, as illustrated in **Figures 4-5 and 4-6**. Both CSX and NS provide direct access via rail into the Garden City Terminal at the Port of Savannah. The Garden City Terminal is the fourth largest container port in the U.S. by size.

Figure 4-5: Coverage Area for Norfolk Southern



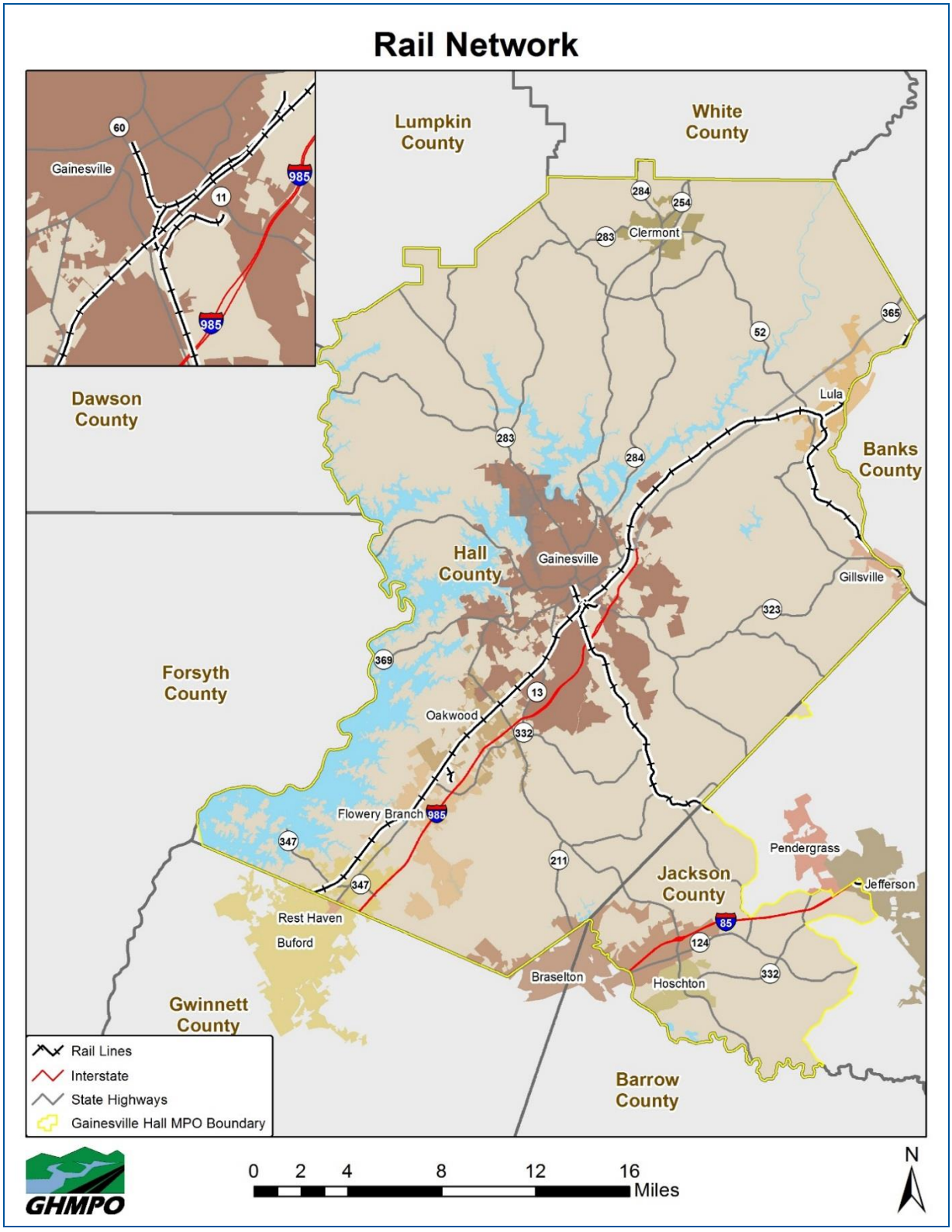
Source: www.nscorp.com

Figure 4-6: Coverage Area for CSX

Source: www.csx.com

The Class I railroads combine for more than 2,000 miles of railway in the state, with 60 miles in the GHMPO study area. **Figure 4-7** displays a map of the rail system in the GHMPO study area. Currently, Class III railroads, which are smaller independent regional railroad lines, are not operating within the GHMPO study area.

Figure 4-7: GHMPO Rail Network



Source: CDM Smith

4.2.1.6 Regional Freight Generators

4.2.1.6.1.1 Regional Intermodal Facilities

As the amount of freight being transported over long distances increases, freight shippers are developing solutions to increase the efficiency of moving higher volumes of freight in an efficient manner. Though the GHMPO study area does not have any large intermodal facility that can accommodate the transfer of freight from one mode of transportation to another mode, the Atlanta region does have these facilities.

Large carload system yards are located on rail lines and serve as processing and handling yards to organize railcars traveling to common destinations. As identified in **Table 4-4**, there are four large carload system yards located in the Atlanta region. CSX has one located in West Atlanta, and NS has three facilities – two in Fulton County and one located in DeKalb County in Doraville.

Table 4-4: Large Carload System Yards in Metropolitan Atlanta

Name	Location	Annual Cars Processed	Purpose (Corridors/Markets Served)
CSXT Tilford Yard	Atlanta	Not Given	Atlanta Region, Carolinas to New Orleans, Chicago to Southeast
NS Atlanta Yard	Atlanta	350,000	Southeastern US Hub
NS Doraville Yard	Doraville	100,000	Not Given
NS East Point Yard	East Point	40,000	Not Given

Source: GDOT Statewide Freight and Logistics Plan: Rail Model Profile, 2014

Bulk terminal yards are facilities where dry or liquid bulk materials can be loaded and transferred onto trucks or rail cars to be transported. There are no bulk terminals in either Hall or Jackson county. The Atlanta region has six bulk terminals with a listing of the commodities handled at facility displayed in **Table 4-5**. The closest bulk terminal located near the GHMPO study area is the Pax Industries terminal in Norcross. The Pax facility handles chemicals and plastics commodities.

Table 4-5: Rail/Highway Bulk Terminals

Terminal Name/Location	Rail Carriers Served	Loading/ Unloading Spots	Commodities Handled	Services/Equipment Available
CSXT Transflo – Atlanta	CSXT	284	Chemicals, asphalt, foods, plastics, petroleum products	Air compressor, tank trailer cleaning, conveyors, liquid pumps, vacuum blower, truck scale
NS Thoroughbred Bulk Transfer – Doraville	NS	77	Acids, chemicals, foods, plastics, biofuels	Air compressor, scale, blending meters, sampling service, hot water heating system, steam heating, tank trailer cleaning, liquid pumps, containment area, vacuum transfer, blowers, air conveyor
Pax Industries – Norcross	NS	35	Chemicals, plastics	Air compressor, sampling service, vacuum trailer, gravity (trestle)

A&R Transport – College Park	CSXT, NS	100	Plastics	Scale, sampling service, vacuum trailer
Bulkmatic Transport – Doraville	NS	85	Chemicals, foods, plastics, petroleum products	Air compressor, scale, sampling service, hot water heating, liquid pumps, vacuum trailer, blower
SPTS (Trimac) – Fairburn	CSXT	110	Acids, chemicals, plastics, petroleum products	Air compressor, scale, sampling service, blending meters, hot water heating, steam heating, tank trailer cleaning, liquid storage tanks, liquid pumps, vacuum trailer, gravity (trestle)

Source: GDOT Statewide Freight and Logistics Plan: Rail Model Profile, 2014

Generating large amounts of freight truck traffic, intermodal terminals are locations where freight is transferred from one mode of transportation to another, such as rail to truck. In relation to the GHMPO study area, Hall and Jackson counties do not have any intermodal terminals located within either county. The Atlanta region has the closest intermodal terminals to the GHMPO study area with five terminals – four in Fulton County and one in South Cobb County.

Table 4-6: Intermodal Terminals in Metropolitan Atlanta

Terminal Name	Location	Annual Volume (Lifts)	Number and Type of Cranes	Length of Loading Tracks	Storage/Stack Capacity
Hulsey Yard (CSXT)	Atlanta	125,000 +	4 Taylor side loaders	16,000 feet	1,600 wheeled spots
Fairburn (CSXT)	Fairburn	240,000 +	3 Mi-Jack overhead cranes and 3 Taylor side loaders	25,500 feet	1,300 wheeled spaces with 22,500 feet of storage and lead tracks
Whitaker Yard (NS)	Austell	300,000 +	6 Overhead cranes, 1 Reachstacker	20,600 feet	650 wheeled spaces
Inman Yard (NS)	Atlanta	250,000 +	5 Overhead cranes	16,500 feet	3,563 wheeled parking, 250 stacking spaces
Industry Yard/ East Point RoadRailer (NS)	East Point	N/A	N/A	N/A	N/A

Source: GDOT Statewide Freight and Logistics Plan: Rail Model Profile, 2014

4.2.1.6.1.2 Georgia Ports Authority

Created in 1945 by the Georgia General Assembly, the Georgia Ports Authority (GPA) plays a critical role in moving freight in and out of Georgia. The expansion of the Panama Canal increases the throughput capacity of the canal, allowing larger vessels traveling from Asia, shorter shipping distances

to East Coast ports. With larger vessels providing the capabilities to transport larger amounts of freight directly to East Coast ports, such as the Port of Savannah, larger amounts of freight will be destined to or originate from Savannah and will travel on Georgia roadways and railroads. The two deep-water seaports managed by GPA include the Port of Savannah and the Port of Brunswick.

Seaports

Port of Savannah contains two GPA freight terminals, the Ocean Terminal and the Garden City Terminal. Each terminal is served by CSX and NS rail. The Ocean Terminal contains 200-acres and operates primarily as a general cargo facility, handling break bulk and Roll-on/Roll-off (Ro/Ro) commodities such as forest and wood products, steel, automobiles, farm equipment, and heavy lift and project cargo. The Garden City Terminal is the largest single terminal container facility in North America with 1,200 acres, and the fourth-largest container port in the country. The Garden City Terminal has on-terminal United States Department of Agriculture inspection.

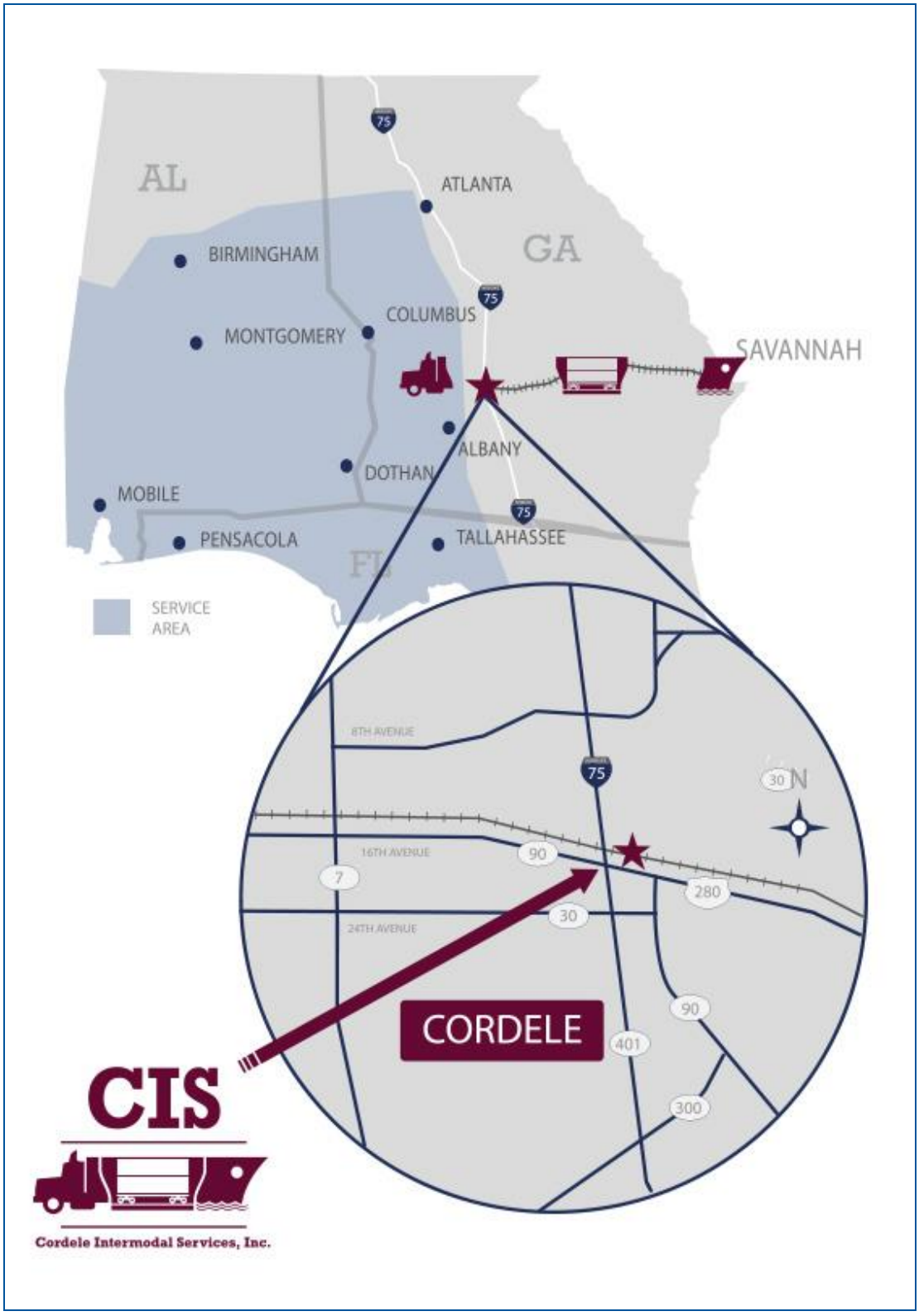
Port of Brunswick consists of three terminals, Colonel's Island, Mayor's Point, and East River. The Colonel's Island Terminal is located on over 1,700 acres and is served by CSX and NS rail. According to the GPA, Port Brunswick ranks as the top port for importing new vehicles, and the second busiest port for importing and exporting vehicles.

Inland Ports

To transport freight efficiently in Georgia, the GPA has developed partnerships to develop inland ports in the state. The concept of the inland port is designed to distribute freight in a more efficient manner, locating transfer facilities at or adjacent to rail or roadway facilities, closer to inland markets. GPA has coordinated with shippers on providing additional opportunities to move freight with reducing shipping costs, while also reducing the number of trucks on the roadways is projected to reduce carbon emissions.

Currently, the Cordele Inland Port is the only functioning inland port in Georgia. Located 200 miles west of the Port of Savannah, the Cordele Inland Port is located on 40 acres of land in the Crisp County Industrial Park. There is an opportunity for future expansion of the inland port on 1,200 acres of land adjacent to the current site. With rail service to the Ports of Savannah and Brunswick, the Cordele Inland Port offers import and export container capabilities for shippers in the southwest Georgia, southern Alabama, and western Florida markets.

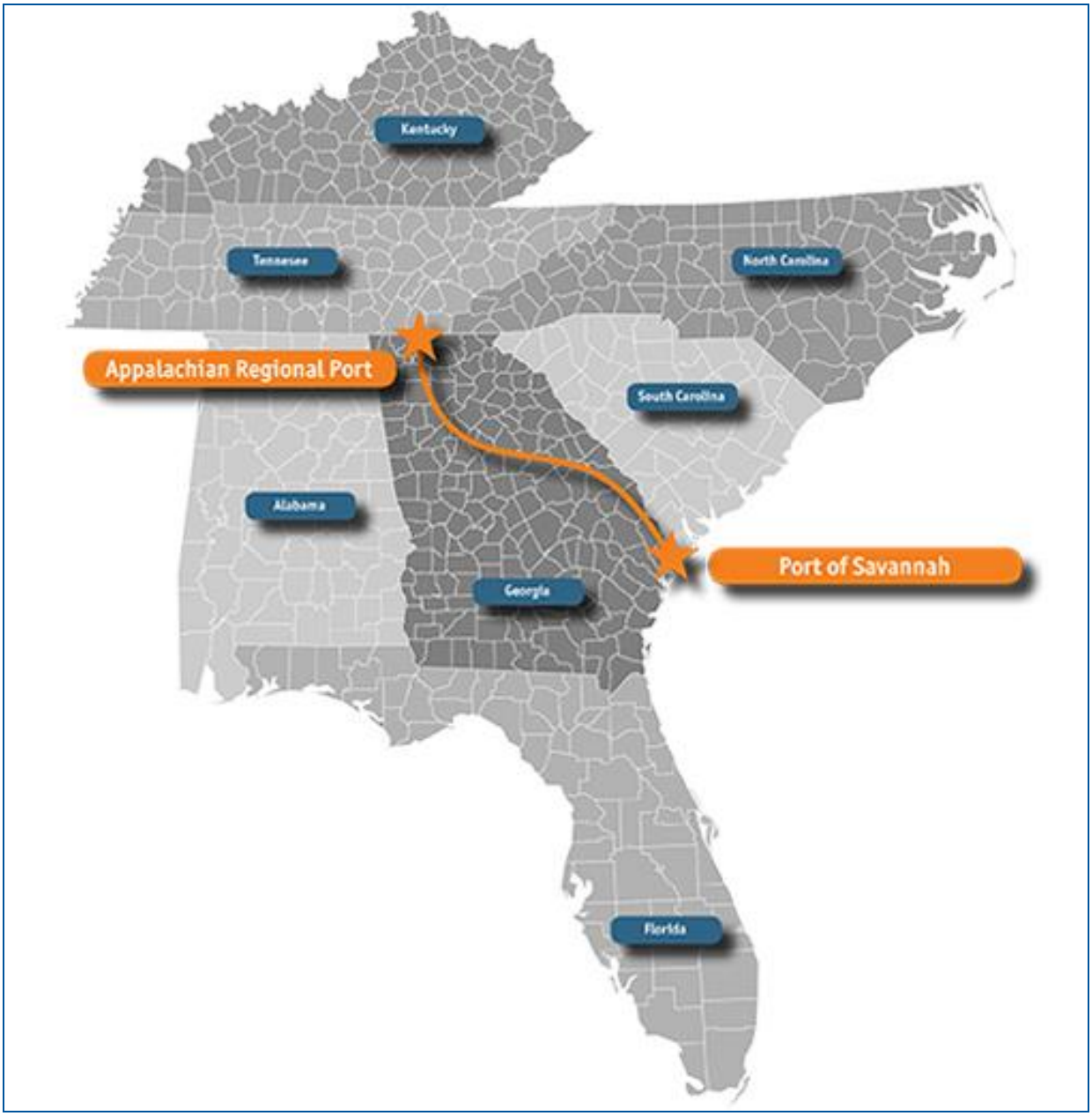
Figure 4-8: Location Map of the Service Area for Cordele Inland Port



Source: Cordele Intermodal Services, Inc.

Opening in 2018, the Appalachian Regional Port is located near Chatsworth, Georgia on 42 acres of land. Located approximately 388-miles from the Port of Savannah, the Appalachian Regional Port will have rail service connected to the Port of Savannah. The inland port will target shippers serving Georgia, Alabama, Tennessee, and Kentucky.

Figure 4-9: Location of Appalachian Regional Port



Source: Georgia Ports Authority

4.2.1.6.1.3 Atlanta Hartsfield-Jackson International Airport

Atlanta's Hartfield-Jackson International Airport is identified by Airports Council International as the busiest airport in the world and serves a vital role in the global supply chain for air cargo as the airport

provides non-stop service to more than 150 domestic and almost 70 international destinations. In 2016, the City of Atlanta began a $6 billion capital expansion plan to improve many assets at the airport, including the addition of a sixth runway to increase the number of flights servicing the airport.

To plan for this additional growth at Hartsfield-Jackson International Airport, the Aerotropolis Atlanta Alliance (AAA) and the Atlanta Regional Commission (ARC) partnered to develop the Aerotropolis Atlanta Blueprint, which is a strategic, overarching framework to guide growth and development for the next five years by leveraging the airport as a major asset to drive economic investment, job growth, and quality of life in the areas in and around the Airport. The document is intended to serve as a resource for policymakers to help guide development decisions that further the economic and quality of life interests of the area.

The Blueprint Process is the first phase in a multi-phased approach to provide a coordinated action plan that will guide growth and investment within Aerotropolis Atlanta. The Blueprint process was made up of a series of tasks. The first task undertaken was to consider existing conditions and gain stakeholder insight and vision. This included Case Study Profiling – Trend Identification, Stakeholder Engagement, Regional Economic – Market Overview, and Economic Cluster Analysis. This task included Economic Cluster Analysis, Transportation Connectivity Overview, Identifying Catalyst Sites, Identifying Catalytic Projects, and Planning – Development Context.

An Aerotropolis is an alignment of the metropolitan region to better leverage an airport's assets and provide a framework for the strategic planning and development of economic activity and real estate. An Airport City focuses on the on-airport lands as well as the off-airport lands in immediate proximity to an airport. The boom in "Airport Cities" and "Aerotropoli" is a positive indication of the growing trend to leverage airports as a gateway for economic development.

4.2.1.6.1.4 Inland Port Greer Intermodal Logistics Center

The Inland Port Greer Intermodal Logistics Center (ILC) opened its doors in October 2013. This ILC is located along I-85 between Charlotte and Atlanta in Greer, South Carolina. The facility was designed to convert a significant volume of existing containerized truck traffic between Greer and Charleston to rail, as well as create a significant distribution hub for the area. The ILC operates 24 hours a day, seven days a week to serve the just-in-sequence supply chain needs of South Carolina Port Authority's (SCPA) major customers. It connects shipments from four different transportation modes: ocean vessels serving the Port of Charleston, freight trains traveling along the Norfolk Southern rail network, airliners from the nearby Greenville-Spartanburg International Airport, and trucks serving the East Coast. In addition, inland ports provide easy access to empty shipping containers for shippers throughout the regions.

Figure 4-10: Aerial View of Inland Port Greer Intermodal Logistics Center

Source: South Carolina Port Authority

The ILC has exceeded expectations since opening in 2013. The original expectation of volume was 100,000 rail lifts in five years. After handling 42,488 containers in its first full year, the port is on track to transport 110,000 containers by 2017 — serving a multitude of new companies that have opened or expanded. The ILC has reduced the amount of interstate truck traffic by an estimated 75,000 truckloads reducing the amount of carbon dioxide emissions being released into the atmosphere. The ILC not only handles imports and exports for large companies located near the facility, such as BMW and Michelin, but companies as far away as Kentucky are using the facility to transport forest products, chemicals, machinery, and cotton and agricultural products.

4.2.1.6.1.5 Truck Parking

The insufficient amount of truck parking around the nation has become a major safety concern on the nation's roadways. Due to truck parking shortages, weary truck drivers may be forced to continue to drive or may be forced to park their trucks at dangerous locations – such as shoulders of the road, on- and off-ramps, and dark, vacant lots.

Established in 2012, Jason's Law was established to prioritize the shortage of long-term parking for commercial motor vehicles on the National Highway System (NHS) to improve the safety of commercial motor vehicles and motorized and non-motorized operators. Jason's Law requires the U.S. Department of Transportation (DOT) and State motor carrier departments to evaluate and assess the

amount of truck parking facilities in each state, while also developing a system of metrics to measure the demand for truck parking facilities in each state.

Within the GHMPO boundary, two active truck parking sites are available - Braselton Pilot Travel Center and Candler Road Kangaroo Express. The Braselton Pilot Travel Center is located on Georgia State Highway 53 near the I-85 interchange, Exit 129 on I-85. The Pilot Travel Center has a total of 70 parking spaces for trucks and includes a lounge area and seven showers for truck drives to use. The Candler Road Kangaroo Express is located in Gainesville near the I-985 interchange, Exit 20 on I-985. The Kangaroo Express facility has 25 parking spaces for trucks, though a survey conducted indicated only 10 parking spaces for trucks at the site. No lounge area or showers are located at the Kangaroo Express facility.

In addition to the two active truck parking sites, the GHMPO study area contains an inactive rest area site located on I-985 near mile marker 14 in Hall County. The rest area contains facilities on the northbound and southbound directions of I-985.

4.3 Regional Freight Flows

4.3.1 Freight Commodity Flow Analysis

To understand the role of freight within the region, an analysis of freight flows associated with the GHMPO region was conducted. The objective of the analysis was to estimate the freight interactions between the GHMPO area and regions within and beyond Georgia and to identify the major trading partners of the MPO. The intent of the findings was to provide a clear picture of current and future freight flows that potentially impact the truck traffic in the GHMPO region.

4.3.1.1 Data Sources

The analysis relies on the freight component of the most recent GDOT statewide travel demand model. The statewide model was calibrated and validated to 2010 base year with a 2040 forecast year available.

The freight component of the statewide model was based on the 2010 TRANSEARCH freight flows data provided by IHS Global Insight. TRANSEARCH data provides U.S. county-level freight movement data by commodity groups and modes of transportation. It contains the most comprehensive information on domestic freight activities. The data come from public data sources as well as from primary shipments obtained from major freight carriers. The 2010 statewide model includes the TRANSEARCH freight flows for 2010. The 2040 statewide model projects the 2040 freight flows based on the regional and national economic growth forecasts.

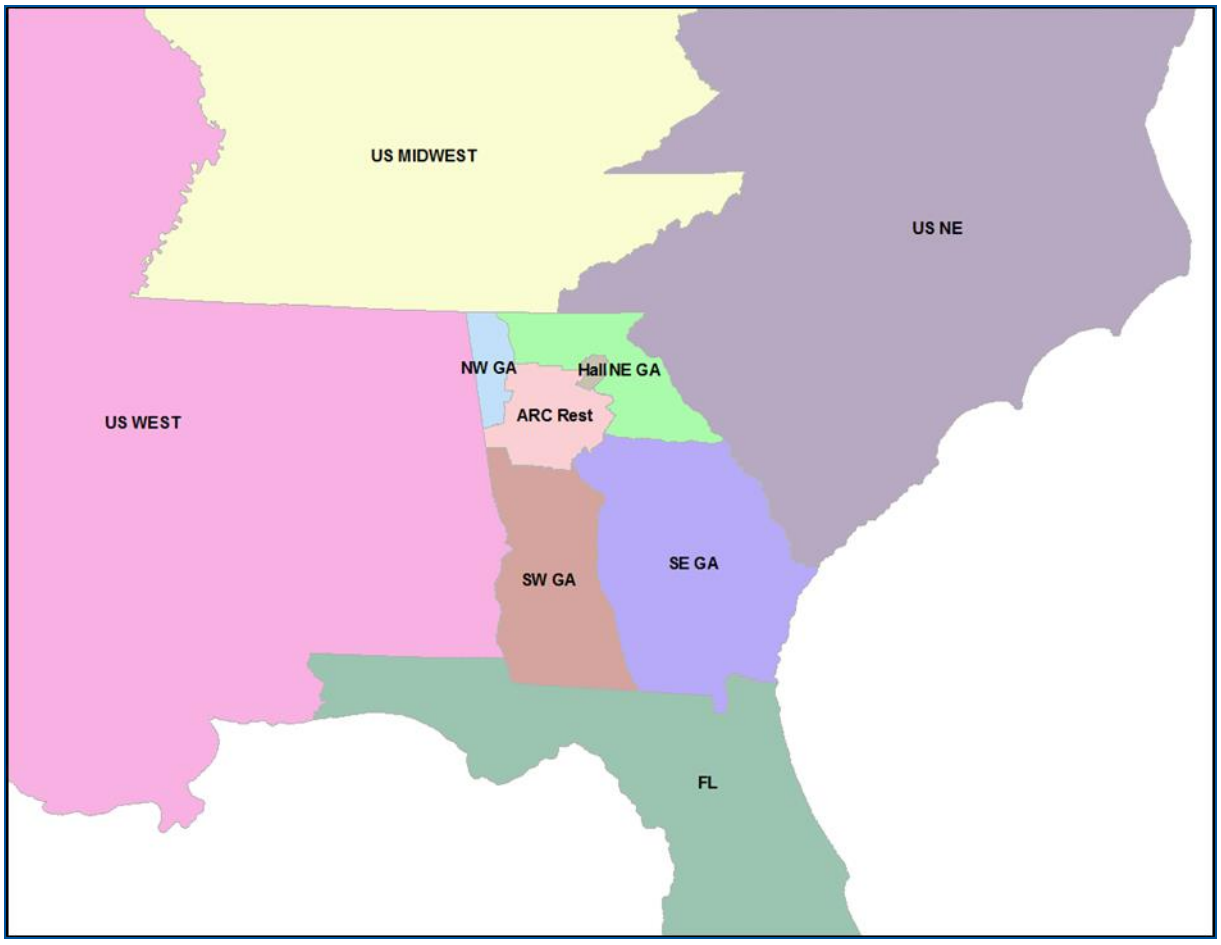
The origin and destination (OD) freight flows were extracted from the model for use of GHMPO freight interaction analysis. The freight flows are expressed in annual tonnages.

4.3.1.2 Freight Flow Analysis

The statewide model covers the entire continental US with states as zones outside Georgia and sub-county level zones within Georgia. To facilitate the freight flows analysis that centers on Hall county,

the zones are aggregated into 10 super-regions as shown in **Figure 4-11**. The four regions located outside Georgia are US West, US Midwest, US NE and FL. The six regions located within Georgia are Hall, NW GA, NE GA, ARC Rest, SW GA and SE GA.

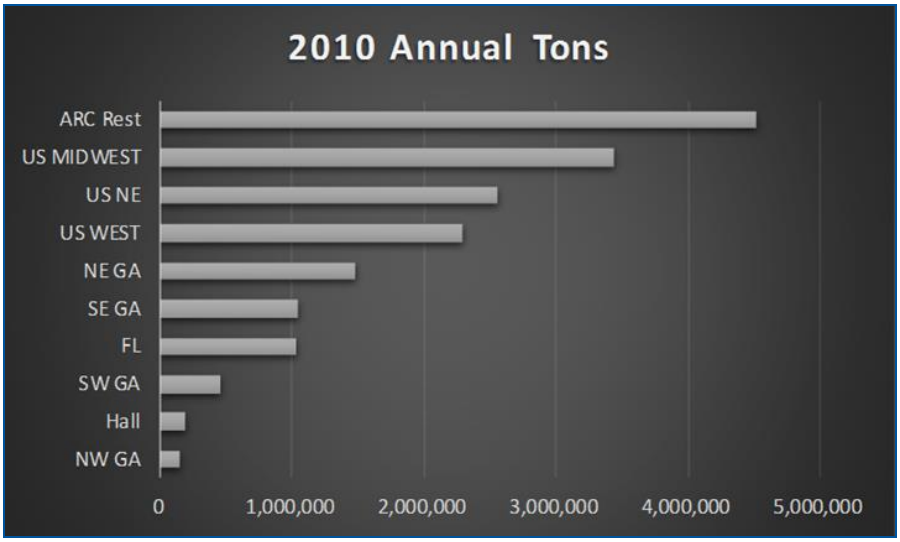
Figure 4-11: Southeastern U.S. Super Region



Source: CDM Smith

The interactions of freight flows between Hall/Gainesville region to the other super-regions was developed as part of the freight flow analysis. **Figure 4-12** provides the annual tonnage of the top 10 Hall County Trading Partners. The largest trading partner for Hall County is the ARC region, which accounted for over 4,500,000 tons in 2010. Following ARC region, the three largest trading partners were all located outside of the State of Georgia. These regions were the US Midwest, US NE and US West. US Midwest is the largest partner with over 3,400,000 tons in 2010. The next largest trading partner within Georgia is the NE Georgia region with close to 1,500,000 tons in 2010.

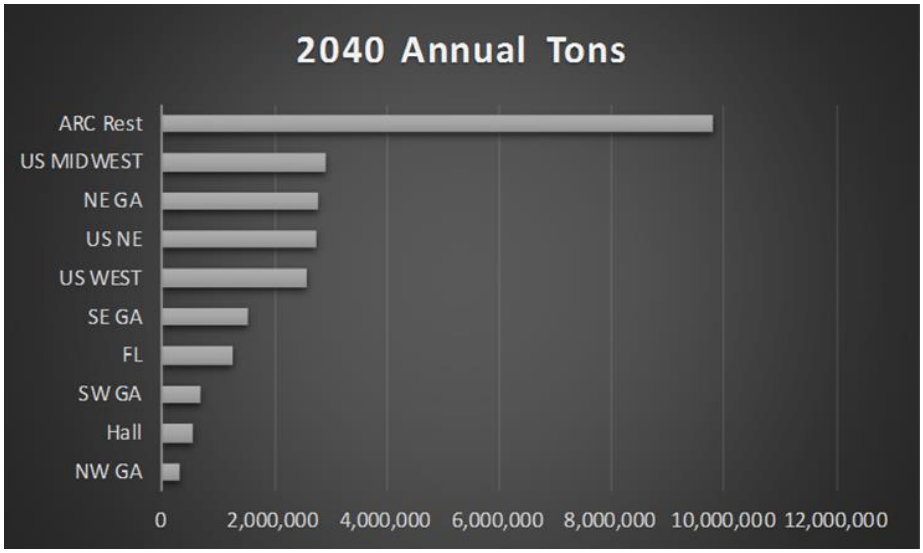
Figure 4-12: Ranking of Hall County Trading Partners – 2010



Source: CDM Smith

Figure 4-13 is based on the freight flow analysis and provides projected growth for the super regions during the planning period. The overall trend shows the ARC region and US Midwest will remain the two largest trading partners with Hall County by 2040. However, a larger percentage of this trade will be occurring within the State of Georgia. The ARC region is expected to remain the top trading partner increasing 115% during the planning period to just over 9,750,000 tons by 2040. The US Midwest remains the second largest trading partner with Hall County, but its overall tonnage is projected to decline from 2010. NE GA is projected to increase its trade with Hall County 85% to 2,750,000 tons and grow from the 5th largest trading partner in 2010 to the 3rd largest in 2040.

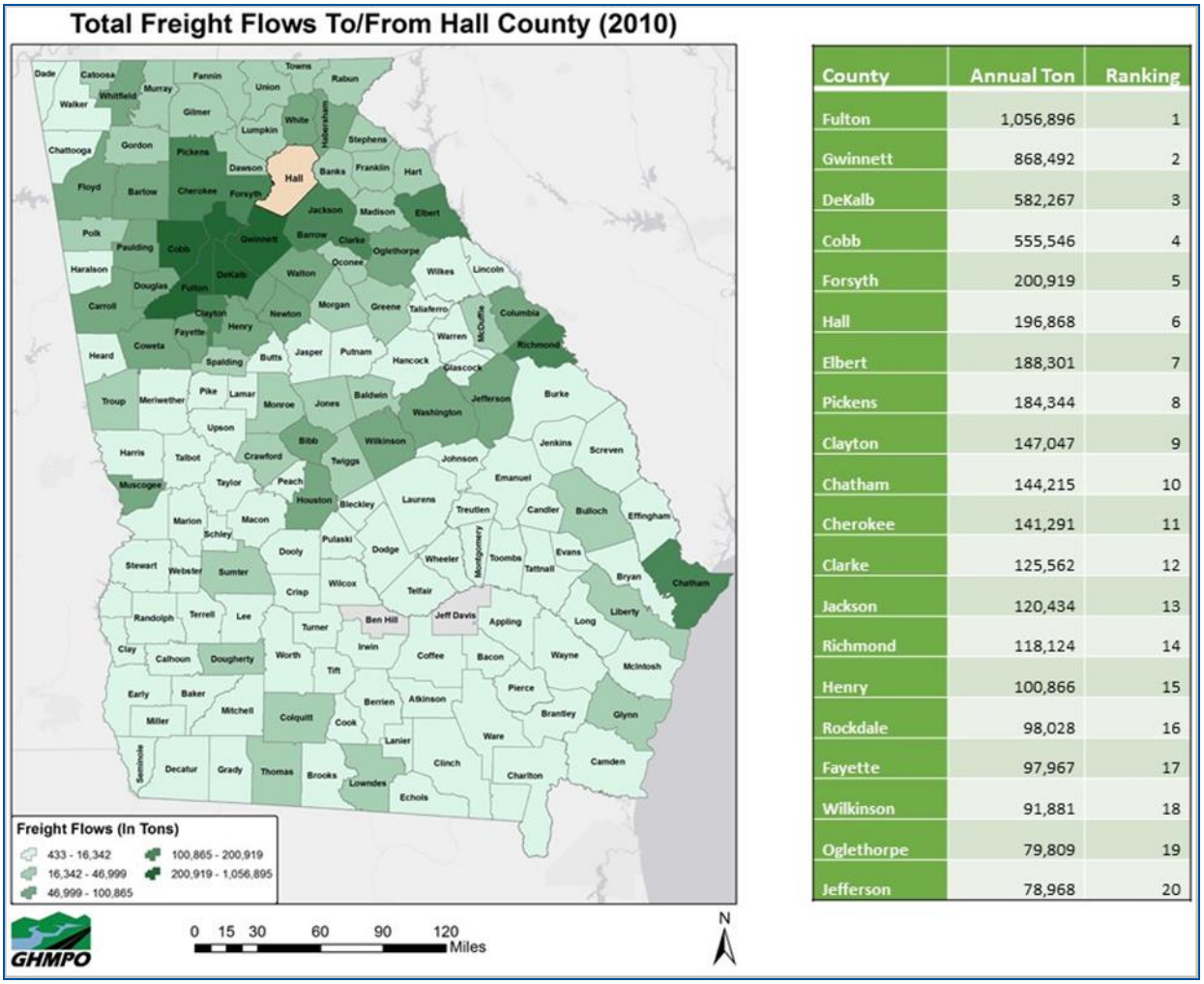
Figure 4-13: Ranking of Hall County Regional Trading Partners – 2040



Source: CDM Smith

In a similar fashion, the top trading partners of Georgia counties were developed for Hall County as well. **Figure 4-14** and **Figure 4-15** shows the ranking of Georgia counties that have freight interactions with Hall County. It is not surprising that ARC counties are the top trading partners for Hall County due to the freight logistic centers available in the ARC region for handling major freight movements.

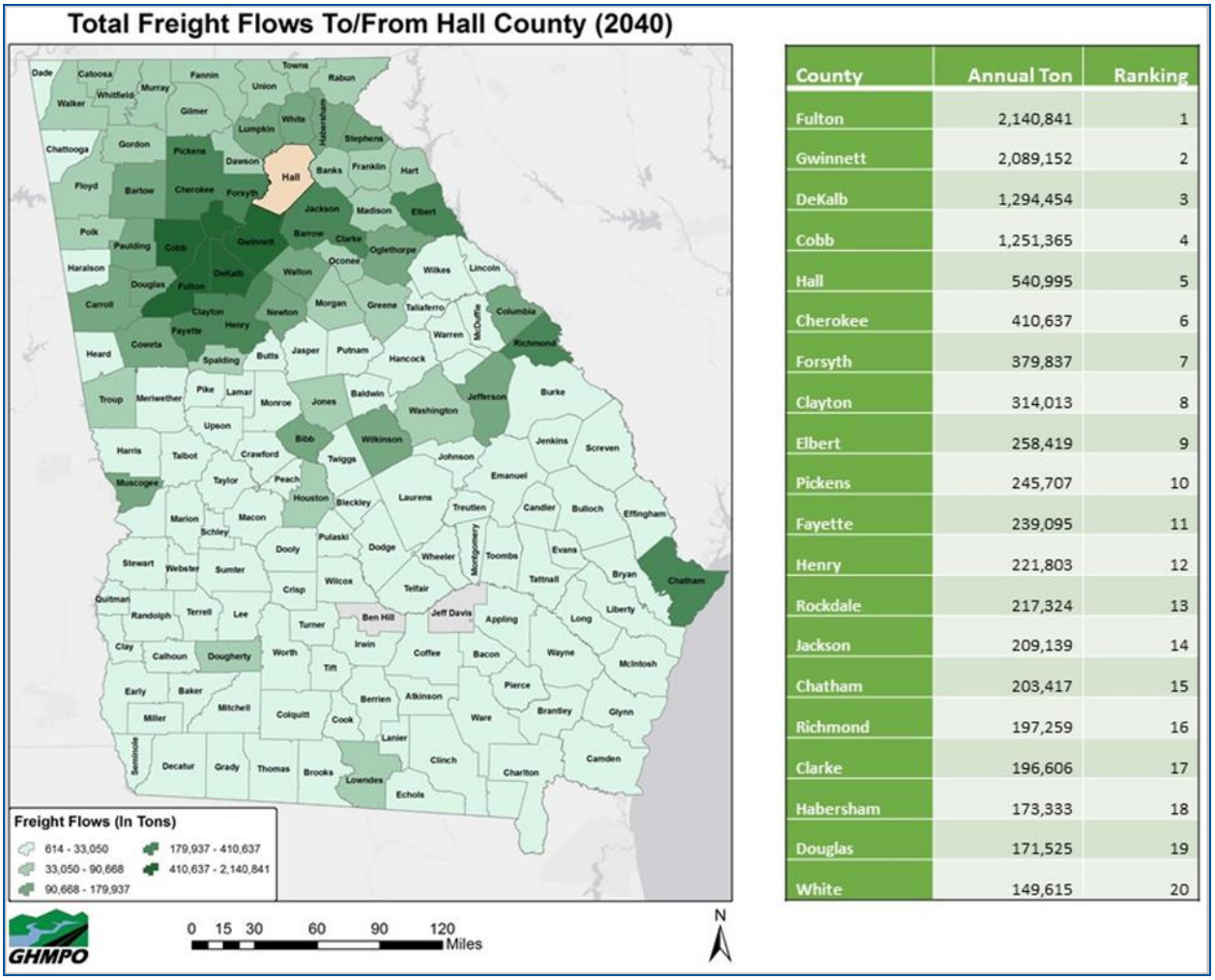
Figure 4-14: Ranking of Hall County Trading Partners within Georgia – 2010



County	Annual Ton	Ranking
Fulton	1,056,896	1
Gwinnett	868,492	2
DeKalb	582,267	3
Cobb	555,546	4
Forsyth	200,919	5
Hall	196,868	6
Elbert	188,301	7
Pickens	184,344	8
Clayton	147,047	9
Chatham	144,215	10
Cherokee	141,291	11
Clarke	125,562	12
Jackson	120,434	13
Richmond	118,124	14
Henry	100,866	15
Rockdale	98,028	16
Fayette	97,967	17
Wilkinson	91,881	18
Oglethorpe	79,809	19
Jefferson	78,968	20

Source: CDM Smith

Figure 4-15: Ranking of Hall County Trading Partners within Georgia - 2040



County	Annual Ton	Ranking
Fulton	2,140,841	1
Gwinnett	2,089,152	2
DeKalb	1,294,454	3
Cobb	1,251,365	4
Hall	540,995	5
Cherokee	410,637	6
Forsyth	379,837	7
Clayton	314,013	8
Elbert	258,419	9
Pickens	245,707	10
Fayette	239,095	11
Henry	221,803	12
Rockdale	217,324	13
Jackson	209,139	14
Chatham	203,417	15
Richmond	197,259	16
Clarke	196,606	17
Habersham	173,333	18
Douglas	171,525	19
White	149,615	20

Source: CDM Smith

Forecasted growth through 2040 was developed for Hall County trading partners within the State of Georgia. **Table 4-7** identifies the projected top 15 trading partners for Hall County in 2040. Fulton County continues to be the largest trading partner accounting for over 2,100,000 tons and total growth of 103% from 2010. During the planning period, Cherokee County is projected to experience the fastest growth rate at 191%. By 2040, it is estimated that 7 of the top 10 Hall County trading partners will be located within the ARC Region.

Table 4-7: Projected Change in Growth with Top Hall County Trading Partners – 2010 to 2040

County	Total Annual Tonnage Change for Outbound between 2010 – 2040	Total Annual Tonnage Change for Inbound between 2010 – 2040	Percent Change between 2010 – 2040
Fulton	1,212,936	927,906	103%
Gwinnett	1,164,773	924,379	141%
DeKalb	691,342	603,112	122%
Cobb	721,343	530,021	125%
Forsyth	207,144	172,693	89%
Hall	540,995	540,995	450%
Elbert	78,640	179,779	37%
Pickens	34,583	211,124	33%
Clayton	153,615	160,398	114%
Chatham	86,732	116,685	41%
Cherokee	221,841	188,796	191%
Clarke	104,902	91,705	57%
Jackson	93,947	115,192	74%
Richmond	95,391	101,868	67%
Henry	102,401	119,402	120%

Source: CDM Smith

4.4 Freight Land Use

The GHMPO study area serves as the major manufacturing and logistics hub for Northeast Georgia. The benefits provided by freight-related land uses primarily include employment for the region and the tax benefits generated by these industries. Agency coordination between GHMPO and the governmental agencies who regulate and enforce land use and zoning codes should consider the land and transportation freight impacts on their communities.

In order to organize and identify freight-related land uses within the GHMPO study area, it is necessary to gather all relevant land use data and documentation for Hall and Jackson Counties. Land use data gathered from these areas were in GIS-format, providing geographic locations of land uses within a jurisdiction. To understand the freight-related land use data gathered for all the counties within the area, documentation regarding those identified land uses was necessary. Documentation regarding the intent, allowable and prohibited uses, and other criteria associated with a specific land use category or zoning district included, but was not limited to, the:

- Hall County Comprehensive Plan (2017) and,
- Jackson County Comprehensive Plan (2015).

4.4.1 Hall County Comprehensive Plan (2017) Freight-Related Land Uses

The Hall County Comprehensive Plan has a 20-year horizon. The Comprehensive Plan's described existing land use is organized according to either Hall County jurisdiction or Gainesville municipal jurisdiction. However, the definitions provided in the existing and future land use tables apply to both geographic areas.

Zoning in Hall County is designated by 15 (zoning) districts. Of these zoning districts, three allow freight-related uses – Light Industrial, Heavy Industrial, and Transportation Utilities. Light Industrial and Heavy Industrial include land dedicated to manufacturing facilities, processing plants, factories, warehousing and wholesale trade facilities, and distribution facilities, mining or mineral extraction activities, or other similar uses, organized into general categories of intensity. Transportation Utilities zoning consist of such uses as major transportation routes, public transit stations, power generation plants, railroad facilities, radio towers, telephone switching stations, airports, port facilities or other similar uses.

Currently nonresidential land uses are centrally located in Gainesville and along major corridors which are heavily traveled by freight trucks.

Table 4-8: Hall County Freight-Oriented Land Use Types

Existing Freight-Oriented Land Use Types	Zoning Codes	
Industrial (includes Light and Heavy Industrial Uses)	Light Industrial	Truck terminals
		Wholesaling and warehousing
		Industrial Subdivision
	Heavy Industrial	Outdoors storage of materials and inventory
		Truck terminals
		Wholesaling and warehousing
	Agriculture Residential	Sawmill
	Planned Development District	Planned Industrial Development
Transportation Utilities	Airport Overlay District	
	Corridor Development Overlay District	

Source: Hall County

4.4.2 Jackson County Comprehensive Plan (2015) Freight-Related Land Uses

The Jackson County Comprehensive Plan is organized according to character areas defined by function. This plan was updated in 2015; however, the section on existing land use references the 2010 Jackson County Comprehensive Plan and the Land Use Inventory updated in 2014. Therefore, the information provided below is from the 2010 document.

Freight-related zoning in Jackson County is concentrated into two types – Industrial Workplace and Transportation/Communication/Utilities. Industrial Workplace allows variety of tracts for industry and employment uses that are limited to office and business parks, distribution/service, light industrial, high quality of architectural appearance. Transportation/Communication/Utilities designates existing electric substations, telephone facilities, transmission towers, and water and wastewater treatment plants. There are no known future locations for such facilities, but most of these facilities are not necessarily subject to local zoning restrictions.

Table 4-9: Jackson County Freight-Oriented Land Use Types

Existing Freight-Oriented Character Types/Land Use	Zoning Codes
Industrial Workplace	Light Industrial (LI)
	General Industrial (GI)
Transportation/Communication/ Utilities	Any zoning district for public uses.

Source: Jackson County

4.4.3 GHMPO Freight Land Use Clusters

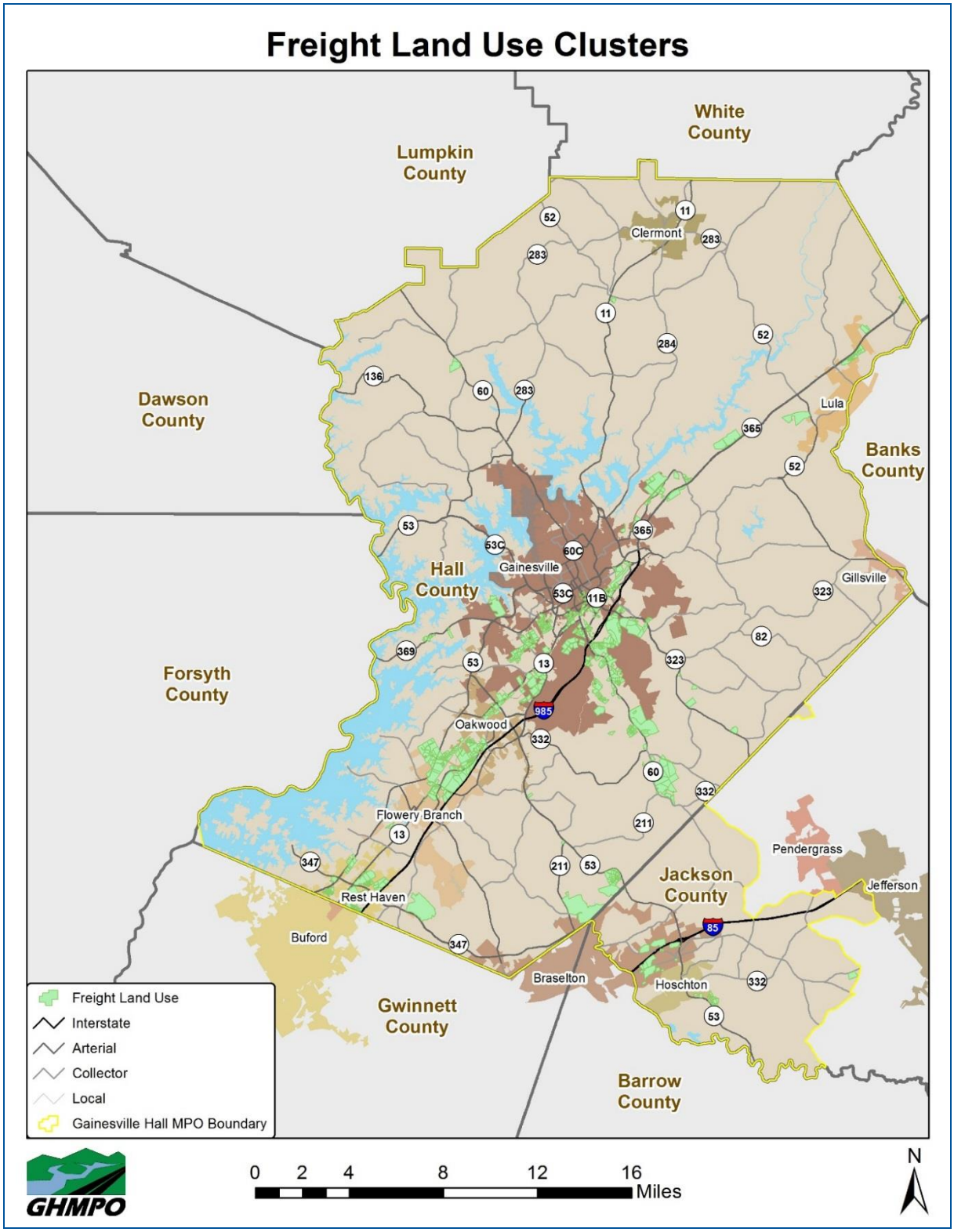
In the GHMPO study area, freight generating parcels of land for parcels 10 acres or more were identified for Hall County and the portions of Jackson County that are within the GHMPO boundary area as shown in **Figure 4-16**. Almost 95 percent of the GHMPO freight-related lands were clustered in Hall County and located centrally in Hall County along the I-985 corridor and in eastern Hall County along corridors traveling east towards I-85 in Jackson County. The freight-related lands in Jackson County within the GHMPO boundary are concentrated along the I-85 corridor.

Table 4-10: GHMPO Existing Freight Land Use Totals (Parcels 10 acres or more)

Counties	Freight Acres (10 Acres or More)	Percent
Hall	8,134.26	94.8
Jackson (within GHMPO boundary)	449.79	5.2
Total	8,584.05	100.0

Source: CDM Smith

Figure 4-16: Existing Freight Land Use Clusters in GHMPO Study Area



Source: CDM Smith

4.5 GHMPO Freight Network

The federal transportation legislation, Fixing America's Surface Transportation Act (FAST Act), directs the U.S. Department of Transportation (USDOT) to develop and maintain a national freight network to assist states in strategically guiding resources toward improved system performance for freight movement on the highways of the nation's freight transportation system. In response to the FAST Act, the GHMPO Regional Freight Study proposes the GHMPO Regional Freight Network, made up of highways and railroads within the GHMPO study area. The identification of this network is essential to support the efficient movement of freight in the GHMPO study area.

The Gainesville-Hall MPO Regional Freight Network is important and will be used to:

- Assist Georgia Department of Transportation (GDOT) with identifying the critical freight corridors in the GHMPO study area for the statewide freight network;
- Inform GHMPO, local governments, and GDOT of what corridors need particular attention to support efficient and safe goods movement;
- Support the GHMPO, local governments, and GDOT in making decisions regarding recommendations from transportation projects to policy and operational changes that can impact regional freight mobility; and,
- Help to identify recommendations in the GHMPO Regional Freight Study and beyond.

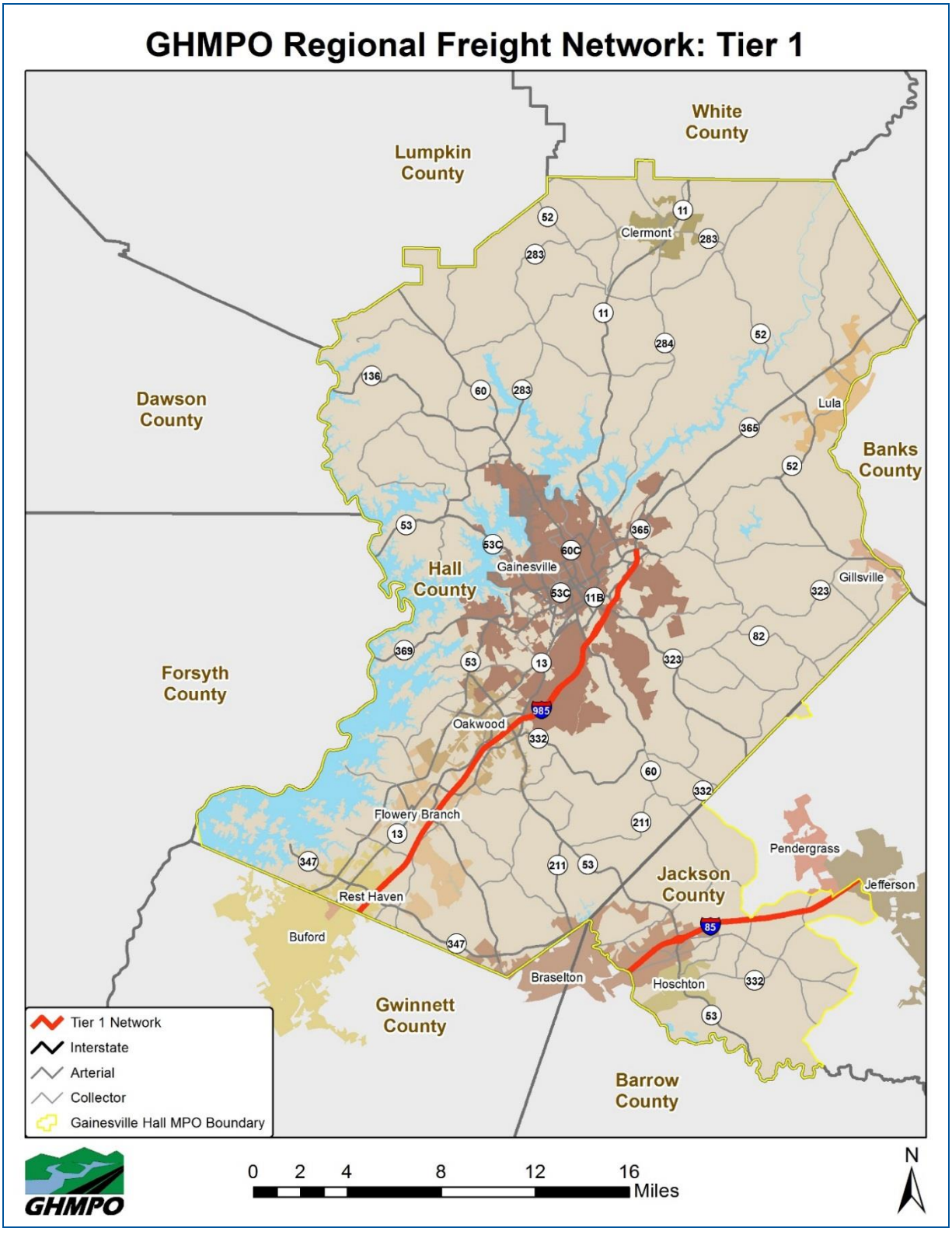
The following sections will define the purpose and process of developing a tiered GHMPO Regional Freight Network to assist in prioritization for project selection purposes for the GHMPO.

4.5.1 GHMPO Freight Network Tier 1 Roadway

The Federal Highway Administration (FHWA) was first tasked in MAP-21 to define a National Primary Freight Network (NPFN) to include no more than 27,000 centerline miles of existing roadways that are critical to the movement of freight. Federal legislation also allowed an additional 3,000 centerline miles critical to the future efficient movement of goods on the PFN. The resulting highway network was the major criterion for the proposed Tier 1 GHMPO Freight Network for Roadways.

The GHMPO Freight Network Tier 1 Roadway includes I-85 in Jackson County, the lone interstate within the GHMPO boundary located on the NPFN, and I-985 in Hall County, the remaining interstate within GHMPO, though I-985 is not identified on the NPFN. Shown in **Figure 4-17**, the two Tier 1 GHMPO roadways combined for over 25 center line miles and are the lone limited access roadways in the GHMPO study area.

Figure 4-17: GHMPO Regional Freight Network Tier 1 Roadway



Source: CDM Smith

4.5.2 GHMPO Freight Network Tier 2 Roadway

The GHMPO Tier 2 Roadways include the non-Interstate roadways which are a part of the National Highway System (NHS). This category is primarily made up of U.S. routes and state routes in the GHMPO study area. A benefit for the inclusion of all non-interstate roadways on the NHS include Highway Performance Management System data, which is national level highway network data that tracks the condition, performance, utilization, and operating characteristics of the national highway system.

The GHMPO Freight Network Tier 2 Roadways are mostly state routes and primarily located in Hall County, with one state route (SR 53) in Jackson County. The Tier 2 Roadways total over 111 centerline miles. A listing of roadways and map of the Tier 2 Roadways are shown in **Table 4-11** and **Figure 4-18**.

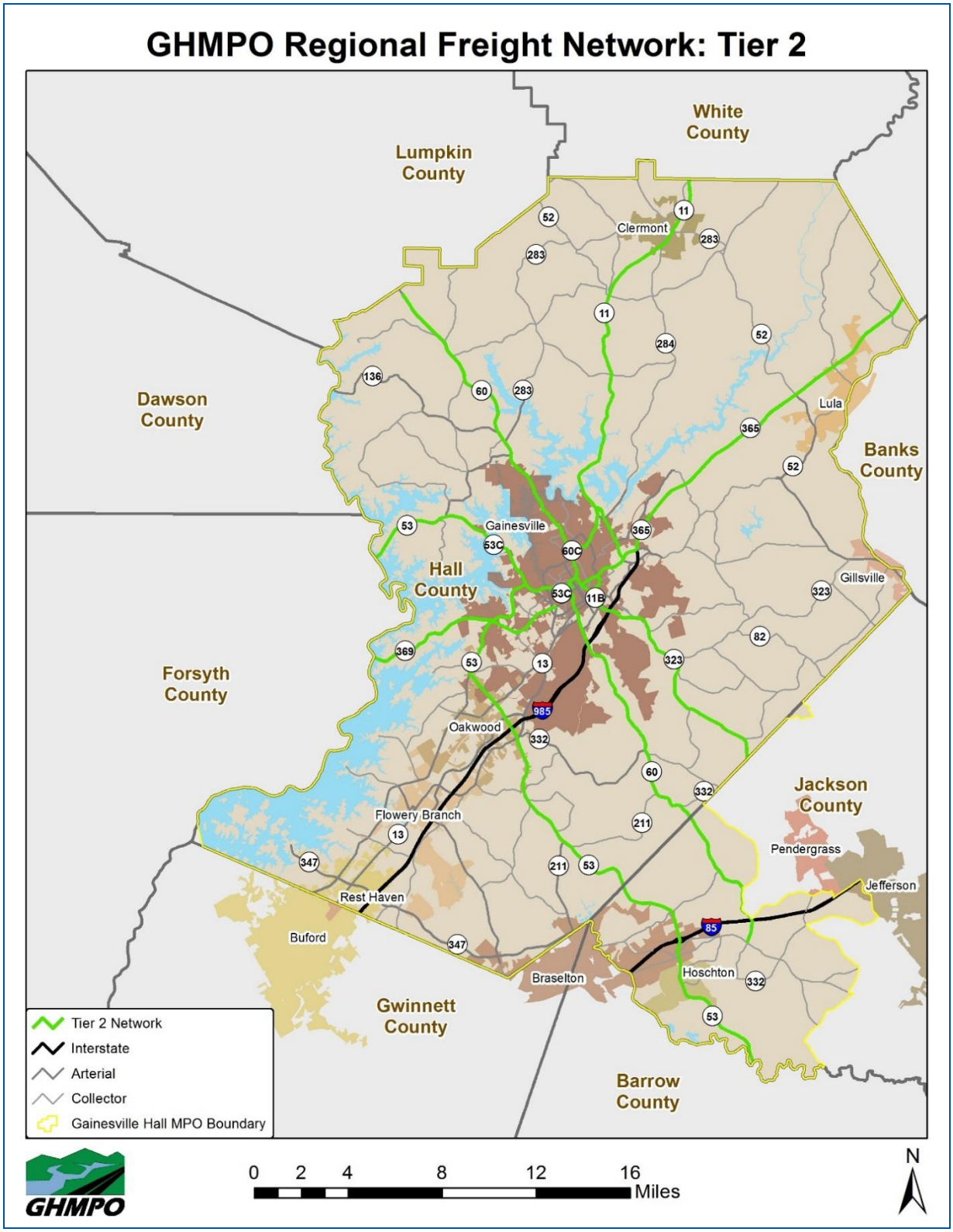
Table 4-11: GHMPO Freight Network Tier 2 Roadways

Roadway Name	County	From	To
Cleveland Highway/US 129/GA-11	Hall	Hall C/L	Old Clarks Bridge Rd
US 129 S/Limestone Parkway	Hall	US 129 S/Limestone Parkway	Jesse Jewell Parkway/GA-369
Park Hill Dr/ Morningside Dr /GA-11 Bus R	Hall	Old Clarks Bridge Rd	Thompson Bridge Rd/GA-60
Thompson Bridge Rd/GA-60	Hall	Hall C/L	Park Hill Dr/ GA-11 Bus R
Green St/EE Butler Parkway/ GA-60	Hall	Park Hill Dr/ GA-11 Bus R	Jesse Jewell Parkway/GA-369
EE Butler Parkway/GA-11/US 129 Bus R	Hall	Jesse Jewell Parkway/GA-369	I-985
EE Butler Parkway/Athens Highway/US 129	Hall	I-985	Hall C/L
Cornelia HIghway/ GA-13/ US 23	Hall	I-985	Hall C/L
Martin Luther King Jr Blvd	Hall	Jesse Jewell Parkway/GA-369	EE Butler Parkway/GA-11/US 129 Bus R
Queen City Parkway/Candler Rd / GA-60	Hall	Jesse Jewell Parkway/GA-369	Hall C/L
GA-60	Jackson	Hall C/L	GA-124
Academy St	Hall	EE Butler Parkway/GA-11/US 129 Bus R	Jesse Jewell Parkway/GA-369
Dawsonville Highway/GA-53	Hall	Hall C/L	Washington St
Washington St	Hall	Dawsonville Highway/GA-53	Academy St
Browns Bridge Rd/GA-369	Hall	Hall C/L	Atlanta Highway/GA-13
McEver Rd/GA-53	Hall	Dawsonville	Mundy Mill Rd/GA-53

		Highway/GA-53	
Mundy Mill Rd/Winder Highway/ GA-53	Hall	McEver Rd/GA-53	Hall C/L
GA-53	Jackson	Hall C/L	Jackson C/L

Source: CDM Smith

Figure 4-18: GHMPO Regional Freight Network Tier 2 Roadway Network

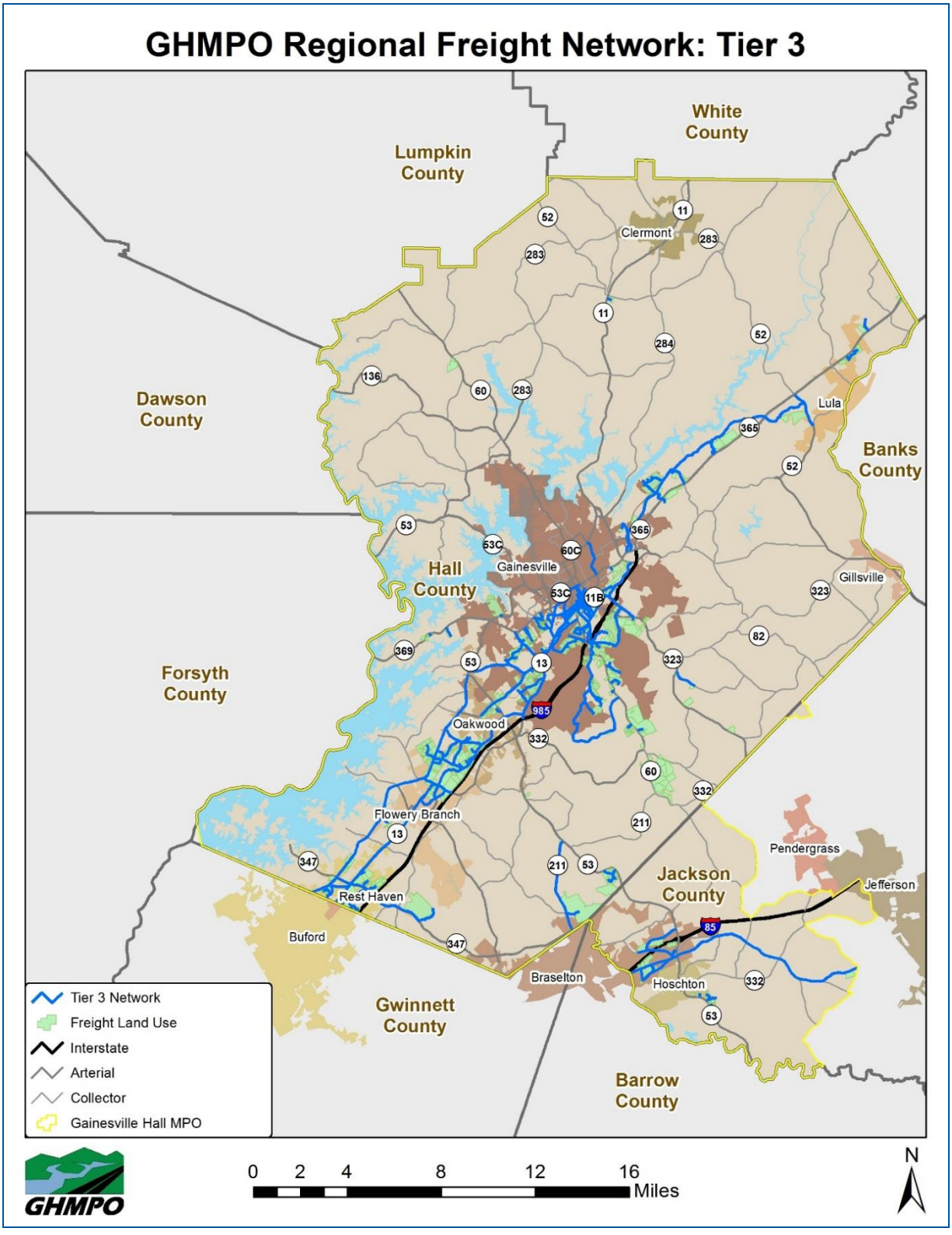


Source: CDM Smith

4.5.3 GHMPO Freight Network Tier 3 Roadway

The GHMPO Freight Network Tier 3 Roadways are comprised of the non-NHS roadways that connect to freight land use clusters of 10 acres or more within the GHMPO study area. The Tier 3 Roadways consist of about 140 centerline miles and mostly serve as the last-mile connectors between the NHS and the trip origination/destination. The Tier 3 Roadways may have limited data tracking the condition, performance, utilization, and operating characteristics of the roadways compared to Tiers 1 and 2. Coordination between GHMPO, local municipalities, and the freight community will be important in tracking the performance of the Tier 3 Roadways. A list of the Tier 3 Roadway segments is listed in **Appendix C**.

Figure 4-19: GHMPO Regional Freight Network Tier 3 Roadway Network



Source: CDM Smith

4.6 Freight Mobility on the GHMPO Freight Network

This section will provide an overview of freight mobility on the freight transportation network within GHMPO's jurisdictional boundaries. This includes an analysis of freight safety hotspots and existing congestion and bottlenecks which can impact these flows currently and into the future. The analyses presented within this section serve as a baseline for additional analysis in the identification of needed improvements to best plan for the safe and efficient movements of freight throughout the GHMPO region.

4.6.1 Safety and Hotspot Analysis

Safety "hot spots" are locations with high truck crashes or rail related accidents, such as rail-roadway at-grade crossings, roadways having design deficiencies, and roadways having operational issues. In order to identify crash density and hot spot segments within the GHMPO study area, the GDOT statewide crash data from GEARS (Georgia Electronic Accident Reporting System) was gathered for a four-year period, from 2013 through 2016. The dataset relates to crash accidents involving commercial and non-commercial vehicles and contains relative information. Over the four-year period Hall County had an average of 200 incidents per year, which included 152 incidents that were property damage only (PDO), 44 incidents with injuries and three fatalities per year. Jackson County's four-period averages included 59 total incidents per year and included 48 incidents that were property damage only (PDO), 11 incidents with injuries per year, and one fatality during the entire four-year period. **Table 4-12** displays the totals for fatalities, injuries, and total incidents recorded in the database for each year.

Table 4-12: Incidents Involving Trucks in Hall and Jackson County Area – 4 Year Totals

County	2013				2014				2015				2016			
	PDO	Injuries	Fatalities	Total	PDO	Injuries	Fatalities	Total	PDO	Injuries	Fatalities	Total	PDO	Injuries	Fatalities	Total
Hall	135	30	5	170	152	49	3	204	174	55	2	231	150	44	2	196
Jackson	91	16	0	107	69	16	0	85	23	7	0	30	9	7	1	17
Total	226	46	5	277	221	65	3	289	197	62	2	261	159	51	3	213

Source: GDOT

The identification of hot spot locations within the GHMPO study area resulted from an understanding of the overall crash density and a ranking of the individual roadway segments based on crash characteristics. The ranking of roadway segments was derived from the average of two categorical scores – the first score is based on type and count thresholds for accidents occurring on the segment, and the second score is based on the facility type of the given segment. Each of these categorical scores ranges from 1 to 4, with 4 being the most severe situation. For example, a roadway segment that is classified as a U.S. highway may have experienced one injury accident during the time period under study. Using the crash severity index criteria shown in **Table 4-13**, the ranking for this segment would be 2.5 (e.g., [2+3]/2) which is moderate. The highest crash totals among the highest severity index scores assisted in determining the top ten hot spot segments.

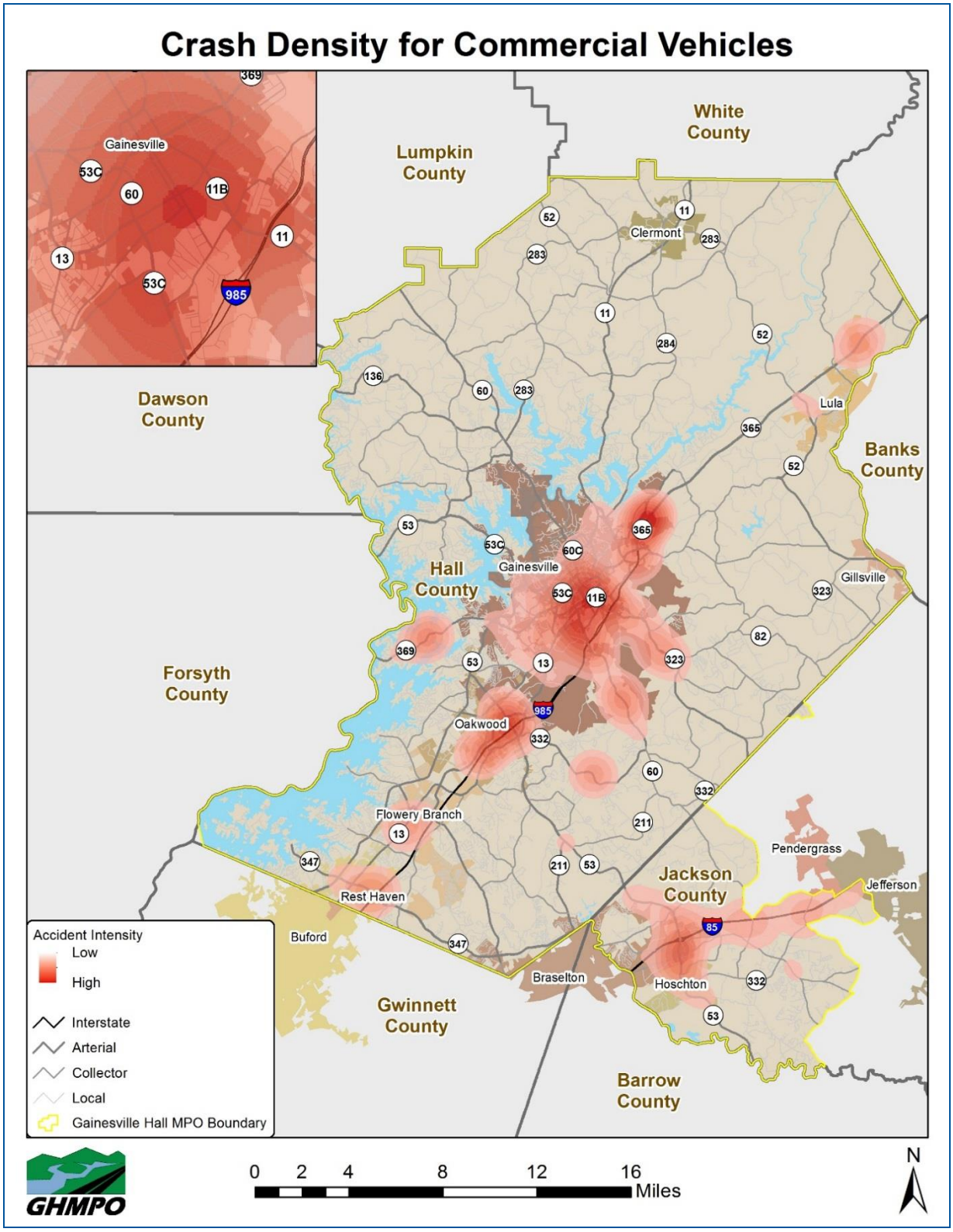
Table 4-13: Crash Severity Index Criteria Chart

Rating	Crash Severity	Facility Type
1	PDO, 0 Fatalities, 0 Injuries	FC Lower than State Highway
2	0 Fatalities, 1 Injury	State Highway
3	0 Fatalities, >= 2 Injuries	US Highway
4	>= 1 Fatality	Interstate

Source: CDM Smith

In **Figure 4-20**, the hot spot locations were identified and the crash density was developed from an understanding of the overall crash density and a ranking of the individual roadway segments based on crash characteristics. **Table 4-14** shows the top ten hot spot roadway segments, seven of the top ten segments are concentrated on I-985. **Table 4-15** displays the top ten hot spot segments located on non-interstate roadway segments. These non-interstate hot spot roadway segments are concentrated primarily in the Gainesville and Oakwood areas.

Figure 4-20: Crash Density for Commercial Vehicles in GHMPO Study Area



Source: CDM Smith

Table 4-14: Top Ten Freight Hotspots in GHMPO Region

Rank	Facility	From	To
1	I-985 (Northbound)	North of Friendship Rd/ GA-347	Wade Orr Rd
2	I-985 (Northbound)	Falcon Parkway	0.8 miles south of Plainview Rd
3	McEver Rd/GA-53 (Eastbound)	Eagle Eye Rd	Dawsonville Highway/GA-53 Connector
4	Dawsonville Highway/GA-53 Connector (Southbound)	Beechwood Blvd NW	McEver Rd/GA-53
5	I-985 (Northbound)	I-985 NB Off Ramp	Jesse Jewell Parkway/ GA-369
6	I-985 (Southbound)	Wade Orr Rd	I-985 SB Off Ramp
7	I-985 (Northbound)	Plainview Rd	I-985 NB Off Ramp
8	I-985 (Northbound)	I-985 NB Off Ramp	Candler Rd/GA-60/I-985 NB On Ramp
9	Browns Bridge Rd/GA-369	St Charles Ave	McEver Rd/GA-53
10	I-985 (Northbound)	Monroe Dr	I-985 NB Off Ramp

Source: CDM Smith

Table 4-15: Top Ten Non-Interstate Freight Hotspots in GHMPO Region

Rank	Facility	From	To
1	McEver Rd/GA-53 (Eastbound)	Eagle Eye Rd	Dawsonville Highway/GA-53 Connector
2	Dawsonville Highway/GA-53 Connector (Southbound)	Beechwood Blvd NW	McEver Rd/GA-53
3	Browns Bridge Rd/GA-369	St Charles Ave	McEver Rd/GA-53
4	EE Butler Parkway/US Highway 129 (Westbound)	Athens St SE	Monroe Dr
5	John W Morrow Jr Pakrway/GA-53 Connector (Westbound)	Washington St NW	Alta Vista Rd SW
6	Cornelia Highway/ US Highway 23 (Northbound)	Howard Rd	N of Ramsey-Fraser Lake
7	Browns Bridge Rd/GA-369	Skelton Rd	Hilton Dr
8	Jesse Jewell Parkway/ GA-369	Armour St	Dawsonville Highway/GA-53 Connector
9	Dawsonville Highway/GA-53 Connector (Westbound)	Shallowford Rd NW	Green Hill Circle
10	EE Butler Parkway/ US Highway 129-Business Route/ GA-11	Jesse Jewell Parkway/ GA-369	College Ave SE

Source: CDM Smith

4.6.2 Congestion and Bottleneck Analysis

As illustrated by the freight flow analysis, there is a large amount of freight moving throughout the GHMPO region. Congestion and bottlenecks along the major roadways which make up the region's freight network is a major concern for not only freight carriers and shippers but also for residents who use the network for their own needs. Bottlenecks contribute to cargo delays, higher fuel consumption, increased emissions, and increased transportation costs for freight carriers and shippers and hinder overall regional economic competitiveness. For residents, the impact is felt in daily traffic conditions and quality of life.

Travel speed probe data was used to assess traffic congestion along the freight network and identify bottleneck locations. This subsection describes the travel speed data that was used for this analysis, the methodology used to assess traffic congestion and identify bottlenecks.

4.6.2.1 Data Sources

For analyzing speed, congestion and bottleneck conditions along the study area, historical travel speed data from Federal Highway Administration (FHWA)'s National Performance Measure Research Data Set (NPMRDS) vehicle probe data was utilized. This section provides a brief background of the vehicle probe data and the NPMRDS.

During the past several years, the private sector has been playing an increasing role in collecting and disseminating real-time traffic information by acquiring travel time and speed data on roadways using probe technology. The sources of this data include commercial fleets, delivery and taxi vehicles, toll tag data, occupancy and speed measurements from Department of Transportation sensor networks, etc. Data from various sources is combined to present a comprehensive picture of vehicle speed and travel time for each road segment. In recent years, the potential use of probe data in planning purposes has been explored by FHWA, state Departments of Transportation (DOTs), and metropolitan planning organizations (MPOs). Planning applications of the vehicle probe data include congestion monitoring, evaluation of the congestion management process, validation of travel demand forecasting models, speed distribution inputs for air-quality modeling, etc.

In 2013, FHWA's Office of Freight Management and Operations (OFMO), on behalf of both OFMO and Office of Transportation Management (OTM), contracted with HERE North America, LLC (formerly known as Nokia/NAVTEQ) to acquire the NPMRDS vehicle probe data. The NPMRDS is a national data set of average travel times for use in analyzing highway system performance. The data provided is actual observed measurement of travel times; no estimates or historical data substitutions of missing data are included. The data is provided to state DOTs and MPOs on a monthly basis.

Data validation and data quality review is also provided by the provider (HERE North America, LLC) to ensure that the travel time and speed data is accurate enough to be used in highway system performance measurement.

The NPMRDS data includes distinct average travel time information for each five-minute interval – freight, passenger and all traffic – along the National Highway System and additional roadways. The

travel time for all other traffic is obtained by a weighted average of freight and passenger travel time based on the respective traffic volumes. The data sources for NPMRDS include the following:

- Passenger probe data obtained from a number of sources including mobile phones, vehicles and portable navigation devices.
- Freight probe data obtained from the American Transportation Research Institute (ATRI) leveraging embedded fleet systems.

For the purpose of this analysis, an assessment was conducted on combined passenger and freight probe data and freight probe data by itself.

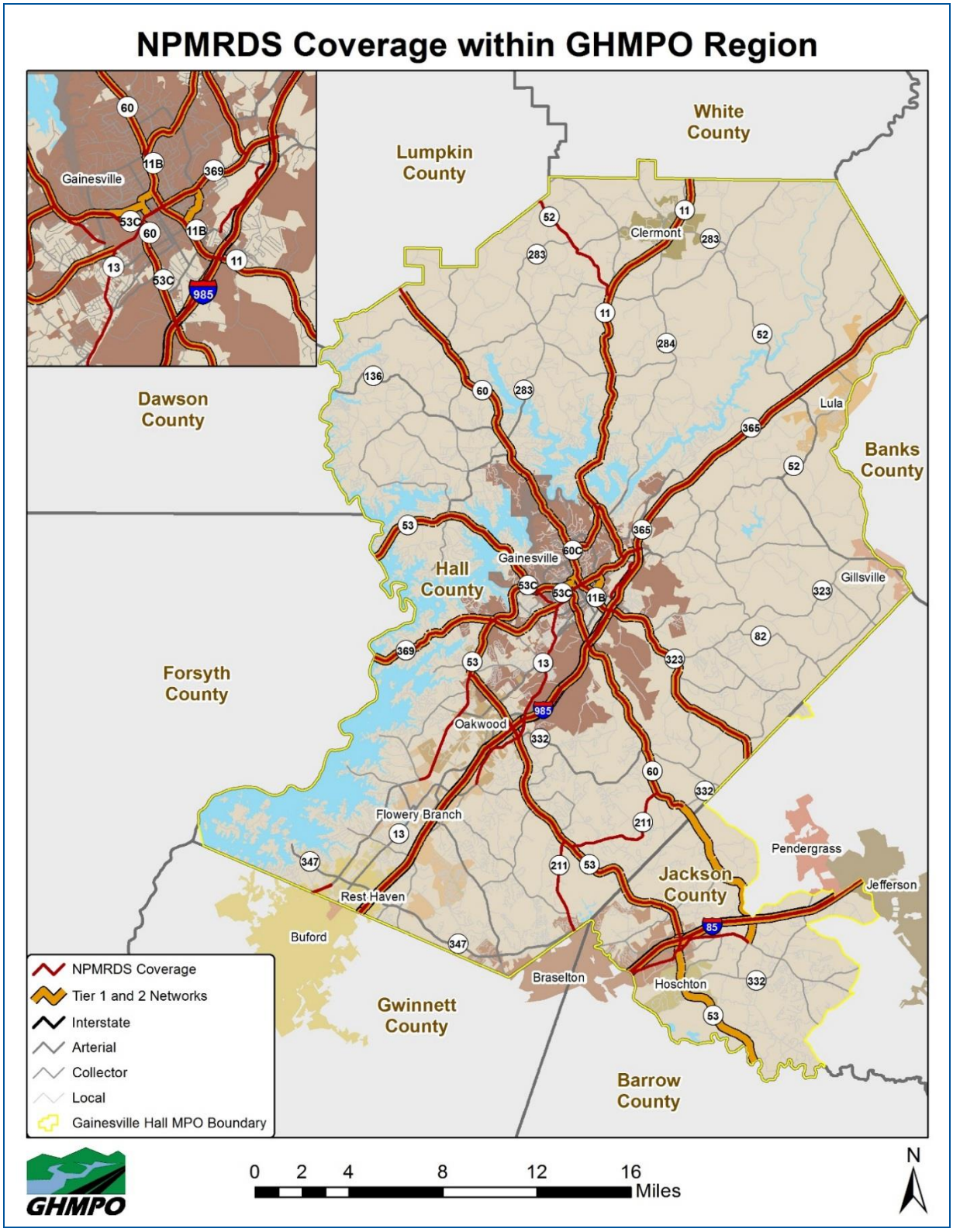
4.6.2.2 Geographic Coverage

The intent of this analysis was to assess conditions along Tiers 1 and 2 of the GHMPO freight network. The NPMRDS data retrieved contains data for all of Tier 1 roadways and the majority of Tier 2 roadways as shown in **Figure 4-21**.

There is also coverage of some Tier 3 roadways including portions of McEver Road from the Hall County line to GA-53 and GA-211. There are also additional roadways such as the north portion of GA-52 which are included in the coverage. Some roadways were found to be covered but were not designated under the GHMPO's freight network. These were included in the analysis in order to provide potential insight on traffic and freight congestion.

However, it is shown in Figure 4-21 that there are Tier 2 roadways that were not included in the NPMRDS coverage. In addition, not all of McEver Road is covered – only from GA-53 to Jim Crow Road and a smaller portion close to the county line. The coverage also included a portion of East Ridge Road which did not connect to the network. The smaller portion of McEver Road and East Ridge Road were removed for the purpose of the congestion and bottleneck analysis. In the future, the GHMPO should consider coordinating with the FHWA regarding expansion of NPMRDS data collection within the region.

Figure 4-21: NPMRDS Coverage within the GHMPO Study Area



Source: CDM Smith

4.6.2.3 NPMRDS Time Period

The NPMRDS probe data for the GHMPO region was provided by the Atlanta Regional Commission for the entire 2016 period. However, assessments of the monthly data identified that only the months of August and November had coverage for the entire NPMRDS network. The final analysis was completed using the month of August.

For the purpose of this analysis, only weekdays (Monday – Friday) were used. Weekends were removed from this analysis. The NPMRDS records were organized by time of day periods. The periods are identified in **Table 4-16**.

Table 4-16: Time Day of Periods

Time of Day	Hours
Early Morning	3:00 to 5:59 AM
AM Peak	6:00 to 9:59 AM
Mid-Day	10:00 AM to 2:59 PM
PM Peak	3:00 to 6:59 PM
Evening / Overnight	7:00 PM to 2:59 AM

Assessment of NPMRDS data was based on daytime hours, AM Peak, PM Peak, and free flow period. Daytime hours were a combination of AM Peak, Mid-Day, and PM Peak hours while the free flow period used was Early Morning.

4.6.2.4 Performance Measures

One of the goals of the GHMPO's Mobility Performance Measures is to reduce congestion and bottlenecks on the truck route system. In particular, the performance measure associated with this is the "percentage of roadway system mileage providing for dependable Truck Travel Time Reliability."

To assess this measure using the NPMRDS data, a series of performance measures were calculated:

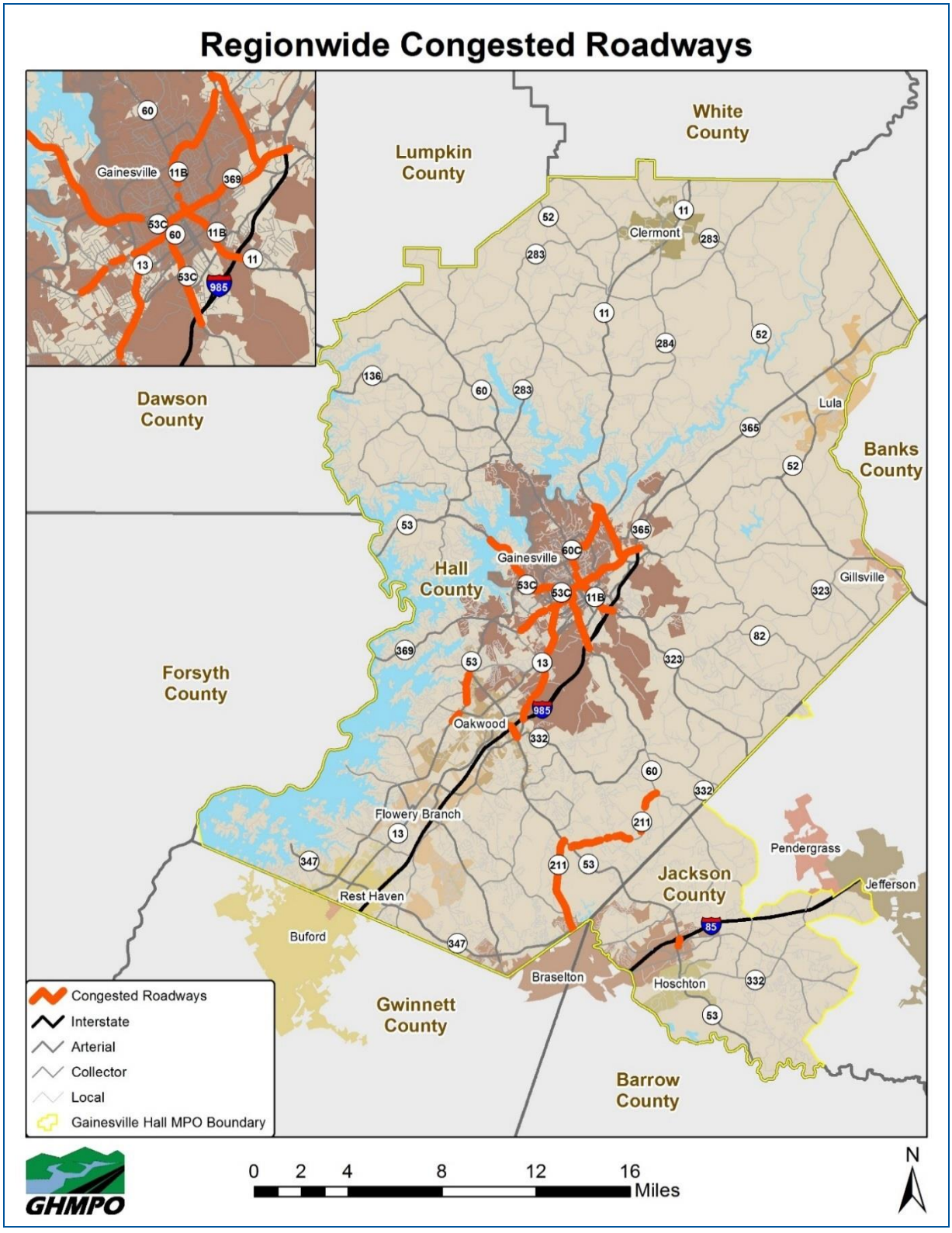
- 95th Percentile Travel Time - The 95th percentile travel time for all traffic and freight only traffic during daytime and peak periods.
- Free-Flow Travel Time – The travel time on roadway under free-flow speed conditions, with little to no interaction from traffic. As previously identified, the Early Morning period was used for identifying free-flow speed for each roadway segment along the network. This measure was calculated based on all traffic.
- Travel Time Index – The ratio of mean travel time during congestion as compared to free-flow travel time.
- Planning Time Index (PTI) – The total travel time that should be planned when an adequate buffer time which accounts for both typical and unexpected delays during travel. This is calculated by dividing 95th percentile travel time by the free-flow travel time. If the planning time index is less than 1.00, round the index value up to 1.00.

- Frequency of Congestion – The percent of time that travel speeds fall below 75 percent of the free-flow speed. This measure was only calculated for daytime hours for all traffic and freight only.
- Congested Roadways and Bottlenecks – These measures were calculated for all traffic and freight only. Bottlenecks were identified using a combination of PTI and frequency of congestion measures to create a ranking system. For both PTI and Frequency of Congestion, the ranking scores range from 1 through 6. This was used to identify congested roadways. Those congested roadways which had a combined ranking of 7 or higher were identified to be bottlenecks.

4.6.2.5 Analysis

For the GHMPO region, during daytime hours, the most congested roadways are found along portions of the Tier 2 and Tier 3 network. The majority of the congested roadway segments are located within the Gainesville urban area as shown in **Figure 4-22**. Congested roadways are those segments whose Frequency of Congestion measure illustrated that these segments are congested more than 40 percent of the time. Roadways which qualified to be congested by this metric also had relatively high PTIs.

Figure 4-22: GHMPO Congested Roadways



Source: CDM Smith

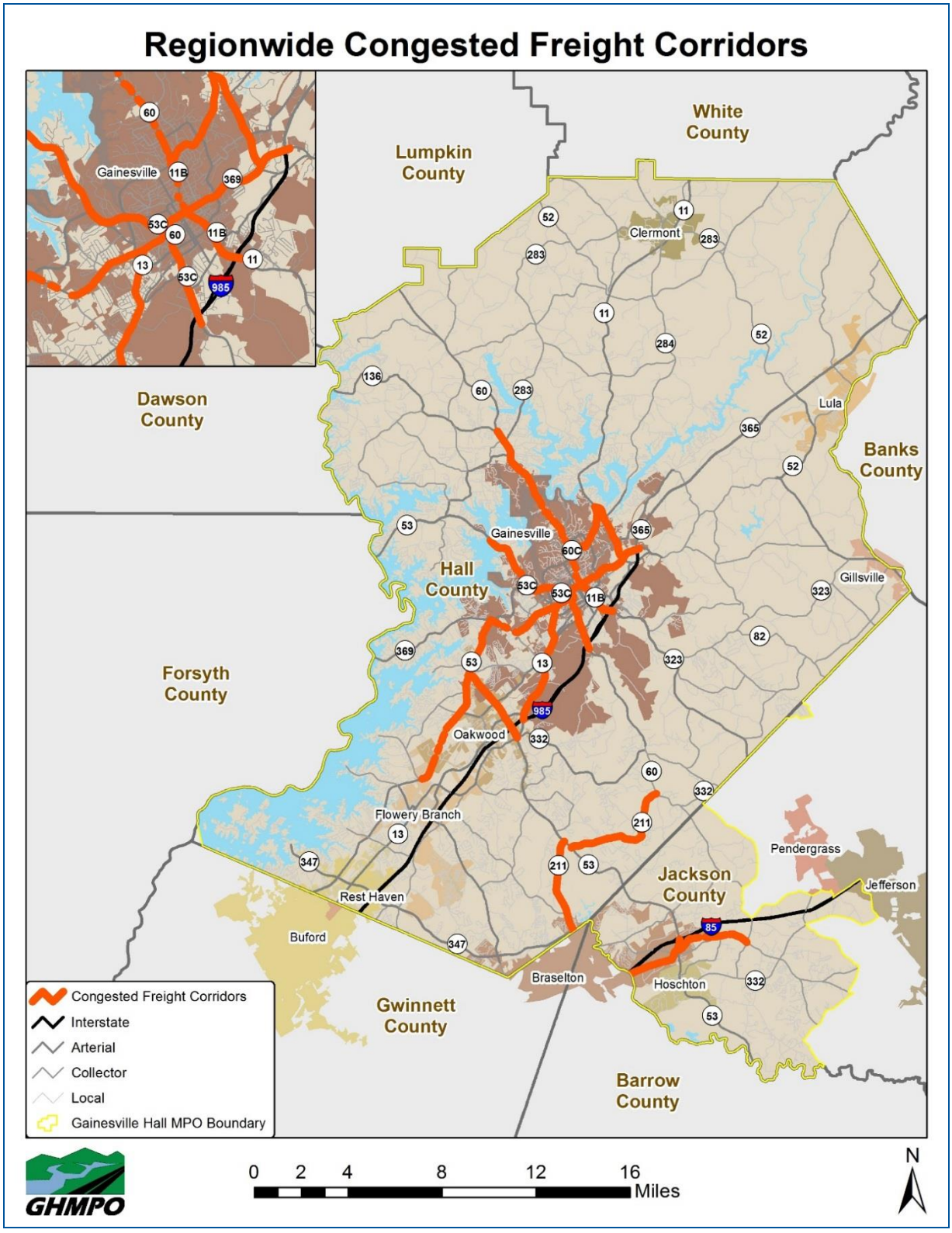
When assessing travel for trucks carrying freight goods, **Figure 4-23** illustrates that these trucks encounter a higher amount of congestion when compared to total traffic flows.

None of the Tier 1 roadways, I-985 and I-85, were identified to experience significant congestion when assessing both all traffic and freight only traffic flows. However, the same cannot be said of areas surrounding interchanges with these interstate corridors. Exits 17, 20, and 22 along I-985 and Exit 129 along I-85 appear to be impacted by congested roadways.

Figure 4-24 and **Figure 4-25** illustrate bottlenecks identified within the GHMPO region. When assessing for all traffic flows, bottlenecks are only identified within the Gainesville urban area. Neither I-985 nor I-85 has identified bottlenecks, but Exit 22 is impacted by a bottleneck associated with the northbound off- and on-ramps. The majority of the other bottleneck locations are associated with Jesse Jewell Parkway, Park Hill Drive, and GA-60. Intersections of GA-53/McEver Rd and Jesse Jewell Parkway/Limestone Parkway also experience bottlenecks. The bottleneck which achieved the highest combined ranking was the intersection of Jesse Jewell Parkway/Limestone Parkway.

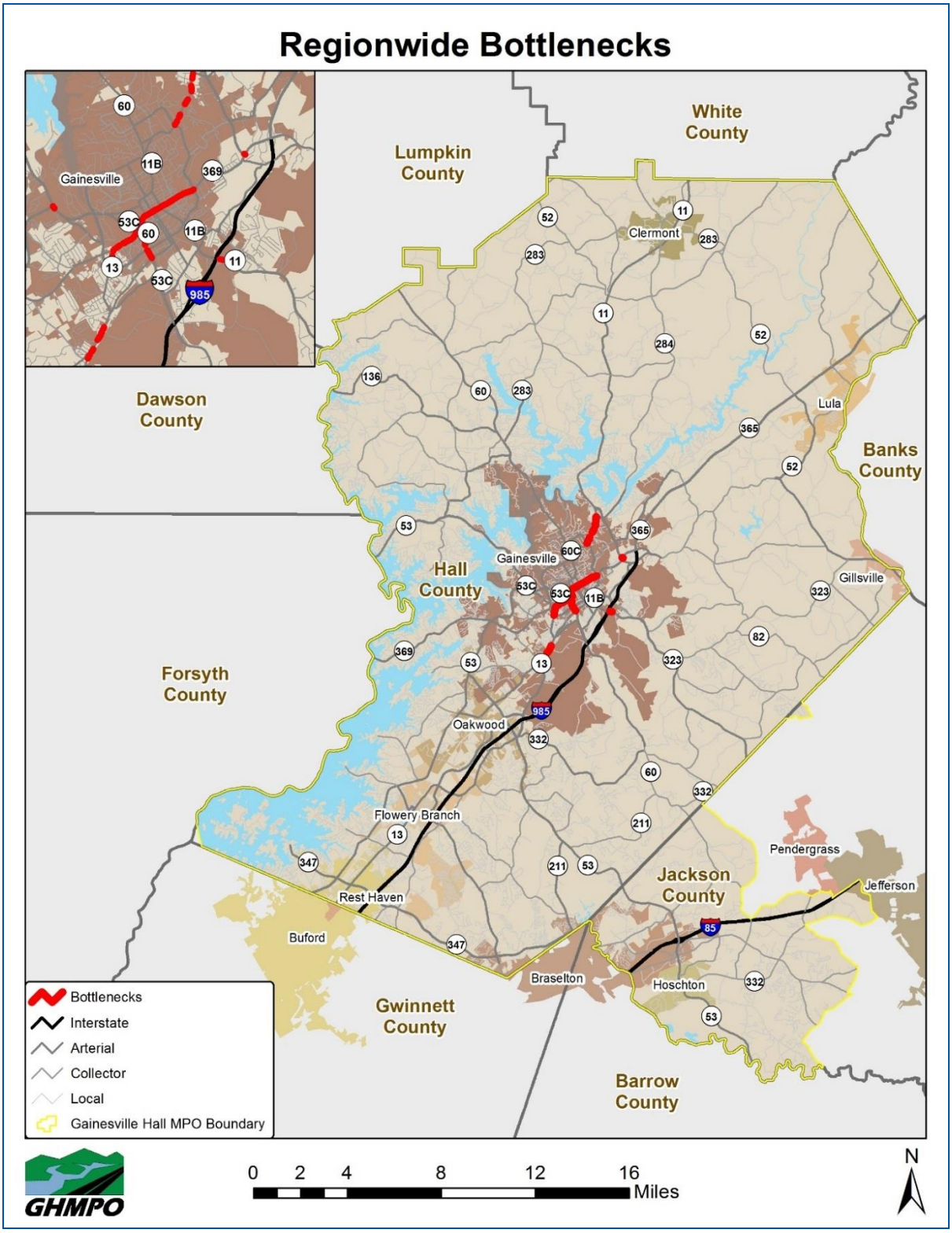
The number of congested roadways identified to have bottlenecks in relation to freight is higher than non-freight routes and may indicate that trucks do experience more adverse impacts due to congestion. The majority of the bottlenecks are located along Jesse Jewell Parkway, GA-60, and EE Butler Parkway. The bottlenecks along EE Butler are found between Jesse Jewell Parkway to the southbound off-ramp associated with Exit 22 of I-985. In addition to Exit 22, Exit 20 now appears to be impacted by bottlenecks. The bottleneck previously identified on GA-60 which only impacted three roadway segments between GA-53 and Industrial Blvd now extends to the Exit 20 interchange, adjacent to Lee Gilmer Memorial Airport. Other roadways include portions of Atlanta Highway and Park Hill Drive, which reported the most significant bottleneck from Enota Drive to Clarks Bridge Road.

Figure 4-23: GHMPO Congested Freight Corridors



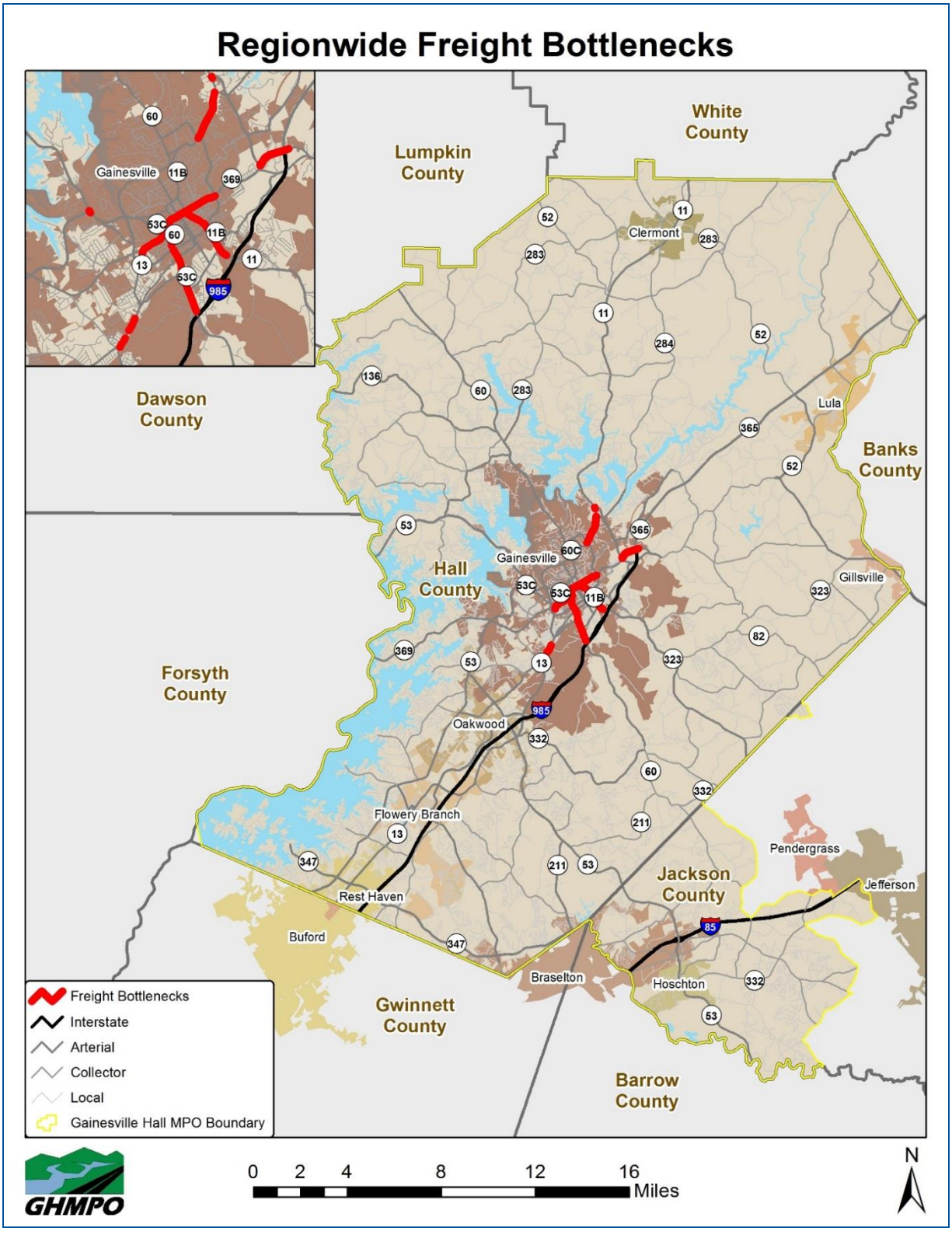
Source: CDM Smith

Figure 4-24: GHMPO Bottlenecks



Source: CDM Smith

Figure 4-25: GHMPO Freight Bottlenecks



Source: CDM Smith

Overall, congestion and bottlenecks within the GHMPO region are primarily found to be associated with the Gainesville urban area with some congested roadways found just outside of this area or within Jackson County. Congestion impacts travel time reliability for truck significantly as the number of congested roadways and bottlenecks are higher when compared to all traffic flows. **Table 4-17** describes the number of miles impacted by congestion and bottlenecks for freight traffic as compared to mileage used for the analysis.

Table 4-17: Freight Mileage Impacted by Congestion and Bottlenecks in GHMPO Study Area

Type	Number of Miles Impacted	Proportion of NPMRDS Network
Congestion	**63.33 Miles**	**20.8%**
Bottlenecks	**8.11 Miles**	**2.7%**

Source: CDM Smith

4.6.3 Future Areas of Congestion

Analysis of NPMRDS data for the GHMPO region provided a picture of current congestion and bottleneck areas for both all-traffic flows and freight-only traffic flows. However, it does not provide a forecast for future areas of congestion. To provide a general idea of what overall congestion may look like in 2040, an assessment of the network[2] was completed looking at 2016 traffic counts as compared to roadway capacities. The 2016 traffic counts were provided by GDOT (http://geocounts.com/gdot/)[3] and served as the base for the 2040 forecast.

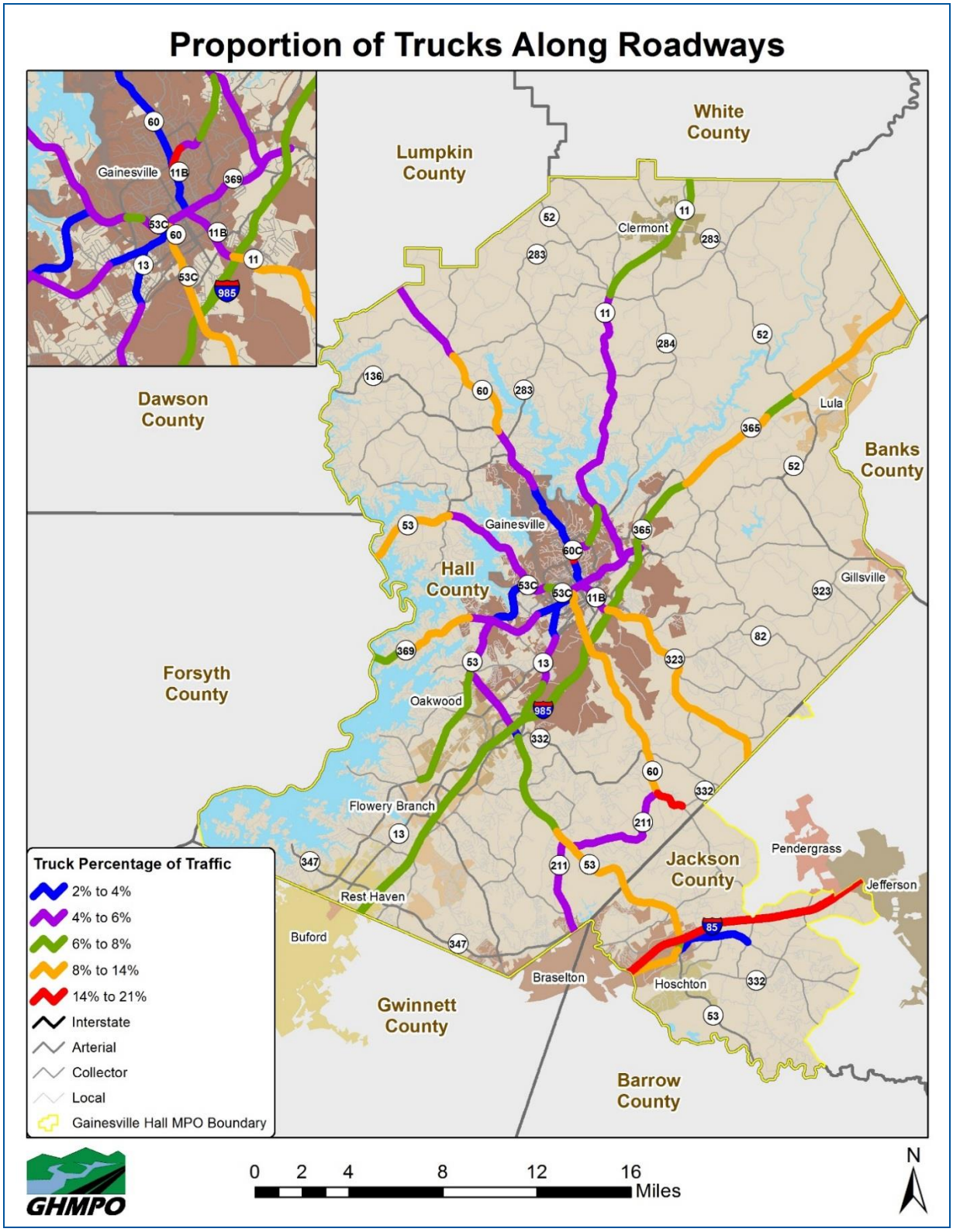
4.6.4 Proportion of Trucks[4]

Before an analysis of potential future congestion areas could be conducted, areas where truck traffic are found would need to be identified. Using 2016 traffic count data, an identification of roadways of which truck traffic makes up a portion was completed.[5]

As shown in **Figure 4-26**, out of the entire GHMPO region, I-85 carries the highest proportion of trucks along the network compared to overall traffic flows. Almost 21 percent of the traffic traveling along this roadway is trucks. Other roadways which had a significant portion of their traffic consisting of trucks include portions of US 23/Cornelia Highway, Riverside Drive, Athens Highway, SR-60, and Winder Highway in Hall County and portion of Broadway Avenue in Jackson County. For SR-60, one portion contains a significant amount of trucks to total traffic flows is adjacent to Lee Gilmer Memorial Airport.

[2] For the sake of consistency, only the roadway segments covered by NPMRDS data were used for this portion of the analysis.
[3] Due to the nature of location of traffic counters, only those roadways associated with counters we utilized for this analysis.
[4] Truck counts may include light (passenger) trucks.
[5] Please note that I-985 only has one counter which tracks truck traffic so the proportion of truck traffic was held constant for this roadway. Traffic counters north of the end of I-985 along US 23/Cornelia Highway do track truck traffic.

Figure 4-26: Proportion of Trucks Along GHMPO Roadways



Source: CDM Smith

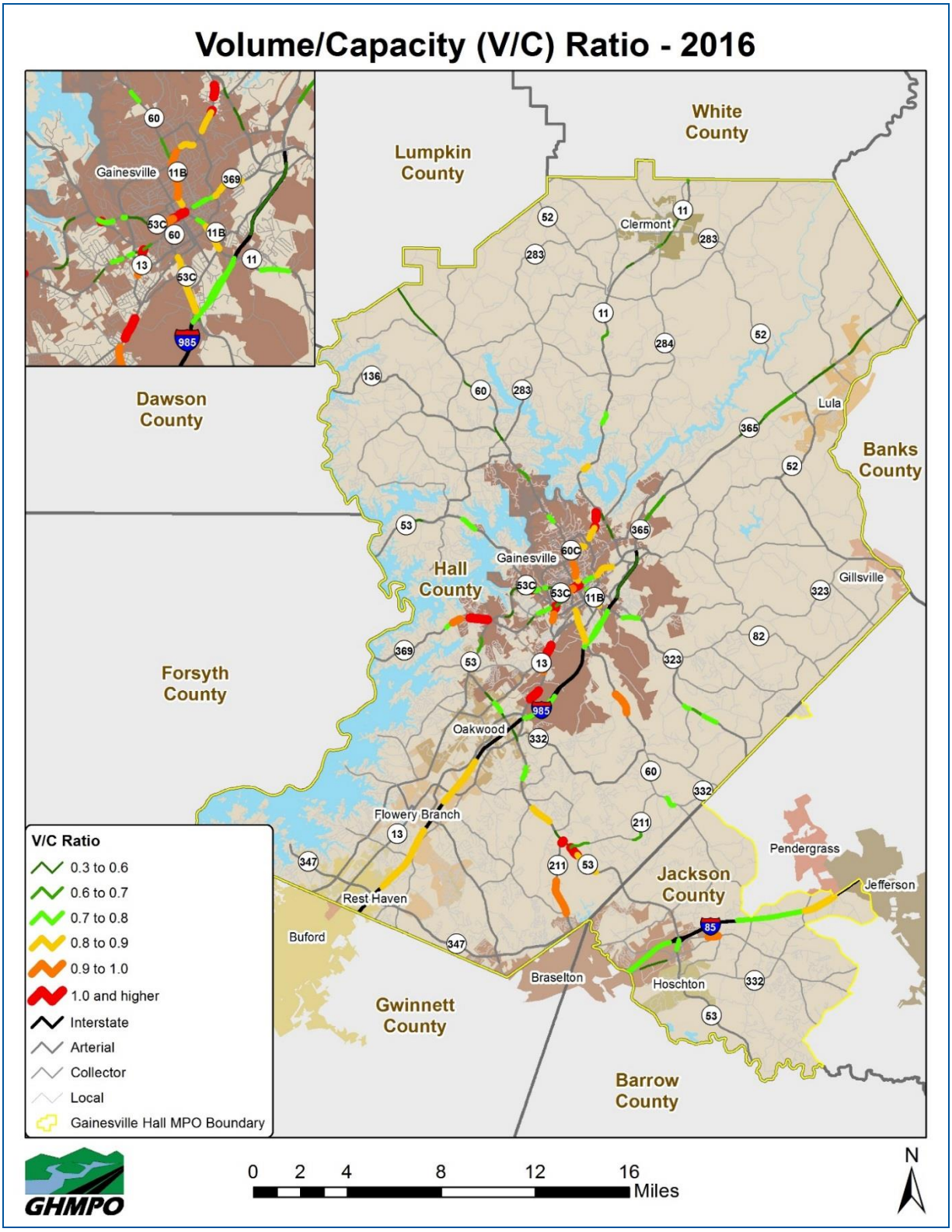
4.6.4.1 2016 and 2040 Volume/Capacity Ratios

Volume/Capacity (V/C) ratio was used to illustrate potential future congestion for the GHMPO network. V/C ratios are a measure of traffic volumes as they compare to the capacities of roadway segments. The measure provides a view of mobility and quality of travel for users of each roadway segment.

Capacities for roadway segments were developed using the GHMPO model. Traffic volumes used for this measure include 2016 traffic counts from GDOT counters and 2040 traffic counts forecasted from the 2016 counts using a compound annual growth rate obtained from 2010 to 2016 counts.

As shown in **Figure 4-27**, the majority of roadways within the GHMPO region are operating below capacity. However, there are a few that are near or at capacity while a few segments are operating over capacity. Several of these segments have been previously identified as congested roadways and bottlenecks during the NPMRDS analysis. It is also important to note that many of the segments reaching or are operating over capacity are within the Gainesville urban area.

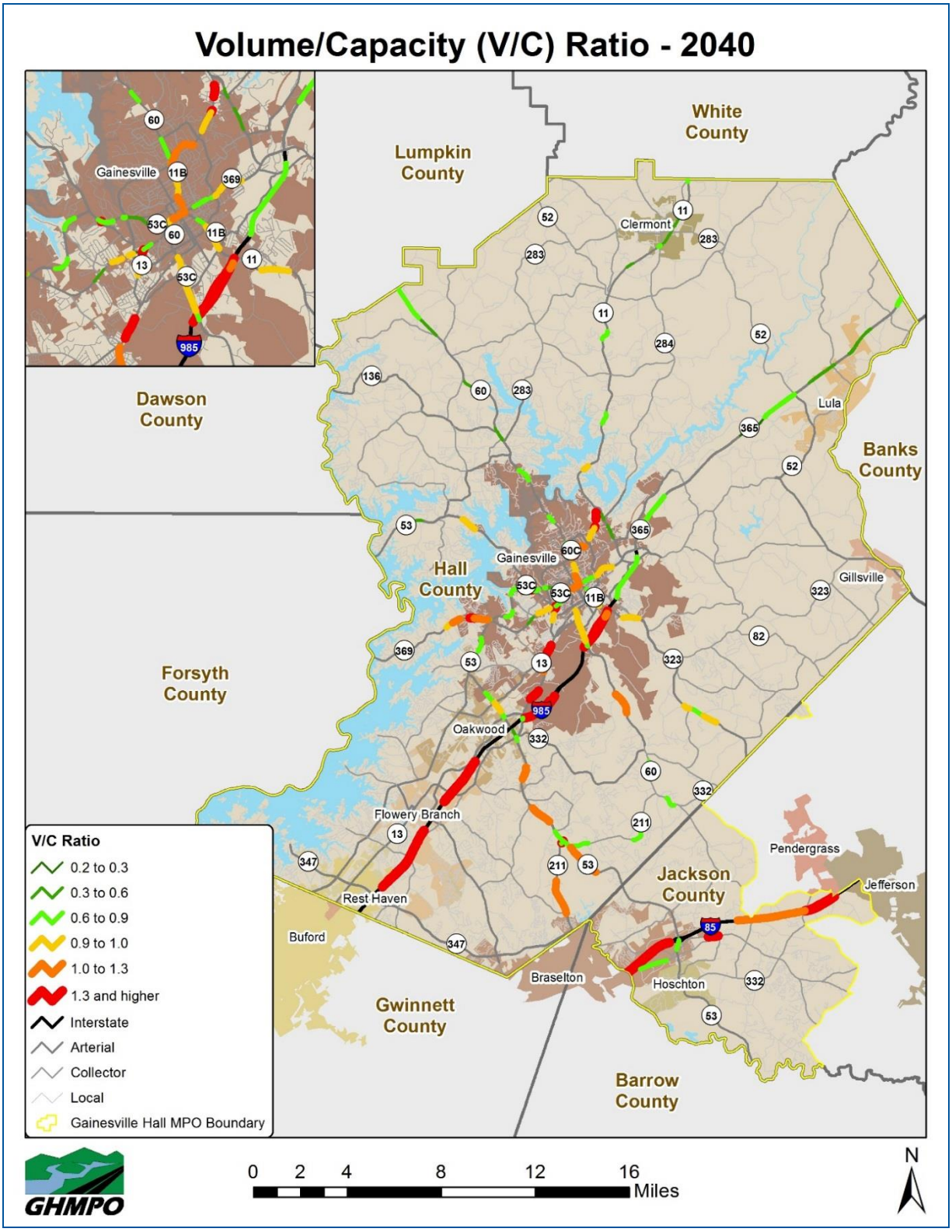
Figure 4-27: Volume/Capacity (V/C) Ratio for GHMPO Study Area – 2016



Source: CDM Smith

Figure 4-28 shows that the interstate corridors which compose the Tier 1 freight network run the potential of becoming congested in the future. The situation within the Gainesville urban area, particularly the downtown area, is projected to worsen. Beyond this area, there is compounding issues on several state routes include GA-53/Winder Highway, GA-211 south of Winder Highway, GA-369, GA-11, and GA-60. This increasing congestion will have adverse impacts on freight traffic into the future. The roadways identified and shown in the Figure 6-9 include those roadways which will be reaching capacity in 2040 or surpass it.

Figure 4-28: Volume/Capacity (V/C) Ratio for GHMPO Study Area – 2040



Source: CDM Smith

5. GHMPO REGIONAL FREIGHT MOBILITY PLAN PRIORITY FREIGHT PROJECTS AND POLICIES

5.1 Policies for Freight Transportation Investments

In conjunction with the freight infrastructure improvement recommendations, the freight policy recommendations will provide guidance in the maintenance and investment of the freight infrastructure and movement of freight and goods within the GHMPO study area. In order to ensure this efficient movement of freight and goods, any freight project should be recognized and given a higher priority due to its benefits to the economy and the continued investment of technological and innovative improvement in the regional freight transportation system. A series of freight policy recommendations and actions, aligned with the GHMPO Regional Freight Study's goal areas, are listed below.

5.1.1 Mobility

- Facilitate multijurisdictional, multimodal collaboration and solutions.
  - Maintain regular meetings with the GHMPO Freight Advisory Committee (FAC) so the freight community can advise GHMPO and other regional entities on freight challenges and opportunities.
  - Coordinate with public and private freight partners, as well as public officials, at individual and group meetings to educate them about the importance of freight transportation in the region.
  - Recognize the importance of the GHMPO freight network to the region's economic competitiveness when making decisions that affect the truck freight network.
  - Promote freight rail lines and intermodal yards that serve industrial properties in the region.
  - Work toward improved multimodal connections among rail yards, industrial developments, airports, and the truck freight network.
  - Coordinate with GDOT to designate I-985 as a route on the Critical Urban Freight Corridor.
- Improve coordination between public and private sectors to identify regional freight issues and solutions.
  - Maintain the GHMPO FAC so the freight community can continue to advise GHMPO and other regional entities on an ongoing basis on needed facility modifications and enhancements.
  - Work with private sector stakeholders and other GHMPO partners to identify strategic investments that reduce congestion and improve freight movement.
  - Champion and implement projects that eliminate freight bottlenecks based upon discussions with FAC and other regional and local agencies and groups.

  - Gather input from truck freight stakeholders through comprehensive periodic surveys (every 2 to 3 years) to identify bottleneck locations, parking availability, and physical factors and conditions that constrain the safe operation of commercial vehicles in the region.
- Develop and implement policies and projects that address regional freight issues.
  - Prioritize projects designed to improve freight mobility and eliminate freight bottlenecks.
  - Promote an annual review of strengths, weaknesses, opportunities, and threats (SWOT) analyses of the GHMPO truck freight network with the FAC and other regional and local agencies and groups.
  - Coordinate the review of potential operational changes, projects and regulations that may impact freight movement with the FAC.
  - Identify best practices relating to the use of low-cost improvements to alleviate traffic congestion and encourage adoption or implementation of these improvements where and when appropriate.
- Improve the day-to-day operation of the GHMPO freight truck network by retiming traffic signals, applying access management techniques, applying ITS solutions, removing operational deficiencies, and improving response time and management of traffic disrupting events like work zones, crashes, and special events.
  - Coordinate with regional agencies responsible for signal timing to explore if there are safe opportunities available to improve travel time reliability along the truck freight network.
  - Coordinate with GDOT and regional agencies responsible for access management to explore if there are opportunities available to implement access management strategies to improve mobility and safety along the truck freight network.
  - Consider the needs for local delivery and collection of goods at businesses by truck when making roadway operational decisions.
  - Pursue use of Intelligent Transportation Systems (ITS) or use of “detectors” and message boards to communicate congested areas and back up occurrences to truck drivers.
- Support development, maintenance, and communication of improved wayfinding system to improve access to local industrial parks along GHMPO freight truck network.
  - Implement a regional signage program that identifies the truck freight network to minimize illegal truck traffic. Signs should follow standards established in the Manual on Uniform Traffic Control Devices (MUTCD). Signs should be located at key areas along the truck freight network to improve way finding for drivers.
- Coordinate with GDOT to explore connectivity improvements west of Lake Lanier/Chattahoochee River.
  - Coordinate with GDOT District and Office of Planning staff on feasible options that would assist in identifying connectivity improvement in this area.
- Identify assets along GHMPO freight truck network vulnerable to flooding, and develop adaptive strategies to address or mitigate current and future weaknesses.
  - Maintain an updated inventory of known obstacles identified by the trucking community along the GHMPO truck freight network.
- Partner with ARC on its connected and automated/autonomous vehicle (CAV) pilot initiative.
  - Collaborate and partner with ARC and GDOT on the safe implementation of autonomous vehicles in the GHMPO region.

5.1.2 Safety

- Increase efficiency of existing truck parking facilities.
  - Promote information technology to alert truck drivers on the amount of available truck parking in the GHMPO region.
  - Address safety issues concerning the weight and size of large trucks.
- Coordinate with GDOT and ARC to identify new truck parking facilities.
  - Support efforts to identify new truck parking facilities and lay-over areas, and work to ensure GDOT policy is consistent with the measures taken to enhance driver safety.
- Identify and improve unsafe roadway and operational characteristics.
  - Coordinate with local and regional groups regarding freight transportation safety concerns.
  - Map truck-related crashes annually to identify potential safety concerns and coordinate with the appropriate owner to identify operational improvements.
  - Modify speed limits and increase enforcement to reduce truck and other vehicle speeds.

5.1.3 Community

- Coordinate with county and city planners to promote sustainable land use strategies to accommodate freight in the region.
  - Conduct annual coordination meetings with local and regional agencies that establish land use policies to update them on community planning decisions that could impact freight movement in the region.
  - Provide transportation and land use planning guidance and direction to local and regional agencies to support economic development and freight mobility.
- Develop freight facilities in clusters to reduce environmental and community impacts.
  - Adopt sustainable land use strategies to accommodate freight in urbanized areas.
  - Land currently best suited for freight needs to be preserved along key corridors so that clusters can be developed and expanded in the future.
- Develop design guidelines for designated bike/pedestrian facilities along shared corridors on the GHMPO truck freight network.
  - Clearly sign and mark bicycle and pedestrian facilities where the truck freight network and state/local bike routes overlap.

5.1.4 Economic Competitiveness

- Coordinate with freight partners to identify opportunities for an intermodal terminal yard in Hall County.
  - Prioritize intermodal connection projects above other freight projects, as these projects are more often the most conducive to reducing overall supply chain costs.
  - Maintain the GHMPO FAC so the freight community can advise GHMPO and other regional entities on intermodal terminal improvements.
- Improve annual hours of truck delay on GHMPO freight truck network.
  - Work with private sector stakeholders and other GHMPO partners to identify strategic investments that reduce congestion and improve freight movement.

- Develop freight facilities in clusters to improve last and first mile needs, intersection or interchange ramp improvements.
  - Adopt sustainable land use strategies to accommodate freight in urbanized areas.
  - Land currently best suited for freight needs to be preserved along the truck freight network so that clusters can be developed and expanded in the future.

5.2 GHMPO Freight Infrastructure Improvements

As the freight industry continues to grow in the GHMPO study area, improving freight mobility is crucial in the process of capturing the freight growth anticipated for the region. This chapter outlines the project-level freight infrastructure improvement recommendations, which combined total $1,183,207,210 in infrastructure improvements for the GHMPO study area. The projects are divided into three-time bands – Short-Term (Years 2018-2023), Mid-Term (Years 2024-2032), and Long-Term (Years 2033-2042), for improvements based on their current development status, ease of implementation and feasibility.

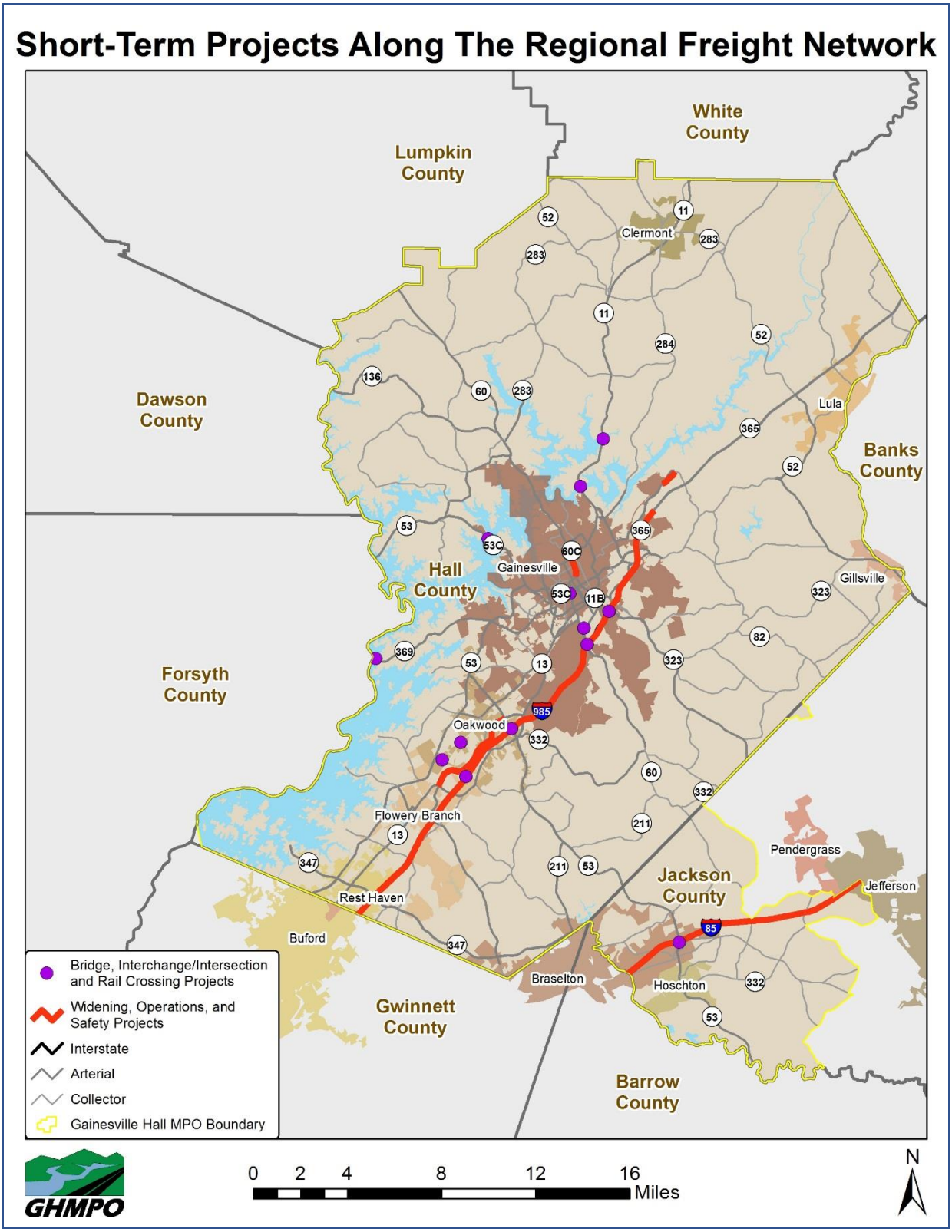
5.2.1 Short–Term GHMPO Regional Freight Infrastructure Improvements (2018-2023)

The proposed short-term projects, totaling $337,761,884, have been evaluated based upon the analysis during the GHMPO Regional Freight Study's development (**Table 5-1**). The period for the GHMPO Regional Freight Study's short-term improvements is 2018-2023, with the last year of the short-term timeframe aligning with the last year of the short-term period identified in the Gainesville-Hall Regional Transportation Plan: 2015 Update. The short-term improvements are anticipated on being constructed or being programmed for construction within the year 2023. The short-term recommendations include strategies that can be implemented quickly to provide immediate benefits to freight and goods movement in the GHMPO study area. The identified improvements include operational and mobility enhancement projects.

Table 5-1: GHMPO Regional Freight Study – Short-Term Projects (2018-2023)

Project ID	Project Name and Description	Project Type	Existing Lanes	Future Lanes	Length (Miles)	County	Total Costs	GHMPO Freight Network Tier
GH-015	I-985 New Interchange N of SR 13 Crossover near Martin Rd	New Interchange	N/A	N/A	N/A	Hall	$43,323,658	1
GH-109	I-85 From North of SR 211 to North of SR 53	Widening	4	6	3.3	Jackson	$59,000,217	1
GH-110	I-85 From North of SR 53/Green Street to North of SR 11/US 129/Lee Street	Widening	4	6	7.4	Jackson	$95,798,130	1
GH-120	I-985 From I-85 to SR 53	Widening	4	6	18.0	Hall	$45,452,800	1
GH-121	I-985 From SR 53 to Howard Road	Widening	4	6	9	Hall	$22,726,400	1
GH-123	Railroad Crossing at Chamblee Road near W. White Road	Rail Crossing Improvements	N/A	N/A	N/A	Hall	$20,000	1
GH-124	Railroad Crossing at West Ridge Road near Short Street	Rail Crossing Improvements	N/A	N/A	N/A	Hall	$50,000	1
GH-128	I-85 & I-985 Interchange Congestion Study (Exits 17, 20, 22 & 129)	Interchange Study	N/A	N/A	N/A	Hall	$200,000	1
GH-029	US 129/SR 11/Cleveland Hwy at Chattahoochee River- Bridge	Bridge	2	4	0.16	Hall	$12,799,728	2
GH-030	US 129/SR 11/Cleveland Hwy at East Fork Little River (Bells Mill)- Bridge	Bridge	2	4	0.07	Hall	$11,979,355	2
GH-057	SR 369/Browns Bridge Road at Chattahoochee River- Bridge	Bridge	2	2	0.79	Hall/Forsyth	$8,155,914	2
GH-085	SR 53 WB at Chattahoochee River – Bridge	Bridge	2	2	N/A	Hall	$20,185,777	2
GH-122	US 23/SR 365 From Howard Road to Ramsey-Fraser Lake – Corridor Safety Audit	Corridor Safety Audit	N/A	N/A	N/A	Hall	$15,000	2
GH-131	Green Street Corridor Improvements	Corridor Improvements	4	4		Hall	$13,000,000	2
GH-125	Corridor Study - Lula to Sardis Connector	Corridor Study	N/A	N/A	N/A	Hall	$200,000	N/A
GH-069	Jesse Jewell Pkwy at John Morrow Pkwy Operations	Intersection	4	4	N/A	Hall	$1,796,513	3
GH-126	Intersection Safety Audit - Thurmon Tanner Parkway and cross streets	Safety Audit	N/A	N/A	N/A	Hall	$15,000	3
GH-127	Intersection Safety Audit - HF Reed Industrial Parkway and Aloha Way	Safety Audit	N/A	N/A	N/A	Hall	$5,000	3
GH-130	White Sulphur Road Realignment	Roadway Realignment	2	2	0.74	Hall	$3,038,392	3

Figure 5-1: GHMPO Regional Freight Study – Short-Term Projects (2018-2023)



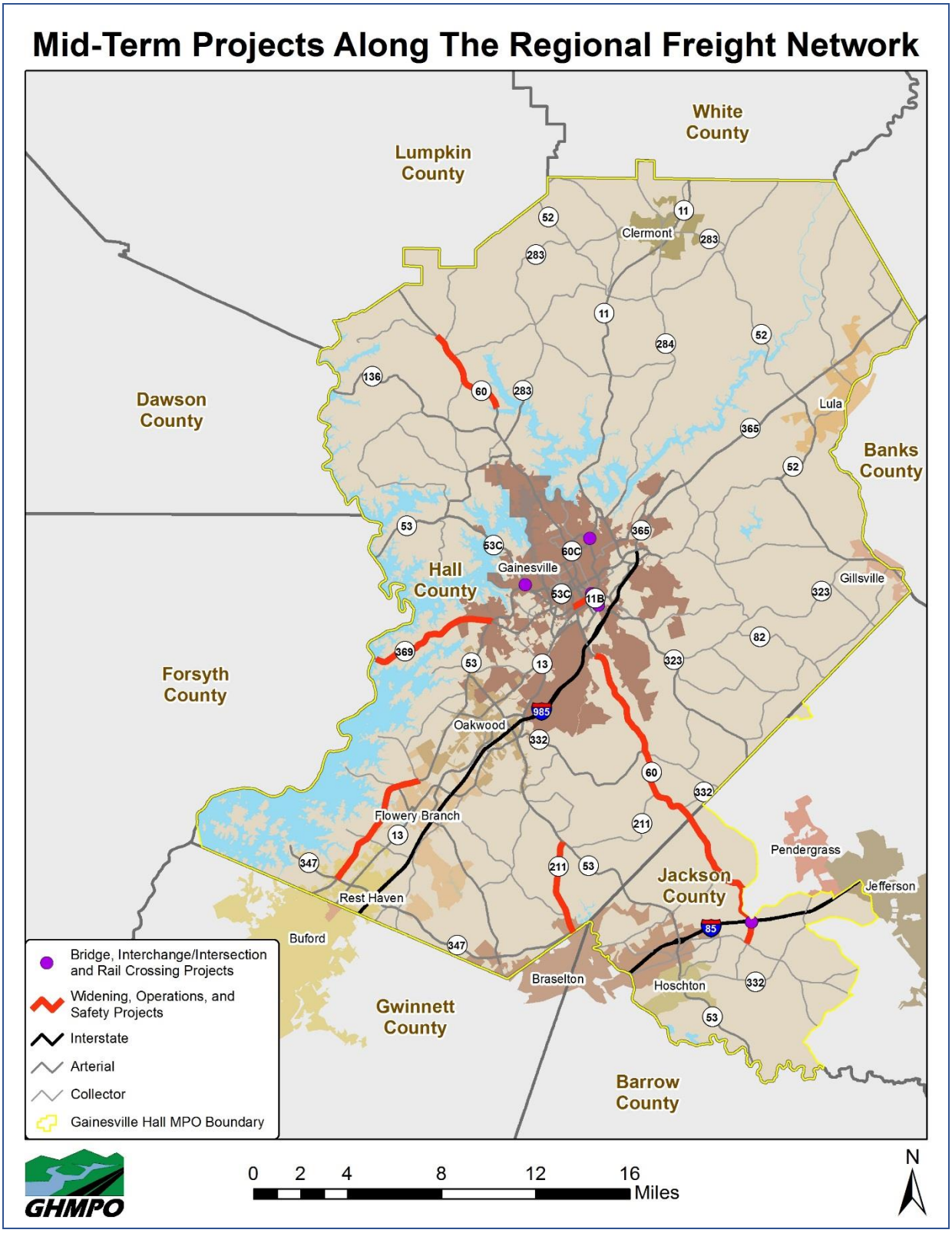
5.2.2 Mid–Term GHMPO Regional Freight Infrastructure Improvements (2024-2032)

The proposed mid-term projects, totaling $300,938,689, have been evaluated based upon the analysis during the GHMPO Regional Freight Study's development (**Table 5-2**). The identified improvements, operational, and mobility enhancement projects that require design and right-of-way acquisition to provide intermediate benefits to freight and goods movement in the GHMPO study area.

Table 5-2: GHMPO Regional Freight Study – Mid-Term Projects (2024-2032)

Project ID	Project Name and Description	Project Type	Existing Lanes	Future Lanes	Length (Miles)	County	Total Costs	GHMPO Freight Network Tier
GH-102	New Interchange located at crossing of I-85 and SR 60	New Interchange	N/A	N/A	1.0	Jackson	$29,865,474	1
GH-038	SR 60/Thompson Bridge Road from SR 136/Price Road to Yellow Creek Road in Murrayville	Widening	2	4	6.5	Hall	$50,217,775	2
GH-100	SR 369/Browns Bridge Road – Operations	Roadway Operations	N/A	N/A	N/A	Hall	$20,893,662	2
GH-103	Athens Hwy at Chestnut Street Operations	Intersection	N/A	N/A	N/A	Hall	$685,590	2
GH-104	Dawsonville Hwy/SR 53 at McEver Rd Operations	Intersection	N/A	N/A	N/A	Hall	$542,319	2
GH-105	EE Butler Pkwy/Athens Street at MLK Jr. Boulevard Intersection Improvements	Intersection	N/A	N/A	N/A	Hall	$1,667,804	2
GH-107	Park Hill Dr at Lakeview Dr Operations - reduce slope on Lakeview Dr. approach	Intersection	N/A	N/A	N/A	Hall	$408,008	2
GH-111	SR 60/Candler Road from S of I-985 to SR 124	Widening	2	4	12.4	Hall/Jackson	$55,235,280	2
GH-129	Congested Corridor Study (Jesse Jewell Pkwy, SR 53/Queen City Pkwy, John Morrow Pkwy, SR 11/Park Hill Drive)	Corridor Study	N/A	N/A	N/A	Hall County	$150,000	2
GH-025	SR 211/Old Winder Highway from SR 53 to SR 347 on New Alignment	Widening	2	4	3.4	Hall	$56,984,101	3
GH-084	McEver Road from SR 347 to Jim Crow Road/Gainesville Street	Widening	2	4	5.1	Hall	$71,901,012	3
GH-108	MLK Jr Blvd Corridor - widen to 4 lanes with Streetscape from Queen City Pkwy to EE Butler	Widening	2	4	1.3	Hall	$12,387,664	3

Figure 5-2: GHMPO Regional Freight Study – Mid-Term Projects (2024-2032)



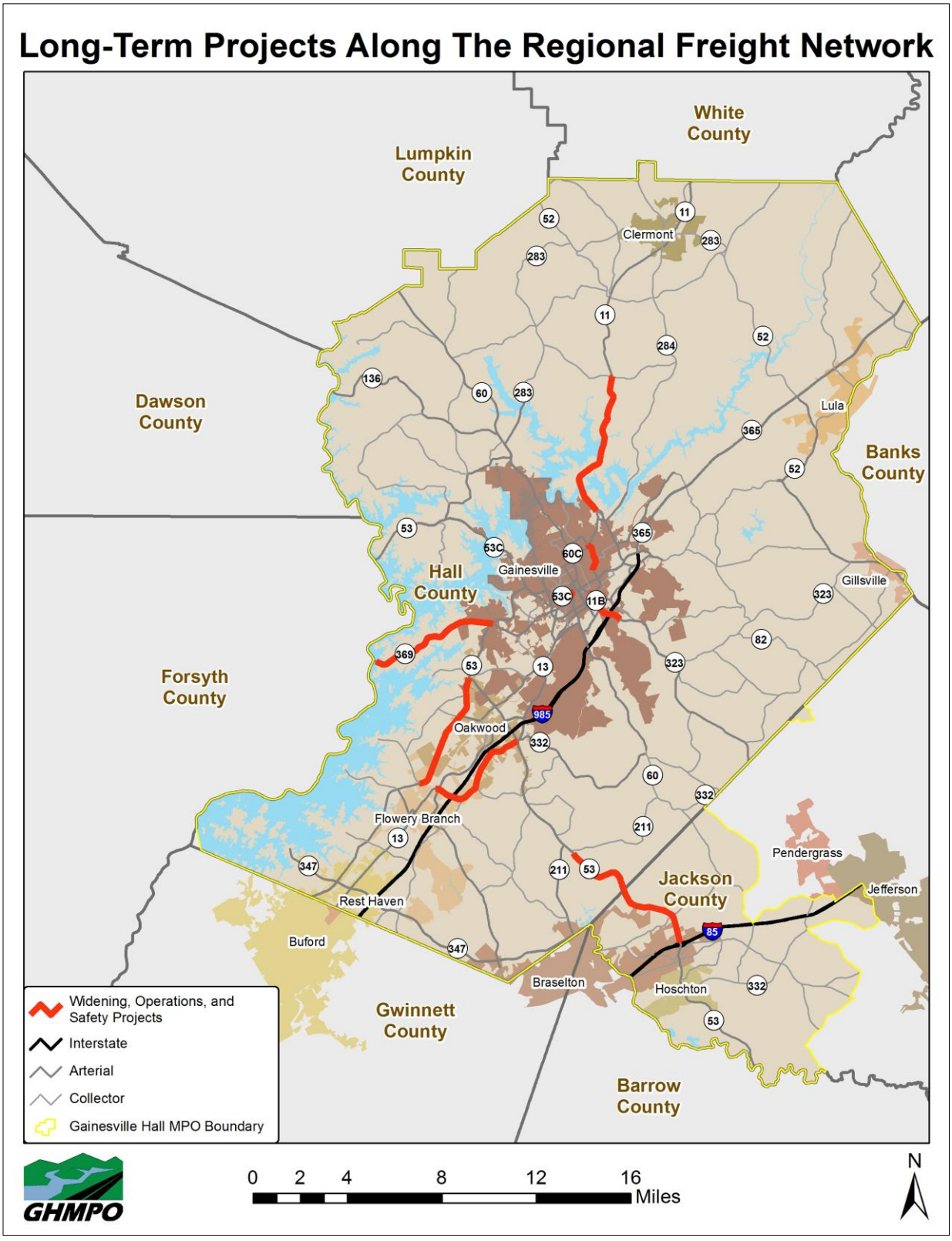
5.2.3 Long–Term GHMPO Regional Freight Infrastructure Improvements (2033-2042)

The proposed long-term projects, totaling $544,506,637, have been evaluated based upon the analysis during the GHMPO Regional Freight Study's development (**Table 5-3**). The identified improvements, operational, and mobility enhancement projects that require design and right-of-way acquisition to provide intermediate benefits to freight and goods movement in the GHMPO study area.

Table 5-3: GHMPO Regional Freight Study – Long-Term Projects (2033-2042)

Project ID	Project Name and Description	Project Type	Existing Lanes	Future Lanes	Length (Miles)	County	Total Costs	GHMPO Freight Network Tier
GH-018	SR 369/Browns Bridge Road from Forsyth County Line to SR 53	Widening	2	4	4.6	Hall	$57,939,984	2
GH-020	US 129/Cleveland Hwy From Limestone Parkway to Nopone Road	Widening	2	4	5.4	Hall	$73,296,917	2
GH-040	SR 53 From I-85/Jackson County to SR 211/Hall County	Widening	2	4	2.6	Hall/Jackson	$106,438,650	2
GH-114	EE Butler Pkwy/Athens Hwy Capacity - widen to 6 lanes	Widening	4	6	1.5	Hall	$28,065,324	2
GH-033	SR 13/Atlanta Highway from Radford Road to South of SR 53	Widening	2	4	4.0	Hall	$145,126,512	3
GH-039	South Enota Drive Widening - Park Hill Drive to Downey Blvd	Widening	2	4	1.0	Hall	$9,858,115	3
GH-079	McEver Road Widening - Jim Crow Road to SR 53	Widening	2	4	4.4	Hall	$117,513,970	3
GH-112	Jesse Jewell Pkwy - widen to 6 lanes from John Morrow to Academy St	Widening	4	6	0.2	Hall	$6,267,165	3

Figure 5-3: GHMPO Regional Freight Study – Long-Term Projects (2033-2042)



5.3 Project Weighting Scoring of GHMPO Freight Infrastructure Improvements

The scoring for GHMPO Regional Freight Infrastructure Improvements were scored by the project team using the Needs Categories and weighting developed for the Gainesville-Hall Regional Transportation Plan: 2015 Update. The Needs Categories were intended to provide a criterion to weigh the impact a project may have on the community. This project weighting process can be used to guide investment decisions for funding improvements on the transportation system. The GHMPO Needs Categories and potential per category is listed in **Table 5-4**. Each project has the potential to score 1.00 points.

Table 5-4: GHMPO Needs Category Criteria and Weighting

Needs Categories	Initial Possible Points
Enhanced Movement of Vehicles Through and Around Gainesville	0.161
Maintenance of Existing System	0.142
Address Areas of Congestion	0.139
Effective Capacity and Safety on I-985/SR 365 and I-85 Corridors	0.095
Efficient Connections to I-85 and SR 400 Corridors	0.091
Enhanced Connections of Freeways to Industrial/Commercial Areas	0.081
Efficient Principal Arterials for Movement Within Hall and Jackson Counties	0.078
Enhanced Local Transit Including Pedestrian Access	0.073
Bicycle Network to Serve All Users	0.072
Commuter Transit Connection to Gwinnett County and Metro Atlanta	0.068

Source: Gainesville-Hall Regional Transportation Plan: 2015 Update

In the scoring for Short-Term Improvements, shown in **Table 5-5**, the new interchange near Martin Road scored the highest of the projects due to its impact on improving mobility on the freight system and minimizing the impact of trucks on surrounding roadways by providing direct access from industrial areas west of I-985 in the City of Oakwood. Projects that scored the lowest of the Short-Term Improvements focused more on safety improvements.

Table 5-5: Project Weighting for Short–Term GHMPO Regional Freight Infrastructure Improvements

Project ID	Project Name and Description	Project Type	Project Points
GH-015	I-985 New Interchange N of SR 13 Crossover near Martin Rd	New Interchange	0.709
GH-029	US 129/SR 11/Cleveland Hwy at Chattahoochee River- Bridge	Bridge	0.692
GH-030	US 129/SR 11/Cleveland Hwy at East Fork Little River (Bells Mill)- Bridge	Bridge	0.692
GH-057	SR 369/Browns Bridge Road at Chattahoochee River- Bridge	Bridge	0.692
GH-121	SR 53/Dawsonville Hwy at Chestatee River – Bridge	Bridge	0.692
GH-085	SR 53 WB at Chattahoochee River – Bridge	Bridge	0.692
GH-128	I-85 & I-985 Interchange Congestion Study (Exits 17, 20, 22 & 129)	Interchange Study	0.567
GH-069	Jesse Jewell Pkwy at John Morrow Pkwy Operations	Intersection	0.550
GH-125	Corridor Study - Lula to Sardis Connector	Corridor Study	0.550
GH-131	Green Street Corridor Improvements	Corridor Improvement	0.550
GH-109	I-85 From North of SR 211 to North of SR 53	Widening	0.476
GH-110	I-85 From North of SR 53/Green Street to North of SR 11/US 129/Lee Street	Widening	0.476
GH-120	I-985 From I-85 to SR 53	Widening	0.476
GH-121	I-985 From SR 53 to Howard Road	Widening	0.476
GH-130	White Sulphur Road Realignment	Roadway Realignment	0.320
GH-122	US 23/SR 365 From Howard Road to Ramsey-Fraser Lake – Corridor Safety Audit	Corridor Safety Audit	0.250
GH-123	Railroad Crossing at Chamblee Road near W. White Road	Rail Crossing Improvements	0.223
GH-124	Railroad Crossing at West Ridge Road near Short Street	Rail Crossing Improvements	0.223
GH-126	Intersection Safety Audit - Thurmon Tanner Parkway and cross streets	Safety Audit	0.159
GH-127	Intersection Safety Audit - HF Reed Industrial Parkway and Aloha Way	Safety Audit	0.159

In the scoring for Mid-Term Improvements, shown in **Table 5-6**, the new interchange at I-85 and SR 60 scored the highest of the projects due to its impact on improving mobility on the freight system and minimizing the impact of trucks on surrounding roadways by providing direct access from industrial and distribution areas. The remainder of the Mid-Term Improvements had similar scores due to their focus on improving mobility on the transportation system.

Table 5-6: Project Weighting for Mid–Term GHMPO Regional Freight Infrastructure Improvements

Project ID	Project Name and Description	Project Type	Project Points
GH-102	New Interchange located at crossing of I-85 and SR 60	New Interchange	0.709
GH-129	Congested Corridor Study (Jesse Jewell Pkwy, SR 53/Queen City Pkwy, John Morrow Pkwy, SR 11/Park Hill Drive)	Corridor Study	0.692
GH-038	SR 60/Thompson Bridge Road from SR 136/Price Road to Yellow Creek Road in Murrayville	Widening	0.550
GH-100	SR 369/Browns Bridge Road – Operations	Roadway Operations	0.550
GH-103	Athens Hwy at Chestnut Street Operations	Intersection	0.550
GH-104	Dawsonville Hwy/SR 53 at McEver Rd Operations	Intersection	0.550
GH-105	EE butler Pkwy/Athens Street at MLK Jr. Boulevard Intersection Improvements	Intersection	0.550
GH-107	Park Hill Dr at Lakeview Dr Operations - reduce slope on Lakeview Dr. approach	Intersection	0.550
GH-111	SR 60/Candler Road from S of I-985 to SR 124	Widening	0.550
GH-025	SR 211/Old Winder Highway from SR 53 to SR 347 on New Alignment	Widening	0.550
GH-084	McEver Road from SR 347 to Jim Crow Road/Gainesville Street	Widening	0.550
GH-108	MLK Jr Blvd Corridor - widen to 4 lanes with Streetscape from Queen City Pkwy to EE Butler	Widening	0.550

All of the Long-Term Improvements, shown in **Table 5-7**, had similar scores due to their focus on improving mobility on the transportation system.

Table 5-7: Project Weighting for Long–Term GHMPO Regional Freight Infrastructure Improvements

Project ID	Project Name and Description	Project Type	Project Points
GH-018	SR 369/Browns Bridge Road from Forsyth County Line to SR 53	Widening	0.550
GH-020	US 129/Cleveland Hwy From Limestone Parkway to Nopone Road	Widening	0.550
GH-040	SR 53 From I-85/Jackson County to SR 211/Hall County	Widening	0.550
GH-114	EE Butler Pkwy/Athens Hwy Capacity - widen to 6 lanes	Widening	0.550
GH-033	SR 13/Atlanta Highway from Radford Road to South of SR 53	Widening	0.550
GH-039	South Enota Drive Widening - Park Hill Drive to Downey Blvd	Widening	0.550
GH-079	McEver Road Widening - Jim Crow Road to SR 53	Widening	0.550
GH-112	Jesse Jewell Pkwy - widen to 6 lanes from John Morrow to Academy St	Widening	0.550

6. FINANCIAL PLAN

This section summarizes federal and state funding, grant and loan programs available to fund freight transportation projects in Georgia.

6.1 Federal Funding

In December 2015, Congress passed the FAST Act, the first long-term surface transportation bill in a decade. The legislation provides five years of Federal funding certainty for highway, highway safety, and transit programs; a modest increase in federal funding levels; reforms supporting more efficient project delivery; focused resources for highway freight infrastructure investments; and a continuation of performance-based program implementation.

The FAST Act transforms the National Freight Policy provisions of MAP-21 into a new program that funds freight-related highway improvements. The FAST Act authorizes $6.2 billion for the formula program nationally, and Georgia's apportionment totals $206.5 million ($41.3 million annual average) through FY2020 for improvements on the Primary Highway Freight System (PHFS). The only portion of the PHFS in the GHMPO region is I-85 in Jackson County.

The FAST act also provides formula funding to projects located on Critical Rural Freight Corridors and Critical Urban Freight Corridors. Based on formulas in the FAST Act up to 234 miles of Critical Rural Freight Corridors and up to 117 miles of Critical Urban Freight Corridors can be designated in Georgia. It is possible that the GHMPO region could have portions of the truck freight network designated into these two corridors. The most critical freight route in the GHMPO region is I-985, and GHMPO should continue to coordinate with GDOT to get this facility designated as a route on the Critical Urban Freight Corridor.

6.1.1 Infrastructure for Rebuilding America (INFRA) Grants

The INFRA program provides dedicated, discretionary funding for projects that address critical issues facing our nation's highways and bridges. INFRA advances the FASTLANE program established in the FAST Act and utilizes updated criteria to evaluate projects to align them with national and regional economic vitality goals and to leverage additional non-federal funding. The new program will increase the impact of projects by leveraging capital and allowing innovation in the project delivery and permitting processes, including public-private partnerships.

FHWA will make awards under the INFRA program to both large and small projects. For a large project, the INFRA grant must be at least $25 million. For a small project, the grant must be at least $5 million. For each fiscal year of INFRA funds, 10 percent of available funds are reserved for small projects.

Eligible INFRA project costs may include: reconstruction, rehabilitation, acquisition of property (including land related to the project and improvements to the land), environmental mitigation,

construction contingencies, equipment acquisition, and operational improvements directly related to system performance.

6.1.2 TIGER Discretionary Grants

The TIGER Discretionary Grants program provides funding for transportation agencies to invest in freight-related road, rail, and port projects to achieve specific national objectives, which are difficult to fund through traditional federal programs.

6.1.3 Congestion Mitigation and Air Quality (CMAQ) Program

CMAQ money supports transportation projects that reduce mobile source emissions in areas designated by the U.S. Environmental Protection Agency as in nonattainment or maintenance of national ambient air quality standards. Eligible freight-related activities include rail intermodal freight transportation improvements.

6.1.4 Federal Rail Safety Improvement Act of 2008

This Act primarily addresses rail safety through regulations, but it provides annual grants to improve rail safety technology, railroad safety infrastructure, at-grade railroad crossing safety, and education programs.

6.1.5 Rail Line Relocation and Improvement Capital Grant Program

Under this program, a state (or political subdivision such as a municipality) is eligible for a grant from Federal Railroad Administration for any construction project that improves rail line routes, structures lateral or vertical relocations, or mitigates adverse safety effects.

6.1.6 Transportation Infrastructure Finance and Innovation Act (TIFIA)

The goal of TIFIA financing is to leverage federal resources to stimulate private capital investment to improve transportation infrastructure by providing credit assistance in the form of direct loans, loan guarantees, and standby lines of credit for projects of national or regional significance. TIFIA financing is available for large-scale public or private transportation projects. The program is aimed at large projects with a value greater than $50 million.

6.1.7 The Railroad Rehabilitation and Improvement Financing Program

Under this program established in 1998, the FRA provides up to $35 billion in direct loans and loan guarantees with $7 billion reserved for Class I railroad projects. The loans can be used to refinance outstanding debt that result from infrastructure projects, which the program also helps to finance. State and local governments, government-sponsored authorities, corporations, railroads, and others can participate in the program.

6.1.8 Airport Improvement Program (AIP)

The Airport Improvement Program is administered by the Federal Aviation Administration and provides grants for the planning and development of public-use airports that are included in the National Plan of Integrated Airport Systems (NPIAS).

6.1.9 Public Private Partnership (P3)

Public Private Partnerships (P3s) are contractual agreements formed between a public agency sponsor and a private sector entity. P3s allow the private sector to participate in delivering and financing transportation projects. Public sponsors are turning to P3s as other sources of revenue decline.

Recently, the State of Georgia, Georgia Ports Authority (GPA), Murray County and CSX Transportation signed a Memorandum of Agreement, creating a partnership which will provide cost savings, traffic mitigation, and additional operational services benefiting shippers, truckers and steamship lines. The facility will open in 2018 with a capacity of 50,000 containers per year. Based on GPA estimates, the capacity will double over the next 10 years.

This partnership is a good model, and the GHMPO and the Hall County Chamber of Commerce should examine if there are opportunities to create a similar intermodal facility in northern Hall County adjacent to the CSX rail line and SR 365 near Lula. An intermodal facility in northern Hall County could potentially remove thousands of freight containers from traveling SR 365, I-985, and I-85 through the Atlanta metropolitan area.

6.2 State Funding

The Transportation Funding Act (TFA) of 2015 (HB 170) provides dedicated, predictable and sustainable revenue for the repair and maintenance of statewide roads and bridges. It is projected that this funding structure will generate more than $900 million annually, and it will help improve roadways throughout Georgia. This revenue increase is derived from fuel-based taxes and several other sources. While there is no dedicated funding for freight, freight projects are eligible to receive TFA funding.

TFA authorizes counties and municipalities to establish local gasoline sales taxes up to 3 cents per gallon (reflecting 1% of a maximum pump price of $3.00 per gallon allowed in the calculation) and to enact transportation special purpose local option sales taxes (T-SPLOSTs).

6.2.1 Major Mobility Investment Program (MMIP)

Georgia has seen significant population and economic growth resulting in mobility challenges, particularly throughout the Metro Atlanta region. As a result, a set of major projects were identified to address mobility challenges. These projects were identified through planning studies as well as cooperative and collaborative efforts with Metropolitan Planning Organizations and local governments. Passage of the TFA of 2015 yielded the flexibility and funding to begin addressing these major investments in Georgia's transportation network. One of the MMIP projects addresses congestion on I-85 in a small portion of the GHMPO region. GDOT will add one additional general purpose lane in each direction on I-85 from SR 211 to US 129 (10.5 miles) within Barrow and Jackson counties.

6.2.2 Local Maintenance & Improvement Grant (LMIG)

Georgia DOT is committed to assisting local governments achieve much-needed improvements to the state's roadway network. The LMIG program allows local governments greater flexibility and quicker project delivery while allowing GDOT to effectively administer the program with a reduced workforce

and new funding match requirements. The amount of funding is based on the total centerline road miles and the total population in each jurisdiction as compared with the total statewide centerline road miles and total statewide population. **Table 6-1** provides the LMIG 2017 and 2018 formula grants in the GHMPO region. A local match of 30 percent is required for each grant list below.

Table 6-1: LMIG 2017 and 2018 Formula Grants in GHMPO Region

County	City	Total Mileage	2017 LMIG Formula Amount	2018 LMIG Formula Amount
Hall	Unincorporated	1,060	$1,722,608.81	$1,855,594.38
Hall	Clemont	7	$12,095.38	$12,443.90
Hall	Flowery Branch	30	$62,611.35	$69,789.90
Hall	Gainesville	143	$333,699.41	$366,983.54
Hall	Oakwood	25	$45,063.87	$45,063.87
Hall/Banks	Gillsville	3	$4,544.10	$4,476.66
Hall/Banks	Lula	26	$40,251.83	$42,750.75
Jackson/ Gwinnett/ Barrow/ Hall	Braselton	43	$89,488.15	$100,556.54

The following activities/projects are eligible for LMIG funds and could improve the movement of freight in the GHMPO region:

- Preliminary engineering (including engineering work for right-of-way and Utility plans)
- Construction supervision and inspection
- Utility adjustments or replacement
- Patching, leveling and resurfacing a paved roadway
- Grading, drainage, base and paving existing or new roads
- Replacing storm drain pipe or culverts
- Intersection improvements
- Turn lanes
- Bridge repair or replacement
- Roadway signs, striping, guardrail installation
- Signal installation or improvement

6.2.3 Quick Response Program

The Quick Response Program is a mechanism to quickly identify, approve and construct small traffic operational projects on the state route system. This process allows each GDOT District Engineer the ability to quickly identify a needed project, solicit bids and then award the project to the lowest bidder with state dollars.

The Quick Response Project Program consists of operational projects such as restriping, intersection improvements, turn lane additions and extensions that can be implemented in a short period of time and for under $200k. The typical time frame from concept to construction is three to four months. In

FY 2016, Quick Response programmed 103 projects valued at approximately $12 million in funds distributed statewide.

Examples of Quick Response Program projects are noted below:

- Construct a right turn lane and widen median opening at SR 520 and Ty Ty Omega Road in Tift County, Georgia.

Figure 6-1: SR 520 and Ty Ty Omega Road Intersection in Tift County

- Construct an additional turn lane on the I-75 south bound ramp.

Figure 6-2: I-75 Off-Ramp in South Georgia

6.2.4 Off-System Safety Program

For the portion of the GHMPO truck freight network that is off-system, GDOT has a safety program called Off-System Safety Program (OSS) that is intended to enhance off–system safety using a data driven approach. The program focuses on low-cost safety improvements that can be implemented within the existing right of way that are likely to reduce the frequency and severity of crashes. Applicable work includes striping, sign replacement, rumble strips, raised pavement markers, and minor intersection improvements.

The OSS program is administered by the Local Grants Office. Allocation of funds (OSS is not a grant program) will not be based on even distribution among local jurisdictions or congressional districts. Projects and routes will be selected based on safety needs using crash summaries that are updated annually by Traffic Operations.

7. NEXT STEPS

In the GHMPO region, the movement of freight is a major economic component to the region's economy. The GHMPO Regional Freight Study provided several freight-related projects and policies to assist the GHMPO in moving freight more safely and efficiently within the GHMPO study area. Below are a few of the next steps that the GHMPO can take to improve its freight system:

- Use the guidance of the GHMPO Freight Goals and Objectives to make decisions which impact the GHMPO freight system.
- Utilize the GHMPO Freight Performance Measures to track the performance of the GHMPO freight system and identify where the region's greatest freight needs are required.
- For future freight-related developments, GHMPO should coordinate with local communities to target land adjacent or in close proximity to the GHMPO freight system to minimize impact on region's roadways.
- GHMPO to lead the continuation of communication between public and private sectors that was initiated during the GHMPO Regional Freight Study and focused upon the issues and opportunities involved in the movement of freight within the GHMPO study area. The GHMPO staff will take the leadership in targeting the frequency of FAC meetings. This continued dialogue about the impacts and needs of the local freight community will keep freight at the forefront of discussions within the GHMPO communities.
- Integrate the GHMPO projects into the next planning updates for the following local and state plans:
  - GHMPO Regional Transportation Plan;
  - GHMPO Transportation Improvement Plan (TIP);
  - Georgia Statewide Strategic Transportation Plan; and,
  - Georgia Statewide Freight and Logistics Plan.

APPENDIX A – GHMPO FREIGHT NETWORK TIER 1 ROADWAYS

Roadway Name	County
I-85	Jackson
I-985	Hall

APPENDIX B – GHMPO FREIGHT NETWORK TIER 2 ROADWAYS

Roadway Name	County	From	To
Cleveland Highway/US 129/GA-11	Hall	Hall C/L	Old Clarks Bridge Rd
US 129 S/Limestone Parkway	Hall	US 129 S/Limestone Parkway	Jesse Jewell Parkway/GA-369
Park Hill Dr/ Morningside Dr /GA-11 Bus R	Hall	Old Clarks Bridge Rd	Thompson Bridge Rd/GA-60
Thompson Bridge Rd/GA-60	Hall	Hall C/L	Park Hill Dr/ GA-11 Bus R
Green St/EE Butler Parkway/ GA-60	Hall	Park Hill Dr/ GA-11 Bus R	Jesse Jewell Parkway/GA-369
EE Butler Parkway/GA-11/US 129 Bus R	Hall	Jesse Jewell Parkway/GA-369	I-985
EE Butler Parkway/Athens Highway/US 129	Hall	I-985	Hall C/L
Cornelia HIghway/ GA-13/ US 23	Hall	I-985	Hall C/L
Martin Luther King Jr Blvd	Hall	Jesse Jewell Parkway/GA-369	EE Butler Parkway/GA-11/US 129 Bus R
Queen City Parkway/Candler Rd / GA-60	Hall	Jesse Jewell Parkway/GA-369	Hall C/L
GA-60	Jackson	Hall C/L	GA-124
Academy St	Hall	EE Butler Parkway/GA-11/US 129 Bus R	Jesse Jewell Parkway/GA-369
Dawsonville Highway/GA-53	Hall	Hall C/L	Washington St
Washington St	Hall	Dawsonville Highway/GA-53	Academy St
Browns Bridge Rd/GA-369	Hall	Hall C/L	Atlanta Highway/GA-13
McEver Rd/GA-53	Hall	Dawsonville Highway/GA-53	Mundy Mill Rd/GA-53
Mundy Mill Rd/Winder Highway/ GA-53	Hall	McEver Rd/GA-53	Hall C/L
GA-53	Jackson	Hall C/L	Jackson C/L

APPENDIX C – GHMPO FREIGHT NETWORK TIER 3 ROADWAYS

Roadway Name	County	From	To
Abbe Pl	Hall	Grove St	Maple St
Airport Pkwy	Hall	Lee Gilmor Memorial Airport	
Airport Rd	Hall	Pearl Nix Parkway	Dorsey St
Airport St	Hall	Hancock Ave Ext	HFC Dr
Allied Dr	Hall	Delta Dr	Atlas Circle
Athens St	Hall	Martin Luther King Dr	EE Butler Parkway/US 129
Atlanta Hwy/GA-13	Hall	I-985	Hall C/L
Atlanta Hwy/GA-13	Hall	I-985	Jesse Jewell Parkway/GA-369
Atlanta St	Hall	Bradford St	EE Butler Parkway/US 129
Atlas Cir	Hall	Hilton Dr	Allied Dr
Aviation Blvd	Hall	Industrial Blvd	Queen City Parkway/Candler Rd / GA-60
B U Bowman Dr	Hall	Friendship Rd/GA-347	Industrial Land Uses
Barber Rd	Hall	Calvary Church Rd	Industrial Land Uses
Barrett Rd	Hall	Athens Highway/US 129	Industrial Land Uses
BBS Way	Hall	Winder Highway/GA-53	Technology Parkway
Bell Dr	Hall	McEver Rd	Industrial Land Uses
Belle Wood Ct	Hall	Hall C/L	Bristol Industrial Way
Bill Minor Rd	Hall	Cagle Rd	Cornelia Highway/US 23/GA-13
Bradford St	Hall	Jesse Jewell Parkway/GA-369	Ridge Rd

Roadway Name	County	From	To
Branch St	Hall	Jesse Jewell Parkway/US 129 Bus R	NE of Mill St
Bristol Industrial Way	Hall	Friendship Rd/GA-347	Industrial Land Uses
Cagle Rd	Hall	Lula Rd/GA-52	White Sulphur Rd
Calvary Church Rd	Hall	Candler Rd/GA-60	Poplar Springs Church Rd
Camp St	Hall	Athens St	Dale St
Candler Park Dr	Hall	Candler Rd/GA-60	Industrial Land Uses
Cantrell Rd	Hall	Atlanta Hwy/GA-13	Atlanta Hwy/GA-13
Carson Ct	Hall	Bristol Industrial Way	Industrial Land Uses
Carter St	Hall	Odell St	Atlanta Hwy/GA-13
Centennial Cir	Hall	Centennial Dr	Industrial Land Uses
Centennial Dr	Hall	Mountain View Rd	Memorial Park Dr
Chamblee Rd	Hall	McEver Rd	Thurmon Tanner Parkway
Chestnut St SE	Hall	EE Butler Parkway/US 129 Bus R	Moreno St
Chestnut St SE	Hall	S of Martin Luther King Jr Blvd	Atlanta St
Commerce St	Hall	Thurmon Tanner Parkway	Industrial Land Uses
Construction Dr	Hall	Candler Rd/GA-60	Industrial Land Uses
Coronet Rd	Hall	Atlanta Hwy/GA-13	Industrial Land Uses
Crescent Dr	Hall	Jesse Jewell Parkway/GA-369	White Sulphur Rd
Dale St	Hall	Camp St	Industrial Land Uses
Dalton Ct	Hall	Technology Parkway	Industrial Land Uses
Danbury Ln	Hall	Monroe Dr	Industrial Land Uses
Davis St	Hall	Dorsey St	Grove St
Dean St	Hall	Ridge Rd	Marler St
Delta Dr	Hall	Browns Bridge Rd/GA-369	Allied Dr
Dorsey St	Hall	Aviation Blvd	Jesse Jewell

Roadway Name	County	From	To
			Parkway/GA-369
Doss St	Hall	Emmett St	Hancock Ave Ext
E Railroad Ave	Hall	Cantrell Rd	Atlanta Hwy/GA-13
E Ridge Rd	Hall	Athens St	Old Cornelia Hwy
Elk Ridge Ct	Hall	Atlanta Hwy/GA-13	Industrial Land Uses
Emmett St	Hall	Doss St	Lanthem Dr
Enterprise Way	Hall	Thurmon Tanner Parkway	Industrial Land Uses
Frances Ave	Hall	Aviation Blvd	Scott St
Friendship Rd/GA-347	Hall	McEver Rd	Swansey Rd
Fullenwider Rd	Hall	Candler Rd/GA-60	Industrial Land Uses
Georgia Ave	Hall	Industrial Blvd	Ridge Rd
Gibbs Dr	Hall	Barber Rd	Industrial Land Uses
Goble Dr	Hall	Sargent Rd	Industrial Land Uses
Goetz Cir	Hall	Sargent Rd	Industrial Land Uses
Golden Pkwy	Hall	Friendship Rd/GA-347	Industrial Land Uses
Griffin Cir	Hall	Hancock Ave Ext	Old Candler Rd
Grove St	Hall	Industrial Blvd	Banks St
H F Reed Industrial Park Connector	Hall	Rate Ct	Thurmon Tanner Parkway
Hancock Ave	Hall	Ridge Rd	I-985
Hancock Ave	Hall	Industrial Blvd	Ridge Rd
HFC Dr	Hall	Ridge Rd	Airport St
Hidden Hills Dr	Hall	Browns Bridge Rd/GA-369	Industrial Land Uses
High St W	Hall	Bradford St	Pine St
High Tech Dr	Hall	Technology Parkway	Industrial Land Uses
Highland Ter	Hall	Atlanta Hwy/GA-13	Lyman Dr
Hilton Ct	Hall	Hilton Dr	Industrial Land Uses
Hilton Dr	Hall	Browns Bridge Rd/GA-369	Atlanta Hwy/GA-13
Hilton Way	Hall	Hilton Dr	Industrial Land Uses
Holland Dr	Hall	Browns Bridge Rd/GA-369	Industrial Land

Roadway Name	County	From	To
			Uses
Howington Rd	Hall	Old Winder Hwy/GA-211	Industrial Land Uses
Industrial Blvd	Hall	Atlanta Hwy/GA-13	Bradford St
Industrial Dr	Hall	Memorial Park Dr	Industrial Land Uses
Industry Way	Hall	Thurmon Tanner Parkway	Industrial Land Uses
Jarrard Dr	Hall	Bradford St	Hancock Ave
Jesse Jewell Pkwy/GA-369	Hall	Browns Bridge Rd/GA-369	EE Butler Parkway/US 129/GA-11
Lathem Dr	Hall	Emmett St	Hancock Ave Ext
Ledford Rd	Hall	Atlanta Hwy/GA-13	Industrial Land Uses
Lee Land Rd	Hall	Calvary Church Rd	Candler Rd/GA-60
Lula Rd/GA-52	Hall	Cornelia Hwy/US 23	Old Cornelia Hwy
M Stringer Rd	Hall	McEver Rd	McBrayer Rd
Mabry Rd	Hall	Mountain View Rd	N of Centennial Dr
Main St SW	Hall	Jesse Jewell Parkway/GA-369	Industrial Blvd
Maple St	Hall	Industrial Blvd	High St
Marler St	Hall	Bradford St	Dean St
Martin Luther King Jr Blvd	Hall	Queen City Parkway/GA-60	EE Butler Parkway/US 129/GA-11
May Dr	Hall	Fullenwider Rd	Industrial Land Uses
McBrayer Rd	Hall	McEver Rd	Chamblee Rd
McEver Rd	Hall	Hall C/L	Mundy Mill Rd/GA-60
Memorial Park Dr	Hall	Browns Bridge Rd/GA-369	Atlanta Hwy/GA-13
Mitchell St	Hall	Industrial Blvd	Davis St
Monroe Dr	Hall	Old Candler Rd	Athens St
Moreno St	Hall	Chestnut St	Dean St
Mountain Center Plz	Hall	Mountain View Parkway	Industrial Land Uses
Mountain Place Ln	Hall	Mountain Center Plz	Industrial Land Uses
Mountain View Pkwy	Hall	Cornelia Hwy/US 23	Industrial Land Uses

Roadway Name	County	From	To
Mountain View Rd	Hall	McEver Rd	Atlanta Hwy/GA-13
Murphy Blvd	Hall	Browns Bridge Rd/GA-369	Industrial Land Uses
New Harvest Rd	Hall	Calvary Church Rd	Industrial Land Uses
Oakbrook Dr	Hall	Candler Rd/GA-60	Industrial Land Uses
Odell St	Hall	Lyman Dr	Carter St
Okelly Rd	Hall	Candler Rd/GA-60	Industrial Land Uses
Old Candler Rd	Hall	Candler Rd/GA-60	Wildwood Dr
Old Mundy Mill Rd	Hall	Mundy Mill Rd/GA-53	Industrial Land Uses
Old Oakwood Rd	Hall	Mountain View Rd	Main St
Old Winder Hwy/GA-211	Hall	Winder Highway/GA-53	Hall C/L
Palmero Ct	Hall	Belle Wood Ct	Hall C/L
Palmour Dr	Hall	Queen City Parkway/GA-60	Lee Gilmour Memorial Airport
Palmour Pl	Hall	Palmour Dr	Industrial Land Uses
Parkway Industrial Park Dr	Hall	Thunder Rd	Industrial Land Uses
Pearl Nix Pkwy	Hall	Jesse Jewell Parkway/GA-369	Queen City Parkway/GA-60
Pine Valley Ln	Hall	Pine Valley Rd	Industrial Land Uses
Pine Valley Rd	Hall	White Sulphur Rd	Pine Valley Ln
Progress Ct	Hall	Technology Parkway	Industrial Land Uses
Purina Dr	Hall	Athens St	E Ridge Rd
Radford Rd	Hall	McEver Rd	Atlanta Hwy/GA-13
Railroad St	Hall	Chamblee Rd	Industrial Land Uses
Ramsey Rd	Hall	Between Industrial Land Use off of Cornelia Hwy/US 23	
Sargent Rd	Hall	White Sulphur Rd	Industrial Land Uses
Scott St	Hall	Frances Ave	Industrial Land Uses
Seymour Rd	Hall	White Sulphur Rd	Industrial Land

Roadway Name	County	From	To
			Uses
Sherwin Pkwy	Hall	Atlanta Hwy/GA-13	Industrial Land Uses
Short St	Hall	Ridge Rd	Industrial Land Uses
GA-11 Connector/Enota Dr/Downey Blvd	Hall	Park Hill Dr/GA-11 Bus R	Jesse Jewell Parkway/GA-369
Holiday Rd	Hall	McEver Rd	Atlanta Hwy/GA-13
Summit St	Hall	EE Butler Parkway/US 129 Bus R	Grove St
Swansey Rd	Hall	Friendship Rd/GA-347	Blackjack Rd
Tanners Creek Dr	Hall	Thurmon Tanner Parkway	Industrial Land Uses
Technology Pkwy	Hall	Winder Highway/GA-53	Industrial Land Uses
Thunder Rd	Hall	Holiday Rd	Industrial Land Uses
Thurmon Tanner Pkwy	Hall	Atlanta Hwy/GA-13	Atlanta Hwy/GA-13
Tribble Gap Rd	Hall	Cornelia Hwy/US 23	Industrial Land Uses
Tumbling Creek Rd	Hall	Atlanta Hwy/GA-13	Industrial Land Uses
W Highland Dr	Hall	Highland Ter	Industrial Land Uses
W Park Dr	Hall	Atlanta Hwy/GA-13	Tumbling Creek Rd
Ridge Rd	Hall	Athens St	Airport Parkway
W White Rd	Hall	Chamblee Rd	H F Reed Industrial Park Connector
Southfield Dr	Hall	Thurmon Tanner Parkway	Industrial Land Uses
Walker St	Hall	Chicopee Dr	Mountain View Rd
Waters Edge Dr	Hall	McEver Rd	Industrial Land Uses
White Sulphur Rd	Hall	Jesse Jewell Parkway/GA-369	Cornelia Highway/US 23/GA-13
Wildwood Dr	Hall	Old Candler Rd	Industrial Land Uses
Zander Dr	Hall	Browns Bridge Rd/GA-369	Industrial Land Uses
Amy Industrial Ln	Jackson	Jackson Trail Rd	Industrial Land

Roadway Name	County	From	To
			Uses
BDC Pkwy	Jackson	Broadway Ave/GA-124	Braselton Industrial Blvd
Braselton Industrial Blvd	Jackson	Broadway Ave/GA-124	Josh Pirkle Rd
Braselton Pkwy	Jackson	Jesse Cronic Rd	GA-53
Brassie Ln	Jackson	Broadway Ave/GA-124	GA-53
Broadway Ave/GA-124	Jackson	Jackson C/L	GA-53
Industrial Blvd	Jackson	GA-53	Industrial Land Uses
Jackson Trail Rd	Jackson	GA-53	Industrial Land Uses
Jesse Cronic Rd	Jackson	Broadway Ave/GA-124	Industrial Land Uses
Josh Pirkle Rd	Jackson	Broadway Ave/GA-124	Industrial Land Uses
Nancy Industrial Rd	Jackson	GA-53	Industrial Land Uses
Pearl Industrial Ave	Jackson	GA-53	Industrial Land Uses
GA-124 W	Jackson	GA-53	GHMPO Boundary