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1 Executive Summary

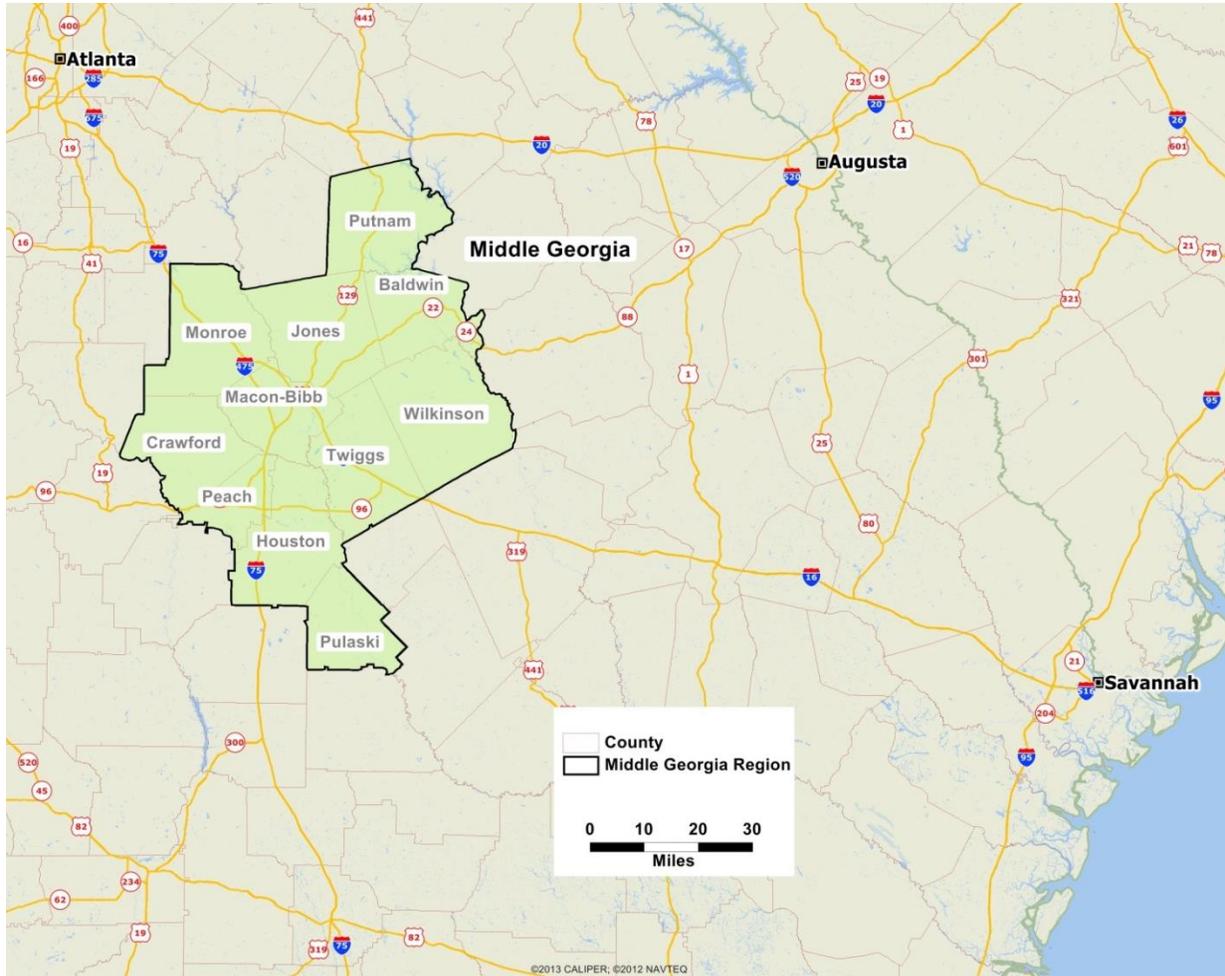
Background

Between 2010 and 2014, a small working group of economic development professionals and community leaders from Houston and Bibb counties conducted numerous preliminary meetings to evaluate the suitability of infrastructure assets in Middle Georgia for the creation of a freight and logistics hub, inland port, or container yard. In particular, the group included the 21st Century Partnership, Houston County Development Authority, Macon Economic Development Commission and Middle Georgia Regional Commission. The group determined that an outside perspective from experts in the freight and logistics industry would be beneficial to their analysis. This opportunity arose in July 2014. As a result of efforts by the 21st Century Partnership, and in response to defense-related job losses experienced in the region, Middle Georgia was afforded the opportunity to apply for funding from the Office of Economic Adjustment, Department of Defense.

The Middle Georgia Regional Commission was asked by the local governments of the region to serve as the applicant for these funds. At the direction of the Middle Georgia Regional Commission Council, a series of projects was developed, which included three asset maps (infrastructure, industrial and human capital), and the launch of a regional leadership development program. A keystone element of the infrastructure asset map is the freight and logistics study. This study, along with the other projects funded by the Office of Economic Adjustment, Department of Defense, is part of a larger initiative to assess and enhance the capacity of Middle Georgia to grow and diversify its regional economy.

The Middle Georgia Regional Commission appointed Wilson and Company and its subcontractor, GKSF Global Research, Inc. to analyze freight flows and the logistics industry in the Middle Georgia Region. The Region consists of eleven counties – Baldwin, Crawford, Houston, Jones, Macon-Bibb, Monroe, Peach, Pulaski, Putnam, Twiggs, and Wilkinson. The “*Middle Georgia Freight and Logistics Study*” was undertaken to address the movement of freight in, out and through the Region, the supporting freight transportation infrastructure, and a competitive analysis of how Middle Georgia rates from a logistics standpoint versus other regions. In addition, an interview survey was conducted to solicit feedback on shipper and industry-specific trends and opportunities that relate to Middle Georgia. Both commercial and military freight movements are quantified, although military cargo movements to and from Robins Air Force Base are mingled in the commercial data, and are therefore indistinguishable from commercial freight. The overall Study objective is to highlight strategies for development, actions to be taken, or to identify area advantages that might be leveraged to encourage logistics services and manufacturing growth within the Middle Georgia Region.

Figure 1: Middle Georgia Region



Source: GKSF

General Conclusion

The Middle Georgia Region is poised to take advantage of macro-economic and freight industry trends, and achieve above-average growth in logistics activity. Positive economic growth prospects in the Southeast, and Georgia in particular, as well as expected continued growth at the Port of Savannah set the stage for increased focus on Middle Georgia as a viable manufacturing and freight distribution hub. To further highlight Middle Georgia’s favorable position, the Georgia Ports Authority (GPA) is considering an “inland port” location in Middle Georgia. This program, namely Network Georgia is a proposed development of a rail-served container yard, establishing rail service between the Port of Savannah and an as-yet-determined point in Middle Georgia. This would substantially elevate the Region’s viability as a regional freight distribution center, adding the intermodal rail mode as an additional transportation option connecting domestic and international supply-chains. A major challenge, as interviews conducted as part of this study suggest, is that Middle Georgia does not receive consideration because it is overshadowed by major domestic and international transportation hubs to the north and to the south, namely Atlanta and Savannah. This perception is held primarily by national and international logistics managers without experience in Middle Georgia. Those that do operate in the Middle Georgia Region endorse its capabilities, particularly for Southeast distribution that requires no, or infrequent rail use. A concerted effort to promote Middle Georgia as a viable manufacturing and freight distribution option is warranted if this perception is to be overcome.

Macroeconomic Outlook

Economic activity in the South Atlantic and South Central regions¹ of the country will have an impact on future Middle Georgia freight flows. These two regions of the country include the major domestic destinations and origins for Middle Georgia freight, and are also the two regions that would be served by any distribution centers developed in the Region. The two regions have a positive economic outlook and this should support the growth in demand for freight-related infrastructure and logistics services. Growth of disposable income in the South Atlantic Census Division is projected to outperform the broader U.S. economy over the next decade, a reflection of factors that include healthy population growth, healthy demand for labor, and stronger investment activity relative to the rest of the country. And the South Atlantic is projected to be the fastest growing region of the country over the next decade, as measured by disposable income, while the East South Central is projected to be the sixth fastest growing region.

The growth of manufacturing will continue to play an important role in regional economic development. In 2014, manufacturing accounted for 11 percent of Georgia's Gross State Product (GSP), 16 percent in South Carolina, 18 percent in Alabama and 16 percent in Tennessee.² These shares compare with manufacturing's 12 percent share of national Gross Domestic Product (GDP). Industrial production in Georgia and South Carolina is projected to grow at a faster rate than the country as a whole, partly driven by the continued expansion of manufacturing activity.

Economic growth in Middle Georgia (represented by data for the Macon MSA, the Warner Robins MSA, and the Macon-Warner Combined Statistical Area), generally tracked the rest of the State of Georgia during the 2010 to 2012 post-recession recovery. Employment growth has exceeded that of the State over the past three years.

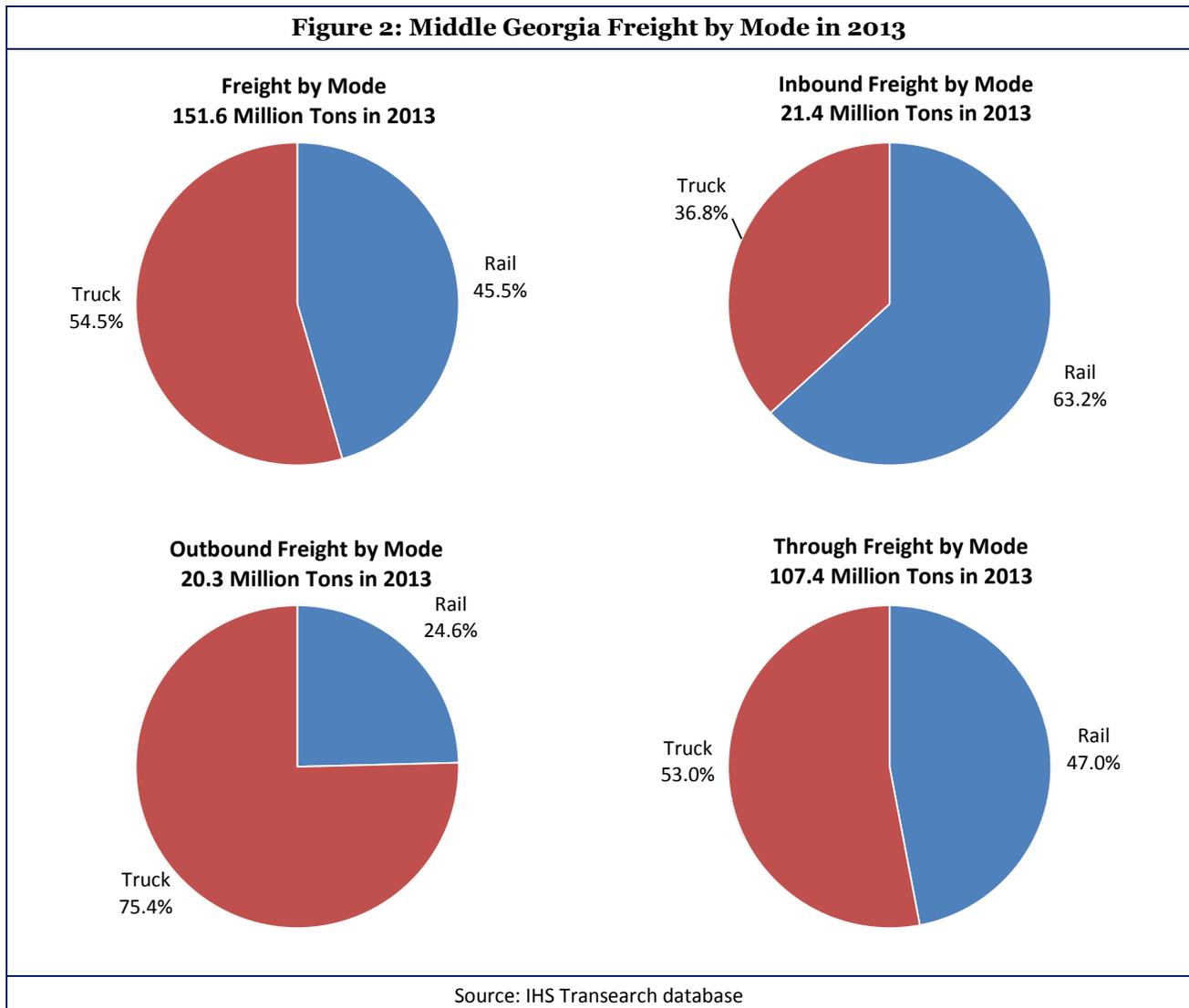
¹ The U.S. is divided into nine divisions by the Census Bureau and they are used in this report as the basis for regional economic trend analysis. The South Atlantic Division includes WV, MD, DE, VA, NC, SC, GA and FL. The East South Central Division includes KY, TN, MS and AL.

² Based on data from the Bureau of Economic Analysis

Middle Georgia Freight Activity

Middle Georgia handled 151.6 million tons of freight in 2013, comprised of 21.3 mil tons Inbound, 20.6 mil tons outbound, and 107.4 mil tons “through”, meaning transiting the region without stopping. The overwhelming majority of freight originating, terminating, or through Middle Georgia was low-value bulk cargo (e.g. coal, forest products, or raw minerals). Secondary Traffic, which is containerized freight to or from a distribution warehouse accounted for 3.8 percent inbound (813,200 tons) and 2.5 percent inbound (507,500 tons). The handling of Secondary Traffic is generally considered to be more labor intensive and requires a higher investment in warehousing facilities and equipment; therefore, many regions focus on this freight classification in light of the jobs and economic investment that are required to support the handling of Secondary Traffic. Secondary Traffic is also typically higher-value than bulk cargos, and can support higher investment in people and facilities. It should be noted that nearly 6.5 million tons of Secondary Traffic moves through Middle Georgia (for example, between Atlanta and other locations) without stopping. Middle Georgia’s ability to capture any of this traffic will be dependent on the Region’s ability to convince transportations managers of Middle Georgia distribution advantages over existing distribution hub locations.

Figure 2: Middle Georgia Freight by Mode in 2013



Middle Georgia Freight Forecast

The projected compound annual growth rate (CAGR) for Middle Georgia Total Freight (combined inbound, outbound and through) is 1.8 percent over the 10 year period from 2013 to 2023. The principal growth sectors are the higher-value/warehouseable/manufacturing commodities, which are projected to grow faster than the lower value/bulk commodity groups – 10-year CAGRs of 3.4 percent and 1.0 percent, respectively. This reflects the stronger growth of manufacturing-related goods and consumption goods relative to the more mature bulk commodities. Outbound freight of higher value/warehouseable/manufacturing commodities is projected to grow at a faster pace than inbound shipments – the 10-year CAGRs are 3.2 percent for outbound freight and 2.6 percent for inbound freight.

The projected growth rates for Middle Georgia freight flows (inbound, outbound and through) are macro driven (e.g. economic trends) and do not take into consideration new freight generated by new warehousing/distribution and manufacturing investment that may be captured by Middle Georgia as a consequence of its competitive advantages (for example, lower cost structure relative to Atlanta or a new inland port tied to the Port of Savannah as part of GPA’s Network Georgia strategy). A summary of the freight forecast is provided in Table 1 and Table 2.

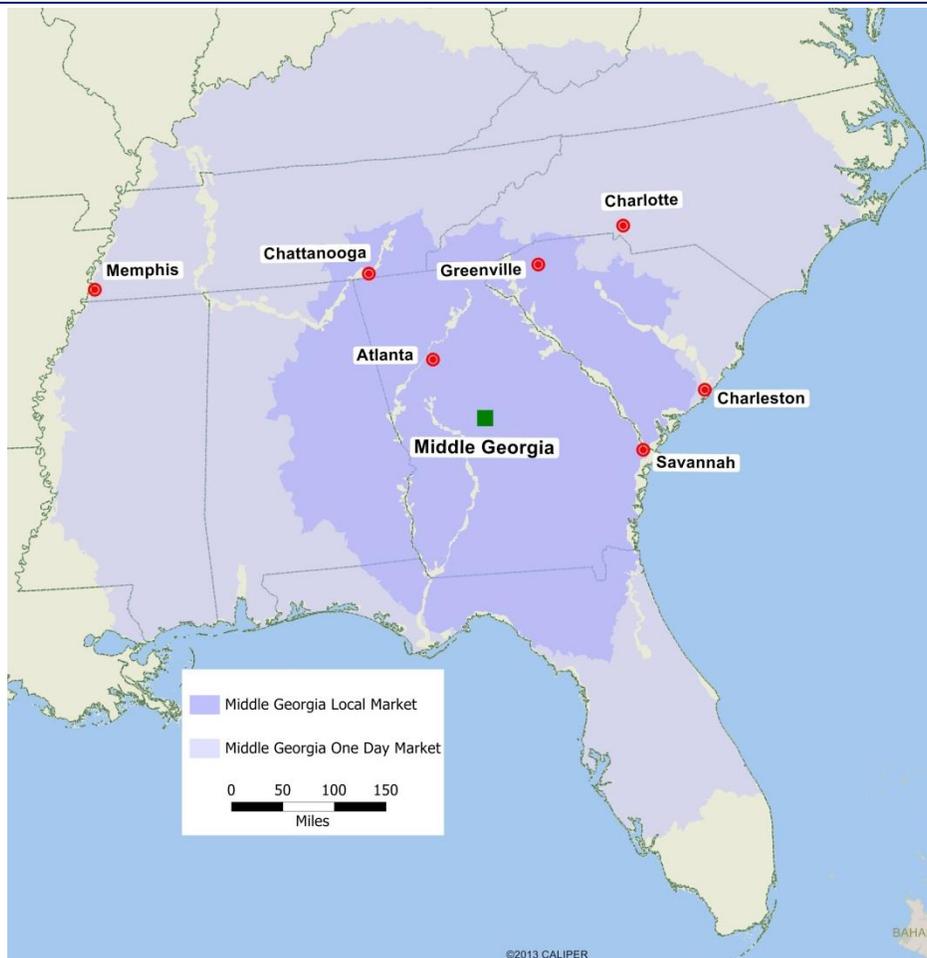
Table 1: Higher-Value / Warehouseable / Manufacturing Commodity Groups			
Freight Flow and Commodity Value Sector	Compound Annual Growth Rates by Period		
	2013 to 2018	2018 to 2023	2013 to 2023
Total Freight Tons (Inbound, Outbound and Through)	1.2%	2.3%	1.8%
Bulk/Lower-Value Commodities	-0.2%	2.1%	1.0%
Higher-Value/Warehouseable/Manufacturing Commodities	4.0%	2.8%	3.4%
Total Inbound Freight	-3.6%	2.5%	-0.6%
Bulk/Lower-Value Commodities	-4.6%	2.4%	-1.2%
Higher-Value/Warehouseable/Manufacturing Commodities	2.7%	2.5%	2.6%
Total Outbound Freight	2.8%	2.5%	2.6%
Bulk/Lower-Value Commodities	2.7%	2.5%	2.6%
Higher-Value/Warehouseable/Manufacturing Commodities	3.9%	2.5%	3.2%
Total Through Freight	1.8%	2.1%	2.0%
Bulk/Lower-Value Commodities	0.0%	1.9%	1.0%
Higher-Value/Warehouseable/Manufacturing Commodities	3.8%	2.4%	3.1%
Source: GKSF Forecasts based partly on GDOT and FAF3 forecasts			

Table 2: Higher-Value / Warehouseable / Manufacturing Commodity Groups			
A commodity group is designated as high or low growth if its projected growth is higher or lower than the projected growth of inbound or outbound freight for Higher-Value / Warehouseable / Manufacturing Commodities for the period 2013 to 2023.			
Inbound Freight to Middle Georgia <i>(Forecast 2.6% CAGR 2013 to 2023)</i>		Outbound Freight from Middle Georgia <i>(Forecast 3.2% CAGR 2013 to 2023)</i>	
High Growth Commodity Groups	Low Growth Commodity Groups	High Growth Commodity Groups	Low Growth Commodity Groups
Food or Kindred Products	Fabricated Metal Products	Misc. Manufacturing Products	Transportation Equipment
Chemicals or Allied Products	Electrical Equipment	Food or Kindred Products	Rubber and Plastics Products
Machinery and Parts	Printed Matter	Chemicals or Allied Products	Textile Mill Products
Furniture			
Source: GKSF Forecasts based partly on GDOT and FAF3 forecasts			

Competitive Cities Analysis

According to interviews conducted as part of this study, the Middle Georgia Region has already been established as a desirable location for freight distribution to Southeast states, with competitive truck rates, commercial real-estate pricing, and easy access to key transportation infrastructure such as the Port of Savannah, and the Hartsfield-Jackson International Airport in Atlanta. Logistics advantages of competing cities do not necessarily overlap the capabilities of the Middle Georgia Region. The Competitive Cities analysis suggests that Greenville and Charlotte are the top ranking competitors, due to their established labor forces, and closer proximity to key manufacturing clusters, and dense population centers to the North. Middle Georgia can nonetheless overcome the strengths of these two cities for companies looking to establish a distribution center focusing on distribution in the Southeast, extending south into Florida. Middle Georgia strengths are a highly competitive cost structure (transportation, labor and commercial real estate lease). Middle Georgia ranks ahead of Atlanta and Savannah, which reflects Middle Georgia’s more favorable cost structure. This suggests that Middle Georgia can compete successfully for the import-related distribution investments that are currently concentrated in Atlanta and in Savannah. Memphis, TN, rather than a competitor might actually be viewed as part of a National distribution model that functions as the Midwest regional distribution hub, leaving Middle Georgia to cover Southeast markets.

Figure 3: Middle Georgia Local and One-Day Market Coverage Map



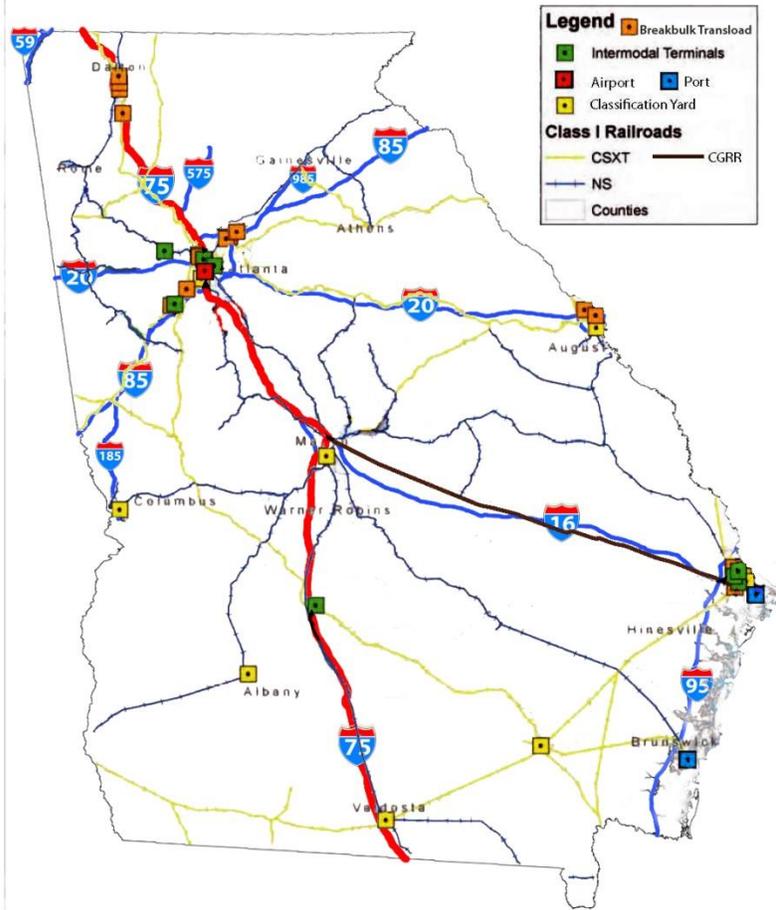
Note: Local market coverage is based on 4-hour drive time radius around Macon and One-Day market coverage is based on 8-hour drive time radius around Macon.

Source: GKSF

Freight Infrastructure

Middle Georgia has a strong freight transportation advantage, being situated in close proximity to domestic and international transportation modes that are highly desirable in today's global supply chains. Middle Georgia supply-chain managers have access to all transportation options, including air cargo facilities at Atlanta's Hartfield-Jackson International Airport, ocean terminal services in Savannah, intermodal rail terminals in either Atlanta or Savannah, and all within a few hours drive of Middle Georgia. Highway access in all directions is yet another selling point of the Region. Future and proposed developments such as the completion of the Fall Line Freeway, and a Georgia Ports Initiative to establish inland ports in Georgia, will substantially raise the profile of Middle Georgia as a freight distribution hub.

Figure 4: Georgia Highway and Rail Map



Note: Orange boxes mark breakbulk rail terminals

Source: Wilson and Co.

Recommendations on Freight and Logistics Strategy

Middle Georgia's location in close proximity to the Port of Savannah, and large population centers in Georgia, Florida and the Southeast make it a suitable location as a distribution hub for Southeast markets. Middle Georgia can also take advantage of existing key manufacturing sectors operating in Georgia to attract similar manufacturers to the area, as an available workforce and supply chain services have been well-established. Recommendations are based on a strong communications strategy to promote Middle Georgia advantages, and future developments to retailers, manufacturers and other companies, and to related Public agencies. Examples of Public organizations that may be interested in the development of freight and logistics activity in Middle Georgia are the U.S. Maritime Administration (MARAD), which has expressed interest in keeping up to date on developments in Middle Georgia as they relate to possible strategies for the movement of military cargo, and the 21st Century Partnership, which is well known to the Middle Georgia Regional Commission as a partner and advocate of freight services development in the area. Specific recommendations address the following key targets:

- Distribution Center focusing on Southeast distribution
- Manufacturing (including aerospace and automotive sectors) requiring access to the Port of Savannah
- Transload facilities that re-load cargo from international to domestic containers

Marketing recommendations center on more aggressive marketing of Middle Georgia as a logistics hub:

- Brand economic development efforts by establishing a Freight Marketing Organization, as opposed to an economic development organization. This defines the role of the agency as focusing on freight distribution and logistics to outsiders considering Middle Georgia.
- Create a target list of companies that might benefit from locating in Middle Georgia, based on the areas logistical advantages, relative to target company needs. Build profiles of prospective companies, including transportation, labor, market reach, tax advantages etc. Identify successful industries in the area, such as retail, aerospace and automotive manufacturers when building the profiles. These can be used as marketing materials in trade magazines, conferences, etc.
 - Solicit feedback on regional strengths from local retailers and manufacturers operating in Middle Georgia to be included as "testimonials" in marketing materials.
 - Highlight technical colleges, and other sources of labor should be highlighted in marketing messages.
 - Expand economic development outreach activities to aggressively market to commercial entities, such as retail and manufacturing trade groups, logistics and supply-chain conferences, commercial real estate publications, and trade publications.
 - Include Middle Georgia representation on international trade commission.

Recommendations on Network Georgia and Inland Port Development

The Georgia Ports Authority (GPA) has announced plans to establish inland ports throughout Georgia to extend Port of Savannah reach by rail to strategic areas, including a yet-to-be identified Middle Georgia location. While this presents a substantial opportunity to elevate Middle Georgia as a logistics hub, several actions should be coordinated to help ensure the success of the Network Georgia initiative:

- The success of inland ports will depend on the formation of industry clusters and agglomerations that support each proposed site. The roles and industries that these inland ports are intend to support should be coordinated to ensure that target users do not overlap, thereby undercutting the success of all inland ports.
- The Middle Georgia Inland Port site selection should be in close proximity to major highways, most likely I-75, I-16, or the Fall Line Freeway when completed. A selection on I-16 would also require an upgrade to the NB I-16/I-75 interchange upgrade.

User advocacy may be an important component of the successful development of a Middle Georgia Inland Port site selection. Large volume shippers in the area, or potential large volume shippers should be included in discussion to demonstrate the potential base of freight that will be required to make the development a success. Clay shippers are one obvious group, but another would be Robins Air Force Base. The existence of intermodal rail in Middle Georgia may have key implications for Robins AFB's role for Department of Defense (DoD) freight distribution in North America. A key success criterion for the Middle Georgia plan will be participation from all entities involved, including as funding sources for the project. The following representatives should be included in Network Georgia meetings:

- Economic and Development Agencies
- Commercial Retail and Manufacturing Logistics Managers
- Transportation Providers (e.g. GPA, truckers, railroads, ocean carriers, 3PL's)
- Robins AFB Representation

The project team recommends, and will facilitate meetings if requested with the United States Maritime Administration (MARAD), and the 21st Century Partnership to promoting existing capabilities and potential developments, such as the GPA interest in the Middle Georgia Region as a potential inland rail site. This kind of outreach may shape future North America Military freight distribution strategies based on existing and future transportation service capabilities.

Market and Industry Assessment (Phase II)

As follow-on to the Middle Georgia Regional Freight Study, the project team recommends a best-use site plan for the Middle Georgia Inland Port as proposed by the Georgia Port Authority "Network Georgia" plan. The Freight Study outlines general transportation services and manufacturing capabilities of the Region; however, Industry specifics on facilities, labor, utilities and other considerations are required so that the MGRC can present a detailed "plug and play" profile of the Middle Georgia site location opportunity. Manufacturers or DC operators are more receptive to developments that have completed preliminary work that establishes utility, land grading, transportation infrastructure, and other capabilities. Phase II proposes a further analysis of detailed requirements of targeted industries and industry clusters that are suitable to Middle Georgia, including a master plan.

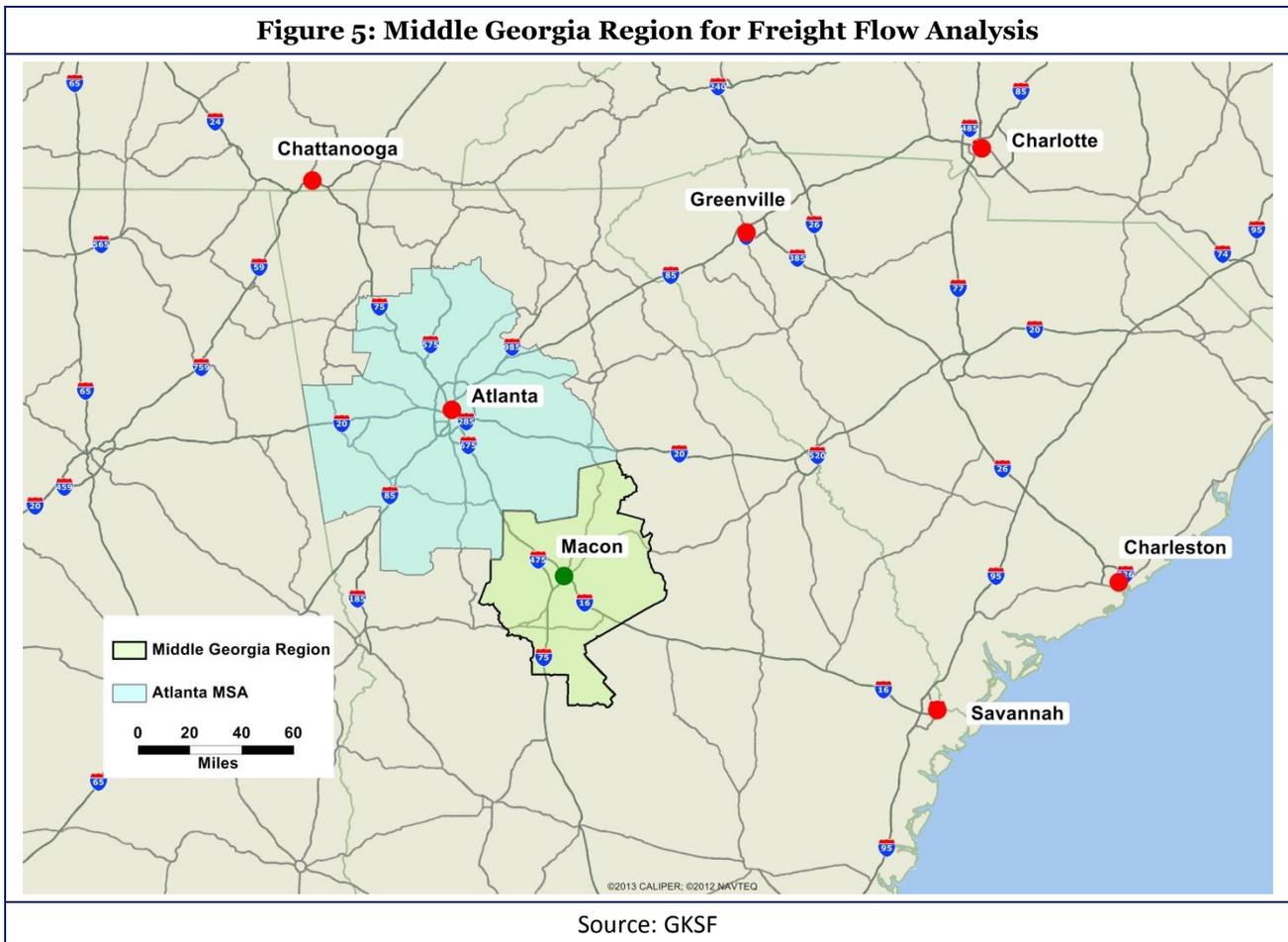
2 Freight Flow Analysis

2.1 Freight Flow Study Area

The Middle Georgia Region consists of eleven counties – Baldwin, Crawford, Houston, Jones, Macon-Bibb, Monroe, Peach, Pulaski, Putnam, Twiggs, and Wilkinson. As shown in Figure 5, Middle Georgia is located between Atlanta and the Port of Savannah, and it straddles two major interstate highways – the north-south I-75 and the east-west I-16 (to the Port of Savannah). Major north-south and east-west rail corridors pass through Middle Georgia. Figure 5 also shows six of the seven cities selected for the regional competitive analysis (see Section 6 of the report) – Atlanta, Savannah, Greenville, Charleston, Charlotte and Chattanooga. Memphis is the seventh city used in the evaluation of competition.

The review of Middle Georgia freight flows employs 2013 Transearch data from IHS³. This customized data provides insight on freight flows between Middle Georgia and other regions of the country, by direction (inbound and outbound), transport mode and commodity. The Transearch data also provides a profile of freight moving through, but not stopping in Middle Georgia.

Figure 5: Middle Georgia Region for Freight Flow Analysis



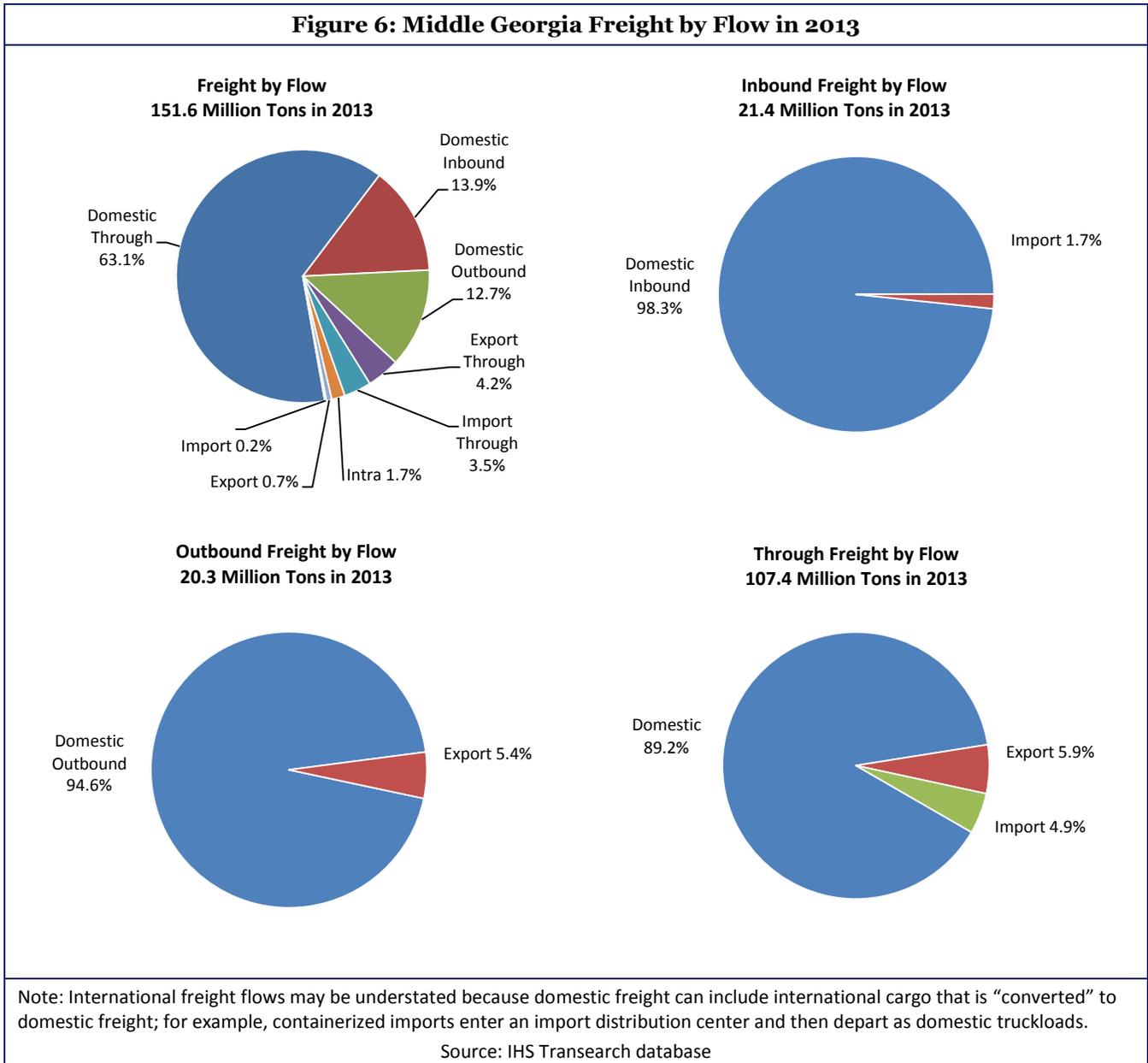
³ Includes content supplied by IHS; Copyright © IHS, 2015. All rights reserved

2.2 Total Freight

Middle Georgia had total freight volume of 152 million tons in 2013, comprising inbound, outbound, through and intra-region freight (Figure 6). The largest freight flow is through the region, 107 million tons and 71 percent of total freight. This reflects Middle Georgia’s strategic location on major north-south and east-west freight corridors; for example, freight moving between Florida and other regions of the country. Inbound and outbound freight was balanced, 21.4 million and 20.3 million tons respectively.

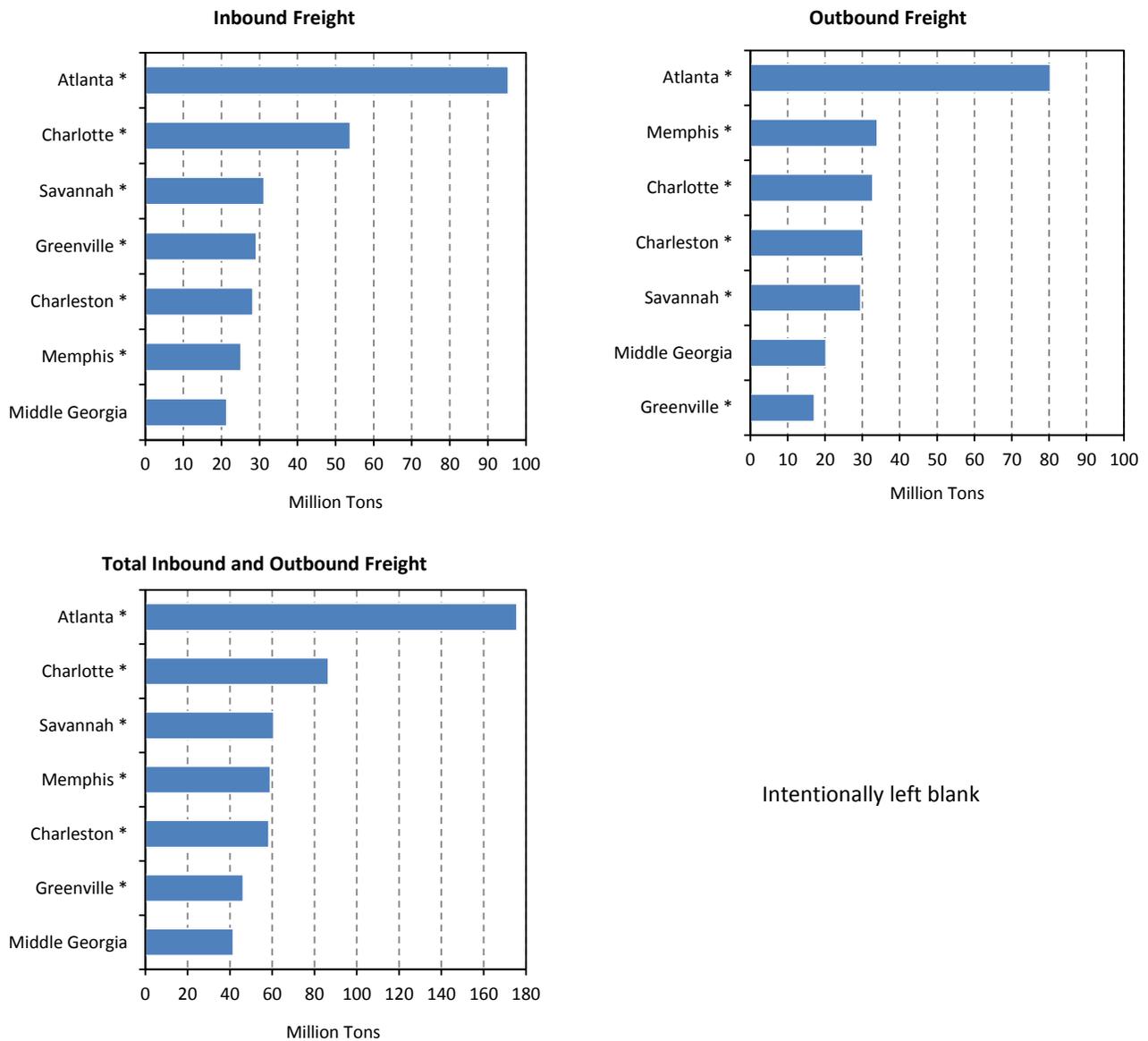
Domestic freight accounted for 89.6 percent of total freight and international freight 10.4 percent. The international component may be understated as some international cargo can move as a domestic load; for example, containerized imports enter an import distribution center and then depart as domestic truckloads.

Figure 6: Middle Georgia Freight by Flow in 2013



Middle Georgia is one of the smaller freight centers in the Southeast measured by inbound and outbound freight tons. As shown in Figure 7, Middle Georgia ranks last when compared to six competitor freight centers. Atlanta inbound and outbound freight activity is roughly four times greater than Middle Georgia, which reflects Atlanta’s large population and its market role as the leading logistics center in the Southeast. Savannah’s inbound and outbound freight activity is roughly 1.5 times greater than Middle Georgia, driven by international cargo moving through the Port of Savannah.

Figure 7: Middle Georgia Inbound and Outbound Freight Comparison

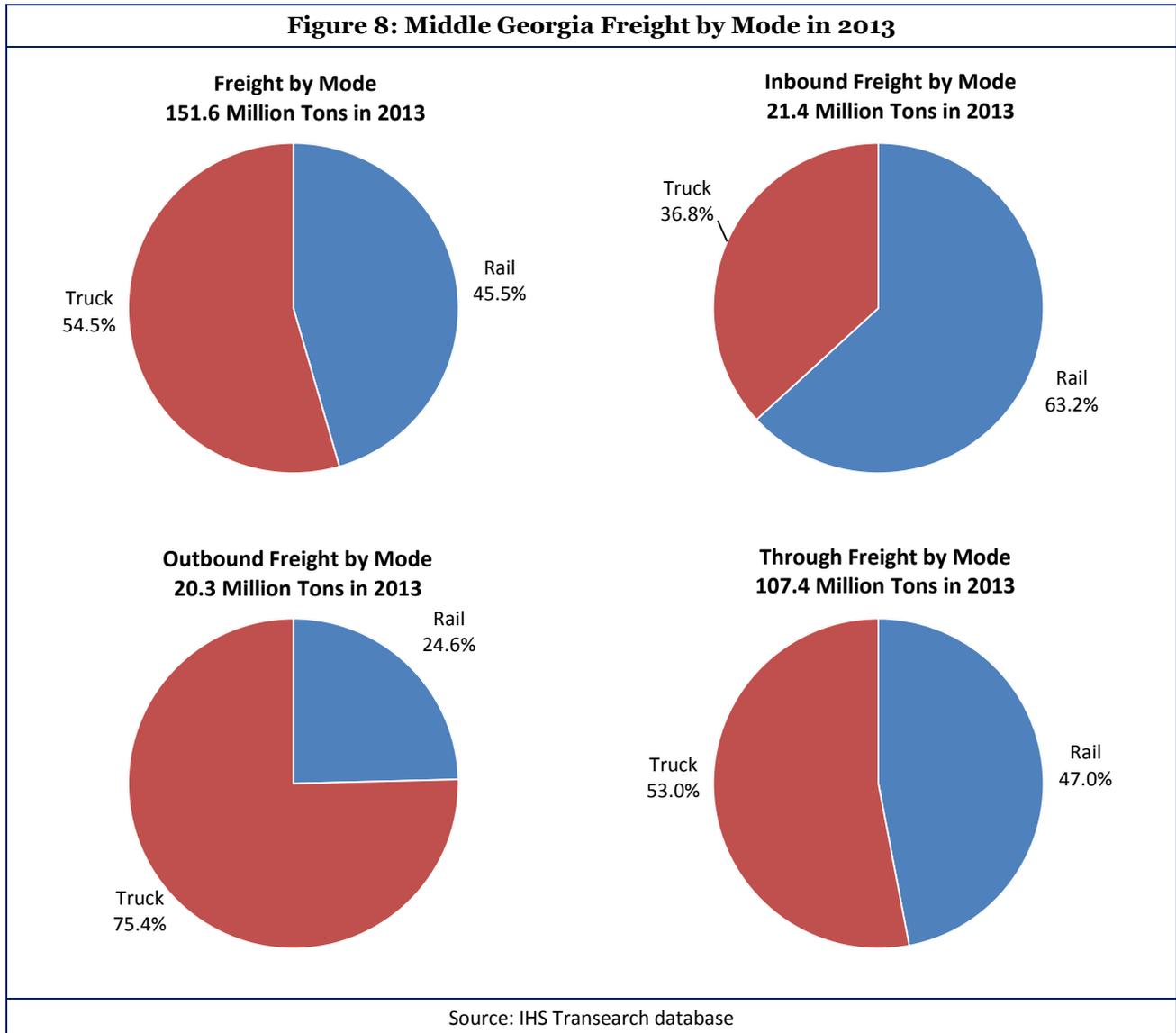


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* Data was not available for 2013. FAF3 data for 2012 is used to provide an indication of how Middle Georgia compares to a sample of competitors. Middle Georgia data is for 2013.

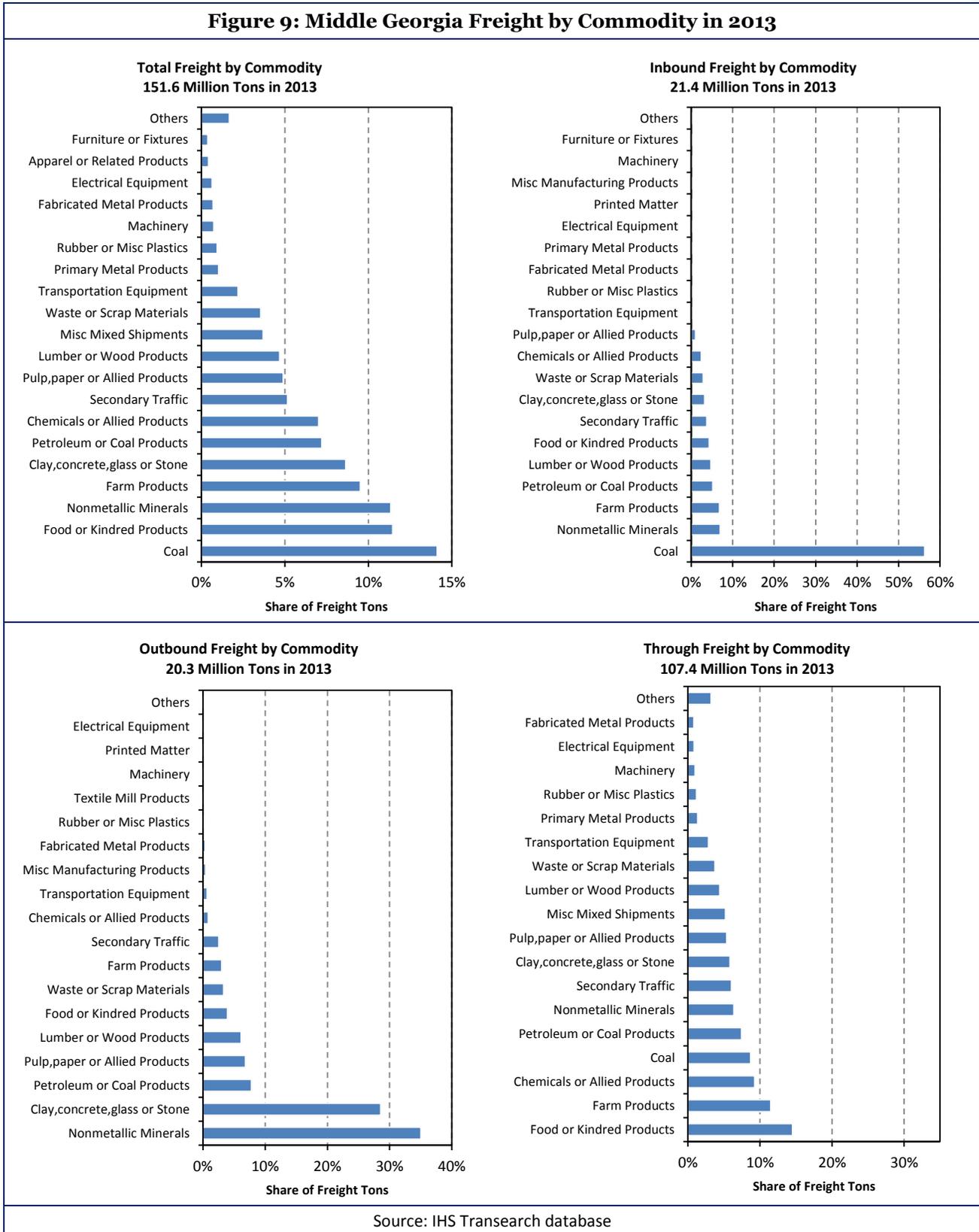
Source: IHS Transearch database and FAF3

Truck handles just over half of Middle Georgia’s freight with a 54.5 percent share of total tons (Figure 8). Truck’s share varies by direction – 36.8 percent of inbound, 75.4 percent of outbound, and 53.0 percent of through freight. Rail’s higher share of inbound than outbound freight is due to the large volume of coal shipped into Middle Georgia.



The commodity mix is illustrated in Figure 9. Lower value commodities dominate both inbound and outbound freight flows. This reflects the relatively limited amount of manufacturing and warehousing/distribution activity, and the small consumer base in Middle Georgia. The commodity group Secondary Traffic captures warehouse and distribution center freight and this group accounted for 3.8 percent of inbound traffic and 2.5 percent of outbound freight. The former is mainly consumer goods shipped into Middle Georgia and the latter the shipment of goods from warehousing located in Middle Georgia. Secondary Traffic accounts for 6.0 percent of through freight and includes distribution of freight from the Atlanta and Savannah BEAs. Further discussion of transport modes, commodities and lanes is provided in the remainder of Section 2.

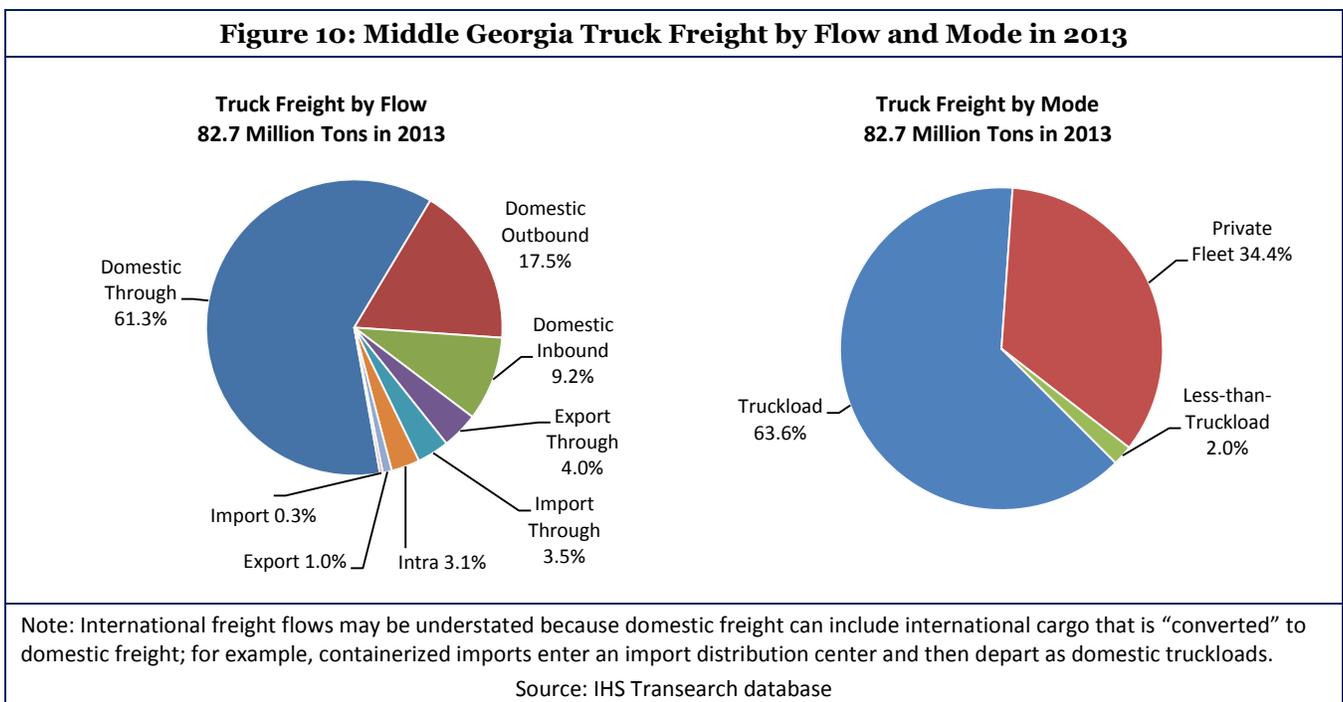
Figure 9: Middle Georgia Freight by Commodity in 2013



2.3 Truck Freight

Middle Georgia’s total truck freight was 82.7 million tons in 2013 (54.5 percent of total freight). The distribution by flow and mode is illustrated in Figure 10. Domestic through accounted for 61.3 percent of total truck freight, domestic outbound 17.5 percent, domestic inbound 9.2 percent and intra-region 3.1%. International freight accounted for the remaining 8.8 percent. However, as stated earlier, the international share is likely understated due to international imports and exports that are partly handled as a domestic move. This notably applies to the Secondary Traffic commodity group, which captures warehousing and distribution freight activity. For example, some of this activity represents imports through Savannah that enter an import distribution center and emerge as a domestic freight move.

The dominant transport mode was for-hire truckload (63.6 percent) followed by private fleet (34.4 percent). Less-than-truckload (LTL) handles mostly higher value small shipments and moved 2.0 percent of freight volume. Truck equipment types were dry van (42.1 percent of total truck tons), bulk (19.3 percent), tank (15.9 percent), refrigerated (11.7 percent), flat (8.8 percent) and others (2.2 percent).

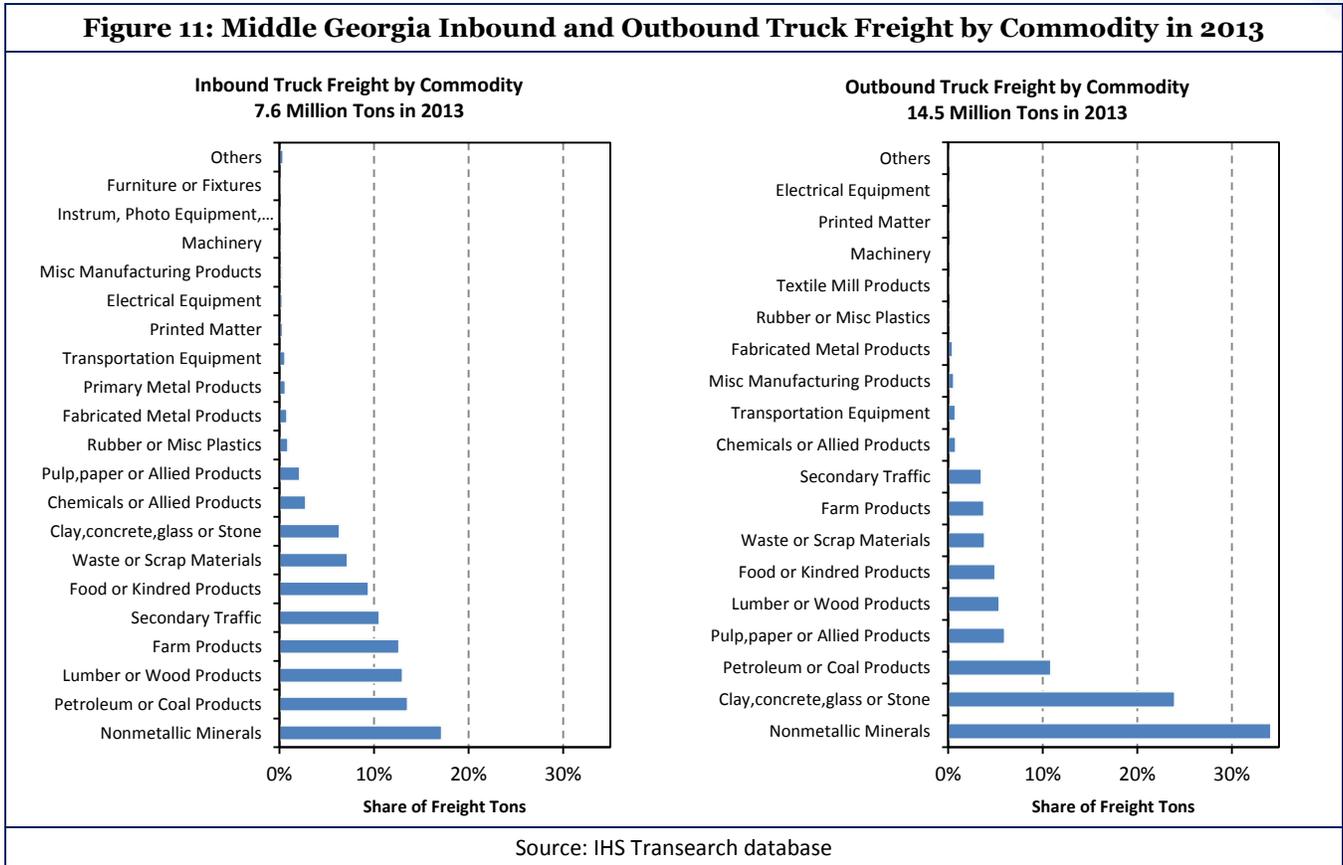


2.3.1 Domestic Inbound and Outbound

The commodity profile of domestic inbound and outbound truck freight is provided in Figure 11. Lower value commodities dominate the commodity profile, which is a reflection of economic activity in Middle Georgia. Secondary Traffic, which captures warehousing and distribution activity, accounted for 10.6 percent of inbound truck freight and only 3.5 percent of outbound truck freight. The development of new warehousing and distribution facilities in Middle Georgia would boost this commodity sector.

If the five major bulk commodities are excluded (Clay, Concrete, Glass or Stone; Crude Petroleum; Metallic Ores; Non Metallic Minerals; and Petroleum or Coal Products) then total inbound truck freight was 4.8 million tons (compared to 7.6 million tons when they are included) and total outbound truck freight was 4.5 million tons (compared to 14.5 million tons).

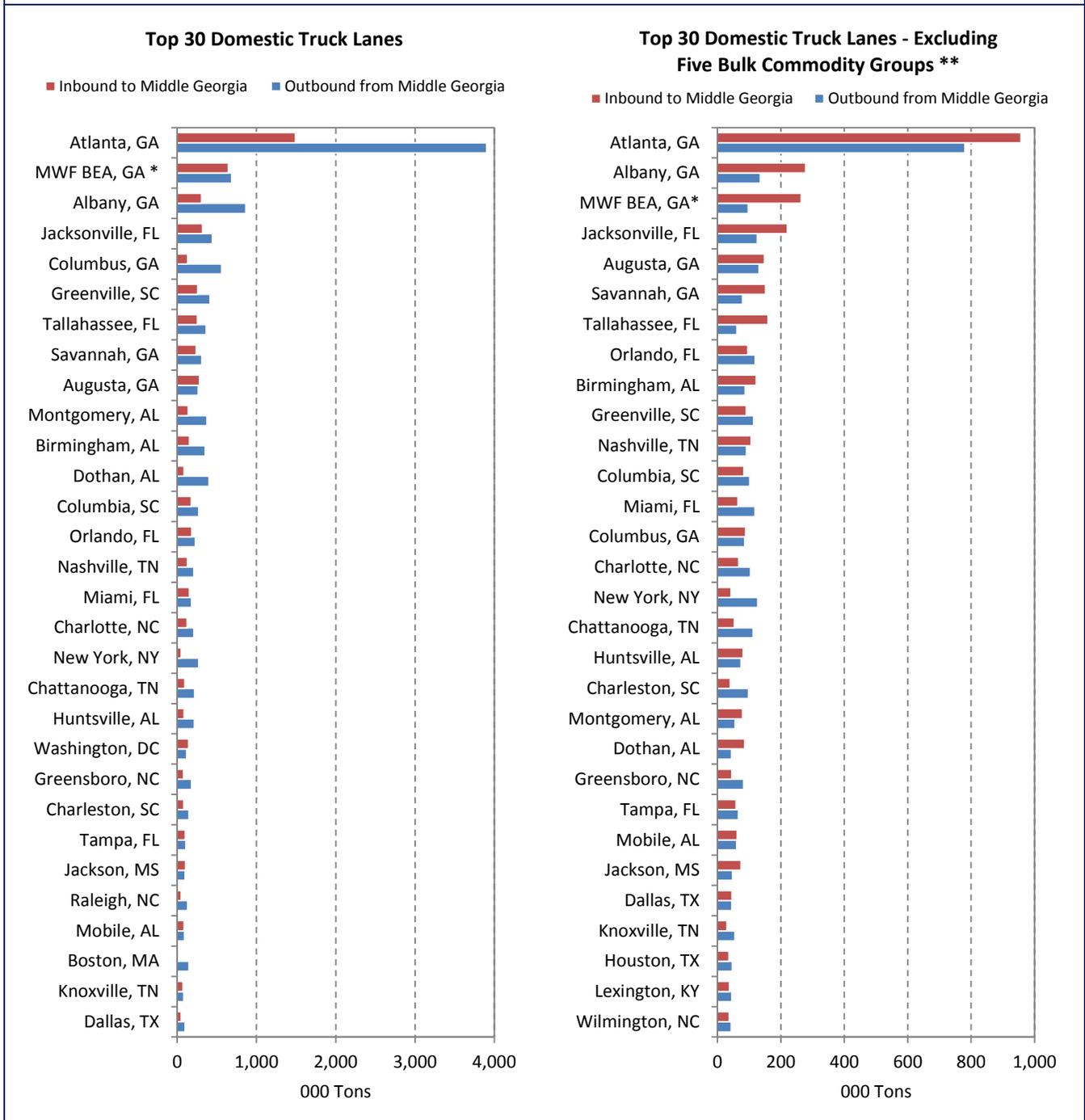
Figure 11: Middle Georgia Inbound and Outbound Truck Freight by Commodity in 2013



The top 30 domestic geographic partners (or truck lanes) are provided in Figure 12 – one chart shows the truck lanes with total freight and the second chart shows the lanes without the five major bulk commodity groups (Clay, Concrete, Glass or Stone; Crude Petroleum; Metallic Ores; Non Metallic Minerals; and Petroleum or Coal Products). The impact is principally on the Atlanta lane – the five bulk commodities accounted for 3.7 million tons of 5.4 million tons moving in the Atlanta lane.

The top 30 lanes accounted for up to 80 percent of total domestic truck freight and these lanes are nearly all concentrated in the Southeast region. Atlanta is the largest lane and Secondary Traffic is one of the largest commodity groups – product shipped from warehouses in the Atlanta BEA to Middle Georgia and the reverse direction. The top lanes include the ports of Jacksonville and Savannah, and also Greenville, SC, which is another important location for regional distribution centers.

Figure 12: Middle Georgia Domestic Inbound and Outbound Truck Lanes in 2013



* Transearch data is provided by BEA Economic Area (BEA). MWF BEA is made up of those counties that are part of the Macon-Warner Robins-Fort Valley BEA but are outside the Middle Georgia Region. The counties are Appling, Bleckley, Dodge, Hancock, Jeff Davis, Johnson, Laurens, Taylor, Telfair and Washington.

** Excludes five bulk commodity groups – Clay, Concrete, Glass or Stone; Crude Petroleum; Metallic Ores; Non Metallic Minerals; and Petroleum or Coal Products. After this adjustment total inbound domestic truck freight is 4.8 million tons and outbound is 4.5 million tons.

Source: IHS Transearch database

2.3.2 International Inbound and Outbound

International import and export freight moving by truck amounted to 1.0 million tons in 2013, 0.25 million tons moving inbound (imports) to Middle Georgia and 0.79 million tons moving outbound (exports). These volumes likely understate total international freight because some international shipments (notably imports of consumer goods moving through an import distribution center) may be classified as a domestic freight move.

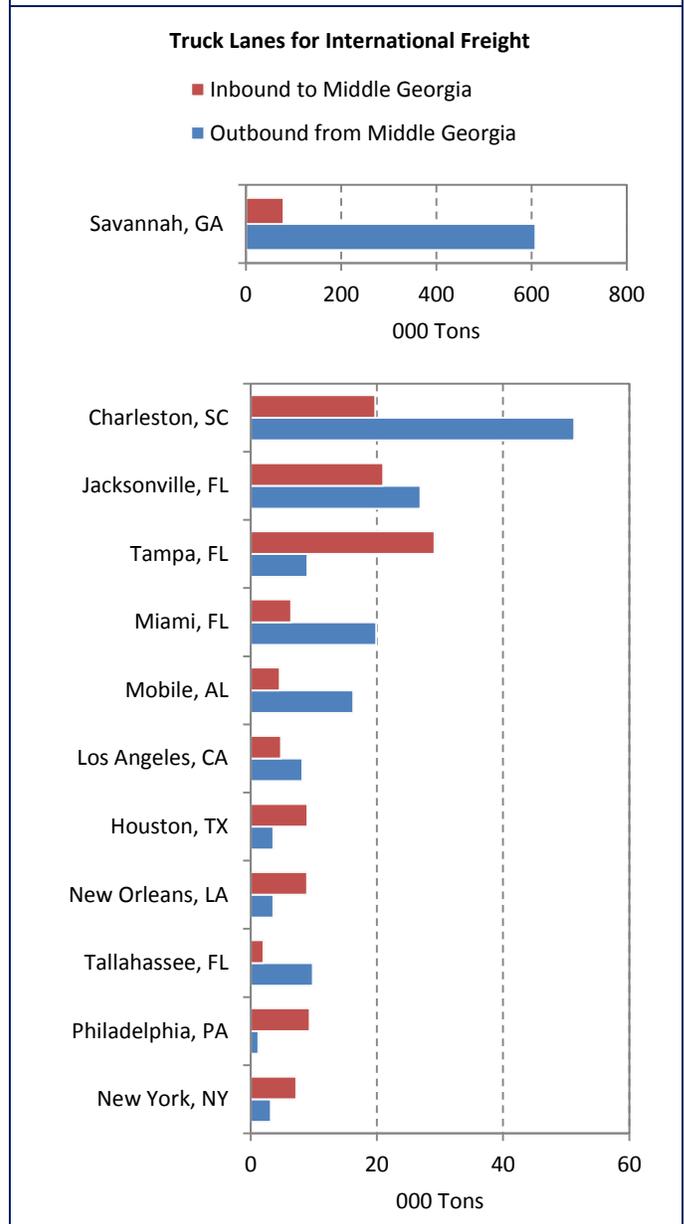
The commodity mix is illustrated in Figure 14. Imports are more diverse than exports, which are concentrated in three key sectors – minerals, forest products and agriculture.

International freight by lane is presented in Figure 13. Flows are dominated by freight moving between Middle Georgia and the Port of Savannah. This lane accounted for 66 percent of international freight volume. The Savannah lane is heavily outbound – exports trucked from Middle Georgia are concentrated in Nonmetal Minerals, Processed Pulp or Pulp Mill Products, and other mainly agricultural and resource-based commodities.

Other ports in the Southeast and on the Gulf Coast also appear in the top lanes for international freight, including Charleston, Jacksonville, Tampa, Miami and Mobile.

Further analysis of Savannah freight flows is provided in Section 2.6.

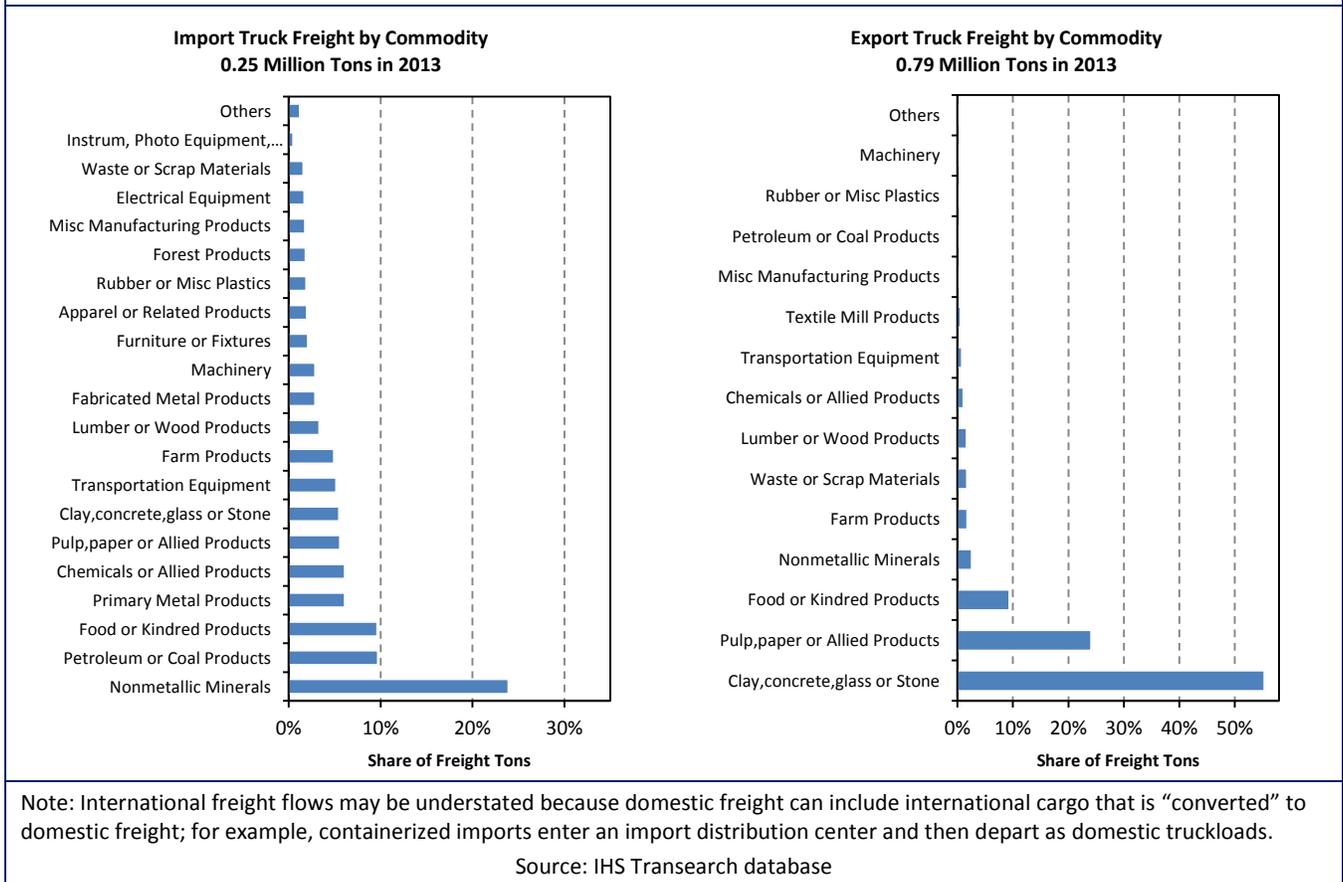
Figure 13: Middle Georgia International Truck Freight by Lane in 2013



Note: International freight flows may be understated because domestic freight can include international cargo that is “converted” to domestic freight; for example, containerized imports enter an import distribution center and then depart as domestic truckloads.

Source: IHS Transearch database

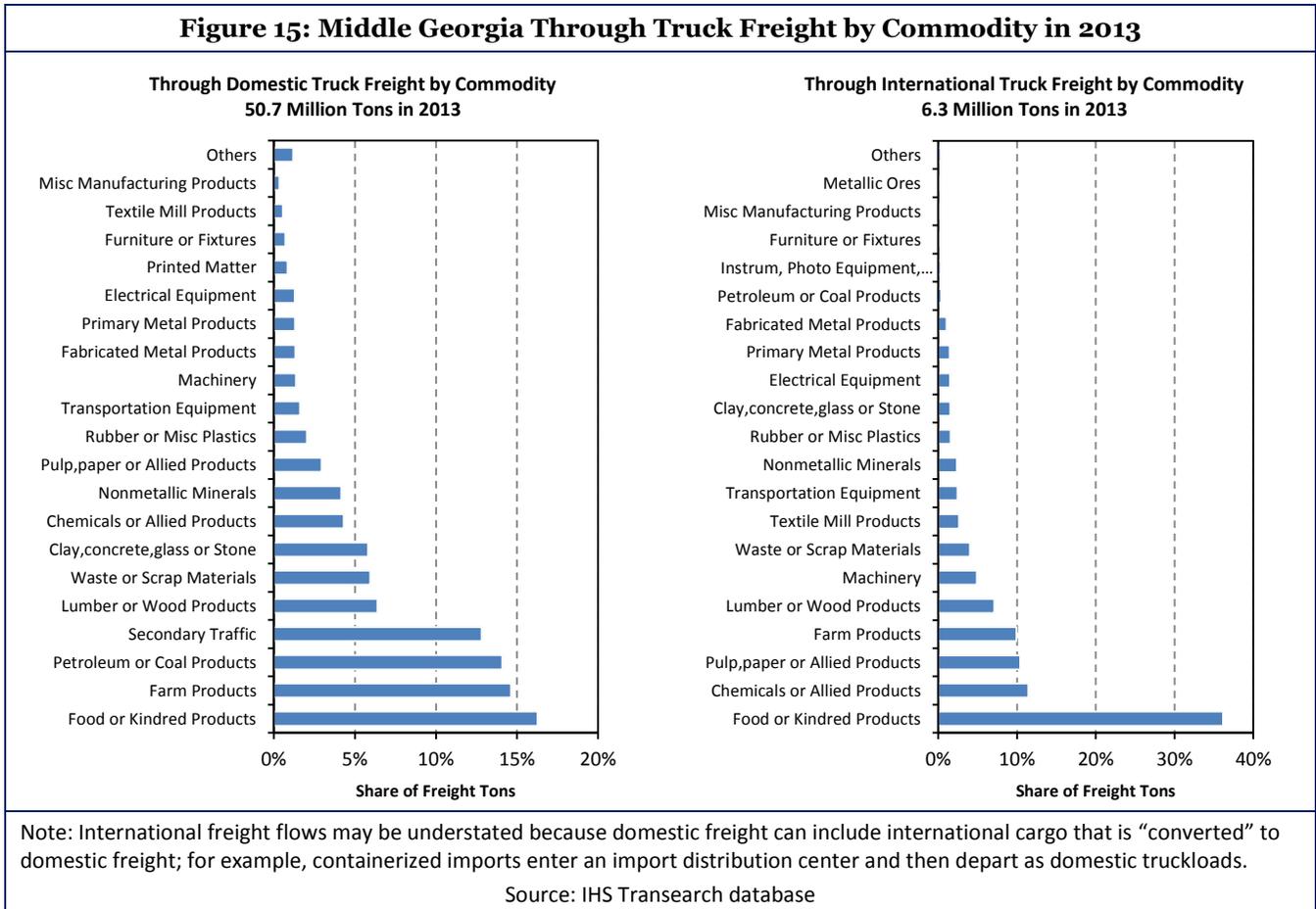
Figure 14: Middle Georgia International Truck Freight by Commodity in 2013



2.3.3 Through Freight

Middle Georgia is situated on major north-south and east-west freight corridors, and so a large volume of freight passes through Middle Georgia without stopping in the region. For example, freight moving between Florida and other areas of the country.

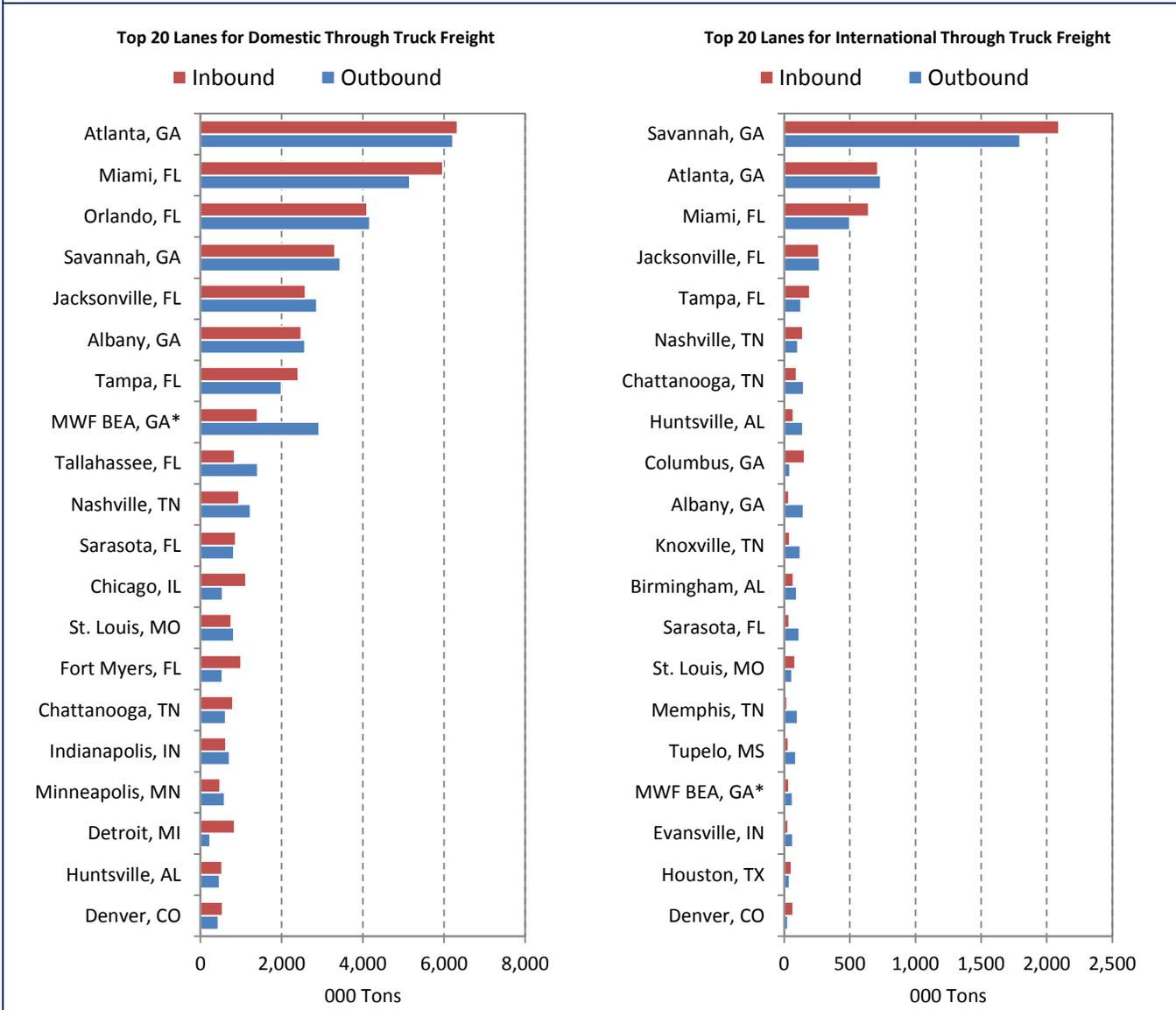
Total freight moving by truck through Middle Georgia was 56.9 million tons in 2013. The commodity profile is provided in Figure 15. Secondary Traffic (warehouse and distribution center freight) is the fourth largest commodity in domestic truck flows, with a 12.8 percent share. Outside of this sector, the top commodities are dominated by agricultural and natural-resource based sectors. Turning to international truck freight flowing through Middle Georgia, the largest commodity group is Food or Kindred Products with a 25.8 percent share (and split 75 percent exports and 25 percent imports).



Major population and freight centers are linked by the interstate highways that pass through Middle Georgia. As shown in Figure 16, Atlanta is the top origin and destination for through freight moving by truck. Locations in Florida also rank in the top lanes, including Miami, Orlando, Jacksonville and Tampa. The Port of Savannah ranks as the fourth largest lane for through freight.

The top 30 origin-destination (O-D) pairs for through truck freight are provided in Figure 17. Atlanta appears as the origin or destination in 17 of the domestic lanes, which reflects Atlanta’s position as the major distribution and population center in the Southeast region. Ports are prominent as origins or destinations. The top five O-D pairs are Atlanta-Miami, Jacksonville-Atlanta, Savannah-Atlanta, Atlanta-Savannah and Miami-Atlanta.

Figure 16: Middle Georgia Through Truck Freight by Lane in 2013

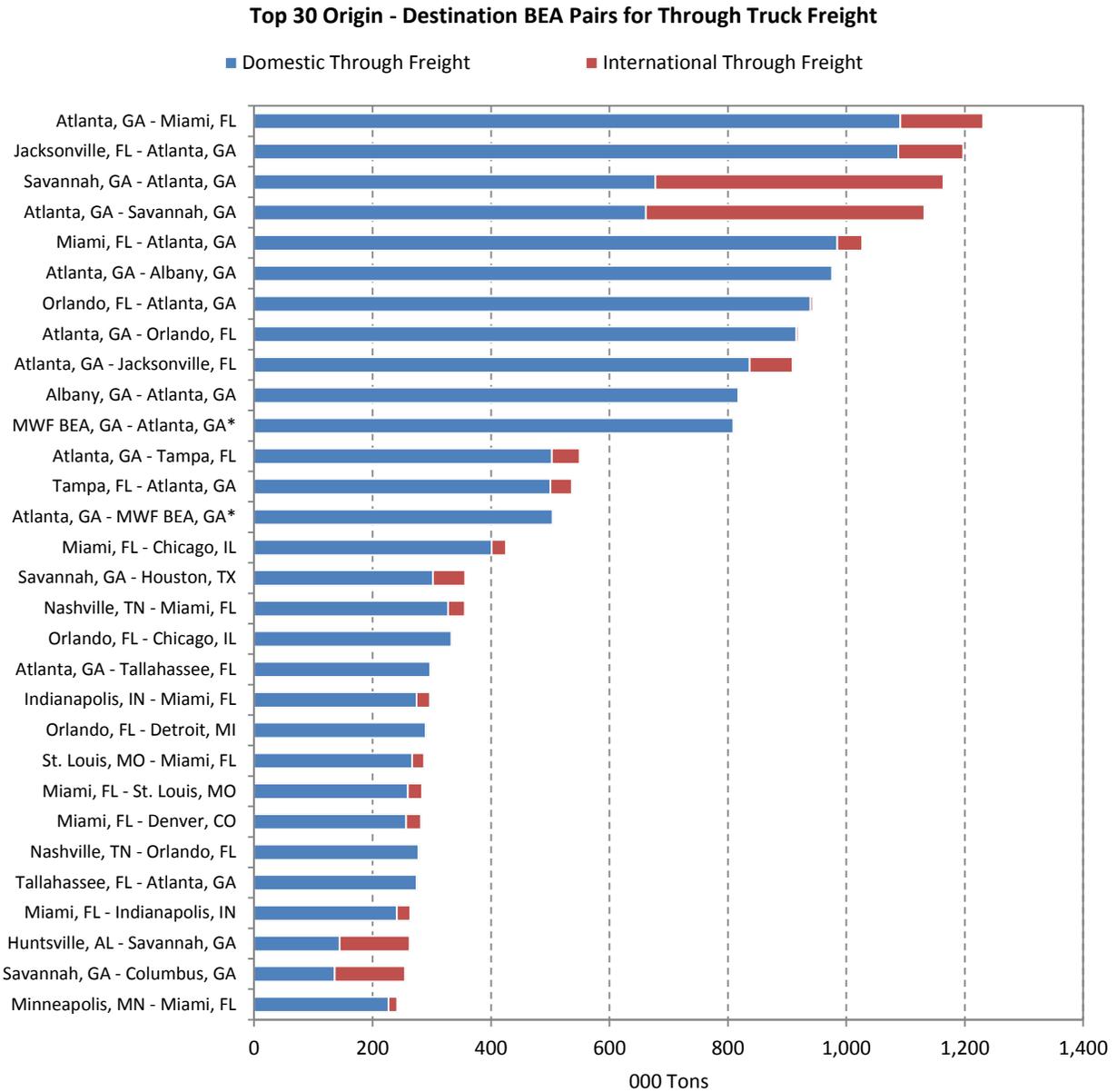


* Transearch data is provided by BEA Economic Area (BEA). MWF BEA is made up of those counties that are part of the Macon-Warner Robins-Fort Valley BEA but are outside the Middle Georgia Region. The counties are Appling, Bleckley, Dodge, Hancock, Jeff Davis, Johnson, Laurens, Taylor, Telfair and Washington.

Note: International freight flows may be understated because domestic freight can include international cargo that is “converted” to domestic freight; for example, containerized imports enter an import distribution center and then depart as domestic truckloads.

Source: IHS Transearch database

Figure 17: Middle Georgia Through Truck Freight by Origin-Destination Pairs in 2013



* Transearch data is provided by BEA Economic Area (BEA). MWF BEA is made up of those counties that are part of the Macon-Warner Robins-Fort Valley BEA but are outside the Middle Georgia Region. The counties are Appling, Bleckley, Dodge, Hancock, Jeff Davis, Johnson, Laurens, Taylor, Telfair and Washington.

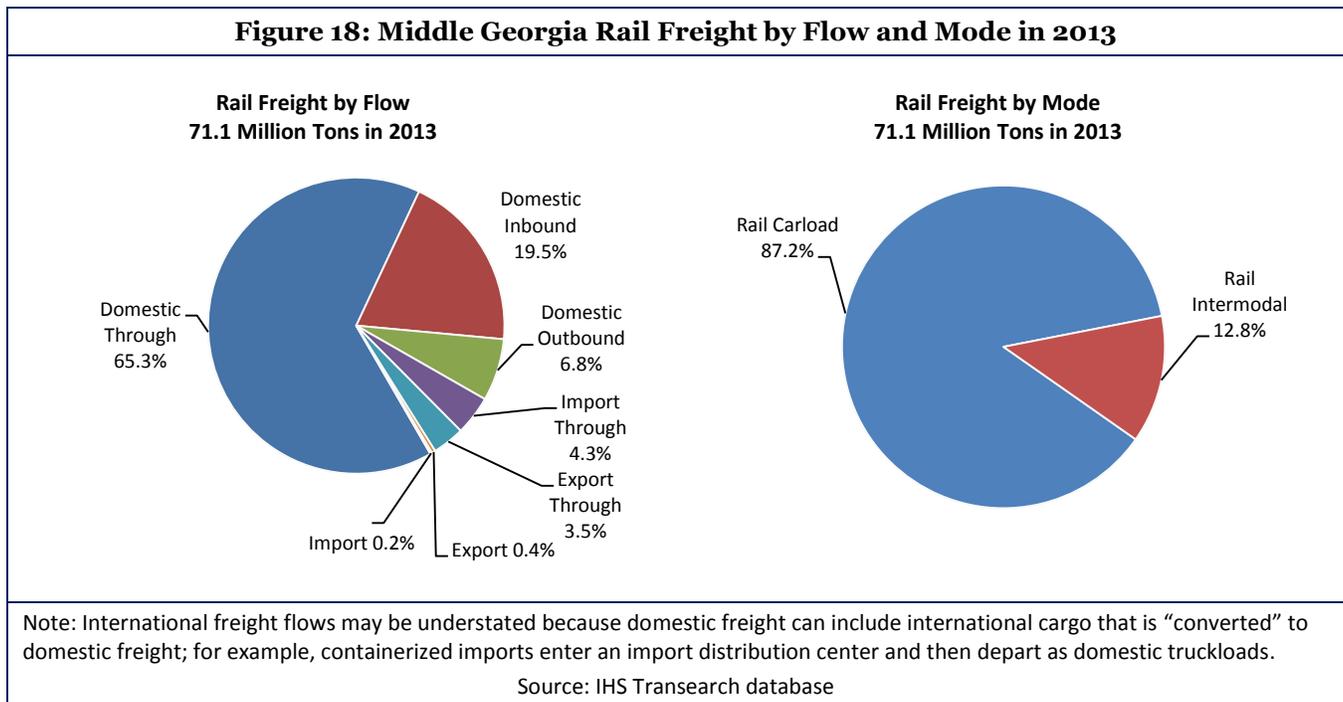
Note: International freight flows may be understated because domestic freight can include international cargo that is “converted” to domestic freight; for example, containerized imports enter an import distribution center and then depart as domestic truckloads.

Source: IHS Transearch database

2.4 Rail Freight

Middle Georgia’s total rail freight was 79.0 million tons in 2013 (45.5 percent of total freight). The distribution by flow and mode is illustrated in Figure 26. Domestic through freight accounted for 65.3 percent of total rail freight, domestic inbound 19.5 percent, and domestic outbound 6.8 percent. International freight accounted for the remaining 8.4 percent. However, as stated earlier, the international share is likely understated due to international imports and exports that are partly handled as a domestic move. For example, this could apply to freight exported to Canada and Mexico that is classified as a domestic move from the U.S. origin to border crossing.

The dominant rail mode is carload (84.6 percent), which reflects the large volume shipments of bulk commodities that move in carload equipment (e.g., boxcars, hoppers, and tank cars). Carload rail excludes intermodal rail (i.e., 48-ft and 53-ft containers on rail), which accounted for the remaining 12.4 percent of rail freight tons.



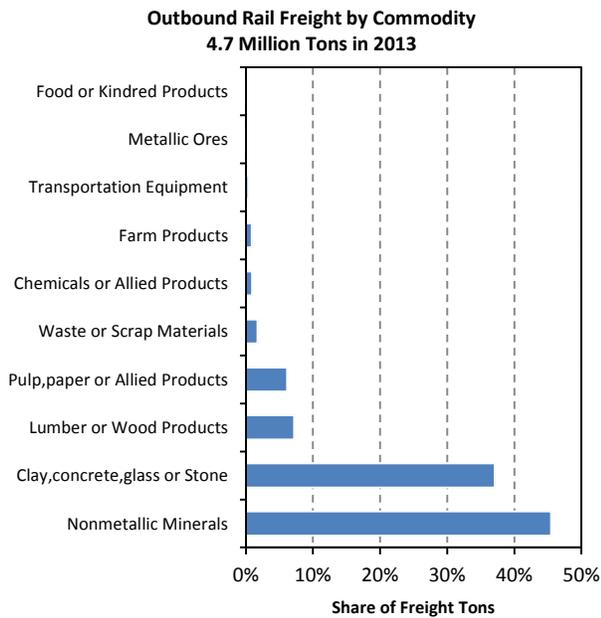
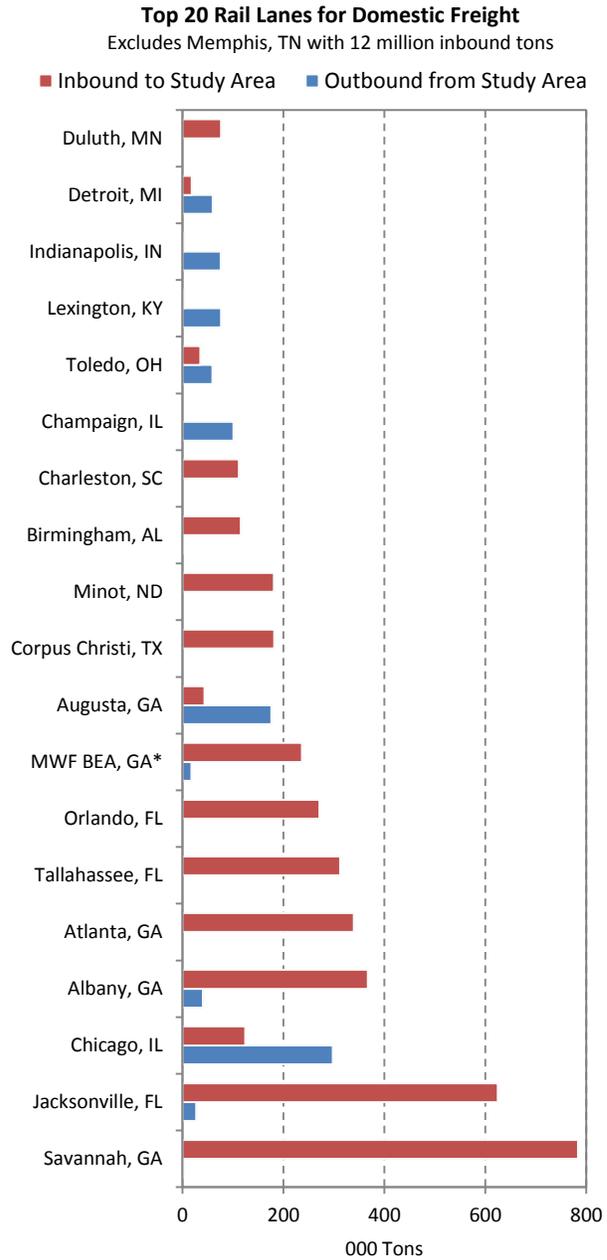
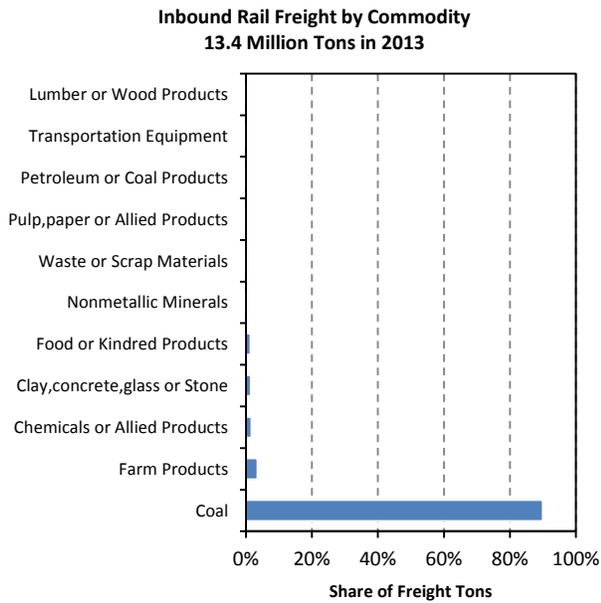
2.4.1 Domestic Inbound and Outbound

The commodity profile of domestic inbound (13.4 million tons) and outbound (4.7 million tons) rail freight is provided in Figure 19. Bulk commodities dominate the rail flows and all freight moved by carload rail service. The top lane is Memphis, TN with 12 million tons of coal traffic. Excluding this lane, the top two lanes are with the ports of Savannah and Jacksonville. Inbound coal traffic is expected to decline following the recent closure of Georgia Power’s Plant Branch coal-fired power plant in Putnam County.

2.4.2 International Inbound and Outbound

There are very limited volumes of international inbound and outbound rail freight – 0.12 and 0.30 million tons respectively in 2013. Nearly 80 percent of the outbound export freight moved to the Savannah BEA, while 97 percent of the inbound import freight came from Jacksonville, New Orleans and Savannah. The freight in both directions was mostly bulk commodities and moved by carload rail service.

Figure 19: Middle Georgia Domestic Inbound and Outbound Rail Freight in 2013



* Transearch data is provided by BEA Economic Area (BEA). MWF BEA is made up of those counties that are part of the Macon-Warner Robins-Fort Valley BEA but are outside the Middle Georgia Region. The counties are Appling, Bleckley, Dodge, Hancock, Jeff Davis, Johnson, Laurens, Taylor, Telfair and Washington.

Source: IHS Transearch database

2.4.3 Through Freight

Middle Georgia is a major transit point for rail freight with through traffic amounting to 50.4 million tons in 2013. Of the total, 45.1 million tons was domestic freight and 5.4 million tons was international import and export traffic. The split by rail mode type was 87.2 percent carload and 17.5 percent intermodal.

The commodity profile is provided in Figure 20. Domestic freight is dominated by coal and other lower value bulk commodities. Miscellaneous Mixed Shipments, which largely captures higher-value intermodal freight, was the fifth largest commodity with a 9.0 percent share of tons. This commodity group plays a bigger role in international through traffic, where there is a greater incidence of higher-value commodities suited to intermodal rail service. Miscellaneous Mixed Shipments accounted for 29.0 percent of international rail freight (26.5 percent of exports and 32.1 percent of imports).

The top 30 origin-destination (O-D) pairs for through rail freight are provided in Figure 21. Ports feature prominently in the top lanes including Jacksonville (as the destination in the top two lanes), which is a gateway for offshore trade with Puerto Rico, and for international trade. Norfolk Southern has a mainline that runs through Middle Georgia that links Jacksonville with other parts of the country. Other ports amongst the top lanes are Tampa, Miami and Savannah.

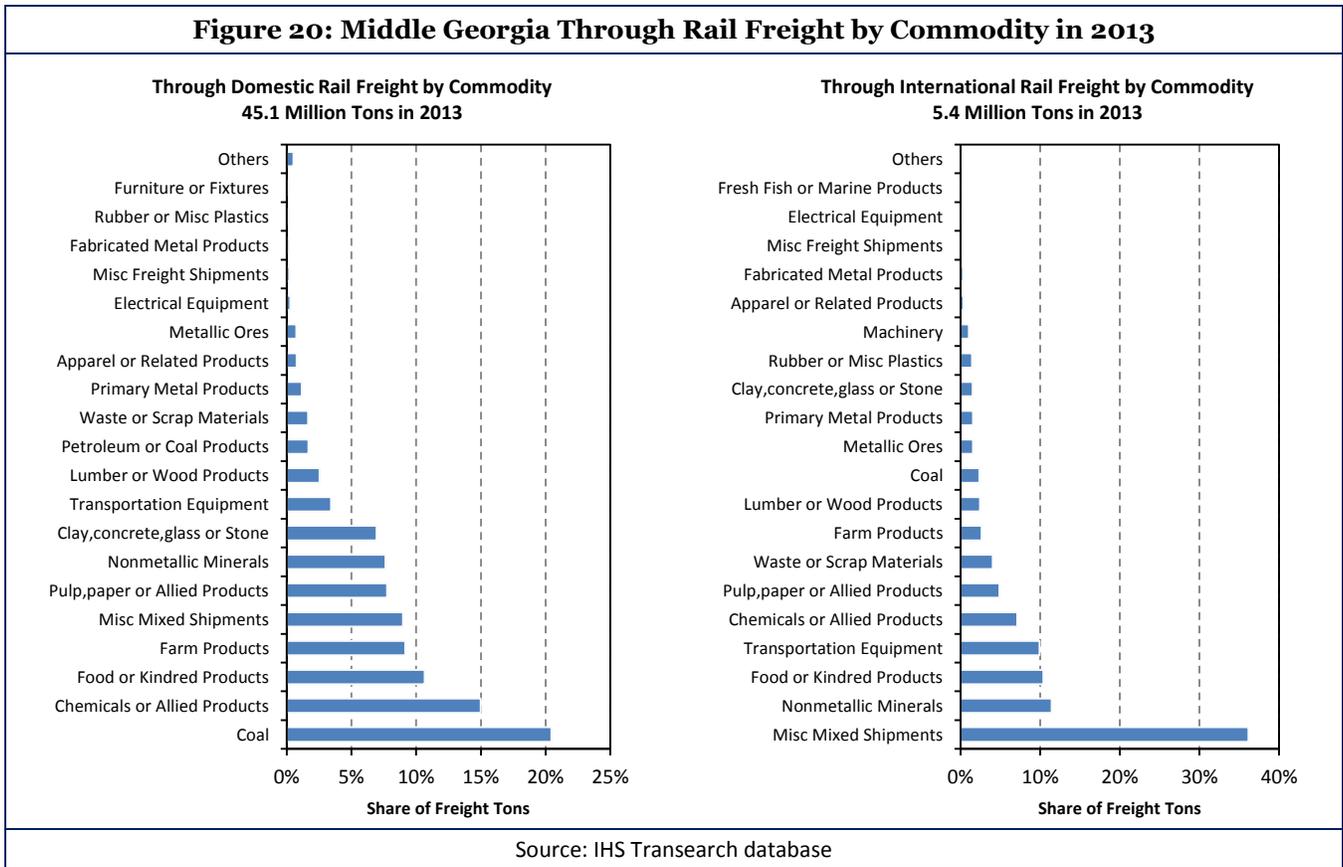
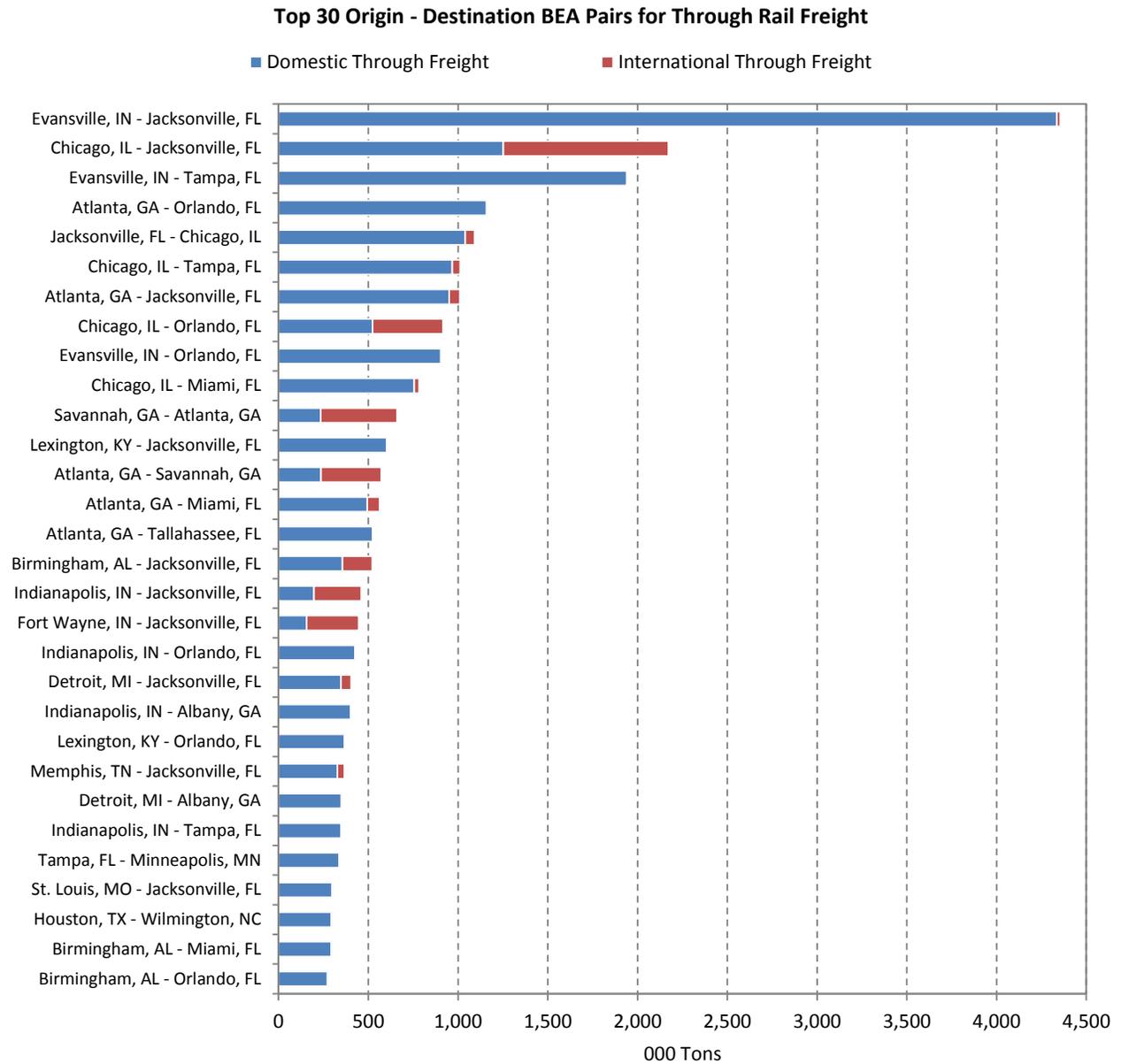


Figure 21: Middle Georgia Through Rail Freight by Origin-Destination Pairs in 2013



Note: International freight flows may be understated because domestic freight can include international cargo that is “converted” to domestic freight; for example, containerized imports enter an import distribution center and then depart as domestic truckloads.

Source: IHS Transearch database

2.6 Savannah-Middle Georgia Corridor

2.6.1 Truck Freight

Middle Georgia’s location on major transport links with the Port of Savannah is reflected in the volume of freight moving between Savannah and the region. A total 11.9 million tons of inbound, outbound and through truck freight was connected with Savannah. A profile of the major truck lanes is presented in Figure 22. Atlanta is the major origin and destination for freight that passes through Middle Georgia to and from Savannah. Other principal corridors for through freight are mainly in the Southeast, but there are also some long haul truck corridors (for example, to Dallas, TX). As stated earlier in Section 2, some of the domestic freight may be international cargo that has undergone handling at an import distribution center or other facility near to Savannah.

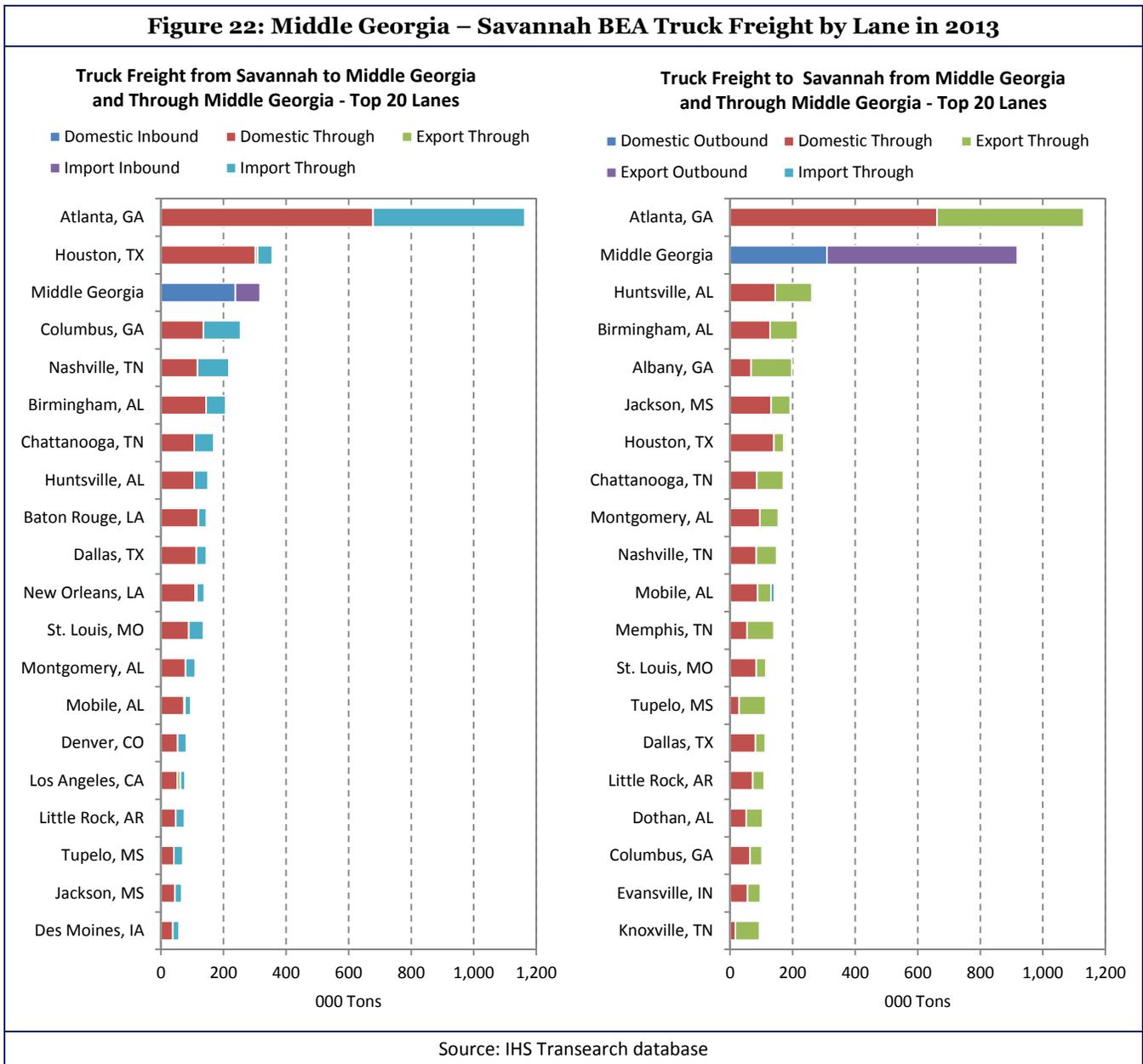
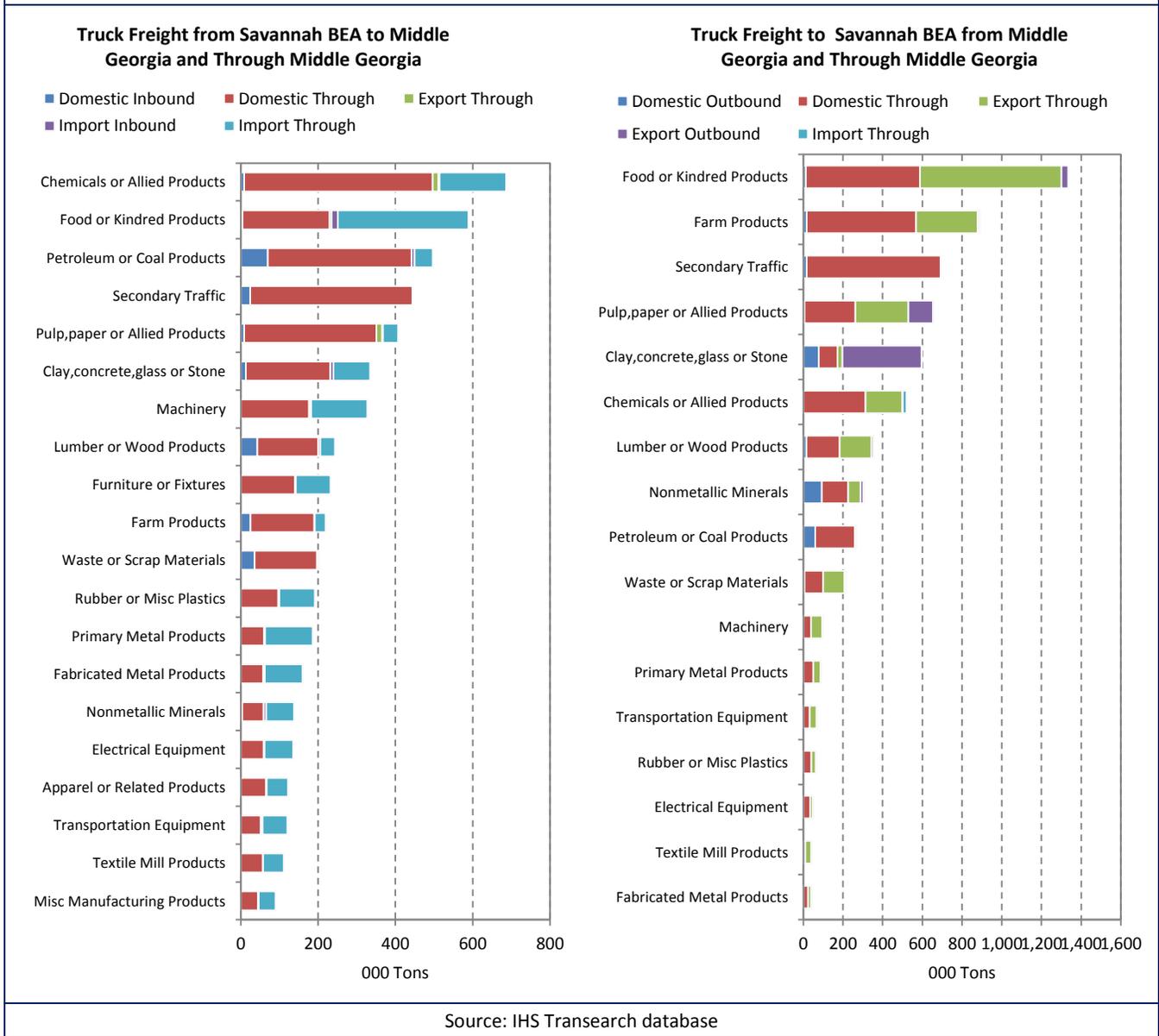


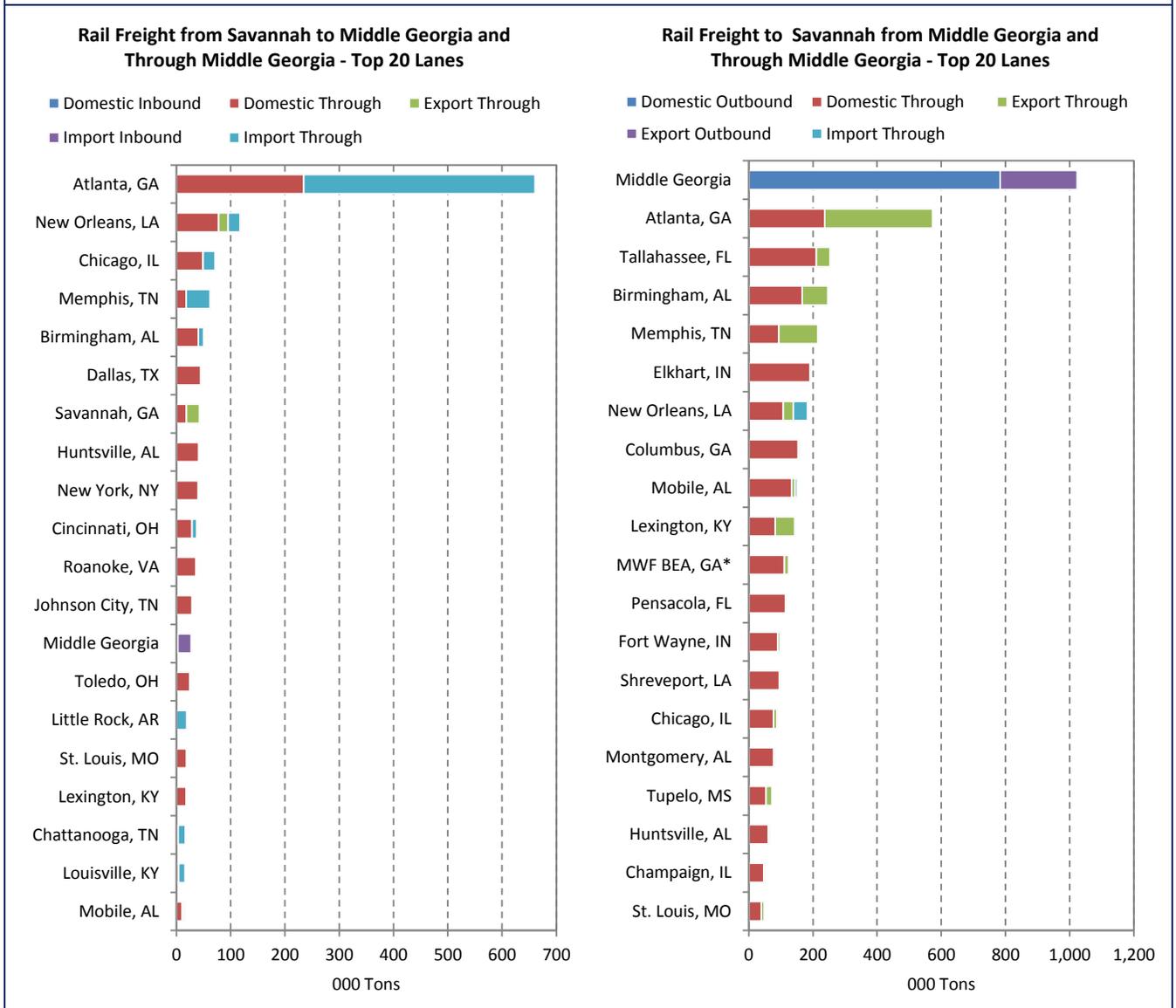
Figure 23: Middle Georgia – Savannah BEA Truck Freight by Commodity in 2013



2.6.2 Rail Freight

Rail freight associated with the Port of Savannah amounted to 6.3 million tons in 2013, 4.7 million tons moving to Savannah and 1.6 million tons flowing from Savannah. This rail freight is concentrated in the Savannah to Atlanta lane, with a 41.9 percent share of tons (Figure 24). The largest commodity from Savannah is Miscellaneous Mixed Shipments (intermodal commodities), accounting for 51.6 percent of rail tons (Figure 25). This reflects Savannah’s role as a port gateway for containerized imports that move inland by intermodal rail service. Middle Georgia is the largest origin for rail freight moving to Savannah, with a 21.9 percent share, followed by Atlanta at 12.3 percent. The principal commodities moving to Savannah are Pulp, Paper or Allied Products (23.9 percent), Miscellaneous Mixed Shipments (15.7 percent) and Nonmetallic Minerals (10.9 percent).

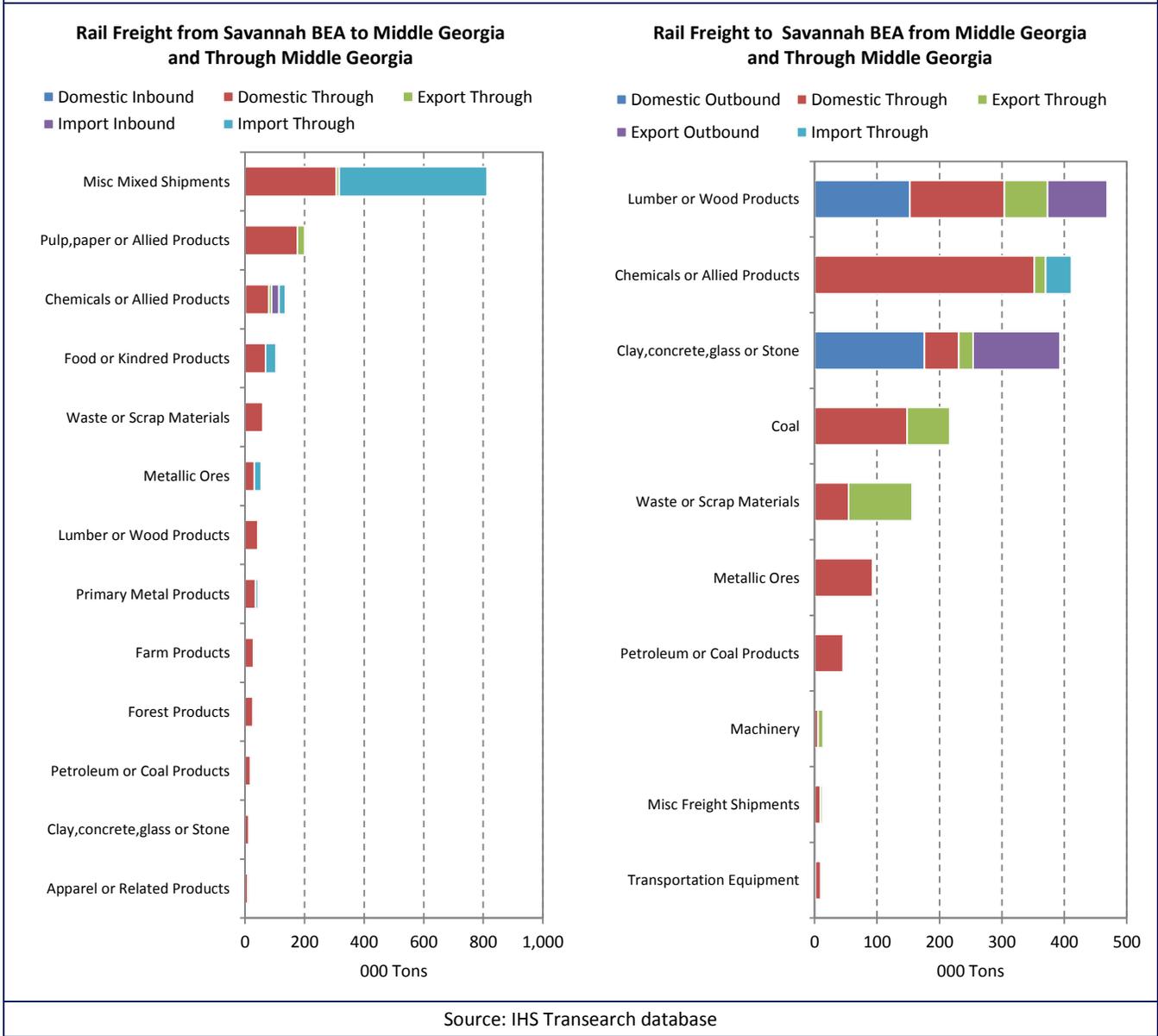
Figure 24: Middle Georgia – Savannah BEA Rail Freight by Lane in 2013



* Transearch data is provided by BEA Economic Area (BEA). MWF BEA is made up of those counties that are part of the Macon-Warner Robins-Fort Valley BEA but are outside the Middle Georgia Region. The counties are Appling, Bleckley, Dodge, Hancock, Jeff Davis, Johnson, Laurens, Taylor, Telfair and Washington.

Source: IHS Transearch database

Figure 25: Middle Georgia – Savannah BEA Rail Freight by Commodity in 2013

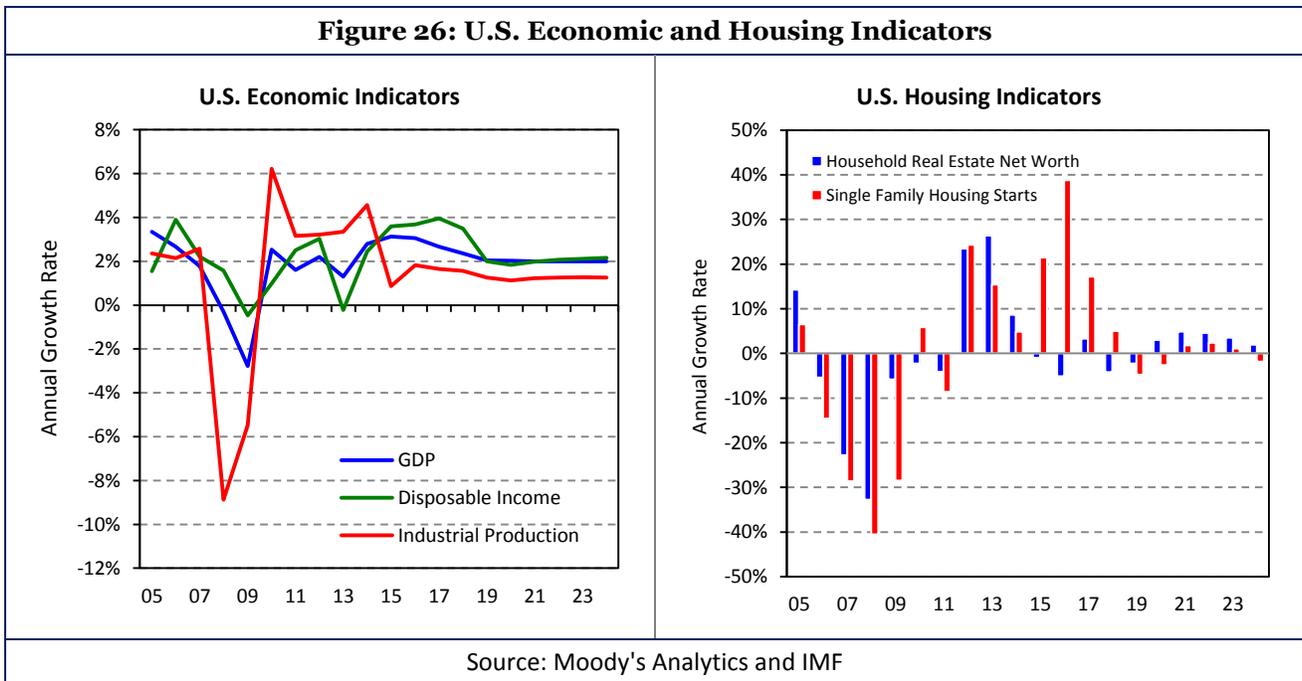


3 Freight Forecast

3.1 Economic Trends

3.1.1 U.S. and Regional Economies

U.S. economic activity has gradually recovered from the 2008/2009 recession, and the economy is projected to have 2 to 4 percent annual growth of Gross Domestic Product (GDP) through 2016 and then 2 to 3 percent annual growth through 2024. Factors supporting growth include the expansion of disposable income and consumption, a healthier housing sector (relative to the collapse during the recession), and population growth. The gradual recovery in housing starts, linked to household formation and population growth, will continue to have a favorable impact on consumption and import activity. However, export growth is under pressure from the stronger U.S. Dollar and weak growth in overseas markets, and this could dampen export growth over the next two years. The near-term outlook for the U.S. Dollar relative to other currencies is for a continued moderate strengthening, which got underway in early 2014 and is likely to continue into 2016, after which it will decline gradually. Figure 26 shows the growth trends for selected U.S. economic indicators – GDP, disposable income, industrial production and housing.



Economic activity in the South Atlantic and South Central regions⁴ of the country will have an impact on future Middle Georgia freight flows. These two regions of the country include the major domestic destinations and origins for Middle Georgia freight (See Section 2 for geographic distribution of inbound and outbound freight), and are also the two regions that would be served by any distribution centers developed in Middle Georgia. As discussed below, the two regions have a positive economic outlook and this is expected to support the growth in demand for freight-related infrastructure in Middle Georgia.

Figure 27 shows historical and projected economic indicators – disposable income growth for the two census divisions and industrial production growth for Georgia, South Carolina, Alabama and Tennessee. Growth of disposal

⁴ The U.S. is divided into nine divisions by the Census Bureau and they are used in this report as the basis for regional economic trend analysis. The South Atlantic Division includes WV, MD, DE, VA, NC, SC, GA and FL. The East South Central Division includes KY, TN, MS and AL.

income in the South Atlantic Census Division is projected to outperform the broader U.S. economy over the next decade, a reflection of factors that include healthy population growth, healthy demand for labor, and stronger investment activity relative to the rest of the country. And the South Atlantic is projected to be the fastest growing region of the country over the next decade, as measured by disposable income (see Figure 28), while the East South Central is projected to be the sixth fastest growing region.

Figure 27: Disposable Income and Manufacturing Growth in the South Atlantic and East South Central Regions

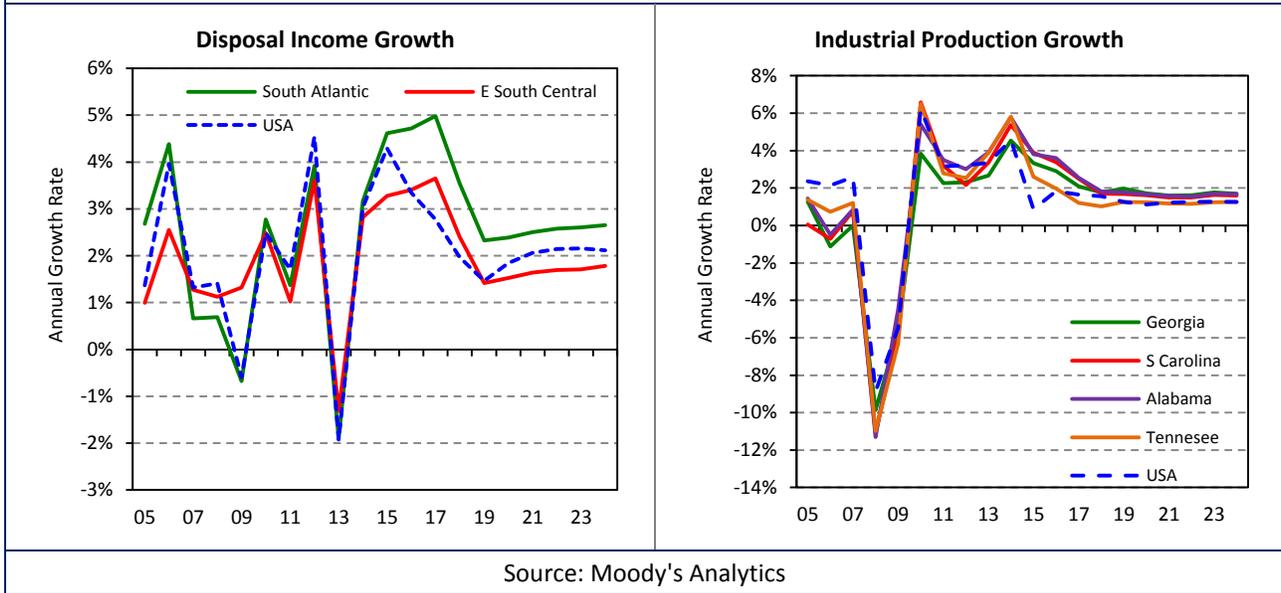
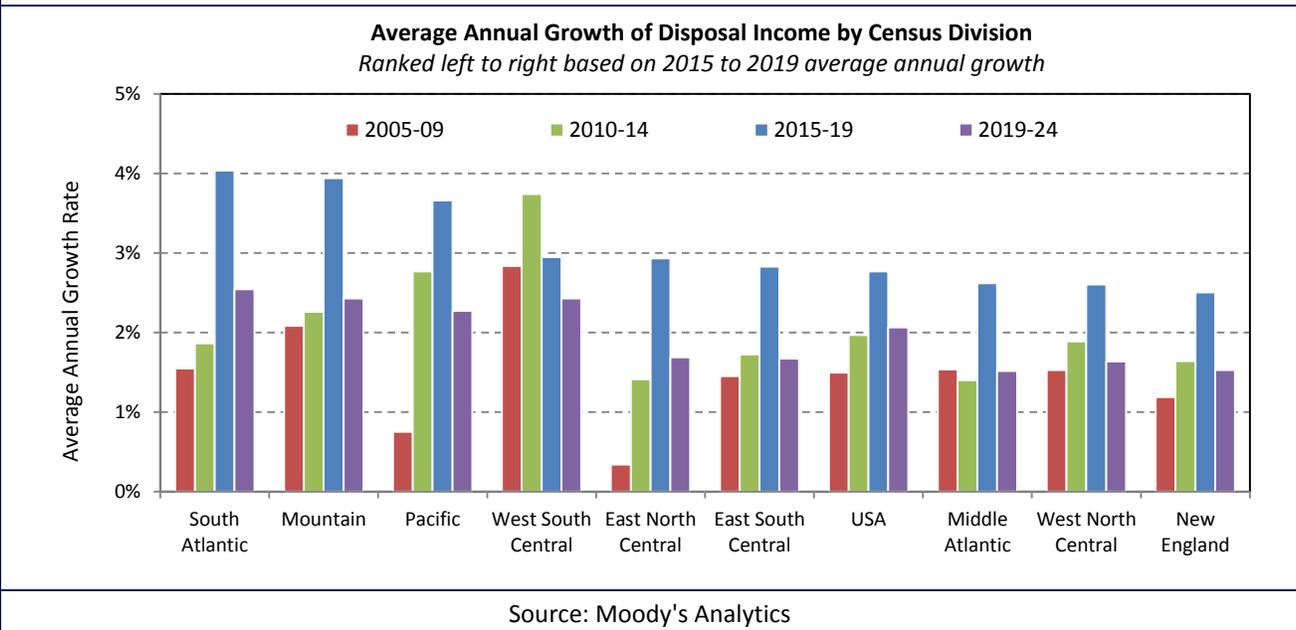


Figure 28: Historical and Projected Disposable Income Growth by Census Division



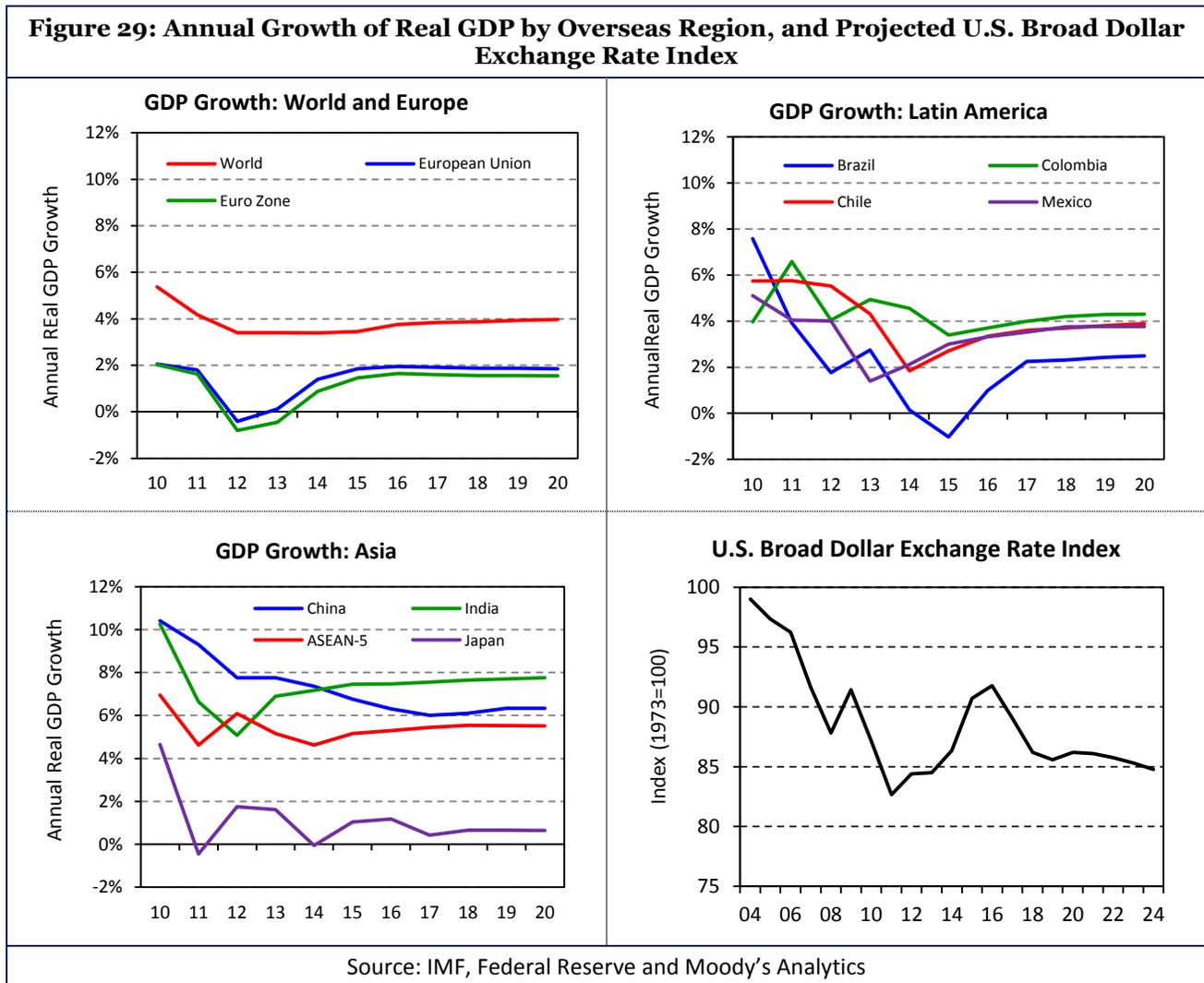
The growth of manufacturing will continue to play an important role in regional economic development. In 2014, manufacturing accounted for 11 percent of Georgia’s Gross State Product (GSP), 16 percent in South Carolina, 18

percent in Alabama and 16 percent in Tennessee.⁵ These shares compare with manufacturing’s 12 percent share of national Gross Domestic Product (GDP). As shown earlier in Figure 27, industrial production in Georgia and South Carolina is projected to grow at a faster rate than the country as a whole, partly driven by the continued expansion of manufacturing activity.

3.1.2 International Economies

Total exports from the State of Georgia are focused on markets in Asia (35 percent of the State’s export value in 2014), North America and Caribbean (29 percent), and Europe (23 percent).⁶ Other regions are South America (7 percent), Africa (4 percent) and Australia/New Zealand (3 percent). Europe and Latin America. Projected economic growth in these overseas regions will influence demand for exports. However, a key driver of exports is the U.S. Dollar exchange rate, particularly for the lower-value and price sensitive commodities that account for a large share of export volume.

Figure 29: Annual Growth of Real GDP by Overseas Region, and Projected U.S. Broad Dollar Exchange Rate Index



Source: IMF, Federal Reserve and Moody’s Analytics

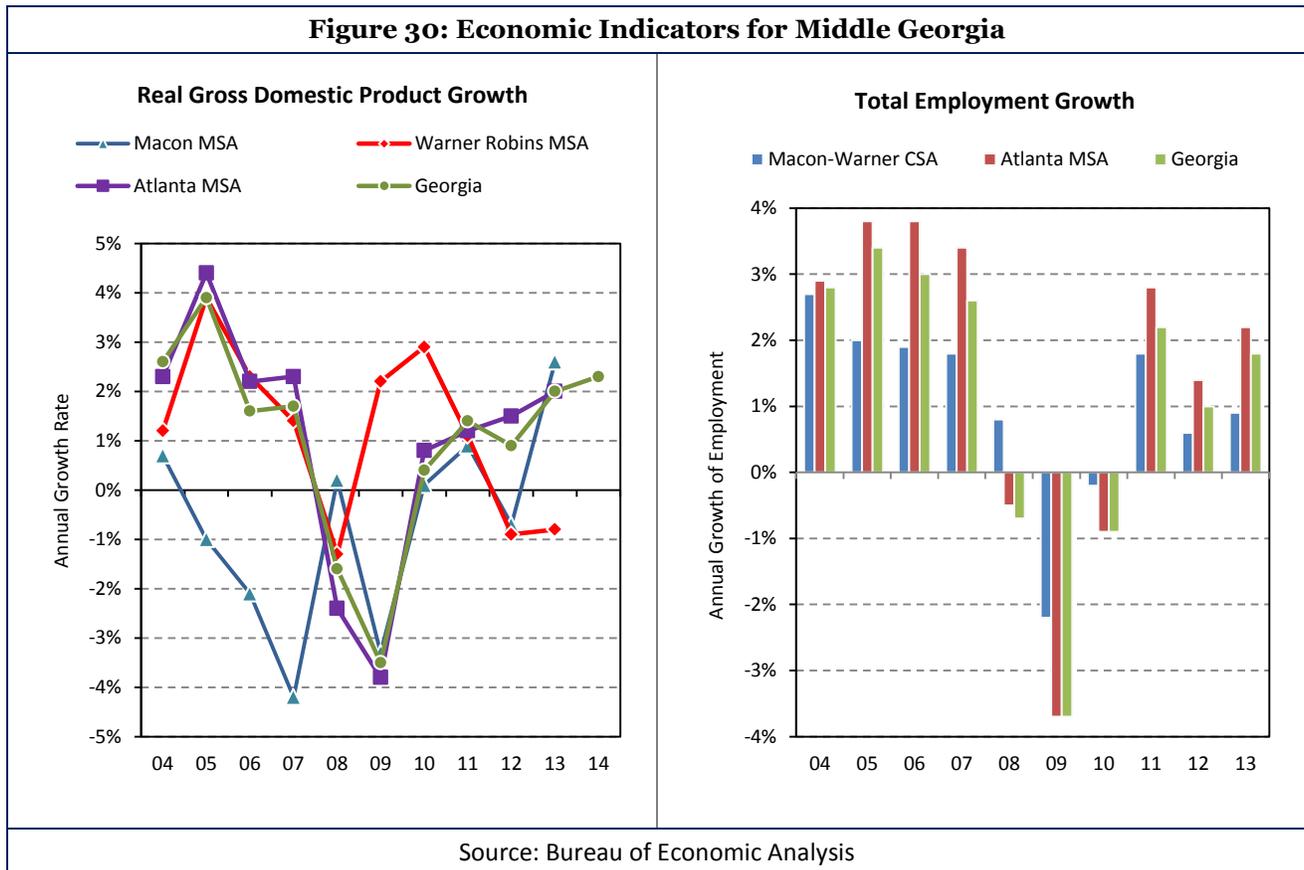
⁵ Based on data from the Bureau of Economic Analysis

⁶ The distribution of exports by value in 2014 published by Georgia Department of Economic Development

The projected growth of GDP by overseas region and country is provided in Figure 29 above, along with a forecast for the U.S. Broad Dollar Exchange Rate Index. While the overseas economic growth outlook is generally favorable for exports, the strong U.S. Dollar is having a downward impact on export growth, notably for lower-value commodities (e.g. forest products). The near-term outlook is for further strengthening of the U.S. dollar through 2016, which will limit the growth of exports. The trend is then expected to reverse, which will have a positive impact on exports, especially as U.S. raw material and other commodity exports become more competitive on world markets with a weaker U.S. Dollar.

3.1.3 Middle Georgia Region

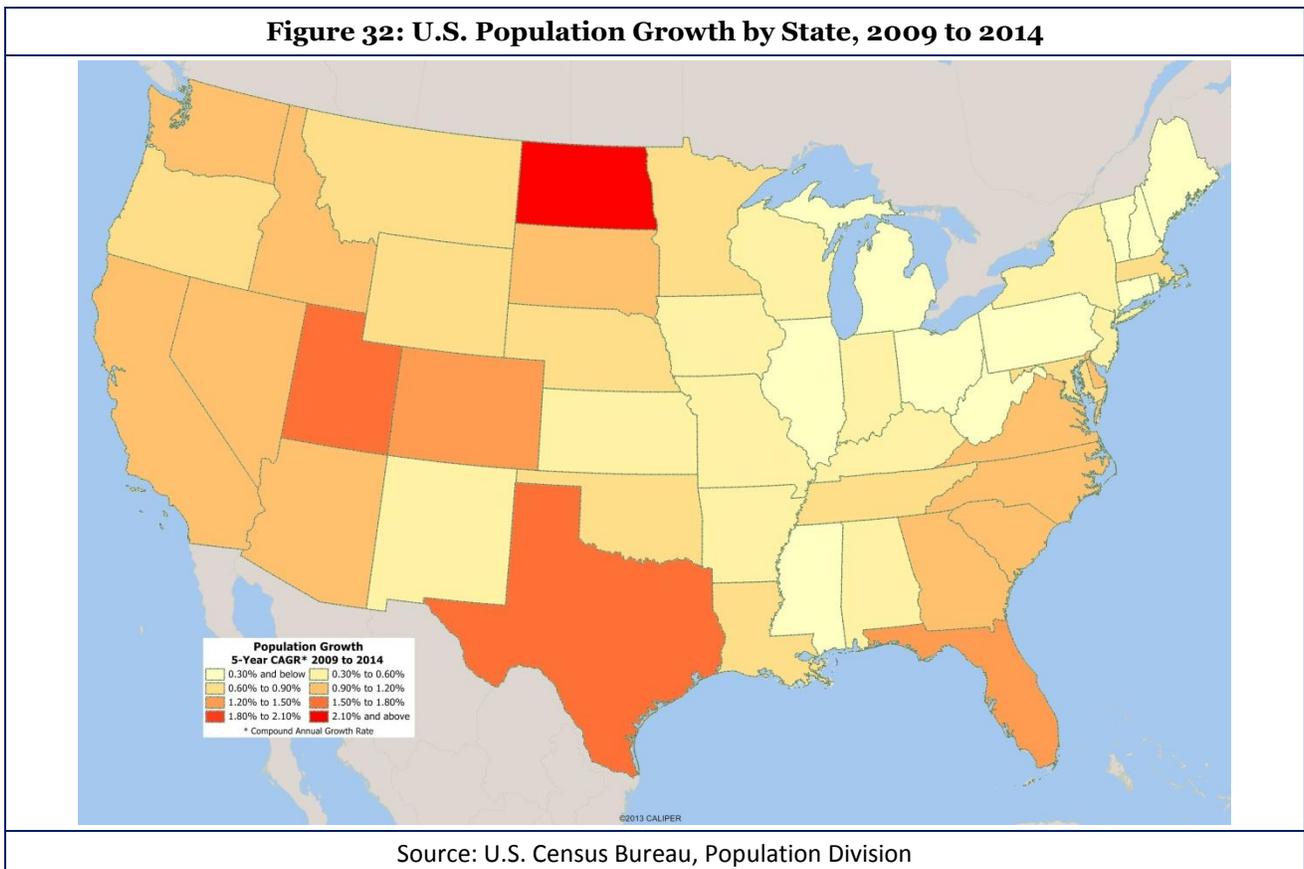
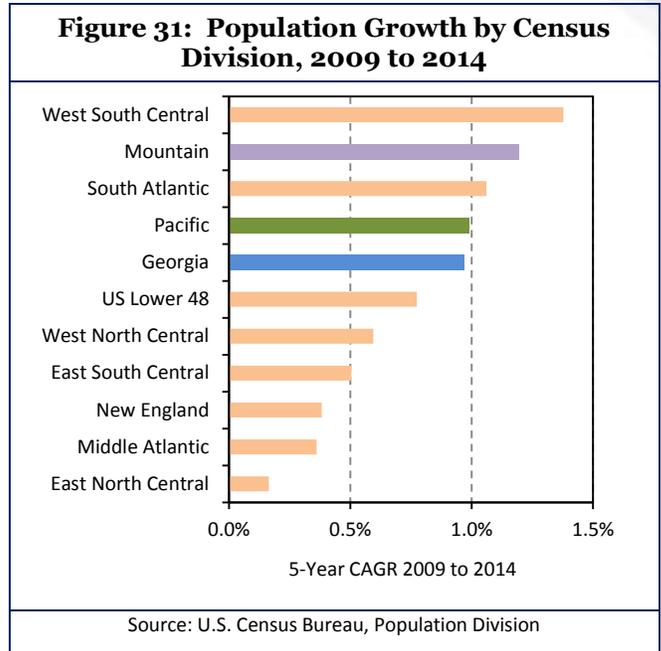
Economic growth in Middle Georgia (represented by data for the Macon MSA⁷, the Warner Robins MSA, and the Macon-Warner Combined Statistical Area) (Figure 30), generally tracked the rest of the State of Georgia during the 2010 to 2012 post-recession recovery.



⁷ MSAs are geographic areas defined by the U.S. Office of Management and Budget for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics. An MSA consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

3.1.4 Population Trends

Population trends are favorable for economic development, including freight-related activity, in the Middle Georgia region. The State of Georgia and the broader South Atlantic Census Division have some of the fastest growing populations in the country. As shown in Figure 31 and Figure 32, population growth in Georgia is above the nation as a whole. The 5-year compound annual growth rate (CAGR) of population was 1.0 percent compared to 0.8 percent for the U.S. Lower 48 states. The South Atlantic's five-year CAGR of population was 1.1 percent. Middle Georgia is also located in close proximity to one of the fastest growing metropolitan areas on the country – the Atlanta MSA has a population of approximately 5.5 million and recent annual population growth of 1.3 percent.



3.2 Regional Freight Forecast

3.2.1 Summary of Forecasts in Georgia Statewide Freight & Logistics Action Plan

As background for the Middle Georgia regional freight forecast, the project team reviewed the freight forecasts for the State of Georgia presented in the Georgia Statewide Freight & Logistics Action Plan (the Plan), by Georgia DOT – Office of Planning, was originally published in 2011 and revised in 2015. It is a fundamental planning document for assessing the State’s transportation infrastructure requirements out to the year 2050.

The Plan contains key assumptions about the growth of Real Gross State Product (GSP) and population over a 40-year period, 2010 to 2050. Three scenarios are developed for GSP and population:

- A Medium or “business-as-usual” Scenario with total 40-year GSP growth of 150 percent or 2.3 percent per year and corresponding population growth of 76 percent or 1.4 percent per year. This also implies a growth in per capita income of 0.9 percent annually. The projected GSP, population and per capita income growth rates are all slightly higher than most projections for the U.S. as a whole, and this is consistent with Georgia’s average performance over the past several decades.
- A Low Scenario, where Georgia’s relatively poor economic and population growth rates in the 2001 to 2010 decade are simply extended out to 2050. Both GSP and population are assumed to grow a total of 46 percent or about 1 percent per year. This appears to be a rather extreme set of assumptions, especially since Georgia’s growth since 2010 has been robust and above the U.S. average. However, it should also be noted that inadequate transportation infrastructure was said to have been a constraint on growth during the 2001 to 2010 decade
- A High Scenario, which involves assumptions as extreme as the Low Scenario, as it is a 40-year extension of the extraordinary boom years experienced by the Georgia economy and population during the 1991 to 2000 decade. GSP is projected to grow by 450 percent or 4.4 percent per year, and population by 131 percent or 2.1 per year.

The Plan develops projected freight flow tonnage by mode and for several key industry segments under each of these Scenarios. Since, as noted above, the Low and High Scenarios are quite extreme, summaries are only shown here for the more reasonable Medium Scenario. Another possible shortcoming of the Plan is that projected growth rates for freight flows are presented as constant over the entire 40-year 2010 to 2050 period. It is more likely that growth rates will tend to decline over the forecast period, consistent with most long-term projections of economic and population growth rates. In other words, simply applying a constant long-term annual growth rate will tend to understate actual growth in the early years of the forecast period.

In addition to projections of the general economy and population, the Plan developed projections of industries that were likely to be most freight-related. Using 2007 as a base year, 43-year projections were developed for annual output growth of the following industries:

<u>Industry</u>	<u>Projected Annual Growth Rate, 2007 to 2050</u>
Manufacturing	1.45%
Construction	1.32%
Retail	2.58%
Agriculture	1.65%
Utilities	1.83%
Georgia GSP	2.05%

As shown above, four out of the five freight-related industry sectors have projected growth rates lower than that for Georgia GSP as a whole.

The Plan further developed 2007 to 2050 projections for growth of annual freight tonnage for four key freight segments: Warehousing and Distribution, Agricultural Products, Food Processing and Transportation Equipment Manufacturing. Freight tonnage projections for these segments are developed for rail and truck modes, and within each mode, separate projections for Inbound from out-of-state, Outbound to out-of-state, Intra-State, and Thru-Traffic. Table 3 provides a summary of these projections. For the combined four segments, the projected annual growth of truck tonnage, at 2.1 percent is slightly higher than the corresponding growth rate for rail, 1.9 percent.

Table 3: Summary of 2007-2050 Combined Tonnage Projections for Four Key Industry Segments in Georgia

Mode by Direction	2007 Tonnage (Millions)	2050 Tonnage (Millions)	Compound Annual Growth Rate
Rail Inbound	20.9	49.9	2.0%
Rail Outbound	9.1	15.1	1.2%
Rail Intra-State	1.4	2.5	1.4%
Rail Thru-State	29.4	69.0	2.0%
Total Rail	60.8	136.5	1.9%
Truck Inbound	58.3	157.5	2.3%
Truck Outbound	63.3	129.6	1.7%
Truck Intra-State	66.0	144.8	1.8%
Truck Thru-Traffic	113.8	292.2	2.2%
Total Truck	301.4	724.1	2.1%

Source: Georgia DOT’s Georgia Statewide Freight Plan

The Plan also provided forecasts for Air Freight and for Containerized Traffic at the Port of Savannah. These are summarized below.

Air Freight – Air tonnage is projected to grow from about 0.7 million tons in 2007 to 1.6 million in 2050, an annual growth rate of 1.9 percent.

Containerized Traffic at Port of Savannah – For over two decades, this component of the Georgia Freight market has been growing at a high rate relative to both overall Georgia traffic and total U.S. port containerized traffic. Consistent above-average growth at Port of Savannah has been driven by investments in distribution facilities for importers and exporters, and a steady diversion of Asia import and export traffic from West Coast port gateways to ports on the East Coast, particularly ports serving the relatively rapidly growing Southeast region. Savannah port container traffic, measured in twenty-foot equivalent units⁸ (TEU) is projected to increase from about 2.6 million TEU in 2007 to 6.5 million in 2050. The Plan assumes a constant tons-per-TEU of 9 tons, so container tonnage growth is projected to increase from 23.4 million tons in 2007 to 58.5 million tons in 2050, for an annual growth rate of 2.1 percent.

⁸ Twenty-foot equivalent unit (TEU) is a standard unit of measurement in the container shipping and port industries, used to measured containerized trade volume, port throughput, port capacity, ship capacity and other elements of these industries.

3.2.2 Outlook for Port of Savannah

Freight corridors with the Savannah BEA are important generators of freight that flows through Middle Georgia. There is also freight moving between Middle Georgia and the Savannah BEA. (See discussion of Savannah-related freight in Section 2.6). A total 11.9 million tons of inbound, outbound and through truck freight was connected with Savannah. A further 6.3 million tons of rail freight moved on corridors with the Savannah BEA. While not fully transparent in the freight flow data, international containerized cargo handled at the Port of Savannah is an important part of these freight flows. The inland transportation of containerized cargo is either as an intact import or export container, or is captured as domestic freight; in the case of imports, departing a regional distribution center as a domestic move or, for exports, arriving as a domestic move at an export transload facility.

The outlook for containerized cargo at the Port of Savannah will have a bearing on Middle Georgia freight activity, notably on freight moving through the region. Therefore, the project team prepared a short- to medium-term forecast (2015 to 2025) of import and export container loads (measured in TEU) at the Port of Savannah. The projected growth rates provide an additional point of reference, alongside the Georgia statewide forecasts, for the Middle Georgia forecasts in Section 3.3.3.

The projected outlook for the Port of Savannah is shown in Table 4. The methodology used to generate the forecasts is described at the end of Section 3.3.2. The key points are:

- Savannah's total container loads are projected to grow at a compound annual growth rate (CAGR) of 2.5 percent over the next decade (Note, the Georgia Statewide Plan projects a long-term 2007-2050 average annual growth of 2.1 percent).
- Growth rates are lower compared to the 2010 to 2015 period, primarily for three reasons:
 - A relatively stronger U.S. dollar and lower projected economic growth for overseas countries that will dampen export growth.
 - The end of the post-recession recovery in containerized trade that generated high growth rates.
 - The end of the 2014/2015 shift in containerized trade from West Coast to East Coast ports that boosted annual growth in 2015. Savannah's import loads were up by 30 percent through end-July compared to the same period in 2014.

The above forecasts are driven by macro considerations, economic growth rates and exchange rates, and the overall structure of containerized – commodities by trade lane. However, there are structural and other considerations that could provide both upside and downside to the Port of Savannah (many of these are discussed in the interview survey in Section 4). They are:

- Shipper port selection – the full impact of the West Coast labor issues may not be seen for a few years as shippers continue to evaluate port gateway options in the context of their overall supply chains.
- Port infrastructure – Savannah and other Southeast ports (e.g., Charleston) continue to invest in port infrastructure (channel deepening, terminal improvements, inland port, etc.). Ports that can efficiently handle the larger container ships deployed in international trade will be at a competitive advantage over their rivals. The full impact of these investments will not be seen for a few years.
- Savannah market perception – the Georgia Ports Authority (GPA) and the Port of Savannah have a reputation for good and responsive service, and this could encourage additional growth at the port if other ports and port regions are unable to adequately address their challenges (for example, West Coast labor).
- Inland corridor congestion – a challenge faced by Savannah and many other ports is the stress placed on inland transportation corridors from cargo growth. A failure on the part of the State of Georgia to maintain investment in statewide transportation infrastructure could dampen growth. GPA's Network Georgia

strategy (discussed in Section 4.5.2) for the development of inland ports, mostly rail-served, around Georgia is one effort to better accommodate the movement of containers inland.

Table 4: Projected Outlook for Containerized Imports and Exports at the Port of Savannah, 2015 to 2025								
	2010	2015	2020	2025	CAGR¹	CAGR¹	CAGR¹	CAGR¹
	Million	Million	Million	Million	2010 to	2015 to	2020 to	2015 to
	TEU	TEU	TEU	TEU	2015	2020	2025	2025
Port of Savannah								
Import Loads	1.04	1.68	1.86	2.06	10.2%	2.0%	2.1%	2.0%
Export Loads	1.10	1.21	1.42	1.64	1.9%	3.2%	3.0%	3.1%
Total Loads	2.14	2.90	3.27	3.70	6.2%	2.5%	2.5%	2.5%
(1) Compound annual growth rate.								
Source: GKSF Forecasts and JOC Piers history								

GKSF Forecast Methodology for U.S., Regional and Port-Specific Containerized Trade

The method employed to develop forecasts of U.S., regional and port-specific containerized import and export trade is a statistical, or econometric, model that relates import and export loads, in TEU, to a set of U.S. national, U.S. regional and World macro-economic variables. The econometric model is a set of forecasting equations representing import (16 equations) and export (12 equations) commodity segments and separately-defined overseas origin and destination regions. Estimates of the statistical relationship between macro-economic variables and TEU are developed for each segment, and are the basis of TEU forecasts that are segment-specific. These forecasts are then aggregated into total TEU forecasts for imports and exports. Finally, the econometric forecast results may be adjusted for significant industry trend shifts not captured in the data. The import and export TEU forecasts are developed for the U.S. as a whole, and are related to each port region (for example, Southeast) or port (for example, Savannah) based on that region’s or port’s share of the import and export segments.

The econometric models are estimated based on quarterly (for imports) and annual (for exports) TEU and macro-economic data for first quarter 1991 through second quarter 2015. The TEU data are derived from the JOC Piers database, supplemented by containerized tonnage data from U.S. Trade Online and data from individual ports. Historical and forecast values for the U.S. macro-economic variables are provided by Moody’s Analytics, and historical values and forecasts for overseas regions are derived from the IMF.

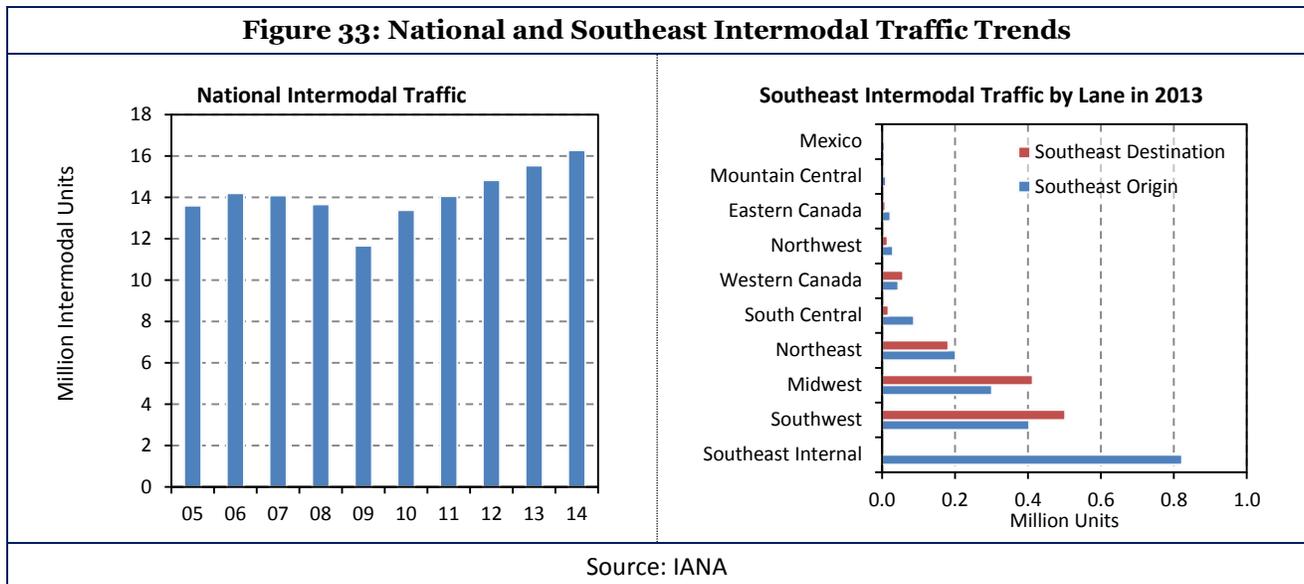
3.2.3 Intermodal Rail Activity

National intermodal traffic reached a record high of 16.3 intermodal units in 2014 and the fifth year of growth since the recession low in 2009 (Figure 33). Intermodal traffic is running around 5 percent higher so far in 2015 compared to 2014. The sustained growth of intermodal traffic has been driven by:

- Post-recession recovery of economic growth and both domestic and international freight volumes.
- Substitution of intermodal rail service for over-the-road truck in medium and long haul corridors, and in some short haul corridors. This would include some intermodal rail corridors in and out of Atlanta. This substitution is being driven by labor and capacity constraints facing the trucking industry, including driver retention and shortages, and regulations.
- The substitution of intermodal for highway truck is greatly enhanced by the rapidly growing availability of 53-foot containers, which offer the same freight capacity as highway trailers and can be double-stacked for lower cost intermodal rail service.

The outlook for nationwide intermodal traffic is favorable due to the continuation of the above trends – economic growth, international trade growth and continued pressure on trucking particularly in the 550 to 1,200 mile lanes.

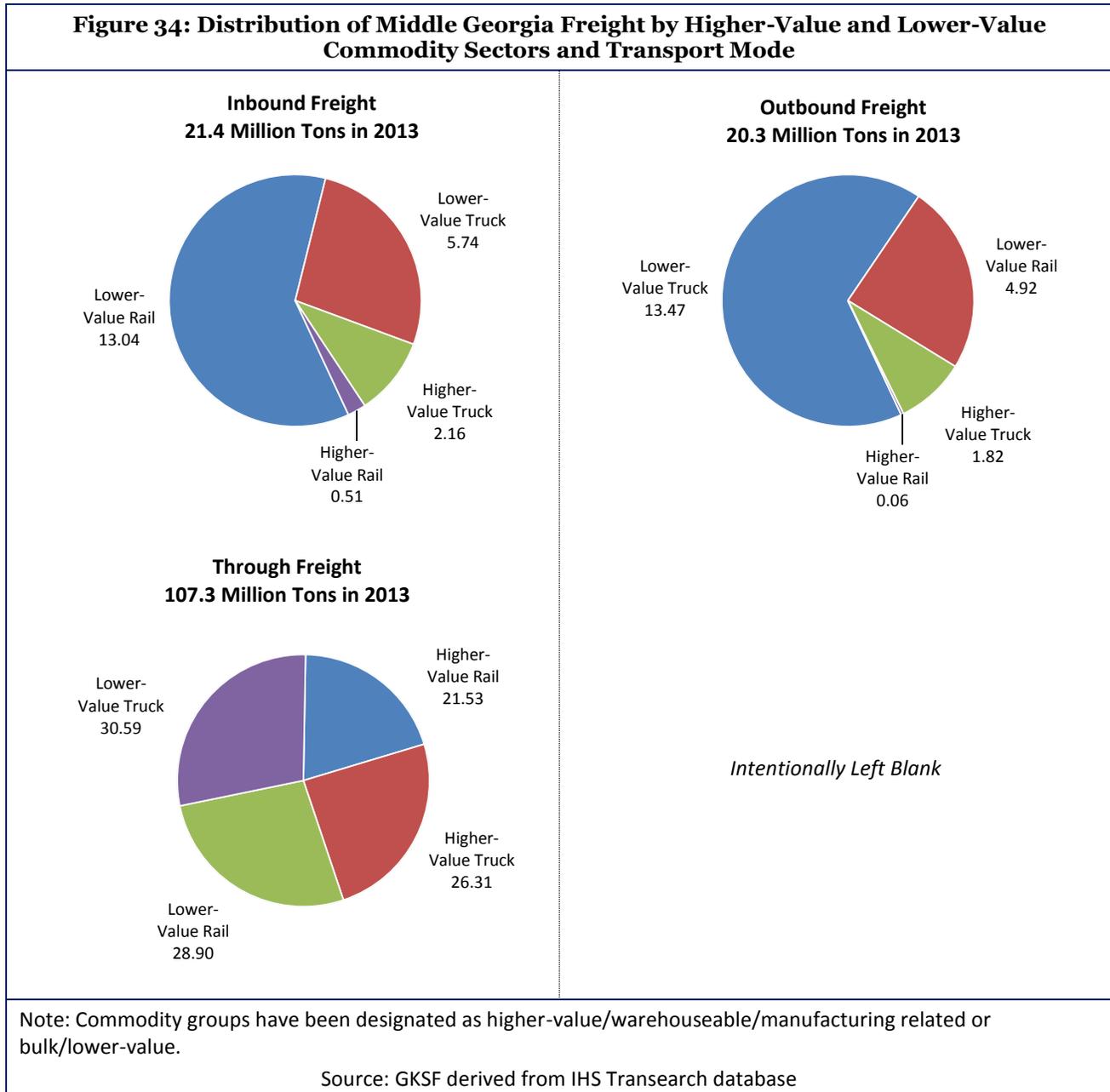
The Southeast⁹ region accounts for approximately 25 percent of the nation’s total intermodal traffic. Southeast traffic has experienced recent healthy growth partly driven by the increased international container traffic moving through the region’s ports. Key intermodal lanes are with the Southwest, Midwest and Northeast. Overall, there is likely to be increased intermodal rail freight on the intermodal rail corridors in Georgia, both domestic and related to container traffic moving through the Port of Savannah. Further discussion of intermodal rail as it relates to Middle Georgia and the State, and supply chains strategies is provided as part of the interview survey in Section 4 and supply chain strategies in Section 5.



⁹ The Intermodal Association of North America (IANA) defines the Southeast region for intermodal traffic as Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina and Tennessee.

3.2.4 Middle Georgia Freight Forecast

The freight outlook for Middle Georgia is based on the review of the Georgia Statewide Freight & Logistics Action Plan (Section 3.2.1), the outlook for the Port of Savannah (Section 3.2.2), a review of long-term forecasts for the Atlanta MSA, Savannah MSA and other regions contained in the FAF3 database, as well as economic trends and the impacts from the industry trends discussed elsewhere in this report. The Transearch data for 2013 are used as the base year for the forecast. The forecast concentrates on freight moving inbound and outbound by truck and rail, with an emphasis on the growth trend for higher-value commodity groups that drive demand for warehousing/distribution and manufacturing space. The estimated split between these commodity value sectors is shown in Figure 34.



The projected compound annual growth rate (CAGR) for Total Freight (combined inbound and outbound) moving by truck and rail is 0.7 percent over the 10 year period from 2013 to 2023. The principal drivers of growth are economic expansion in Middle Georgia and its main domestic trade partners. The higher-value/warehouseable/manufacturing commodity groups are projected to grow faster than the lower value/bulk commodity groups – 10-year CAGRs of 3.4 percent and 1.0 percent, respectively. This reflects the stronger growth of manufacturing-related goods and consumption goods relative to the more mature bulk commodities. The growth estimate for bulk commodities also reflects a significant projected decline in rail shipments of coal, still by far the largest bulk commodity (based on the FAF3 outlook for coal). A summary of the projected growth rates by time period is provided below:

Freight Flow and Commodity Value Sector	Compound Annual Growth Rates by Period		
	2013 to 2018	2018 to 2023	2013 to 2023
Total Freight Tons (Inbound, Outbound and Through)	1.2%	2.3%	1.8%
Bulk/Lower-Value Commodities	-0.2%	2.1%	1.0%
Higher-Value/Warehouseable/Manufacturing Commodities	4.0%	2.8%	3.4%
Total Inbound Freight	-3.6%	2.5%	-0.6%
Bulk/Lower-Value Commodities	-4.6%	2.4%	-1.2%
Higher-Value/Warehouseable/Manufacturing Commodities	2.7%	2.5%	2.6%
Total Outbound Freight	2.8%	2.5%	2.6%
Bulk/Lower-Value Commodities	2.7%	2.5%	2.6%
Higher-Value/Warehouseable/Manufacturing Commodities	3.9%	2.5%	3.2%
Total Through Freight	1.8%	2.1%	2.0%
Bulk/Lower-Value Commodities	0.0%	1.9%	1.0%
Higher-Value/Warehouseable/Manufacturing Commodities	3.8%	2.4%	3.1%

Segregation of the higher value commodity groups between high growth and low growth is provided in Table 5. Outbound freight of higher value/warehouseable/manufacturing commodities is projected to grow at a faster pace than inbound shipments – the 10-year CAGRs are 3.2 percent for outbound freight and 2.6 percent for inbound freight.

It should be noted that the projected growth rates for Middle Georgia freight flows (inbound, outbound and through) are macro driven (e.g. economic trends) and do not take into consideration new freight generated by new warehousing/distribution and manufacturing investment that may be captured by Middle Georgia as a consequence of its competitive advantages (for example, lower cost structure relative to Atlanta or a new inland port tied to the Port of Savannah as part of GPA's Network Georgia strategy) that are discussed in Section 4, 5 and 6 of the report.

Table 5: Higher-Value / Warehouseable / Manufacturing Commodity Groups			
A commodity group is designated as high or low growth if its projected growth is higher or lower than the projected growth of inbound or outbound freight for Higher-Value / Warehouseable / Manufacturing Commodities for the period 2013 to 2023.			
Inbound Freight to Middle Georgia <i>(Forecast 2.6% CAGR* 2013 to 2023)</i>		Outbound Freight from Middle Georgia <i>(Forecast 3.2% CAGR* 2013 to 2023)</i>	
High Growth Commodity Groups	Low Growth Commodity Groups	High Growth Commodity Groups	Low Growth Commodity Groups
Food or Kindred Products Chemicals or Allied Products Machinery and Parts Furniture	Fabricated Metal Products Electrical Equipment Printed Matter	Misc. Manufacturing Products Food or Kindred Products Chemicals or Allied Products	Transportation Equipment Rubber and Plastics Products Textile Mill Products
Source: GKSF Forecasts based partly on GDOT and FAF3 forecasts			

4 Interview Survey

4.1 Middle Georgia Summary

Transportation professionals were interviewed to gain an understanding of how Middle Georgia fits into international, U.S. domestic, and Middle Georgia transportation supply chains. Survey topics included how Middle Georgia’s proximity to key Southeast logistics hubs provide potential opportunities or challenges, existing and future transportation industry trends that affect location decisions, and key site-selection criteria used in the distribution center or manufacturing site selection process. Table 6 provides a summary of respondents by type.

Respondent Classification	Number
Commercial Real Estate Broker	1
Economic Development	5
Food Production	1
Georgia DOT	1
Manufacturer	4
Military	2
Port Authority	2
Railroad	2
Retail Distribution	4
Third Party Logistics Provider (3PL)	4
Trucker	1
Total	27
Source: GKSF	

In general, respondents had favorable views of Middle Georgia as a Southeast transportation hub, particularly if trucking is the transportation mode most relied upon. Key findings are:

- In general, respondents viewed Middle Georgia’s close proximity to key logistics hubs, such as the Port of Savannah to the south, and the airport, intermodal rail terminals, and dense population center of Atlanta to the north as both potential barriers and opportunities for the region.
- Respondents who were unaware of transportation capabilities of Middle Georgia were skeptical of its transportation advantages. Manufacturers and DC operators who are established in Middle Georgia note advantages over Port of Savannah and Atlanta locations, such as unfettered access to Southeast markets, growing congestion concerns especially in Atlanta, available and competitively-priced land and facilities, and an available labor force.
- Future transportation infrastructure upgrades, such as the completion of the Fall Line Freeway that will improve east/west trucking, and a proposed rail-served container terminal connecting the Port of Savannah to a yet-to-be decided point in Middle Georgia, would only bolster the region as a viable Southeast distribution hub for retail distribution, or as a national distribution point for manufacturers.
- National retailers who operated within Middle Georgia had favorable views of the region’s Southeast distribution capabilities, while those without local experience were less likely to be aware of Middle Georgia’s logistics advantages. Middle Georgia is best suited for DCs covering retail distribution in the

Southeast, particularly retail outlets and stores in Georgia, Florida, north to Tennessee and Virginia, and west to Alabama.

- Shippers that rely mostly on truck, with no or only occasional use of air or rail modes are likely to consider Middle Georgia for Southeast distribution. Favorable area highway access was noted, including easy access to highways transiting the Southeast region, including I-75, I-16, I-10, and the soon-to-be expanded Fall Line Freeway.
- Shippers looking to diversify their U.S. port gateways have permanently shifted a portion of their Asia cargo to Savannah from the West Coast on concern over the inability of West Coast terminals to ease congestion. The implication for Middle Georgia is that this is contributing to the scarcity of DC space in Savannah, and may cause logistics managers to consider other locations in Georgia, including Middle Georgia.
- Network Georgia, which is a Georgia Ports Authority (GPA) plan to establish rail-served inland container yards, may have substantial growth implications for transportation and manufacturing related services in Middle Georgia. **GPA has identified Middle Georgia as a strong candidate for such an inland port as part of its Network Georgia plan**, and is eager to begin discussions with Middle Georgia representatives to further explore Network Georgia plan. Success of a site location selection depends heavily on cooperation between ocean carriers, railroads, local government, and financial investment from all parties involved.

4.2 Site Selection Criteria Summary

Shippers' decisions to use truck or rail, or where to place a manufacturing or distribution center illustrate how transportation networks achieve delivery time and cost objectives. Separate Wilson and Company studies, as again validated by responses to this survey, suggest that common selection criteria that affect network transit and cost capabilities are ranked in the following order of importance:

Retail Distribution

1. Proximity to customers/suppliers
2. Available transportation infrastructure and mode (e.g. air, truck, rail)
3. Labor force, quality, cost, availability
4. Government programs and tax incentives

Manufacturers

Manufacturers ranked the selection criteria slightly differently, elevating the importance of labor:

1. Labor force, quality, cost availability
2. Proximity to customers/suppliers
3. Available transportation infrastructure and mode
4. Government programs and tax incentives

Manufacturers in most cases are also concerned with the availability of raw materials, and the cost of utilities. Heavy industrial manufacturing, such as automotive or aerospace manufacturers, put more emphasis on lower cost utilities due to intensive energy consumption requirements of these sectors. Light manufacturing or distribution center energy needs are not as large, and therefore less of a consideration.

Proximity to customers, available transportation modes, and labor force selection criteria play the deciding roles in identifying the general region for a DC or manufacturing operation, such as a county or city. Government programs and tax incentives are generally viewed as "tie-breakers" between competing sites in the general selection area. Competing sites for Middle Georgia as indicated by respondents, are other logistics hubs that potentially serve the

Southeast, including locations within and adjacent to Georgia. (See the competitive assessment in Section 6 for an evaluation of Middle Georgia against a selection of regional competitors).

Once Middle Georgia satisfies the first three site selection criteria (i.e. proximity to customers/suppliers, available transportation infrastructure (and costs), and available labor supply), various sites in and around Middle Georgia can compete by providing local government incentives, land deals, and other incentives. One survey respondent noted that simply putting up fewer bureaucratic and regulatory obstacles was enough to attract a retail distributor away from a neighboring state to Middle Georgia.

When comparing Middle Georgia to its closest competition (that is, Atlanta and Savannah) available land and commercial real-estate at attractive prices were differentiating features.

Site selection criteria are discussed in greater detail below.

Site Selection Summary

The following is a summary of the transportation infrastructure and site selection criteria such as labor and government incentives that will be discussed further in the remainder of Section 4.

- Favorable area highway access was noted, including easy access to highways transiting the Southeast, including I-75, I-16, I-10, and the soon-to-be expanded Fall Line Freeway.
- In general, highway access was viewed as a competitive strength for Middle Georgia. The expansion of the Fall Line Freeway to four lanes, improving east/west trucking was considered to be a real asset to Middle Georgia once completed. The I-16 NB to I-75 one lane interchange chokepoint has been viewed as a serious impediment to transportation related growth, particularly around Macon.
- Trucker availability and easy access to national markets was considered to be no more problematic in Middle Georgia than these concerns are in Savannah or Atlanta.
- Middle Georgia shippers who need to access rail rely on terminals in Savannah for international shipments, or in Atlanta for domestic shipments.
- An intermodal rail site established in Middle Georgia may have substantial growth implications for transportation and manufacturing-related services in the Middle Georgia region. A rail transportation option to and from the Port of Savannah will be a key consideration of supply chain managers looking for reliable, and low cost options when evaluating competing Southeast locations. **GPA has identified Middle Georgia as a strong candidate for such an inland port as part of its Network Georgia plan**, and is eager to begin discussions with Middle Georgia representatives to further explore the Network Georgia plan.
- Manufacturers and retailers are taking advantage of parcel shipping companies to distribute to residential and commercial destinations alike. The presence of UPS and FedEx in Middle Georgia is an important component of the local supply-chain, as both of these companies received positive reviews from survey respondents. Heavy users of parcel delivery services in Middle Georgia, such as the Robins Air Force Base, tend to ensure ongoing high capacity, timely and reliable parcel service in the area.
- Interviews confirm that the Hartsfield-Jackson Atlanta International Airport will satisfy most retail and manufacturing air cargo needs, as the airport is within an hour-and-a-half drive for Middle Georgia locations.
- Trade schools and technical colleges play an important role in labor quality. Interviews revealed somewhat of a disagreement on the quality of labor pool available in the area. One respondent suggested that entry level employees are available, but that moderately skilled positions, such as maintenance managers are harder to fill, citing work ethic rather than skill concerns. Other logistics managers offered an opposing view, mentioning skilled labor made available due to recent company closures in the area, and a reliance on

local technical colleges and other schools that provide customized training that is tailored to specific company needs, as a reliable source of labor.

- Respondents note Middle Georgia’s advantage over Atlanta and Savannah, both in terms of the cost and availability of land, but also the perceived pro-business attitude of county governments in Middle Georgia. Congestion and the cost and scarcity of industrial real estate in those two cities were also perceived to be reason to look to Middle Georgia as a viable alternative.

4.3 Proximity to Customers and Suppliers (Different for Retail vs. Manufacturers)

In many supply chains, particularly retail store supply chains, the trucking expense for the “last mile” of the shipment delivery accounts for the largest portion of the transportation budget. Distribution centers are therefore located within the closest possible proximity to a majority of end customers. Manufacturers also benefit from locating near to their customers, but access to a skilled, available, and wage-competitive labor force is often the deciding factor with respect to choosing a manufacturing location. Additionally, manufacturers’ access to suppliers and raw materials in some cases can outweigh proximity to customer considerations.

Retail logistics managers who responded to this survey suggest that Middle Georgia is best suited for DCs covering retail distribution in the Southeast, particularly retail outlets and stores in Georgia, Florida, north to Tennessee and Virginia, and west to Alabama. It should be noted that shippers have unique delivery location and freight volume requirements; therefore, freight distribution from Middle Georgia may well reach beyond State boundaries mentioned here. Study area manufacturers note that truck rates from Middle Georgia to anywhere in the country are competitive with Savannah or Atlanta, and in some cases result in shorter truck transits. (DC network strategies and service area coverage is discussed in greater detail in Sections 5).

4.4 Availability of Transportation Modes

Retailers and manufacturers alike depend on the availability of reliable modes of transportation to link to DCs, although the specific mode varies depending on the transportation strategy. Transportation cost, delivery time, and reliability requirements generally dictate the modal choice. The result is that areas that provide multiple choices, including air, rail, truck, and parcel package shipper distribution hub capabilities (e.g. UPS, FedEx and USPS) are in the best position to meet the requirements of domestic and international supply chains. Middle Georgia was considered to have adequate access to key transportation modes; however, the nearby hubs of Atlanta and Savannah were considered to have superior capabilities. Atlanta offers domestic and international intermodal rail access, an international airport, and truck availability. Savannah provides domestic and intermodal rail access, and the Port of Savannah is within a short, low cost truck drive to local DCs that support both southeast regional and national distribution models.

Middle Georgia is nonetheless well positioned to take advantage of both Atlanta- and Savannah-based air, ocean, and rail modes, albeit at a higher cost and longer transits than DC’s operating closer to these cities. Shippers that rely mostly on truck, with no or only occasional use of air or rail modes are likely to consider Middle Georgia for Southeast distribution. Favorable area highway access was noted, including easy access to highways transiting the Southeast, including I-75, I-16, I-10, and the soon-to-be expanded Fall Line Freeway. It should be noted that respondents felt that logistics managers, particularly logistics managers outside of Georgia, were unaware of the benefits of increased east/west truck access made available by the expanded Fall Line Freeway.

One trucker suggests that freight distribution in Middle Georgia would be viewed more favorably as knowledge of the expanded freeway becomes more widespread.

“The intersection of I-16, I-75, and the Fall Line freeway (From Augusta to Columbus), moving through Houston county, is the attraction to the middle part of the state. The Fall Line Freeway will be the East West corridor.”

- Trucking Company

In addition to trucking, a GPA plan is currently under consideration that will establish rail-served inland container yards throughout Georgia. The plan, called Network Georgia, may also elevate the profile of Middle Georgia’s transportation infrastructure profile if an intermodal container yard and rail link is established between the Port of Savannah and Middle Georgia. Network Georgia is discussed in greater detail in Section 4.5.2.

4.5 Rail

Rail facilities are an important feature of many supply chains. DCs that are near to rail terminals make the most of cost savings and freight handling capabilities of the rail mode, and widens their overall transportation options. Freight that favors rail includes large and heavy items not suited for over-the-road transport, high-volume bulk shipments, and intermodal containerized shipments. (For purposes of this report, intermodal rail is defined as shipments moving in containers or trailers that interchange between truck and rail.) On-site or near-site rail facilities eliminate or reduce transportation costs between DCs and rail hubs, and avoid over-the-road challenges associated with overweight and oversized freight restrictions on public roads.

Two Class 1 railroads provide intermodal rail service in Georgia, Norfolk Southern (NS) and CSX. NS and CSX are considered to be the “Eastern” railroads, with rail networks established in states east of the Mississippi River. Each of these carriers has connecting carrier agreements that extend rail coverage to the entire North American and Mexico rail markets:

- Kansas City Southern (KCS) Midwest and Mexico rail network
- Canadian Pacific (CP), and Canadian National (CN) railroads Midwest and Canadian rail networks
- Union Pacific (UP) and BNSF Western region rail networks established in states west of the Mississippi.

4.5.1 Intermodal Rail

Intermodal rail, as opposed to manifest, or bulk rail, carries the vast majority of retail or finished goods moving between manufacturers and distribution centers to their final destinations if moved by rail. Containerized goods also tend to be of higher value, and require more labor intensive warehousing and distribution handling procedures as compared to freight moving in bulk.

Rail is also the lowest-cost overland mode; however, the rate differential between truck and rail has narrowed in recent years. Supply chain managers have increasingly looked for ways to divert truck freight to rail, particularly intermodal rail over the past several years to mitigate transportation costs, to avoid delays caused by truck shortages, and to avoid traffic congestion (see Section 4.6 for discussion on trucking). Retail and manufacturing supply chain managers have worked to extend freight delivery lead time requirements to accommodate slower rail transits. The intermodal rail transit from Atlanta to Los Angeles, for example can be several days, but the same route can be served by truck in two-and-one-half to three days:

“We make it out to the West Coast. We might use rail from time to time if we have a full shipment. It takes 2-3 days by truck [with team drivers], or 5 days by rail. I can usually save \$500-\$600 per trailer. ...We catch the train in Atlanta.”

- Local Manufacturer

Intermodal rail cost savings until recently have been the sole justification for the use of the slower delivery mode, but reliability is now emerging as an additional consideration. Within the last few years, a national trucker shortage is causing intermodal rail rates to rise as shippers shift to the rail mode and squeeze rail capacity, yet logistics managers continue to use rail, as it is proving to be more reliably available than trucking. More evidence of increased rail use is changing views on when to use the rail mode. Rail was considered to be more cumbersome than trucking, as logistics managers consider the longer rail transits, the need to arrange container drop-off and pick-up trucking at rail yards, etc. As a result of trucker unavailability, the mileage threshold before considering rail has shrunk to about 500 miles, from roughly 700 miles about ten years ago, despite the need to use the more cumbersome rail mode.

Middle Georgia shippers who wish to move intermodal domestic freight on the railroad must truck containers to the nearest terminals, which are either the NS or CSX terminals in Atlanta or Savannah. Rail service shuttles containers between the Port of Savannah and Atlanta; however, a Middle Georgia-based shipper would likely pick up containers at the Port, rather than waiting for shipments to be railed to Atlanta, which can take up to three days. Shippers typically access the domestic railroad network in Atlanta.

4.5.2 Network Georgia

Network Georgia Concept and Status

A key emerging development that may have a substantial positive impact on Middle Georgia is an inland ports initiative proposed by the Georgia Ports Authority. The initiative, named Network Georgia, is intended to address potential future Port of Savannah terminal congestion due to projected cargo growth. The Network Georgia plan is to quickly move ocean containers to off-dock container terminals throughout Georgia, by establishing six inland container yards. Most, if not all of these sites will be rail-served. An intermodal site established in Middle Georgia may have substantial growth implications for transportation- and manufacturing-related services in the Middle Georgia region, as a lower cost option to and from the Port of Savannah will be a key consideration of supply chain managers looking for reliable, and low cost options when evaluating competing Southeast locations.

The first rail-served container yard is currently operating about sixty miles south of Macon in Cordele, GA and mainly handles poultry and agriculture products. The Appalachian Regional Port in Chatsworth, GA was recently selected as the second rail-served site. GPA envisions that when the inland port opens in 2018, it will serve markets in North Georgia, Alabama, Tennessee and parts of Kentucky, but importantly will provide access to the North American domestic rail network via the CSX railroad. GPA is actively looking to collaborate with both public and private partners to identify additional inland sites, and to identify funding sources for these developments.

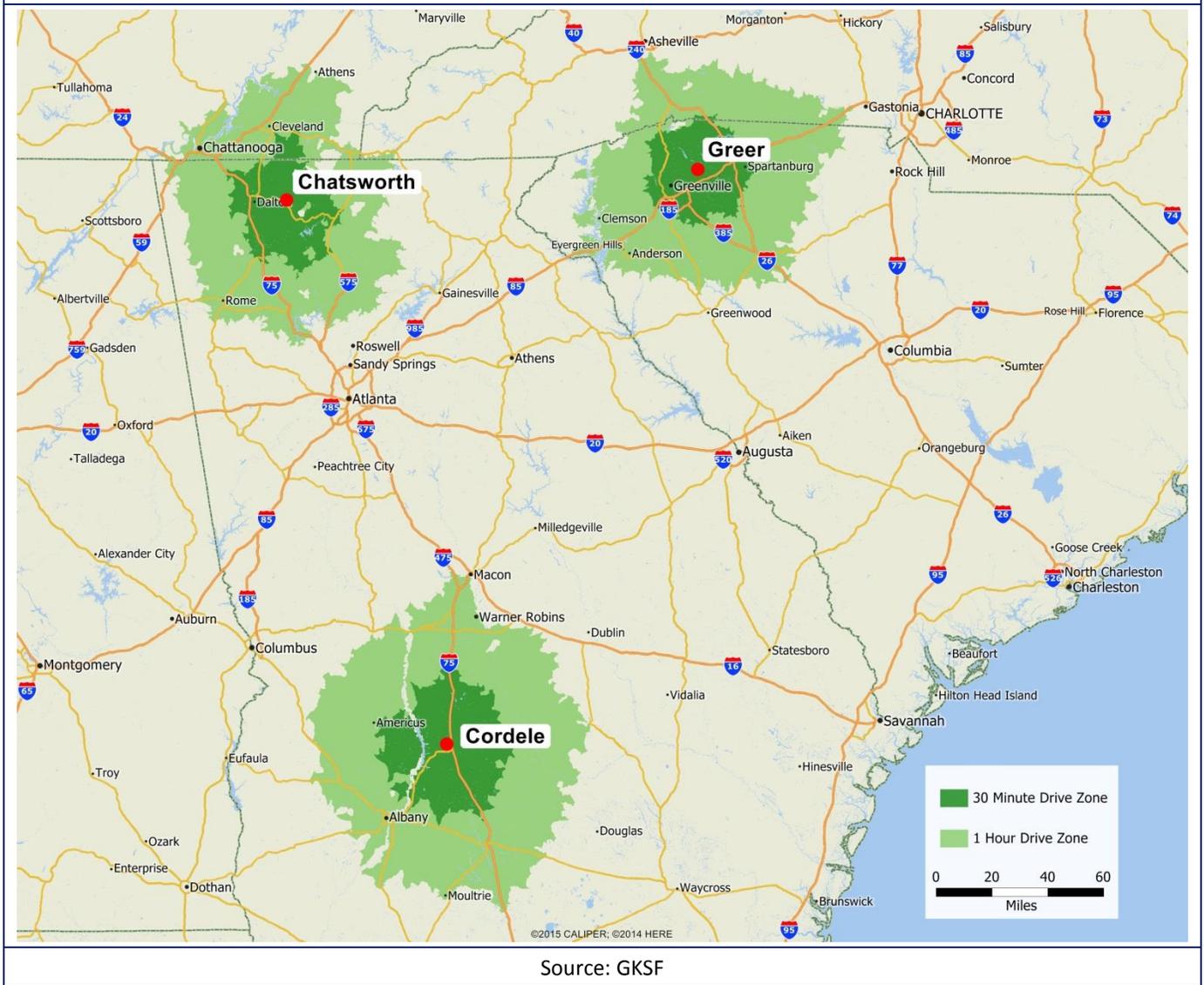
GPA has identified Middle Georgia as a strong candidate for such an inland port, and is eager to begin discussions with Middle Georgia representatives to further explore the Network Georgia plan. Success of a site location selection depends heavily on cooperation between ocean carriers, railroads, local government, and financial investment from all parties involved.

A rail-served inland port in Middle Georgia would reduce transportation costs between the Port of Savannah and the region, and thereby provide an additional incentive for manufacturers or retail distributors to consider Middle Georgia as a viable alternative to Atlanta or Savannah. An obvious additional benefit would be the number of trucks taken off of the road as they divert to the rail mode. It is unclear at the time of this report if the proposed Middle Georgia inland port will connect to NS and CSX domestic rail networks. Respondents suggested that a connection to the domestic rail network at some point along the rail route would be a strong selling point for Middle Georgia. A respondent noted that national distribution would become a possibility, as he currently uses intermodal rail for shipments as far away as California from Savannah. The lack of access to the domestic rail network in Middle Georgia would likely limit logistics managers' view of Middle Georgia's distribution coverage primarily to Southeast markets, and would make the inland port less of a consideration beyond the Southeast.

“The inland rail hub has to connect to the Intermodal rail system. ...The NS and CSX have to be onboard with this.”

- Third Party Logistics Provider

Figure 35: Map of Southeast Inland Ports



Source: GKSF

Network Georgia Challenge

A challenge for the inland port will be its close proximity to container terminals at the Port of Savannah, and shippers’ tendency to want easy and flexible access to containers that is only possible using the truck mode. One respondent who ships high-value electronic goods indicated that he would not be willing to wait for even a regularly scheduled rail delivery option because he can send his truck directly to the port and pick up containers as his schedule requires. The existing Port of Savannah to Atlanta rail service hinders his ability to access containers by one day, as containers come off the ship, are shuttled to the rail yard to await nightly departure, and finally railed to Atlanta.

"I might save \$400 for rail [rail shuttle between the Port of Savannah and Atlanta], but I lose access to [my cargo] for 3 or so days. ...This might make sense for a small shipper, but for high volume [and high value] guys, they might want access to their cargo sooner."

- High Value Electronic Goods Shipper, not operating in Middle Georgia

This delay increases inventory carrying costs to the point where this shipper's transportation savings are erased as a result of using the rail shuttle rather than trucking. It should be noted; however, that many retail distributors use the Savannah to Atlanta rail shuttle, where inventory carrying costs do not overshadow transportation costs savings, particularly for high volume shippers.

An additional concern involving competition among the six inland Network Georgia regions was also raised. As mentioned, two of six proposed inland port locations have been either established or announced. A concern of this project team, as validated by several respondents, is that six inland ports all operating within the State of Georgia has the potential to cause competition among the inland port areas themselves. The success of other existing inland ports, such as the Savannah-to-Atlanta shuttle, or the Port of Charleston, SC served inland port of Greer, SC depend on a cultivation of industry clusters, e.g. aerospace or automotive, or a conglomeration of industries that mutually benefit from a rail-served inland port. In light of this, a coordinated effort to establish roles for each inland port that do not overlap, and to carefully consider the timing of the opening of each inland port should be undertaken. Inland ports that open first have first-mover advantage and the best opportunities to market capabilities, establish proven services, and partner with commercial developers, manufacturers, and retail distributors.

4.5.3 Norfolk Southern Brosnan Classification Yard

The NS Brosnan classification yard is located in Macon, GA, and is often viewed as a possible future intermodal terminal location for NS. In its current capacity as a classification yard (also referred to as a marshaling yard), freight and container cars are re-assigned from inbound trains, and "classified" to outbound trains based on common destinations. It is doubtful that the NS would convert, or expand this yard to include intermodal services for a variety of reasons. A key operational objective of the intermodal rail operator is to maintain the velocity, or speed of the train, and the more stops and delays built into the system leads to slower velocity of the overall intermodal network. NS intermodal hubs in Atlanta and Savannah currently are designed to serve Middle Georgia and the surrounding region, and an additional hub has the potential to slow the overall network. Additionally, Middle Georgia is not likely to generate the cargo volume levels on a par with Atlanta or Savannah freight volumes, which would likely be needed to incentivize NS to establish an additional intermodal hub. Lastly, adding the complexity and space requirements of an intermodal hub to the existing classification yard operation in Macon would be a major challenge, and not likely in the near future.

The previous remarks regarding the reluctance of intermodal rail operators to establish new intermodal hub facilities highlights the unique opportunity of the Network Georgia inland ports initiative. CSX after all is participating in the Appalachian Regional Yard inland port project – NS might similarly reconsider a service to Middle Georgia, however unlikely at the time of this writing.

4.6 Truck

Trucking is the backbone of every supply chain, and provides the greatest flexibility in terms of supporting infrastructure (highways), frequency of departure times, and, until recently, availability. Driver shortages have plagued the industry in recent years, due in part to a large portion of truckers reaching retirement age, and as a result of 2011 Federal Motor Carrier Safety provisions restricting maximum daily drive-time hours of service, and driver eligibility requirements. Persistent driver shortages have led to concerns over the reliability of the truck mode, as well as inflation of trucking costs. Truck rates have not been sensitive to highly volatile fuel prices, as recent reductions in diesel fuel prices have not translated into lower trucking costs due to widespread truck shortages.

Middle Georgia Trucking

Most Middle Georgia-based respondents rely almost exclusively on the truck mode, which is not surprising given that air, intermodal rail, and water modes are not available in Middle Georgia. Shippers who require heavy use of transportation modes other than truck choose locations in Atlanta or Savannah to be closer to their mode of choice. Distribution centers in Middle Georgia typically truck freight to end destinations in the Southeast, where transit distances are shorter, and rail is not an option. According to respondents, Middle Georgia has proved to be a good Southeast distribution hub using the trucking mode alone. One manufacturer suggests that his Middle Georgia location is competitive with Atlanta or Savannah with both rates, and transit times by truck to most domestic destinations. Another manufacturer that shipped high-value, and time sensitive items requires “Just in Time” (JIT) service for their customers’ production lines:

“We are close to our customers in Charleston and Savannah, which is a real advantage. They usually need our product to be used in a production line, so JIT trucking is our only option really.”

- Manufacturer

This respondent also emphasized the advantage of being in close proximity to other customers in the Southeast, although the company has customers throughout the U.S.

As mentioned above, truck shortages are a national concern; however, interviewees suggest that truck availability is not an obstacle to distribution operations in Middle Georgia, and are typically only a concern during the retail peak trucking season. Peak season lasts from September to November, as retailers rush to fill inventory demands of the Christmas shopping season. A Middle Georgia DC operator noted that local shortages are no more severe than those experienced throughout the country due to hours of service, and other previously mentioned constraints on trucker availability. An agricultural products distributor noted that a supply of empty northbound trucks is sometimes in short supply as higher paying refrigerated agricultural payloads siphon drivers off to the Florida market at peak growing times, but in general trucks are available.

Trucker availability and easy access to national markets was considered to be no more problematic in Middle Georgia than these concerns are in Savannah or Atlanta. Less-than-truckload (LTL) service, which typically consists of smaller packages of a few hundred pounds, but smaller than a full truckload, is also adequate in the area:

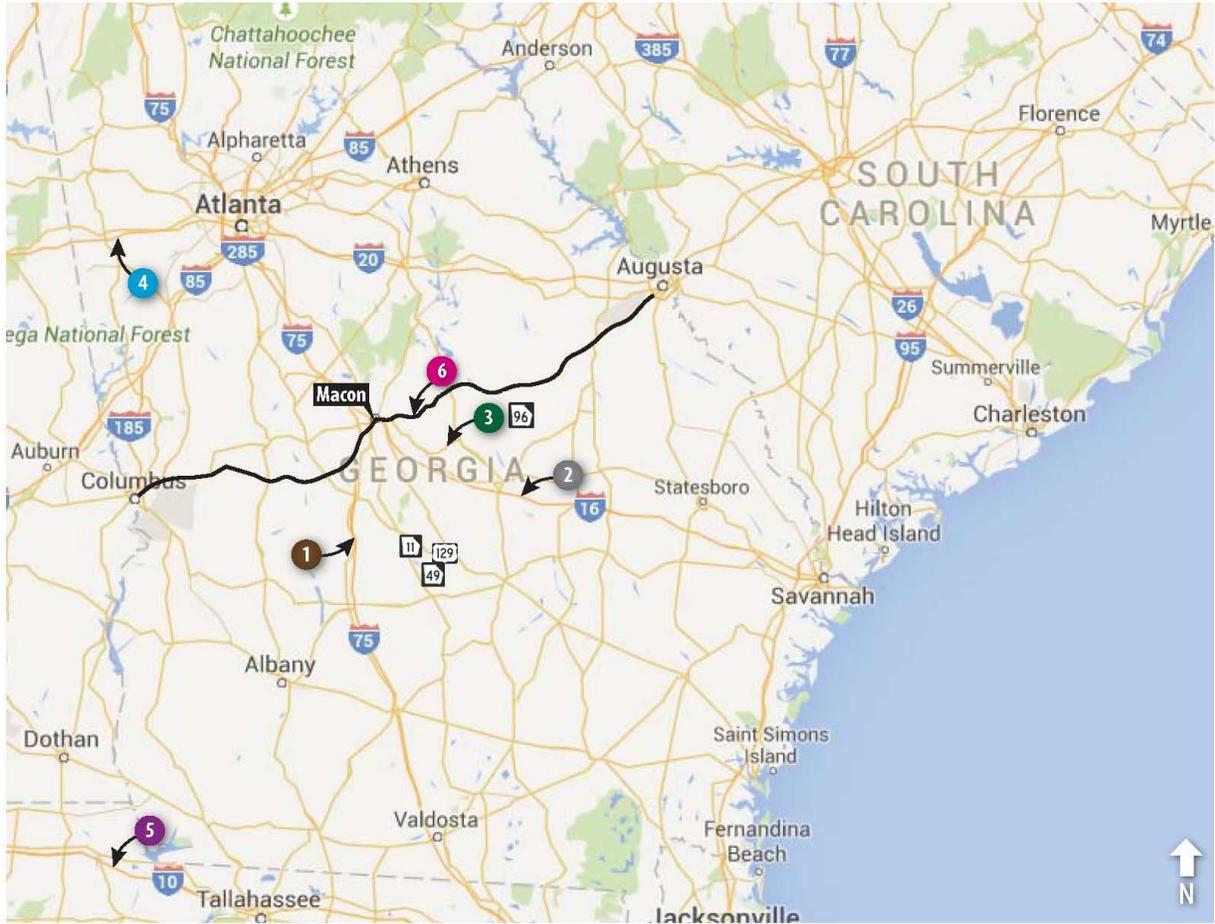
*“We [reach] the entire US using either both full truckload (FTL) and LTL; it’s 4 days to get to north of California, 2 days to New York, 3 days (to states) north of New York. FedEx and Conway cover the whole country. Macon to Laredo is 18 hours (2 truck driving days). For domestic trucking, Macon gets its freight 2 hours sooner from Atlanta if coming from Savannah, and if you’re in Atlanta, you have all of that congestion – **A Macon run can be scheduled at any time needed. Atlanta congestion might prevent that.**”*

- Manufacturer

Middle Georgia Highway Access

Highway access was in general viewed as a competitive strength of Middle Georgia. The expansion of the Fall Line Freeway to four lanes spanning Georgia from Augusta to Columbus was considered to be a real asset to the region once completed. The I-16 NB to I-75 one lane interchange chokepoint was viewed as a serious impediment to transportation related growth, particularly around Macon. Figure 36 illustrates key highways and issues according to interviews.

Figure 36: Key Truck Freight Highways and Issues in Georgia



- 1) I-75: Easy access to large markets in Georgia and Florida.
- 2) I-16: Critical connection to the Port of Savannah, and connection to I-75.
- 3) SR-96: Avoids I-16 to NB I-75 bottleneck. Provides better east/west route for the southern Middle Georgia boundary counties.
- 4) I-20: Westbound access to Midwest/West Coast markets via I-75 through Atlanta.
- 5) I-10: Westbound access to Midwest/West Coast markets via I-75 SB to Florida.
- 6) Fall Line Freeway: Near completion of a 4-lane highway transiting Georgia, from Augusta to Columbus.

Source: Wilson and Company

Respondents highlighted several routes within Middle Georgia that are critical to freight distribution in the region, both locally, and nationally. Specific references to areas served are listed below (numbers refer to routes shown in Figure 36):

1. I-75: Easy access to large markets in Georgia and Florida
2. I-16: Critical connection to the Port of Savannah, and connection to I-75
 - Savannah to Macon is a shorter transit than Savannah to Atlanta to pick up and return containers. There is a possibility of turning more truck trips in Middle Georgia
3. SR-96: Avoids I-16 to NB I-75 bottleneck. Provides better east/west route for the southern Middle Georgia boundary counties.
4. I-20: Westbound access to Midwest/West Coast markets via I-75 through Atlanta
 - Subject to Atlanta area congestion
5. I-10: Westbound access to Midwest/West Coast markets via I-75 SB to Florida
6. Fall Line Freeway: Near completion of a 4 lane highway transiting Georgia, from Augusta to Columbus
 - Will improve east/west access from Middle GA, and an alternative to I-20 and I-10 routes above
 - Will use US-80 through downtown Macon between I-75 and GA-57 creating potential traffic bottleneck.

A bottleneck mentioned several times during interviews is the I-16/I-75 interchange. I-16 northbound traffic transitioning to I-75 is required to merge within three lanes of traffic, and then narrows to a single northbound lane, two southbound lanes. Interviewees noted growing congestion that they anticipate will continue, given increasing truck traffic generated from the Port of Savannah:

“We have noticed a lot of additional truck traffic, more congestion on I-16. There is a pinch-point in Macon at I-75, and it merges into one northbound lane. There are a lot of traffic issues there right now.”

“The Macon interchange needs an upgrade. They come in on I-16, and need to cross three lanes to get to I-75. Then the road splits to two southbound lanes, one northbound lane to Atlanta. It’s a nightmare scenario. They have got to redo that interchange – lots of traffic accidents there with the mix of passenger cars and tractor-trailers.”

- Manufacturer

Trucking availability was generally considered to be capable of supporting freight distribution in the Middle Georgia region, particularly in areas in close proximity to the major freeways, e.g. I-75, I-16, and eventually the Fall Line Freeway.

4.7 Parcel Package Shipping Companies

Manufacturers and retailers are taking advantage of parcel shipping companies (e.g. DHL, FedEx, UPS, USPS) to distribute to residential and commercial destinations alike as the trend towards eCommerce grows. Companies of any size can access sophisticated and far-reaching transportation networks without the need or expense of maintaining a fleet of trucks, expensive shipment tracking systems, or a network of DCs. Parcel shipping companies offer network analytical services that aim to optimize shipper networks by reducing transit times and delivery costs.

One Middle Georgia manufacturer explained how his operation uses FedEx:

“Parcel is a big part of our business. We get next day by noon if we need to fly something in. Most of your parts are small, and can go parcel. [The FedEx network is close, and fits well with Middle Georgia.] Memphis is their main hub, so shipments arrive quickly to Hartsfield, and then to the Macon FedEx facility where their drivers get packages to us before noon. Works pretty well.”

- Manufacturer

A large consumer of parcel services in the Study Area is Robins Air Force Base, where a full-time UPS employee arranges for parcel and other deliveries on behalf of the Department of Defense (DOD). High volume users of parcel services in Middle Georgia tend to help maintain and grow parcel delivery company capacity, and service levels for the area as a whole.

Parcel shipping companies are also an important logistics partner to logistics site developers, as incorporating the network strengths of parcel shipping companies' services into marketing efforts further enhances a site's logistical advantage.

4.8 Air Cargo

Air cargo is preferred for goods that require expedited transit, such as parts urgently needed to keep a production line moving, fresh foods, emergency stock for sales promotions, or very high value cargoes that can justify the high cost of air transit. Local availability of air cargo services is not a requirement of most retail and manufacturing supply chain operations, as lower cost truck and rail modes are either used exclusively, or for the vast majority of shipments. In the words of a logistics manager commenting on air cargo services, “If I am using air, something has gone horribly wrong”, meaning that he only pays for air as a last resort if some unrecoverable error has occurred in his production, truck, or rail service schedules. Interviews confirm that the Hartsfield-Jackson Atlanta International Airport will satisfy most retail and manufacturing air-cargo needs, as the airport is within an hour-and-a-half of Middle Georgia.

Robins Air Force Base

The Robins Air Force Base (AFB) mission in Warner Robins is to provide military aircraft maintenance and repair. The Base covers 6,934 acres, and provides warehousing, materials fabrication, runways, rail spur capability, and other support functions. It is unlikely, based on current information, that purely commercial cargo will be handled at Robins for a number of reasons. First, it is doubtful that the military would allocate a portion of the base to a private entity that is not directly related to base operations. It is conceivable that a mixed use military/commercial partnership could be considered, but the overall objective would have to be in support of DOD or other US Government missions. Further, separate studies conducted by the project team suggest that commercial air cargo services are firmly established at strategic airports spread throughout the country. Air cargo carriers are reluctant to establish new air hubs, particularly a hub that would be within a two hour drive of the established Southeast area hub, the Hartsfield-Jackson International Airport.

Robins AFB, while not a consideration for purely commercial facilities is nonetheless a key logistical asset for Middle Georgia. The Base is capable of assisting with disaster response, and other mass logistics needs in short order, including invaluable airlift capacity capabilities to affected areas. A more ongoing and tangible benefit of Robins AFB is regular DOD, or other US Government related shipments that maintain a constant flow of commercial freight logistics services to the area. Transportation companies such as Menlo Logistics, a Third Party Logistics services provider (3PL), and UPS have established substantial service frequency and capacity to Warner Robins that might otherwise not occur, which benefits the commercial shipping community in Middle Georgia.

In addition to support for local logistical services, a few respondents noted that Robins AFB can also be a source of skilled labor, such as metal workers, electricians, and engineers. Robins AFB may not be a candidate for commercial transportation ventures, but it certainly supports transportation service availability in the region.

4.9 Labor

Labor skill and availability were noted as key considerations for companies considering a site selection in Middle Georgia. Interviews revealed somewhat of a disagreement on the quality of labor available in the area. One respondent suggested that entry level employees are available, but that moderately skilled positions, such as maintenance managers are harder to fill, citing work ethic, rather than skill concerns. This company sometimes resorts to recruiting from Atlanta to fill these higher level positions. Other logistics managers offered an opposing view, mentioning skilled labor was made available due to recent company closures in the area, and labor:

"[We have] no labor issues in the area. Several company closures in the last five years or so provide a pretty good quality tech base. We have Middle Georgia Technical College and the Middle Georgia State University, Georgia Military College – pretty easy to access good quality labor, and availability is good, especially in the trades."

- Manufacturer

Adding to the labor supply in Middle Georgia are employees from Robins AFB who reach early retirement, but wish to continue in the workforce, according to one interview. The majority of respondents felt that the Middle Georgia labor force was more than adequate for the operations in the area, which include both high and low tech manufacturing, and retail distribution. Even the respondent who was concerned with local labor quality suggested that local technical schools could be used to educate students as to employer skill requirements, and work expectations.

The employee draw for Middle Georgia jobs extends beyond Middle Georgia to Atlanta, as indicated above. It was suggested that employees commuting from southern portions of Atlanta can more easily and predictably make the commute to Middle Georgia than commuters who fight traffic congestion from the northern suburbs of Atlanta into downtown Atlanta. When considering Middle Georgia's ability to draw from Atlanta, one retailer noted, "If the pay is there, you can draw from outside the region."

The size of Middle Georgia's labor force relative to Savannah or Atlanta does present challenges for DCs that need to "flex-up" the number of employees in order to meet seasonal shipping demands by as many as 1,000 workers. Locations with large labor pools can more easily accommodate short-term labor requirements. One respondent noted recent labor availability issues are challenging DCs in Middle Georgia. Local colleges have been used to address these types of short-term or part-time labor needs in other regions of the country, which further highlights the value of local trade and technical college resources in Middle Georgia.

Labor force availability in Middle Georgia in relation to competing locations is explored in Section 6.1.4.

Georgia Quick Start

All respondents agreed that the Middle Georgia colleges and trade schools play a key role in supplying qualified labor that will support commercial growth in the area. A few interview participants currently rely on local colleges that tailor training programs to specific company needs, and strongly suggest that promotion of local training capabilities will be a strong selling point for the Middle Georgia region. Separate studies show that promoting area technical schools as part of a regional economic development program can overcome labor quality concerns of companies not familiar with local capabilities, or that have misconceived impressions of poor labor quality in a given state. Tailored job training programs, job-boards, college job fairs, and web-based job screening and employee referral are examples of services that should be considered, and are in fact offered by competitor public economic development agencies in the Southeast.

Middle Georgia has an excellent resource in the Georgia Quick Start program, as endorsed during interviews. Quick Start is also a critical selling point when marketing the region as suggested above, to both commercial and public

audiences. Examples of free tailored training programs include aircraft assembly, vaccine bacteria culture growth, plastics and metal manufacturing, and customer service training. Clients of Quick Start include¹⁰:

- Baxter International
- Caterpillar
- Mando Corporation
- Carter's
- Starbucks
- King's Hawaiian
- Mitsubishi Power Systems Americas
- NCR
- Ricoh Electronics, Inc.

Quick Start is a worthy program that should be used when promoting the Middle Georgia region both domestically and internationally.

4.10 Utilities and Regulatory Environment

The cost of utilities and the regulatory environment are considerations for companies that have narrowed the site selection process to competing sites that meet proximity to market, transportation infrastructure availability requirements, and labor cost, availability, and quality standards. The final decision may be settled based on local incentives/cost of land, a lack of bureaucratic complexity, or if a manufacturer has heavy energy use requirements, the cost of utilities. The following is an assessment offered during interviews:

"Macon is well situated between air and ocean providers, we have available land, a willing and supporting government structure, access to domestic trucking, and available labor. We have the best water source in the world. ...GA Power isn't the lowest, but not the highest either, but 2 nuclear power plants coming online within 2 years¹¹. We have no issues with energy needs."

- Manufacturer

Respondents note Middle Georgia's advantage over Atlanta and Savannah, both in terms of the cost and availability of land, but also the perceived pro-business attitude of county governments in Middle Georgia. Congestion, and the high cost of industrial real estate in those two cities were also perceived to be reasons to look to Middle Georgia as a viable alternative.

4.11 Transportation Industry Trends and Gateway Choice

The state of freight transportation in the U.S. has more or less been in constant flux for the past two decades, and this was reflected in interview responses. Beginning in the mid 1990's, railroad infrastructure improvement work caused temporary track closures, and slowed rail speeds. The West Coast Longshore port labor disputes disrupted international trade in 2002. Volatile fuel prices and a shortage of rail engineers plagued U.S. domestic supply chains well into the 2010's. In 2011, truck driver shortages began to drive truck rates higher, and continue to negatively impact shippers' ability to find enough trucks to meet the demand to carry freight. Driver shortages are due in part

¹⁰ Source: Georgia Quick Start Website

¹¹ Georgia Power is building two additional units at the Vogtle Electric Generating Plant, located near Waynesboro in eastern Georgia.

to limits on maximum daily drive-time allowances imposed by the Federal Motor Carrier Safety Administration, and a disproportionately large number of truck drivers reaching retirement age.

Severe snow storms coupled with chassis shortages on both coasts snarled freight shipments in late 2013 and early 2014, while at the same time railroad companies increased the volume of crude oil traveling by rail, crowding key corridors and slowing train speeds. The result of this persistent state of instability has caused logistics managers to continuously plan for contingencies designed to keep their goods moving. This year is no different, as respondents note ongoing truck shortages, and delayed cargo caused by recent labor disruptions at West Coast ports. The following transportation trends and events raised during interviews are expected to have an impact on Middle Georgia, and in some cases might even present opportunities. West Coast labor disruptions are causing logistics managers to consider alternative ports. Cargo potentially diverting from the West Coast to the Port of Savannah has the largest implications for the Middle Georgia Region.

4.11.1 Cargo Routing and West Coast Port Disruptions

Labor disruptions and slow-downs on the West Coast earlier this year and last year are causing logistics managers to look for alternative Asian import/export gateways. The Port of Savannah was mentioned as a potential alternative to the West Coast. Shippers looking to diversify their U.S. port gateways mentioned that they have permanently shifted a portion of their Asia cargo to Savannah from the West Coast on concern over the perceived inability of West Coast terminals to ease congestion. **The implication for Middle Georgia is that this is contributing to the scarcity of DC space in Savannah, and may cause logistics managers to consider other areas in the Port of Savannah hinterland.**

U.S. West Coast Longshore Labor Impact on Gateway Diversification

Alternative gateways are being considered, which, if proven to be reliable, will potentially create additional and permanent options for shippers as they reduce dependence on West Coast ports. The current West Coast labor situation is causing shippers to assume that the International Longshore and Warehouse Union (ILWU) will continue to be a chronic cause of disruption. Labor negotiations were not perceived to have gone well, with many contentious points being raised. One issue is the contract time period. The current contract was ratified in late May of this year, and is in effect until July 1, 2019, leaving only four years (previous two contracts were in effect for six years) of tentative stability, and West Coast labor disruptions again become a reasonable expectation.

Even after the current ILWU contract was agreed to and signed by the Union, West Coast dock workers engaged in work slowdowns in order to force ocean carriers and terminal operators to reclassify lower ranking union members to higher pay grades. This was *only weeks* after the new contract was signed. These rogue actions are noticed by shippers, and are now considered to be business as usual for West Coast labor unions. Two separate respondents commented,

“It doesn’t matter if it is four or six years at this point. We will remember this big time. We will plan a lot earlier, and some of our cargo is not coming back (West Coast ports)”.

- Retailer

The last time this happened in 2002, it took us by surprise a little bit. I can’t ever again go to my boss and say I wasn’t ready for a West Coast strike.”

- Retailer

The first retailer quoted above shifted from a 70/20 West Coast to East Coast split, and has permanently moved to a 50/50 split as he increased his use of the Port of Savannah. Supply chain managers are looking for long-term stability, not a four-year tentative window. Shippers sense that problems at West Coast Ports will linger as chassis shortages, huge ships, and heavy volume in general will continue to cause delays as ports strain to accommodate mounting operational challenges.

Savannah, GA

The Port of Savannah is routinely mentioned, both in interview responses to this study and elsewhere, as one of the premiere North American ports; from offering a high level of customer service, to producing the highest crane productivity (lifts per hour) of U.S. ports. Savannah is the benefactor of West Coast labor disruption, as shippers look to alternative gateways to Eastern and Midwest markets. One transportation provider went further:

“GPA – You couldn’t be associated with a better bunch of people. They actually refer business to us, can you imagine that? They work to understand us. They are forward thinking, dredging for bigger ships, etc. And they get the fact that you have to get in and out of the Port. You go to the West Coast; you can’t even find anyone who cares. ...because of the WC thing [labor disruptions], we are serving the entire US from here [Savannah], including the West Coast.”

- Third Party Logistics Provider

Middle Georgia may be able to capitalize on cargo shifts to Savannah, as shippers look for new ways to serve Southeast and Midwest markets, and seek to expand warehousing/DC capacity in the Southeast.

Suez Canal

Perhaps the most likely alternate to the West Coast ports is the Suez Canal route, connecting East Coast ports with trade partners as far to the east as Vietnam, Indonesia, and in some cases South China ports. The Port of Savannah is again the recipient of cargo shifting away from the U.S. West Coast gateway to the Suez Canal. Middle Georgia shippers and manufacturers have access to three options from Asia: rail over the U.S. West Coast; all water services via the Panama Canal; and all water via the Suez Canal. This global routing flexibility builds redundancy into international supply-chains.

4.11.2 Modal Choice and Fuel Prices

Modal choice will continue to favor intermodal rail over truck, driven more recently by driver shortages more than the cost of trucking. Falling fuel prices have made the more flexible trucking option attractive, but “you can’t find any.” Beyond truck unavailability, shippers have integrated intermodal rail into their supply-chains, and consider a return to the truck if or when reliability and availability of the highway mode returns.

5 Supply Chain and Distribution Strategies

5.1 General Approach

A typical distribution center (DC) distribution delivery area, meaning the area where a DC is assigned delivery responsibility, is established based on a balance of delivery time requirements and the lowest cost of goods distribution. The number of DCs included in the supply chain network determines transit time capabilities and overall transportation costs. Increasing the number of DCs in strategic areas throughout the U.S. reduces the distance and transit time needed to reach final destinations from each DC; however, more DCs result in higher overall operating costs, as labor, inventory, real estate, technology, etc. are at least partially duplicated with each additional facility. The objective is therefore to meet delivery time commitments using the fewest DCs possible, while balancing the need to ensure the reliability of the supply chain. As mentioned earlier in Section 4.5 on rail, supply chain managers are working to extend lead times for the delivery of goods in order to take advantage of lower cost, or more reliable transportation modes and gateways; however, in the case of many retailers, being in close proximity to markets continues to require multiple regional DCs to establish national coverage. The need for faster service is currently placing DCs nearer to large market areas.

As indicated by interview survey responses, Middle Georgia would be eligible for consideration as a Southeast Regional Distribution Center (RDC), which is a DC that is responsible for distributing goods within a two-day truck drive throughout the Southeast, including local deliveries. Several distribution strategies were noted by respondents. The consensus is that Middle Georgia will be a good fit if it establishes the lowest cost delivery option based on shipper-specific location delivery needs. Several national retailers have optimized their national distribution networks by selecting Middle Georgia for Southeast U.S. distribution as part of a 4-DC U.S. coverage model. Interviews offered the following examples of the service area reach:

- Regional focus - 5 or 6 surrounding states, with emphasis on Florida distribution. This differentiates Middle Georgia from key regional hub competitors to the north, such as Greenville-Spartanburg and others that are not as well positioned to cover the Sunshine State.
- Manufacturers with Eastern market customer concentration; however, interviews note that national distribution is also favorable from Middle Georgia
- Retail DCs and manufacturers requiring close proximity to the Port of Savannah

5.2 Inland Transportation Strategies

The selection of the inland transportation mode is part of the supply chain decision process for shippers. In general, rail deliveries are considered to be the lowest cost inland mode, but other factors (e.g. transit time and inventory stock requirements) ultimately drive the decision to choose truck or rail. The highest cost portion of an international supply chain is the trucking to the final destination, or so-called “last-mile” transportation. The following are representative of transportation strategies pursued by shippers to mitigate overall transportation costs, including methods of consolidating cargo into fewer truckloads, or extending inventory lead-time to accommodate the longer transit, but more available and cost effective rail mode.

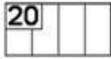
Direct Rail to Inland Distribution Center (DC)

Due to rising fuel prices, and potential driver shortages, shippers have developed strategies to utilize the lower cost rail mode versus truck in recent years. Containers are diverted to rail from truck, directly to the inland DC near to an intermodal rail hub. This strategy requires longer transit lead times due to slower rail transits as compared to trucking; however, logistics managers extend inventory lead-time requirements in order to accommodate the rail mode.

Transload Operations for Import Cargo

Inland transport costs can be lowered for imports by consolidating the cargo at the port before it moves inland. This is achieved by transloading three international 40-foot containers into two domestic 53-foot containers or trailers at a transload facility near the port. The international containers are thus freed up for export loads or for empty overseas shipment. Two, instead of three container loads move to inland DCs (near rail hubs), where the cargo is then re-distributed to its final destination, or is trucked directly to retail stores. Typically, it is large retailers, such as big box stores, that take delivery directly from the transload facility.

Figure 37: Comparison of Container Sizes

Container Size	Useable Capacity (cubic feet)
	Standard: 1,169
	Standard: 2,395 High-Cube: 2,714
	High-Cube: 3,830

Source: GKSF

Inventory Hold/Cross-Dock

This strategy is designed for shippers who import goods, and warehouse them in DCs on the coasts. Their customers, usually consumer goods retailers, place Just-In-Time (JIT) orders as needed, where they take delivery of the goods at the coastal DC. Retailers benefit from this arrangement because they avoid inventory carrying costs. Trucking is the preferred mode for this strategy due to the need for fast and flexible transit.

The above strategies are used to deliver shipments to strategically placed DCs, for example, near rail hubs such as Atlanta. Section 5.3 provides representative examples of regional DC networks, with key distribution points in Middle Georgia, providing coverage of neighboring markets.

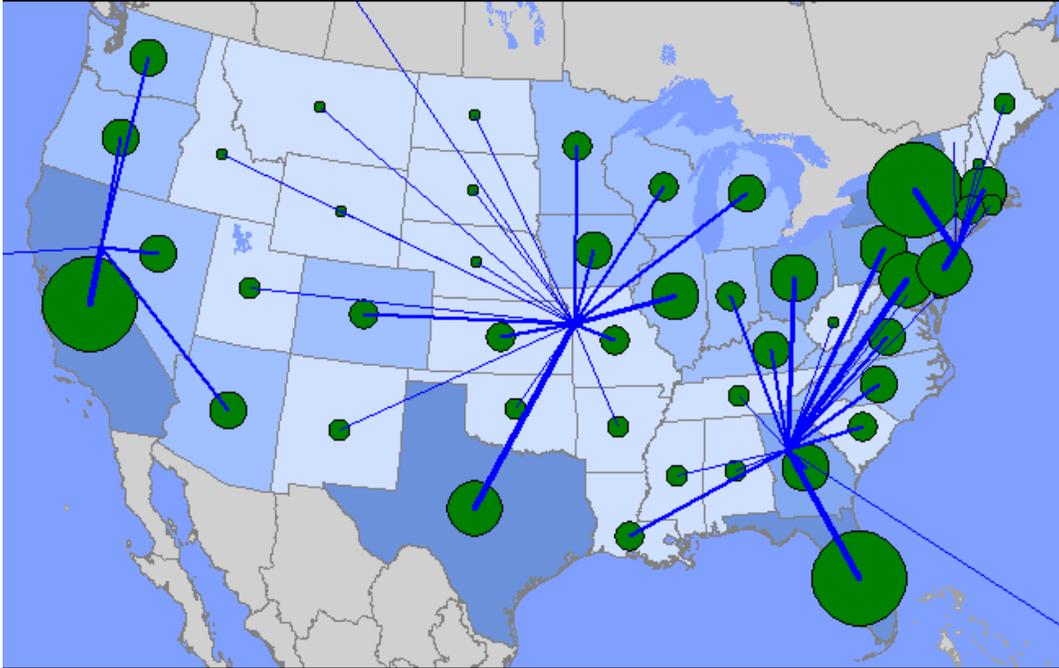
5.3 Retail Distribution Model Example

Reducing the “last mile” trucking costs remains a key consideration of the DC network design process. Figure 38 illustrates a four-DC U.S. retail goods network including a Georgia location that is designed to distribute goods to retail stores throughout the U.S. This model is based on actual trucking costs, and shipment volumes, and is used to demonstrate how a national distribution model operates. Actual data were not available for a Middle Georgia location, so Atlanta is used as a proxy. It is important to note that the example is a network design that factors in the retail locations of a specific company, and might not be a good design for companies with different retail store locations, or with different regional concentrations of retail stores. The blue lines represent truck routes to retail stores, or access points to USPS facilities or other small package delivery companies to make “last mile” residential or commercial deliveries. The green circles represent the size of the market being served. DC locations are Atlanta, GA, Newark, NJ, Kansas City, MO, and Reno, NV. Note the size of the Florida market, which makes an Atlanta location more advantageous than DCs positioned further to the north.

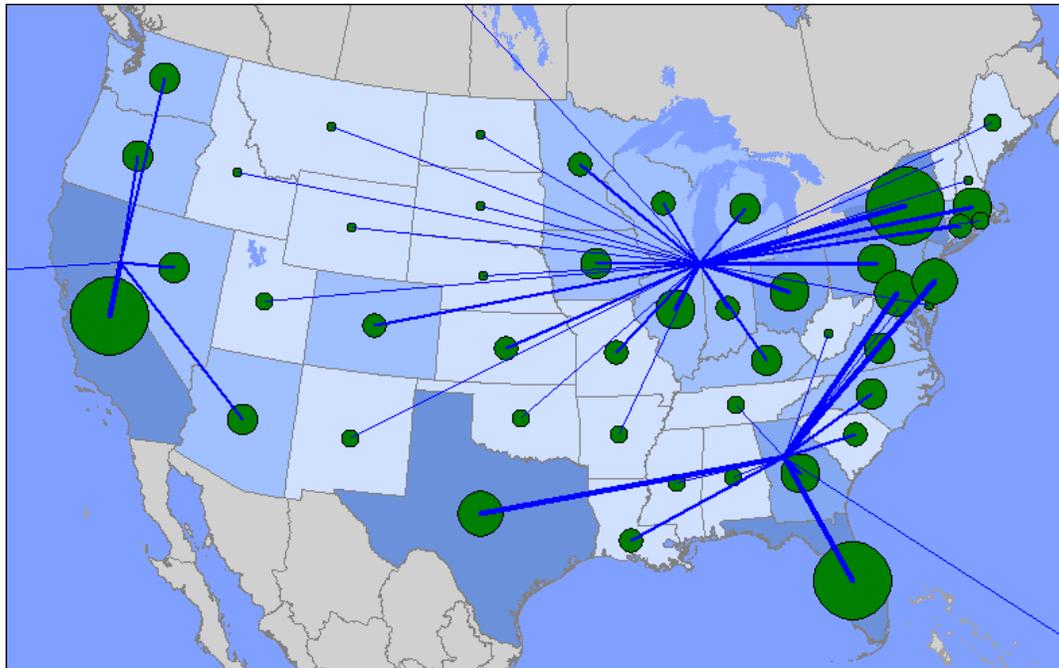
For demonstration purposes, a three-DC network is also presented in Figure 38, with DCs located in Atlanta, GA, Detroit, MI, and Reno, NV. This network has higher delivery time averages than the four-DC network, and is not as responsive to urgent regional demands in Midwest, and northern markets in the East and West. Note the longer truck transits to high concentration of customers in Northeast markets as a result of serving these markets from a location in Michigan, rather than the New Jersey DC that is included in the four DC model. The decision to use the four versus three DC model in this case was decided based on proximity to end customers (lower overall last-mile trucking costs), delivery time, and reliability factors.

Figure 38: Representative U.S. Distribution Center Networks

U.S. Distribution Center Network – 4-DC Model including Middle Georgia



U.S. Distribution Center Network – 3-DC Model including Middle Georgia



Source: Wilson and Company

5.4 Manufacturing Distribution Model

Manufacturers' distribution requirements to end-customers are essentially the same as for retailers; however, the availability of a skilled labor force or the need to be located near to raw materials or production parts may take precedence over being in close proximity to customers. Manufacturers with local area raw materials including production parts suppliers, or materials transiting the Port of Savannah, benefit from low cost and expedited local factory delivery capabilities.

5.5 Truck Rate Analysis

Outbound trucking rates from Macon (as representative of Middle Georgia) to select destinations are analyzed in Table 7 to Table 10 to validate interviewee comments suggesting that a Macon location is well suited as a Southeast DC location. The Truck Cost Analysis illustrates truck costs based on hypothetical DC truckload deliveries from the seven competitive logistics hubs (see Section 6 for discussion) to selected cities. In order to simulate the international supply chain component of the analysis, trucking cost from the Port of Savannah to the selected logistics hubs is included in the total trucking cost.¹²

The origin logistics hubs (O) are displayed across table column headers, and selected destination cities (D) appear in the left-hand column.

- Estimated Truck Trips, is the number of truckloads to a given destination in one week, are displayed in column 2.¹³
- The lowest Total Truck Cost to each destination is shaded in green.
- The distance between Macon and the destination cities is used to illustrate how proximity to markets affects trucking cost competitiveness. Total Truck Costs are subtotaled using the following thresholds: < 200 miles in Table 7; > 200 miles and < 500 miles in Table 8; > 500 miles and < 750 miles in Table 9; and > 750 miles and < 1000 miles in Table 10.
- Mileage threshold truckload cost subtotals, and aggregated totals are calculated for each Logistics Hub for each O/D pair for the week.

The results can be summarized as follows:

- Table 7 and Table 8 suggest that Macon is indeed a viable location for Southeast distribution as compared to selected distribution hubs that rely on trucking, particularly to destination less than 500 miles.
- Table 9 illustrates that selected markets between 500 and 750 miles favor a Chattanooga, TN, but Macon is still favored overall for all cities under 750 miles.
- Table 10 indicates that Charlotte is the lowest trucking cost distribution hub when cities over 750 miles from Macon are included in the analysis, which emphasizes the advantage of being closer to large markets. New York and Philadelphia require a large number of weekly truckloads, and have access to lower trucking rates from Charlotte as compared to the other distribution hubs, including Macon. It should also be noted that cities displayed in Table 10 account for over half of the truckload deliveries in this analysis (268 of 459 total truckloads), suggesting that these higher population centers are better served from hubs in closer proximity, which tend to be further north or east of Macon. This analysis is in-line with interview comments indicating that Macon distribution is best suited for Southeast markets, supplemented with DCs in the Northeast and Midwest.

¹² Specific customer concentrations, store locations, or truck rates negotiated by shippers can result in various DC site selection decisions. It is important to keep in mind that this analysis is for demonstration purposes only.

¹³ See Appendix A for Estimated Truck Trips and Total Truck Cost per Lane calculation methodology.

Table 7: Outbound Truck Cost from Selected Southeast DCs to a Sample of U.S. Destinations < 200 Miles from Macon (5 Destinations)

Southeast Logistics Hub – Total Truck Cost (\$) per Lane									
Destination MSA	Est. Truck Trips	Atlanta	Charleston	Charlotte	Chattanooga	Macon	Memphis	Savannah	Spartanburg
Atlanta, GA	23.89	27,312	23,696	25,819	28,321	23,273	42,426	29,707	25,418
Augusta, GA	2.51	3,124	2,414	2,885	3,406	2,717	5,246	3,282	3,035
Columbus, GA	1.37	1,700	1,805	1,702	1,759	1,595	2,722	1,669	1,750
Macon, GA	1.00	1,294	1,049	1,234	1,432	928	1,953	1,028	1,293
Savannah, GA	1.58	2,203	1,923	2,062	2,404	1,686	3,651	1,305	2,280
Montgomery, AL	1.62	2,087	2,253	2,335	2,245	1,748	2,825	2,294	2,427
< 200 Miles	31.96	37,719	33,139	36,037	39,566	31,947	58,823	39,286	36,204

Source: GKSF derived from truck Truckloadrate.com as of August 2015 (Truck rates are subject to change)

Table 8: Outbound Truck Cost from Selected Southeast DCs to a Sample of U.S. Destinations > 200 Miles < 500 Miles from Macon (23 Destinations)

Southeast Logistics Hub – Total Truck Cost (\$) per Lane									
Destination MSA	Est. Truck Trips	Atlanta	Charleston	Charlotte	Chattanooga	Macon	Memphis	Savannah	Spartanburg
Charleston, SC	3.08	4,700	2,771	3,330	5,480	3,596	6,828	4,045	3,526
Charlotte, NC	10.10	12,852	9,927	10,361	14,165	12,326	22,279	11,374	10,646
Columbia, SC	3.43	4,312	3,477	4,027	5,140	4,362	8,044	4,040	3,893
Fayetteville, NC	1.63	2,445	1,774	1,745	2,915	2,104	4,261	1,904	1,960
Fort Myers, FL	2.86	6,283	6,048	6,926	7,377	5,351	9,737	5,364	7,677
Greensboro, NC	3.20	4,456	3,761	3,346	4,949	3,796	8,402	4,066	3,783
Greenville, SC	5.05	5,847	5,210	5,244	7,209	5,959	10,830	5,789	5,282
Jacksonville, FL	6.03	9,894	8,667	9,543	12,284	8,264	16,417	7,269	10,311
Orlando, FL	9.82	18,878	16,375	17,282	22,532	13,959	31,395	12,811	20,006
Raleigh, NC	5.25	8,141	6,496	5,630	9,156	7,454	13,273	6,384	6,574
Sarasota, FL	3.17	6,415	6,537	7,431	7,616	5,379	10,349	5,678	8,232
Tallahassee, FL	1.61	2,560	2,532	3,011	3,263	1,660	3,978	1,960	2,948
Tampa, FL	12.42	24,186	21,453	19,998	28,729	19,003	40,636	18,125	22,399
Wilmington, NC	1.16	1,892	1,808	1,282	2,274	1,746	3,355	1,635	1,479
Birmingham, AL	4.93	6,203	7,634	6,544	6,448	5,625	7,868	6,842	6,393
Chattanooga, TN	2.34	2,682	2,597	2,666	2,780	2,413	3,910	3,015	2,717
Huntsville, AL	1.88	2,444	3,179	2,672	2,392	2,106	2,876	2,621	2,504
Jackson, MS	2.50	3,662	4,784	4,393	3,819	4,169	3,540	4,836	4,558
Lexington, KY	2.12	3,060	3,193	2,990	3,038	3,181	3,600	3,211	2,762
Memphis, TN	5.80	8,101	9,899	9,841	8,084	7,799	7,827	8,409	9,430
Mobile, AL	1.79	2,838	2,978	3,316	3,279	2,167	3,218	2,889	3,148
Nashville, TN	7.60	9,678	12,303	10,486	9,081	8,616	10,726	10,422	9,802
New Orleans, LA	5.37	8,828	11,626	11,390	9,251	8,953	10,196	9,473	10,234
> 200 < 500 Miles	103.16	160,355	155,026	153,457	181,261	139,986	243,547	142,162	160,265
< 500 Miles	135.12	198,074	188,165	189,494	220,828	171,933	302,371	181,448	196,469

Source: GKSF derived from truck Truckloadrate.com as of August 2015 (Truck rates are subject to change)

Table 9: Outbound Truck Cost from Selected Southeast DCs to a Sample of U.S. Destinations > 500 Miles < 750 Miles from Macon (11 Destinations)

Southeast Logistics Hub – Total Truck Cost (\$) per Lane									
Destination MSA	Est. Truck Trips	Atlanta	Charleston	Charlotte	Chattanooga	Macon	Memphis	Savannah	Spartanburg
Baltimore, MD	11.99	27,099	22,945	20,874	27,127	28,066	37,879	25,354	23,466
Miami, FL	25.35	68,036	53,523	66,598	77,979	58,474	93,243	36,610	60,653
Norfolk, VA	7.38	14,247	11,472	9,950	15,750	11,964	20,474	12,699	13,165
Louisville, KY	5.46	8,785	10,630	7,896	7,853	7,454	9,063	9,633	7,623
Columbus, OH	8.51	15,436	14,292	12,587	14,083	15,143	18,079	14,394	13,542
Indianapolis, IN	8.44	13,570	15,588	13,626	12,207	13,839	15,469	15,015	13,095
Pittsburgh, PA	10.20	24,016	24,768	17,982	22,372	21,983	28,556	19,789	22,371
Baton Rouge, LA	3.55	6,204	8,056	7,045	6,572	5,540	6,630	7,498	7,114
Little Rock, AR	3.13	5,535	6,127	6,435	5,383	5,050	4,355	6,110	5,959
Cincinnati, OH	9.24	14,740	16,290	13,992	13,246	14,278	17,506	15,587	14,064
St. Louis, MO	12.11	19,999	24,805	21,066	18,277	19,979	18,889	22,502	20,526
> 500 < 750 mi	55.19	99,501	109,927	92,734	92,141	95,811	109,483	100,894	96,672
< 750 mi	190.31	297,575	298,092	282,228	312,969	267,744	411,854	282,342	293,142

Source: GKSF derived from truck Truckloadrate.com as of August 2015 (Truck rates are subject to change)

Table 10: Outbound Truck Cost from Selected Southeast DCs to a Sample of U.S. Destinations > 750 Miles < 1000 Miles from Macon (13 Destinations)

Southeast Logistics Hub – Total Truck Cost (\$) per Lane									
Destination MSA	Est. Truck Trips	Atlanta	Charleston	Charlotte	Chattanooga	Macon	Memphis	Savannah	Spartanburg
Chicago, IL	41.26	85,424	88,799	75,839	77,665	76,943	78,912	86,107	75,584
Detroit, MI	18.57	38,605	38,758	33,538	36,204	40,979	44,989	38,394	34,072
Milwaukee, WI	6.79	15,173	14,847	13,350	14,138	13,329	13,978	14,121	14,151
Harrisburg, PA	2.41	5,969	5,539	4,512	5,741	5,163	7,614	5,527	4,693
New York, NY	86.46	263,118	229,119	201,077	251,176	239,899	308,166	206,302	229,106
Philadelphia, Pa	26.09	65,199	58,277	51,501	64,369	63,335	84,568	64,177	56,658
Dallas, TX	29.49	67,623	83,671	76,116	69,843	65,600	60,256	79,478	76,679
Houston, TX	27.38	63,891	70,344	69,843	66,984	57,849	66,106	68,104	65,685
Oklahoma City, OK	5.71	14,912	14,393	14,932	14,556	13,577	12,321	14,999	17,327
Tulsa, OK	4.16	9,570	10,243	11,942	9,350	9,378	7,986	10,455	10,661
Cleveland, OH	8.93	18,531	16,992	14,134	17,326	17,397	21,321	17,270	14,971
Des Moines, IA	2.59	5,795	5,109	6,385	5,356	5,501	5,612	6,148	5,892
Kansas City, MO	8.88	19,853	20,665	19,742	18,157	18,205	17,394	19,205	18,589
> 750 < 1000 Miles	268.74	673,663	656,756	592,912	650,865	627,154	729,223	630,286	624,068
< 1000 Miles	459.05	971,238	954,848	875,139	963,833	894,899	1,141,077	912,629	917,209

Source: GKSF derived from truck Truckloadrate.com as of August 2015 (Truck rates are subject to change)

5.6 eCommerce Fulfillment Center

eCommerce has quickly emerged as an integral component of domestic supply chains, given the growing popularity of online shopping. eCommerce Fulfillment Centers (EFCs) are essentially DCs that combine air, truck, and rail modes to meet varying nationwide delivery requirements, ranging from high-cost overnight deliveries, to low-cost delivery commitments of up to several days. A DC can either be exclusively used as an EFC that delivers to residential or retail addresses, or it can provide both EFC and typical DC distribution services. A strong presence of a national or international parcel shipping company is therefore a requirement for EFC operations.

Both online companies, such as Amazon.com, and traditional brick and mortar companies like Academy Sports, JC Penny, Target Stores, or Macy's offer eCommerce deliveries to their customers. Brick and mortar retailers often offer eCommerce customers both a residential delivery and an in-store pick-up option, as they utilize a combined network of EFCs and retail stores. One respondent noted that the use of EFCs in some cases reduces the service area reach requirements of traditional DCs, as EFC deliveries eliminate the need for far-reaching DC coverage.

Actual EFC cost advantages depend on the parcel shipment companies' networks. UPS and FedEx each offer rates based on the strengths of their own networks. One parcel company may have an advantage in a particular route based on their traffic volume, or partner trucking rates. It is important to work with the parcel shipping company to identify their strongest service routes, and how they fit with a retailer's or manufacturer's needs.

Importantly, companies look for areas of the country that operate EFCs as an indication of regional distribution capability when they evaluate potential EFC sites. Academy Sports' national eCommerce distribution operation in Jeffersonville, GA is an encouraging sign for other retailers considering the Middle Georgia Region. The Academy Sports DC is a mixed use eCommerce and standard freight distribution facility.

5.7 Foreign Trade Zones

Middle Georgia is served by two foreign trade zones (FTZ), depending on the county's proximity to the Atlanta FTZ #26 or the Savannah FTZ #104.

Foreign trade zones have seen increased usage over the past decade due to the economic benefits to their clients. Customs duties are deferred, or even reduced for items that are stored or handled in a FTZ. For import cargo simply stored in a FTZ, payment of customs duties are deferred for the length of time the cargo remains within the FTZ. This can be especially useful for warehoused goods that are awaiting sale, where sellers do not have to pay the import duty costs until after the sale of merchandise is actually transacted. Manufacturers or product assemblers also benefit from the use of a FTZ because in many cases, individual imported components of an item carry higher import duties than does the assembled item itself. A feature of a FTZ is that all components used in the manufacture or assembly process are assessed at the lower duty rate of the assembled item. Domestic items can also be used in FTZ product assembly. Products exported from a FTZ are free of duty and tax. The benefits of the general-purpose FTZ can be extended to subzones, which are special purpose sites for use by one company for a limited purpose, including designated areas of DCs or manufacturing facilities.

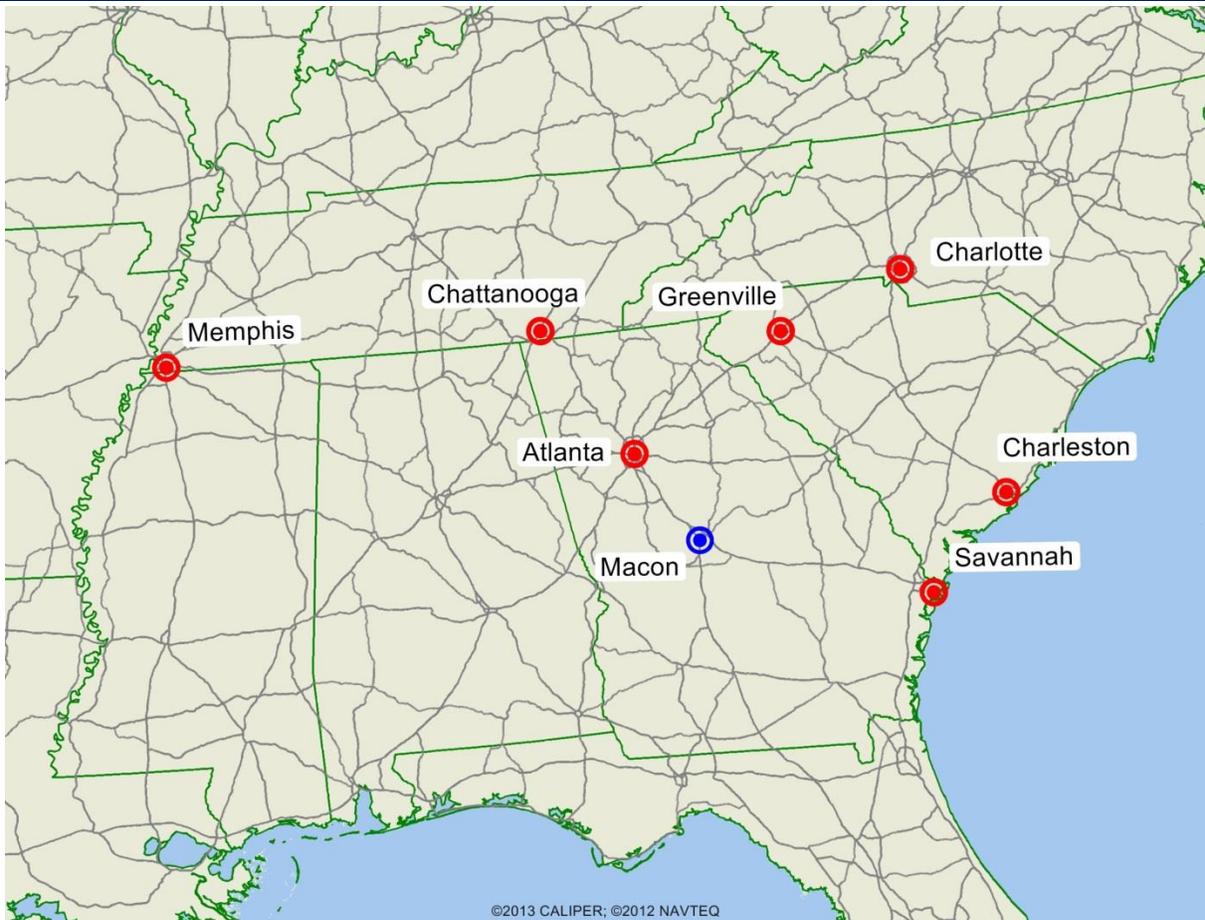
When evaluating the overall suitability of a region as a logistics hub, FTZs and/or a subzone are a required feature, but do not necessarily provide a competitive advantage because they can be established almost anywhere in the country. Not having a FTZ is a distinct disadvantage for firms that require one, thus, providing technical assistance to companies looking to designate areas as FTZ subzones would be beneficial.

6 Competitive Analysis

6.1 Competitive Cities Assessment

The objective of the competitive analysis is to perform a macro assessment to determine how Middle Georgia compares to seven competitors as a location for warehousing/distribution and manufacturing. The results of this comparative assessment will assist in how Middle Georgia further defines itself as a freight and logistics center, and help define areas of strength and weakness as input to freight-related economic development. Typically when a business selects a location for investment, several different cities are considered in order to determine the best fit for the company. For this competitive analysis, seven cities were selected by the project team, in collaboration with the Client, as representative of the market competition – Atlanta, Savannah, Greenville, Charlotte, Charleston, Chattanooga, and Memphis. Macon, within Middle Georgia, is used to benchmark against these cities under a variety of location selection criteria (see Section 6.1.1 for definitions of the criteria).

Figure 39: Map of Cities for Competitive Analysis



Source: GKSF

A brief description of the cities selected for the competitive analysis is provided below. The cities can be generally classified as follows:

- Atlanta and Memphis – major inland freight and distribution hubs

- Savannah and Charleston – major import and export gateways for maritime trade
- Greenville and Charlotte – freight and distribution centers representative of regional competition.
- Chattanooga – a freight and distribution center representative of the smaller locations in the region.

Atlanta, GA

Atlanta is one of the fastest growing metropolitan areas in the country, and it is one of the country's leading freight and logistics hubs. The combination of its large local population and its geographic location relative to other Southeast markets, together with highway and rail networks, makes it an excellent location for regional and nationwide distribution. Highway and rail networks, access to the Port of Savannah and other ports, and access to Atlanta International Airport, allow companies to blend international with domestic distribution.

Memphis, TN

Like Atlanta, Memphis is of the country's major freight and logistics hubs. Its relatively central location and transport network make it an excellent location for distribution to South, Southeast and Midwest markets, notably for imports flowing over the West Coast. As well as highway and rail connections, shippers have access to the country's largest freight airport (Memphis International Airport).

Savannah, GA

The Port of Savannah has been one of the country's fastest growing ports for international containerized freight over the past decade and longer. There is a large concentration of import distribution centers surrounding the port, as well as facilities for consolidation of export cargo. The Georgia Ports Authority (GPA) has maintained a program of investment to ensure the port's capacity aligns with market growth. Investments include deepening the port's ship channel and improvements to terminal facilities, and a strategy to develop a network inland rail ports around Georgia.

Charleston, SC

While Savannah is the primary outlet for Georgia's imports and exports, the Port of Charleston provides another gateway. Charleston has trailed behind Savannah in capturing import distribution activity; however, it has benefitted from the growth of manufacturing activity in South Carolina, notably from the automotive sector that imports components and exports finished product. South Carolina Ports Authority (SCPA) is also pursuing a strategy of inland port development, recently opening the South Carolina Inland Port at Greer (between Greenville and Spartanburg) to service BMW and other companies in the northwest region of South Carolina.

Greenville, SC

Greenville is at the heart of South Carolina's largest region for manufacturing that includes automotive, textiles, tires, pharmaceuticals, and others. Greenville's location on the I-85 corridor, roughly midway between Atlanta and Charlotte also makes it an appealing location for regional distribution, as some companies may not want to locate in the more developed and congested Atlanta area.

Charlotte, NC

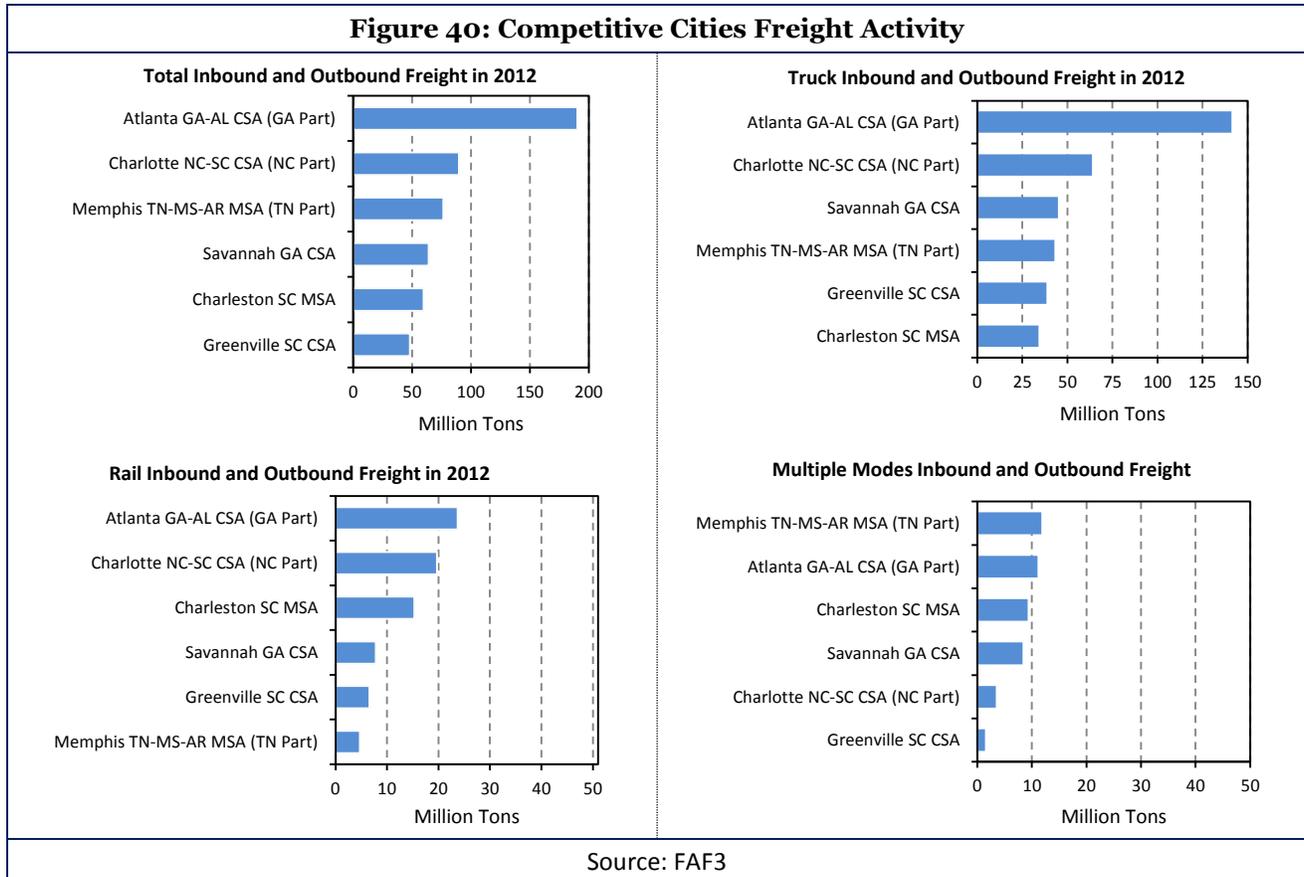
Charlotte is another important regional population center with an active freight and distribution sector. On the I-85 and I-77 corridors, the location can be attractive for companies seeking to service markets in North Carolina and Virginia, as well as markets in South Carolina and elsewhere in the Southeast.

Chattanooga, TN

Chattanooga is representative of the smaller freight and distribution centers in the Southeast region. Located at the junction of the I-75, I-59 and I-24, Chattanooga is between Atlanta and Nashville, and may be appealing to

companies that want access to the Atlanta and other regional markets, without locating in the more developed and congested Atlanta metro area.

General indicators of freight activity for six of the seven competitive cities are provided in Figure 40 (FAF3¹⁴ data used here is not available for Chattanooga and Macon MSAs). Atlanta is the largest freight hub measured by total inbound and outbound freight tons in 2012, and is the leading center for truck and rail (carload) freight. Atlanta and Memphis are similarly ranked for Multiple Modes, which in the former case is mainly intermodal rail activity and in the latter case includes intermodal rail and other multiple modes (rail-water and truck-water transfers). Note that the FAF3 data presented for Memphis likely understates the city’s freight activity because they only include the Tennessee part of the Memphis MSA and exclude hinterland in Mississippi that is the location of large distribution centers and other freight generating facilities.

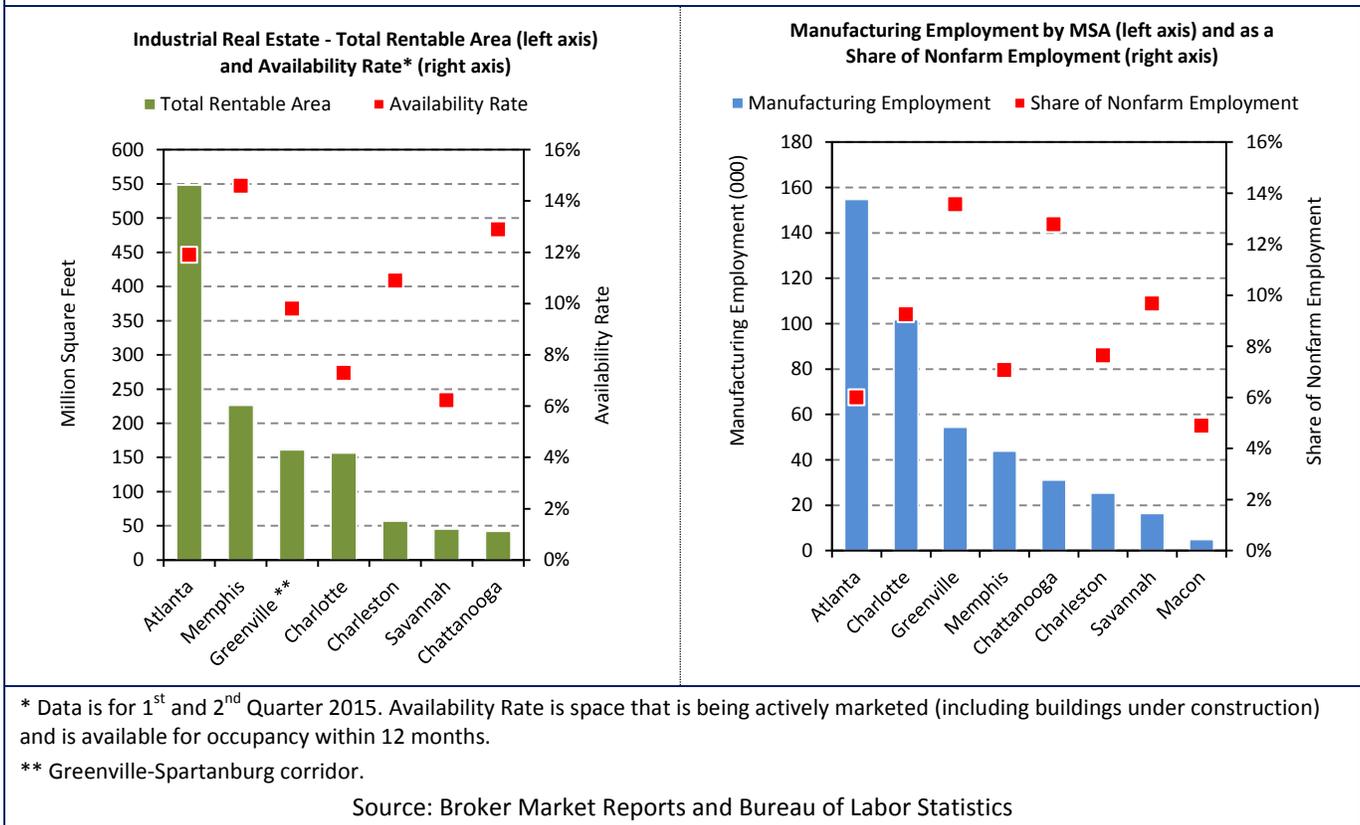


The competitive cities analysis focuses on evaluating Middle Georgia (represented by Macon) and the other cities as locations for manufacturing and warehousing/distribution. As general background for the analysis, indicators of industrial real estate market size and manufacturing employment (an indicator of manufacturing activity) are provided in Figure 41. Atlanta has the largest industrial real estate market, more than double that of Memphis. Savannah has the lowest availability rate for industrial space, a reflection of the strong demand for import distribution facilities and the limited amount of construction activity underway near the port. Atlanta has the largest

¹⁴ The Freight Analysis Framework (FAF3) data released by the Federal Highway Administration (FHWA) provides a profile of freight flows between metropolitan areas and states by commodity and transportation mode. The latest data available is for 2012.

number of employees in manufacturing but manufacturing employment as a share of total nonfarm employment is one of the lowest. Manufacturing has a strong presence in the Greenville area of South Carolina, as indicated by the high share of manufacturing employment in total nonfarm employment.

Figure 41: Competitive Cities – Industrial Real Estate and Manufacturing Indicators



6.1.1 Evaluation Criteria

A variety of criteria are used by companies to identify the most suitable locations for freight-related development. Key criteria include market coverage (population within a specified driving distance of the location), truckload shipment costs to major markets, and access to rail service. Labor availability and quality, building lease rates, and availability of developed infrastructure are also important. Other considerations include the tax environment and quality of life factors. As stated in the interview survey (Section 4), the following are the general rankings of location/site selection criteria for retail distribution and manufacturing:

Retail Distribution	Manufacturing
1. Proximity to customers/suppliers	1. Labor force, quality, cost availability
2. Available transportation infrastructure and mode (e.g. air, truck, rail, barge)	2. Proximity to customers/suppliers
3. Labor force, quality, cost, availability	3. Available transportation infrastructure and mode
4. Government programs and tax incentives	4. Government programs and tax incentives

The analysis by evaluation criteria relies on data obtained from a variety of different sources – the U.S. Census Bureau, state and local government agencies, and commercial data sources. Some of the data is based on the MSA.

6.1.2 Market Coverage

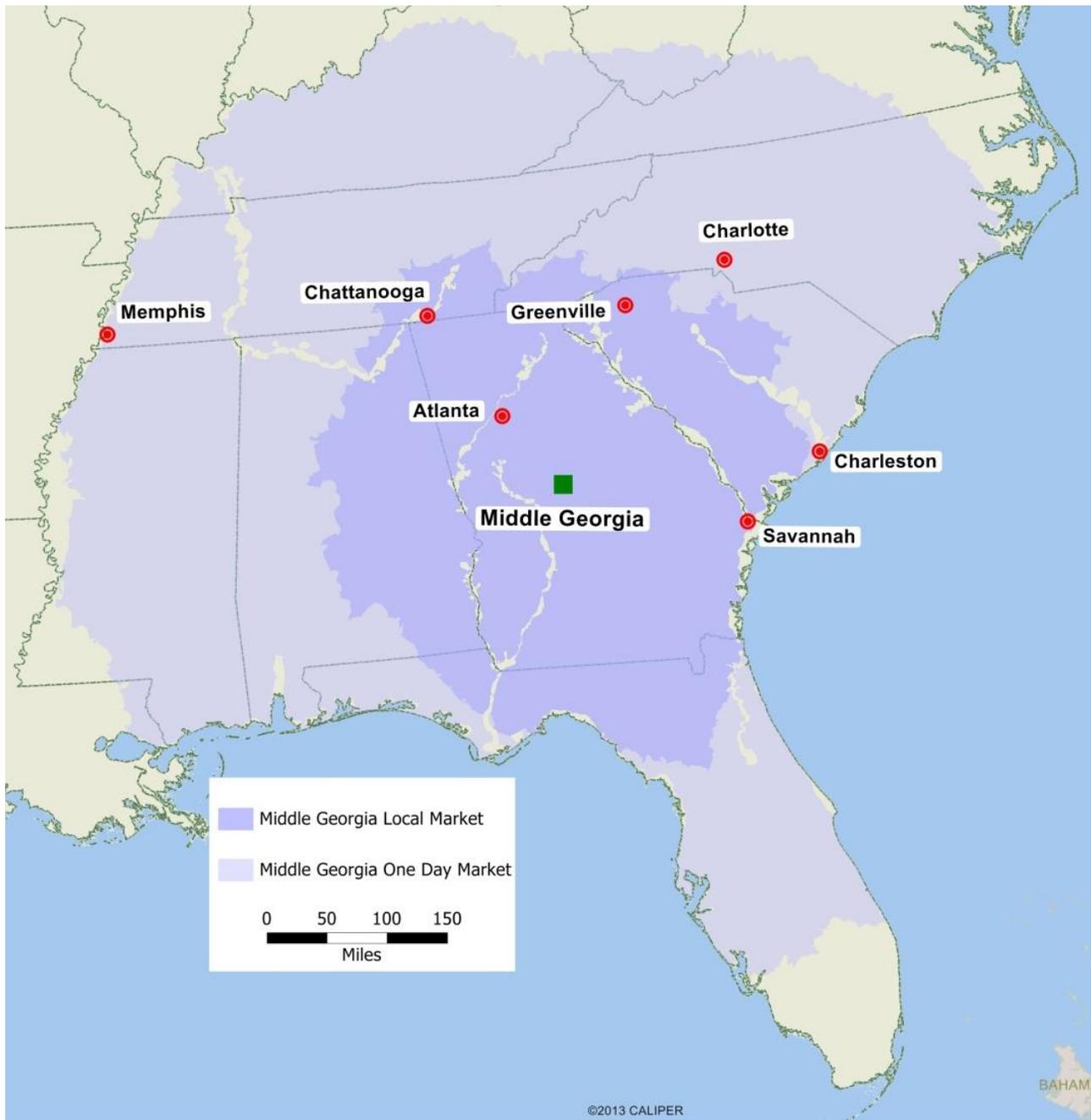
A key decision-making factor is the ability of a location to serve a large customer base or consumption zone within reasonable truck service windows. For this analysis, two indicative truck service windows are used; the “Local Market” is defined as the estimated population within a one-way driving time of four hours and the “One-Day Market” (or overnight market) is defined as the estimated population falling within a one-way driving time of eight hours. The amount of mileage covered within these two time windows will be dependent on factors that influence average truck speed including road quality, traffic congestion and hours of service. Market coverage indicators for Middle Georgia (represented by Macon and the seven other locations are provided in Table 11. The estimated population coverages are derived from the drive time maps presented in Figure 42 to Figure 46.

Greenville and Charlotte emerge as very competitive locations for market coverage as they can reach, for example, into densely populated areas of Northern Virginia and the DC metro area. However, they are less favorably situated relative to the large Florida market. Atlanta and Chattanooga follow close behind in terms of population coverage. Middle Georgia (represented by Macon) ranks fifth for local and sixth for one-day coverage, and ahead of the two ports – Savannah and Charleston. Finally, Middle Georgia’s market coverage tends to be complementary with that offered by Memphis rather than overlapping. Some companies may design a distribution network that includes a Memphis distribution center (or other Midwest location) with a Southeast distribution center.

These are very general conclusions on market coverage and they should not be taken in isolation from other location selection factors. The suitability of a location will depend on each company’s specific supply chain network requirements. As discussed later in Section 6.1.3, Middle Georgia is very competitive from a transportation cost point of view for import-related distribution that could offset the relatively smaller market coverage presented here. Alternatively, a company may be seeking a location that provides excellent coverage of Florida, which would favor Middle Georgia over points further north.

Table 11: Estimated Population Coverage by Competitive City								
	Middle Georgia (Macon)	Greenville	Charlotte	Atlanta	Chattanooga	Savannah	Memphis	Charleston
4-Hour Drive Time Band								
Population (Millions)	17.1	22.8	22.0	21.5	19.8	15.1	11.7	10.8
Rank	5	1	2	3	4	6	7	8
8-Hour Drive Time Band								
Population (Millions)	52.9	58.4	65.1	56.4	60.4	50.2	56.1	45.2
Rank	6	3	1	4	2	7	5	8
Source: GKSF based on Census data								

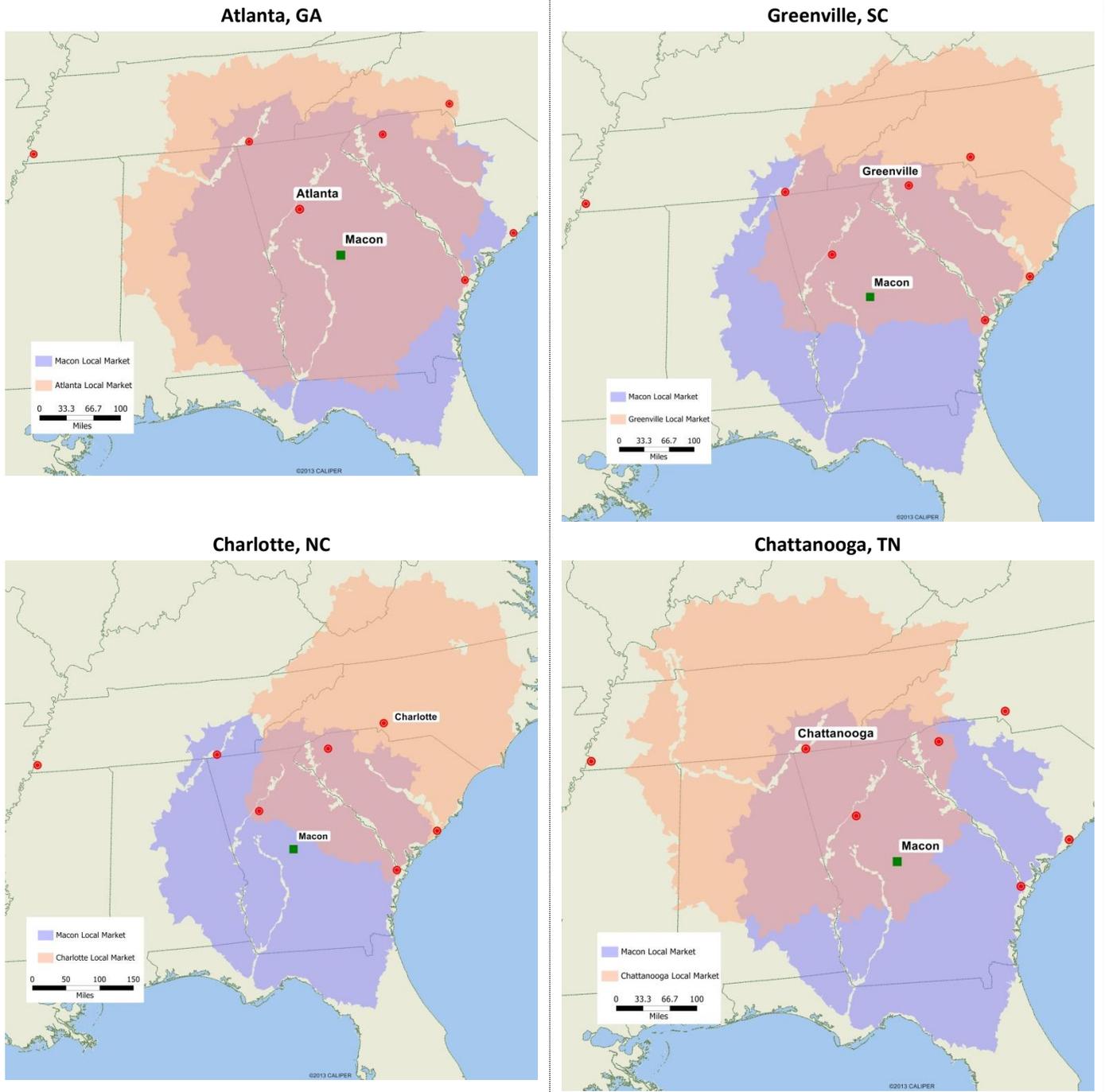
Figure 42: Middle Georgia Local and One-Day Market Coverage Map



Note: Local market coverage is based on a 4-hour drive time radius around Macon and One-Day market coverage is based on an 8-hour drive time radius around Macon.

Source: GKSF

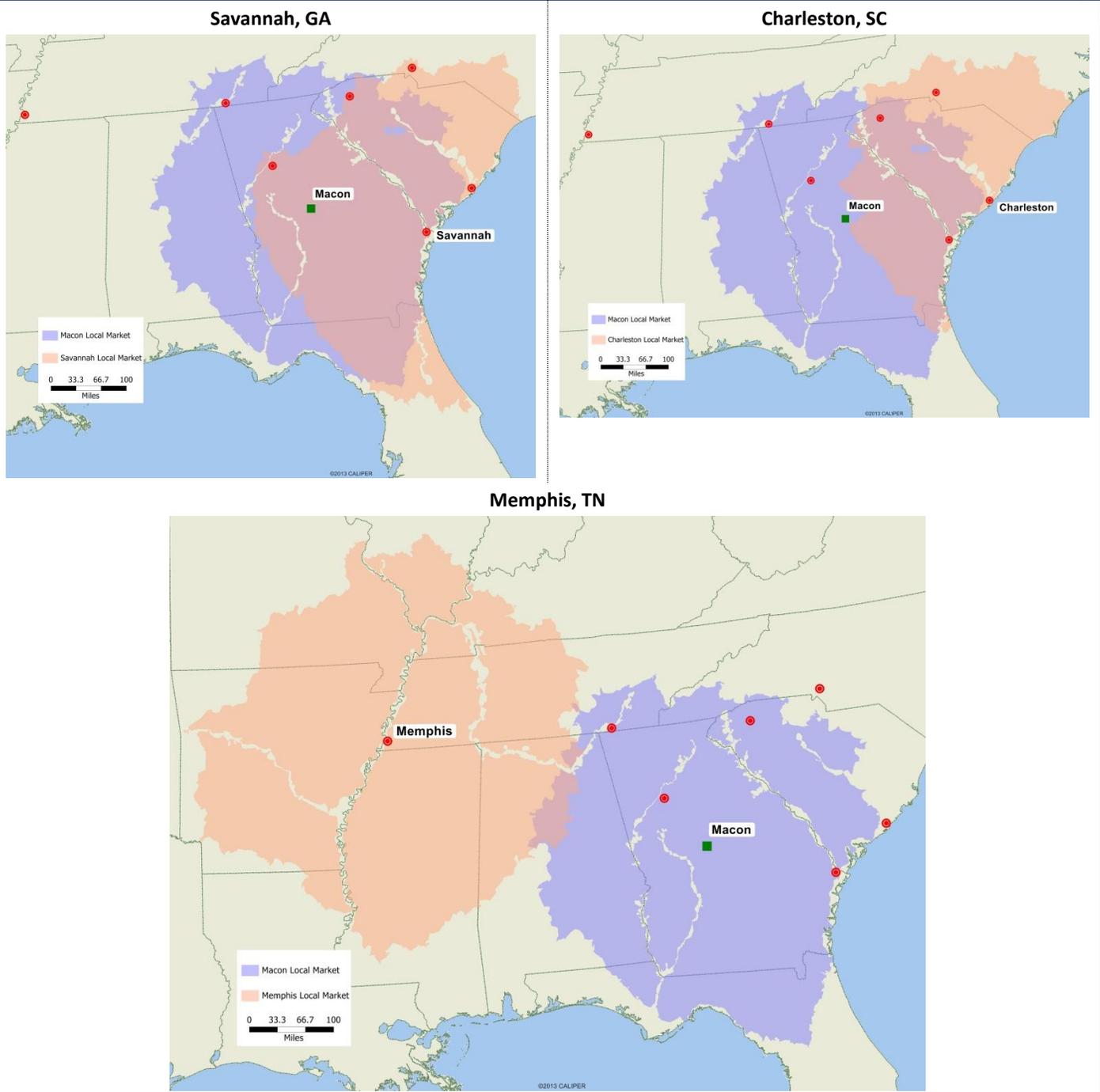
Figure 43: Comparative Cities Local Market Coverage 1



Note: Local market coverage is based on 4-hour drive time radius.

Source: GKSF

Figure 44: Comparative Cities Local Market Coverage 2

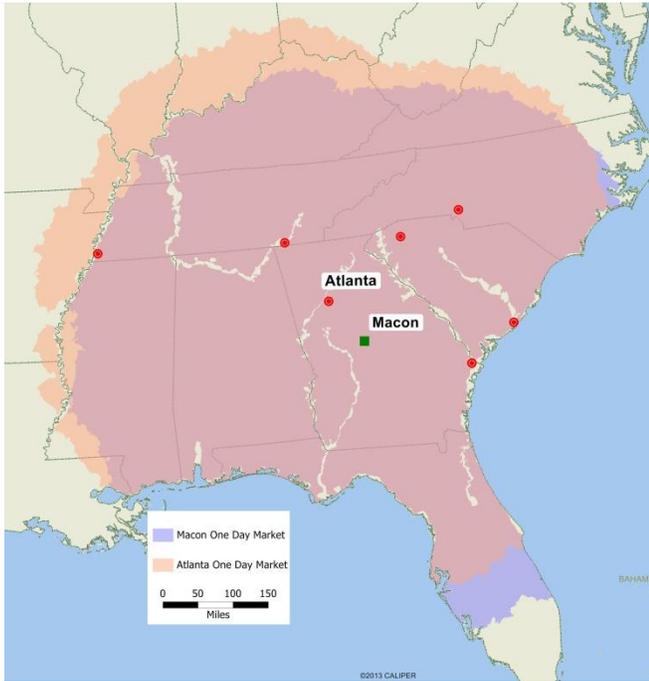


Note: Local market coverage is based on 4-hour drive time radius.

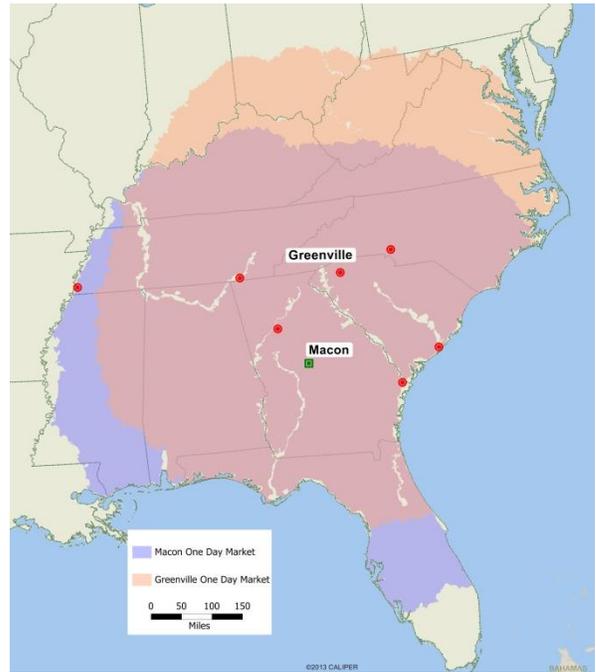
Source: GKSF

Figure 45: Comparative Cities One-Day Market Coverage 1

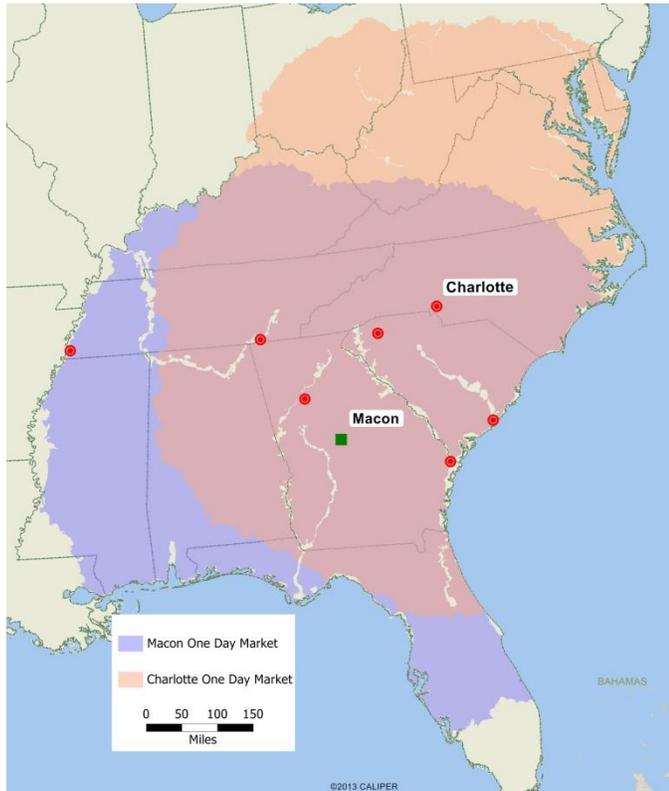
Atlanta, GA



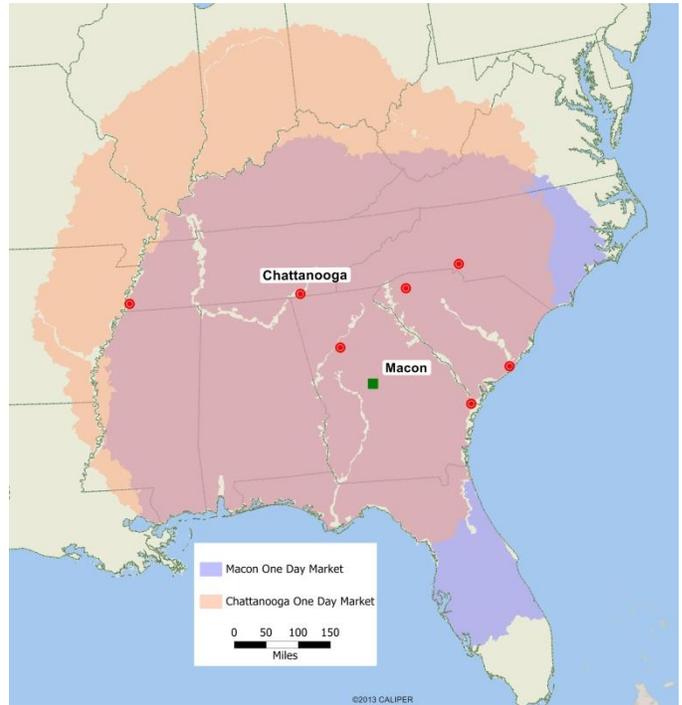
Greenville, SC



Charlotte, NC



Chattanooga, TN

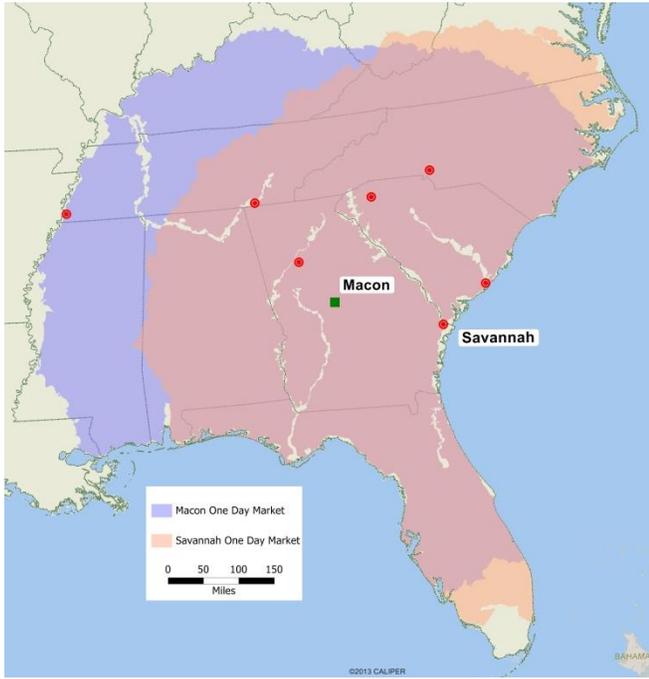


Note: One-Day market coverage is based on 8-hour drive time radius.

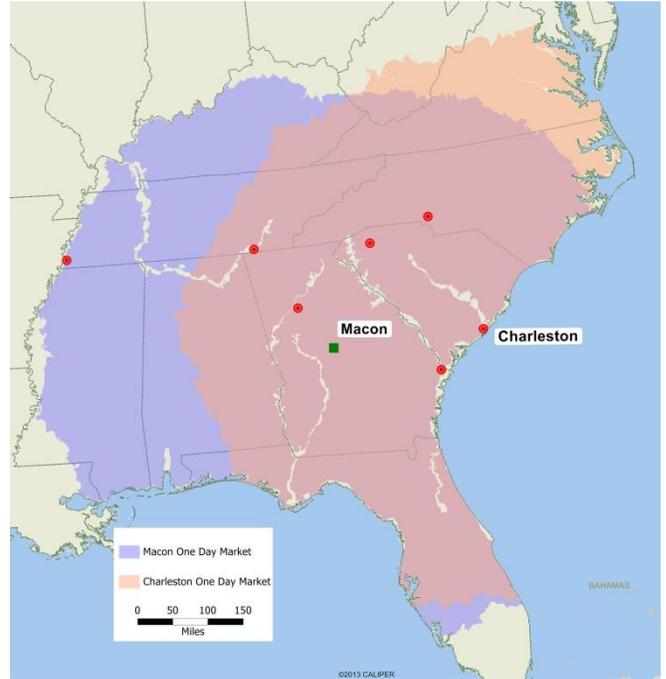
Source: GKSF

Figure 46: Comparative Cities One-Day Market Coverage 2

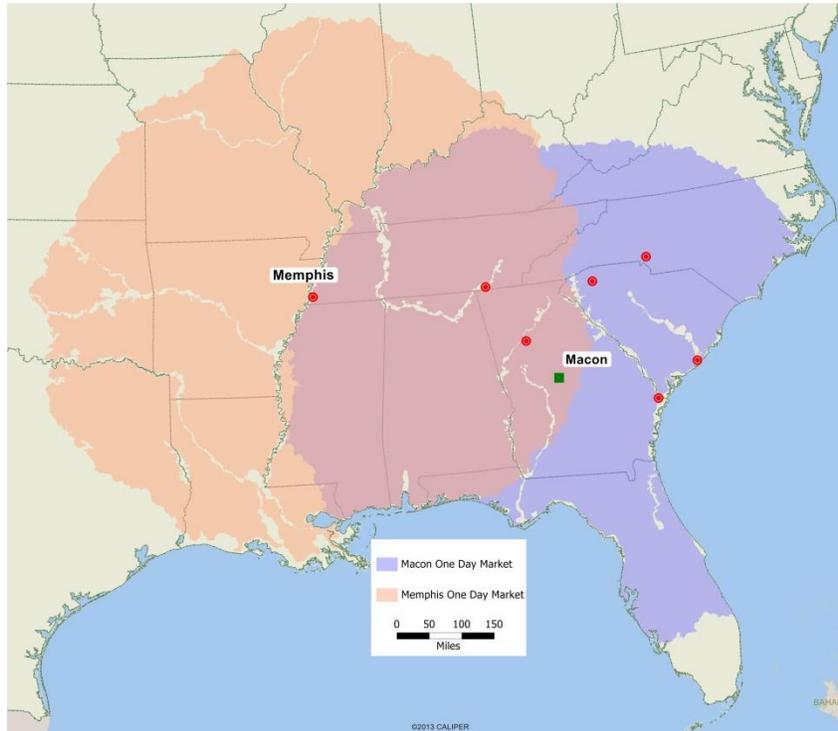
Savannah, GA



Charleston, SC



Memphis, TN



Note: One-Day market coverage is based on 8-hour drive time radius.

Source: GKSF

6.1.3 Truckload Costs

The truckload cost analysis illustrates costs based on hypothetical regional distribution center (DC) deliveries within a one-week timeframe to Southeast and other regional destinations up to 750 miles from the DC. It focuses on import distribution of cargo that moves through the Port of Savannah and thus builds in the cost of trucking cargo from port to DC. This is intended to illustrate the one of most likely market opportunities for Middle Georgia, the warehousing and distribution of imported cargo to primarily Southeast markets. The truckload costs are drawn from the truck rate analysis presented in Section 5.5 of the report.

In this 750 mile range example, Middle Georgia (represented by Macon in the analysis) emerges as the lowest cost location of the competitive cities, benefiting from its proximity to the Port of Savannah and thus lower cost trucking of import cargo into the DC. Proximity to Savannah is a strong competitive advantage for Middle Georgia.

Table 12: Estimated Outbound Truck Costs from the Competitive Cities (DC to a Sample of Destination Markets in the Southeast and Neighboring Regions, 750-Mile Range)								
Southeast Logistics Hub – Total Truck Cost (\$) per Lane								
Distribution Range	Macon	Atlanta	Charleston	Charlotte	Chattanooga	Memphis	Savannah	Greenville
< 200 Miles Sub-Total	31,947	37,719	33,139	36,037	39,566	58,823	39,286	36,204
200-500 Miles Sub-Total	139,986	160,355	155,026	153,457	181,261	243,547	142,162	160,265
500 Miles Sub-Total	171,933	198,074	188,165	189,494	220,828	302,371	181,448	196,469
> 500 < 750 Subtotal	95,811	99,501	109,927	92,734	92,141	109,483	100,894	96,672
Total Truck Cost (750-Mile Range)	267,744	297,575	298,092	282,228	312,969	411,854	282,342	293,142
Rank	1	5	6	2	7	8	3	4
Source: GKSF – see truck rate analysis in Section 5.5								

6.1.4 Labor Cost and Availability

Labor cost is a key evaluation criterion for companies selecting locations for manufacturing and for warehousing and distribution. It is normally the second largest cost component after transportation costs. Table 13 shows the 2014 average weekly wage in manufacturing and in warehousing for Middle Georgia (represented by Macon) and the competing locations. The wage indicators show that Middle Georgia ranks favorably for labor cost relative to its competitors. Atlanta and Savannah are higher labor cost locations in Georgia.

A significant challenge for Middle Georgia could be labor supply; however, accounting for a longer commute boosts the available labor support to make it comparable with many of the other locations. Based on a short 30-minute drive time (representative of a short commute) the civilian labor force around Macon is only 162,270 compared to 1.2 million for Atlanta. However, a one-hour drive time (representing a longer commute including the southern parts of Atlanta) boosts Macon’s labor force availability to 411,020. A further refinement is to consider locations in Middle Georgia that are closer to Atlanta. For example, Forsyth in Monroe County has a labor force of nearly 950,000 within a one-hour drive due to its greater reach into the Atlanta metro area. The 30-minute and 1-hour drive times for Macon and Forsyth are illustrated in Figure 47. By contrast, moving into the southern parts of Middle Georgia would have the opposite impact by lowering the labor force within a one-hour drive time.

A positive factor for Middle Georgia is the region’s favorable commute reliability compared to Atlanta. Middle Georgia would have a more reliable, free-flowing commute environment than Atlanta. Another positive factor is the benefit of reverse-commuting for employees based in Atlanta who travel to and from jobs in Middle Georgia. Employees can take advantage of commuting counter to the heavy traffic flows, which are into Atlanta in the morning and from Atlanta in the evening.

Table 13: Labor Cost and Availability Indicators by Competitive City

	Middle Georgia (Macon) ¹	Atlanta	Greenville	Savannah	Charlotte	Charleston	Chattanooga	Memphis
Average Weekly Wage								
Manufacturing	\$831	\$973	\$998	\$1,132	\$978	\$1,303	\$860	\$902
Rank	1	4	6	7	5	8	2	3
Warehousing	\$717	\$850	\$717	\$854	\$809	\$761	\$721	\$824
Rank	2	7	1	8	5	4	3	6
Civilian Labor Force Availability								
Within 30-Minute Drive	162,270	1,207,317	337,276	150,087	847,179	265,180	240,423	524,902
Rank	7	1	4	8	2	5	6	3
Within 1-Hour Drive	411,020	2,853,176	705,039	295,419	1,392,283	341,827	477,094	710,702
Rank	7	1	5	9	2	8	6	4
Unemployment Rate								
Unemployment Rate June 2015	6.9%	6.0%	6.1%	6.1%	5.9%	5.8%	6.2%	7.9%
Union Membership								
Right-to-Work State	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

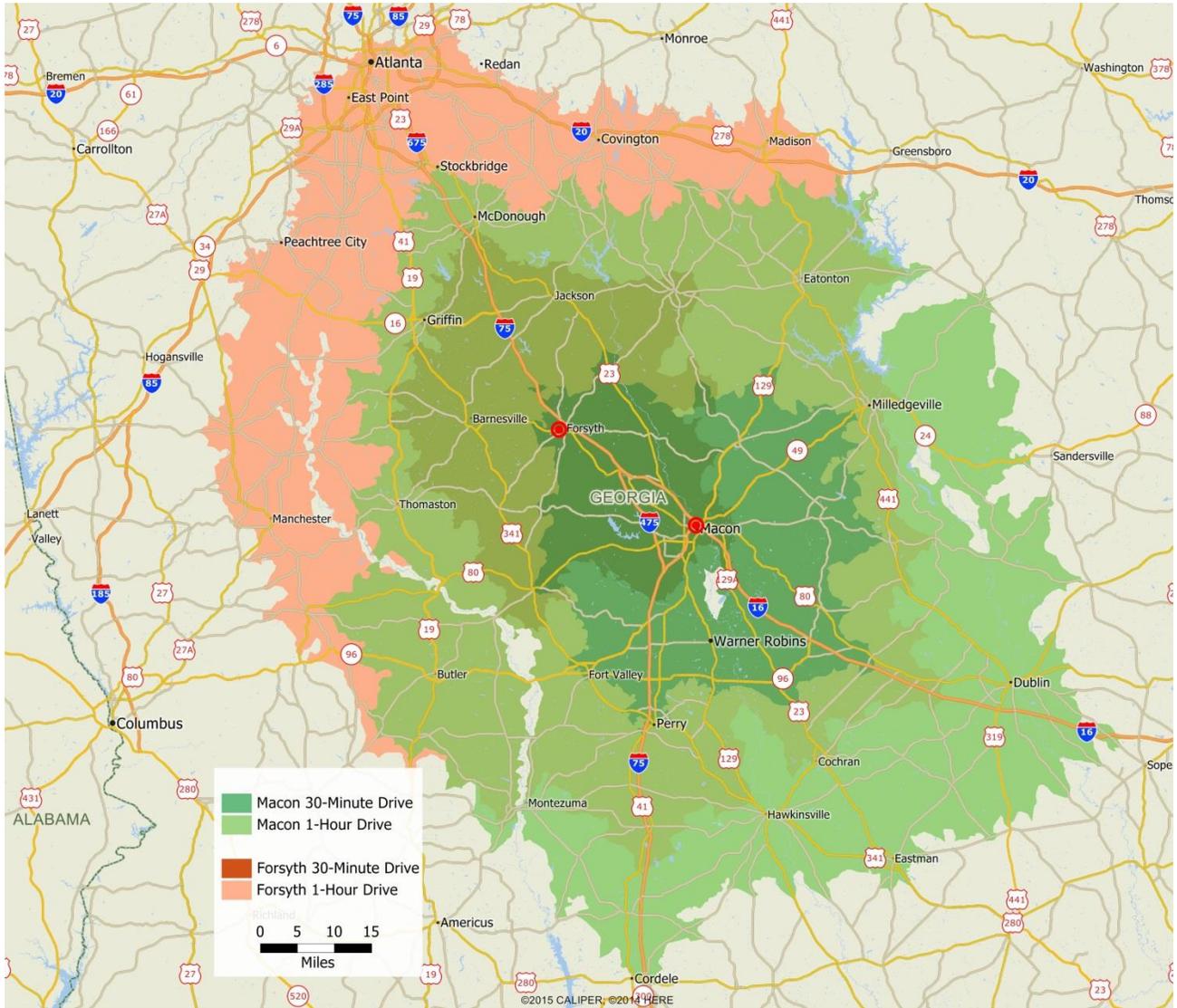
(1) A location to the north of Macon (for example, Forsyth) has a larger labor force within a 1-hour drive due to greater penetration of the Atlanta metro area.

Source: GKSF derived from Bureau of Labor Statistics and Census data

Figure 47: Middle Georgia 30-Minute and 1-Hour Drive Times, and Labor Availability

Macon: Civilian Labor Force: 30-Minute 162,720 / 1-Hour 411,020

Forsyth: Civilian Labor Force: 30-Minute 128,008 / 1-Hour 947,668



Source: GKSF based on Census data

6.1.5 Lease Rates

Building lease expense is another important cost element for companies evaluating locations. A location’s lease rates will be driven by factors that include supply and demand of properties, land costs, construction costs, transportation access (road and rail), age and condition of the property. The rate paid by a company will also reflect building location and characteristics (ceiling height, etc.), and specific customization needs. Building type will generally fall into the following categories:

- Warehouse / Distribution and Manufacturing – these buildings are typically one-story and have low internal specifications with high ceiling clearance, heavy power, suitable storage and manufacturing activities, and various other building amenities. Warehousing / Distribution will require a high ratio of truck doors to building size.
- Flex / Service – these buildings are higher end properties commonly distinguished from warehouse/distribution and manufacturing facilities by a high ratio of office space (typically 50% or more). Tech space and multi-stories are also common features. They are typically used for more specialized activities (for example, technical sectors).

Representative average lease rates for industrial real estate are shown Table 14. Middle Georgia is estimated to potentially offer highly competitive lease rates, only second behind Memphis. Lease rates are estimated to be lower than Atlanta and significantly lower than Savannah, where building availability is low due to growth from the import distribution and other international trade-related sectors.

Table 14: Average Lease Rates for Industrial Space by Competitive City

	Middle Georgia (Macon)	Atlanta	Greenville	Savannah	Charlotte	Charleston	Chattanooga	Memphis
Average Rate (\$ / Sq. Ft /Year)	\$3.00	\$3.82	\$3.31	\$4.00	\$5.31	\$4.24	\$3.50	\$2.75
Rank	2	5	3	6	8	7	4	1
Availability Rate (%)	n/a*	11.9%	9.8%	6.2%	7.3%	10.9%	12.9%	14.6%

* No data available from market reports.
Source: GKSF estimates based on Market Reports of Commercial Real Estate Brokers

Commercial real estate developers employ one of two basic strategies with respect to how to market new developments: “build to suit”, or “build to spec”. A build to suit developer markets an empty plot of land based on location and cost characteristics alone. A client, once found, provides building specifications that the developer then uses to construct the building. Build to spec developers procure a site, and immediately build facilities to general industry specifications without a specific tenant in mind. Finished buildings are placed on the commercial real estate market.

One respondent to the interview survey suggested that the current marketing strategy favors build to spec projects, as prospective clients can move quickly to open and operate new facilities. Clients can more easily visualize how their operations might fit into existing structures, which a manufacturer suggested is a real advantage of spec projects. As a commercial developer said, “Marketing spec buildings is faster, easier, and less risky - it took us six years marketing a greenfield site, it took us six months to market our spec buildings.” A different developer suggested that greenfield sites exist “from Cleveland to Memphis, so you have to have a building.” Spec projects are also thought to cycle more quickly through the land acquisition, building, and marketing/deal phases, which frees up capital much sooner than the build to suit approach.

6.1.6 Other Evaluation Criteria

Companies have other selection criteria they use when comparing prospective locations for their manufacturing and warehouse/distribution facilities, including local and state incentives, tax environment, cost of living, community environment and others. These criteria typically come into play when companies have created a short list of candidates based on their supply chain network needs and the application of the major selection criteria. A brief discussion and sample of the other evaluation criteria is provided below.

Local and State Incentives

Local and state support for a business can include a variety of economic, labor, and tax-related incentives. They typically influence the later stages of the selection process once a company has arrived at a short list of location candidates based on its underlying supply chain and other business needs. Incentives examples include:

- Economic development zones
- Infrastructure development assistance
- Property and sales tax incentives
- Employment grants and tax credits
- Job training programs and training grants

Given the complexity of incentives by state and locality, they are not addressed in this macro competitive analysis. Georgia offers a variety of economic development incentive programs that can be tailored to the individual project.

Tax Environment

Corporate, individual and other taxes will be factored into the decision between a short-list of candidates. Generally, a lower tax environment would be more attractive than a higher tax environment. Overall, Georgia ranks poorly relative to the other locations – South Carolina, North Carolina and Tennessee, as shown in Table 15. However, Georgia does rank the best of the four states for corporate tax. A relatively poor state tax environment can be partly addressed by the various economic and other incentives that a State may offer a company.

Table 15: State Business Tax Climate 2015				
	Georgia	South Carolina	North Carolina	Tennessee
Overall Rank	36	37	16	15
Corporate Tax	8	13	25	15
Individual Income Tax	42	41	15	8
Sales Tax	17	18	33	47
Unemployment Ins. Tax	36	40	11	26
Property Tax	30	21	29	37
Note: 1 is best and 50 worst of 50 states. Rankings do not average to total. Based on tax systems as of July 1, 2014. Does not reflect actual and proposed tax policy changes in 2015.				
Source: taxfoundation.org				

Cost of Living

Cost of living is another factor considered by companies as they evaluate a short-list of location candidates. Cost of living and its rate of change will influence labor cost, labor cost inflation, and labor retention, and the willingness of

employees to relocate if the company is moving from another city. Middle Georgia has the lowest reported cost of living of the competing locations in Georgia and neighboring states.

Community Environment

Companies will also take into consideration the community environment, including factors such as air quality, crime levels and commute times. These may be of particular importance when seeking to relocate staff from another city.

6.1.7 Comparison Methodology

A weighted scoring system is used to rank Middle Georgia (represented by data for Macon) against the other seven cities. The ranking exercise focuses on the major evaluation criteria (market coverage, transportation costs, labor availability/costs and lease costs). A company typically focuses on the major criteria during the first phase of site selection; once it has determined a short list of candidates it will start evaluating the minor criteria, such as tax environment and quality of life factors, in more detail. (Approaches to location selection were addressed in the Interview Survey in Section 4).

The ranking model presented here, based on the major selection criteria, provides a macro assessment of Middle Georgia’s attractiveness for warehousing/distribution and manufacturing relative to the other locations, and allows for macro conclusions on the strengths and weaknesses of each location. The model is not intended as a tool for micro evaluation of individual potential companies or narrow market segments, because in each such case the company/segment will create its own customized evaluation system based on unique requirements.

The weighted scoring system (Table 16) used in the ranking model is broad based and it is derived from the interviews conducted with shippers and the project team’s experience in the logistics industry. For warehousing/distribution sector, higher weights are assigned to market coverage and transportation costs compared to the manufacturing sector, which incorporates higher weighting for labor availability and labor costs.

Table 16: Competitive City Analysis – Weighting of Evaluation Criteria		
Criteria	<u>Warehouse / Distribution</u>	<u>Manufacturing</u>
	Criteria Weight	Criteria Weight
Market Coverage	35%	25%
Transportation Costs	35%	30%
Labor Costs	15%	20%
Labor Availability	10%	20%
Lease Rates	5%	5%
Source: GKSF		

6.1.8 Competitive Cities Ranking Results

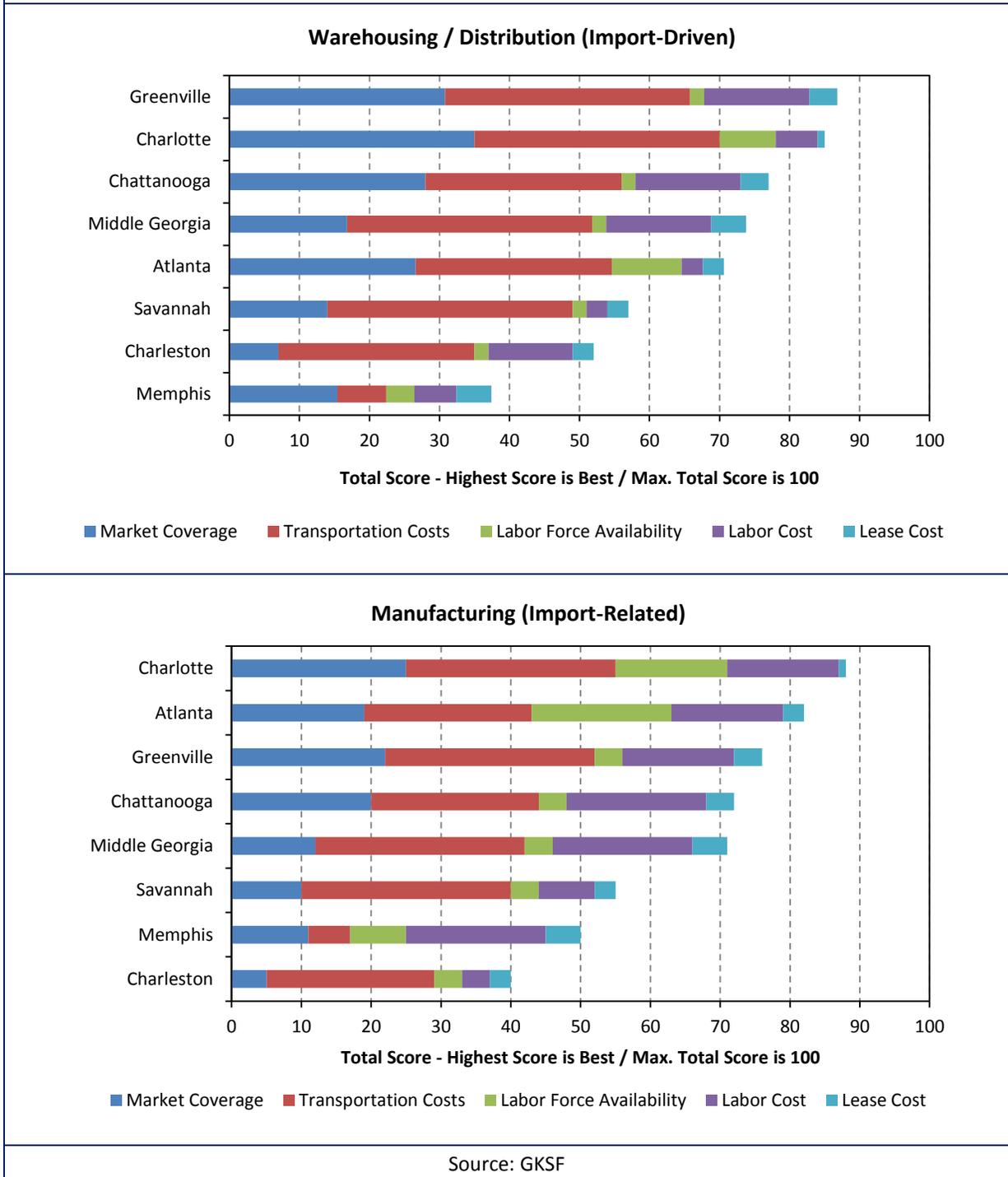
The results of the macro ranking model of the competitive cities are presented in Figure 48.

For warehousing/distribution (with an import-driven focus):

- Greenville and Charlotte emerge as ranked first and second respectively. This result reflects geographic coverage and other strengths of locations on the I-85 corridor as a location for warehousing and distribution, and also for manufacturing.
- Middle Georgia ranks as the fourth most favorable location, its highly competitive cost structure (transportation, labor and lease) offset by relative weakness in market coverage (fifth rank) and labor availability (fourth rank). However, the differences in market coverage may depend on focus – for example, Middle Georgia provides excellent access to the Florida market. And, as discussed earlier, labor availability can be improved by reaching into the labor pool of the Atlanta metro area.
- Middle Georgia ranks ahead of Atlanta and Savannah, which reflects Middle Georgia's more favorable cost structure. This suggests that Middle Georgia can compete successfully for the import-related distribution investments that are currently concentrated in Atlanta and in Savannah.

Rankings were also generated for the manufacturing sector (assuming it is an import-related activity). The results differ slightly with Charlotte, Atlanta and Greenville are ranked first, second and third respectively, with labor availability an important element in their rankings. Middle Georgia ranks fifth, the availability of labor a potential challenge for manufacturing companies.

Figure 48: Ranking of Competitive Cities



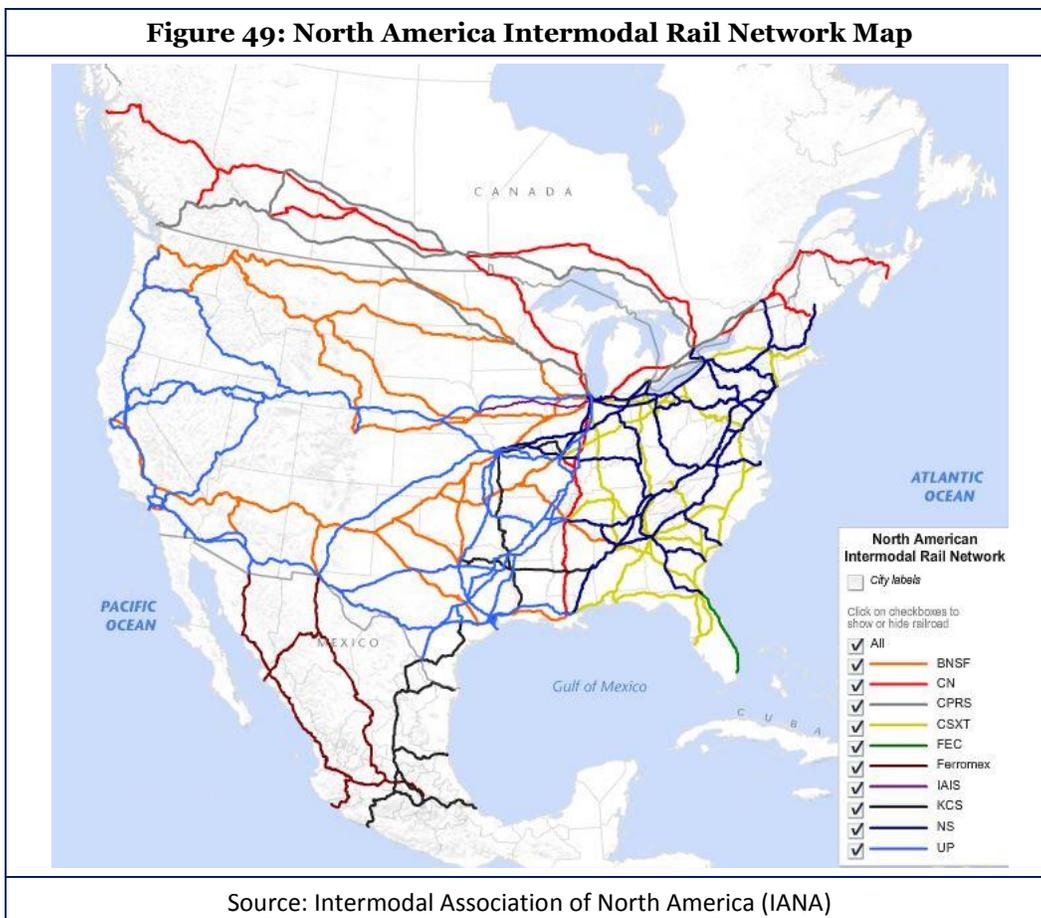
6.2 Transportation Infrastructure

Middle Georgia has a strong freight transportation advantage, being situated in close proximity to domestic and international transportation modes that are highly desirable in today’s global supply chains. Middle Georgia supply-chain managers have access to all transportation options, including air cargo facilities at Atlanta’s Hartfield-Jackson International Airport, ocean terminal services in Savannah, intermodal rail terminals in either Atlanta or Savannah, and all within a few hour drive of Middle Georgia. Highway access in all directions is yet another selling point of the Middle Georgia Region. This section will inventory railroad, highway, air, and ocean assets within Georgia that support freight transportation in Middle Georgia.

6.2.1 Railroads

Today, the rail system in Georgia plays an essential freight transportation role, within the state and nationally, ranking seventh in total rail miles, ninth in rail carloads originated, fourth in rail carloads terminated, and sixth in rail employment.

Georgia’s southeast location provides rail access to the Mid-Atlantic, Northeast and Midwest regions of the country. Its growing port capabilities at the Port of Savannah also highlight the State’s intermodal rail connectivity to international markets. Intermodal rail is the fastest growing rail category; however, continued future growth will require improved rail corridors to accommodate expected freight capacity needs. Figure 49 illustrates the North American and Mexico rail network:



Two Class 1 railroads, CSX and NS provide intermodal rail service in Georgia. They are considered to be the “Eastern” railroads, with rail networks established in states east of the Mississippi River. Each of these carriers has connecting carrier agreements that extend rail coverage to the entire North American and Mexico rail markets:

- Kansas City Southern (KCS) Midwest and Mexico rail network
- Canadian Pacific (CP), and Canadian National (CN) railroads Midwest and Canadian rail networks
- Union Pacific (UP) and BNSF Western region rail networks established in states west of the Mississippi.

CSX Transportation

CSX is a Class I railroad in the United States. The main subsidiary of the CSX Corporation, the railroad is headquartered in Jacksonville, Florida, and owns about 21,000 route miles. CSX operates one of the three Class I railroads serving most of the East Coast, the other two being the NS and Canadian Pacific Railway. It also serves the Canadian provinces of Ontario and Quebec. Together CSX and NS have a duopoly over all east-west freight rail traffic east of the Mississippi River.

Norfolk Southern Railway

NS is a Class I railroad in the United States, owned by the Norfolk Southern Corporation. With headquarters in Norfolk, Virginia, the company operates over 22,000 route miles in 22 eastern states, the District of Columbia, and has rights in Canada from Buffalo to Toronto and over the Albany to Montreal route. The most common commodity hauled on the railroad is coal from mines in Indiana, Kentucky, Pennsylvania, Tennessee, Virginia, and West Virginia. The railroad also offers the most extensive intermodal network in eastern North America.

Short Line Railroads

Freight railroads are generally divided into three categories. In addition to the Class I railroads discussed above, smaller railroads include Class II or regional railroads and Class III or short line railroads. Short line railroads can be further classified as either local railroads or switching / terminal railroads.

No Class II or regional railroads currently operate in Georgia; however, there are 29 Class III or short line railroads comprised of 27 local railroads and one switching or terminal carrier. Local railroads are short line railroads that primarily engage in local freight haulage or line haul services. Switching or terminal railroads are short line railroads that primarily switch cars between other railroads or provide service within a terminal facility.

Genesee & Wyoming

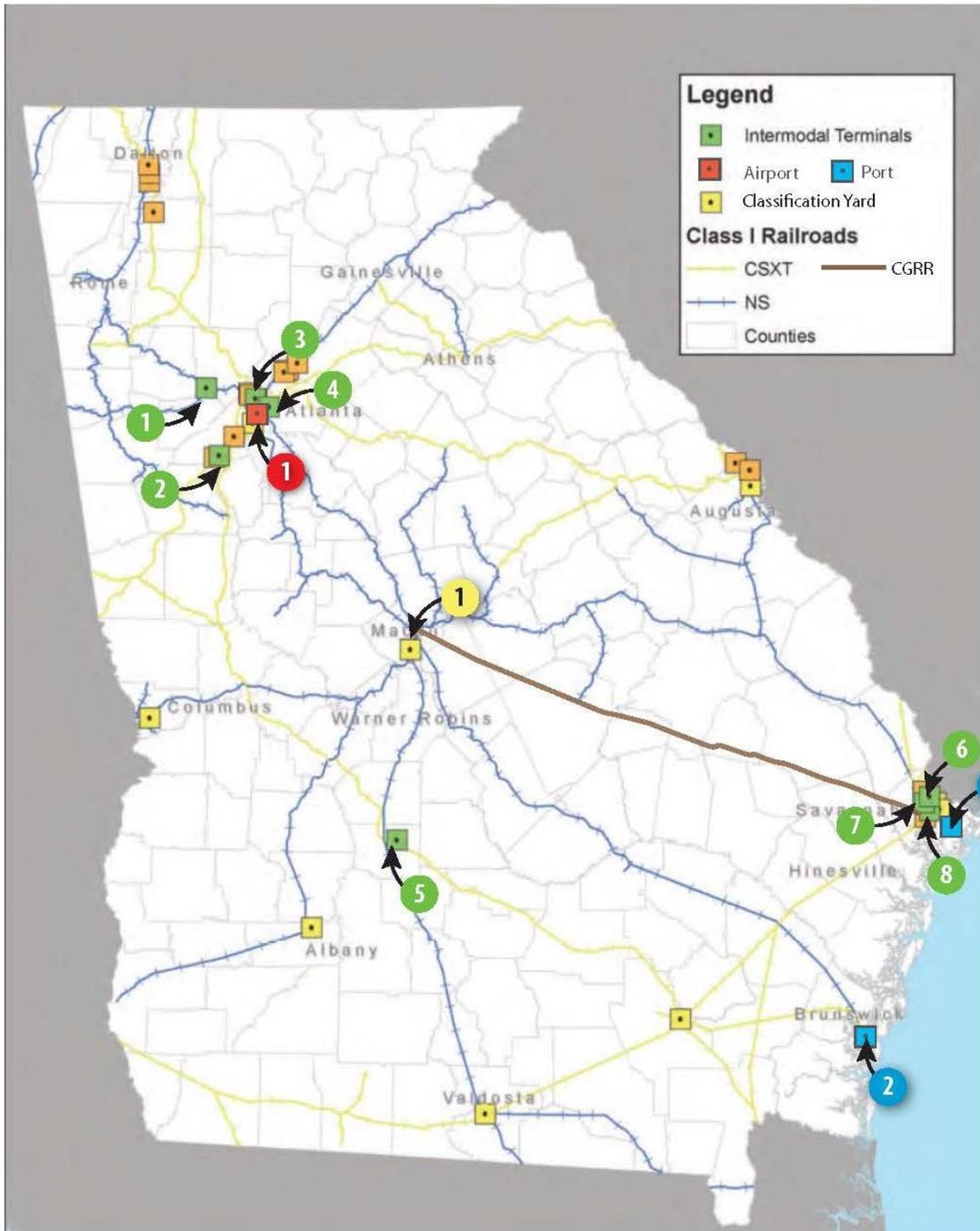
Genesee & Wyoming (G&W) owns or leases 120 freight railroads worldwide that are organized in 11 operating regions with 7,500 employees and more than 2,500 customers. G&W owns trackage rights into Macon, operated under its short-line subsidiary, Georgia Central Railway.

The Georgia Rail Freight System

The Georgia freight rail system is operated by two Class I railroads and 29 Class III railroads (short line railroads, smaller local, switching, and terminal railroads). The system consists of 4,643 route miles, excluding leases and trackage rights. The majority of rail mileage in Georgia is owned by the Class I carriers: CSX Transportation (CSX) and Norfolk Southern Railway (NS). These railroads own a total of 3,631 route miles. Short line railroads and the State of Georgia own the remaining 1,012 route miles in the state.

Figure 50 displays the railroad operators in Georgia, and the State’s ocean and air ports. Note the intermodal rail connection between the Port of Savannah and the City of Atlanta. The provision of intermodal rail service between the port and rail terminals in Atlanta has contributed to the growth of freight distribution in the Atlanta area.

Figure 50: Regional Rail Network Map



Source: Wilson and Company

With reference to Figure 50, the Yellow Number 1 positioned at Macon indicates the location of the NS classification yard. The Red and Blue Markers represent the locations of the Hartsfield-Jackson Airport and the Port of Savannah respectively to provide a perspective on proximity of transportation service. Orange Unnumbered Boxes indicate breakbulk rail terminals. The study focuses on intermodal terminals due to the higher labor intensity and investment required to support intermodal services, and their handling of higher-value freight that moves through warehousing and distribution facilities. Unnumbered Yellow Markers indicate railroad classification yards that do not provide rail freight access. (See discussion of classification yards in the Survey Interview, Section 4.5, Rail.)

Shippers in Middle Georgia access intermodal rail facilities using either the NS or CSX in Atlanta or Savannah. Intermodal terminals are listed in Table 17, with the corresponding number indicating its position on the map appearing in parentheses before the location name.

Table 17: Atlanta and Savannah Intermodal Rail Yards

Location	Norfolk Southern	CSX
Atlanta	<p><u>(3) Inman Yard</u> 1600 Marietta Road NW, Gate 6, Atlanta, GA 30318 (Generally serves eastern markets plus Dallas, TX)</p> <p><u>(1) Austell Yard</u> 6000 Dr. Luke Glenn Garrett, Jr. Memorial Highway, Austell, GA 30106 (Generally serves West, Midwest, Gulf markets, plus Charleston, Savannah)</p>	<p><u>(4) Hulsey Yard</u> 173 Boulevard SE Atlanta, GA 30312 (Serves all markets including the Port of Savannah)</p> <p><u>(2) Fairburn</u> Address: 6700 McLarin road Fairburn, GA 30213 (Generally serves all markets, including the Port of Savannah.)</p>
Savannah	<p><u>(6) Garden City Marine Terminal</u> 3 North Main Street, Garden City, GA 31408 (Generally serves Midwest and Southeast markets, including the Atlanta Austell Yard)</p> <p><u>(7) Port Wentworth Yard</u> 1 Charlie Gay Drive, Savannah, GA 31408 (Generally serves Midwest and West Coast markets)</p>	<p><u>(8) CSX Intermodal Terminals</u> 3000 Tremont Road Savannah, GA 31405 (Serves all markets)</p>
Cordele	<p><u>(5) Cordele Intermodal Services (CIS)</u> 2902 E 13th Ave, Cordele, GA 31015 (Inland port connection to the Port of Savannah, served by Heart of Georgia and Georgia Central railroads. Neither NS nor CSX call directly at CIS.)</p>	

Source: Wilson and Company derived from Railroad Websites

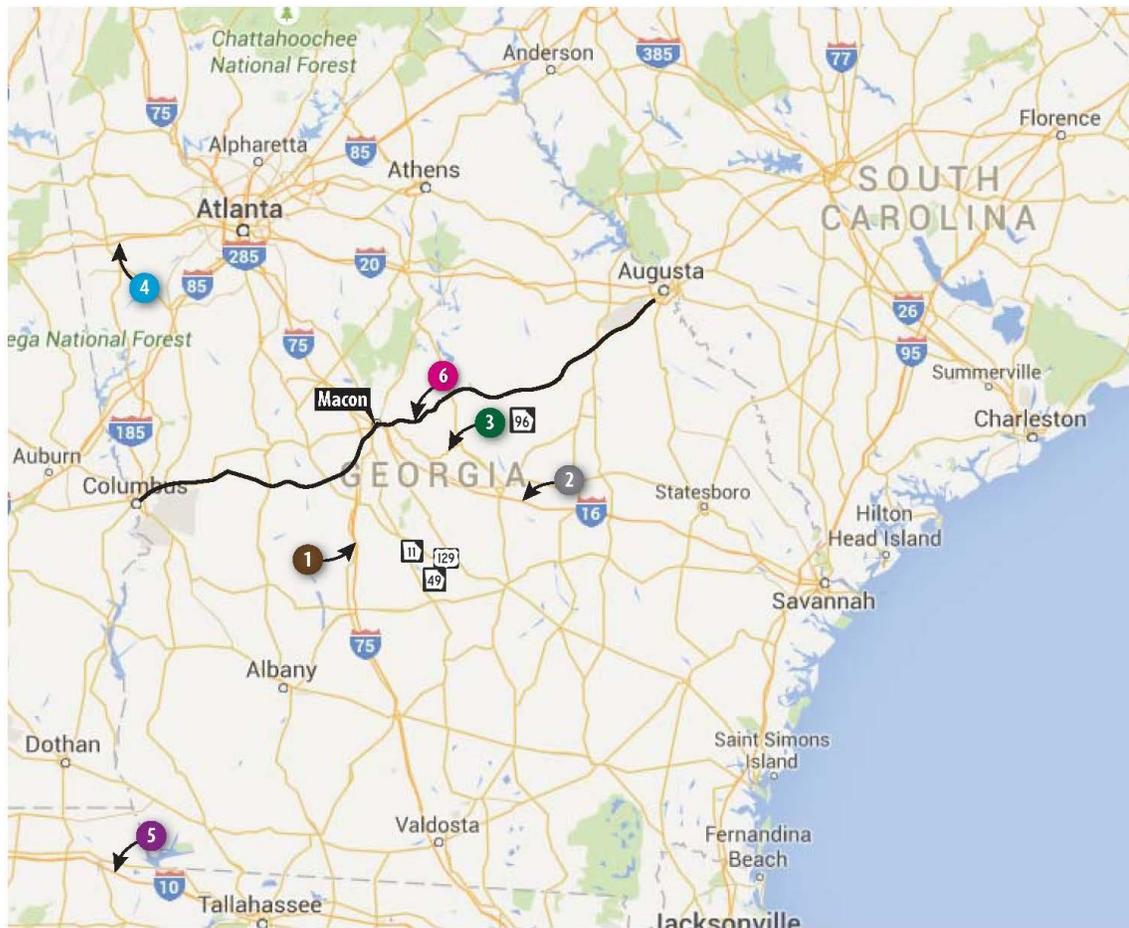
6.2.2 Highways

Middle Georgia is well positioned to take advantage of key truck freight corridors providing easy access to key markets within Georgia, and to key domestic markets throughout the U.S. The regional highway network and the key highways serving Middle Georgia are illustrated Figure 51.

Several State and Interstate highways are critical to the success of freight operations in Middle Georgia, such as I-75, which is a major north/south freight corridor, and I-16 which connects Middle Georgia with international markets through the Port of Savannah. Highways to the north and south of the Region are also essential, such as I-20 in Atlanta, or I-10 in Florida that establish routes to markets to the east and west. Table 18 provides a summary of Georgia’s highways that should be considered to support freight transportation in Middle Georgia, providing easy access in all directions.

Planned improvements to highways affecting truck freight in Middle Georgia are either being implemented, or are planned improvements in the future. Table 19 lists improvements as stated in the Georgia Statewide Freight and Logistics Plan, 2010-2015 – Last Update July 2015. The Macon, GA: I-75 @ I-16 interchange project was mentioned during the interview survey as being critical to growth of freight and logistics services in Middle Georgia (see Section 4.6 of the interview survey). Map “pins” in Figure 51 showing numbers inside colored circles indicate highways mentioned in the interview survey, and are reflected in Table 18 by using corresponding numbers and colors.

Figure 51: Key Truck Freight Highways in Georgia



Source: Wilson and Company

Table 18: Key Truck Corridors Supporting Middle Georgia Freight

Highway	Direction	Georgia Location	Description
[5] Interstate 10 (I-10)	East/West	In Florida	Used to access markets to the west.
State Route 11 (SR 11)	North/South	Center	A 375-mile-long (604 km) state highway in the U.S. state of Georgia, traveling through portions of Echols, Lanier, Berrien, Irwin, Ben Hill, Wilcox, Pulaski, Houston, Peach, Bibb, Jones, Jasper, Newton Walton, Barrow, Jackson, Hall, White, Lumpkin, and Union counties. It runs the entire length of the state from south to north, connecting the Florida state line with the North Carolina state line, roughly bisecting the state into two equal parts. It is the longest route in the state. The portion from the southeastern city limits of Monticello to the Jasper–Newton county line is included in the Monticello Crossroads Scenic Byway.
[2] Interstate 16 (I-16)	East/West	Central	Termini near Macon Georgia, the interchange connection with I-75 (which provides direct access to the Atlanta region, although it does not travel outside the state) The significance of this connection is the ensuing access from the Port of Savannah to the rest of Georgia, and provides linkages to national and North American markets.
[4] Interstate 20 (I-20)	East/West	Northern	Runs east/west across Georgia, and is used to access markets to the west of Georgia.
State Route 49 (SR 49)	Southwest/ Northeast	Diagonal	A 122.8-mile-long (197.6 km) state highway that runs southwest-to-northeast through portions of Terrell, Sumter, Macon, Peach, Houston, Bibb, Jones, and Baldwin counties, mainly in the central part of Georgia. The route connects SR 45 north of Dawson to SR 22/SR 24/SR 112 in Milledgeville.
[1] Interstate 75 (I-75)	North/South	Center	Runs north–south along the U.S. Route 41 (US 41) corridor on the western side of the state, passing through the cities of Valdosta, Macon, and Atlanta. It is also designated—but not signed—as State Route 401 (SR 401). In downtown Atlanta, I-75 joins with I-85 as the Downtown Connector.
Interstate 95 (I-95)	North/South	Eastern	The primary corridor for transporting goods and people along the east coast of the U.S. This corridor’s termini are in Miami, Florida and the U.S. [Maine]/Canadian border.
[3] State Route 96 (SR 96)	East/West	Center	A 94.9-mile-long (152.7 km) state highway that travels west-to-east through portions of Talbot, Taylor, Crawford, Peach, Houston, Twiggs, and Wilkinson counties in the west-central part of the U.S. state of Georgia. The route travels from its western terminus at US 80/SR 22/SR 41 in Geneva to its eastern terminus at US 441/SR 29 south of Irwinton. A four lane widening has been proposed for portions of this route in Houston and Twiggs Counties.
U.S. Route 129 (US 129)	North/South	Center	An auxiliary route of US 29, which it intersects in Athens, Georgia. US 129 currently runs for 582 miles (937 km) from an intersection with US 19/US 27 ALT/US 98 in Chief land, Florida, to an interchange with Interstate 40 (I-40) in Knoxville, Tennessee. It passes through the states of Florida, Georgia, North Carolina, and Tennessee. It goes through the cities of Macon, Athens, Gainesville, and Knoxville.

Table 18: Key Truck Corridors Supporting Middle Georgia Freight

Highway	Direction	Georgia Location	Description
U.S. Route 441 (US 441)	North/South	Center	A spur route of U.S. Route 41. It runs for 939 miles (1,511 km) from U.S. Route 41 in Miami, Florida to U.S. Route 25W in Rocky Top, Tennessee. Between its termini, US 441 passes through the states of Florida, Georgia, North Carolina and Tennessee.
6 State Route 540 (SR 540)	East/West	Center	The Fall Line Freeway is a highway designed to span the width of the U.S. state of Georgia from the Alabama state line, in Columbus to Augusta, passing through several cities including Macon and Milledgeville. It is envisioned to become part of a proposed Interstate 14.
Source: Georgia Department of Transportation			

Table 19: Highway Developments Impacting Middle Georgia

Highway Impacted	Direction	Georgia Location	Description
Macon, GA: I-75 @ I-16	East/West	Middle	Proposed: Interchange reconstruction project in Macon MPO’s LRTP & TIP
Macon – Atlanta, GA I-75	North/South	Middle	Proposed widening of I-75 to accommodate projected population and freight growth by 2040.*
Macon, GA: I-75 @ I-475	East/West	Middle	Recently completed: Adjacent Hartley Bridge Interchange reconstructed and I-75 mainline widened
Savannah, GA: I-95 @ I-16	East/West	Eastern	Proposed: Interchange reconstruction project in Savannah MPO’s LRTP & TIP
Eatonton, U.S. 441	North/South	Middle	The Governor’s Road Improvement Plan (GRIP) indicated an improvement program for this route, which is concurrent with U.S. 129, intersecting US-16 and continuing north to intersect I-20 and I-85, although the stretch between and Madison is not 4-laned.
*Georgia Department of Transportation Dept. of Planning			
Source: Georgia Statewide Freight and Logistics Plan, 2010-2015 – Last Update July 2015			

6.2.3 Ports

The Port of Savannah’s container terminal, the Garden City Terminal, is the fourth busiest container port in the country, encompassing more than 1,200 acres and moving millions of tons of containerized freight annually. The Garden City Terminal provides access to 44 percent of U.S. consumers in two to three days. It is also North America’s busiest and largest single-terminal container port.

Georgia Ports Authority (GPA) is dedicated to providing customers with the most efficient, productive port facilities in the nation, and to supporting the creation of jobs and business opportunities throughout the region. Georgia’s deep-water ports in Savannah and Brunswick, together with inland terminals in Bainbridge and Columbus, are Georgia’s gateways to the world. They are the critical conduits through which raw materials and finished products flow to and from destinations around the globe. The Regional and Multimodal Connector will allow GPA to improve

the way containerized cargo is transported between the Port of Savannah and cities across the United States, while laying a strong foundation to handle GPA’s growth projections into the next decade (see discussion of projected growth in Section 3.2).

Historically, the Port of Savannah has been the first port of call for some services from Asia via the Panama Canal. Now it has also become the first port of call for some services from Asia via the Suez Canal, and the Port recently got one first port of call from Europe. Being the first port of call means the port is a ship’s first stop in the U.S. This is important, as shippers typically want to unload as many import cargo containers as they can in order to be the first to market for quicker delivery of their products, an advantage particularly well-matched to Savannah’s uncongested gateway. The other advantage to being the first port of call is that exports are loaded there first. As import containers come off the vessel at the first port of call, export shippers can be assured that there will be room on board for their cargo, and that they will have loaded their products at the earliest opportunity. GPA’s fiscal year 2014 cargo mix was 51 percent exports and 49 percent imports.

The Georgia Ports Authority is aggressively pursuing the deepening of the Savannah River to 47 feet to more efficiently serve the larger ships deployed in global trade. Working with the U.S. Army Corps of Engineers, the Savannah Harbor Expansion Project (SHEP) received the last of all required federal and state regulatory approvals in 2013. Dredging is schedule to commence in the Fall of this year (2015).

6.2.4 Airports

Middle Georgia is about one hour from the Hartsfield-Jackson International Airport in Atlanta, which is a strong competitive advantage for the area. Atlanta’s airport was North America’s twelfth busiest airport, and the world’s 41st busies airport by metric tons in 2014 in terms of air cargo handling (see Table 20). International air cargo hubs operated by FedEx in Memphis, and UPS in Louisville overwhelmingly account for the majority of air cargo that is handled by the Southeast airports. Miami International Airport is the leading Southeast airport from the pure air cargo perspective, in the absence of a parcel shipping air cargo hub.

World Ranking	North America Ranking	City / Airport Code	Total Cargo 2014 (000 Metric Tons)
2	1	Memphis TN (MEM)	4,259
7	3	Louisville KY (SDF)	2,293
12	4	Miami FL (MIA)	1,999
41	12	Atlanta GA (ATL)	601
114	29	Orlando FL (MCO)	173
149	33	Charlotte NC (CLT)	106

Source: Airports Council International

Hartsfield-Jackson maintains more than 1.5 million square feet (135,000 square meters) of cargo handling space in the North, South and Midfield Cargo Complexes. Each complex offers excellent dockside access to the highway network – I-75, I-85, I-285 and I-20. There are 19 air cargo carriers operating at the airport (including those listed in Table 21) and four charter airlines: Atlas Air Cargo, Kalitta Air, Mountain Air Cargo and Polar Air.

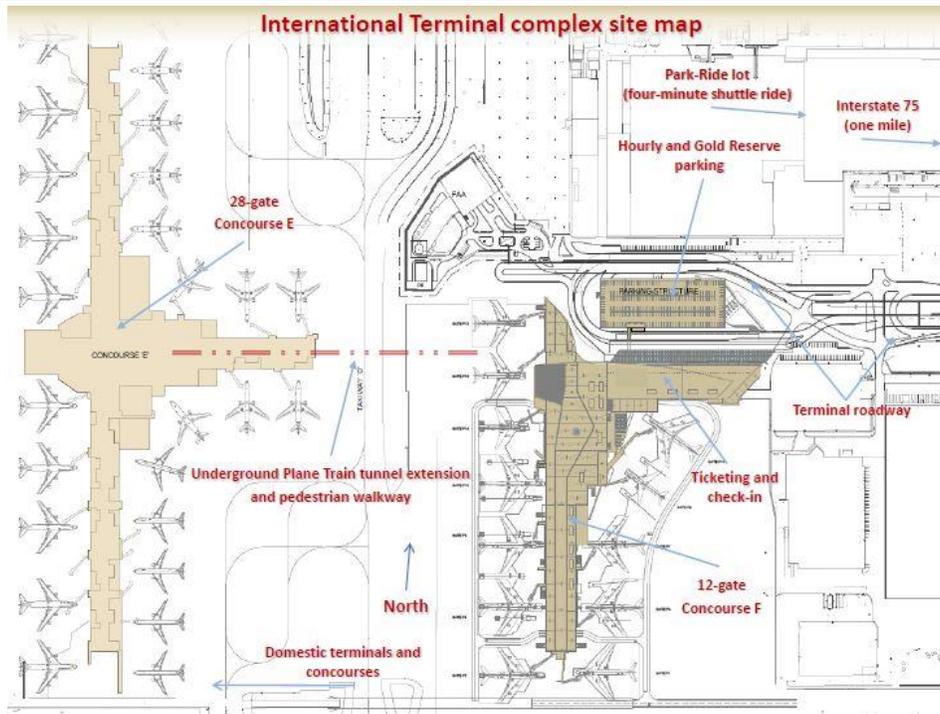
Hartsfield-Jackson provides the following air cargo services¹⁵:

- In addition to the main cargo complexes, Hartsfield-Jackson houses a U.S. Department of Agriculture-approved Perishables Complex, the only one of its kind in the southeast United States.
- Hartsfield-Jackson's North and South Cargo Complexes maintain independent refueling and support systems, which allow quick turnaround for Airport cargo operators.
- More than 200 million people, 80 percent of U.S. consumers, are within two hours' flight time from Hartsfield-Jackson, or one day's trucking by highway.
- Hartsfield-Jackson is the only airport in the Southeast to be approved by the USDA to apply cold treatment, an environmentally safe alternative to methyl bromide.
- Atlanta Perishables Complex features on-site distribution and transport capabilities, USDA inspection services and a USDA approved fumigation chamber.
- Adjoining the Airport is the 250-acre Georgia Foreign Trade Zone, FTZ # 26, which facilitates trade and increase the global competitiveness of companies doing business in Georgia by reducing operating costs associated with international trade.
- Hartsfield-Jackson is designated as a U.S. Fish & Wildlife Port of Entry.
- Hartsfield-Jackson's cargo services feature operations by more than 100 licensed customs brokers and 200 domestic and international freight forwarders.

Table 21: Air Cargo Airlines Operating at Hartfield-Jackson International Airport		
Asiana Airlines	DHL Express	Lufthansa German Airlines
Cargolux Airlines	Emirates SkyCargo	Singapore Airlines
Cathay Pacific Airways	EVA Airways	Southwest Airlines Cargo
China Airlines	FedEx	UPS
Delta Cargo	Korean Air Cargo	
Source: Hartsfield-Jackson International Airport Website		

¹⁵ Source: Hartsfield-Jackson International Airport Website

Figure 52: Hartsfield-Jackson Atlanta International Airport



Source: Hartsfield-Jackson Airport Website

7 Market Opportunities and Development Strategies

The following Opportunities and Development Strategies were identified during interviews conducted as part of this study, as well as the project team’s experience with the development of regional logistics hubs. The Opportunity Matrix (Table 22) displays opportunities in the left-hand column, with accompanying criteria explanations detailing the reason for the opportunity. Criteria were also identified and validated as part of the interview survey. The project team also recommends a Middle Georgia Marketing Plan, which is discussed later in the section.

Middle Georgia Opportunities

Middle Georgia’s location in close proximity to the Port of Savannah, and large population centers in Georgia and Florida make it a suitable location as a distribution hub for southeast markets. Middle Georgia can also take advantage of existing key manufacturing sectors operating in Georgia to attract similar manufacturers to the area, as an available workforce and supply chain services have been well established.

Marketing Middle Georgia

An issue that came to light during the interview survey is that logistics managers operating in Middle Georgia consider the area to have logistical advantages, particularly serving the U.S. Southeast market, while managers without local Middle Georgia experience primarily consider sites in Atlanta or Savannah for Southeast distribution. This highlights a gap in understanding of Middle Georgia transportation capabilities.

The following recommendations are designed to address this gap:

- Brand economic development efforts by establishing a Freight Marketing Organization, as opposed to an economic development organization. This defines the role of the agency as focusing on freight distribution to outsiders considering Middle Georgia.
- Create target list of companies that might benefit from locating in Middle Georgia, based on the areas logistical advantages, relative to target company needs. Build profiles of prospective companies, including transportation, labor, market reach, tax advantages etc. Identify successful industries in the area, such as retail, aerospace and automotive manufacturers when building the profiles. These can be used as marketing materials in trade magazines, conferences, etc.
 - Solicit feedback on regional strengths from local retailers and manufacturers operating in Middle Georgia to be included as “testimonials” in marketing materials.
 - Technical colleges and other sources of labor should be highlighted in marketing messages.
 - Expand economic development outreach activities to aggressively market to commercial entities, such as retail and manufacturing trade groups, logistics and supply-chain conferences, commercial real estate publications, and trade publications.
 - Include Middle Georgia representation on international trade commissions.

Table 22: Middle Georgia Opportunity Matrix

Selection Criteria				
Opportunity	Infrastructure	Proximity to Markets	Labor Force	Local Incentives / Land / Business Climate
Southeast Distribution Center	Close enough to Savannah to access international trade. Acceptable Truck availability, parcel shipping company presence. Desired sites closest to major freeways, e.g. I-75 or I-16. NB I-16/I-75 interchange is a concern.	Centrally located among larger markets in GA and FL. Several Retail DC operating Southeast distribution operations are currently based on proximity to Southeast markets	In general, the MG labor force is qualified for DC operations work. Local trade schools, technical colleges are critical resources that generate a qualified labor supply.	Land is more available, less expensive, and government bureaucracy viewed to be less cumbersome than Atlanta or Savannah. DC space in both of those cities is getting scarce, and expensive.
Manufacturer requiring import/export access	Easy access to the Port of Savannah, competitive truck rates throughout the country. Desired sites closest to major freeways, e.g. I-75 or I-16. NB I-16/I-75 interchange is a concern.	Customer concentrations in the East favor a Middle Georgia location; however, manufacturers currently operating in MG ship to destinations across the entire Nation.	MG labor pool is generally viewed to be qualified for manufacturing work. GA Tech Colleges are viewed as invaluable partner to develop manufacturing skills. Robins AFB also a source of skilled trade labor.	Land is more available, less expensive, and government bureaucracy viewed to be less cumbersome than Atlanta or Savannah.
Aerospace or automotive component manufacturing	This space typically uses the truck mode, almost exclusively to meet JIT shipping commitments. Occasional air freight, or parcel shipping is easily accommodated in Atlanta or Macon. Desired sites closest to major freeways, e.g. I-75 or I-16. NB I-16/I-75 interchange is a concern.	High concentrations of aerospace companies in SC and GA make a MG location favorable, as product can be delivered to key customers within hours.	GA colleges and technical colleges are viewed as having successfully and consistently produced qualified entry level candidates for these manufacturing positions. National labor searches are normally conducted to attract Highly skilled engineers, etc.	Reasonable energy costs, available land, and a business friendly climate are positive characteristics of the MG region.
Transload Facilities	This is dependent on a proposed Network Georgia inland port site location in Middle Georgia, and connectivity to the domestic rail network. Ocean containers railed in from the Port of Savannah can be "cross-docked" in MG to domestic truckloads. See Section 5.2 Inland Distribution Strategies.	Access to domestic rail will enable a Middle Georgia transload facility to serve the entire North American market.	In general, the MG labor force is qualified for DC operations work. Local trade schools, technical colleges are critical resources that generate a qualified labor supply.	Land is more available, less expensive, and government bureaucracy viewed to be less cumbersome than Atlanta or Savannah. DC space in both of those cities is getting scarce, and expensive.

Source: GKSF and Wilson and Company

Network Georgia Recommendations

The Georgia Ports Authority has announced plans to establish inland ports throughout Georgia to extend Port of Savannah reach by rail to strategic areas, including a yet-to-be identified Middle Georgia location. While this presents a substantial opportunity to elevate Middle Georgia as a logistics hub, several actions should be coordinated to help ensure the success of the Network Georgia initiative:

- The success of inland ports will depend on the formation of industry clusters and agglomerations that support each proposed site. The roles and industries that these inland ports are intended to support should be coordinated to ensure that target users do not overlap, thereby undercutting the success of all inland ports.
- The Middle Georgia Inland Port site selection should be in close proximity to major highways, most likely I-75, I-16, or the Fall Line Freeway when completed. A selection on I-16 would also require an upgrade to the NB I-16/I-75 interchange upgrade.

User advocacy may be an important component of the successful development of a Middle Georgia Inland Port site selection. Large volume shippers in the area, or potential large volume shippers should be included in discussion to demonstrate the potential base of freight that will be required to make the development a success. Clay shippers are one obvious group, but another would be Robins Air Force Base. The existence of rail in Middle Georgia may have key implications for Robins AFB's role for DoD freight distribution in North America. A key success criterion for the middle Georgia plan will be participation from all entities involved, including as funding sources for the project. The following representatives should be included in Network Georgia meetings:

- Economic and Development Agencies
- Commercial Retail and Manufacturing Logistics Managers
- Transportation Providers (e.g. GPA, truckers, railroads, ocean carriers, 3PL's)
- Robins AFB Representation

The project team recommends, and will facilitate meetings if requested with the United States Maritime Administration (MARAD), and the 21st Century Partnership to promoting existing capabilities and potential developments, such as the GPA interest in the Middle Georgia Region as a potential inland rail site. This kind of outreach may shape future North America Military freight distribution strategies based on existing and future transportation service capabilities.

7.1 Market and Industry Assessment (Phase II)

As follow-on to the Middle Georgia Regional Freight Study, the project team recommends a best-use site plan for the Middle Georgia Inland Port as proposed by the Georgia Port Authority "Network Georgia" plan. The Freight Study outlines general transportation services and manufacturing capabilities of the Region; however, Industry specifics on facilities, labor, utilities and other considerations are required so that the MGRC can present a detailed "plug and play" profile of the Middle Georgia site location opportunity. Manufacturers or DC operators are more receptive to developments that have completed preliminary work that establishes utility, land grading, transportation infrastructure, and other capabilities. Phase II proposes a further analysis of detailed requirements of targeted industries and industry clusters that are suitable to Middle Georgia, including a master plan.

Market Survey

The consultant will conduct an interview survey with a focus on companies that can provide insight on recent domestic/international manufacturing, cargo and logistics trends, and how they may impact the development of freight distribution and manufacturing in Middle Georgia. Interviews will gather information from domestic and international perspectives on local labor and utility requirements, building specifications, and competitive influences that factor into site selection decisions. Additional insights into strengths and weaknesses of Middle Georgia, and how to address them will be solicited from interviews. Survey candidates include manufacturers, transportation providers, economic development agencies, importers and exporters, and other market participants. A telephone interview guide will be prepared and a target list of subjects will be compiled. The objective for the Market Survey is to provide both qualitative and quantitative information that would support the site master planning task that is part of this proposal. The level of detail by target market sector will depend on the willingness of interview candidates to provide granular information. Twenty to Twenty-Five interviews will be conducted as part of this task.

Priority Targeted Market Sectors & Input Information to Land Use Plan

The interview survey results will provide specific insight into targeted industry and company requirements that will be used as input for a site master plan. This task will research existing manufacturing and distribution operations, mainly in the State of Georgia, to gather detailed information that will be used to supplement interview survey findings. For each target market sector, the following information will be provided as input to the master plan:

- Industry description, size and trends in Georgia and adjacent states
- Companies located in Georgia (competing sites)
- Typical business incentives required or received in Georgia and at county level
- Representative facility needs (typical size, manufacturing or warehousing, etc.)
- Transport needs (e.g., rail access)
- Service needs (e.g., utilities)
- Labor requirements (skill level, etc.)
- Other market-related information
- Probable development time-frame (short-term, etc.)
- If provided during the interview survey, more granular information on specific market opportunities

The Service Provider shall present a summary of the business opportunities, defined by market sector, company type and stages of the supply chain. Based on the above information and the Interview Survey, the project team will prepare a summary Strengths, Opportunities, Weaknesses, and Threats (S.W.O.T.) for Middle Georgia.

7.2 Land Use Plan/Master Plan

7.2.1 Master Plan

Based on the results of Task 7.1 Market Assessment, the Wilson and Co. team will recommend a Master Plan for the project concentrated on accommodating short-term development potential while ensuring the highest level of flexibility and expandability to accommodate long-term development of the overall project.

The land use plan will focus on parcel size, and number of parcels, to accommodate a regional industrial market and project business plan, as well as any effects resulting from the proposed Network Georgia Inland Port plan for Middle Georgia. The Master Plan will also focus on minimizing impacts of adjacent land uses (Industrial versus Commercial) and providing synergistic use of project site infrastructure, while avoiding any significant reconfiguration of the major roadway, rail and infrastructure network, where appropriate,.

A maximum of three (3) Master Plan alternatives will be developed. Each alternative will be assessed through the use of an evaluation matrix. The evaluation matrix will be developed based on evaluation criteria developed by the project team with input from the MGRC project team.

A Master Plan will be developed based on the results of the evaluation process and be provided as a final deliverable for this task.

DELIVERABLES

The deliverable for this task will be a comprehensive Master Plan drawing, in PDF format, that identifies the resulting recommended parcel size and arrangement of parcels to support future development as identified in the market assessment. The drawing will be accompanied by a narrative description of the plan that documents the decision making process and resulting recommendations. The potential development of each parcel will be illustrated with building footprint, paved areas, landscaped buffer zones and applicable utility and railroad infrastructure. The Master Plan will identify all proposed rail facilities and rail infrastructure as well.

7.2.2 Reverse Site Selection

The Reverse Site Selection process dives further down further into the research of the initial study and provides a micro analysis of the opportunity matrix to identify a “Top 50” listing of specific clients that have commodities traveling through the area. We will analyze these companies’ networks and derive compelling reasons why they should consider the MGRC Park because of new lower cost transportation structures that we have been able to uncover for them. In essence we come up with benefits for these companies to come to this area before they know they should be there by finding means to lower their supply chain costs. This is a very strategic approach to locating clients versus having real estate brokers or other marketing groups broadcasting wide nets out to the general market place in hopes of luring an end user to the site.

7.2.3 Marketing Representation- Real Estate Brokerage

During this phase Real Estate Brokerage Representation interviews will take place. This task will provide the backdrop for which the team will select a brokerage company that will represent and market the new intermodal facility along with the industrial park to a local and national audience. Wilson & Company will provide a list of criteria and questions that the selected brokerage firms will address during a formal presentation that they will give to the MGRC. Wilson & Company will compile the information and results presented at these interviews into a matrix which will be used to select a firm to move forward with. MGRC and Wilson & Company will work with the selected firm to develop marketing material, websites and additional collateral to broadcast the benefits of the new park to potential shippers and manufacturers.

7.2.4 Public/Private Development

In the event that the MGRC does not want to develop or fund this industrial park or intermodal facility the MGRC may elect to take this project out to the industrial development market in order to find someone to partner with. Wilson & Company has worked with a number of large private development companies that embrace multi-modal parks such as this. These national developers are backed by large institutional funds that can provide the financing to fund the entire project. During this phase Wilson & Company would make introductions to these developers to gain their interest in order to provide a shortlist back to the MGRC. Once that list is developed a RFP would be drafted which the shortlist group would provide their vision and pricing to control the project going forward.

The railroads will play a key part in this project as well. Wilson & Company works with all Class 1 railroads throughout the US. We have deep relationships with the Norfolk Southern, CSX and the Genesee and Wyoming Railroads. Based on our meetings with the GPA it would appear that there are a couple options which would be viable to explore as to who's mainline the intermodal and industrial park should be off of. Wilson & Company would explore these options and also gauge the interest of each from the railroads perspective. This scope could include performing such tasks as layouts for various intermodal yards, exploring financing commitments and time tables, or simply just being an owner's rep for the MGRC marshalling the process.

Once the MGRC determines how this project will be delivered and executed Wilson & Company can redefine its role based on what the needs are of the Commission.

7.2.5 Borings/Survey/ Environmental/Certified Site

Once the development has been located and the delivery method determined work can begin on the infrastructure and providing "shovel ready" sites. As part of that process the MGRC may want to designate some of these plots "certified sites". A certified site is a parcel of land (or in some cases, a building) that has met specific criteria such as:

- Availability
- Zoning
- Utility Infrastructure (water, sewer, telcom)

- Permits
- Site Characteristics (presence of wetlands, floodplains, endangered species etc.)

This process will provide the foundation that will establish the depth and accuracy needed related to information that will provide the types of sites and buildings needed for serious buyers looking to come to the Macon region. These factors would include:

Data: the more data that is collected, the more a purchaser will know about a property, thereby reducing their risk and speeding due-diligence research. This allows the ability to get the speed to market that most consumer goods companies want.

Criteria: the more stringent the criteria, the more likely a site will be ready for development. The most comprehensive programs issue certification based on strictly defined criteria that must be met by the landowner or party seeking certification. This approach facilitates “due diligence” on a site, saving purchasers time and ultimately money.

Certifying Agency: Wilson & Company could be the independent third-party certifying the site as we would be impartial and objective when evaluating the site’s characteristics.

These programs have proven to successfully propel economic development programs in those states and regions in which it has been implemented. The reason being is that most of the work related to the site’s utilities (water, sewer, electric, telecom), local workforce availability, easements and liens, environmental contamination, wetlands, endangered species, zoning and a number of other features have all be taken care of for the purchaser. This helps differentiate the sites from those that are not certified and will take longer to develop.

If this program was to be implemented or something similar to it soil borings, topographical survey, Phase 1 Environmental Studies along with wetland delineations should be performed.

Appendix A: Truckload Rate Comparison

Appendix A presents a comparison of the Study Comparative Logistics Hubs based on a hypothetical week of truckload distribution to selected cities. Origin logistics hubs (O) are displayed across table column headers, and selected Midwest destination cities (D) appear in the left-hand column. Metropolitan Statistical Area (MSA) population is used as a proxy for actual truck-trip data in order to illustrate the effect of freight volume on total truck cost, Population size is a driver of demand for goods and services, and is therefore a useful substitute for demonstration purposes.

Estimated Truck Trips

Estimated truck trips displayed in the second column are calculated based on the MSA population of each city divided by the smallest MSA population used in the study. For example, the smallest MSA population used is Macon at 231,332 people, and this population size demand will be assumed to equate to one truckload. A MSA population size of 2.3 million people, being ten times the size of Macon, will therefore be assumed to require ten truckloads.

Truckload Wkly Cost (Truckload Weekly Cost)

Truckload Wkly Cost is the weekly cost for all containers trucked between the Logistics Hub and the Destination City. The Truckload Wkly Cost is calculated as (Est Truck Trips X the truckload rate for the designated lane). Truckload rates are provided by Truckloadrate.com. Truckload Wkly Cost is repeated for each Distribution Hub.

Truckload Wkly Cost Plus Sav Truck (Truckload Wkly Cost Plus Savannah Truck)

This truck cost analysis assumes that containers are imported through the Port of Savannah, which will require shippers to incur additional trucking costs as containers are trucked from the Port of Savannah to each Distribution hub. Truck costs from Savannah are therefore added to Truckload Wkly Cost for each Hub origin/destination City pair.

Lowest Cost Formatting

Rates in Red under the Truckload Wkly Cost columns designate the logistics hub with the lowest weekly truck costs to each destination. Rates in Green indicate logistics hubs with the Truckload Wkly Cost with Port of Savannah trucking costs included.

Metropolitan Statistical Areas

Metropolitan statistical areas (metro areas) are geographic entities delineated by the Office of Management and Budget (OMB) for use by Federal statistical agencies in collecting, tabulating, and publishing Federal statistics. A metro area contains a core urban area of 50,000 or more population. Each metro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

Table 23: Truck Cost Rate Matrix

Destination City		Origin Distribution Hub																
		Atlanta		Charleston		Charlotte		Chattanooga		Macon		Memphis		Savannah		Spartanburg		
		Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	
Dest Pop (000)	Pop Factor																	
Atlanta, GA	5,525	23.89	10,748	27,312	12,941	23,696	12,074	25,819	10,740	28,321	11,855	23,273	20,939	42,426	16,563	29,707	11,205	25,418
Augusta, GA	580	2.51	1,385	3,124	1,284	2,414	1,442	2,885	1,560	3,406	1,518	2,717	2,990	5,246	1,902	3,282	1,543	3,035
Baltimore, MD	2,774	11.99	18,783	27,099	17,545	22,945	13,974	20,874	18,301	27,127	22,334	28,066	27,091	37,879	18,755	25,354	16,330	23,466
Baton Rouge, LA	820	3.55	3,745	6,204	6,459	8,056	5,004	7,045	3,962	6,572	3,845	5,540	3,440	6,630	5,546	7,498	5,004	7,114
Birmingham, AL	1,140	4.93	2,787	6,203	5,416	7,634	3,709	6,544	2,822	6,448	3,270	5,625	3,437	7,868	4,131	6,842	3,462	6,393
Boston, MA	4,698	20.31	56,992	71,075	57,888	67,032	51,499	63,186	53,307	68,255	57,809	67,517	67,312	85,581	48,231	59,407	54,034	66,119
Charleston, SC	712	3.08	2,565	4,700	1,385	2,771	1,558	3,330	3,215	5,480	2,124	3,596	4,059	6,828	2,352	4,045	1,694	3,526
Charlotte, NC	2,337	10.10	5,845	12,852	5,378	9,927	4,547	10,361	6,728	14,165	7,497	12,326	13,190	22,279	5,814	11,374	4,634	10,646
Chattanooga, TN	542	2.34	1,057	2,682	1,542	2,597	1,317	2,666	1,055	2,780	1,293	2,413	1,802	3,910	1,725	3,015	1,322	2,717
Chicago, IL	9,545	41.26	56,812	85,424	70,221	88,799	52,095	75,839	47,296	77,665	57,220	76,943	41,796	78,912	63,402	86,107	51,033	75,584
Cincinnati, OH	2,139	9.24	8,329	14,740	12,127	16,290	8,672	13,992	6,442	13,246	9,859	14,278	9,190	17,506	10,500	15,587	8,564	14,064
Cleveland, OH	2,065	8.93	12,340	18,531	12,972	16,992	8,996	14,134	10,755	17,326	13,129	17,397	13,290	21,321	12,357	17,270	9,659	14,971
Columbia, SC	792	3.43	1,936	4,312	1,935	3,477	2,056	4,027	2,619	5,140	2,724	4,362	4,963	8,044	2,155	4,040	1,855	3,893
Columbus, GA	317	1.37	749	1,700	1,187	1,805	913	1,702	749	1,759	940	1,595	1,489	2,722	915	1,669	935	1,750
Columbus, OH	1,969	8.51	9,533	15,436	10,460	14,292	7,689	12,587	7,818	14,083	11,074	15,143	10,422	18,079	9,710	14,394	8,478	13,542
Dallas, TX	6,823	29.49	47,169	67,623	70,390	83,671	59,143	76,116	48,134	69,843	51,501	65,600	33,723	60,256	63,247	79,478	59,129	76,679
Denver, CO	2,700	11.67	36,922	45,015	48,403	53,658	42,231	48,947	33,617	42,206	41,206	46,785	33,484	43,982	46,209	52,631	39,498	46,442
Des Moines, IA	600	2.59	3,996	5,795	3,941	5,109	4,892	6,385	3,447	5,356	4,261	5,501	3,278	5,612	4,721	6,148	4,349	5,892
Detroit, MI	4,295	18.57	25,729	38,605	30,397	38,758	22,853	33,538	22,538	36,204	32,103	40,979	28,286	44,989	28,176	38,394	23,023	34,072
Fayetteville, NC	378	1.63	1,313	2,445	1,039	1,774	806	1,745	1,714	2,915	1,323	2,104	2,792	4,261	1,006	1,904	989	1,960
Fort Myers, FL	661	2.86	4,301	6,283	4,760	6,048	5,280	6,926	5,273	7,377	3,985	5,351	7,166	9,737	3,791	5,364	5,976	7,677
Greensboro, NC	741	3.20	2,234	4,456	2,318	3,761	1,502	3,346	2,590	4,949	2,264	3,796	5,520	8,402	2,302	4,066	1,877	3,783



Table 23: Truck Cost Rate Matrix

Destination City		Origin Distribution Hub																
		Atlanta		Charleston		Charlotte		Chattanooga		Macon		Memphis		Savannah		Spartanburg		
		Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	
Dest Pop (000)	Pop Factor																	
Greenville, SC	1,169	5.05	2,342	5,847	2,935	5,210	2,336	5,244	3,489	7,209	3,543	5,959	6,284	10,830	3,007	5,789	2,274	5,282
Harrisburg, PA	558	2.41	4,296	5,969	4,453	5,539	3,124	4,512	3,966	5,741	4,011	5,163	5,444	7,614	4,200	5,527	3,258	4,693
Houston, TX	6,334	27.38	44,904	63,891	58,015	70,344	54,087	69,843	46,832	66,984	44,760	57,849	41,476	66,106	53,037	68,104	49,393	65,685
Huntsville, AL	436	1.88	1,137	2,444	2,330	3,179	1,588	2,672	1,004	2,392	1,205	2,106	1,181	2,876	1,584	2,621	1,383	2,504
Indianapolis, IN	1,953	8.44	7,715	13,570	11,787	15,588	8,768	13,626	5,993	12,207	9,803	13,839	7,874	15,469	10,369	15,015	8,071	13,095
Jackson, MS	577	2.50	1,931	3,662	3,660	4,784	2,957	4,393	1,983	3,819	2,976	4,169	1,295	3,540	3,463	4,836	3,073	4,558
Jacksonville, FL	1,396	6.03	5,709	9,894	5,949	8,667	6,070	9,543	7,842	12,284	5,379	8,264	10,988	16,417	3,948	7,269	6,720	10,311
Kansas City, MO	2,055	8.88	13,691	19,853	16,665	20,665	14,629	19,742	11,618	18,157	13,958	18,205	9,402	17,394	14,316	19,205	13,302	18,589
Lexington, KY	489	2.12	1,593	3,060	2,241	3,193	1,773	2,990	1,481	3,038	2,170	3,181	1,697	3,600	2,047	3,211	1,504	2,762
Little Rock, AR	724	3.13	3,364	5,535	4,717	6,127	4,633	6,435	3,078	5,383	3,553	5,050	1,538	4,355	4,387	6,110	4,096	5,959
Long Beach, CA	13,176	56.96	204,397	243,893	272,242	297,888	223,689	256,466	198,269	240,190	179,944	207,171	173,394	224,630	214,217	245,559	192,925	226,816
LOUISVILLE, KY	1,262	5.46	5,001	8,785	8,173	10,630	4,756	7,896	3,837	7,853	4,846	7,454	4,155	9,063	6,630	9,633	4,377	7,623
Macon, GA	231	1.00	601	1,294	598	1,049	659	1,234	696	1,432	450	928	1,054	1,953	478	1,028	698	1,293
Memphis, TN	1,342	5.80	4,079	8,101	7,287	9,899	6,503	9,841	3,815	8,084	5,026	7,799	2,610	7,827	5,217	8,409	5,979	9,430
Miami, FL	5,863	25.35	50,460	68,036	42,110	53,523	52,012	66,598	59,323	77,979	46,357	58,474	70,443	93,243	22,662	36,610	45,571	60,653
Milwaukee, WI	1,570	6.79	10,467	15,173	11,791	14,847	9,444	13,350	9,142	14,138	10,084	13,329	7,872	13,978	10,386	14,121	10,112	14,151
Minneapolis, MN	3,461	14.96	31,666	42,042	40,271	47,009	31,217	39,828	28,919	39,932	30,711	37,864	26,319	39,780	31,899	40,133	29,756	38,659
Mobile, AL	415	1.79	1,595	2,838	2,171	2,978	2,285	3,316	1,960	3,279	1,310	2,167	1,606	3,218	1,903	2,889	2,081	3,148
Montgomery, AL	374	1.62	966	2,087	1,526	2,253	1,405	2,335	1,056	2,245	975	1,748	1,371	2,825	1,405	2,294	1,465	2,427
Nashville, TN	1,759	7.60	4,406	9,678	8,880	12,303	6,112	10,486	3,486	9,081	4,982	8,616	3,888	10,726	6,238	10,422	5,279	9,802
New Orleans, LA	1,242	5.37	5,105	8,828	9,209	11,626	8,301	11,390	5,299	9,251	6,386	8,953	5,367	10,196	6,519	9,473	7,039	10,234
New York, NY	20,002	86.46	203,159	263,118	190,186	229,119	151,319	201,077	187,535	251,176	198,567	239,899	230,385	308,166	158,722	206,302	177,657	229,106
Norfolk, VA	1,707	7.38	9,129	14,247	8,149	11,472	5,702	9,950	10,318	15,750	8,436	11,964	13,835	20,474	8,638	12,699	8,774	13,165



Table 23: Truck Cost Rate Matrix

Destination City		Origin Distribution Hub																
		Atlanta		Charleston		Charlotte		Chattanooga		Macon		Memphis		Savannah		Spartanburg		
		Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	Truck-load Wkly Cost	Truck-load Wkly Cost plus Sav Truck	
Dest Pop (000)	Pop Factor																	
Oklahoma City, OK	1,321	5.71	10,953	14,912	11,822	14,393	11,647	14,932	10,354	14,556	10,848	13,577	7,186	12,321	11,858	14,999	13,930	17,327
Orlando, FL	2,271	9.82	12,070	18,878	11,954	16,375	11,632	17,282	15,306	22,532	9,266	13,959	22,564	31,395	7,408	12,811	14,165	20,006
Philadelphia, PA	6,036	26.09	47,105	65,199	46,528	58,277	36,485	51,501	45,163	64,369	50,861	63,335	61,095	84,568	49,819	64,177	41,131	56,658
Pittsburgh, PA	2,361	10.20	16,940	24,016	20,173	24,768	12,110	17,982	14,861	22,372	17,105	21,983	19,377	28,556	14,174	19,789	16,299	22,371
Portland, OR	2,315	10.01	52,837	59,776	61,268	65,773	55,540	61,299	50,014	57,378	56,550	61,333	50,775	59,776	56,648	62,155	56,861	62,815
Raleigh, NC	1,215	5.25	4,498	8,141	4,130	6,496	2,607	5,630	5,289	9,156	4,943	7,454	8,547	13,273	3,493	6,384	3,448	6,574
RENO, NV	438	1.89	8,102	9,414	11,108	11,960	8,935	10,024	7,628	9,021	10,239	11,143	10,062	11,764	10,972	12,014	8,363	9,489
Salt Lake City, UT	1,142	4.93	21,006	24,428	22,764	24,986	19,186	22,026	19,551	23,183	20,754	23,113	19,681	24,120	21,540	24,256	20,519	23,455
San Antonio, TX	2,282	9.87	19,557	26,399	25,443	29,885	21,749	27,426	19,797	27,059	24,667	29,383	16,897	25,772	22,681	28,110	22,368	28,238
San Francisco, CA	6,458	27.92	102,448	121,807	127,756	140,327	116,036	132,102	102,838	123,387	112,367	125,713	106,022	131,136	121,410	136,772	122,501	139,113
Sarasota, FL	733	3.17	4,219	6,415	5,110	6,537	5,608	7,431	5,285	7,616	3,865	5,379	7,500	10,349	3,936	5,678	6,347	8,232
Savannah, Ga	366	1.58	1,106	2,203	1,210	1,923	1,151	2,062	1,239	2,404	930	1,686	2,228	3,651	870	1,305	1,339	2,280
Seattle, WA	3,614	15.62	83,911	94,744	93,953	100,987	84,204	93,194	79,520	91,018	78,538	86,005	75,699	89,751	90,652	99,248	94,289	103,584
St. Louis, MO	2,802	12.11	11,601	19,999	19,352	24,805	14,097	21,066	9,364	18,277	14,190	19,979	7,994	18,889	15,838	22,502	13,320	20,526
Tallahassee, FL	374	1.61	1,440	2,560	1,805	2,532	2,081	3,011	2,074	3,263	888	1,660	2,526	3,978	1,071	1,960	1,987	2,948
Tampa, FL	2,874	12.42	15,570	24,186	15,858	21,453	12,848	19,998	19,585	28,729	13,064	19,003	29,460	40,636	11,288	18,125	15,006	22,399
Tulsa, OK	962	4.16	6,685	9,570	8,370	10,243	9,548	11,942	6,288	9,350	7,389	9,378	4,244	7,986	8,166	10,455	8,185	10,661
Wilmington, NC	268	1.16	1,088	1,892	1,286	1,808	615	1,282	1,420	2,274	1,192	1,746	2,311	3,355	997	1,635	789	1,479

Source: Wilson & Company and GKSF derived from truck Truckloadrate.com as of August 2015 (Truck rates are subject to change)



Appendix B: Robins Air Force Base Truckload Freight Estimate

The U.S. Department of Defense (DoD) coordinates with commercial transportation providers to ship goods in support of national defense objectives. As a result, a majority of shipments to and from Robins Air Force Base are included in commercial freight statistics, and are not specifically identified in the IHS Transearch and FAF3 freight flow data used in this report. While the actual figures are unavailable, Interviews conducted as part of this study indicate that outbound commercial truck freight from Robins AFB averages over three-hundred truckloads per month (3,600 per year), and the inbound transportation spend for the Base averages \$5 million per year. Inbound shipments include truckload, parcel shipments, and all transportation modes used to deliver goods to the Base. Robins AFB has enough parcel shipping demand to support an on-site UPS employee to process daily shipments to and from the base.

Table 24 displays truckload freight tonnage for selected commodities that were likely shipped to or from both military and commercial consumers and manufacturers in Houston County in 2013. Considering the outbound estimate of 3,600 truckloads per year, and estimating twice that number for inbound truckloads needed to support base operations, Robins AFB accounts for about 26 percent of shipments for the selected commodities.

Commodity Group	Estimated Truckloads		
	Outbound	Inbound	Total
Secondary Traffic	7,153	11,810	18,963
Petroleum or Coal Products	1,028	11,327	12,355
Rubber or Misc. Plastics	1,340	3,440	4,780
Misc Manufacturing Products	790	575	1,366
Transportation Equipment	0	1,223	1,223
Electrical Equipment	367	348	715
Machinery	357	233	589
Furniture or Fixtures	37	319	356
Fabricated Metal Products	0	193	193
Primary Metal Products	0	186	186
Instruments, Photo/Optical Eq.	11	113	124
Apparel or Related Products	0	110	110
Fresh Fish or Marine Products	0	79	79
Textile Mill Products	0	54	54
Tobacco Products	0	47	47
Leather or Leather Products	0	42	42
Ordnance or Accessories	0	3	3
Total	11,084	30,102	41,186
Estimated Robins AFB Truckloads	3,600	7,200	10,800
Estimate Robins AFB Share	0.32	0.24	0.26