REGIONAL FREIGHT PLAN

Hinesville Area Metropolitan Planning Organization

Liberty Consolidated Planning Commission

Adopted: PENDING
Final: November 16, 2017

This publication was prepared in cooperation with the Department of Transportation, State of Georgia, and Federal Highway Administration. The opinions, findings, and conclusions in these publications are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia, or the Federal Highway Administration.

Public notice of public involvement activities and time established for public review of comment on the Regional Freight will satisfy Program of Projects requirements

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RESOLUTION OF THE
HINESVILLE AREA METROPOLITAN PLANNING ORGANIZATION
ADOPTING THE
REGIONAL FREIGHT PLAN

WHEREAS, federal regulation for urban transportation planning require that the Metropolitan Planning Organization, in cooperation with participants in the planning process, develop and update the Metropolitan Transportation Plan every five years; and

WHEREAS, the Hinesville Area Metropolitan Planning Organization has been designated by the Governor as the Metropolitan Planning Organization for the Hinesville Metropolitan Planning Area: and

WHEREAS, the Hinesville Area Metropolitan Planning Organization in accordance with federal requirements for a Metropolitan Transportation Plan, has developed a twenty-five year integrated plan for federally-funded highway and transit projects for the Hinesville Metropolitan Planning Area: and

WHEREAS, the adopted 2040 Metropolitan Transportation Plan is consistent with all plans, goals and objectives of the Hinesville Area Metropolitan Planning Organization and shall be updated at least every five years with revisions to reflect changes in program emphasis and anticipated funding availability; and

WHEREAS, the transportation planning regulations require that the Metropolitan Transportation Plan be a product of a planning process certified as in conformance with all applicable requirements of law and regulations; and

WHEREAS, the staff of the Hinesville Area Metropolitan Planning Organization and the Georgia Department of Transportation have reviewed the organization and activities of the planning process and found them to be in conformance with the requirements of law and regulations; and

WHEREAS, the locally developed and adopted process for public participation has been followed in the development of the **Regional Freight Plan** supplement to the 2040 Metropolitan Transportation Plan.

NOW, THEREFORE BE IT RESOLVED, that the Hinesville Area Metropolitan Planning Organization Policy Committee endorses the **Regional Freight Plan** as a supplement to the 2040 Metropolitan Transportation Plan; and

BE IT FURTHER RESOLVED, that the Hinesville Area Metropolitan Planning Organization Policy Committee finds that the requirements of applicable law and regulation regarding urban transportation planning have been met and authorizes the Hinesville Area Metropolitan Planning Organization Executive Director to execute a joint certification to this effect with the Georgia Department of Transportation.

ADOPTED this 16th day of November, 2017 by the Hinesville Area Metropolitan Planning Organization Policy Committee.

SIGNED:

Mayor Allen Brown, Policy Committee Chair

ATTEST:

Jeff Ricketson, AICP; LCPC Executive Director

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Executive Summary

The Hinesville metropolitan region is a dynamic community in southeast Georgia. It is home to Fort Stewart, a major U.S. Army installation which houses the 3rd Infantry Division, as well as several major corporations such as Interstate Paper and SNF. Positioned 30 minutes south of the Port of Savannah along the US 84, I-16, and I-95 corridors, it is strategically positioned to take advantage of the State's largest freight assets – the Ports of Savannah and Brunswick. In addition, the Hinesville metropolitan region is only a short distance away from the Ports of Jacksonville and Charleston. As the Hinesville region increasingly becomes the preferred location for companies maximizing the reach and efficiency of their supply chains, it is important that the region effectively plans for resulting increase in freight activity in order to mitigate its negative effects while capturing the economic benefits. The Regional Freight Plan is the first step in this process.

Some key conclusions can be drawn from the findings of the Regional Freight Plan. There are several freight assets within and proximate to the HAMPO region that grant it a competitive advantage for attracting freight-related industries. Within the HAMPO region these include I-95 and US 84 which are the backbone of the multimodal freight system. The highway system moves the vast majority of freight in the HAMPO region, nearly 90 percent, and is predicted to continue to do so over the long term.

Though freight rail movements are not substantial in terms of tonnage, the freight rail system is critical to the region's largest manufacturers. Stakeholders emphasized the importance of the Riceboro Southern Railway shortline in their supply chains. It provides access to the CSX mainline and also the Port of Savannah. Along with the freight rail and interstate highway systems, the Port of Savannah is a major freight asset and the driving force behind much of the freight activity in the HAMPO region. It is the primary reason many freight-related industries choose to locate in Hinesville area. Freight stakeholders indicated that reliable access to the Port of Savannah is among their most pressing concerns and that maintaining reliability is critical to the HAMPO region remaining an attractive location for these industries.

Overall, the HAMPO region's highway freight system currently performs well and is projected to continue to provide a high level of service to motor carriers over the long term. However, there is room for improvement on some key corridors. Much of the region's highway freight mobility and reliability challenges are concentrated on its major freight routes, namely US 84 and portions of US 17, SR 119, and SR 196. Though truck crash rates (taken over a 5-year average) observed on the region's major freight corridors generally do not exceed statewide averages for all vehicles on similarly classified roadways, the *US 84 Corridor Comprehensive Study* did find that crash rates on US 84 do exceed statewide averages. Performance on US 84 is affected by the concentration of commercial development along the urbanized segments of this corridor along with their significant presence of driveways and traffic signals.

All indications point to increased freight activity on the HAMPO freight system. The 2040 *Metropolitan Transportation Plan* projected an increase in commercial development and population growth for the HAMPO region. This Regional Freight Plan estimates that freight demand will grow substantially over the forecast horizon – more than 51 percent excluding freight traffic that simply passes through the region. Pass through freight growth from/to the Port of Savannah will grow substantially as well. In fiscal year 2017, the port realized 7 percent growth in container traffic over the previous fiscal year. Together, these findings indicate that existing challenges will worsen over time without supporting freight improvement detailed in this study .

To mitigate the negative impacts of increased freight demand while positioning the HAMPO region to capture its economic benefits, the Regional Freight Plan recommends that the HAMPO region pursue a number of initiatives over the short-, mid-, and long-terms. These include:

- **Complete the US 84/ Hinesville Bypass and continue to upgrade its component roadways over time.**

  The US 84/ Hinesville Bypass will divert truck traffic away from the urban core of the region. This will improve safety and performance on US 84. To maximize the benefits that will be achieved through the US 84/ Hinesville Bypass, the region should continue to upgrade its component roadways over time to increase capacity, decrease travel times, limit conflicting vehicle movements, and to ensure a truck-friendly geometric design throughout the entirety of the corridor. These upgrades will increase the diversion potential of the bypass and help it to capture truck traffic growth over time.

- **Maintain a state of good repair on major truck routes.**

  Trucks place a greater amount of stress on roadways than passenger vehicles resulting in damage to pavements, sidewalks, and gutters. Thus, it is important to preserve the physical condition of major freight routes. Routes that carry significant truck volumes should be maintained at greater frequencies in order to account for this. Also, lower volume routes that are last-mile freight connectors should be high priority roadways for maintenance.

- **Develop corridor signal timing on major freight routes.**

  Resources should be invested in improving traffic operations on major freight routes throughout the HAMPO region. As there are limited funds for capacity expansions, operational improvements offer the opportunity to maximize the efficiency of existing infrastructure. GDOT has been deploying "smart" signals at intersections throughout the State which allow for updates to signal timing in real time based on actual roadway conditions. While adaptive signals have been deployed in other parts of the State, they have not yet been implemented in the HAMPO region. Adaptive signals could be a good solution for facilitating truck movements on the HAMPO region's major freight corridors and alleviating their contribution to congestion.

- **Engage and partner with the Riceboro Southern Railway (RSOR) to improve the performance of the freight rail system.**

  Stakeholders indicated that the performance of the RSOR rail line is a hindrance to freight mobility in the HAMPO region. Both the GDOT *Georgia Statewide Freight and Logistics Plan* and *Georgia State Rail Plan* determined that underfunded shortlines face speed limitations that hinder operations and degrade service quality levels. The HAMPO region is no exception. The HAMPO region should engage the RSOR and partner with the railroad and GDOT to work to upgrade the track class so that higher speeds can be accommodated. This investment would help to retain current rail-dependent companies and to attract others.

- **Guide the development of land around the I-95/US 84 interchange such that freight mobility and accessibility is not threatened.**

The analysis of future land uses performed as part of the *2040 Metropolitan Transportation Plan* predicted intense development along the eastern portion of US 84, near its interchange with I-95. The HAMPO region's largest freight-related industries are able to avoid many of the mobility challenges on US 84 because current commercial development is concentrated near downtown Hinesville. As the US 84 corridor continues to develop and as that development advances eastward, it is important that growth does not hinder truck operations in this part of the region. This can be accomplished by carefully guiding the development of land along the eastern half of US 84. This includes limiting the encroachment of non-industrial land uses into industrial areas, limiting driveway access to US 84, and developing alternate routes that allow access to future developments so that traffic is not concentrated on US 84.

- **Establish a Regional Multimodal Freight Transportation Network.**

  Establish a formal Regional Multimodal Freight Transportation Network to help focus freight investments and ensure consistent operations across jurisdictions. The State Freight Transportation Network, National Highway Freight Network, interstate highways, state routes, and freight rail lines should be included on the regional system. In addition to these, local roadways that serve as first- and last-mile connectors should be included on the network.

1.0 Introduction

Freight-related industries are becoming increasingly important to the Hinesville Area Metropolitan Planning Organization (HAMPO) region's local economy as major corporations continue to locate manufacturing and distribution facilities in southeast Georgia in order to be proximate to the Port of Savannah. Much of the region's existing industrial employment is tied to companies that largely produce goods in the U.S. and export them abroad. The continued and increased attractiveness of the HAMPO region for these freight-related sectors will require an efficient local goods movement system to connect it to the broader freight infrastructure in Georgia, including the Port of Savannah and the freight rail network. This study is the first step in that process.

The Hinesville Area Metropolitan Planning Organization is undertaking a Regional Freight Plan to understand how the region's transportation networks are being used for the handling of freight, how these uses are evolving, and what this means for the region's priorities regarding goods movement. The Regional Freight Plan performs a technical, data-driven assessment of the HAMPO freight system and the demand on the system. It focuses on the physical movement of goods, the relation of the region's major industries to the freight system, and opportunities for improvement.

There have been several other studies performed by the Georgia Department of Transportation (GDOT) and HAMPO that affect the HAMPO region's freight system. These include:

- GDOT Georgia Statewide Freight and Logistics Plan
- GDOT Georgia State Rail Plan
- HAMPO 2040 Metropolitan Transportation Plan
- HAMPO 2035 Sustainable Mobility Plan
- HAMPO US 84 Comprehensive Corridor Study

The HAMPO Regional Freight Plan was conducted to be consistent with these plans and to supplement the freight-related information available on the HAMPO region from these studies. The Regional Freight Plan provides the technical foundation for the freight component of long range transportation planning.

The remainder of the report is organized as follows:

- Chapter 2 documents the existing state of the HAMPO freight system which includes an inventory of freight assets, current demand, and network usage and performance.
- Chapter 3 examines future conditions on the HAMPO freight system in order to understand where challenges may arise
- Chapter 4 assesses potential freight system investment needs based on the analysis of current and future performance as well as feedback from the region's freight stakeholders.

2.0 Existing Conditions

This section of the plan documents the existing conditions of the HAMPO region's freight system. It includes inventorying the HAMPO region's freight assets, characterizing demand, examining network usage and performance, and identifying freight-intensive land uses throughout the region.

Existing conditions are organized into five sub-sections:

- Section 2.1 presents an inventory of freight assets in and near the HAMPO region;
- Section 2.2 characterizes demand primarily using commodity flow data;
- Section 2.3 examines the region's freight network usage and performance using a variety of data sources, including truck travel time data from the National Performance Research Management Data Set; and
- Section 2.4 identifies freight-intensive land uses using information on industrial park locations and also from the Georgia Department of Transportation.

2.1 Inventory of Freight Assets

The HAMPO region's freight network encompasses multiple modes of transportation that work together to transport goods across the region and beyond. This section provides a physical inventory of the region's freight infrastructure. Given that the HAMPO study area neighbors the Coastal Region Metropolitan Planning Organization (CORE) MPO, major freight assets in the CORE region are critical to HAMPO-area shippers namely the Port of Savannah and Savannah-Hilton Head International Airport are therefore included in the analysis.

2.1.1 Highway Assets

The HAMPO region's highway network is distinguished by functional classification. These classifications are as adopted by the Federal Highway Administration in the Highway Performance Monitoring System (HPMS) database: Interstate, urban and rural Principal and Minor Arterials, Major and Minor Collectors, and Local roads. Figure 2.1 depicts the HAMPO region's roadway network by functional classification.

According to the HPMS, there are 908 miles of roadways in the HAMPO region as shown in Table 2.1. Two-thirds (65 percent) of these roadways are classified as Local, indicating that they are generally roadways not used for long-distance travel or through trips.[1] Together, minor and major Collectors comprise over 16 percent of the region's roadways. Collectors are roadways that primarily facilitate intra-county travel and that funnel traffic from local roads to the arterial network. Over 13 percent of HAMPO roadways are classified as minor arterials, which provide for travel between major population centers at relatively high speeds. Four percent of the region's roadways are principal arterials and 2 percent are interstate highways (i.e. I-95). Goods movement relies primarily on the interstate and arterial networks. However, collector and local roadways represent the first and last miles for freight shipments. Non interstate urban arterials are often a major source of delay due to commercial development and heavy side street traffic. US 84 through urbanized Hinesville is a prime example of this.

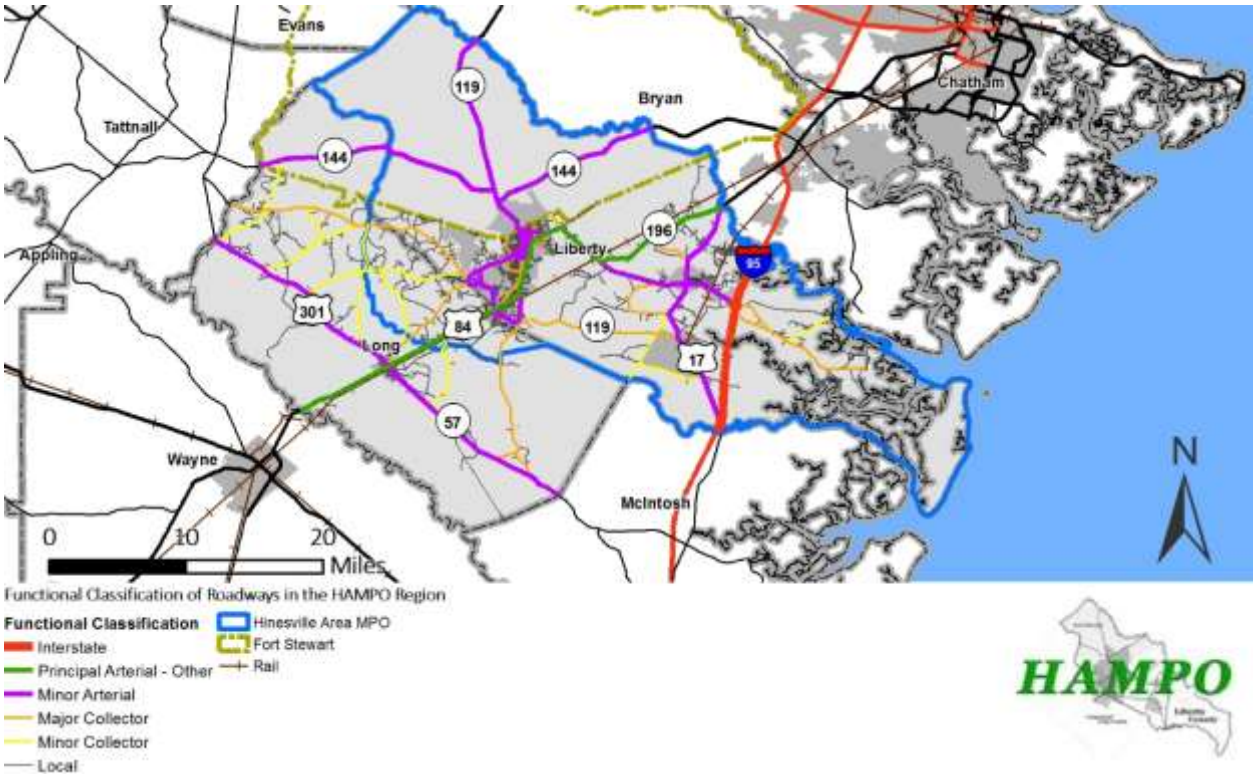
[1] Federal Highway Administration, *Highway Functional Classification Concepts, Criteria and Procedures*, 2013 Edition.

Table 2.1 Functional Classification of HAMPO Roadways

Functional Classification	Miles	Percent of Total
Interstate	16.1	1.8%
Principal Arterial – Other	34.5	3.8%
Minor Arterial	120.2	13.2%
Major Collector	85.2	9.4%
Minor Collector	62.5	6.9%
Local	590	65.0%
Total	**908.5**	**100.0%**

Source: Highway Performance Monitoring System; Consultant analysis.

Figure 2.1 Functional Classification of HAMPO Roadways



Source: Highway Performance Monitoring System.

Both the national and the state highway freight networks have portions that extend through the HAMPO region. The National Highway Freight Network (NHFN) was established as part of the FAST Act with the purpose of strategically directing Federal resources and policies toward improved performance of highway

portions of the U.S. freight transportation system.[2] In addition to the GDOT Designated Freight Network and the NHFN, portions of both the National Highway System (NHS) and the Strategic Highway Network (STRAHNET) are within the region. The NHS consists of roadways important to the nation's economy, defense, and mobility. The STRAHNET is a subsystem of the NHS which provides defense access, continuity and emergency capabilities for defense purposes.

Interstate 95 is the only corridor within the HAMPO region that is located on the NHFN. Interstate 16, which is just outside the MPO area, is critical to providing access to the region is also on the network. Like the NHFN, the GDOT Statewide Designated Freight Network includes I-95 and I-16.[3] Additionally, , US 84 is included on the statewide freight network as a designated freight corridor. The US 84 corridor is important for facilitating truck flows to and from the Port of Savannah for shippers in south Georgia and north Florida. Portions of several of the HAMPO region's major roadways are a part of the NHS including I-95, US 84, SR 119, and SR 144 (see Figure 2.3). US 84, SR 119 and SR 144 are part of the STRAHNET subsystem as these roadways provide access to Fort Stewart.

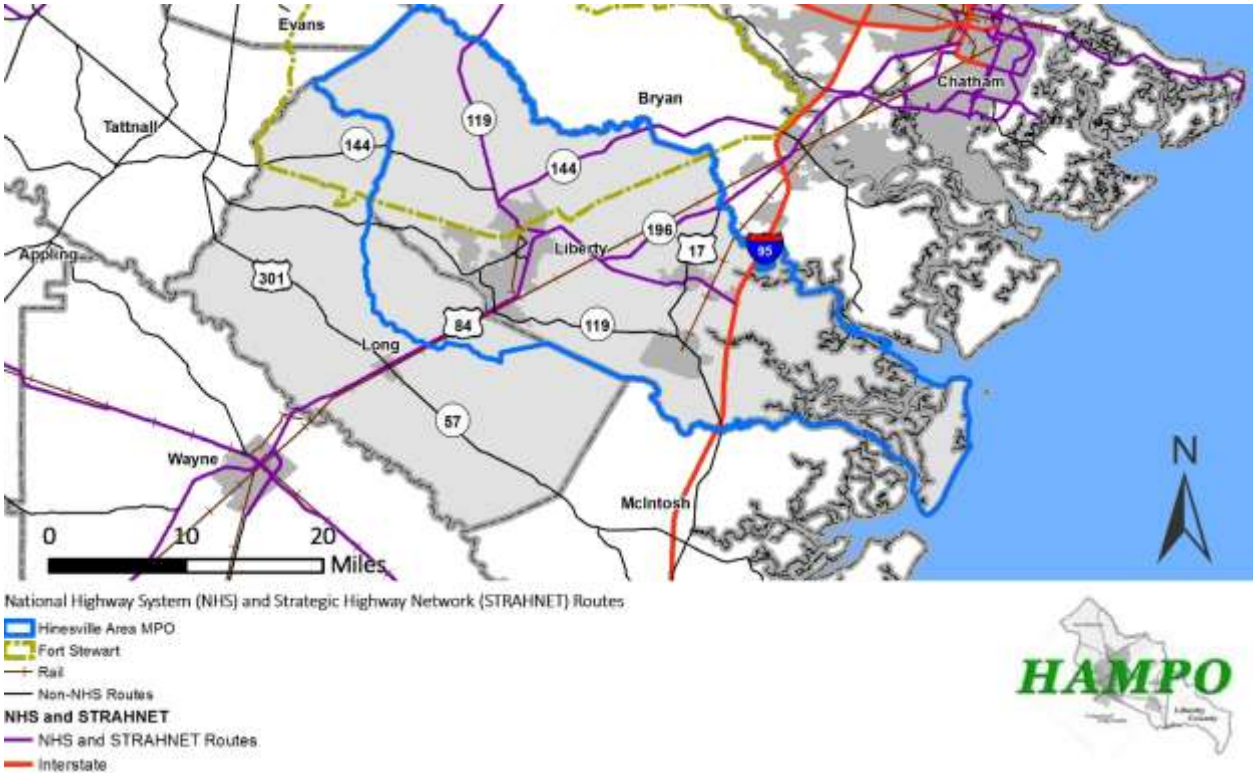
Figure 2.2 GDOT Statewide Designated Freight Corridors in the HAMPO Region

Source: Georgia Department of Transportation.

[2] Federal Highway Administration. http://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm.

[3] GDOT Statewide Freight and Logistics Plan, 2010-2050.

Figure 2.3 NHS and STRAHNET roadways in the HAMPO Region



Source: FHWA Office of Planning.

2.1.2 Non-Highway Assets

2.1.2.1. Port of Savannah

The Port of Savannah is outside the MPO area and it is critically important to the local economy generating much of the freight traffic through the region. Savannah is the 4th largest U.S. container port by total throughput and the second largest on the East Coast, behind New York/New Jersey.[4] In 2015, the Port of Savannah handled over 34 million tons of trade. In 2016, it handled an all-time high of 3.85 million twenty-foot equivalent units (TEUs), an increase of nearly 7 percent over the previous year.[5]

The Port of Savannah consist of the Garden City and Ocean terminals (see Figure 2.4). As indicated in Table 2.2, the Garden City Terminal handles container traffic and has on-terminal rail intermodal access. Both Norfolk Southern (NS) and CSX Transportation have rail intermodal yards located on the Garden City Terminal named the Mason and Chatham intermodal rail yards, respectively. The Ocean Terminal primarily handles breakbulk and roll-on/roll-off (RoRo) traffic. It also has on-dock rail access via NS and CSX. Per the

[4] Georgia Ports Authority.

[5] Coastal Courier. "Georgia Ports report record increases in goods moved," Wednesday, July 26, 2017.

Coastal Region MPO, the port's rail terminals will receive $144 million in upgrades beginning in the 2018-2021 time frame.

Table 2.2 Deepwater Terminals at the Port of Savannah

	Garden City Terminal	Ocean Terminal
Commodities Handled	Containers	Breakbulk, RoRo, Containers, Heavy Lift and Project Cargo
Terminal Area	1,200 acres	200.4 acres
Berths	9	9

Source: Georgia Ports Authority.

Figure 2.4 Deepwater Terminals at the Port of Savannah

Source: Georgia Ports Authority, Port of Savannah Fact Sheet, http://www.gaports.com/Portals/2/More/PortOfSavannah_FEB2016_PR.pdf.

2.1.2.2. Rail

There are three rail owners/operators in the HAMPO region – CSX Transportation (CSX), the Riceboro Southern Railway (RSOR), and the Department of Defense (DOD) (see Figure 2.5). CSX Transportation is the only Class I railroad in the HAMPO region. Class I railroads are the nation's largest and are defined as those with annual operating revenues of $250 million or more.[6] As shown in Table 2.3, CSX owns two-thirds (66.6 percent) of the rail infrastructure in the HAMPO region. The portion of the CSX network that traverses the HAMPO region is part of the Nahunta subdivision which connects the Port of Savannah to CSX

[6] Surface Transportation Board, https://www.stb.gov/stb/faqs.html.

Transportation's base of operations in Jacksonville, FL. It also has connectivity to Rice Yard in Waycross, the second busiest classification yard on the CSX system.[7]

The Riceboro Southern Railway (RSOR) is a short-line railroad (i.e. Class II and III railroads) which operates in the HAMPO region. It is a subsidiary of Genesee & Wyoming, Inc. which owns or leases 122 freight railroads worldwide.[8] The RSOR interchanges with CSX in Richmond Hill, providing access to the Port of Savannah and the entire CSX network. Interstate Paper Corporation, SNF (which produces water-soluble polymers for wastewater treatment among other products), and International Greetings USA have spurs connecting them to the RSOR rail line. As such, the primary commodities transported along the RSOR are chemicals and pulp/paper.

The Department of Defense operates just over 6 miles of rail (about 13.5 percent) in the HAMPO region. As the rail line serves Fort Stewart, the products transported along the rail line are primarily limited to military equipment. It connects with the CSX mainline in the Town of Allenhurst.

Table 2.3 Summary of Freight Rail Mileage

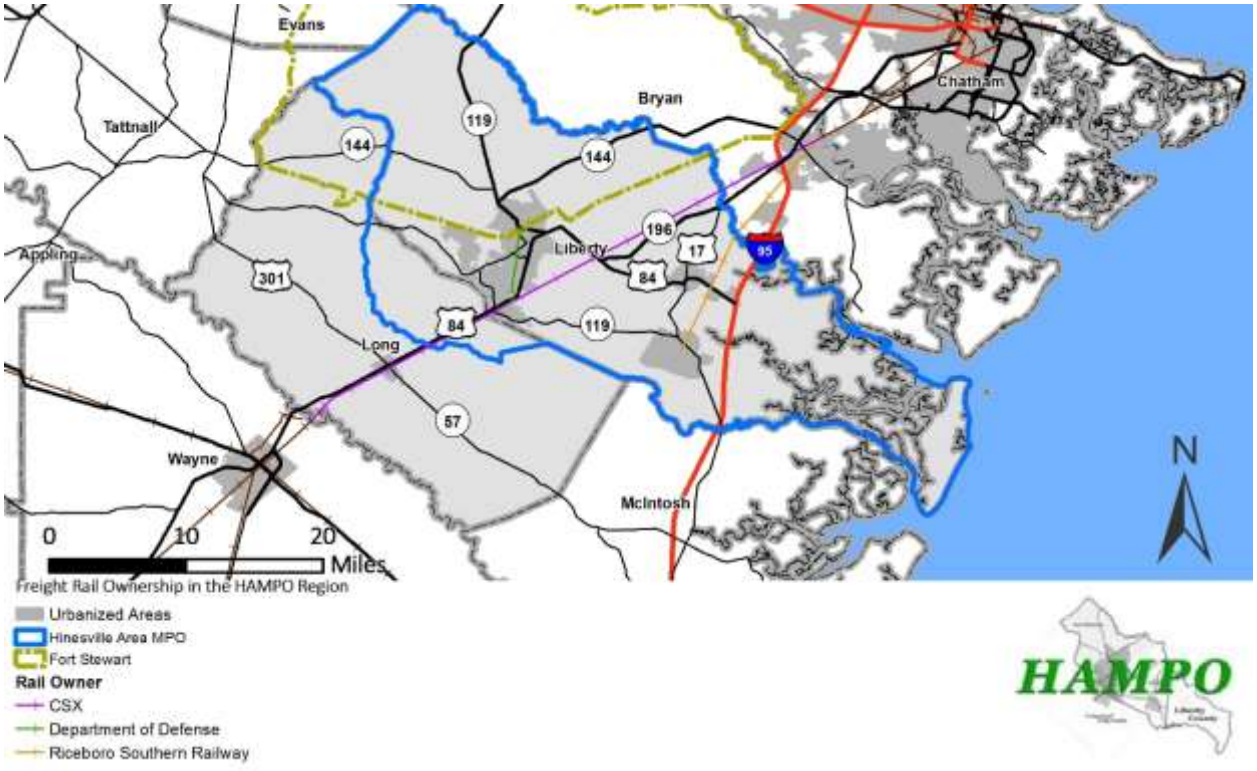
Railroad	Miles	Percent of Total
CSX Transportation	30.64	66.6%
Riceboro Southern Railway	9.14	19.9%
Department of Defense	6.23	13.5%
Total	**46.01**	**100.0%**

Source: Oak Ridge National Laboratory Center for Transportation Analysis Railroad Network.

[7] Georgia Department of Transportation, *Appendix A: Profile of Georgia's Rail Network, Georgia State Rail Plan*, 2015.

[8] https://www.gwrr.com/railroads/north_america/riceboro_southern_railway#m_tab-one-panel

Figure 2.5 Rail Ownership in the HAMPO Region



Source: Oak Ridge National Laboratory Center for Transportation Analysis Railroad Network.

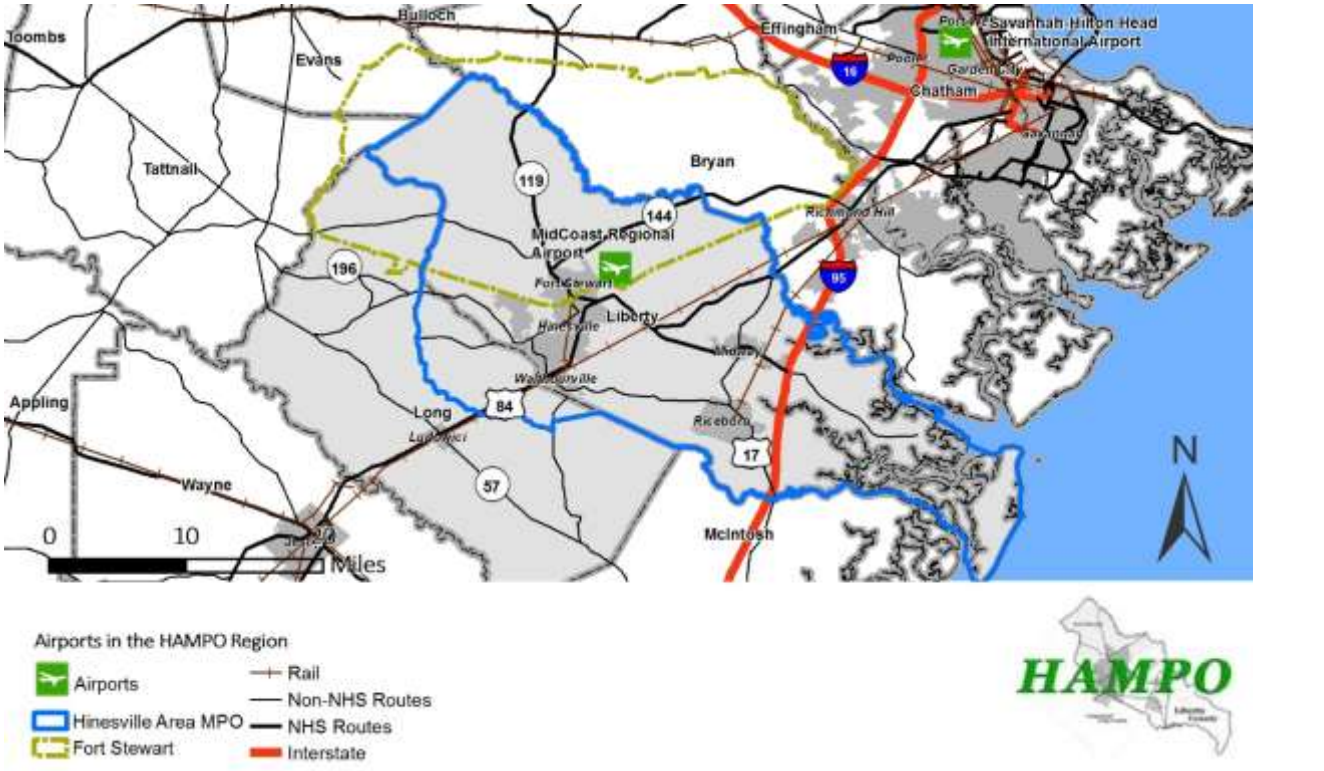
2.1.2.3. Air Cargo

MidCoast Regional Airport is a joint-use facility shared by the Department of Defense, the City of Hinesville, and Liberty County (see Figure 2.6). As a general aviation airport, there is no commercial or air cargo service at MidCoast Regional Airport. Air cargo service for the HAMPO region is provided out of the nearby Savannah-Hilton Head International Airport (SAV) (see Figure 2.6). Federal Express (FedEx), United Parcel Service (UPS), DHL, and Delta Air Lines operate cargo service out of the Savannah-Hilton Head International Airport.[9,10] Air cargo facilities on the SAV campus include a general cargo building open to all carriers as well as a portion of a terminal services building dedicated to cargo services for Delta Air Lines. In total, there is about 38,000 square feet of air cargo warehouse space at SAV.

[9] Savannah-Hilton Head International Airport, *Comprehensive Annual Financial Report*, 2015.

[10] http://savannahairport.com/about/general-aviation

Figure 2.6 Airports in the HAMPO Region



Source: National Transportation Atlas Database; Google Earth.

2.2 Existing Freight System Demand

Vehicle flows on the HAMPO freight system are driven by the demand for goods and services. The demand for goods is reflected in the commodities that are transported over the region's highways, railroads, airports, and ports. In this sense, commodity flows in part capture the economic drivers of freight movements.

Commodity flows are estimated from the FHWA's Freight Analysis Framework version 4.2 (FAF). The FAF uses data from the U.S. Census Bureau's Commodity Flow Survey to estimate the total tonnage and value of commodities that flow into, out of, and within a defined FAF zone. The HAMPO region is included in the FAF zone that also includes metropolitan Savannah as well as Statesboro, a region roughly synonymous with the

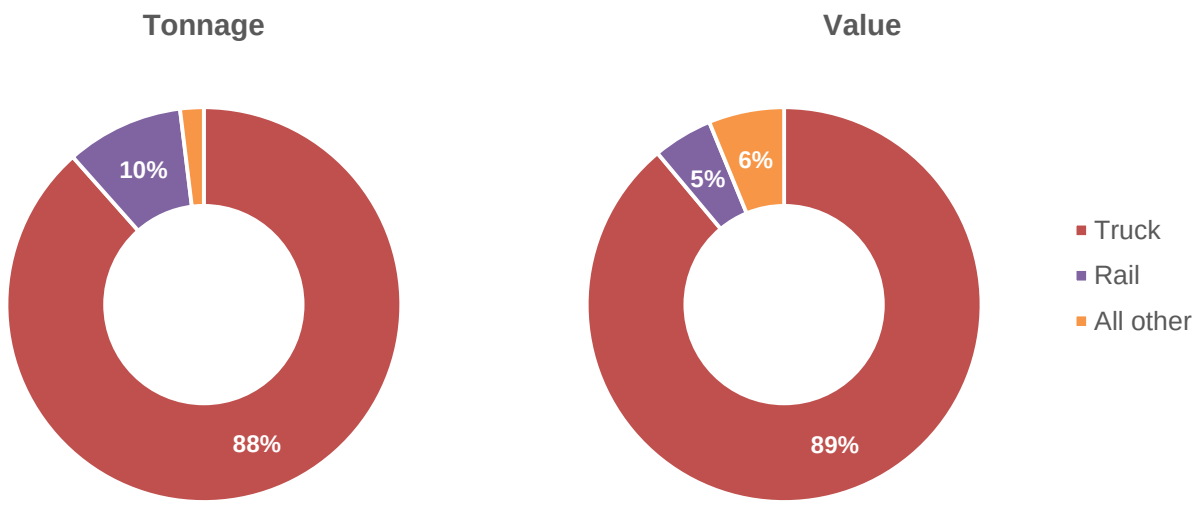
Savannah-Hinesville-Statesboro Combined Statistical Area. In order to develop a more refined estimate of commodity flows in the HAMPO region, the FAF has been disaggregated to the county level using a procedure that uses population, employment by industrial sector, and the presence (or absence) of certain modes, among others. The modes included in the disaggregation include truck, rail carload, multiple modes and mail (which includes rail intermodal), and other/unknown modes.

The results of the analysis indicate that the highway system is the workhorse of the HAMPO region's freight system. Trucking accounted for the majority of freight flows in the HAMPO region by both total tonnage (88 percent) and value (89 percent) as indicated in Figure 2.7. This equaled 6.2 million tons or $xxx,xxx,xxx in 2012.

Trucking was followed by rail carload as the predominant freight mode in the HAMPO region. Rail carload service in the region is limited. Though Fort Stewart has a freight rail terminal, there are no major private sector rail yards and few spurs connecting shippers to the broader rail system. Rail accounted for an estimated 10 percent of total tonnage (669,000 tons) and 5 percent of total value ($339,000,000). Together, the truck and rail modes are estimated to account for 98 percent of freight flows in the HAMPO region with the remainder being met by other modes (i.e. other/unknown and multiple modes).

Freight flows are nearly balanced by direction for the HAMPO region as indicated in Table 2.4. Approximately 50 percent of total freight flows (3,458,000 tons) are inbound to the region while about 47 percent of total flows (3,305,000 tons) are outbound. This mirrors the Port of Savannah which has a near equal balance of imports and exports. About 3 percent of total flows (198,000 tons) are estimated to move internally within the HAMPO region per the FAF analysis. However, internal tonnage may actually be higher than indicated by the data given that Interstate Paper moves logs within the region.

Figure 2.7 Commodity Flows by Mode, 2012



Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 2.4 Commodity Flows by Direction

Direction	Highway	Rail	All Other Modes	Total	Percent of Total Tonnage
Inbound	2,914,000	459,000	85,000	3,458,000	**50%**
Outbound	3,047,000	208,000	50,000	3,305,000	**47%**
Internal	196,000	2,000		198,000	**3%**
Total	**6,157,000**	**669,000**	**135,000**	**6,961,000**	**100%**
Percent of Total	**88%**	**10%**	**2%**	**100%**	

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

The majority of freight flows inbound to the HAMPO region (63 percent or 2,177,000 tons) are estimated to originate in the Savannah region of Chatham, Bryan, Effingham, and Bulloch Counties as indicated in Table 2.5. Much of this traffic consists of trucks originating from the Port of Savannah and the distribution clusters that surround the port complex. After the Savannah region, Georgia counties outside the Savannah and Atlanta regions (i.e. Remainder of Georgia) are responsible for approximately 12 percent (421,000 tons) of freight tonnage into the Hinesville region. The states of Florida and South Carolina are also top trading partners for the HAMPO region.

The Savannah region accounts for the largest share of freight flows outbound from the HAMPO region. About 48 percent of total tonnage (1,576,000 tons) leaving the Hinesville area is bound for the Savannah region. Given that many of the major freight-intensive industries in the HAMPO region export much of what they produce, much of this tonnage is believed to be headed for the Port of Savannah. About 9 percent of total tonnage (292,000 tons) outbound from the HAMPO region is bound for the Atlanta region while 7 percent of tonnage (231,000 tons) is headed for other counties in Georgia. Altogether, Georgia receives over two-thirds of outbound flows by tonnage from the HAMPO region. Portions of South Carolina and Florida also receive significant shares of freight tonnage from the Hinesville region.

By total tonnage, commodities including gasoline, coal n.e.c. (not elsewhere classified), newsprint/paper, Fuel oils, and Gravel comprise over half (56 percent) of freight flows in the HAMPO region as indicated in Table 2.7. Some of these commodity groups, such as Coal n.e.c (e.g. lubricating oils and greases, liquefied natural gas, liquefied propane, etc.) and Newsprint/paper, are representative of major industries in the Hinesville region which include chemical manufacturing and paper manufacturing. Gasoline includes aviation turbine fuel which may represent shipments to Fort Stewart and Hunter Army Air Field. Other commodities such as Gravel are heavy, dense commodities that feature prominently when assessing demand by tonnage.

In terms of total value, commodities including coal n.e.c., gasoline, plastics/rubber, fuel oils, and newsprint/paper comprise over half (57 percent) of freight flows in the Hinesville region as indicated in Table 2.8. Similar to the ranking of commodity flows by tonnage, the commodity groups represent of major industries in the HAMPO region include coal n.e.c., plastics/rubber, and newsprint/paper. These commodities are inputs and outputs of chemical and paper manufacturing processes.

Table 2.5 Top Trading Partners – Inbound to HAMPO

Region	Tons	Percent of Total Tonnage
Savannah, GA	2,177,000	63%
Remainder of Georgia	421,000	12%
Jacksonville, FL (FL Portion)	74,000	2%
Remainder of Florida	68,000	2%
Remainder of South Carolina	67,000	2%
All Other Regions	651,000	19%
Total	**3,458,000**	**100%**

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 2.6 Top Trading Partners – Outbound from HAMPO

Region	Tons	Percent of Total Tonnage
Savannah, GA	1,576,000	48%
Atlanta, GA	292,000	9%
Remainder of Georgia	231,000	7%
Remainder of South Carolina	174,000	5%
Remainder of Florida	111,000	3%
All Other Regions	921,000	28%
Total	**3,305,000**	**100%**

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 2.7 Commodity Flows by Mode (Thousands of Tons)

Commodity	Highway	Rail	All Other Modes	Total	Percent of Total
Gasoline	1,081.8	50.5	-	1,132.3	16%
Coal-n.e.c.	807.7	38.5	25.8	872.0	13%
Newsprint/paper	606.5	55.7	1.5	663.8	10%
Fuel oils	595.4	0.1	-	595.5	9%
Gravel	383.7	169.1	28.4	581.1	8%
Logs	441.6	0.0	0.0	441.6	6%
Wood prods.	340.6	60.7	3.6	404.9	6%
Basic chemicals	194.2	147.2	2.6	343.9	5%
Waste/scrap	279.9	0.1	0.1	280.1	4%
Nonmetal min. prods.	228.9	18.7	10.6	258.2	4%
Other foodstuffs	167.2	13.7	2.7	183.6	3%
Plastics/rubber	153.7	2.7	6.9	163.3	2%
Misc. mfg. prods.	159.1	0.0	1.6	160.7	2%
Chemical prods.	79.1	37.0	1.0	117.1	2%
Paper articles	79.4	34.4	0.2	114.1	2%
Mixed freight	112.4	0.0	1.8	114.1	2%
Nonmetallic minerals	69.7	4.0	25.9	99.5	1%
Fertilizers	70.1	2.5	0.9	73.5	1%
Animal feed	29.0	27.5	0.0	56.5	1%
Alcoholic beverages	48.3	0.1	0.0	48.4	1%
Furniture	46.5	0.1	0.9	47.4	1%
Natural sands	34.0	0.0	-	34.0	0%
Other ag prods.	27.0	0.0	0.1	27.0	0%
Machinery	22.8	0.3	2.9	26.0	0%
Base metals	14.8	0.3	0.0	15.1	0%
Pharmaceuticals	4.0	0.0	10.8	14.7	0%
Printed prods.	13.2	0.0	0.6	13.8	0%
Textiles/leather	10.8	0.0	2.0	12.8	0%
Articles-base metal	10.1	0.0	2.2	12.3	0%
Crude petroleum	9.7	0.5	0.0	10.3	0%
Milled grain prods.	5.7	4.0	0.0	9.8	0%
Meat/seafood	8.5	0.0	0.0	8.5	0%
Electronics	6.2	0.0	0.9	7.1	0%
Live animals/fish	6.8	-	0.0	6.8	0%
Building stone	2.7	-	0.0	2.7	0%
Transport equip.	1.3	0.0	0.5	1.9	0%
Precision instruments	1.1	0.0	0.4	1.5	0%
Coal	0.0	1.4	-	1.4	0%
Motorized vehicles	1.2	0.0	0.1	1.3	0%
Tobacco prods.	1.2	-	0.0	1.2	0%
Cereal grains	0.5	0.0	0.0	0.5	0%
Metallic ores	0.2	0.0	-	0.2	0%
Total	**6,157**	**669**	**135**	**6,961**	**100%**
Percent of Total	**88%**	**10%**	**2%**	**100%**	

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 2.8 Commodity Flows by Mode – Value, Millions of Dollars

Commodity	Highway	Rail	All Other Modes	Total	Percent Total
Coal-n.e.c.	1,427.0	50.6	37.5	1,515.1	22%
Gasoline	851.8	33.7	-	885.5	13%
Plastics/rubber	546.4	5.7	63.5	615.5	9%
Fuel oils	456.9	0.0	-	456.9	7%
Newsprint/paper	385.6	38.9	4.1	428.6	6%
Mixed freight	370.6	0.0	25.4	396.0	6%
Misc. mfg. prods.	267.5	0.1	24.7	292.3	4%
Basic chemicals	134.3	84.8	3.7	222.8	3%
Chemical prods.	153.7	59.3	4.4	217.4	3%
Other foodstuffs	188.6	18.1	5.8	212.5	3%
Nonmetal min. prods.	179.1	4.1	6.0	189.1	3%
Paper articles	168.3	11.6	0.8	180.7	3%
Furniture	165.8	0.3	6.7	172.8	2%
Machinery	123.3	8.6	24.1	156.0	2%
Pharmaceuticals	64.9	0.0	85.9	150.8	2%
Electronics	91.8	0.2	39.5	131.5	2%
Alcoholic beverages	105.3	0.2	0.1	105.6	2%
Transport equip.	27.5	0.0	53.3	80.8	1%
Wood prods.	67.6	4.9	3.3	75.8	1%
Textiles/leather	58.9	0.1	6.9	65.9	1%
Fertilizers	60.3	0.7	0.3	61.3	1%
Animal feed	35.0	12.5	0.0	47.5	1%
Articles-base metal	29.0	0.1	5.4	34.5	0%
Base metals	30.8	0.5	0.2	31.5	0%
Waste/scrap	30.8	0.0	0.0	30.9	0%
Precision instruments	16.1	0.0	14.6	30.7	0%
Printed prods.	20.0	0.0	4.5	24.5	0%
Motorized vehicles	14.8	0.0	2.9	17.8	0%
Logs	16.9	0.0	0.0	17.0	0%
Other ag prods.	14.9	0.0	0.5	15.4	0%
Milled grain prods.	12.0	1.6	0.0	13.6	0%
Meat/seafood	13.4	0.0	0.0	13.4	0%
Live animals/fish	12.3	-	0.0	12.3	0%
Nonmetallic minerals	7.2	0.6	2.4	10.2	0%
Gravel	7.6	1.4	0.8	9.8	0%
Crude petroleum	6.5	0.4	0.0	6.9	0%
Tobacco prods.	2.4	-	2.0	4.5	0%
Natural sands	0.5	0.0	-	0.5	0%
Building stone	0.4	-	0.0	0.4	0%
Cereal grains	0.1	0.0	0.0	0.1	0%
Metallic ores	0.1	0.0	-	0.1	0%
Coal	0.0	0.1	-	0.1	0%
Total	**6,166**	**339**	**429**	**6,934**	**100%**
Percent of Total	**89%**	**5%**	**6%**	**100%**	

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

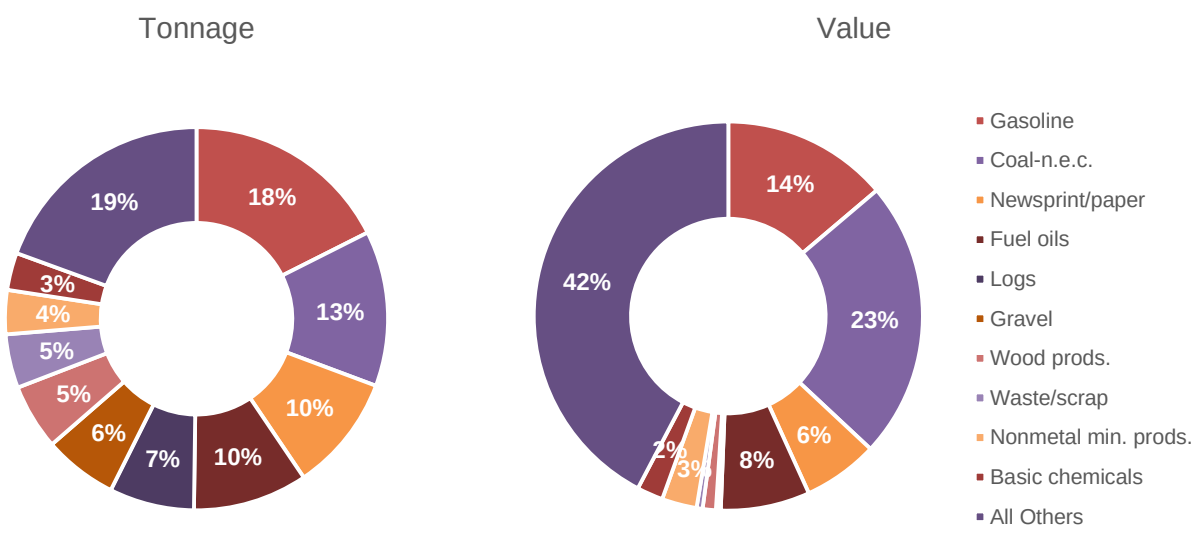
2.2.1 Highway Demand

2.2.1.1. Highway Commodity Flows

Given that the highway system is estimated to account for the majority freight flows (by tonnage and value) in the HAMPO region, the predominant commodities observed on the highway system mirror those on the overall system as discussed at the beginning of section 2.1. By total tonnage, commodities including gasoline, coal n.e.c., newsprint/paper, fuel oils, and logs comprise over two-thirds (71 percent) of freight flows in the HAMPO region as indicated in Figure 2.7 and Table 2.9. Many of these commodity groups are representative of major industries in the Hinesville region such as chemical manufacturing, paper manufacturing, forestry, and wood product manufacturing.

In terms of total value, gasoline, coal n.e.c., newsprint/paper, plastics/rubber, and fuel oils, and logs represent the highest value freight flows on the region's highway system as indicated in Figure 2.8 and Table 2.9. Altogether, these commodity groups comprise nearly 60 percent of freight flows by total value in the Hinesville region. These commodity flows represent inputs, semi-finished, and finished products from the region's strong manufacturing base.

Figure 2.8 Top Highway Commodity Flows



Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 2.9 Top 10 Highway Commodity Flows

Commodity	Tons	Percent of Total Tonnage	Value (Millions of Dollars)	Percent of Total Value
Gasoline	1,082,000	18%	852	14%
Coal-n.e.c.	808,000	13%	1,427	23%
Newsprint/paper	607,000	10%	386	6%
Fuel oils	595,000	10%	457	7%
Logs	442,000	7%	17	0%
Gravel	384,000	6%	8	0%
Wood prods.	341,000	6%	68	1%
Waste/scrap	280,000	5%	31	0%
Nonmetal min. prods.	229,000	4%	179	3%
Basic chemicals	194,000	3%	134	2%
Subtotal	**4,960,000**	**81%**	**3,558**	**58%**
All Other Commodities	1,196,000	19%	2,609	42%
Total	**6,157,000**	**100%**	**6,167**	**100%**

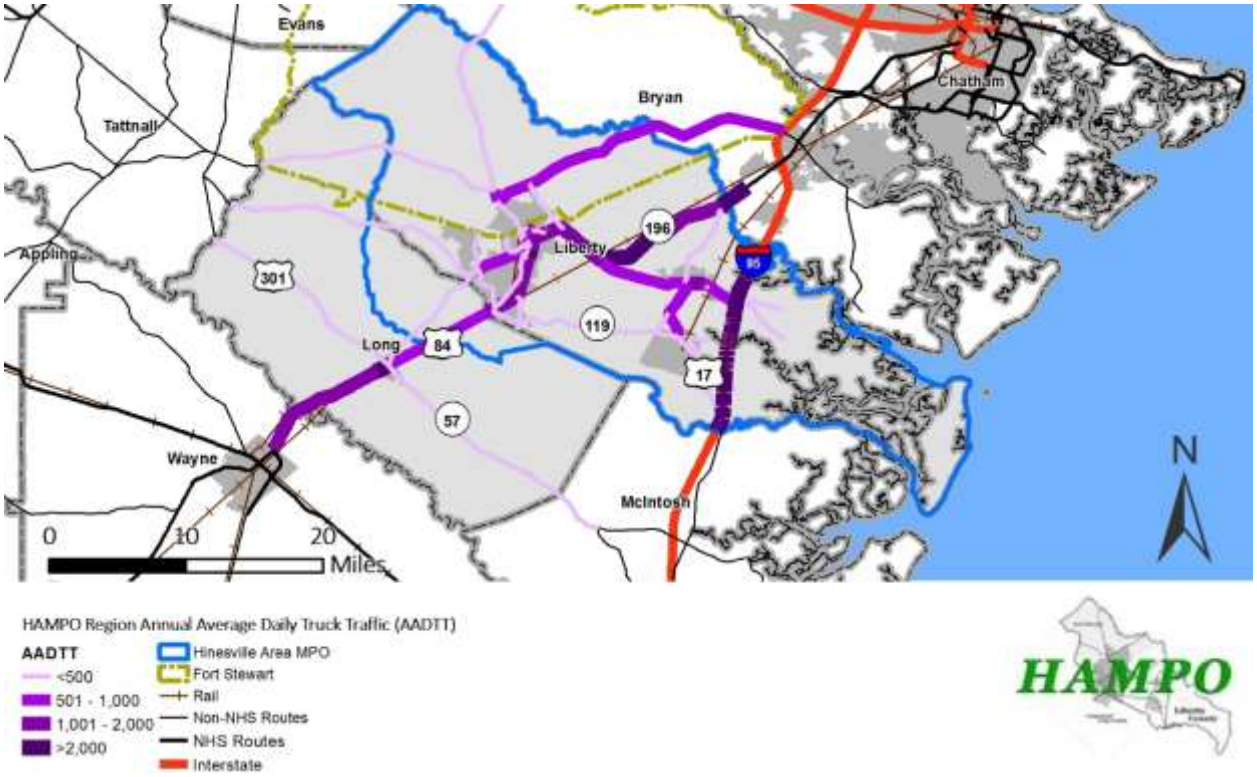
Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

2.2.1.2. Highway Truck Volumes

The highest truck volume segments based on 2015 data throughout the region are along SR 196, US 84, and US 17 in Liberty County (see Figure 2.9). The combined corridors of east SR 196 / Leroy Coffer Highway between US 17 and US 84; US 17 between SR 196 and I-95; and US 84 from east 196 to the western Long County line carries up to 2,660 trucks per day. These corridors provide the most direct route to the Port of Savannah for shippers and motor carriers operating in the HAMPO region. These are also direct routes for goods traveling farther north along the I-95 and I-16 corridors. Through the HAMPO region, I-95 carries over 9,400 trucks per day per the FHWA Highway Performance Monitoring System.

US 84 through the core of the HAMPO region from SR 119 in Walthourville to SR 196 / Leroy Coffer Highway is the area's highest truck volume corridor. Daily truck volumes along this corridor are up to 2,000 trucks daily. In addition to the truck traffic that is passing through the HAMPO region towards Savannah and I-95, a share of the truck traffic along this portion of US 84 serves local businesses as it is the region's primary and major commercial corridor.

Figure 2.9 2015 Truck Volumes



Source: Hinesville Area MPO; FHWA Highway Performance Monitoring System; Cambridge Systematics, Inc. analysis.

2.2.2 Non-Highway Demand

2.2.2.1. Port of Savannah

Overall, container traffic at the Port of Savannah has experienced steady growth as volumes have increased by 21 percent over the 2012-2016 period based on data released by the Georgia Ports Authority. The top commodities driving demand at the Port of Savannah include Retail Consumer Goods, Machinery/Appliances/Electronics, and Furniture on the import side; on the export side Food, Wood Pulp, and Paper & Paperboard (including Waste) are driving demand. The top 3 import commodity groups comprise over one-third (38.7 percent) of total imported containers (see Table 2.8). For exports, the top 3 commodity groups comprise a larger share of total exported containers at 45.4 percent (see Table 3.8).

Many of the HAMPO region's major industries export a significant share of the goods they produce and rely heavily on the Port of Savannah.[11] The HAMPO region companies that produce goods in each of the top 3 commodity groups for the port are Florapharm Tea USA (Food), Newport Timber/RB Lumber (Wood Pulp), Interstate Paper Corporation (Wood Pulp, Paper and Paperboard), and International Greetings USA (Paper and Paperboard).

[11] Liberty County Development Authority, http://www.lcda.com/Strategic-Assets.aspx.

In addition, the HAMPO region contains large distributors of goods that are imported through the Port of Savannah. Both Target and Hugo Boss have distribution centers in the region. Retail Consumer Goods, Furniture, and Toys are three major commodity groups that are typical of the types of goods that would supply the Target distribution center. Hugo Boss is represented by Apparel while Tire Rack and Pactra (which provides logistics services for Hankook Tire) are represented by Automotive.

Table 2.8 Top 10 Exports via Savannah in 2016 (Loaded TEUs)

Product Group	Loaded TEUs	Percent of Total
Food	206,254	17.1%
Wood Pulp	194,414	16.1%
Paper & Paperboard, including Waste	145,845	12.1%
Clay	97,091	8.1%
Retail Consumer Goods	90,867	7.5%
Automotive	76,385	6.3%
Chemicals	64,899	5.4%
Logs and Lumber	64,324	5.3%
Machinery, Appliances and Electronics	57,099	4.7%
Fabrics, incl. Raw Cotton	48,157	4.0%
Other	159,492	13.2%
Total	**1,204,827**	**100%**

Source: Georgia Ports Authority.

Table 2.7 Top 10 Imports via Savannah in 2016 (Loaded TEUs)

Product Group	Loaded TEUs	Percent of Total
Retail Consumer Goods	246,729	14.7%
Machinery, Appliances and Electronics	205,833	12.3%
Furniture	196,123	11.7%
Automotive	179,909	10.7%
Hardware and Houseware	140,799	8.4%
Food	91,533	5.5%
Apparel	84,622	5.0%
Minerals	82,673	4.9%
Toys	57,829	3.4%
Chemicals	51,299	3.1%
Other	339,316	20.2%
Total	**1,676,666**	**100%**

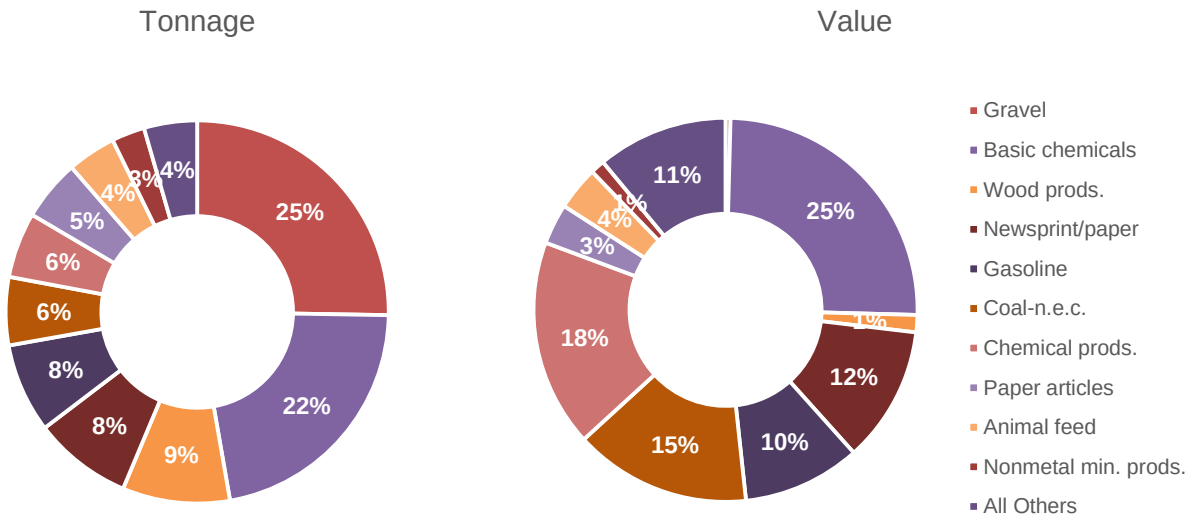
Source: Georgia Ports Authority.

2.2.2.2. Rail

Rail carloads are estimated to account for a much smaller amount of demand relative to trucking (see Figure 2.10). However, rail flows are significant for the region with demand primarily driven by heavy, dense commodities. The predominant commodity groups on the HAMPO freight rail system include gravel, basic chemicals, wood products, newsprint/paper, and gasoline. Altogether, these commodities comprise 72 percent of rail flows by tonnage and 47 percent of total rail flows by value. Commodities such as coal n.e.c. and chemical products are relatively higher value commodities (about 32 percent of total rail value) that represent significant amounts of freight flows by total tonnage (about 12 percent).

Fort Stewart along with companies located in Tradeport West, Midway Industrial Park and Riceboro have shortline access to the CSX mainline. Many of the rail commodity groups are representative of the industries located in those freight clusters including basic chemicals, wood products, and newsprint/paper.

Figure 2.10 Top Rail Commodity Flows



Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 2.10 Top Rail Commodity Flows

Commodity	Tons	Percent of Total Tonnage	Value (Millions of Dollars)	Percent of Total Value
Gravel	169,000	25%	1	0%
Basic chemicals	147,000	22%	85	25%
Wood prods.	61,000	9%	5	1%
Newsprint/paper	56,000	8%	39	11%

Gasoline	51,000	8%	34	10%
Coal-n.e.c.	38,000	6%	51	15%
Chemical prods.	37,000	6%	59	17%
Paper articles	34,000	5%	12	3%
Animal feed	28,000	4%	12	4%
Nonmetal min. prods.	19,000	3%	4	1%
Subtotal	**639,000**	**96%**	**302**	**89%**
All Other Commodities	**30,000**	**4%**	**37**	**11%**
Total	**669,000**	**100%**	**339**	**100%**

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

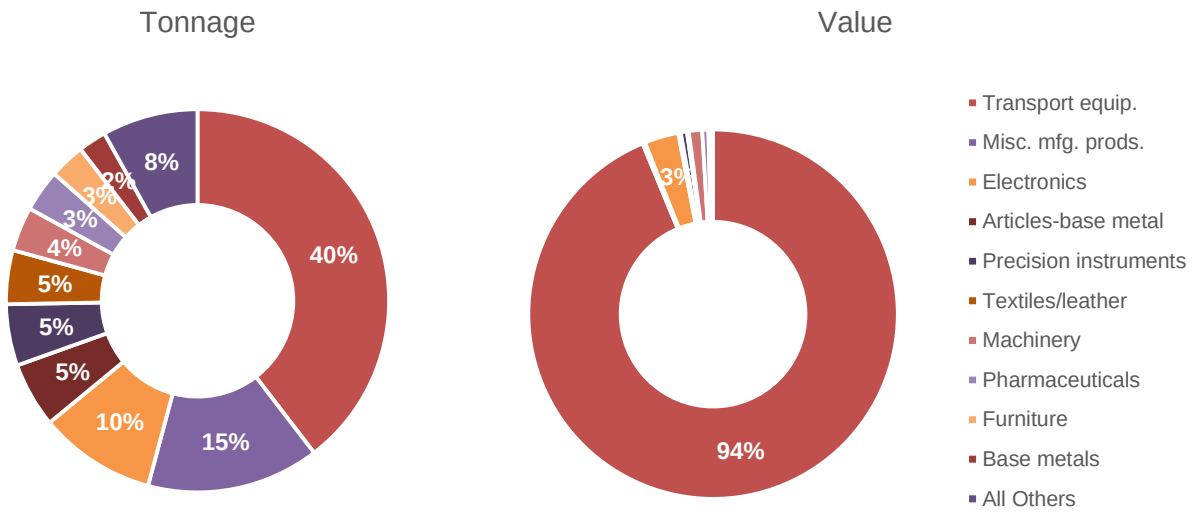
2.2.2.3. Air Cargo

As discussed in chapter 2.1.2.3, the MidCoast Regional Airport is a general aviation airport and does not have commercial or cargo service. Air cargo for the HAMPO region is serviced through the Savannah-Hilton Head International Airport (SAV). As SAV is the only international airport in southeast Georgia, data from the Freight Analysis Framework version 4.2 was used to determine the primary commodities that are likely to originate or terminate in the HAMPO region.

Commodities including transportation equipment, miscellaneous manufactured products, electronics, articles of base metal, and precision instruments account for three-quarters (75 percent) of the air cargo demand at Savannah-Hilton Head International Airport as indicated in Figure 2.11. By value, transportation equipment alone is estimated to account for 94 percent of air cargo demand. Some of the predominant air cargo commodity groups (such as miscellaneous manufactured products, electronics, articles of base metal, and precision instruments) are representative of industries in the HAMPO region. Manufacturers that provide critical inputs to the aerospace, telecommunications, and healthcare industries (i.e. Elan Technology and Alcoa Forgings and Extrusions) utilize air cargo services on occasion as those inputs are critical to an end product with a high value to justify the high cost of air transport.

Overall, firms in the HAMPO region likely do not rely on air cargo services as a day-to-day component of their supply chains. The cost of transporting goods by air is much more expensive than by other modes. Because of this, the commodity types that typically drive the demand for air cargo are high-value, low-weight goods such as pharmaceuticals and electronics. However, the benefits of air cargo service can outweigh the costs in emergency situations (such as inventory stock outs during peak demand or critical inputs to manufacturing processes that cannot be easily substituted or sourced elsewhere).

Figure 2.11 Top Air Cargo Commodity Flows



Source: Freight Analysis Framework version 4.2; Cambridge Systematics, Inc. analysis.

2.3 Existing Network Usage and Performance

The purpose of the network usage and performance analysis is to identify portions of the freight system that may impede the free flow of goods across the HAMPO region. With this information, regional decision-makers have the foundation for identifying and assessing potential freight system investments. Project analysis and recommendations are informed by quality data on average truck travel times, pavement conditions, bridge conditions, at grade rail crossings, and information from the MidCoast Regional Airport and the Port of Savannah.

2.3.1 Highway Usage and Performance

To develop highway-based performance measures for motor carriers operating in the HAMPO region, this analysis primarily utilizes travel time data from the National Performance Management Research Data Set (NPMRDS). The NPMRDS is a Federal Highway Administration (FHWA) data set that contains travel times in 5-minute increments for the roadways that comprise the National Highway System. Travel times in the NPMRDS are given for passenger vehicles, trucks, and for all vehicles combined. Though the NPMRDS aims to provide full coverage of the NHS, data is sometimes missing from various links and must be interpolated. The other major constraint is the data set at times does not contains travel time data on portions of roadways that are not located on the NHS (see Figure 2.3).

2.3.1.1. Truck Congestion

The congestion faced by motor carriers operating in the HAMPO region is captured by examining average truck speeds relative to the posted speed limits. Average truck speeds are derived from travel time data contained in the NPMRDS. Using data from the December 2015 – November 2016 time period, the average

truck speeds for NHS roadways in the HAMPO region were calculated. These speeds were then divided by the posted speed limit and multiplied by 100 percent (i.e. Average Truck Speed / Posted Speed Limit * 100%). For example, a roadway link that has an average truck speed of 35 miles per hour (mph) and a posted speed limit of 50 mph would yield a value of 70 percent. In this manner, the analysis identifies the areas in which trucks may be experiencing congestion. Overall, the results suggest that the HAMPO region's highway system provides for a high level of service but with localized congestion on key roadway segments with these corridors.

Figure 2.12 shows the average truck speeds as a percentage of the posted speed limit for the 6:00 – 10:00 A.M. morning peak period. The results suggest that during this time period US 84 between US 17 and I-95 is among the region's poorest performing segments with average truck speeds that are 25 to 50 percent of the posted speed limit. Performance at this location is affected by the I-95 ramp signals and trucks intentionally reducing speeds in order to enter and exit I-95. Also, as US 84 transitions into Islands Highway east of I-95, the number of through lanes drops from four to two which affects average truck speeds. Performance on US 84 is generally poorer than other roadways in the region as this is the primary commercial corridor for the city of Hinesville as well as a busy truck route. Average truck speeds on US 84 are 25 to 75 percent below posted speed limits between Old Sunbury Road and Veterans Parkway. Other roadways that are experiencing congestion are US 17, SR 38 Connector, and SR 119 near Fort Stewart with average truck speeds that are 25 to 75 percent of the posted speed limits.

Performance during the evening period, 4:00 – 8:00 P.M., is similar to that observed during the morning peak (see Figure 2.13). The most severe congestion is limited to portions of US 84 and SR 38 Connector with average truck speeds that range from 25 to 75 percent of the posted speed limit. Given the importance of the HAMPO region's access to the Port of Savannah, the analysis was extended to include the interstate highway connections (i.e. I-16 and I-95) to Savannah. Both I-16 and I-95 exhibit relatively good performance as trucks operate near the legal speed limits. However, performance on I-16 is poorer near its interchange with I-95.

Table 2.11 presents a summary of truck travel conditions by direction as captured by average speeds as a percentage of posted speed limits. During the morning peak, 62 percent of the HAMPO highway freight system by directional mile provides for average truck speeds that are at least 90 percent of the posted speed limit. Over one-third of the system (about 34 percent) provides for truck speeds that are at least half of posted speed limits. It is a relatively small portion of the system by directional mile (about 4 percent) that suffers more severe congestion during the morning peak period. The results are similar for the evening peak period. However, overall average speeds are slower as fewer directional miles achieve speeds that are at least 90 percent of posted speed limits.

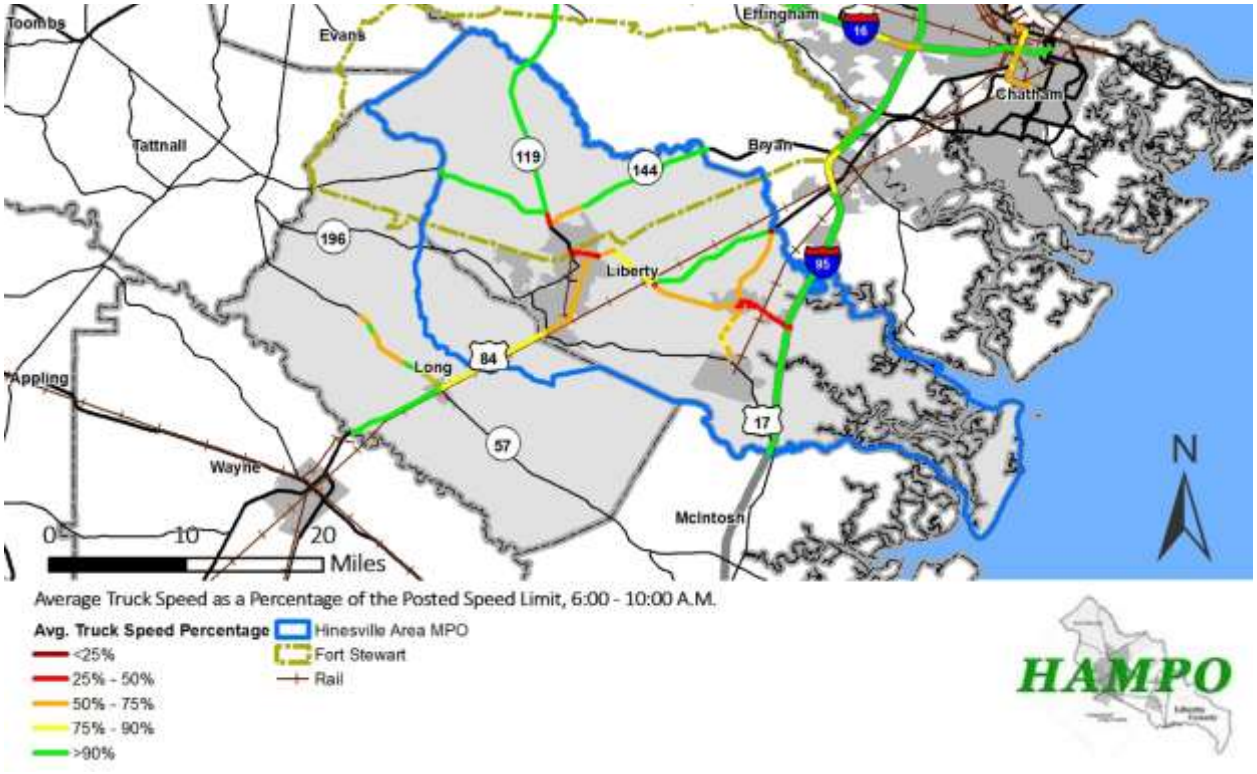
Table 2.11 Average Truck Speeds as a Percentage of the Posted Speed Limit for NHS Roadways

Avg. Truck Speed Percentage	Directional Miles	Percent of Total	Directional Miles	Percent of Total
	Morning Peak Period		*Evening Peak Period*	
<25%	0.5	0.2%	0.5	0.2%
25% - 50%	8.9	3.7%	11.3	4.8%
50% - 75%	59.5	25.1%	55.7	23.5%
75% - 90%	21.8	9.2%	49.3	20.8%
>90%	146.7	61.8%	120.4	50.7%
Total	**237.3**	**100%**	**237.3**	**100%**

Source: National Performance Management Data Set (NPMRDS); Cambridge Systematics, Inc. analysis.

Figure 2.12 Average Truck Speeds as a Percentage of the Posted Speed Limit, NHS Roadways

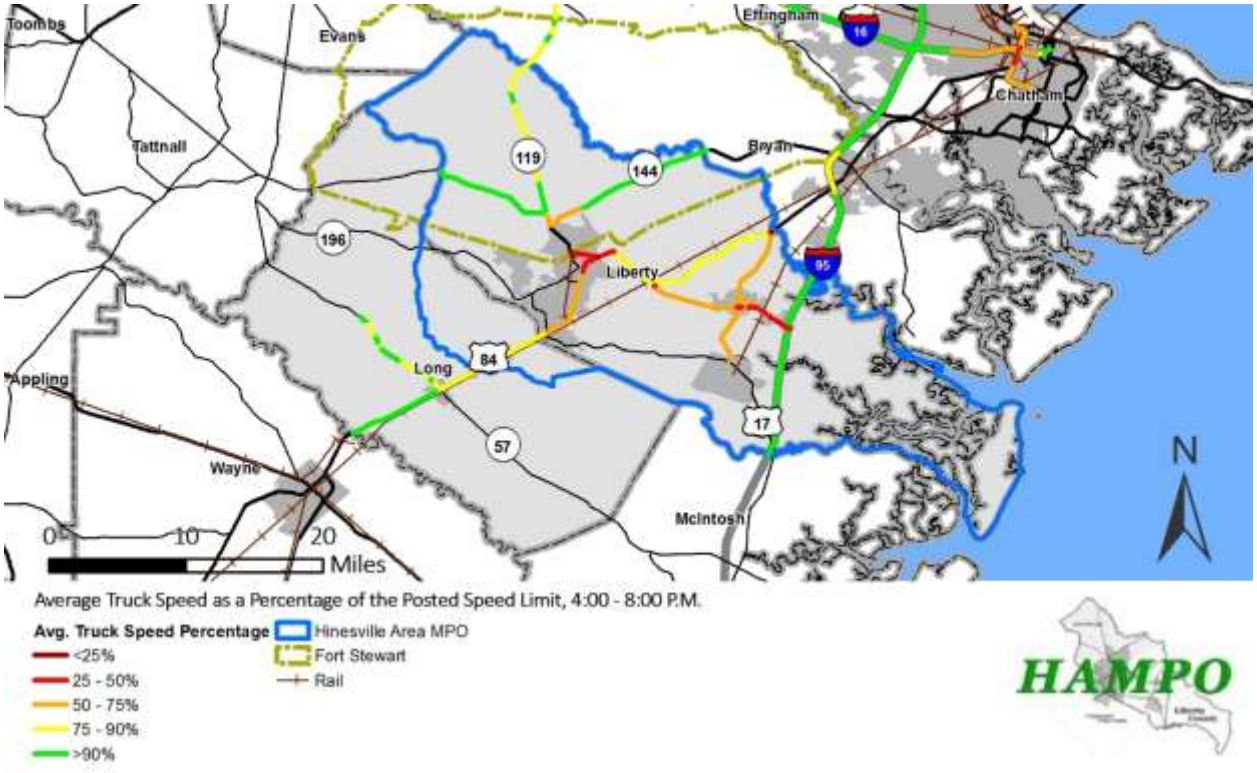
6:00 – 10:00 A.M. Morning Peak Period



Source: National Performance Management Data Set (NPMRDS); Cambridge Systematics, Inc. analysis.

Figure 2.13 Average Truck Speeds as a Percentage of the Posted Speed Limit, NHS Roadways

4:00 – 8:00 P.M. Evening Peak Period



Source: National Performance Management Data Set (NPMRDS); Cambridge Systematics, Inc. analysis.

2.3.1.2. Truck Travel Time Reliability

Truck travel time reliability on the HAMPO region's NHS routes is captured by calculating the Truck Travel Time Reliability (TTTR) index. The TTTR index is the freight performance measure adopted by FHWA that is reported for interstate highways.[12] The TTTR index is calculated as the ratio of the 95th percentile travel time to the 50th percentile travel time: TTTR = 95th Percentile Truck Travel Time / 50th Percentile Truck Travel Time. High TTTR values indicate unreliable truck travel times while low TTTR values indicate more reliable travel times. For example, a TTTR value equal to 2 indicates that truck travel times may be twice as long as average travel times for a given time period. Overall, the results suggest that the HAMPO region's highway system provides for reliable truck travel times with the biggest challenges being US 84 and US 17.

In effect, the TTTR index gives an idea of how variable travel times are on the highway network. Highly variable, or inconsistent, truck travel times result in unreliable service over the highway network. Unreliability

[12] National Performance Management Measures: Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program, *Federal Register*, Vol. 82, No. 11, January 18, 2017, https://www.federalregister.gov/documents/2017/01/18/2017-00681/national-performance-management-measures-assessing-performance-of-the-national-highway-system.

is a direct cost to motor carriers as they must hedge against unreliable travel times by budgeting additional time into their schedules. This translates into higher transportation costs that may be passed on to shippers. More importantly, wasted time reduces available hours of service for the truck drivers. Like the average truck speeds, the TTTR measures are derived from the December 2015 – November 2016 travel time data contained in the NPMRDS.

Figure 2.14 shows the TTTR index for the 6:00 – 10:00 A.M. morning peak period. The results suggest that during this time period US 84 east of SR 196/Leroy Coffer Highway to I-95 is among the region's least reliable highway segments. The TTTR index along this portion of US 84 exceeds 3, indicating that some motor carriers experience traffic conditions that result in travel times that exceed the average by 3 times or more. Generally, truck travel time reliability on US 84 is poorer than other roadways in the region as several segments along the corridor experience TTTR indexes that exceed 2. The primary factors likely driving the reliability results are high AADT, high AADTT, and the high number of driveways and signalized intersections along the corridor[13].

Other roadways that experience poor truck travel time reliability are US 17, SR 38 Connector, and portions of SR 144 (near Fort Stewart) and US 301/SR 57 (north of the city of Ludowici). Between US 84 and the Liberty-Bryan County line, US 17 exhibits a TTTR index that exceeds 3. SR 144 and US 301/SR 57 experience TTTR indexes that range between 2 and 3.

Performance during the evening period, 4:00 – 8:00 P.M., is similar to that observed during the morning peak (see Figure 2.15). US Highways 17 and 84 continue to exhibit a relatively high degree of unreliability in truck travel times. State Routes 119 and 144 experience poorer reliability during the evening peak compared to the morning peak. Performance on these roadways is related to operations at Fort Stewart and that these are two-lane roadways, with one lane in each direction.

Table 4.2 presents a summary of truck travel conditions by direction as captured by the truck travel time reliability index (TTTR). During the morning peak, just over 7 percent of the region's highway system by directional mile exhibits TTTR indexes less than 1.3. This indicates that truck travel times during the morning peak are as much as 30 percent longer than they are on average for 7 percent of the system. Overall, over two-thirds (nearly 72 percent) of the HAMPO highway freight system by directional mile provides for average truck travel times that are no more than twice as long as average truck travel times. About 14 percent of the system exhibits truck travel times that are over 3 times longer than average truck travel times during the morning peak. The results are similar for the evening peak period except a larger proportion of the system experiences the most severe truck travel time unreliability than observed during the morning peak.

[13] Hinesville Area MPO, *US 84 Comprehensive Corridor Study: Final Report Executive Summary*, 2013.

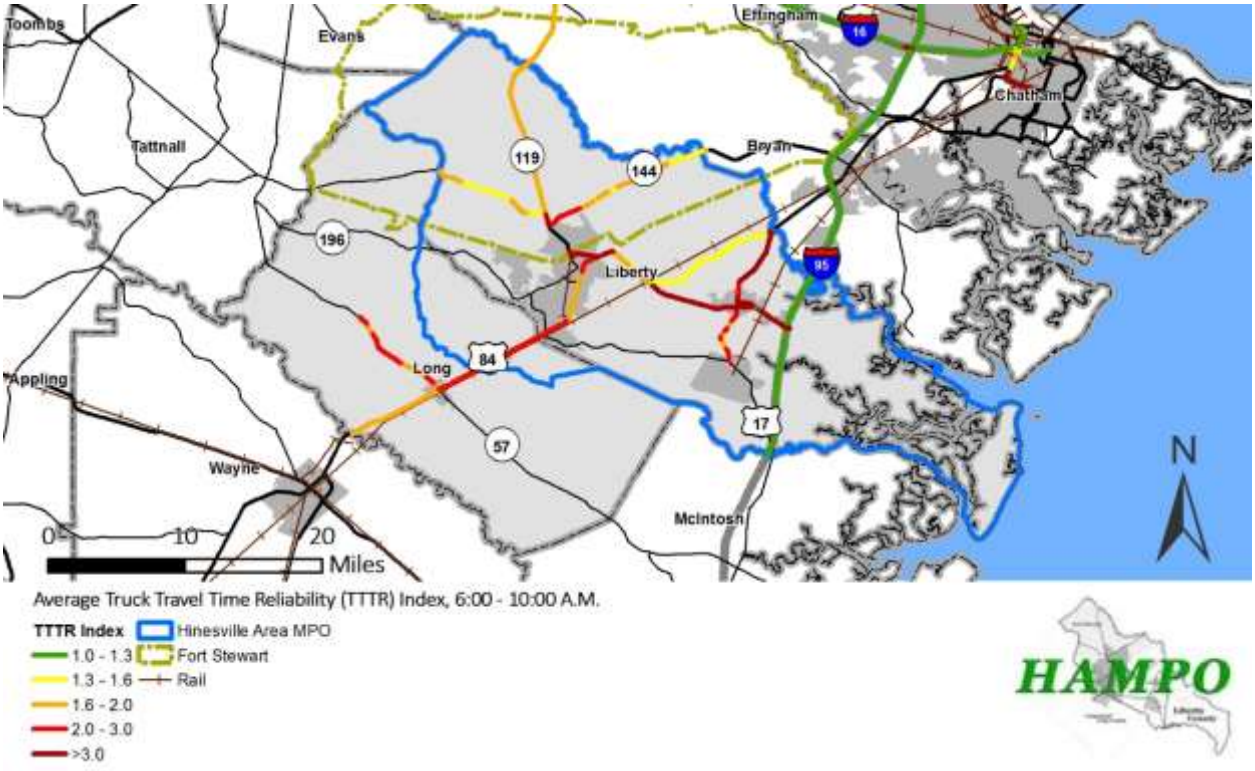
Table 2.12 Average Truck Travel Time Reliability, NHS Roadways

Truck Travel Time Reliability	Directional Miles	Percent of Total	Directional Miles	Percent of Total
	Morning		*Evening*	
1 – 1.3	17.3	7.3%	17.3	7.3%
1.3 – 1.6	39.2	16.5%	46.9	19.7%
1.6 - 2	113.7	47.9%	70.3	29.6%
2 - 3	34.2	14.4%	54.2	22.8%
>3	32.8	13.8%	48.6	20.5%
Total	**237.3**	**100%**	**237.3**	**100%**

Source: National Performance Management Data Set (NPMRDS); Cambridge Systematics, Inc. analysis.

Figure 2.14 Average Truck Travel Time Reliability Index, NHS Roadways

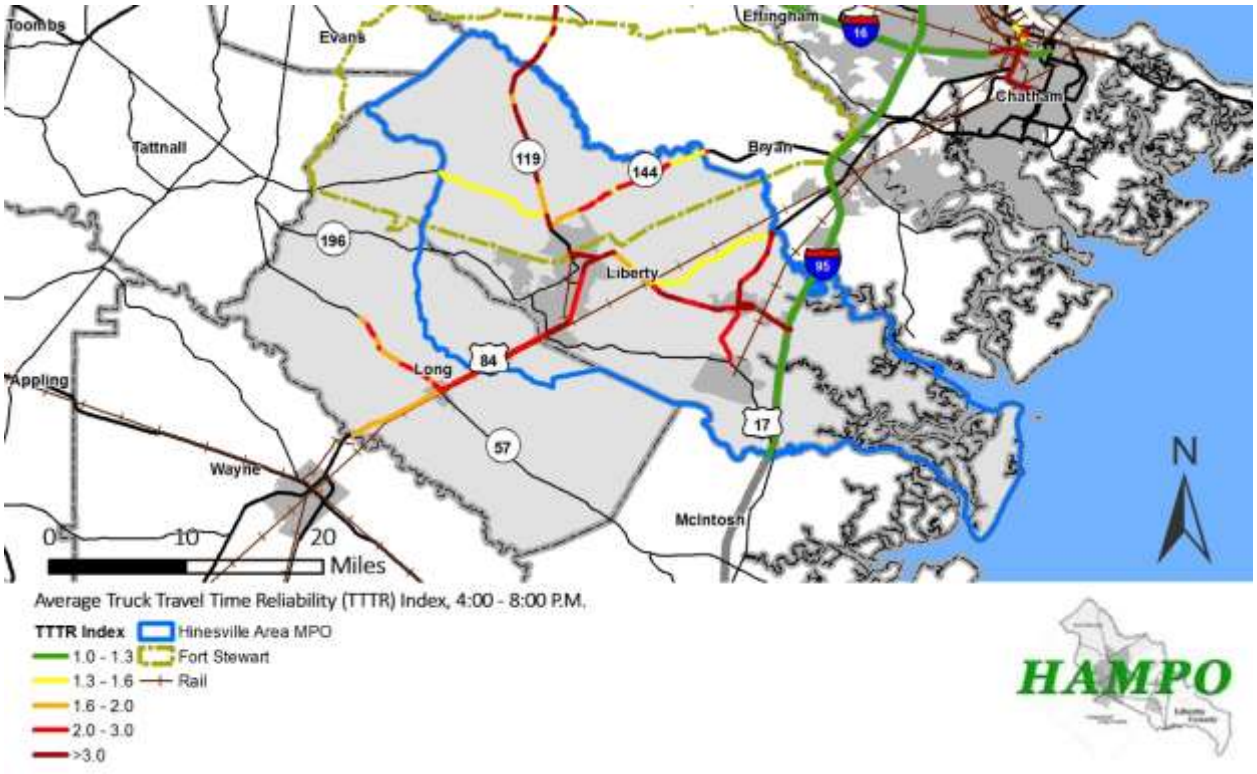
6:00 – 10:00 A.M. Morning Peak Period



Source: National Performance Management Data Set (NPMRDS); Cambridge Systematics, Inc. analysis.

Figure 2.15 Average Truck Travel Time Reliability Index, NHS Roadways

4:00 – 8:00 P.M. Evening Peak Period



Source: National Performance Management Data Set (NPMRDS); Cambridge Systematics, Inc. analysis.

2.3.1.3. Level of Service

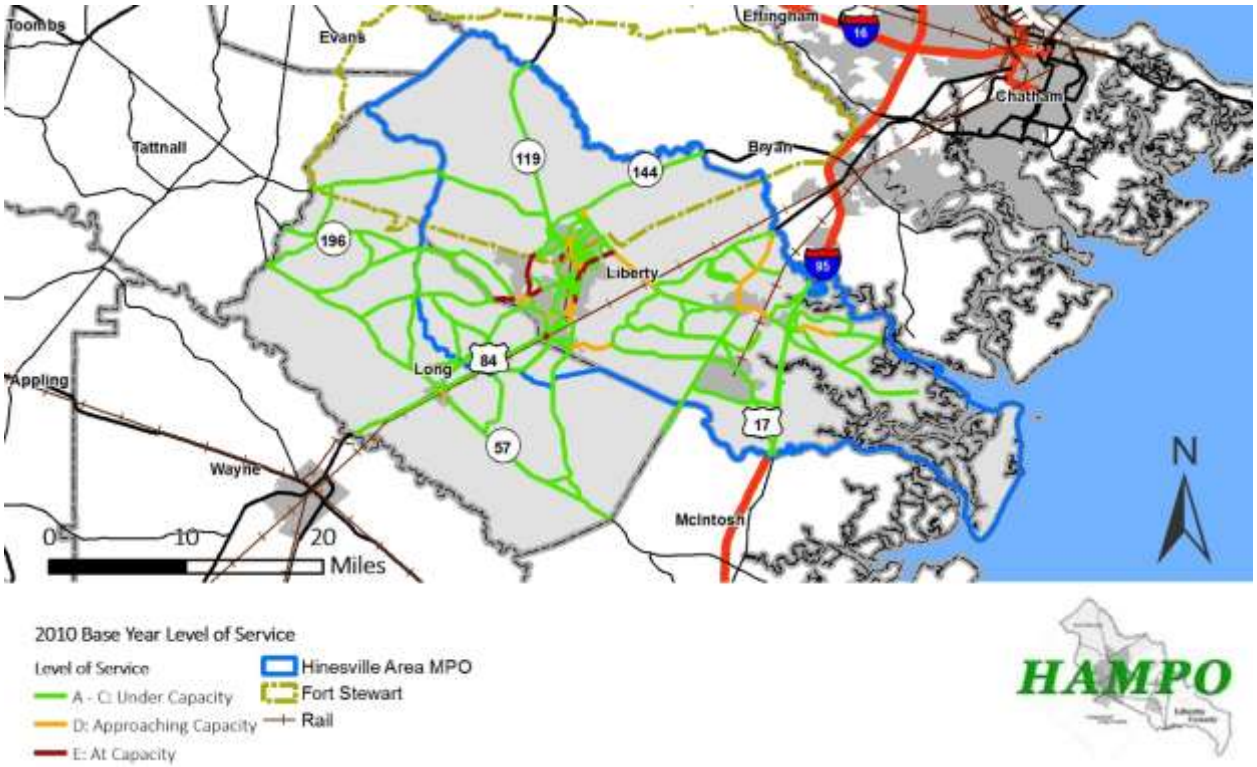
Performance on the HAMPO Region's highway system is informed by the results of the HAMPO travel demand model. The model results indicate that the system largely provides for a good level of service (see Figure 2.16). No roadway in the HAMPO region received a level of service rating equal to "F" (which indicates the roadway is at or over its designed capacity). The roadways with greater challenges to performance are portions of US 17, US 84, SR 119, SR 119/SR 196, 15th Street, and Sunbury Road. All of these roadways have portions that exhibit levels of service ratings of "D" or "E". This indicates that those roadway segments are near or at capacity during peak periods of travel.

Of the roadways identified as having strained capacity during peak periods, US 84, 15th Street, and Sunbury Road have particular relevance for freight movements. US 84 is the primary freight route connecting shippers in north Florida and south Georgia to the Port of Savannah. Daily truck traffic along the US 84 corridor in the HAMPO region reaches up to 2,300 trucks per day near its intersection with General Screven Way.

Sunbury Road and 15th Street provide direct access to two of the HAMPO region's primary generators of truck traffic – Tradeport Business Center East and Fort Stewart, respectively. Tradeport Business Center East contains distribution centers for Target, Inc., Tire Rack, Inc., and Pactra International Company in addition to an Alcoa Forgings manufacturing facility. Trucks servicing these firms rely on Sunbury Road which exhibits a "D" level of service.

Trucks servicing Fort Stewart must be inspected and enter the base at a control point located on 15th Street. As the truck gate for Fort Stewart, 15th Street is estimated to carry over 200 trucks per day. The roadway exhibits a level of service of "E" indicating that it is operating at its designed capacity during peak travel periods.

Figure 2.16 2010 Base Year Level of Service



Source: Hinesville Area MPO Travel Demand Model.

2.3.1.4. Truck Crashes

There were 513 truck-involved crashes in the HAMPO region over the 2011 to 2016 time period. Of the 513 total truck crashes, 434 (85 percent) occurred in Liberty County while 79 (15 percent) truck crashes occurred in Long County. For both counties, 367 truck crashes (72 percent) involved heavy trucks. These included tractor trailers, logging trucks, and other truck types that have an FHWA vehicle classification of 8 or higher. The remainder, 146 (29 percent) involved light trucks (fixed axel like dump trucks or school buses).

As shown in Figure 2.17, truck crashes in the HAMPO region are clustered in or near the City of Hinesville. Smaller clusters of truck crashes are evident in areas near Riceboro, Midway and Ludowici. These areas have higher concentrations of people and traffic volumes relative to other portions of the region creating increased opportunity for vehicle conflicts and driver errors.

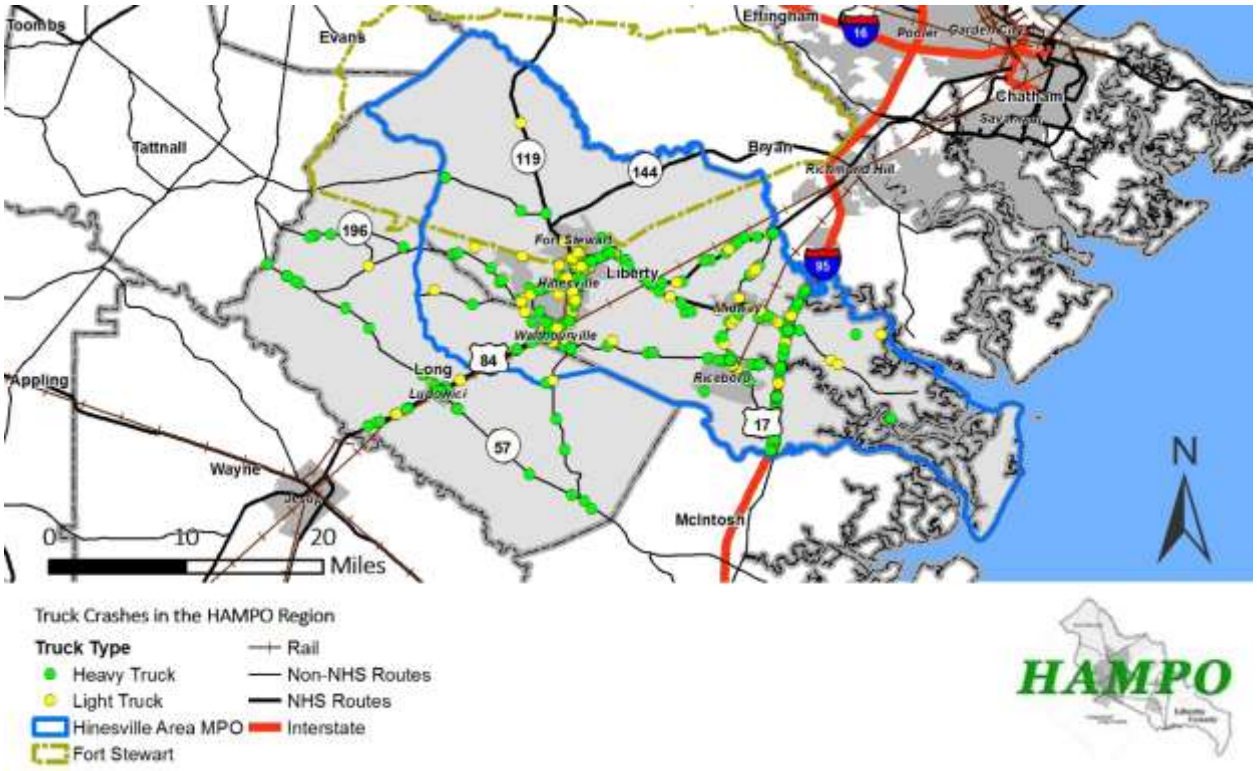
Of the 513 truck-involved crashes in the HAMPO region 2 percent (8 crashes total) were fatal as indicated in Table 2.14. Seven (7) of the 8 fatal truck crashes occurred on State and US Routes – namely US 301, SR 119, SR 144, and SR 196. Over 11 percent of truck-involved crashes (58) resulted in serious injuries. Fatal and serious injury truck crashes are depicted in Figure 2.18.

Table 2.13 Truck Crashes by County, 2011 - 2016

County	Total Truck Crashes	Percentage of Total
Liberty	434	84.6%
Long	79	15.4%
Total	**513**	**100%**

Source: Georgia Department of Transportation; Cambridge Systematics, Inc. analysis.

Figure 2.17 Truck Crashes in the HAMPO Region, 2011 - 2016



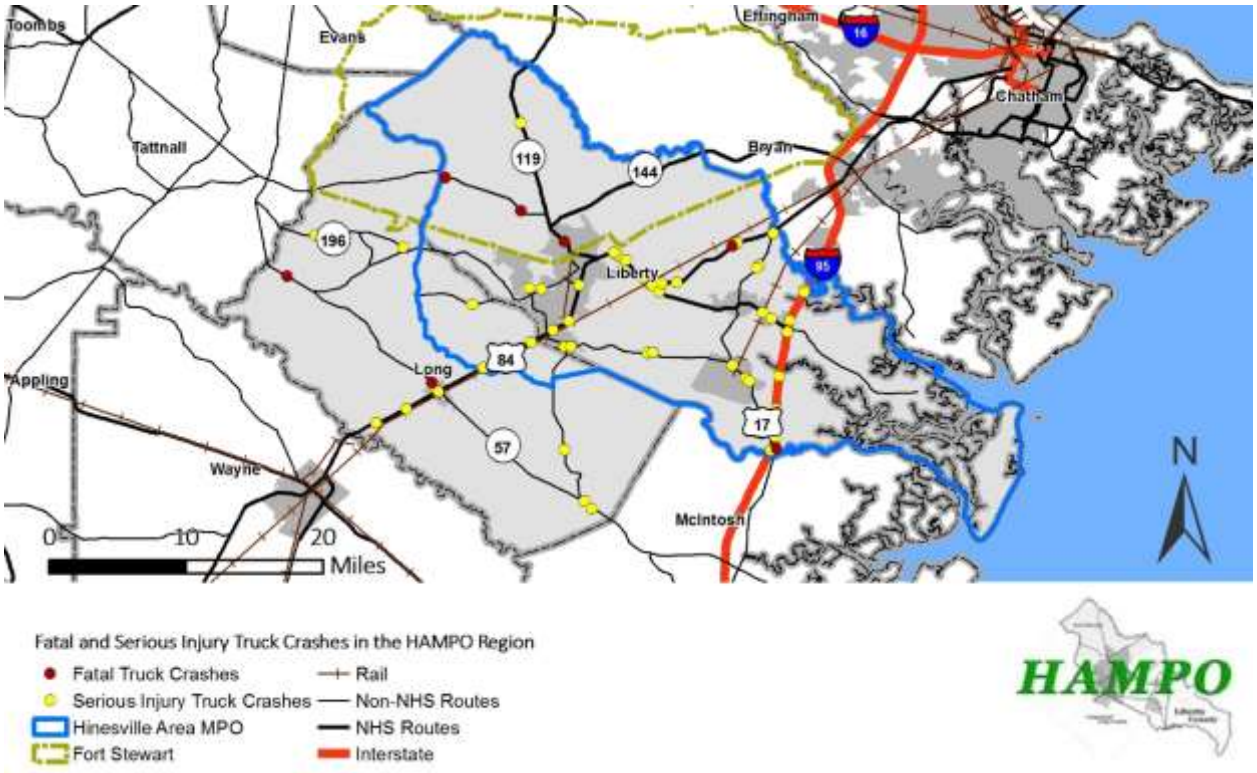
Source: Georgia Department of Transportation; Cambridge Systematics, Inc. analysis.

Table 2.14 Truck Crashes by Maximum Injury Severity, 2011 - 2016

Maximum Injury Severity	Total Truck Crashes	Percent of Total
No Injury	383	74.7%
Possible Injury	29	5.7%
Visible Injury	35	6.8%
Serious Injury	58	11.3%
Fatality	8	1.6%
Total	**513**	**100.0%**

Source: Georgia Department of Transportation; Cambridge Systematics, Inc. analysis.

Figure 2.18 Fatal and Serious Injury Truck Crashes, 2011 - 2016



Source: Georgia Department of Transportation; Cambridge Systematics, Inc. analysis.

Half (49 percent) of truck crashes from 2011 to 2016 in the HAMPO region occurred on US 84 and I-95, the region's high volume freight corridors (see Table 2.15). State Routes 119 and 196 collectively account for a significant share of truck crashes throughout the HAMPO region, 79 crashes (15 percent). The region's remaining primary freight corridors – SR 57, SR 144, US 17, and US 301 – accounted for 42 of the 513 truck

crashes or 8 percent. Altogether, the HAMPO region's freight significant corridors accounted for nearly three-quarters (72 percent) of truck crashes over this five year period.

Generally, 5-year average truck crash rates on roadways in the HAMPO region do not exceed the total vehicle crash rates on similarly classified roadways throughout the state as shown in Table 2.16.[14] For example, rural interstate highways in Georgia exhibited a crash rate of 99 crashes per hundred million vehicle miles (MVM) in 2014; Interstate 95 in the HAMPO region exhibited an annual average truck crash rate of 6.1 per hundred MVM over the 2012-2016 period. Similarly, US 84 exhibited an annual average truck crash rate of 13.3 while rural principal arterials throughout the state exhibited a total vehicle crash rate of 210. However, the HAMPO *US 84 Comprehensive Corridor Study* found that all-vehicle crash rates along US 84 exceeded state averages.

Table 2.15 Truck Crashes on Freight Significant Corridors, 2011 - 2016

Corridor	Corridor Description	Truck Crashes	Percent of Total
US 84	Through Liberty and Long Counties	165	32.2%
I-95	I-95 through Liberty and Long Counties	84	16.4%
SR 196	Leroy Coffer Highway and Elma G. Miles Pkwy. (from SR 119 to Long County line)	36	7.0%
SR 119	Airport Road/E.B. Cooper Highway, General Screven Way, and Elma G. Miles Pkwy. (from General Screven Way to Veterans Pkwy.)	29	5.7%
US 17	Through Liberty County	20	3.9%
SR 119/SR 196	Elma G. Miles Pkwy. (from Veterans Pkwy. to Airport Road)	14	2.7%
US 301	From Ludowici to Long-Tattnall County line	12	2.3%
SR 57	From Ludowici to Long-McIntosh County line	8	1.6%
SR 144	Through Liberty County	2	0.4%
Subtotal		**370**	**72.1%**
All Other Corridors		143	27.9%
Total		**513**	**100.0%**

Source: Georgia Department of Transportation; Cambridge Systematics, Inc. analysis.

[14] Note: Only crash rates for all vehicles combined are reported by GDOT.

Table 2.16 Truck Crash Rates on Freight Significant Corridors (2012-2016 5-Year Average)

Corridor	Corridor Description	Miles	Annual Average Truck Crashes per 100 MVM
I-95	I-95 through Liberty and Long Counties	13.1	6.1
US 84	Through Liberty and Long Counties	38.5	13.3
US 17	Through Liberty County	20.3	7.4
SR 119 and SR 119/SR 196	SR 119 including Elma G. Miles Pkwy. (from Veterans Pkwy. to Airport Road)	41.5	8.2
SR 196	Leroy Coffer Highway and Elma G. Miles Pkwy. (from SR 119 to Long County line)	26.5	8.5
US 301	From Ludowici to Long-Tattnall County line	14.7	12.2
SR 57	From Ludowici to Long-McIntosh County line	18.1	9.6
SR 144	Through Liberty and Long Counties	35.9	0.5
State Average Crash Rate for Rural Interstates (All Crashes per 100 MVM in Year 2014)			99
State Average Crash Rate for Rural Principal Arterials (All Crashes per 100 MVM in Year 2014)			210
State Average Crash Rate for Rural Minor Arterials (All Crashes per 100 MVM in Year 2014)			314

Source: Georgia Department of Transportation, Office of Traffic Safety and Design; Hinesville Area MPO; Cambridge Systematics, Inc. analysis.

2.3.1.5. Pavement Conditions

Poor pavement conditions negatively impact the flow of freight across the region's highway system. Rough or cracking pavements can cause damage to trucks resulting in increased maintenance, reduced fuel economy and damage the goods they transport. Strained pavements result in slower travel times as trucks decrease their rate of speed in order to navigate potholes, debris, or other road hazards that result from poor pavement conditions. This is a direct cost to motor carriers and an indirect cost to shippers in the form of higher insurance rates and transportation costs.

Pavement quality in the HAMPO region is characterized by the International Roughness Index (IRI) values as reported in the Highway Performance Management System (HPMS) database. IRI is a measure of a roadway's smoothness and is used as an indicator of its condition. Very low IRI values indicate that a roadway is in very good condition while very high values indicate the opposite. The ranges of IRI values and their associated pavement condition classifications for non-interstate NHS routes as established by FHWA are given in Table 2.17.

As indicated in Table 2.17 and depicted in Figure 2.19, the vast majority interstate highway mileage within the HAMPO region is considered to be in Good to Very Good condition, about 12.1 miles or over 92 percent. The poorest non-interstate pavement conditions are observed on US 84 between the City of Ludowici and

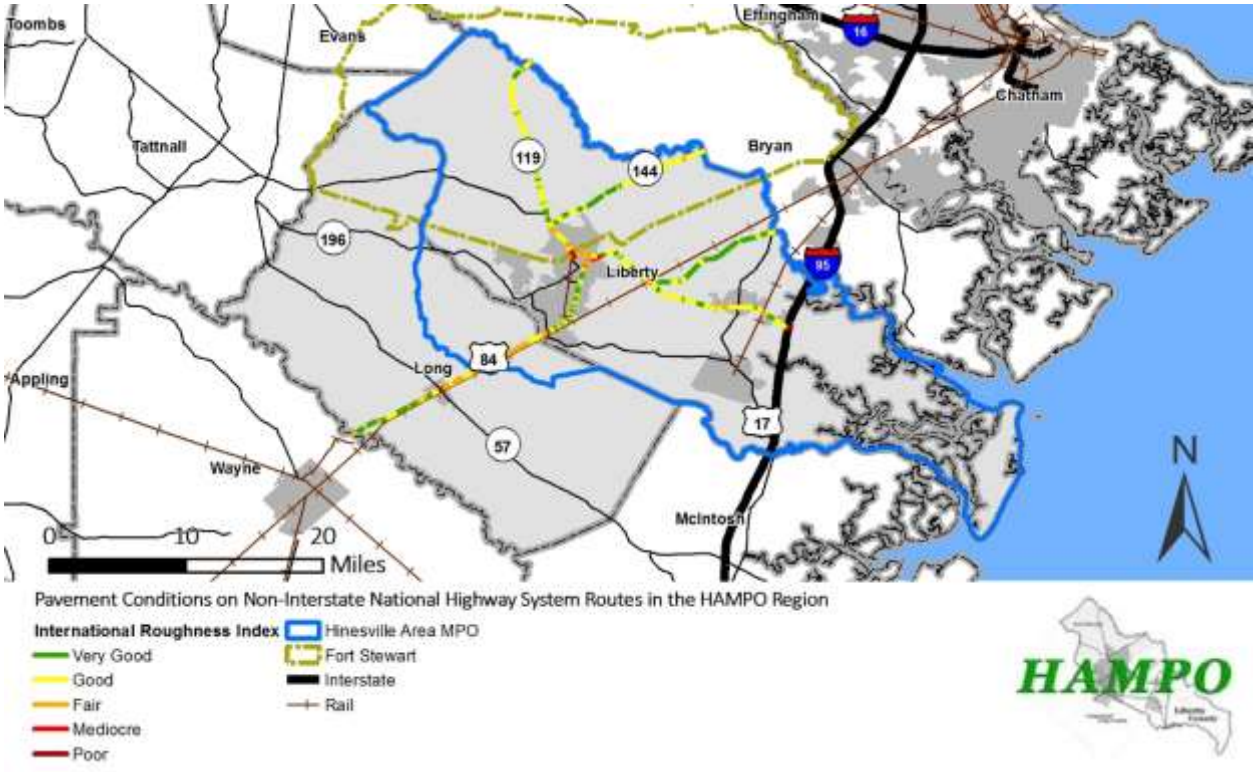
the Liberty County border, however this segment was overlayed in 2016. Much of the pavement along this portion of the US 84 corridor is rated as Fair.

Table 2.17 Pavement Conditions on Non-Interstate NHS Routes in the HAMPO Region

Pavement Condition Category	Criteria for International Roughness Index	Miles	Percent of Total
Very Good	< 60	22.33	31.0%
Good	60 - 94	34.34	47.7%
Fair	95 - 170	13.21	18.3%
Mediocre	171 - 220	1.24	1.7%
Poor	> 220	0.95	1.3%
Total		**72.07**	**100%**

Source: FHWA Conditions and Performance Report, 1999; FHWA Highway Performance Monitoring System.

Figure 2.19 Pavement Conditions on Non-Interstate NHS Routes



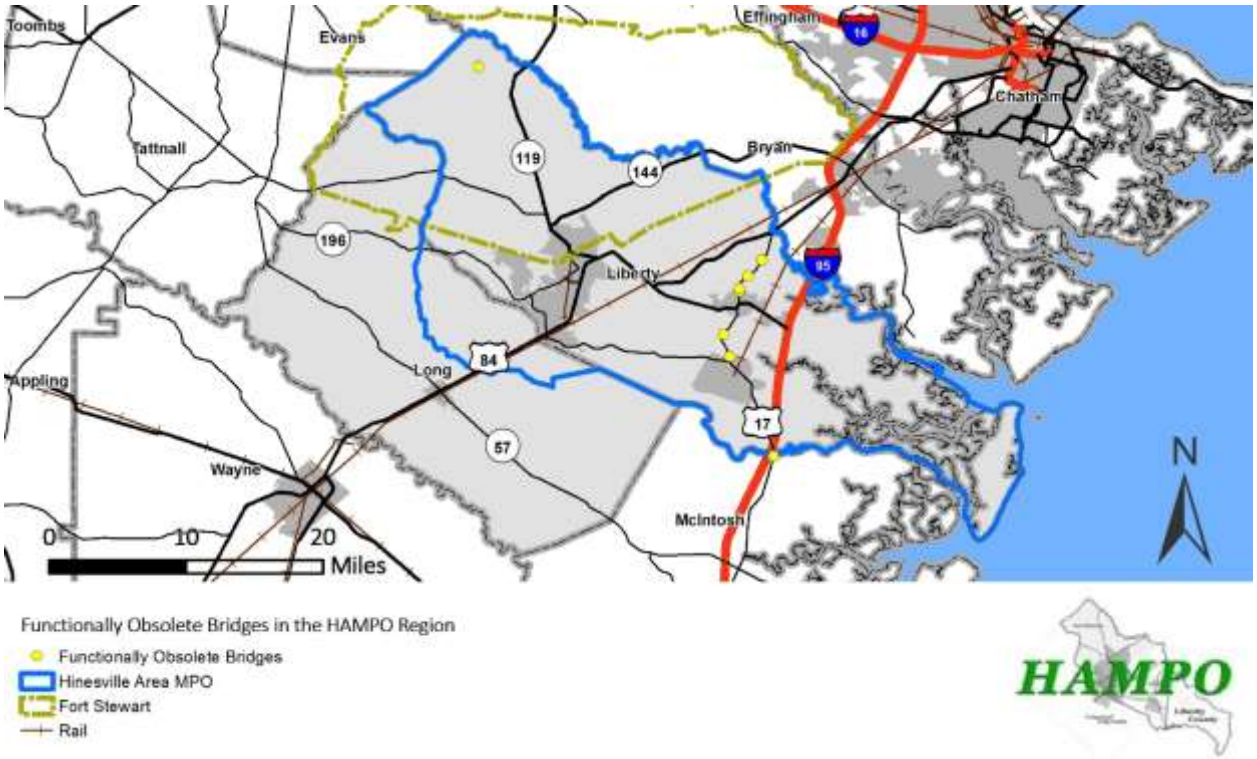
Source: FHWA Highway Performance Monitoring System.

2.3.1.6. Bridge Conditions

Based on their operating abilities', there are two different types bridges that pose a challenge to region wide freight movements: Structurally Deficient Bridges and Functionally Obsolete Bridges. Structurally deficient bridges are characterized by deteriorated conditions of significant bridge elements that potentially result in reduced load-carrying capacity.[15] Though structurally deficient bridges are not unsafe, they require significant maintenance and repair to remain in service and can act as freight chokepoints due to reduced load limits. Eventually, a major rehabilitation or replacement must occur to address their underlying deficiencies. A bridge is considered functionally obsolete when it does not meet current design standards or the volume of traffic carried by the bridge exceeds the level anticipated when the bridge was constructed. Like structurally deficient bridges, functionally obsolete bridges are not unsafe but their limitations (in terms of traffic volume and load-carrying capacity) restrict the flow of freight.

There are 8 functionally obsolete bridges in the HAMPO region as shown in Figure 2.20. All of the bridges are located in Liberty County. Of the 8 functionally obsolete bridges, 7 are located along US 17 and these have widths of about 30'as opposed to the 36'-40' needed to meet current standards.

Figure 2.20 Functionally Obsolete Bridges



Source: National Transportation Atlas Database.

[15] FHWA. 2010 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance

Table 2.18 details the bridge conditions, including sufficiency ratings, in the HAMPO region. The sufficiency rating is a numeric value indicative of a bridge's sufficiency to remain in service.[16] Sufficiency ratings are calculated according to a formula that considers the structural adequacy, functional obsolescence, level of service, and essentiality for public use. On a scale of 0 to 100 percent, 100 percent would represent an entirely sufficient bridge while zero percent would represent an entirely deficient bridge.

A sufficiency rating of 80 percent or less qualifies a bridge for Federal rehabilitation funds while a score of 50 percent or less qualifies it for replacement funds.[17] Based on the results in Table 2.18, the majority of bridges are eligible for rehabilitation projects.

Table 2.18 Functionally Obsolete Bridges

Roadway	Across	Location	Sufficiency Rating
US 17	Riceboro Creek	North of Riceboro City Limit	50.8
US 17	Peacock Creek	South of Midway	65.4
US 17	Baker Swamp	City of Midway	60.3
US 17	Baker Swamp	City of Midway	60.3
US 17	Gress River Tributary	North of Midway	60.9
US 17	Jerico Creek	North of Midway	76.2
US 17	South Newport River	South of Riceboro	73.9
Fort Stewart Roadway 17	Tributary of Canoochee River	Fort Stewart	87.9

Source: National Transportation Atlas Database.

2.3.2 Non-Highway Usage and Performance

2.3.2.1. Port of Savannah

The Port of Savannah's throughput (measured in the number of import, export, and empty containers processed per acre of container yard) has steadily increased over the 2007-2016 time period as shown in Figure 2.21. Total growth in throughput (TEUs per acre) over this period was approximately 40 percent; the compound annual growth rate was 3.8 percent. The only exceptions were small decreases in throughput in 2009 and 2016. In 2009, the United States was experiencing a severe recession. Throughput in 2014-2015 was likely inflated due to West Coast cargo diversions caused by a labor dispute, suggesting that 2016's decrease is not reflective of the overall trend of substantial growth.

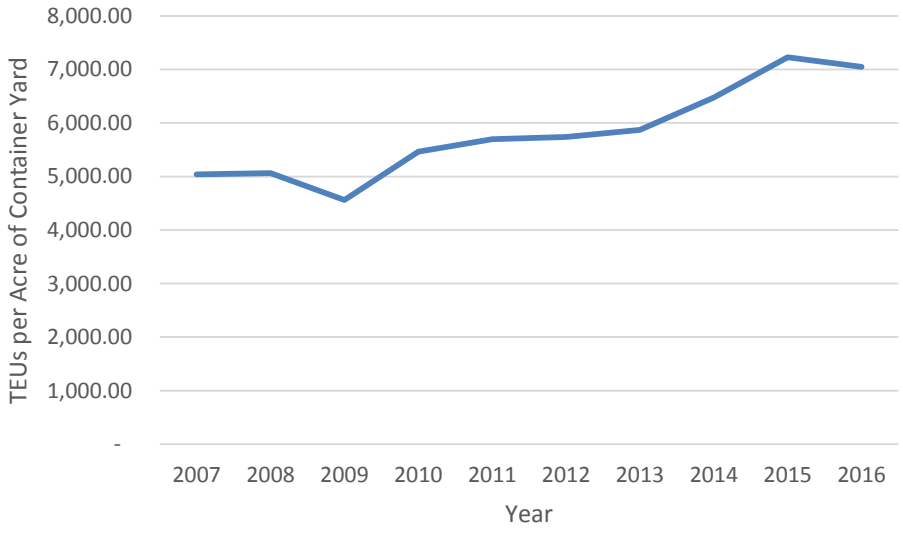
Major industries in the HAMPO region rely on the efficiency of the Port of Savannah and its ability to process substantial container flows, particularly exports. Industries in the HAMPO region export to over 70 countries

[16] Federal Highway Administration. *Bridge Preservation Guide: Maintaining a State of Good Repair Using Cost Effective Investment Strategies*. FHWA-HIF-11041. August 2011. http://www.fhwa.dot.gov/bridge/preservation/guide/guide.pdf.

[17] Federal Highway Administration. "Additional Guidance on 23 CFR 650 D." https://www.fhwa.dot.gov/bridge/0650dsup.cfm, Accessed December 5, 2016.

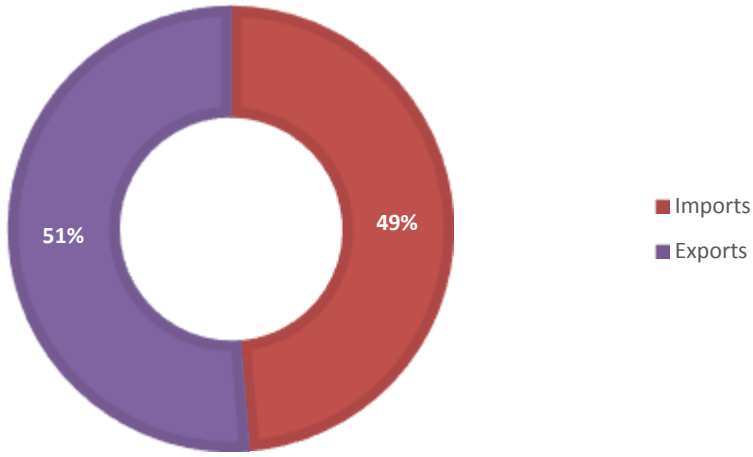
throughout the world with the majority of that export activity is facilitated by the Port of Savannah[18] . This port has a near equal balance of imports and exports as shown in Figure 2.22.

Figure 2.21 Port of Savannah Throughput (TEUs per Acre)



Source: Georgia Ports Authority.

Figure 2.22 Total Annual Container Trade at the Port of Savannah (TEUs), Fiscal Year 2016



Source: Georgia Ports Authority.

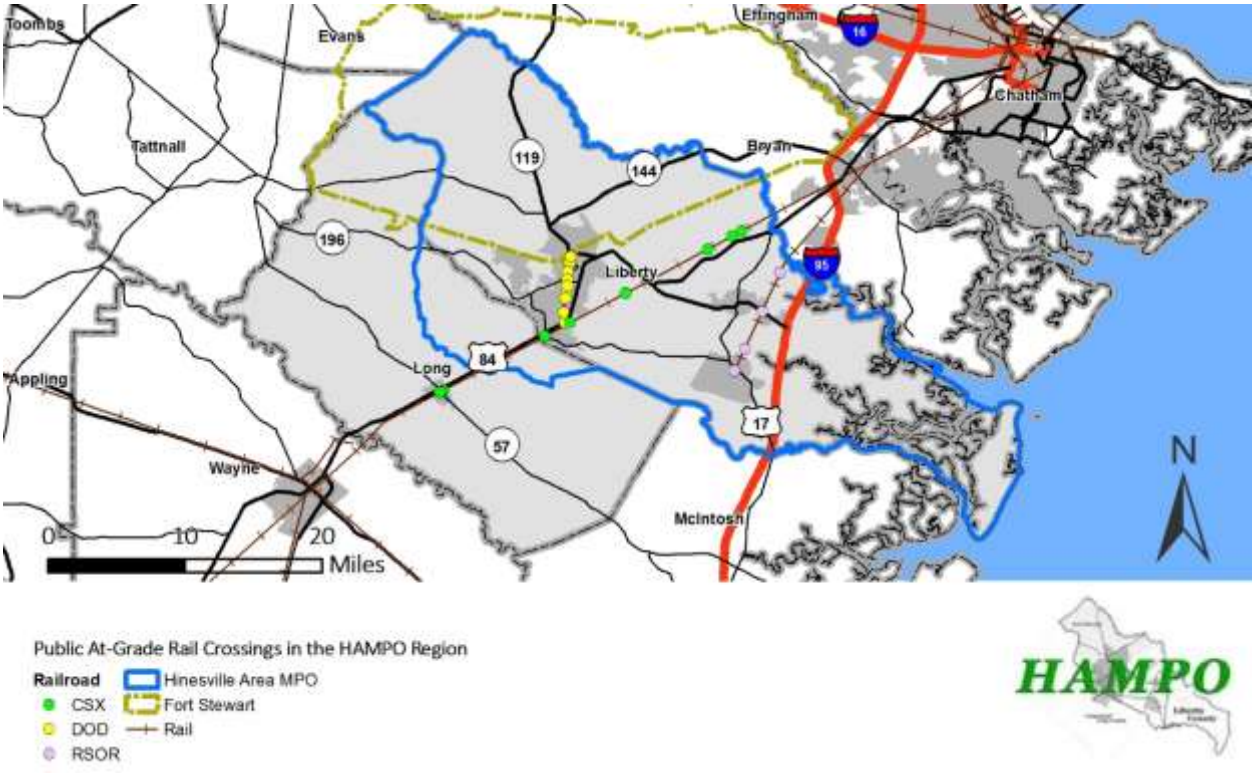
[18] Liberty County Development Authority, http://www.lcda.com/Strategic-Assets.aspx.

2.3.2.2. Rail

The CSX rail line through the HAMPO region is part of the Nahunta subdivision. This corridor (i.e. from Savannah to Jesup) carries on average about 28 trains per day according to data in the *Georgia State Rail Plan*.[19] The *Georgia State Rail Plan* also estimates that this portion of the CSX corridor has a practical capacity of 30 to 48 trains per day. The Department of Defense and Riceboro Southern Railway (RSOR) rail lines have much lower traffic volumes based on data from the Federal Railroad Administration (FRA).[20] The DOD rail line into Fort Stewart carries about 4 trains per day while the RSOR carries 1 to 2 trains per day. Thus, insufficient capacity does not appear to be an issue for rail operations in the HAMPO region.

At grade crossings are the most visible portion of the freight rail infrastructure to the general public as they are the interface between the rail and highway systems and the points at which the public is exposed to the most potential for burden from rail operations in the form of travel time delays. Though they are also the points at which the public is exposed to the most potential for harm, there were no accidents at grade level crossings in the 2012-2016 time period according to FRA data. In total, there are 26 public grade level crossings in the HAMPO region with the majority of the crossings, 22 or nearly 85 percent, being located in Liberty County as shown in Figure 2.23. Table 2.19 details the public at-grade rail crossings in the HAMPO region.

Figure 2.23 Public At-Grade Rail Crossings



[19] Georgia Department of Transportation, *Georgia State Rail Plan*, 2015.

[20] Federal Railroad Administration, Grade Crossing Inventory Reports.

Source: Federal Railroad Administration; Oak Ridge National Laboratory Center for Transportation Analysis Railroad Network; Cambridge Systematics, Inc. analysis.

The busiest crossings in terms of total daily trains are all located along the CSX line which traverses the center of the Cities of Ludowici, Walthourville, and Allenhurst but is south of Hinesville. This rail line is a relatively high volume corridor with about 28 trains per day with average train speeds ranging from 74 to 79 miles per hour (mph) based on FRA data. In addition, the CSX line does not intersect the busiest portions of the HAMPO region's major highways, limiting the delay to motor vehicles. The proposed US 84 Freight Connector (discussed in greater detail in Section 4.4) to the west of Walthourville will be grade separated (overpass) to cross the CSX tracks. This will reduce congestion at the Talmadge at grade crossing thereby decreasing a significant local freight delay.

There are 12 at-grade crossings located along the Department of Defense rail line leading into Fort Stewart. On average, about 4 trains per day utilize this line. Though train traffic along this line is much less than the CSX line, some of the busiest portions of the HAMPO region's major highways intersect the DOD rail line at grade including US 84, SR 119, and SR 196. In addition, these trains are typically slower with average speeds ranging from 10 to 25 mph.

The remaining 4 at-grade crossings are along the RSOR short line. This line has on average 1 to 2 trains per day in addition to about 1 switching movement each day at every crossing except Dogwood Street in the City of Riceboro. Average train speeds along the RSOR line are less than 10 mph. Though Lake George Road and US 84 are busy corridors, vehicle delays are limited given the low train volumes on the RSOR line.

Table 2.19 Public At-Grade Crossings

Roadway	Location	Railroad	Average Daily Trains	AADT
Mt. Olivet Ch. Rd.	Fleming	CSX	29	740
Pate Rogers Rd.	Fleming	CSX	29	740
Rogers Pasture Rd.	Fleming	CSX	29	120
Dunlevie Rd.	Allenhurst	CSX	28	5,137
SR119/ Talmadge Rd.	Walthourville	CSX	28	3,030
Simmons Rd.	Ludowici	CSX	28	1,870
Macon Street	Ludowici	CSX	28	740
SR 57/ McDonald Street	Ludowici	CSX	28	3,466
Main St.	Ludowici	CSX	28	740
Tobe Lambert Rd.	Flemington	CSX	27	140
Azalea Street	Hinesville	DOD	4	1768
SR 119/ Elma G Miles Pkwy.	Hinesville	DOD	4	19,100
Glenn Bryant Rd.	Hinesville	DOD	4	475
Desert Storm Dr.	Hinesville	DOD	4	475
Shaw Rd.	Hinesville	DOD	4	5,520
US 84/ Oglethorpe Hwy.	Allenhurst	DOD	4	14,610
Olive Street	Hinesville	DOD	4	1,768
Franklin St.	Hinesville	DOD	4	1,768
Sanders Avenue	Hinesville	DOD	4	3,578
Yellow Pine St.	Hinesville	DOD	4	475
SR 196/ Frank Cochran Dr.	Hinesville	DOD	4	15,842
Eunice Road	Hinesville	DOD	4	475
Kay Creek Road	Riceboro	RSOR	2	500
Lake George Rd.	Riceboro	RSOR	1	4,500
US 84/ E. Oglethorpe Hwy.	Riceboro	RSOR	1	5,865
Dogwood St.	Riceboro	RSOR	0	40

Source: Federal Railroad Administration; Hinesville Area MPO; Cambridge Systematics, Inc. analysis.

2.3.2.3. Air Cargo

Air cargo tonnage at the Savannah-Hilton Head International Airport is used to understand air cargo usage in the HAMPO region. As stated in Section 2.1.2.3, MidCoast Regional Airport does not have air cargo or commercial service. However, the runway is being extended to accommodate smaller jet aircraft like the 707 which will improve the MidCoast Regional Airport's future competiveness for air cargo, especially for military purposes. Thus, though SAV is outside of the HAMPO region it is still relatively close to the region's shippers and able to serve as their primary airport for air cargo services. Given the relatively high cost of air cargo services, shippers normally try to refrain from this mode of transport unless the commodity being shipped requires it due to time constraints or its high value.

According to data published in the Savannah-Hilton Head International Airport's annual reports[21] and annual financial reports[22], usage of air cargo services has mostly decreased over the 2010 to 2016 time period. Air

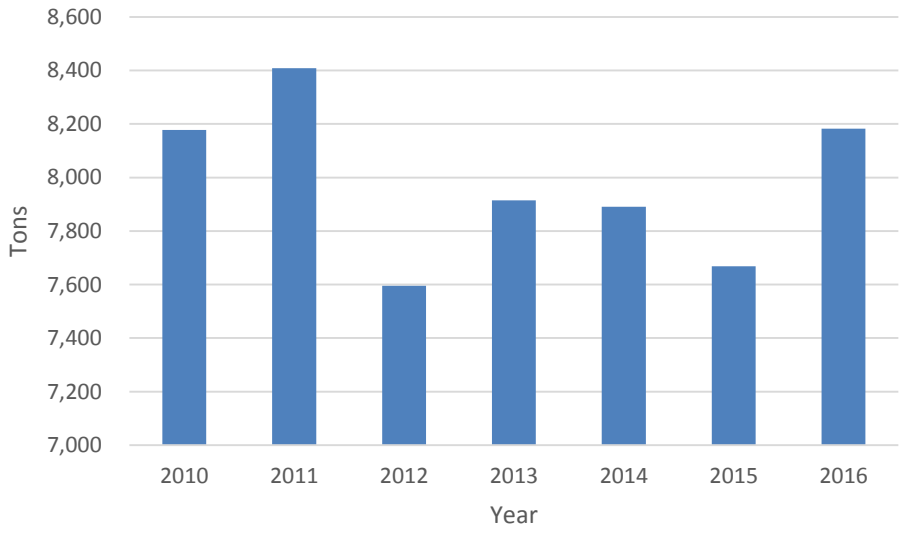
[21] Savannah-Hilton Head International Airport, *Annual Report*, 2010 – 2015.

[22] Savannah-Hilton Head International Airport, *Comprehensive Annual Report*, 2014 and 2015.

cargo usage exceeded 8,000 tons in 2010 and 2011 before experiencing significant decline over the 2012 to 2015 time period (see Figure 2.24). Air cargo tonnage decreased over this period as all-cargo carriers exited the market. However, air cargo usage recovered to pre-2012 levels in 2016 as the 8,000 ton threshold was exceeded. Current air cargo usage is primarily due to commercial passenger carriers transporting freight in the belly of their aircraft. Based on the overall trend of air cargo usage at SAV, shippers in the HAMPO region have likely decreased their use of air cargo services over this same time frame.

Also over the 2010-2016 time frame, on average air cargo throughput at the Savannah-Hilton Head International Airport was 0.21 tons of cargo per square foot of warehouse space as shown in Figure 2.25. As a point of comparison, in 2015 throughput at the Hartsfield-Jackson Atlanta International Airport (which processed 690,047 tons of cargo[23] and has approximately 1.3 million square feet of warehouse space[24]) was 0.53 tons of cargo per square foot of warehouse space. Thus, current warehouse facilities could handle substantially more demand.

Figure 2.24 Air Cargo Tonnage at SAV, 2010-2016

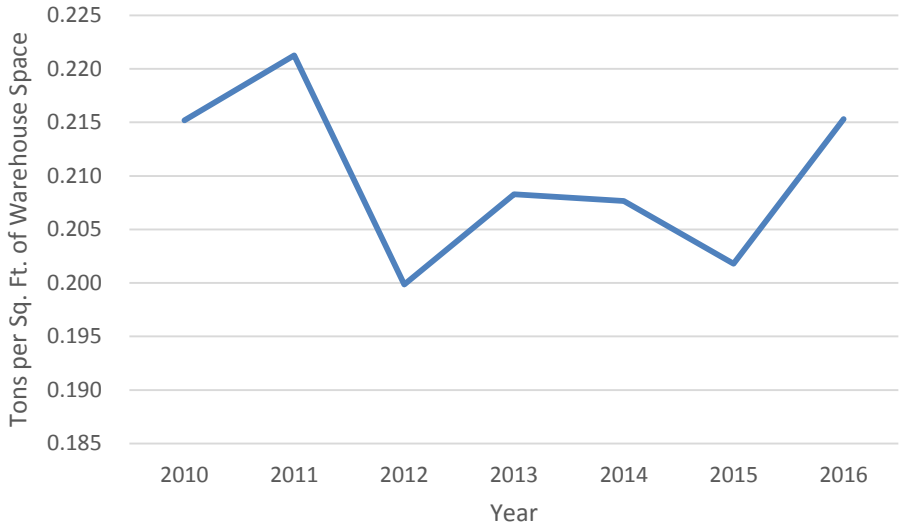


Source: Savannah-Hilton Head International Airport.

[23] Hartsfield-Jackson Atlanta International Airport, http://www.atl.com/business-information/cargo-airlines/.

[24] Hartsfield-Jackson Atlanta International Airport, http://www.atl.com/about-atl/atl-factsheet/.

Figure 2.25 Air Cargo Throughput at SAV, 2010-2016



Source: Savannah-Hilton Head International Airport.

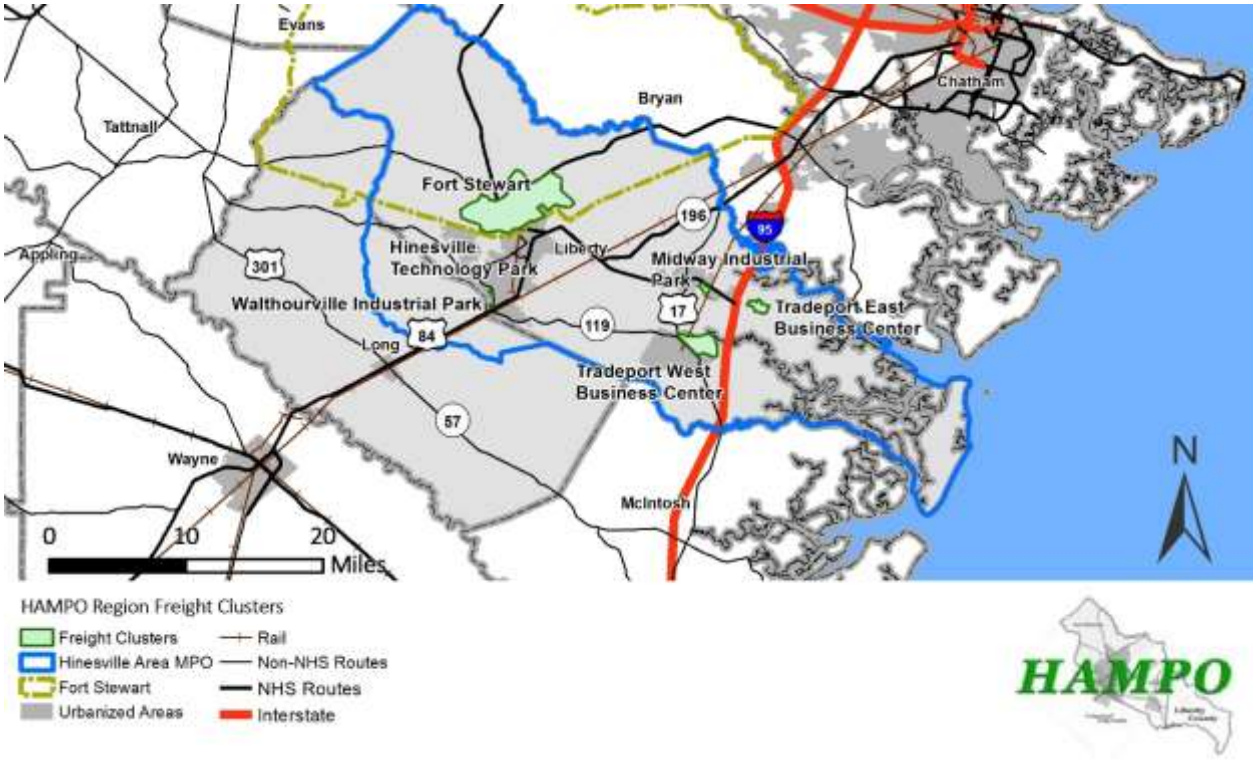
2.4 Existing Land Uses

Freight-intensive land uses in the HAMPO region are identified by locating its manufacturing and distribution sector industries. Companies in these industrial sectors are typically the heaviest users of the freight system. The HAMPO region's manufacturing and distribution industries tend to be concentrated in its five industrial parks: Hinesville Technology Park, Midway Industrial Park, Tradeport East Business Center, Tradeport West Business Center, and Walthourville Industrial Park. In addition, though not a freight cluster in the traditional sense as a hub of manufacturing or distribution activities, Fort Stewart represents a significant freight cluster because it is a large receiver and shipper of goods before and after deployments. These freight clusters are depicted in Figure 2.26 and detailed in Table 2.20.

All of the HAMPO region's freight clusters are proximate to either US 84 and/or I-95 as shown in Figure 2.26. These are the primary freight corridors throughout the HAMPO region and beyond. Three of the five clusters have direct access to the CSX rail network via spur lines – Fort Stewart, Midway Industrial Park, and Tradeport West Business Center – giving both highway and rail access.

For each freight cluster, the industries represented, primary cluster function, and commodities represented are identified. The identification of these freight cluster characteristics are based on the companies located in the clusters. Manufacturing activities in the freight clusters are largely in the primary metal, plastics and rubber, nonmetallic mineral, and food manufacturing sectors. The main distribution activity in the freight clusters is wholesale trade as all of the distribution centers are dedicated to specific retailers. Distribution activities are concentrated in the Tradeport East Business Center and Midway Industrial Park with distribution centers for Hugo Boss, Target, and Tire Rack. Except for Fort Stewart, manufacturing activities are present in all of the freight clusters.

Figure 2.26 Freight Clusters in the HAMPO Region



Source: Liberty County Development Authority; Cambridge Systematics, Inc. analysis.

Table 2.20 Freight Clusters in the HAMPO Region

Freight Cluster	Industries Represented	Primary Cluster Function(s)	Commodities Represented
Hinesville Technology Park	Primary Metal Manufacturing, Food Manufacturing	Manufacturing	Food and Beverages, Articles of Base Metal
Tradeport East Business Center	Wholesale Trade, Primary Metal Manufacturing	Distribution and Manufacturing	Plastics and Rubber, Mixed Freight, Consumer Goods
Tradeport West Business Center	Primary Metal Manufacturing, Computer and Electronic Manufacturing	Manufacturing	Articles of Base Metal, Electronic Equipment
Midway Industrial Park	Nonmetallic Mineral Manufacturing, Paper Manufacturing, Wholesale Trade	Manufacturing and Distribution	Paper, Printed Products, Glass Products, Ceramic Products, Nonmetallic Mineral Products, Wood Products
Walthourville Industrial Park	Plastics and Rubber Manufacturing, Primary Metal Manufacturing	Manufacturing	Articles of Base Metal, Plastics and Rubber
Fort Stewart	Military, Heavy Infantry	National Defense	Mixed Freight

Source: Liberty County Development Authority; Cambridge Systematics, Inc. analysis.

Freight-intensive land uses in the HAMPO region can also be identified by examining the locations at which trucks stop within the metropolitan area. Using truck global positioning system (GPS) data from the American Transportation Research Institute (ATRI), GDOT identified truck trip ends at the Census block level across the state as part of the 2011 GDOT *Georgia Statewide Freight and Logistics Plan*. Stopped trucks represent the likely starting and ending points for heavy truck trips in the region. Thus, they reveal the areas of the region that generate the most freight activity.

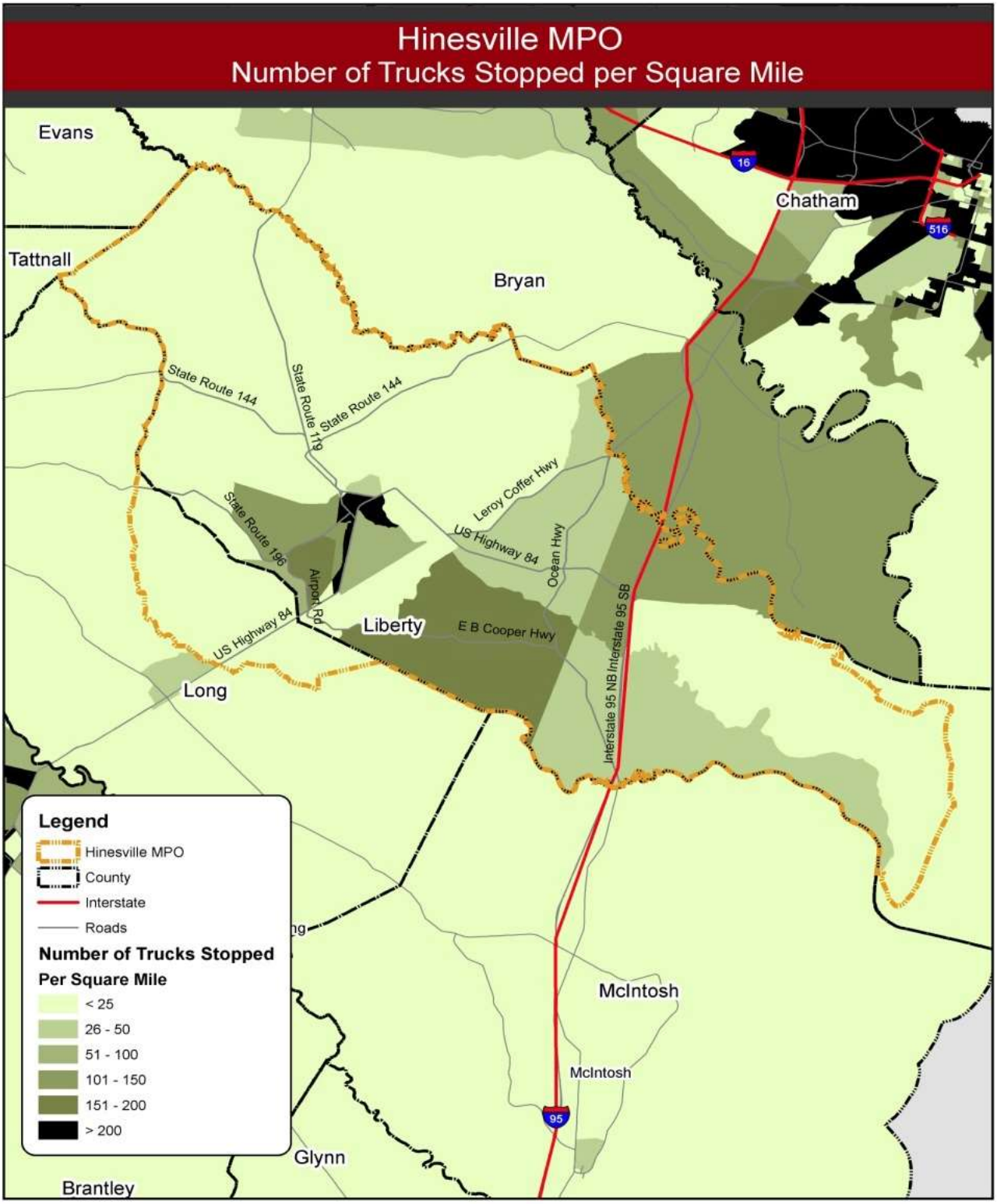
As shown in Figure 2.27, the heaviest concentration of truck trip ends are along US 84 in the City of Hinesville. This area is estimated to generate over 200 truck trips per square mile. As US 84 is the primary commercial corridor for the region, truck trip ends in this area represent pick-ups and deliveries from the businesses that line the corridor.

Fort Stewart is also identified as having a heavy concentration of truck trip ends. In particular, the Census block that contains the Army base's truck gate at 15th Street is included. This is a reasonable result of the analysis as the 15th Street gate represents the origin and/or destination of highway-based freight trips serving Fort Stewart. Fort Stewart is a significant generator of freight traffic in the region as one of its Census blocks was estimated in the GDOT Statewide Freight Plan to generate upwards of 200 truck trips per square mile. Daily truck volumes on 15th Street are estimated at 148 trucks per day as presented in chapter 2.2.1.2. State Route 119, which runs directly through Fort Stewart, on average carries 234 trucks per day.

The Census blocks containing the Tradeport East Business Center and the Midway Industrial Park were estimated to generate 101-150 truck trips per square mile. The Census block containing the Tradeport West Business Center was estimated to generate 51-100 truck trips per square mile. Though the GDOT Statewide Freight Plan analysis (which focuses on the concentration of truck trips) does not feature the HAMPO region's major industrial parks as prominently in the truck trip end analysis as the US 84 corridor and Fort Stewart, these areas still produce a high number of total truck trips relative to other parts of the region.

In addition, the ATRI truck GPS data on which the analysis is based is not perfectly representative of the entire trucking population. Motor carriers with smaller fleets and owner-operators are typically not as well-represented by the data as larger operations. These smaller fleets are common for truck drays at ports as well as for transporting bulk commodities such as forest products, wood products, and sand/gravel. Given the HAMPO region's proximity to the Port of Savannah and the scope and scale of forestry operations throughout southeast and southwest Georgia, additional truck flows exist throughout the region that are not accurately captured by this data set.

Figure 2.27 Truck Trip Ends in the HAMPO Region



Source: GDOT Georgia Statewide Freight and Logistics Plan, 2011.

3.0 Future Conditions

This section of the report documents the future conditions of the HAMPO region's freight system. It includes characterizing future usage and demand, identifying pending network improvements and expansions, and examining future land uses that will impact the demand for freight services and/or freight mobility. It is organized into three sub-sections:

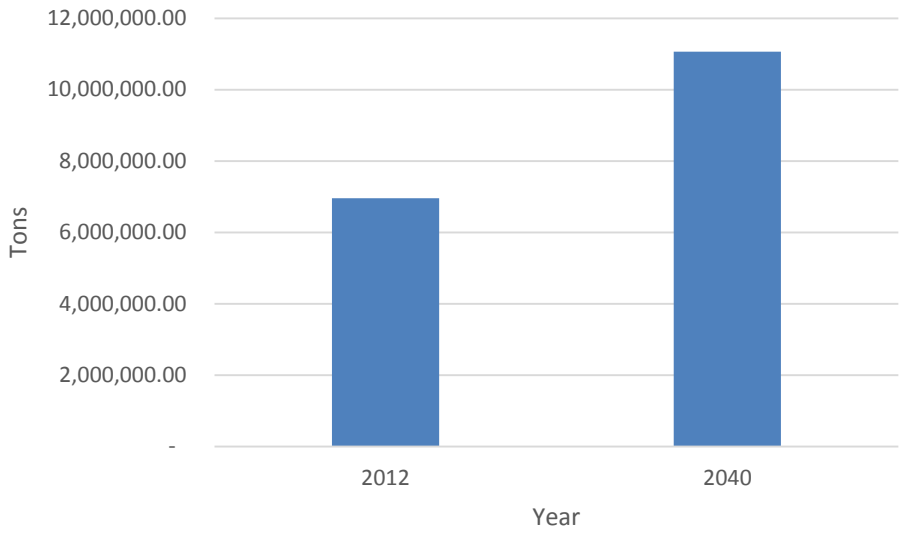
- Section 3.1 characterizes future demand primarily using commodity flow data;
- Section 3.2 examines the region's freight network usage and performance using data from a variety of sources, particularly the HAMPO travel demand model; and
- Section 3.3 examines future land uses using information from the *2040 Metropolitan Transportation Plan*.

3.1 Future Freight System Demand

Commodity flows are estimated using a disaggregated version of the FHWA's Freight Analysis Framework version 4.2 (FAF). The FAF uses data from the U.S. Census Bureau's Commodity Flow Survey to estimate the total tonnage and value of commodities that flow into, out of, and within a defined FAF zone. The process for disaggregating the FAF zone containing the HAMPO region was described in chapter 2.2.

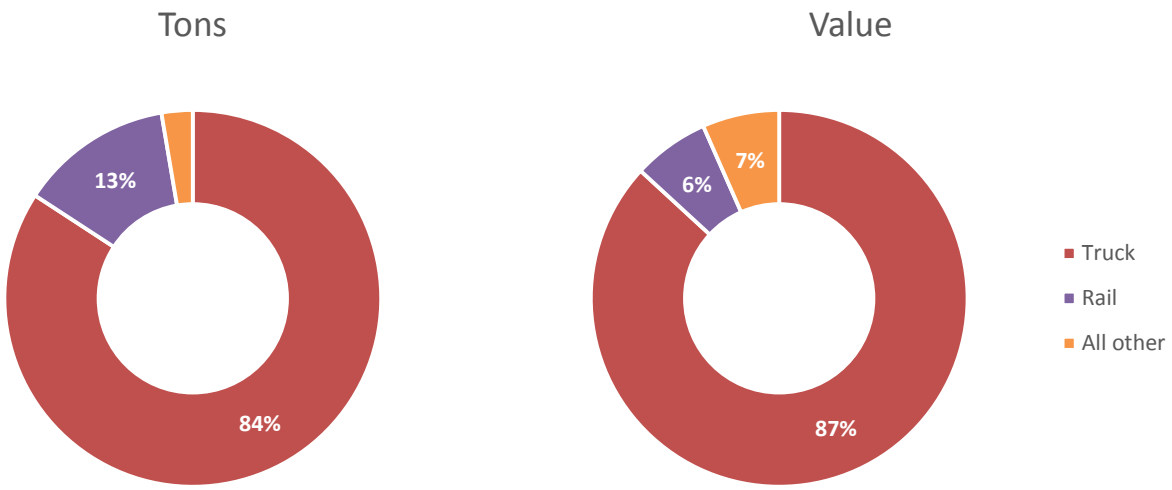
Overall, the results indicate that total commodity flows will increase to over 11 million tons by 2040. This represents a nearly 60 percent increase over the 2012 flows. The results of the analysis indicate that trucking will remain the dominant mode on the HAMPO region's multi-modal freight system. Trucking accounted for the majority of freight flows in the HAMPO region by both total tonnage (84 percent) and value (87 percent) as indicated in Figure 3.1. This equals an estimated 9.3 million tons in 2040 and representing a 50 percent increase over 2012 highway tonnage. Despite this increase in tonnage, trucking's share of commodity flows decreases by 3 percentage points.

Figure 3.1 Growth in Total Commodity Flows, Tons



Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Figure 3.2 Commodity Flows by Mode, 2040



Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Rail carload continues to follow trucking as the predominant freight mode in the HAMPO region. Rail accounted for an estimated 13 percent of total tonnage (1.4 million tons) and 6 percent of total value ($835,000,000). This is a 117 percent increase over 2012 rail tonnage. It also represents a gain in market share of 3 percentage points. Combined, the truck and rail modes are predicted to account for 97 percent of freight flows in the HAMPO region which is unchanged from the base year.

Freight flows are expected to be nearly balanced by direction in 2040 for the HAMPO region as indicated in Table 3.1. Approximately 52 percent of total freight flows (5,739,000 tons) are inbound to the region while about 46 percent of total flows (5,061,000 tons) are outbound. Only about 2 percent of total flows (266,000 tons) are estimated to move internally within the HAMPO region. As noted in Section, 2.2 internal tonnage may actually be higher than indicated by the data given that Interstate Paper moves logs within the region.

Table 3.1 Commodity Flows by Direction, 2040

Direction	Highway	Rail	All Other Modes	Total	Percent of Total Tonnage
Inbound	4,403,891	1,162,732	173,203	**5,739,826**	**52%**
Outbound	4,650,590	288,214	122,348	**5,061,152**	**46%**
Internal	263,829	2,242	39	**266,110**	**2%**
Total	**9,318,310**	**1,453,188**	**295,590**	**11,067,088**	**100%**
Percent of Total	**84%**	**13%**	**3%**	**100%**	

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

The majority of forecast year freight flows inbound to the HAMPO region (54 percent or 3,107,000 tons) probably originate in the Savannah region (i.e. Chatham, Bryan, Effingham, and Bulloch Counties) as

indicated in Table 3.2. Much of this traffic consists of trucks originating from the Port of Savannah or the distribution clusters that surround the port complex. After the Savannah region, Georgia counties outside the Savannah, Atlanta, and Jacksonville, Florida metropolitan regions (i.e. remainder of Georgia) are responsible for approximately 12 percent (421,000 tons) of freight tonnage into the Hinesville region. Unlike the year 2012 estimates, the 2040 analysis predicts that the Chicago region will emerge as a top trading partner with the HAMPO region. This is reflective of larger trends at the broader Savannah-Hinesville metropolitan area and statewide levels, both of which also show the Chicago region as a top trading partner in 2040. The Midwest is generally an important market for ports in the Southeast as it contains large consumer markets (e.g., Chicago) and is linked to the Southeast by less congested rail corridors than those in the Northeast.

The Savannah region also accounts for the largest share of freight flows outbound from the HAMPO region in the forecast year. As indicated in Table 3.3, about 60 percent of total tonnage (3,027,000 tons) leaving the Hinesville area is bound for the Savannah region. About 4 percent of total tonnage (292,000 tons) outbound from the HAMPO region is bound for the Atlanta region (201,000 tons) with the counties in Georgia outside of Metro Atlanta, Savannah, and Jacksonville, FL accounting for 178,000 tons. Similar the base year results, portions of South Carolina and Florida also receive significant shares of freight tonnage from the Hinesville region.

By total tonnage, commodities including gasoline, coal n.e.c. (not elsewhere classified), newsprint/paper, fuel oils, and gravel are predicted to comprise over half (52 percent) of freight flows in the HAMPO region as indicated in Table 3.4. This is largely unchanged from the 2012 base year analysis. Some of these commodity groups, such as coal n.e.c (e.g. lubricating oils and greases, liquefied natural gas, liquefied propane, etc.) and newsprint/paper, are representative of major industries in the Hinesville region which include chemical manufacturing and paper manufacturing. Other commodities such as gravel are heavy, dense commodities that feature prominently when assessing demand by tonnage.

In terms of total value, commodities including coal n.e.c., gasoline, plastics/rubber, fuel oils, and newsprint/paper are predicted to comprise just under half (47 percent) of freight flows in the Hinesville region as indicated in Table 3.5. Similar to the ranking of commodity flows by tonnage, some of the commodity groups are representative of major industries in the HAMPO region. These include coal n.e.c., plastics/rubber, and newsprint/paper. These commodities can be inputs or outputs of chemical and paper manufacturing processes.

Table 3.2 Top Trading Partners – Inbound to HAMPO, 2040

Region	Tons	Percent of Total Tonnage
Savannah, GA	3,107,000	54%
Remainder of Georgia	1,076,000	19%
Chicago IL-IN-WI (IL Part)	250,000	4%
Remainder of South Carolina	109,000	2%
Atlanta, GA	92,000	2%
All Other Regions	1,105,000	19%
Total	**5,740,000**	**100%**

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 3.3 Top Trading Partners – Outbound from HAMPO, 2040

Region	Tons	Percent of Total Tonnage
Savannah, GA	3,027,000	60%
Atlanta, GA	201,000	4%
Remainder of Georgia	178,000	4%
Remainder of South Carolina	169,000	3%
Remainder of Florida	124,000	2%
All Other Regions	1,361,000	27%
Total	**5,061,000**	**100%**

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 3.4 Commodity Flows by Mode (Thousands of Tons), 2040

Commodity	Highway	Rail	All Other Modes	Total	Percent of Total
Gasoline	1,000.6	332.0	-	1,332.6	12%
Newsprint/paper	1,208.8	51.5	1.2	1,261.6	11%
Gravel	660.4	456.3	69.0	1,185.7	11%
Coal-n.e.c.	990.7	56.3	54.4	1,101.4	10%
Fuel oils	918.0	0.1	-	918.1	8%
Wood prods.	549.0	93.3	8.6	651.0	6%
Plastics/rubber	424.0	8.9	19.0	451.9	4%
Nonmetal min. prods.	389.9	20.2	30.5	440.6	4%
Other foodstuffs	390.8	27.6	5.4	423.8	4%
Basic chemicals	213.6	207.6	1.2	422.4	4%
Logs	410.8	0.1	0.0	410.9	4%
Waste/scrap	396.9	0.1	0.1	397.0	4%
Misc. mfg. prods.	374.8	0.1	2.8	377.7	3%
Chemical prods.	157.2	92.3	2.1	251.5	2%
Furniture	227.0	0.5	1.2	228.7	2%
Mixed freight	182.6	0.0	3.0	185.6	2%
Paper articles	130.7	43.0	0.4	174.1	2%
Nonmetallic minerals	118.0	5.1	19.7	142.9	1%
Alcoholic beverages	115.0	0.1	0.0	115.2	1%
Animal feed	65.7	42.5	0.0	108.2	1%
Natural sands	81.3	0.0	-	81.3	1%
Machinery	58.7	0.7	7.9	67.4	1%
Pharmaceuticals	10.3	0.0	52.4	62.7	1%
Fertilizers	57.2	3.6	0.9	61.7	1%
Other ag prods.	35.7	0.0	0.1	35.8	0%
Textiles/leather	26.0	0.0	5.9	31.9	0%
Articles-base metal	18.3	0.0	4.6	22.9	0%
Electronics	19.0	0.1	2.0	21.0	0%
Milled grain prods.	11.3	8.5	0.0	19.7	0%
Printed prods.	18.4	0.0	0.6	18.9	0%
Base metals	13.9	0.5	0.0	14.4	0%
Meat/seafood	14.1	0.0	0.0	14.2	0%
Live animals/fish	7.9	-	0.0	7.9	0%
Precision instruments	6.0	0.0	1.8	7.8	0%
Crude petroleum	5.6	0.1	0.0	5.7	0%

Commodity	Highway	Rail	All Other Modes	Total	Percent of Total
Transport equip.	2.6	0.0	0.6	3.2	0%
Building stone	3.1	-	0.0	3.1	0%
Motorized vehicles	2.1	0.0	0.2	2.3	0%
Coal	0.0	2.1	-	2.1	0%
Metallic ores	0.7	0.0	-	0.7	0%
Tobacco prods.	0.7	-	0.0	0.7	0%
Cereal grains	0.6	0.0	0.0	0.6	0%
Total	**9,318**	**1,453**	**296**	**11,067**	**100%**
Percent of Total	**84%**	**13%**	**3%**	**100%**	

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 3.5 Commodity Flows by Mode – Value, Millions of Dollars

Commodity	Highway	Rail	All Other Modes	Total	Percent Total
Coal-n.e.c.	1,751.5	77.1	78.9	1,907.5	15%
Plastics/rubber	1,352.1	18.2	151.4	1,521.8	12%
Gasoline	846.7	220.9	-	1,067.5	8%
Misc. mfg. prods.	890.2	0.5	33.7	924.4	7%
Newsprint/paper	767.6	36.3	3.6	807.5	6%
Fuel oils	766.5	0.0	-	766.5	6%
Furniture	755.9	1.9	7.2	765.0	6%
Mixed freight	599.6	2.1	46.8	648.5	5%
Other foodstuffs	460.2	35.9	11.5	507.6	4%
Chemical prods.	293.4	169.8	6.8	470.0	4%
Basic chemicals	214.8	194.4	7.9	417.0	3%
Nonmetal min. prods.	358.5	5.3	18.8	382.6	3%
Machinery	293.3	18.6	55.3	367.2	3%
Pharmaceuticals	133.5	0.1	202.8	336.4	3%
Electronics	224.3	0.9	74.4	299.6	2%
Paper articles	261.2	15.4	1.1	277.8	2%
Alcoholic beverages	223.8	0.1	0.3	224.2	2%
Wood prods.	152.5	8.0	7.7	168.3	1%
Precision instruments	83.7	0.1	46.4	130.2	1%
Textiles/leather	86.6	0.2	14.3	101.0	1%
Animal feed	79.6	19.3	0.0	98.9	1%
Transport equip.	44.1	0.0	46.9	90.9	1%
Fertilizers	70.8	1.1	0.3	72.1	1%
Articles-base metal	54.6	0.1	11.6	66.3	1%
Waste/scrap	63.8	0.1	0.1	64.0	1%
Logs	53.6	0.0	0.0	53.7	0%
Base metals	34.5	0.8	0.5	35.8	0%
Motorized vehicles	24.8	0.1	5.1	29.9	0%
Milled grain prods.	23.3	3.4	0.0	26.8	0%
Printed prods.	22.2	0.0	4.2	26.4	0%
Other ag prods.	24.9	0.0	0.4	25.4	0%
Meat/seafood	23.0	0.0	0.0	23.1	0%
Gravel	13.2	4.0	1.4	18.5	0%
Nonmetallic minerals	13.7	0.6	1.8	16.1	0%
Live animals/fish	14.2	-	0.0	14.2	0%
Tobacco prods.	1.4	-	2.7	4.1	0%

Commodity	Highway	Rail	All Other Modes	Total	Percent Total
Crude petroleum	3.7	0.1	0.0	3.8	0%
Natural sands	1.1	0.0	-	1.1	0%
Building stone	0.2	-	0.0	0.2	0%
Coal	0.0	0.2	-	0.2	0%
Cereal grains	0.1	0.0	0.0	0.2	0%
Metallic ores	0.1	0.0	-	0.1	0%
Total	**11,083**	**836**	**844**	**12,762**	**100%**
Percent of Total	**87%**	**7%**	**7%**	**100%**	

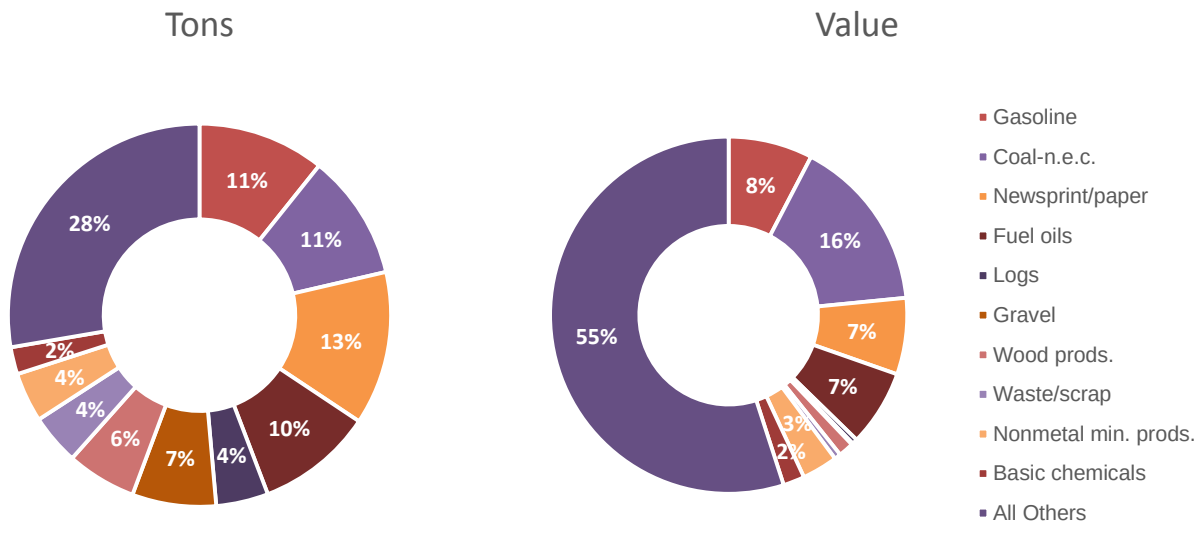
Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

3.1.1 Future Highway Demand

Given that the highway system is estimated to account for the majority freight flows (by tonnage and value) in the HAMPO region, the predominant commodities observed on the highway system mirror those on the overall system as discussed at the beginning of chapter 3.1. By total tonnage, commodities including gasoline, coal n.e.c., newsprint/paper, fuel oils, and logs comprise over two-thirds (71 percent) of freight flows in the HAMPO region as indicated in Figure 3.3 and Table 3.6. Many of these commodity groups (such as coal n.e.c, newsprint/paper, and logs) are representative of major industries such as chemical manufacturing, paper manufacturing, forestry, and wood product manufacturing located in the Hinesville region.

In terms of total value, commodities including gasoline, coal n.e.c., newsprint/paper, plastics/rubber, and fuel oils, and logs represent the highest value freight flows on the region's highway system as indicated in Figure 3.3 and Table 3.6. Altogether, these commodity groups comprise 60 percent of freight flows by total value in the Hinesville region. These commodity flows represent inputs, semi-finished, and finished products from the region's strong manufacturing base.

Figure 3.3 Top Highway Commodity Flows



Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 3.6 Top 10 Highway Commodity Flows

Commodity	Tons	Percent of Total Tonnage	Value (Millions of Dollars)	Percent of Total Value
Gasoline	1,000,630	11%	847	8%
Coal-n.e.c.	990,670	11%	1,751	16%
Newsprint/paper	1,208,830	13%	768	7%
Fuel oils	918,020	10%	767	7%
Logs	410,830	4%	54	0.5%
Gravel	660,410	7%	13	0.1%
Wood prods.	549,040	6%	153	1%
Waste/scrap	396,870	4%	64	0.6%
Nonmetal min. prods.	389,930	4%	359	3%
Basic chemicals	213,620	2%	215	2%
Subtotal	**6,738,000**	**72%**	**4,989**	**58%**
All Other Commodities	2,579,000	28%	6,094	42%
Total	**9,318,000**	**100%**	**11,083**	**100%**

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

3.1.2 Future Non-Highway Demand

3.1.2.1. Ports of Savannah and Jasper

Both the Ports of Savannah and Jasper (scheduled to open in 2030) will impact freight flows through the HAMPO region. In fiscal year 2016[25], the Georgia Ports Authority reported that 27.8 million tons of cargo were moved through the Garden City and Ocean Terminals at the Port of Savannah.[26] Using data from the Freight Analysis Framework version 4.2, the Port of Savannah is predicted to process nearly 97.5 million tons of combined imports and exports by 2040. Together, these indicate roughly a 3.7 percent annualized growth rate in cargo tonnages.

Future demand for imports is predicted to primarily be driven by machinery, textiles/leather, other foodstuffs, pharmaceuticals, and furniture as shown in Figure 3.4. Together, these five commodity groups are expected to comprise 50 percent of all imports by total tonnage. This is consistent with the current trend of imports to the Port of Savannah being dominated by finished, consumer goods. For fiscal year 2016, the Georgia Ports Authority reported that retail consumer goods, machinery (including appliances and electronics), and furniture were among the top containerized commodities imported into and through the Port of Savannah.[27]

Demand for exports is predicted to primarily be driven by newsprint/paper, nonmetallic minerals, textiles/leather, plastics/rubber, and other agricultural products as shown in Figure 3.5. The FAF 4.2 predicts that these five commodity groups will comprise about 50 percent of all exports by total tonnage. Current export demand at the Port of Savannah is driven by food, wood pulp, paper and paperboard, and clay.[28] The current highest demand export for these commodity groups largely overlap with those predicted by the FAF 4.2 (i.e. other agricultural products, newsprint/paper, and nonmetallic minerals).

Many of the HAMPO region's major industries export a significant share of the goods they produce and will continue to be a source of the demand for exports out of the Port of Savannah.[29] Shippers in the HAMPO region are also likely to be a source of demand for imports into the port and its large distribution centers that have ample room for growth. As the region increases its desirability as a hub of manufacturing and logistics activities, greater amounts of cargo being imported into or exported out of the Port of Savannah will increase freight activity to and from the HAMPO region.

[25] The 2016 fiscal year was from July 1, 2015 to June 30, 2016.

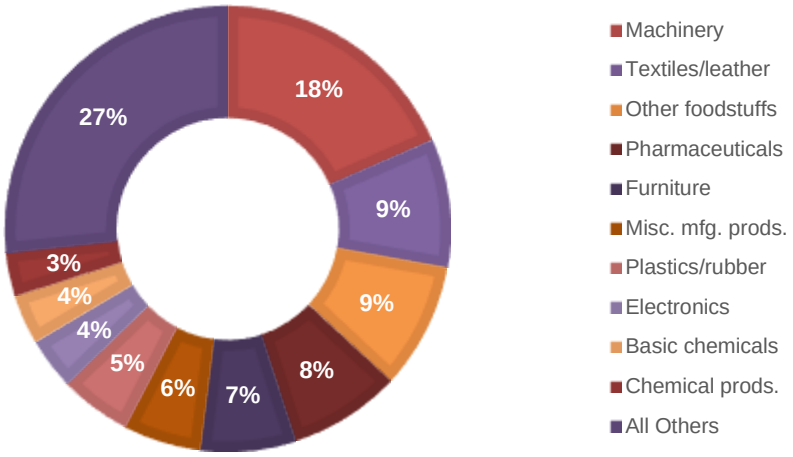
[26] Georgia Ports Authority. Annual Report FY2016, http://www.gaports.com/Portals/2/About/Annual%20Report/2016/GPA360-2016AnnualReport-V14.pdf.

[27] Georgia Ports Authority, http://www.gaports.com/Portals/2/Market%20Intelligence/FY16%20Top%2010%20Commodity%20Groups%20-%20Imports.pdf.

[28] Georgia Ports Authority, http://www.gaports.com/Portals/2/Market%20Intelligence/FY16%20Top%2010%20Commodity%20Groups%20-%20Exports.pdf.

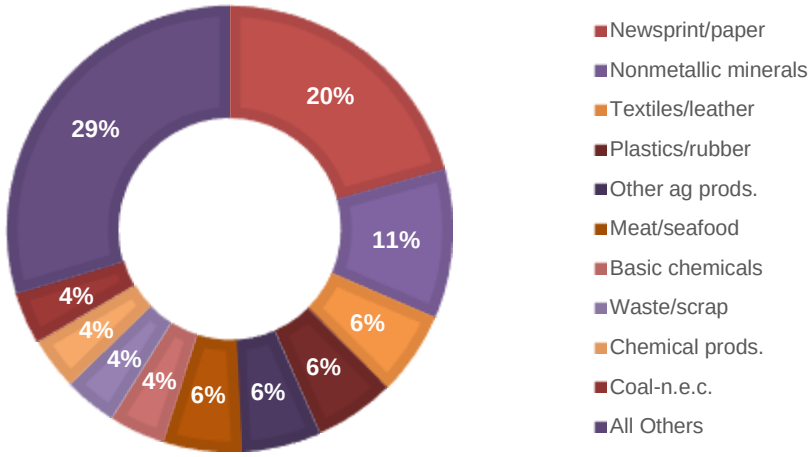
[29] Liberty County Development Authority, http://www.lcda.com/Strategic-Assets.aspx.

Figure 3.4 Imports to the Port of Savannah by Tonnage, 2040



Source: Freight Analysis Framework version 4.2; Cambridge Systematics, Inc. analysis.

Figure 3.5 Exports from the Port of Savannah by Tonnage, 2040



Source: Freight Analysis Framework version 4.2.

The Ports of Savannah and Charleston are 75 miles apart with their respective market regions overlapping making them fierce competitors for ocean-based freight demand. However, the forecast of cargo through over the next 35 years in the hinterland market region for both ports will result in existing and planned marine container terminals in this region experiencing limitations and

inefficiencies as early as 2025. The purpose of the new Port of Jasper projected to open in 2030 is to accommodate at least 25 years of throughput growth for containerized cargo.[30]

Through a joint venture with the States of South Carolina and Georgia, the Port of Jasper will be constructed on 1,500 acres in Jasper County, SC across the Savannah River from Chatham County.[31] The new port will feature 10 berths, a turning basin, and will be accessible by both road and rail. It is estimated that the Jasper Ocean Terminal will increase the Savannah region's freight capacity by 7 million twenty-foot equivalent units once it comes online in 2030.

While the port will primarily be located in South Carolina, its location is proximate to the existing Port of Savannah complex. The Network Georgia initiative will increase rail intermodal access to the Port of Savannah and the Jasper Ocean Terminal which will improve the ability of rail intermodal to divert port-based traffic from the highway system.[32] However, rail and truck traffic will still use the existing network now servicing the Port of Savannah to access the Jasper Ocean Terminal. As such, north Florida and south Georgia shippers will continue to use their current primary line-haul routes to access the Port of Savannah – namely US 84. This implies that port-based traffic will continue to travel through the HAMPO region and will increase substantially over the long-term due to increased capacity at the Port of Savannah complex via the Jasper Ocean Terminal.

3.1.2.2. Rail

Rail carload is predicted to continue to be the second most dominant mode in terms total tonnage behind trucking. Based on the results of the FAF 4.2 disaggregation, rail carload is expected to increase by a total of approximately 117 percent between 2012 and 2040. This translates to an annualized growth rate of 2.8 percent.

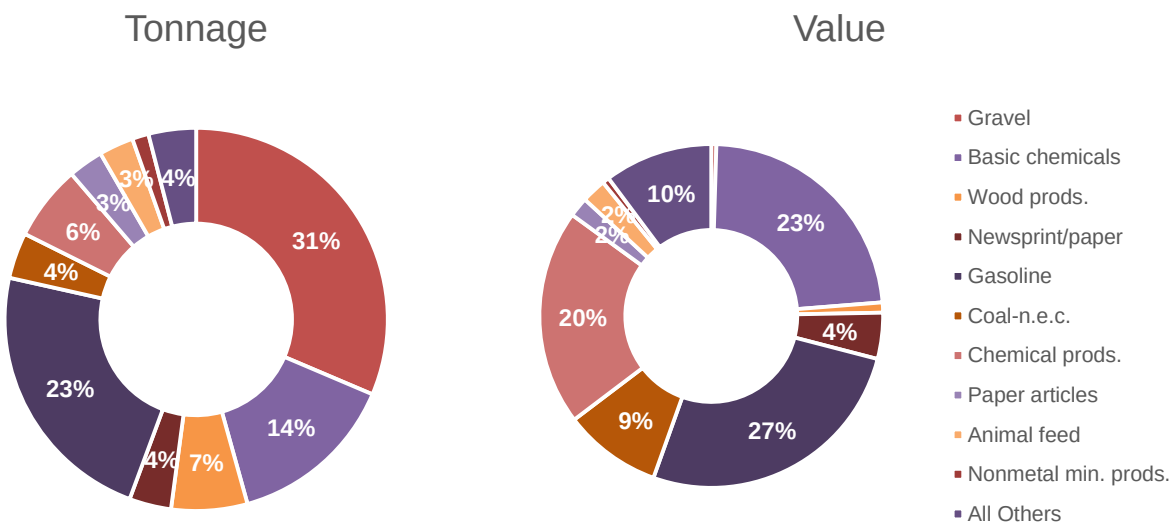
As shown in Figure 3.6, the commodity groups expected to drive demand on the HAMPO freight rail system include gravel, basic chemicals, wood products, newsprint/paper, and gasoline. Altogether, these commodities comprise 78 percent of rail flows by tonnage and 55 percent of total rail flows by value. Coal n.e.c. and chemical products are also drivers of future rail carload demand as are predicted to represent about 10 percent of total tonnage and 30 percent of total rail value. Because of shortline access to the CSX mainline, Fort Stewart along with companies located in Riceboro, Tradeport West, and the Midway Industrial Park are expected to be the source of rail carload demand in the HAMPO region.

[30] Jasper Ocean Terminal Project Update, December 2, 2015. http://www.cityofhardeeville.com/DocumentCenter/Home/View/1866.

[31] Williams, Dave. "Georgia Ports Authority Antes up for New Port," Atlanta Business Chronicle, May 23, 2016, https://www.bizjournals.com/atlanta/news/2016/05/23/georgia-ports-authority-antes-up-for-new-port.html

[32] Network Georgia. http://www.gaports.com/IntermodalRail/CordeleInlandPort.aspx

Figure 3.6 Top Rail Commodity Flows, 2040



Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

Table 3.7 Top Rail Commodity Flows

Commodity	Tons	Percent of Total Tonnage	Value (Millions of Dollars)	Percent of Total Value
Gravel	456,000	31%	4	0%
Basic chemicals	208,000	14%	194	23%
Wood prods.	93,000	6%	8	1%
Newsprint/paper	51,000	4%	36	4%
Gasoline	332,000	23%	221	26%
Coal-n.e.c.	56,000	4%	77	9%
Chemical prods.	92,000	6%	170	20%
Paper articles	43,000	3%	15	2%
Animal feed	42,000	3%	19	2%
Nonmetal min. prods.	20,000	1%	5	1%
Subtotal	**1,395,000**	**96%**	**750**	**90%**
All Other Commodities	**58,000**	**4%**	**85**	**10%**
Total	**1,453,000**	**100%**	**836**	**100%**

Source: Cambridge Systematics, Inc. Disaggregation of Freight Analysis Framework version 4.2.

3.1.2.3. Air Cargo

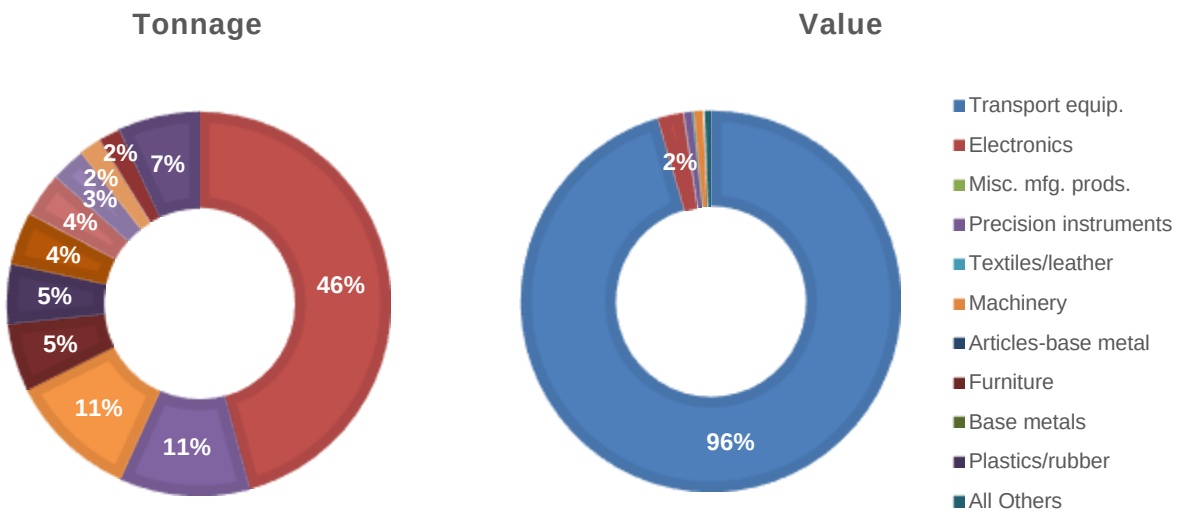
Because the MidCoast Regional Airport is a general aviation airport and does not have commercial or cargo service, air cargo for the HAMPO region is serviced through the Savannah-Hilton Head International Airport (SAV). Based on projections in the Freight Analysis Framework version 4.2 (FAF 4.2), demand for air cargo services at the Savannah-Hilton Head International Airport is expected to increase. Based on information in FAF 4.2, air cargo at SAV is expected to increase by a total of approximately 163 percent between 2012 and 2040 which corresponds to an annualized growth rate of 3.5 percent.

In the future, there is potential for the MidCoast Regional Airport to increase its freight and economic contribution to the region. Runways are now being extending for larger aircraft and the Department of Defense has entered into agreement with the Development Authority setting aside a large tract of land for an airport industrial park. The recently completed airport military projects such as the new the 400 employee strong operation Grey Eagle (UAV) portent growth.

Transportation equipment, electronics, miscellaneous manufactured products, and precision instruments are predicted to continue to account for the majority of goods moved through SAV by total tonnage (73 percent) as indicated in Figure 3.7. By value, transportation equipment is predicted to continue to represent the majority of air cargo by value as it accounts for 96 percent of demand noting SAV is home to the Gulfstream Aerospace Corporation. Other high value air cargo commodities include miscellaneous manufactured products, electronics, articles of base metal, and precision instruments.

While firms in the HAMPO region are expected to continue to utilize air cargo services in emergency situations (such as inventory stock outs during peak demand or critical inputs to manufacturing processes that cannot be easily substituted or sourced elsewhere), they are not predicted to increase their use of air cargo services in their day-to-day supply chains. The cost of transporting goods by air is expected to remain much higher than its primary competing mode – ocean cargo. Thus, high-value, low-weight goods such as electronics and precision instruments are expected to continue to drive demand for air cargo services at SAV.

Figure 3.7 Top Air Cargo Commodity Flows, 2040



Source: Freight Analysis Framework version 4.2; Cambridge Systematics, Inc. analysis.

3.2 Future Network Usage and Performance

3.2.1 Future Highway Usage and Performance

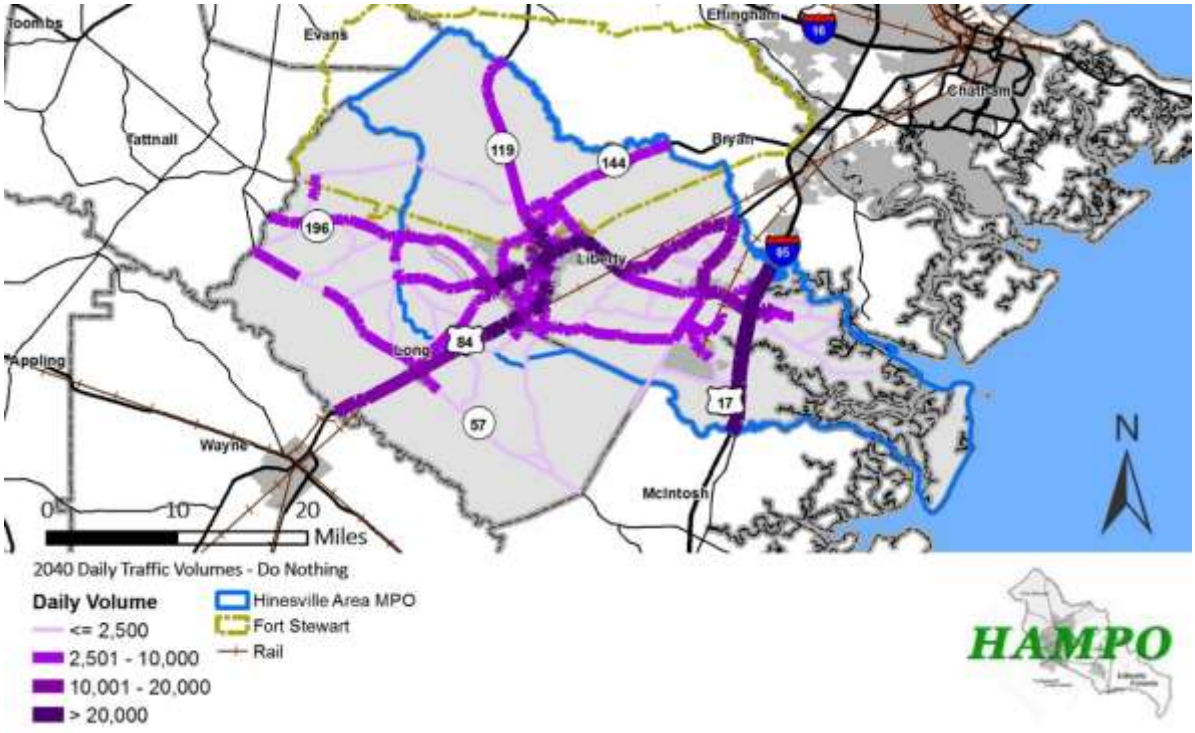
Future traffic volumes on the HAMPO region's highway system as projected by the HAMPO region's travel demand model are examined. As indicated in Figure 3.8, overall, the model predicts significant growth

throughout the HAMPO region. Based on the model results, I-95 will continue to carry the largest volumes through the region. By 2040, daily volumes are expected to reach as high as 56,000 vehicles (northbound and southbound combined). Currently, volumes on I-95 are around 49,700 vehicles per day per the GDOT Geocounts database. This represents a 13 percent increase in volume. GDOT has initiated the long term project widening I-95 from three to four lane each way to accommodate this growth.

Substantial growth is also expected on US 84. Currently, this corridor carries 24,000 to 35,000 vehicles per day at its busiest locations. By 2040, daily traffic volumes along the eastern portion of the corridor (between Flemington and Midway) are projected to rise as much as 22 percent. Daily volumes along the western portion of the corridor (in the City of Hinesville) were predicted to maintain current levels over the forecast horizon. This would imply that the growth predicted in the travel demand model is serving local as opposed to through truck trips. However, increased demand at the Port of Savannah would increase truck volumes along the length of the US 84 corridor. In addition, recent trends in increased commercial development along US 84 will add volume beyond that which was projected by the travel demand model. As this portion of US 84 has been identified in previous regional studies for challenges related to congestion and safety (high truck accident rates), growth on this corridor will only exacerbate those challenges. The HAMPO travel demand model also predicts growth on the region's remaining primary routes, namely SR 119, SR 196, and US 17. For example, volumes on SR 119/Talmadge Road in Walthourville are projected to increase by as much as 38 percent while those on SR 119 inside Fort Stewart may increase by 23 percent. Currently, SR 119/SR 196/E.G. Miles Parkway carries nearly 17,000 vehicles per day but volumes are expected to climb as much as 65 percent by 2040 to nearly 28,000 vehicles per day. Volumes on SR 196 prior to its merger with SR 119 in the western portion of the HAMPO region are predicted to increase approximately 31 percent by 2040 – about 7,100 vehicles per day. Current volumes on US 17 range from 3,000 to 6,250 between Riceboro and Midway. The travel demand model predicts that volumes on US 17 could rise as high as 13,420 vehicles per day on along some segments, representing nearly a 115 percent increase at its busiest location.

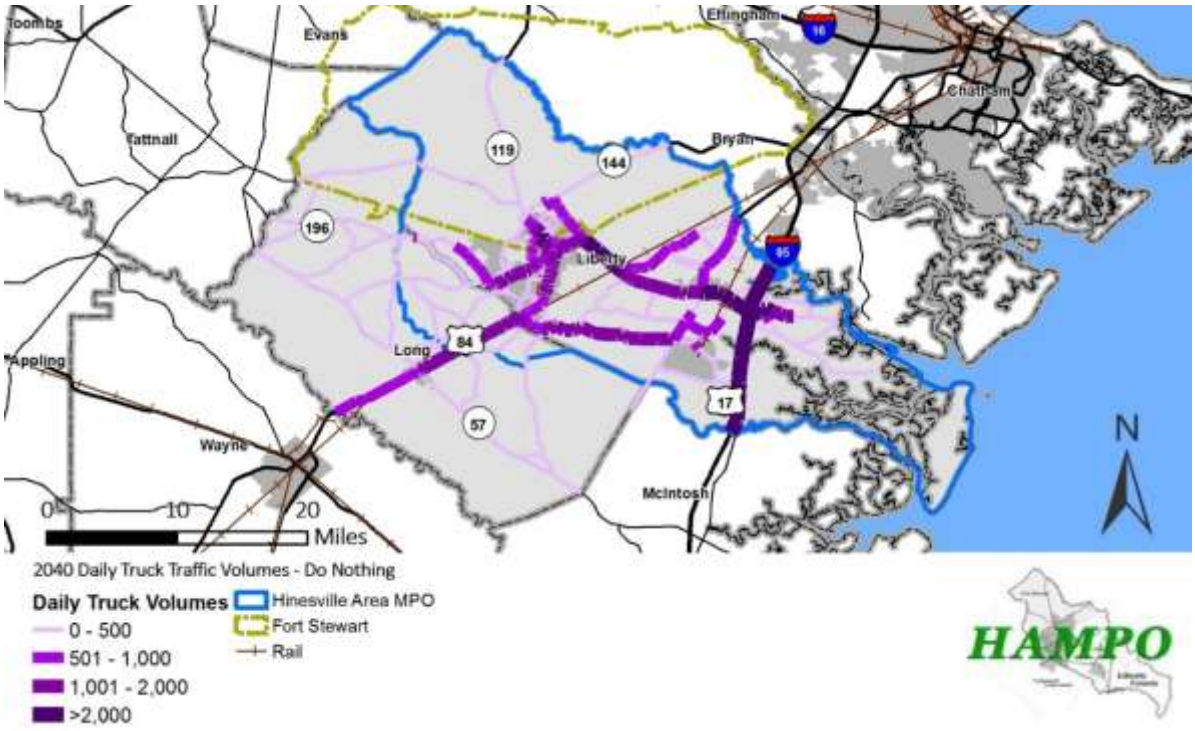
Future truck volumes on the region's highway network are also predicted by the HAMPO travel demand model as indicated in Figure 3.9. I-95 is expected to continue to carry the largest amount of truck traffic through the region with substantial increases predicted for US 84, SR 119, SR 144, and SR 196. Future truck volumes on US 84 could reach as high as 2,600 trucks per day in the urban core.

Figure 3.8 2040 Daily Traffic Volumes



Source: Hinesville Area MPO Travel Demand Model.

Figure 3.9 2040 Daily Truck Traffic Volumes



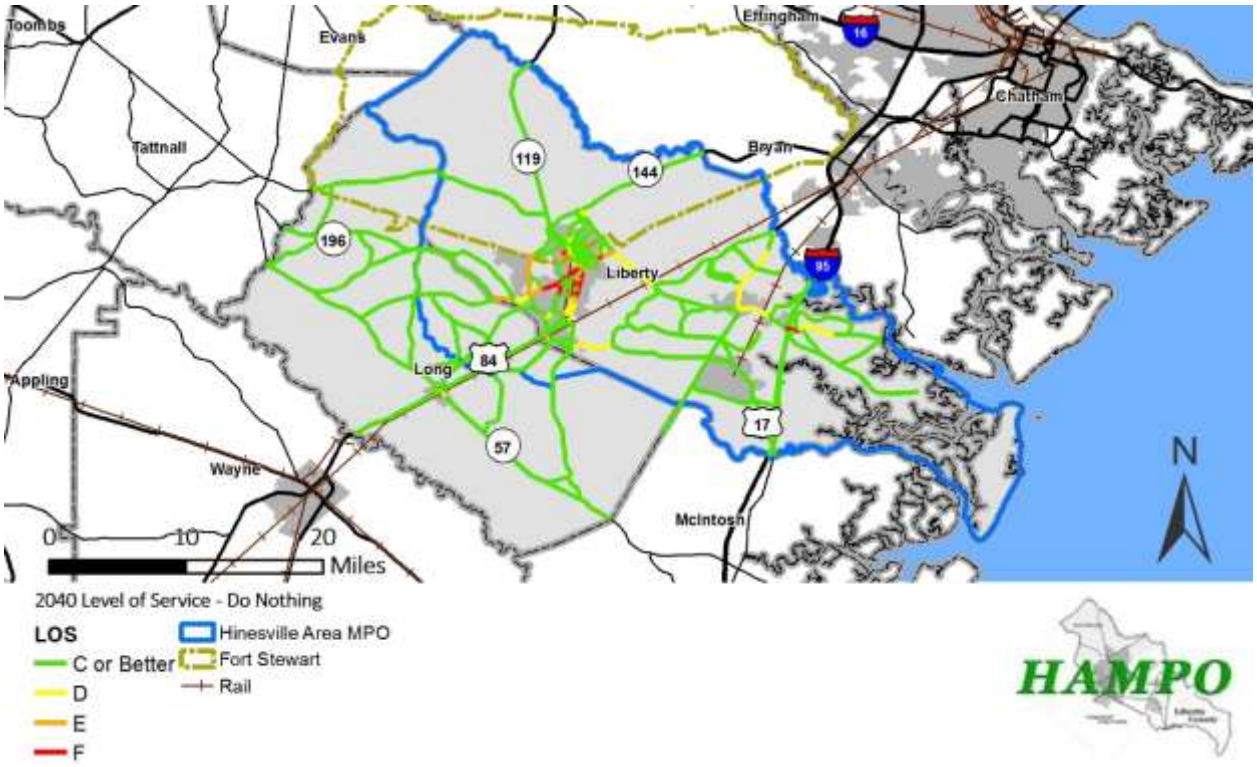
Source: Hinesville Area MPO Travel Demand Model.

The HAMPO travel demand model is utilized to examine future performance on the HAMPO highway system. As shown in Figure 3.10, overall, the model results indicate that future performance on the highway system is good with most of the system exhibiting a "C" or better level of service. An "A", "B", or "C" level of service indicates that a roadway has sufficient capacity to meet demand.

Despite most roadways exhibiting acceptable levels of service, some corridors are projected to experience challenges handling their anticipated amounts of traffic. For instance, US 84 through Walthourville, Hinesville, and Flemington will experience service levels ranging from a "D" to an "F" by the year 2040 with "E" or "F" level of service indicating a roadway that does not have sufficient capacity to handle its demand. Challenges are expected along US 84 as it crosses I-95 and transitions into Islands Highway. This interchange is utilized by trucks accessing the Tradeport East, Tradeport West, and Midway Industrial Park freight clusters.

Other roadways that are projected to experience capacity constraints include SR 119/E.B. Cooper Highway near Walthourville, SR 119/SR 196/E.G. Miles Parkway, Veterans Parkway as it approaches Fort Stewart, and 15th Street. Portions of these roadways are anticipated to exhibit "E" and "F" service levels. Projected congestion on 15th Street may affect highway freight performance in the region as the 15th Street Gate is the only entry access point for trucks servicing Fort Stewart.

Figure 3.10 2040 Level of Service – Do Nothing Scenario



Source: Hinesville Area MPO Travel Demand Model.

3.2.2 Future Non-Highway Usage and Performance

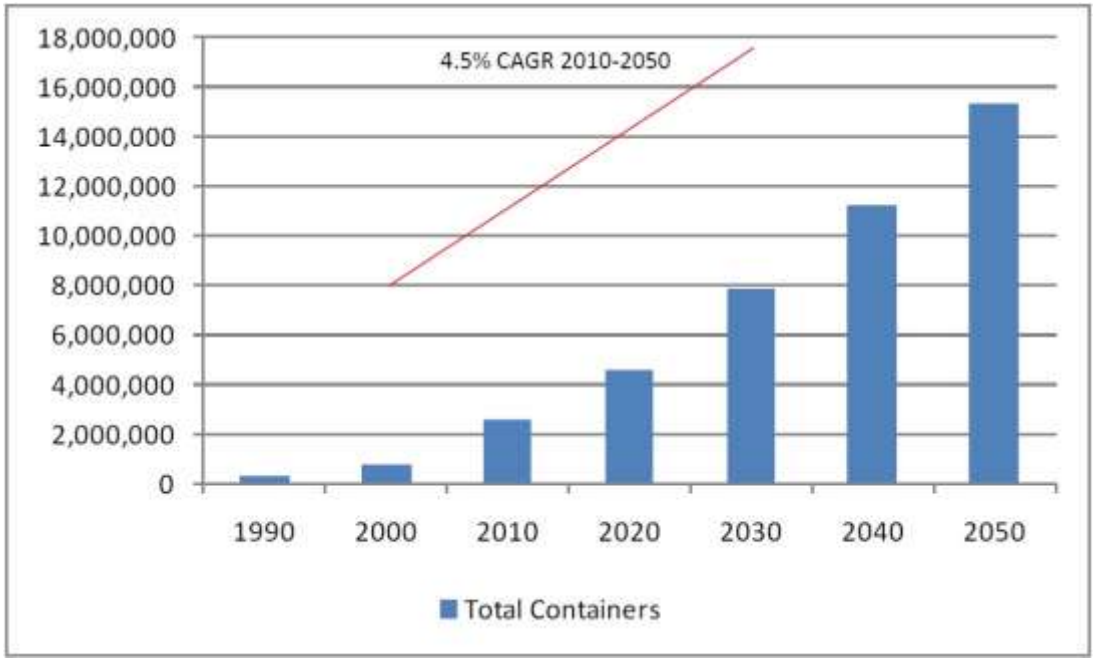
3.2.2.1. Port of Savannah

Container volumes at the Port of Savannah are estimated to grow at 4.5 percent annually through 2050 according to the GDOT *Georgia Statewide Freight and Logistics Plan* (see Figure 3.11). At this rate, total container volumes (including empty containers) will reach 15 million TEUs by 2050 assuming no capacity constraints emerge. The projected container volume growth at the Port of Savannah is driven by imports as well as exports of U.S. Southeast manufacturing goods.

In addition to containers, the Port of Savannah also handles automobiles, break-bulk, liquid, and dry bulk cargo. The drivers of bulk cargo growth at the Port of Savannah are imports and exports of break-bulk cargo and imports of liquid bulk cargo. The GDOT *Georgia Statewide Freight and Logistics Plan* projected that growth in these types of bulk cargo is expected to be between 3 and 4 percent annually. As a result, by 2050 break-bulk exports are projected to exceed 1 million tons while break-bulk imports are projected to exceed 2 million tons (see Figure 3.12). Liquid bulk imports are expected to exceed 1.5 million tons by 2050. Elba Island is currently being expanded to accommodate increased trade in compressed natural gas (CNG).

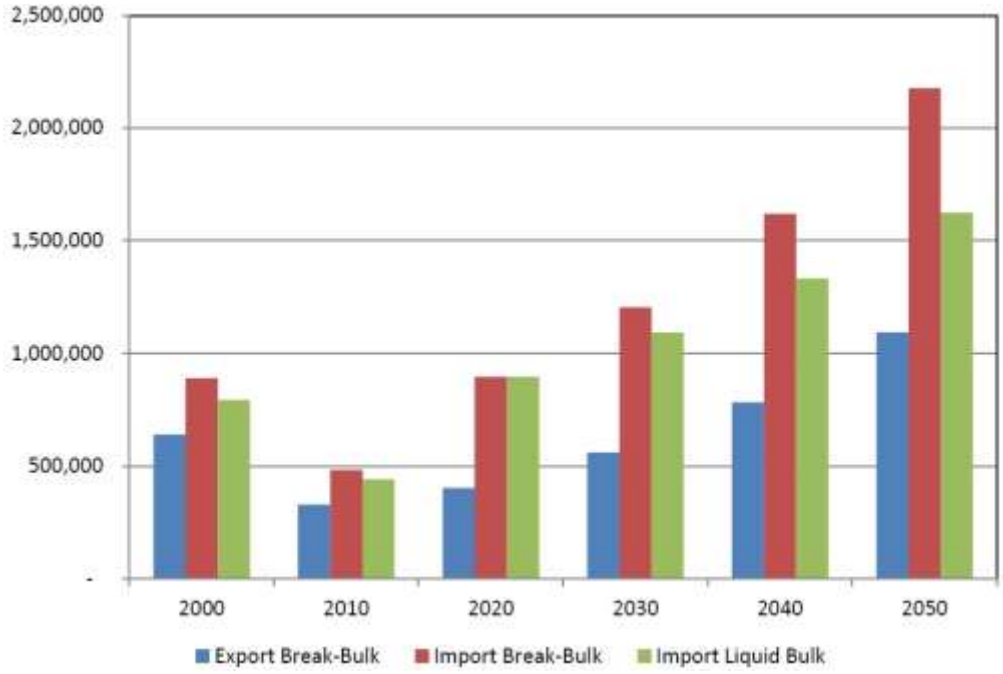
The primary impact of cargo growth at the Port of Savannah for the HAMPO Region is increased truck volumes. As the region continues to attract freight-intensive industries like manufacturing, warehousing, and distribution that utilize the Port of Savannah, some of the cargo volume growth projected for the port will originate and terminate in the HAMPO region. US 84 is the most direct route to the Port of Savannah for much of southwest Georgia and northwest Florida which produce wood pulp and logs/lumber. These are among the port's top exports and these volumes are increasing,. Based on current truck volumes, the main highway routes that will service this growth are I-95 and US 84, therefore the HAMPO region will also experience the same growth in through truck movements

Figure 3.11 Projected Container Cargo Growth at the Port of Savannah



Source: Georgia Ports Authority, Moffatt & Nichol; GDOT Georgia Statewide Freight and Logistics Plan: Marine Modal Report, 2015.

Figure 3.12 Projected Bulk Cargo Growth at the Port of Savannah



Source: Georgia Ports Authority, Moffatt & Nichol; GDOT Georgia Statewide Freight and Logistics Plan: Marine Modal Report, 2015.

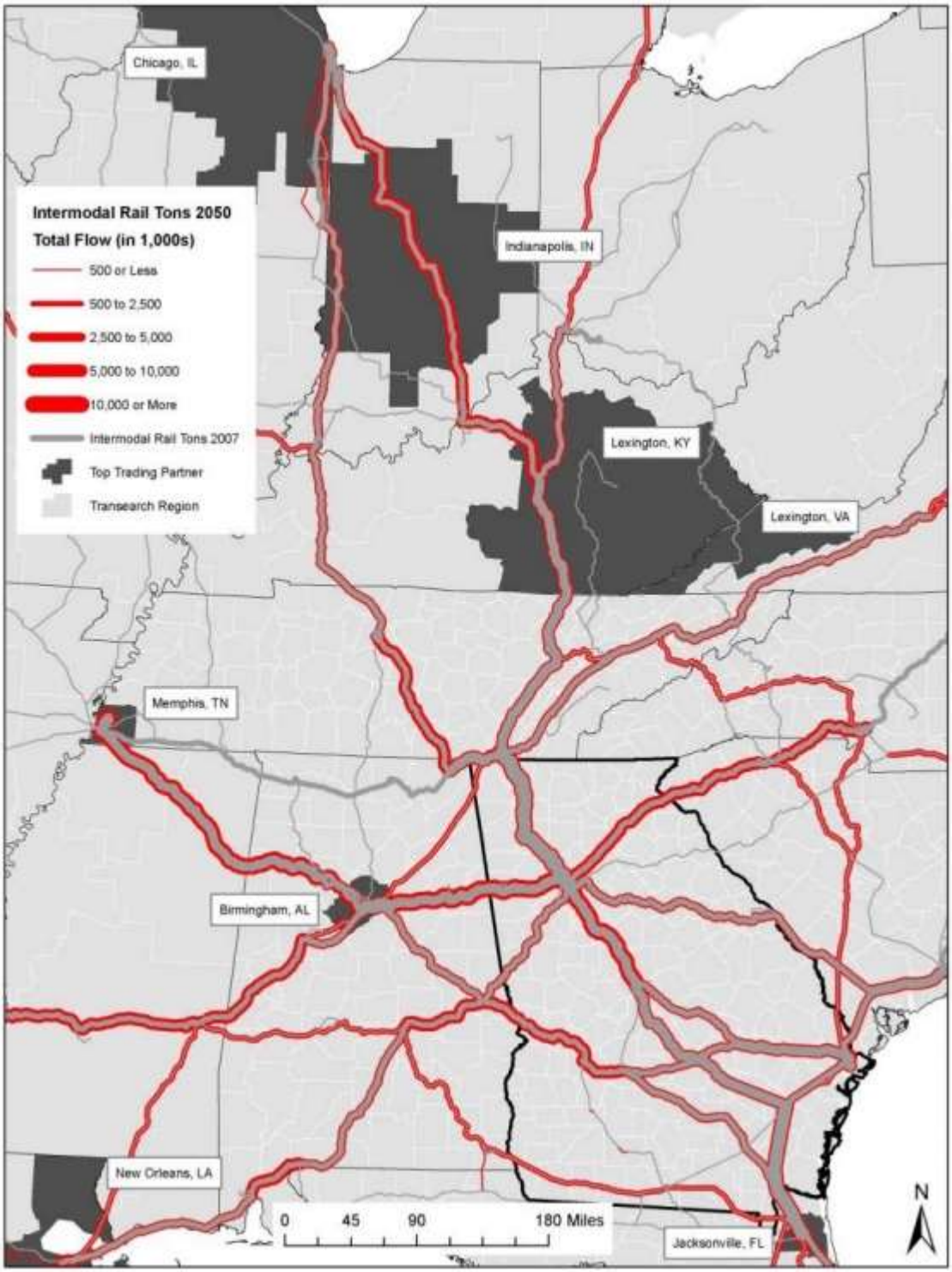
3.2.2.2. Rail

The GDOT *Georgia Statewide Freight and Logistics Plan* informs our understanding of future rail operations in the HAMPO region. The *Statewide Freight and Logistics Plan* estimates that CSXT line traversing the HAMPO region carries over 25 billion tons annually.[33] However, the statewide plan indicated that growth along this line would be driven by intermodal rail traffic as shown in Figure 3.13. In turn, intermodal rail growth through the HAMPO region will likely driven by increased volumes at the Port of Savannah.

Though freight rail volumes in the HAMPO region are expected to grow, much of this is expected to be through traffic. The GDOT *Georgia Statewide Freight and Logistics Plan* predicted very little growth in domestic rail flows along the CSXT line through the HAMPO region. Because there are no intermodal yards in the region, no intermodal rail flows are predicted to have a terminus in the HAMPO region.

[33] GDOT. "Figure 4.34 Georgia Rail Flows and Top Trading Partners," Georgia Statewide Freight and Logistics Plan: Rail Modal Profile.

Figure 3.13 Intermodal Rail Growth from 2007 to 2050



Source: GDOT Georgia Statewide Freight and Logistics Plan: Rail Modal Report, 2015.

3.2.2.3. Air Cargo

While there are no current projections for air cargo operations available for the Savannah-Hilton Head International Airport (SAV), usage of air cargo services at SAV as measured by total tonnage has generally declined since its 2007 peak of 10,783 tons.[34] However, demand for air cargo is expected to increase through 2040 as indicated by the analysis of commodity flow data in section 3.1.2.3. In addition, SAV is planning to construct a new cargo facility that should help to attract more cargo carriers and corresponding tonnage.

3.2.3 Future Highway Improvements

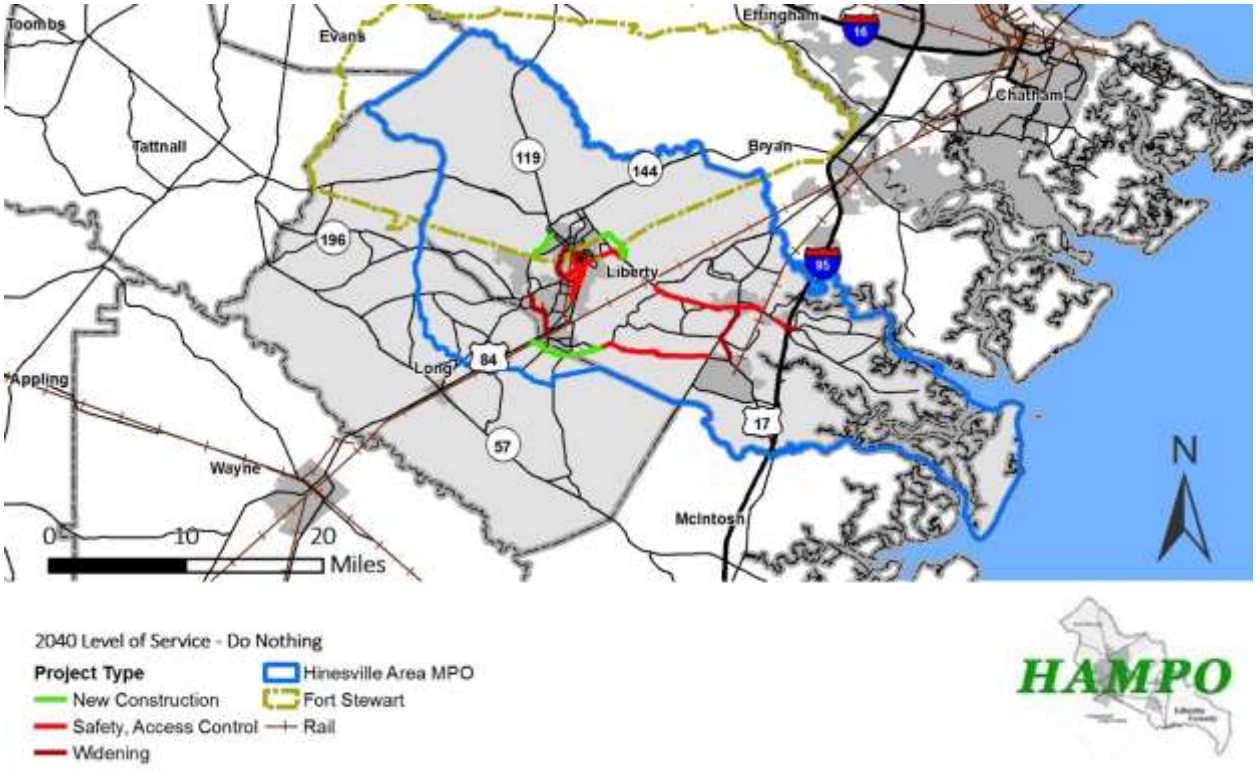
There are several transportation improvement projects outlined in the *2040 Metropolitan Transportation Plan* that could improve freight operations in the HAMPO region. These projects are depicted in Figure 3.7 and listed in Table 3.8. The most significant project to impact goods movement in the region is the Hinesville Bypass (i.e. US 84 Freight Connector). The Hinesville Bypass would divert traffic from US 84 near Walthourville and route it east/west along SR 119/E.B. Cooper Highway and north/south along US 17 where it would then rejoin to US 84. Potentially, the bypass would remove a significant level of truck activity from the urbanized (highest usage) segments of US 84.

Another series of projects that could improve freight operations in the HAMPO region is the addition of raised medians along US 84. There are multiple short spaced driveways along the US 84 granting access to the many businesses that abut this commercial corridor. The heavy presence of driveways along with intersecting streets combined with high traffic volumes create safety and operational challenges as detailed in the HAMPO *US 84 Comprehensive Corridor Study*. This plan recommended access management strategies and projects to be implemented to limit conflicting vehicle movements along US 84 and these medians are included as higher priority projects in the HAMPO *2040 Metropolitan Transportation Plan (MTP)*. The improvements as shown in Figure 3.14 will help to improve both truck safety reduce travel times on US 84.

The MTP projects that will impact goods movement include widening improvements to 15th Street from SR 196 to the Fort Stewart Gate, widening of US 84/ Islands Expressway over I-95, and the widening of US 17. All of these routes provide access to one or more of the HAMPO region's freight clusters. The gate at 15th Street is the primary gate for trucks accessing Fort Stewart. The US 84/ Island Expressway bridge over I-95 was identified as a freight bottleneck in stakeholder interviews and provides access to the Tradeport East and Midway Industrial Park freight clusters. US 17 provides access to the Tradeport West freight cluster including Interstate Paper and Chemtal.

[34] Savannah-Hilton Head International Airport, http://savannahairport.com/about/statistics.

Figure 3.14 2040 Metropolitan Transportation Plan Improvements



Source: Hinesville Area MPO.

Table 3.8 2040 Metropolitan Transportation Plan Improvements

Roadway	From	To	Project Type	Freight-Related
US 17/ Coastal Hwy.	SR 196	US 84	Widening	Y
US 17/ Coastal Hwy.	US 84	Barrington Ferry Road	Widening	Y
US 84/ Oglethorpe Hwy.	General Stewart Way	MLK Jr. Drive	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	General Screven Way	Flowers Drive	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	MLK Jr. Drive	General Screven Way	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	Old Hines Road	General Stewart Way	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	Flowers Drive	Topi Trail	Safety/ Access Control	Y
Islands Hwy.	I-95 Ramp	Sunbury Road	Widening, Safety/ Access Control	Y
SR 119/ E.B. Cooper Hwy.	Barrington Ferry Road	Hinesville Bypass	Widening	Y
US 84 Bridge at I-95	I-95	I-95	Widening	Y
US 84/ Oglethorpe Hwy.	Topi Trail	Airport Road	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	Spires Drive	Old Hines Road	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	Bill Carter Road	SR 196	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	I-95	Charlie Butler Road	Safety/ Access Control l	Y
US 84/ Oglethorpe Hwy.	John Martin	Spires Drive	Safety/ Access Control	Y

Roadway	From	To	Project Type	Freight-Related
	Road			
US 84/ Oglethorpe Hwy.	Charlie Butler	Peach Street	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	Peach Street	Butler Avenue	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	Brights Lake Road	John Martin		Y
US 84/ Oglethorpe Hwy.	SR 196	Brights Lake Road	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	US 17	Bill Carter Road	Safety/ Access Control	Y
US 84/ Oglethorpe Hwy.	Butler Avenue	US 17	Safety/ Access Control	Y
Barrington Ferry Road	US 17	SR 119	Intersection Improvements	Y
US 17/ Coastal Hwy.	Barrington Ferry Road	SR 119/ E.B. Cooper Hwy.	Widening	Y
SR 119/ General Screven Access Improvements	US 84	Fort Stewart Gate 1	Safety/ Access Control	Y
SR 119/ Talmadge Road	US 84	US 84/ Hinesville Bypass	Roadway Redesign	Y
SR 119/ E.B. Cooper Hwy.	US 84/ Hinesville Bypass	Barrington Ferry Road	Widening	Y
SR 196/ E.G. Miles Pkwy. Access Management	Pineland Avenue	General Screven Way	Safety/ Access Control	Y
SR 196 West (to US 301)	Hodges Road/ Central Connector	US 301	Widening	Y
SR 196 West (to US 301)	SR 196/ Rye Patch Road	Hodges Road/ Central Connector	Widening	Y
SR 57	US 84	US 84	Intersection Improvement	Y
I-95 (8 Lanes)	McIntosh County line	South of Jericho River (Bryan County line)	Widening	Y
US 17/ Coastal Hwy.	Railroad	Blackbeard Creek (includes SR 119 intersection)	Intersection Improvements	Y
I-95 Intersection Improvements	I-95 Exit 76		Gateway Enhancements	Y
15th Street/ Frank Cochran Connector	Frank Cochran Drive	15th Street	New Connection	Y
I-95 Intersection Improvements	I-95 Exit 67		Gateway Enhancements	Y
Wright Army Air Field Access Road	Old Hines Road/ Flemington Loop	Midcoast Regional Airport	New Connection	Y
15th Street	E.G. Miles Pkwy.	Fort Stewart boundary	Widening	Y
Hinesville Bypass (Eastern Segment)	US 84	SR 119	New Connection	Y
Hinesville Bypass III	US 84	SR 196	New Connection	Y
Sunbury Road	End of paved surface	LCDA Wastewater Treatment Facility		Y
Sandy Run/ Patriots Trail Connector	Sandy Run Drive	Patriots Trail	New Connection	N
South Main Street	Darsey Road	Deen Street	Widening, Safety/ Access Control	N
SR 38C/ General Stewart Way	Main Street	Memorial	Widening	N

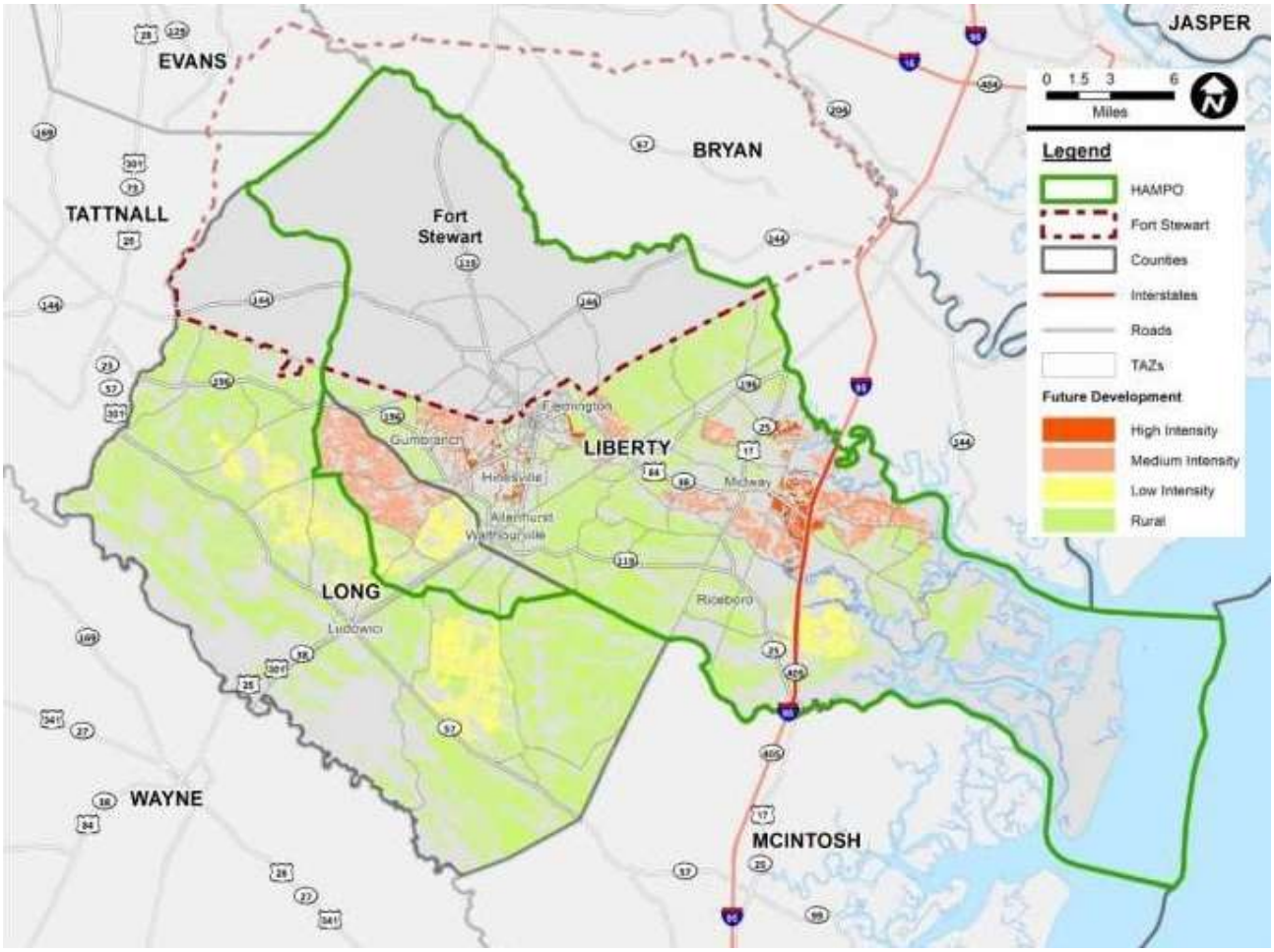
Roadway	From	To	Project Type	Freight-Related
		Drive		
SR 38C/ General Stewart Way	Memorial Drive	General Screven Way	Widening	N
Flemington Loop	US 84	Fort Stewart Road 47	New Connection	N
Central Connector/ General Stewart extension	General Screven Way	Veterans Pkwy.	New Connection	N
Elim Church Road	SR 196	Ludowici	Intersection Improvements	N
Dunlevie Road	US 84	SR 119	Roadway Redesign	N
Central Connector/ General Stewart Ext. 2	Veterans Pkwy.	15th Street	New Connection	N
Laurel View Connector	Isle of Wright Road	Laurelview Road	New Connection	N
Peacock Creek Road	US 84	US 84	New Connection	N
General Stewart Extension East		Sandy Run Extension	New Connection	N
Central Connector	15th Street	Dairy Road/ Hodges Road	New Connection	N
Developer Road	Peacock Creek Road	Patriots Trail	New Connection	N
Independence Road	SR 196	Central Connector/ Fort Stewart boundary	New Connection	N
Independence Spine Road	15th Street at Independence Connector	Dairy Road	New Connection	N
Live Oak Church Road	Current end	Central Connector	New Connection	N
Cay Creek Extension	Cay Creek Road	US 17	New Connection	N
Hampton Island Road	Hampton Island	US 17	Widening	N
Sandy Run Drive extension	Sandy Run Drive	Peacock Creek Road	New Connection	N
Elim Church Road	SR 196	Palmer Road		N

Source: Hinesville Area MPO.

3.3 Future Land Uses

Future land uses were projected as part of the HAMPO 2040 Metropolitan Transportation Plan. The analysis predicted the areas within the HAMPO region that were likely to experience high intensity, moderate intensity, and low intensity development over the forecast horizon. As shown in Figure 3.15, much of the highest intensity development is predicted to occur along the US 84 corridor especially near its interchange with I-95. This has significant implications for freight transportation performance in the HAMPO region as US 84 is a primary truck route, provides access to several of the region's freight clusters, and already experiences freight performance challenges relative to other roadways in the region.

Figure 3.15 Future Development Intensity



Source: Hinesville Area MPO, Forward 40: Metropolitan Transportation Plan, 2015 - 2040.

The portion of the HAMPO region along US 84 near Midway and the interchange of I-95 with US 84 is expected to have undergone significant development by 2040. Two of the regions freight clusters, Tradeport East Industrial Park and the Midway Industrial Park, are included in this area. While the analysis does not specify the nature of the likely development, given its location and current land use zoning it is possible that industrial and other freight-intensive land uses will be a major output of any future development in this area.

Also along the US 84 corridor, intense levels of development are predicted near Flemington and Hinesville. This is already the most heavily developed portion of the HAMPO region and experiences the highest levels of traffic volumes. While the 2040 Metropolitan Transportation Plan's land use analysis did not predict the same magnitude of development along this portion of the US 84 corridor as it did the eastern portion, new development will generally add to current traffic levels. One known development that will significantly impact this portion of the US 84 corridor is the Oglethorpe Square Mall at US 84 and Ralph Quarterman Drive as over 6,000 new daily trips are predicted.[35] Though truck trips were not explicitly estimated as part of the

[35] Signal Warrant Analysis for US 84/SR 38 (Oglethorpe Highway) at Oglethorpe Square Main Driveway, October 5, 2015.

analysis, a portion of these new trips will surely consist of freight movements as commercial properties generate both truck and passenger vehicle trips.

Besides US 84, intense levels of development are predicted along SR 196 and SR 119/SR 196/E.G. Miles Parkway near Gumbranch. While SR 196 and SR 119/SR 196/E.G. Miles Parkway do not experience the same levels of truck volumes as does US 84, freight activity is expected to increase along these corridors. The 15th Street Extension is located in this area which provides access to the primary truck gate used by trucks servicing Fort Stewart. In addition to the development in the Gumbranch area predicted by the 2040 Metropolitan Transportation Plan's land use analysis, Fort Stewart expects a 14 percent increase in the number of troops stationed at the base by 2040.[36] Altogether, the land use development projections for this portion of the HAMPO region suggest that the challenges associated with goods movement will worsen over time unless system improvements are implemented to manage the anticipated growth.

[36] Hinesville Area MPO, Forward 40: Metropolitan Transportation Plan, 2015 - 2040.

4.0 Needs Assessment

This section of the report assesses the potential freight system needs based on feedback from stakeholders and projected growth in traffic volumes. It is organized into five sub-sections:

- Section 4.1 summarizes insights from one-on-one stakeholder interviews conducted as part of the Regional Freight Plan;
- Section 4.2 examines the projected growth on freight corridors in light of existing and future performance challenges;
- Section 4.3 identifies corridors that should be the subject of greater focus based on the insights from section 4.2; and
- Sections 4.4 and 4.5 discuss needs specific to truck parking and a truck bypass given the expressed importance of these issues by the community.

4.1 Insights from Stakeholder Interviews

One-on-one interviews were conducted with major freight system stakeholders in the Hinesville Area Metropolitan Planning Organization (HAMPO) region. These interviews provided insight on the region's freight-intensive industries, identified the challenges associated with goods movement within the region, and opportunities for improvement. Representatives of freight-intensive industries were identified through the Liberty County Development Authority and the HAMPO freight advisory committee.

In total, six different stakeholders (3 from the public sector and 3 from the private sector) were interviewed for the Regional Freight Plan. As shown in Table 4.1, the participating organizations included the MidCoast Regional Airport, Liberty County Development Authority, Liberty County Chamber of Commerce, SNF, Elan Technology, and Interstate Paper. Other organizations in Liberty and Long Counties were reached out to, but did not respond to requests to participate.

Table 4.1 Stakeholder Interviews

Organization	Public or Private	Representative	Title
MidCoast Regional Airport	Public	Charlie Martin	General Manager
Liberty County Development Authority	Public	Ron Tolley	Director
Liberty County Chamber of Commerce	Public	Leah Poole	President
SNF	Private	Steve Fuller	Manager, Logistics
Elan Technology	Private	Tak Arengetinis	President
Interstate Paper	Private	Ronnie Swindell	Manager

Source: Cambridge Systematics, Inc. analysis.

Overall, respondents expressed a high level of satisfaction with the performance of the HAMPO region's freight network but indicated that US 84 currently faces challenges that will only worsen as the corridor

continues to be developed for commercial activity. In addition, the respondents indicated that the quality and availability of rail service and drayage service to the Port of Savannah does and will pose challenges. The key insights from the stakeholder interviews can be organized around three primary themes:

1. Preserve and where possible improve multimodal access to the Port of Savannah;

2. Preserve access to and mobility along the I-95 corridor;

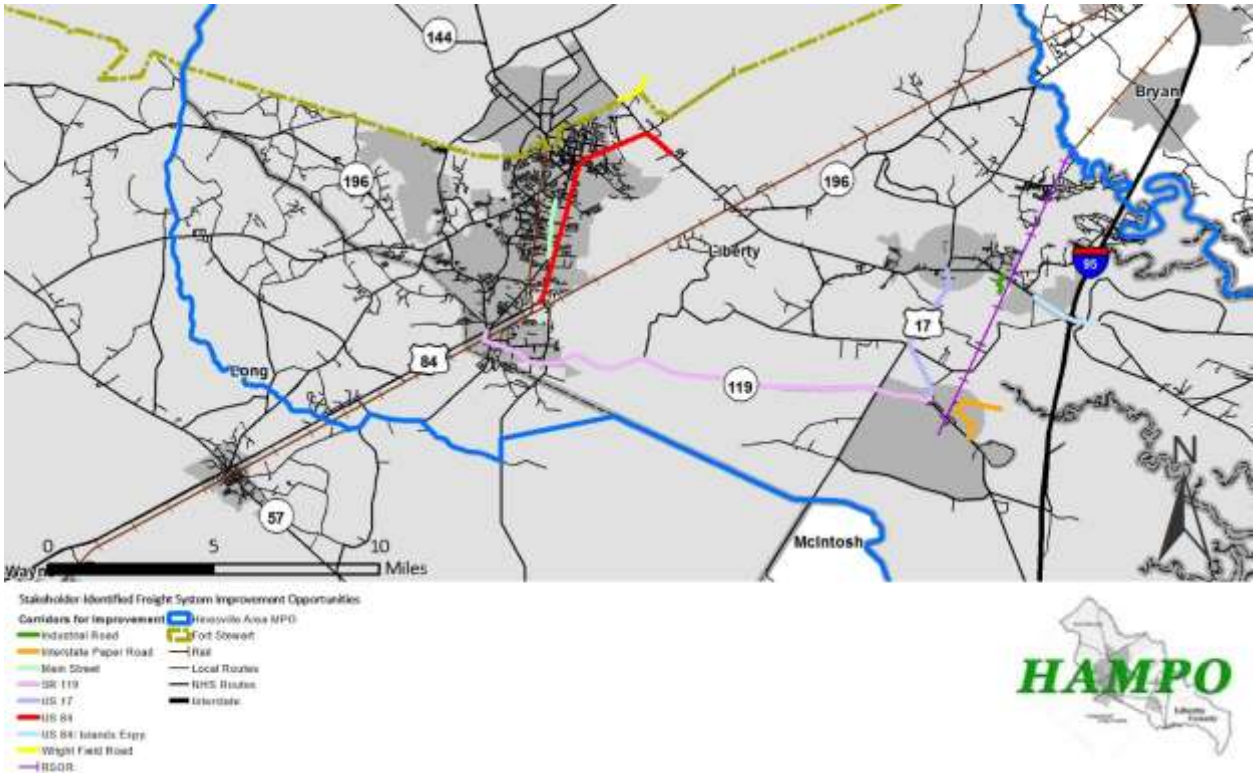
3. Manage the impacts of commercial growth along the US 84 corridor.

Proximity to the Port of Savannah is a commonly cited competitive advantage of the HAMPO region. Respondents indicated that preserving highway access and improving rail access to the Port of Savannah as priorities. Currently, rail service is limited by speed limits on the Riceboro Southern Railway (RSOR).

While proximity to the Port of Savannah is important, respondents also indicated that a major competitive advantage of the HAMPO region is proximity to other southeastern U.S. ports – namely Jacksonville, Brunswick, and Charleston. Should the Port of Savannah be unavailable due to a natural or man-made disaster, shippers in the HAMPO region have viable alternatives. Preserving access to and mobility along the I-95 corridor is important for retaining this competitive advantage. In addition, I-95 allows shippers in the HAMPO region to serve demand along the U.S. east coast including Florida, which many stakeholders identified as an important market. GDOT is in front of these concerns with project studies implement to start the widening to four lanes.

US Highway 84 was the most frequently cited corridor in the region as exhibiting congestion and safety challenges. Stakeholders expressed that the continued commercial development of this corridor will exacerbate current challenges. The major shippers interviewed indicated that the transportation challenges along US 84 do not heavily affect their operations because they purposefully sited their facilities near I-95.. US 84 provides last-mile access to their facilities and does not face the same challenges as it does through the region’s urban core..

Figure 4.1 Stakeholder-Identified Focus Corridors



Source: Cambridge Systematics, Inc. analysis.

Overall, the stakeholders identified eight roadway corridors and one rail corridor for potential freight system improvements. These corridors are depicted in Figure 5.1. The specific corridors and opportunities for improvement are:

- US 84
    - Stakeholders suggested that US 84 is the most congested highway in the region, that it is perceived as less safe, and that truck traffic contributes to these challenges.
    - Stakeholders indicated that the US 84 Freight Connector would alleviate these challenges, but that other improvements (such as signalized intersections and reduced driveways) could help. Several improvements along this corridor are included in the *2040 Metropolitan Transportation Plan*.
- US 84/ Islands Expressway
    - US 84/ Islands Highway was identified as a truck bottleneck because the roadway reduces to two lanes as it crosses I-95. Stakeholders suggested that this route, which provides access to the Tradeport East Industrial Park, be widened to 4 lanes. This project is included in the *2040 Metropolitan Transportation Plan*.
- US 17

  - US 17 provides access to Tradeport West and industries in Riceboro. Between Midway and Riceboro it is a 2-lane roadway withstakeholders indicating that this represents a bottleneck due to limited opportunities to pass slower-moving vehicles. It was suggested that this highway be widened to improve performance.

- SR 119
  - State Route 119 provides access to Tradeport West and industries in Riceboro from US 84. Because it is a 2-lane roadway, stakeholders indicated that it represents a bottleneck as there are limited opportunities to pass slower-moving vehicles. It was suggested that this highway be widened to improve performance. Widening SR 119 is already a component of the US 84 bypass project.

- Industrial Road
  - Stakeholders noted that trucks sometimes have trouble entering and that employees sometimes have trouble exiting Midway Industrial Park (primarily those turning left towards Hinesville). It was suggested that widening Industrial Road could help trucks that must turn left into the industrial park.

- Interstate Paper Road
  - Interstate Paper Road provides access to the Interstate Paper mill in Riceboro. As such, it is heavily utilized by trucks. Stakeholders suggested that the roadway be widened and repaired.

- Main Street
  - Stakeholders noted that trucks sometimes travel on Main Street and damage sidewalks and decorative brickwork. It was suggested that trucks be restricted from this route as they may be using it as an alternative to US 84.

- Wright Field Road
  - Improve the condition of Wright Field Road so that it can better facilitate traffic in to and out of the airport. More substantial improvements (such as widening) will be needed if it is to accommodate substantial truck traffic.

- Riceboro Southern Railroad
  - Stakeholders indicated that the performance of the RSOR rail line is a hindrance to freight mobility in the HAMPO region. This could be improved if the rail infrastructure is upgraded to accommodate higher speeds.

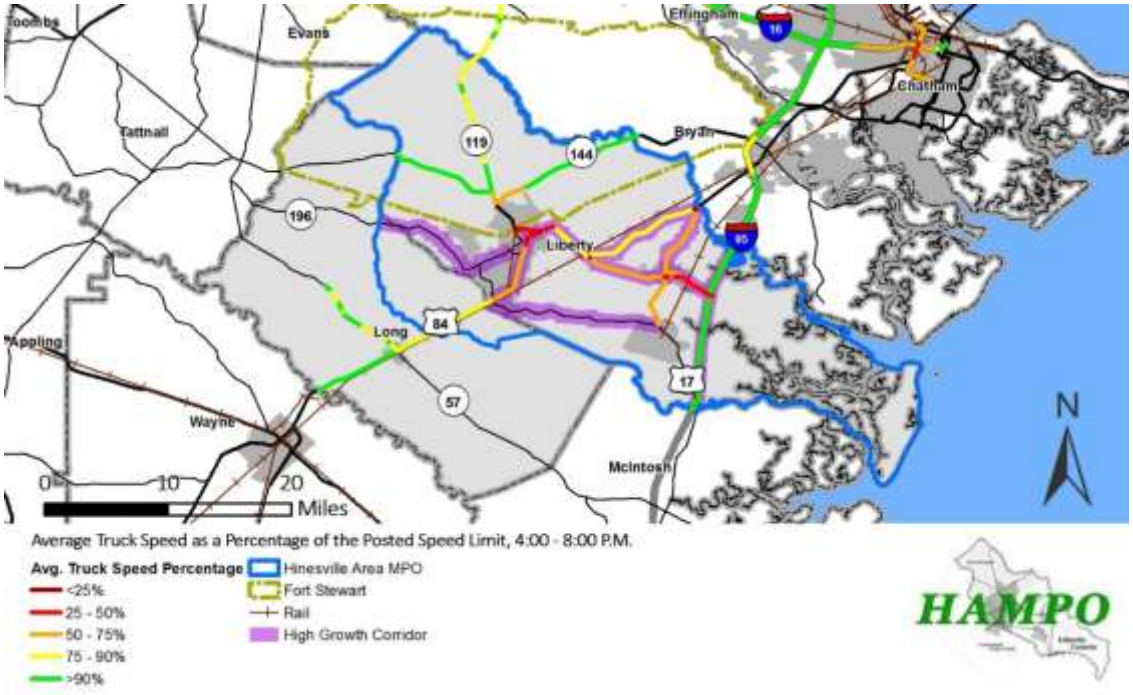
4.2 Growth on Freight Corridors

Using information from the HAMPO travel demand model, the analysis examines projected growth on corridors freight-significant corridors in conjunction with current performance to identify corridors with existing

challenges that may be exacerbated by growth in traffic volumes. Those corridors will require increased focus in regional planning and transportation improvement efforts.

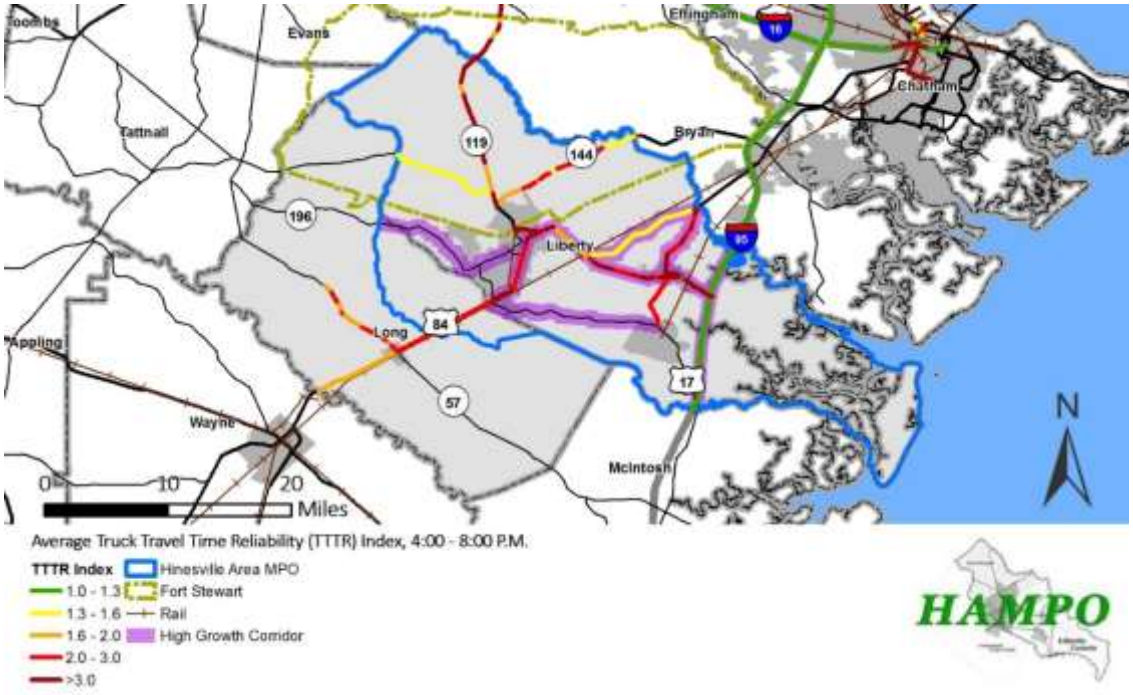
Figures 4.2 and 4.3 depict average truck speeds as a percentage of the posted speed limit and truck travel time reliability on NHS (National Highway System) roadways, respectively. These figures also identify high growth corridors in the HAMPO region as indicated by the travel demand model. Overall, the data suggests that significant growth is predicted on the region's most challenged roadways in terms of performance.

Figure 4.2 Average Truck Speeds on High Growth Corridors, Evening Peak



Source: National Performance Management Research Data Set; Hinesville Area MPO Travel Demand Model; Cambridge Systematics, Inc. analysis.

Figure 4.3 Truck Travel Time Reliability on High Growth Corridors, Evening Peak



Source: National Performance Management Research Data Set; Hinesville Area MPO Travel Demand Model; Cambridge Systematics, Inc. analysis.

US 84 is among the most challenged corridors in the HAMPO region. In addition to exhibiting much higher than average truck accident rates, slower average truck speeds and higher levels of unreliability, it is perceived by stakeholders as more congested and less safe than other roadways in the region as indicated in section 4.1. Based on the travel demand model results, traffic volumes on this corridor could increase by as much as 22 percent by 2040.

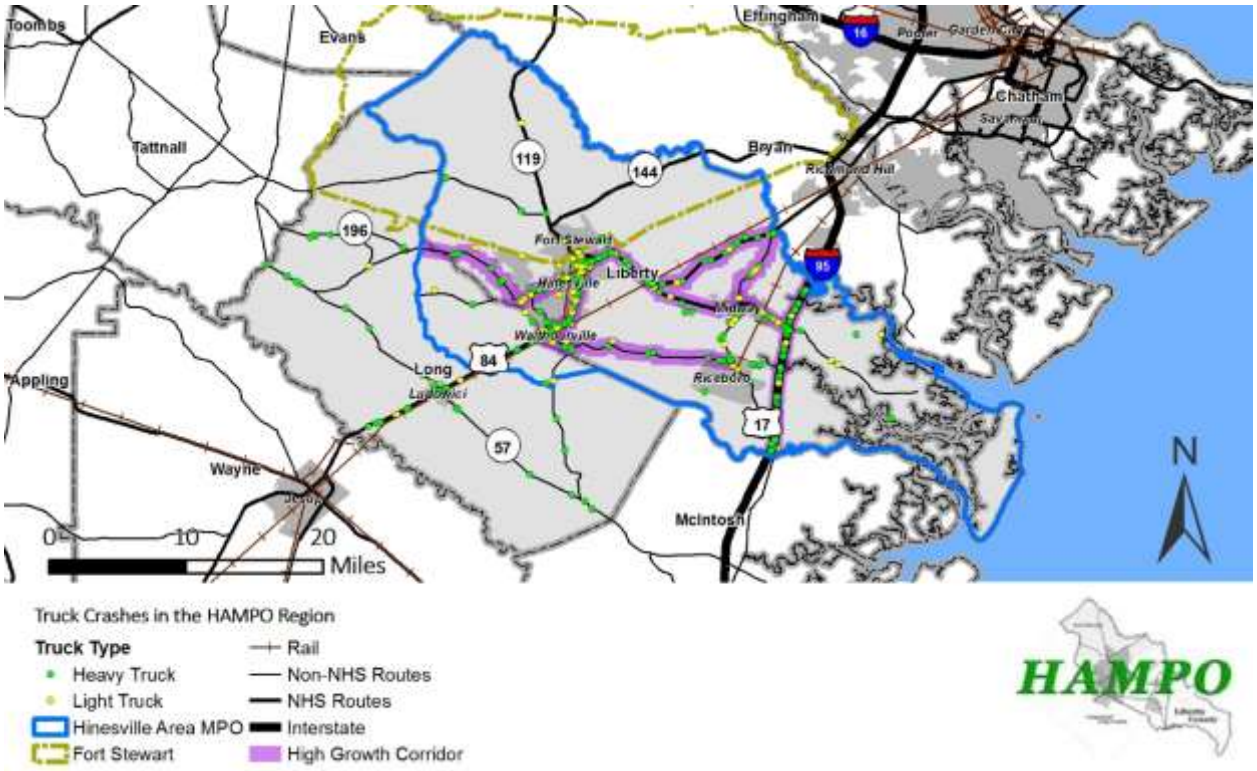
Substantial growth is also projected for US 17 with challenges in terms of average truck speeds and travel time reliability relative to other roadways in the region. As suggested by the stakeholder interviews, this could be a result of US 17 primarily being a 2-lane roadway that also provides access to the Tradeport West freight cluster and serves as an alternative route to I-95.

Significant growth is also projected for the SR 196 and SR 119 corridors, particularly SR 196 west of US 84 and SR 119/E.B. Cooper Highway. These roadways are projected to experience increases in volumes by as much as 31 and 38 percent, respectively. Average speed and reliability data are not available for these roadways as they are not a part of the NHS and the travel demand model did not predict capacity-constraints on most segments of these roadways. However, the model did suggest growing congestion on the extent of these highways that comprise SR 119/SR 196/E.G. Miles Parkway.

In addition to average truck speeds and travel time reliability, the analysis also examines projected growth in conjunction with safety performance. Figure 4.3 depicts the locations of truck-involved crashes over the 2011 to 2016 time frame. Over this period, many of the truck crashes occurred on the HAMPO region's high growth corridors as determined using the results of the HAMPO travel demand model. US 84 experienced a 5-year average truck crash rate of 13.3 truck crashes per 100 million vehicle miles (100 MVM); I-95 exhibited a truck crash rate of 6.1 truck crashes per 100 MVM; portions of SR 196 experienced 8.5 truck crashes per

100 MVM. As volumes increase on these roadways, so will truck crashes. In order to reduce the crash potential on these highways, countermeasures should be taken that reduce the potential for conflicting vehicle movements such as median barriers, signalized intersections, and improved turning movements or restrictions as determined by a traffic engineering safety analysis.

Figure 4.4 Truck Crashes on High Growth Corridors

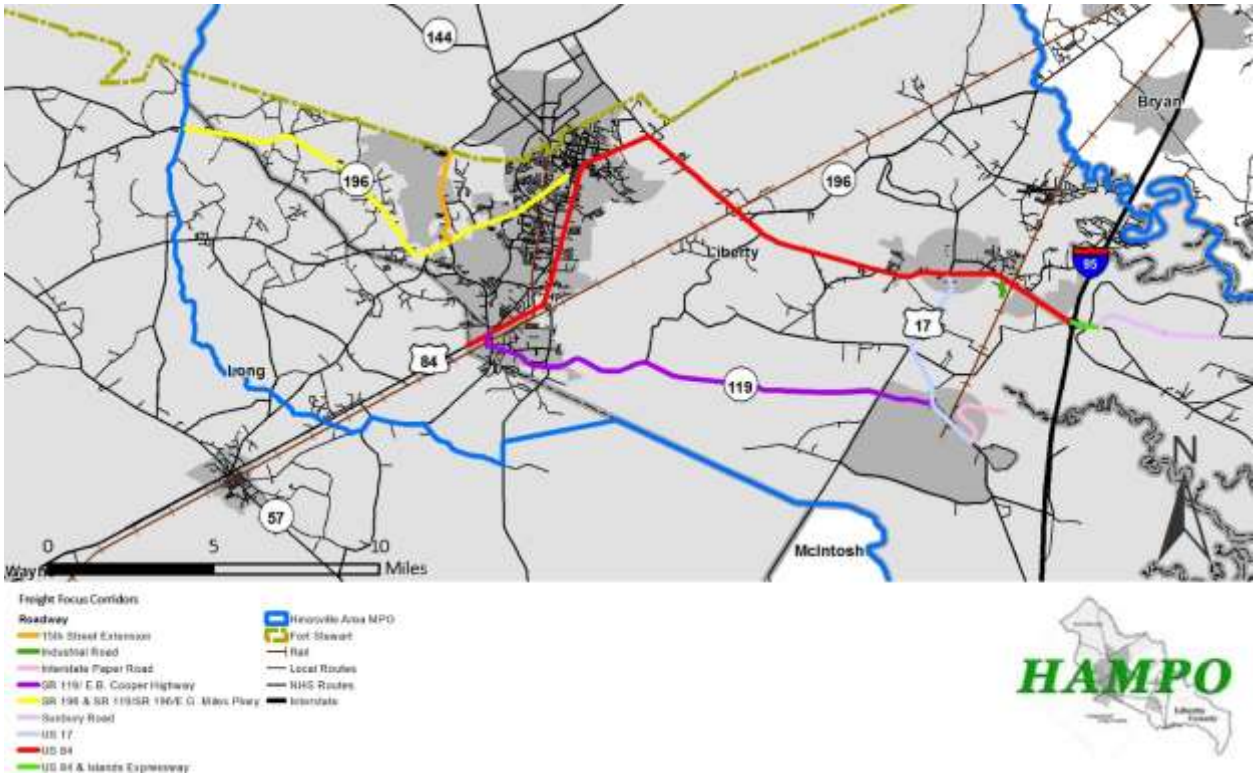


Source: Georgia Department of Transportation; Cambridge Systematics, Inc. analysis.

4.3 Freight Focus Corridors

Based on the results of the stakeholder interviews and the examination of high-growth freight corridors in conjunction with current performance data, the analysis identified freight focus corridors representing highways that carry significant volumes of freight traffic plus those that provide last-mile access to freight clusters. These corridors should receive greater focus as part of regional planning efforts and could also receive priority in the implementation of projects meant to improve freight system performance throughout the region. The potential focus corridors are depicted in Figure 4.5 and are comprised of I-95, US 17, US 84, SR 119, SR 196, Interstate Paper Road, Industrial Blvd., 15th Street Extension, Sunbury Road, and the Riceboro Southern Railway.

Figure 4.5 Freight Focus Corridors



Source: Cambridge Systematics, Inc.

Together, I-95, US17, US 84, SR 119, and SR 196 carry the bulk of freight movements through the HAMPO region. They are expected to continue to be the backbone of the region's freight system as both the travel demand model and commodity flow analysis predict substantial and sustained long-term growth. US 84 was identified by stakeholders and in prior regional plans as having safety and performance challenges particularly as it relates to freight movements. For goods movement in the HAMPO region, these roadways must be the focus of planning efforts and system improvements.

While roadways such as Industrial Road, Sunbury Road, Interstate Paper Road, and 15th Street Extension do not carry the same magnitude of truck volumes as the other focus corridors, they do provide last-mile access important freight clusters. These include the Tradeport East Industrial Park, Tradeport West Industrial Park, Midway Industrial Park, and Fort Stewart. As freight volumes throughout the region grow over time, increased focus must be placed on these roadways to maintain and improve current freight transportation mobility and accessibility.

4.4 Truck Parking

There have been several studies at the national, state, and local levels that have documented the critical shortage of truck parking capacity and its implications for highway safety.[37,38,39] Though there is a need at

[37] Federal Highway Administration. Jason's Law Truck Parking Survey Results and Comparative Analysis, U.S. Department of Transportation, August 2015.

the statewide level for increased truck parking capacity to accommodate the long-haul drivers that often work up to the 11-hour limit (as articulated in the *GDOT Georgia Statewide Freight Plan*), there is also a need for truck parking to accommodate local drivers. In the HAMPO region, this is motivated by a desire to better limit truck parking by off-duty drivers in residential areas and on public roads. This was articulated as a primary quality-of-life concern at the October 24, 2017 public meeting. While municipalities often enact truck parking restrictions, they do not as often plan for truck parking facilities as part of the transportation planning process despite its importance to the freight transportation system. This presents an opportunity for the HAMPO region to mitigate the impacts of local freight transportation activity while still accommodating this aspect of the local economy.

In order to accommodate truck drivers local to the HAMPO region, participating municipalities could enact restrictions on where off-duty trucks are allowed to park while simultaneously developing a truck parking facility for local drivers. Municipalities commonly develop zoning ordinances that prohibit trucks and trailers from being stored on properties that are zoned for residential uses. Furthermore, municipalities can enact ordinances that prohibit truck parking on city and county roadways.

Though there is a considerable amount of developable land along the US 84 and SR 196 corridors that could serve as sites for a truck parking facility, the HAMPO region's existing industrial parks are already able to accommodate such a land use. In particular, the old Liberty County Airport site adjacent to the Hinesville Technology and Walthourville Industrial Parks could be a preferred location. This site provides ample space, about 30 acres, for truck parking and is already owned by Liberty County.[40] In addition, the Liberty County campus of Savannah Technical College has plans to develop a training center for their commercial driver vehicle program which would border the old airport site.

[38] American Transportation Research Institute. Managing Critical Truck Parking Tech Memo #1: Commercial Driver Perspectives on Truck Parking, September 2015.

[39] American Transportation Research Institute. Managing Critical Truck Parking Case Study – Real World Insights from Truck Parking Diaries, December 2016.

[40] Liberty County Board of Tax Assessors, http://gis.libertycountyga.com/flex2/printpdf/?pin=039001.

Figure 4.6 Potential Truck Parking Site

Source: Cambridge Systematics, Inc.

There are a number of design and operational considerations to account for with a truck parking facility beyond those for a typical parking lot (such as the number of spaces, lighting, drainage, pavements, etc.). Because it would function similar to a commuter park-and-ride lot, the facility would require a shelter for driver pick-up and drop-off. The lot should include an area for passenger vehicle parking for drivers to leave their personal vehicles when utilizing their trucks. If non-local drivers are allowed to use the lot for overnight parking, it should include a restroom. For security, the facility should also be fenced.

Securing and operating a public truck parking facility could be funded through annual permits purchased by the local drivers that utilize the facility. Non-local drivers could pay a daily rate, similar to a private truck parking lot. Alternatively, the HAMPO region could pursue a public-private partnership in order to develop and operate the truck parking. In the case of the old airport site, given that it is already publicly-owned, Liberty County could pursue a land lease agreement with a truck stop operator, fuel retailer, or other business that targets the trucking industry to develop and operate the facility. The States of New York and Vermont have similar models for developing and maintaining rest areas along interstate highways.[41]

[41] Miami-Dade Metropolitan Planning Organization. Development of Truck Parking Facilities in Miami-Dade County: Phase II, http://miamidadetpo.org/library/studies/development-of-truck-parking-facilities-phase-ii-options-for-implementation-final-2012-08.pdf.

4.5 Implications of the Hinesville Bypass

The purpose of the Hinesville Bypass is to improve regional travel through Liberty and Long Counties while also improving local traffic conditions in Hinesville by removing through trips from US 84. Much of the HAMPO region's commercial activity is concentrated on US 84 in the city of Hinesville. Furthermore, US 84 is a major east-west truck route for north Florida and south Georgia shippers accessing the Port of Savannah. The 2012 GDOT *US 84/Hinesville Bypass Alternative Recommendations* report determined that the predominant truck route through the HAMPO region (in both directions) is US 84 to SR 196. The report also determined that the Hinesville Bypass as originally conceived (which routed the bypass along portions of SR 119 and Holmestown Road) was not feasible in the foreseeable future due to its high cost. The 2012 report did however, identify an alternative route that already serves as a de facto bypass for truck traffic. This alternative route would include the southwest portion of the originally conceived bypass, but the eastern portion would be replaced by upgrading portions of SR 119 and Barrington Ferry Road.

The purpose of this analysis is to determine how the bypass may perform in terms of diverting truck traffic away from the urban core of the HAMPO region and US 84. While the most rigorous analysis of the diversion potential would utilize a traffic simulation tool to predict truck routing decisions, those resources are beyond the scope of this study. However, we can observe performance on similar truck bypasses in the State in order to better understand how the Hinesville Bypass may perform. Also, we can examine current travel time data (where available) and predict by how much the bypass may reduce travel times for through truck trips.

4.5.1 Performance on Similar Truck Bypasses

Similar bypasses have been constructed in other parts of the State including along US 84 in Bainbridge and Thomasville and US 41 in Valdosta as shown in Figure 4.7. In each of these examples, the original routes were retained as Business Routes (therefore still open to truck traffic) while the bypass routes were of higher capacities, higher functional classifications, and of similar lengths as the original routes. Because of these factors, the bypass routes appear to have diverted the majority of truck traffic as indicated by an examination of daily truck volumes from the GDOT Geocounts database (see Table 4.2 and Figure 4.6). However, it is important to note that these are all mature as opposed to new bypasses. Over time, bypasses tend to increase their share of total traffic as their region's grow and they capture growth that would have otherwise utilized the original route. They also attract new commercial and industrial development. Thus, the amount of truck traffic diverted to a bypass immediately after it opens tends to be less than what is observed in later years.

West of downtown Bainbridge, daily truck volumes drop from about 2,600 trucks per day (Station #0870152) to 380 trucks per day (Station #0870347) when US 84 transitions into US 84 Business. This reduction represents about 86 percent of observed truck traffic. East of downtown Bainbridge, daily truck volumes reduce from about 1,380 (Station #0870156) to 300 trucks per day (Station #0870356) as US 84 transitions into a business route. This reduction represents about 79 percent of observed truck traffic. In both cases, truck volumes on the main route maintain a high level suggesting that the observed trucking activity on the business route is largely serving local needs.

Table 4.2 Performance on Similar Truck Bypasses

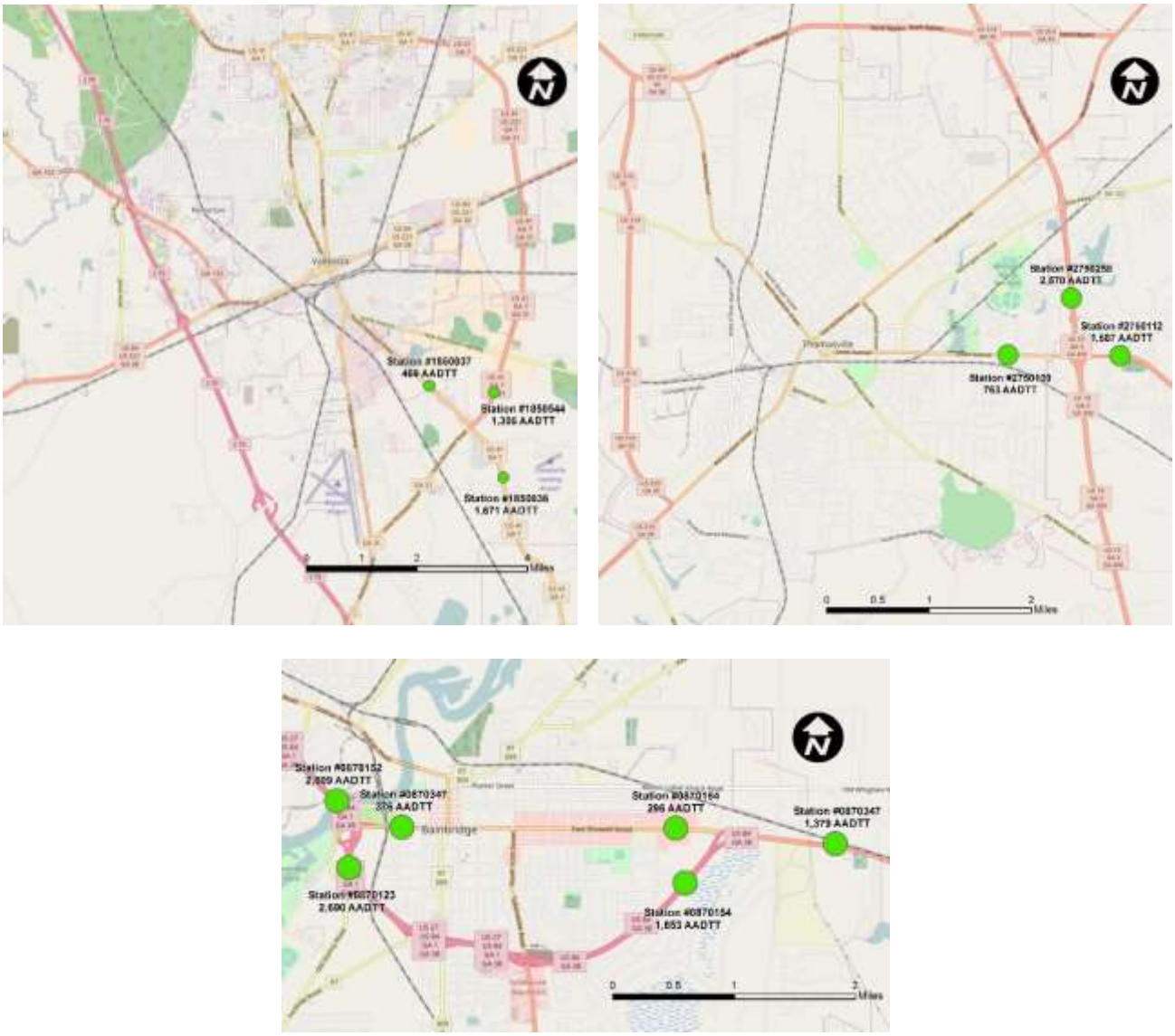
Location	Route	Daily Truck Traffic on Main (Bypass) Route	Daily Truck Traffic on Business Route	Percentage of Truck Traffic Diverted
Bainbridge	US 84 (West off Downtown)	2,609	376	86%
	US 84 (East of Downtown)	1,379	296	79%
Valdosta	US 41 (South of Downtown)	1,671	469	72%
Thomasville	US 84 (East of Downtown)	1,587	763	52%

Source: GDOT Geocounts Database; Cambridge Systematics, Inc. analysis.

Similar results are observed on US 41 south of downtown Valdosta. Daily truck volumes drop from about 1,670 (Station #1850036) to 470 trucks per day (Station #1850037) as US 41 transitions into a business route. This represents approximately a 72 percent reduction in truck activity. While the US 41 main route is about 2.5 miles longer than the business route, it allows for higher speeds and is intersected by very few roadways compared to the business route.

Results from Thomasville are more modest, but still encouraging. East of downtown Thomasville, daily truck volumes decrease from 1,590 (Station #2750112) to 760 trucks per day (Station #2750109) as US 84 transitions into a business route. This is a 52 percent reduction in truck activity. Part of the likely reason for this performance, is that the bypass route results in a much greater distance for trucks continuing onto US 319 south towards Tallahassee as opposed to US 84 west towards Bainbridge. For those truck trips, the business route is about 4.2 miles long while the bypass route is about 9.7 miles.

Figure 4.7 Similar Truck Bypasses



Source: GDOT Geocounts Database; OpenStreets Maps; Cambridge Systematics, Inc. analysis.

4.5.2 Potential Effect on Truck Travel Times

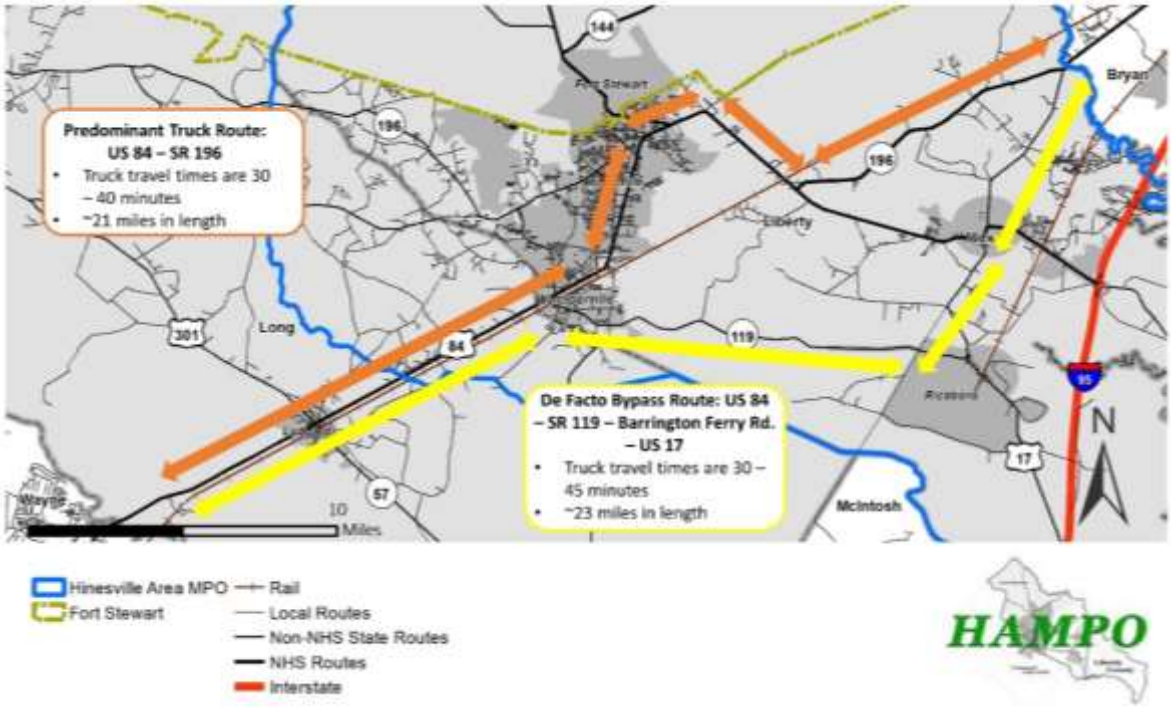
Truck travel time data from the NPMRDS is utilized as the basis for predicting by how much a bypass may affect truck routing decisions based on its ability to reduce and/or provide for more reliable truck travel times. In cases where a bypass can significantly improve travel times and reliability, more truck trips will divert. In cases that a bypass does not significantly improves performance, fewer trucks will divert unless compelled to do so through route restrictions. Based on the analysis of truck travel times from the NPMRDS, it takes eastbound trucks about 30 minutes to traverse the predominant truck route – as determined using Mid Day travel conditions (10:00 a.m. to 4:00 p.m.). Westbound trucks complete this trip in about 40 minutes of travel time as summarized in Table 4.3 and Figure 4.8.

Table 4.3 Comparison of the Predominant Truck Route to the De Facto Bypass Route

Route	Approximate Travel Time	Approximate Length
Predominant Truck Route	30 – 40 minutes	21 miles
De Facto Bypass Route	30 – 45 minutes	23 miles

Source: FHWA National Performance Management Research Data Set; Google Maps; Cambridge Systematics, Inc. analysis.

Figure 4.8 Comparison of the Predominant Truck Route to the De Facto Bypass Route



Source: FHWA National Performance Management Research Data Set; Google Maps; Cambridge Systematics, Inc. analysis.

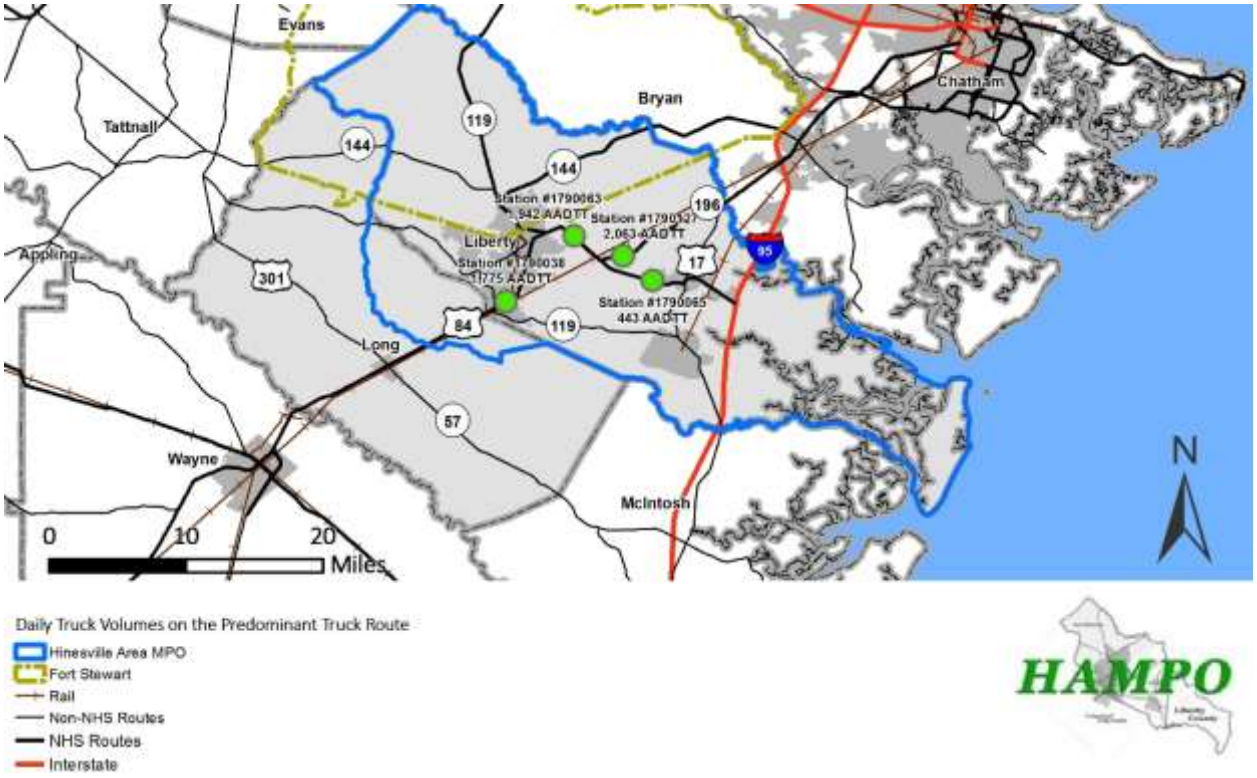
Because Barrington Ferry Road and SR 119 are not included on the NHS, the NPMRDS cannot be used to estimate truck travel times for the existing de facto bypass route. However, Google Maps indicates that during the Mid Day this trip can be completed in about 30 minutes in both directions of travel. Given that trucks typically travel at slower speeds than passenger vehicles, it reasonable to estimate that average truck trip travel times on the existing de facto bypass route range from about 30 – 40 minutes. This range indicates average truck speeds of 35 to 45 mph. This level of performance is comparable to what is achievable on US 84 and SR 196, despite those roadways having lower functional classifications.

The Hinesville Bypass is not likely to substantially reduce truck travel times beyond that which is achievable on the current de facto bypass. This is because the current predominant route (US 84 and SR 196) is approximately 20.5 miles long while the Hinesville Bypass is slightly longer at 22.8 miles. Also, SR 119, US 17, and Barrington Ferry Road would remain 2-lane roadways despite other improvements. If trucks are able to operate at an average speed of 45 mph over the entire route, they would complete the trip in about 30 minutes – which is comparable to the performance they can already achieve on both routes.

4.5.3 Diversion Potential

As shown in Figure 4.9, there are just over 2,000 trucks per day on SR 196 between US 84 and the Liberty-Bryan County line. Proceeding west along SR 196/US 84, about 2,000 trucks per day remain on this route. Continuing west along US 84, daily truck volumes drop to about 1,775 trucks per day. These figures suggest that about 1,800 trucks per day (in both directions combined) travel through the HAMPO region, while about 200 trucks per day are serving the commercial core of the region. Therefore, 1,800 trucks per day represent an upper bound on the amount of truck traffic that is potentially divertible.

Figure 4.9 Daily Truck Volumes on the Predominant Truck Route



Source: GDOT Geocounts Database; Cambridge Systematics, Inc. analysis.

Experience from other regions with truck bypasses indicate that about 50 to 85 percent is a reasonable estimate of the range of truck trips that may be diverted. However, it is important to recognize that in those examples the bypass route provided a significant upgrade to the original route in terms of truck-friendly designs (i.e. wider lanes and right-of-way, multiple lanes in each direction, median separated, and fewer intersecting roadways and driveways). While the Hinesville Bypass will substantially reduce the number of intersecting roadways and offer motor carriers a route alternative that has a lower crash rate (which lessens the potential for non-recurring congestion) and fewer conflicting vehicle movements, it will not feature many

of the other design features observed on similar bypasses. This will limit the amount of through truck trips that are diverted to the bypass.

Based on observations from similar truck bypasses and an examination of current travel times on the current truck route and the de facto bypass, the Hinesville Bypass will offer a level of performance to truck trips that is very nearly equal to what they currently achieve on the predominant freight route – US 84 and SR 196. Therefore, we estimate that up to 35 to 50 percent of current through truck trips (about 630 to 900 trucks per day) will divert to the Hinesville Bypass. The initial amount of trucks diverted immediately after the bypass opens will be smaller than what is observed in later years. As the number of commercial developments and passenger vehicle traffic levels on US 84 increase over time, the Hinesville Bypass may increase its share of through truck trips.

4.5.4 Other Considerations

Other factors that could help the bypass to increase its share of through truck trips are outreach to motor carriers, US and truck route designations, and engaging navigation tool providers and convincing them to feature the route more prominently. Motor carriers operating along the US 84 corridor should be informed of the new bypass route so that it can be incorporated into their trip planning decisions. This will help drivers to view the Hinesville Bypass as a first choice as opposed to second choice route. Similar bypasses in the State have altered the route designation so that the bypass route becomes the main US route and the original route is changed to a business US route. This change in designation, along with truck route signage for the bypass route, would help to divert trucks. It may also help the bypass route to feature more prominently in navigation tools if vendors are informed of the change. Though motor carrier dispatchers provide route information to drivers, anecdotally it is not uncommon for drivers to supplement with publicly available tools such as Google Maps and Waze.

Another major factor that could boost the number of truck trips diverting to the Hinesville Bypass are upgrades performed over the long term. A series of infrastructure improvements were recommended in the HAMPO *2040 Metropolitan Transportation Plan* for US 17, SR 119, Barrington Ferry Road beyond those that will be implemented as part of the Hinesville Bypass. These primarily include increasing roadway capacity and constructing median barriers. If all, or some, of these upgrades are performed, they will improve travel conditions for trucks on the bypass and help to reduce travel times below that which is achievable on US 84 and SR 196.

5.0 Project Identification and Prioritization

This section of the report outlines the process for identifying and prioritizing freight transportation improvement projects. The prioritization methodology works by identifying the universe of transportation improvement projects that have been recommended in regional and statewide plans, filtering out those that are not relevant to goods movement, and scoring the remaining projects based on their ability to advance the HAMPO region's goals as articulated in the HAMPO 2040 MTP. It pivots off the process utilized in the MTP and is comprised of three distinct steps:

1. Project Identification
2. Preliminary Project Screening
3. Goal Advancement

Potential freight projects are identified by reviewing multimodal state, regional, and local transportation plans. These include the GDOT *Georgia Statewide Freight and Logistics Plan*, the GDOT *Georgia State Rail Plan*, the HAMPO *US 84 Corridor Comprehensive Corridor Study*, the HAMPO *Forward 40: Metropolitan Transportation Plan*, and the HAMPO *2035 Sustainable Mobility Plan: Long Range Transportation Plan*. Additional projects are also identified based on feedback from the stakeholder interviews and from the project team.

The initial project list is then screened by identifying those projects that are relevant to goods movement in the region. A number of screening criteria are used including truck volumes, functional classification, and presence on the GDOT State Freight Network, among others. The screening process results in a refined project list that can then be scored and ranked.

The last step in the prioritization process is Goal Advancement. Goal Advancement measures the ability of a project to meet the 2035 Sustainable Mobility Plan's goals for the HAMPO region (see Table 5.1). The Goal Advancement step measures a project's ability to meet the goals outlined in the long-range plan based on a predefined set of criteria. Based on the final ranking, the highest scoring projects are to become those recommended for investment.

Table 5.1 Regional Goals Outlined in the MTP

Goal	Description
Economic Development	Support the economic vitality of the region by enabling global competitiveness, productivity, and efficiency.
Safety	Increase the safety of the transportation system for motorized and non-motorized users.
Security	Increase the security of the transportation system for motorized and non-motorized users.
Mobility and Accessibility	Increase accessibility and mobility of people and freight.
Stewardship	Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.
Connectivity	Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
Efficiency	Promote efficient system management and operation.
System Preservation	Emphasize the preservation of the existing transportation system.
Engagement	Improve public information about the transportation system and proposed or planned improvements to the system.
Economic Development	Support the economic vitality of the region by enabling global competitiveness, productivity, and efficiency.

Source: Hinesville Area MPO; Cambridge Systematics, Inc. analysis.

5.1 Project Identification

Freight transportation improvement projects are identified from four primary sources: (1) the GDOT *Georgia Freight and Logistics Plan*, (2) the HAMPO *2040 Metropolitan Transportation Plan*, (3) stakeholder feedback, and (4) projects identified by the project team based on the various technical analyses performed during this study. The GDOT *Georgia Freight and Logistics Plan* and the HAMPO 2040 Metropolitan Transportation Plan represent the planning initiatives that have most comprehensively examined the HAMPO freight system to date. Only one project was identified in the GDOT *Georgia Freight and Logistics Plan* – to increase capacity on US 84 from 2 to 4 lanes. However, the HAMPO region portion of this project has already been completed as part of the Governor's Roadway Improvement Program (GRIP).[42] Several more potential projects were contained in the 2040 MTP and included as part of this analysis. However, 2040 MTP projects that were programmed in the FY2018-21 Transportation Improvement Program are not included as these are already underway or will soon begin.

In addition to projects identified in the GDOT *Georgia Freight and Logistics Plan* and the *2040 Metropolitan Transportation Plan*, stakeholders interviewed as part of the Regional Freight Plan identified freight system improvements. The region's freight stakeholders experience firsthand the challenges facing the HAMPO freight system and are in a strong position to recommend improvements. In some cases, stakeholders directly identified potential projects (such as widening a particular roadway or adding a traffic signal). In other cases, stakeholder indirectly identified potential projects by noting system deficiencies. In those instances, the project team identified a potential solution based on the stakeholder-noted deficiency.

[42] Governor's Road Improvement Program (GRIP), http://www.dot.ga.gov/BS/Programs/GRIP.

Another source of potential projects is the statewide initiative headed by GDOT to improve the efficiency of State Routes by optimizing traffic signals.[43] The Department has been deploying so-called "smart" signals at intersections throughout the State. These allow for a more proactive approach to optimizing signal timing as they can be updated in real time based on actual roadway conditions. While adaptive signals have been deployed in other parts of the State, they have not yet been implemented in the HAMPO region. Adaptive signals could be a good solution for facilitating truck movements on the HAMPO region's major freight corridors and alleviating their contribution to congestion. They would generate congestion benefits quickly and with little impact to drivers as they are being implemented, unlike roadway widening or realignment projects that require extensive construction. Furthermore, as there are limited funds for high cost capacity expansions, operational improvements offer the opportunity to maximize existing infrastructure.

Based on these sources and the analyses conducted as part of this study, the project team members identified potential solutions to performance challenges. In total, there are 70 potential projects as presented in Table 5.2. Several of the projects can be classified into one or multiple categories including Safety/ Access Control, Widening, Intersection Improvements, Roadway Redesign, Resurfacing, Operations, and New Connection. Safety/ Access Control projects primarily add median barriers to roadways, but they also encompass multimodal improvements such as adding facilities for pedestrians and bicyclists. Projects that are classified as Intersection Improvements or Roadway Redesign include improvements such as realigning, re-striping or adding channelized islands, among others, to intersections or portions of roadways. Widening projects may increase the number of lanes in addition to increasing the footprint of the roadway. Operations projects are those that improve the efficiency of traffic signals or the clarity of truck signage. New Connection projects are those that extend existing roadways or construct entirely new ones.

Table 5.2 Potential Freight System Improvement Projects

Roadway	From	To	Project Type	Additional Description	Source
US 84/ Oglethorpe Hwy.	General Stewart Way	MLK Jr. Drive	Safety/ Access Control	Raised median barriers	2040 MTP
Sandy Run/ Patriots Trail Connector	Sandy Run Drive	Patriots Trail	New Connection	New 2 lane roadway with pedestrian and bicycle facilities	2040 MTP
US 84/ Oglethorpe Hwy.	General Screven Way	Flowers Drive	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	MLK Jr. Drive	General Screven Way	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	Old Hines Road	General Stewart Way	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	I-95	Charlie Butler Road	Safety/ Access Control l	Raised median barriers	2040 MTP
SR 119/ General Screven Access Improvements	US 84	Fort Stewart Gate 1	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	Flowers Drive	Topi Trail	Safety/ Access Control	Raised median barriers	2040 MTP

[43] GDOT, Statewide Signal Optimization, http://www.dot.ga.gov/DS/SafetyOperation/TrafficSignals#tab-3.

Roadway	From	To	Project Type	Additional Description	Source
South Main Street	Darsey Road	Deen Street	Widening, Safety/ Access Control		2040 MTP
US 84/ Oglethorpe Hwy.	Peach Street	Butler Avenue	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	Spires Drive	Old Hines Road	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	SR 196	Brights Lake Road	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	Topi Trail	Airport Road	Safety/ Access Control	Raised median barriers	2040 MTP
SR 196/ E.G. Miles Pkwy. Access Management	Pineland Avenue	General Screven Way	Safety/ Access Control	Raised median barriers	2040 MTP
SR 38C/ General Stewart Way	Main Street	Memorial Drive	Widening	2 to 4 Lanes	2040 MTP
SR 38C/ General Stewart Way	Memorial Drive	General Screven Way	Widening	2 to 4 Lanes	2040 MTP
Flemington Loop	US 84	Fort Stewart Road 47	New Connection	New 2 Lane Roadway	2040 MTP
US 17/ Coastal Hwy.	US 84	Barrington Ferry Road	Widening	2 to 4 Lanes	2040 MTP
US 84/ Oglethorpe Hwy.	US 17	Bill Carter Road	Safety/ Access Control	Raised median barriers	2040 MTP
Sunbury Road/ Islands Hwy.	I-95 Ramp	Tradeport Access Road	Widening, Safety/ Access Control	2 to 4 Lanes	2040 MTP
Central Connector/ General Stewart extension	General Screven Way	Veterans Pkwy.	New Connection	New 2 Lane Roadway	2040 MTP
US 84/ Oglethorpe Hwy.	Butler Avenue	US 17	Safety/ Access Control	Raised median barriers	2040 MTP
US 84/ Oglethorpe Hwy.	Bill Carter Road	SR 196	Safety/ Access Control	Raised median barriers	2040 MTP
US 17/ Coastal Hwy.	Barrington Ferry Road	SR 119/ E.B. Cooper Hwy.	Widening	2 to 4 Lanes	2040 MTP
US 84 Bridge at I-95	I-95	I-95	Widening	2 to 4 Lanes	2040 MTP
SR 119/ E.B. Cooper Hwy.	US 84/ Hinesville Bypass	Barrington Ferry Road	Widening	Paved bike shoulders, intersection improvements	2040 MTP
US 84/ Oglethorpe Hwy.	John Martin Road	Spires Drive	Safety/ Access Control		2040 MTP
SR 119/ E.B. Cooper Hwy.	Barrington Ferry Road	Hinesville Bypass	Widening	2 to 4 Lanes	2040 MTP
US 84/ Oglethorpe Hwy.	Brights Lake Road	John Martin			2040 MTP

Roadway	From	To	Project Type	Additional Description	Source
15th Street	E.G. Miles Pkwy.	Fort Stewart boundary	Widening	2 to 4 Lanes	2040 MTP
Hinesville Bypass (Eastern Segment)	US 84	SR 119	New Connection	New 2 Lane Roadway	2040 MTP
SR 57	US 84	US 84	Intersection Improvement	Realign Intersection	2040 MTP
I-95 (8 Lanes)	McIntosh County line	South of Jericho River (Bryan County line)	Widening	6 to 8 Lanes	2040 MTP
SR 119/ Talmadge Road	US 84	US 84/ Hinesville Bypass	Roadway Redesign	Rural to Urban Design with Pedestrian/Bike Facilities	2040 MTP
US 17/ Coastal Hwy.	Railroad	Blackbeard Creek (includes SR 119 intersection)	Intersection Improvements	Pedestrian/Bike Facilities	2040 MTP
Elim Church Road	SR 196	Ludowici	Intersection Improvements	Paved Bike Shoulders	2040 MTP
US 17/ Coastal Hwy.	SR 196	US 84	Widening	2 to 4 Lanes	2040 MTP
Dunlevie Road	US 84	SR 119	Roadway Redesign	Rural to Urban Design	2040 MTP
Central Connector/ General Stewart Ext. 2	Veterans Pkwy.	15th Street	New Connection	New 2 Lane Roadway	2040 MTP
SR 196 West (to US 301)	SR 196/ Rye Patch Road	Hodges Road/ Central Connector	Widening	2 to 4 Lanes	2040 MTP
US 84/ Oglethorpe Hwy.	Charlie Butler	Peach Street	Safety/ Access Control	Raised median barriers	2040 MTP
I-95 Intersection Improvements	I-95 Exit 76		Gateway Enhancements		2040 MTP
SR 196 West (to US 301)	Hodges Road/ Central Connector	US 301	Widening	2 to 4 Lanes	2040 MTP
15th Street/ Frank Cochran Connector	Frank Cochran Drive	15th Street	New Connection	New 2 Lane Roadway	2040 MTP
Laurel View Connector	Isle of Wright Road	Laurelview Road	New Connection	New 2 Lane Roadway	2040 MTP
Barrington Ferry Road	SR 119	US 17	Intersection Improvements	Paved Bike Shoulders	2040 MTP
Peacock Creek Road	US 84	US 84	New Connection	New 2 Lane Roadway	2040 MTP
General Stewart Extension East		Sandy Run Extension	New Connection	New 2 Lane Roadway	2040 MTP
I-95 Intersection Improvements	I-95 Exit 67		Gateway Enhancements		2040 MTP

Roadway	From	To	Project Type	Additional Description	Source
Central Connector	15th Street	Dairy Road/ Hodges Road	New Connection	New 2 Lane Roadway	2040 MTP
Barrington Ferry Road	US 17	SR 119	Intersection Improvements	Paved Bike Shoulders	2040 MTP
Hinesville Bypass III	US 84	SR 196	New Connection	New 2 Lane Roadway	2040 MTP
Developer Road	Peacock Creek Road	Patriots Trail	New Connection	New 2 Lane Roadway	2040 MTP
Independence Road	SR 196	Central Connector/ Fort Stewart boundary	New Connection	New 2 Lane Roadway	2040 MTP
Independence Spine Road	15th Street at Independence Connector	Dairy Road	New Connection	New 2 Lane Roadway	2040 MTP
Wright Army Air Field Access Road	Old Hines Road/ Flemington Loop	Midcoast Regional Airport	New Connection	New 2 Lane Roadway	2040 MTP
Live Oak Church Road	Current end	Central Connector	New Connection	New 2 Lane Roadway	2040 MTP
Cay Creek Extension	Cay Creek Road	US 17	New Connection	New 2 Lane Roadway	2040 MTP
Hampton Island Road	Hampton Island	US 17	Widening	2 to 4 Lanes	2040 MTP
Sandy Run Drive extension	Sandy Run Drive	Peacock Creek Road	New Connection	New 2 Lane Roadway	2040 MTP
Interstate Paper Road	US 17	Terminus at Interstate Paper LLC	Resurfacing, Shoulder Widening	Maintain 2 Lanes	Stakeholder Interviews, Project Team
Wright Field Road	Old Sunbury Road/ Fort Stewart Road	MidCoast Regional Airport	Resurfacing, Shoulder Widening	Maintain 2 Lanes	Stakeholder Interviews, Project Team
US 17	Midway	Riceboro	Widening	2 to 4 Lanes	Stakeholder Interviews
SR 119	US 84	US 17	Widening	2 to 4 Lanes	Stakeholder Interviews
Industrial Road	US 84	Terminus at Midway Industrial Park	Resurfacing, Shoulder Widening	Maintain 2 Lanes	Stakeholder Interviews, Project Team
Main Street	Hendry Street	Memorial Drive	Operations	Improved Truck Restriction Signage	Stakeholder Interviews, Project Team
Riceboro Southern Railroad	Riceboro	Liberty-Bryan County line	Track Upgrade	Upgrade to Higher Speed Rating	Stakeholder Interviews
US 84	Veterans Pkwy.	General Stewart Way	Operations	Upgrade Corridor w/ Adaptive Signals	Project Team
SR 196/ Veterans Pkwy.	SR 119/ SR 196/ E.G. Miles Pkwy.	US 84	Operations	Upgrade Corridor w/ Adaptive Signals	Project Team

Roadway	From	To	Project Type	Additional Description	Source
SR 119/ SR 196/ E.G. Miles Pkwy.	15th Street	SR 196/ Veterans Pkwy.	Operations	Upgrade Corridor w/ Adaptive Signals	Project Team

Sources: GDOT, Georgia Statewide Freight and Logistics Plan, 2010 - 2050; Hinesville Area MPO, 2040 Metropolitan Transportation Plan; Cambridge Systematics, Inc. analysis.

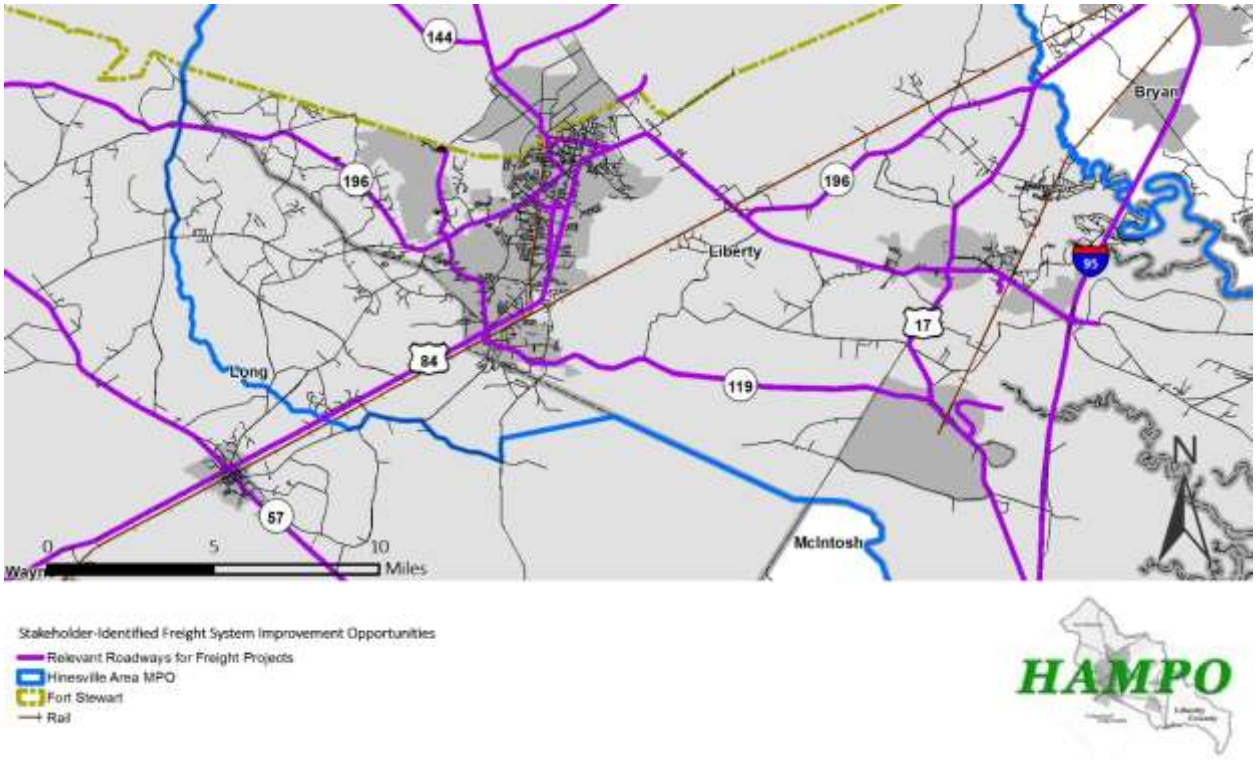
5.2 Project Screening

The project list was first screened to determine their relevance to goods movement in the HAMPO region. This is done by identifying projects that are **not** located on one of the following facilities and removing them from consideration:

- the region's Class I or shortline rail network including at-grade crossings;
- the GDOT State Highway Freight network;
- the National Highway System (NHS) or Strategic Highway Network (STRAHNET);
- principal or minor arterials not on the NHS or STRAHNET;
- high truck volume roadways (i.e. defined as roadways with average annual daily truck traffic volumes of 1,000 or greater),
- first-/last-mile connectors to one of the region's freight clusters; or
- stakeholder identified corridors.

These corridors are shown in Figure 5.1. Upon applying a filter based on these criteria, 49 out 70 (70 percent) of projects remained for further evaluation.

Figure 5.1 Roadways for Project Screening



Sources: Cambridge Systematics, Inc. analysis.

5.3 Goal Advancement – Project Scoring and Ranking

Goal Advancement measures the ability of a project to meet the HAMPO region's goals based on a predefined set of criteria. The criteria reflect those utilized to score projects in the HAMPO *2040 Metropolitan Transportation Plan*, but were adjusted to focus on the freight system. Each project receives a score for each criterion across the set of seven goals. The criteria relate to:

1) Improving safety at high truck crash locations;

2) Relieving congestion on freight corridors;

3) Improving travel time reliability on freight corridors;

4) Improving access to freight clusters;

5) Removing or upgrading at-grade rail crossings;

6) Improves the state of repair on a freight corridor;

7) Complements the priorities of other regional comprehensive plans.

Scores for most criteria allow projects to be awarded 0, 5, and 10 points based on their abilities to advance multiple goals for the given criterion as shown in Table 5.3. High value criteria such as safety, congestion, and travel time reliability, allow up to 20 points reflecting their higher improvement value for freight mobility. The minimum score a project can receive is 0 indicating no benefit the freight system while the maximum score a project can receive is 100 indicating it would greatly improve the region's freight system.

The final scores and rankings for the refined set of projects is presented in Table 5.4. In addition to ranking by score, other critical factors such as the connection of a single project to others, the speed of implementation, and location on a freight focus corridor were considered. For instance, the Hinesville Bypass is divided between several smaller projects which, considered jointly, would have a larger effect on freight mobility than other standalone projects. Other projects require less time and effort to be implemented than others, such as signal timing improvements.

Table 5.3 Freight Project Scoring System

Criteria	Long-Range Transportation Plan Goals									Available Points
	Economic Development	Safety	Security	Mobility and Accessibility	Stewardship	Connectivity	Efficiency	System Preservation	Engagement	
1) Improves a high truck crash location		X						X		0, 5, 10, 20
2) Relieves congestion on freight corridors	X	X		X			X	X		0, 5, 10, 20
3) Improves travel time reliability on freight corridors	X	X		X			X	X		0, 5, 10, 20
4) Improves access to a freight cluster	X	X		X			X			0, 5, 10
5) Removes an at-grade rail crossing or improves its safety		X		X			X			0, 5, 10
6) Performs maintenance on a freight corridor;				X			X	X		0, 5, 10
7) Consistent with adopted Comprehensive Plans	X		X		X	X			X	0, 5, 10

Source: Cambridge Systematics, Inc. analysis.

Table 5.4 Ranking and Scores of the Refined Freight System Improvement Project List

Rank	Roadway	From	To	Project Type	Score
1	US 17/ Coastal Hwy.	SR 196	US 84	Widening	85
2	US 17/ Coastal Hwy.	US 84	Barrington Ferry Road	Widening	80
3	US 84/ Oglethorpe Hwy.	General Stewart Way	MLK Jr. Drive	Safety/ Access Control	75
4	US 84/ Oglethorpe Hwy.	General Screven Way	Flowers Drive	Safety/ Access Control	75
5	US 84/ Oglethorpe Hwy.	MLK Jr. Drive	General Screven Way	Safety/ Access Control	75
6	US 84/ Oglethorpe Hwy.	Old Hines Road	General Stewart Way	Safety/ Access Control	75
7	US 84/ Oglethorpe Hwy.	Flowers Drive	Topi Trail	Safety/ Access Control	75
8	Islands Hwy.	I-95 Ramp	Sunbury Road	Widening, Safety/ Access Control	75
9	US 84	Veterans Pkwy.	General Stewart Way	Operations	75
10	SR 196/ Veterans Pkwy.	SR 119/ SR 196/ E.G. Miles Pkwy.	US 84	Operations	65
11	SR 119/ SR 196/ E.G. Miles Pkwy.	15th Street	SR 196/ Veterans Pkwy.	Operations	65
12	SR 119/ E.B. Cooper Hwy.	Barrington Ferry Road	Hinesville Bypass	Widening	65
13	US 84 Bridge at I-95	I-95	I-95	Widening	65
14	Riceboro Southern Railroad	Riceboro	Liberty-Bryan County line	Track Upgrade	65
15	US 84/ Oglethorpe Hwy.	Topi Trail	Airport Road	Safety/ Access Control	65
16	US 84/ Oglethorpe Hwy.	Spires Drive	Old Hines Road	Safety/ Access Control	65
17	US 84/ Oglethorpe Hwy.	Bill Carter Road	SR 196	Safety/ Access Control	65
18	US 84/ Oglethorpe Hwy.	I-95	Charlie Butler Road	Safety/ Access Control l	65
19	US 84/ Oglethorpe Hwy.	John Martin Road	Spires Drive	Safety/ Access Control	65
20	US 84/ Oglethorpe Hwy.	Charlie Butler	Peach Street	Safety/ Access Control	65
21	US 84/ Oglethorpe Hwy.	Peach Street	Butler Avenue	Safety/ Access Control	65

Rank	Roadway	From	To	Project Type	Score
22	US 84/ Oglethorpe Hwy.	Brights Lake Road	John Martin	Safety/ Access Control	65
23	US 84/ Oglethorpe Hwy.	SR 196	Brights Lake Road	Safety/ Access Control	65
24	US 84/ Oglethorpe Hwy.	US 17	Bill Carter Road	Safety/ Access Control	65
25	US 84/ Oglethorpe Hwy.	Butler Avenue	US 17	Safety/ Access Control	65
26	US 17	Midway	Riceboro	Widening	55
27	Barrington Ferry Road	US 17	SR 119	Intersection Improvements	50
28	Interstate Paper Road	US 17	Terminus at Interstate Paper LLC	Resurfacing, Widening	45
29	US 17/ Coastal Hwy.	Barrington Ferry Road	SR 119/ E.B. Cooper Hwy.	Widening	45
30	SR 119	US 84	US 17	Widening	45
31	SR 119/ General Screven Access Improvements	US 84	Fort Stewart Gate 1	Safety/ Access Control	45
32	SR 119/ Talmadge Road	US 84	US 84/ Hinesville Bypass	Roadway Redesign	40
33	SR 119/ E.B. Cooper Hwy.	US 84/ Hinesville Bypass	Barrington Ferry Road	Widening	35
34	SR 196/ E.G. Miles Pkwy. Access Management	Pineland Avenue	General Screven Way	Safety/ Access Control	35
35	Industrial Road	US 84	Terminus at Midway Industrial Park	Resurfacing, Widening	30
36	SR 196 West (to US 301)	Hodges Road/ Central Connector	US 301	Widening	30
37	SR 196 West (to US 301)	SR 196/ Rye Patch Road	Hodges Road/ Central Connector	Widening	30
38	SR 57	US 84	US 84	Intersection Improvement	25
39	I-95 (8 Lanes)	McIntosh County line	South of Jericho River (Bryan County line)	Widening	25
40	US 17/ Coastal Hwy.	Railroad	Blackbeard Creek (includes SR 119 intersection)	Intersection Improvements	20
41	Wright Field Road	Old Sunbury Road/ Fort Stewart Road	MidCoast Regional Airport	Resurfacing, Widening	15
42	I-95 Intersection Improvements	I-95 Exit 76		Gateway	10

Rank	Roadway	From	To	Project Type	Score
				Enhancements	
43	Main Street	Hendry Street	Memorial Drive	Operations	10
44	15th Street/ Frank Cochran Connector	Frank Cochran Drive	15th Street	New Connection	10
45	I-95 Intersection Improvements	I-95 Exit 67		Gateway Enhancements	10
46	Wright Army Air Field Access Road	Old Hines Road/ Flemington Loop	Midcoast Regional Airport	New Connection	10

Sources: GDOT, Georgia Statewide Freight and Logistics Plan, 2010 - 2050; Hinesville Area MPO, 2040 Metropolitan Transportation Plan; Cambridge Systematics, Inc. analysis.

6.0 Conclusions and Final Recommendations

Some key conclusions can be drawn from the analyses performed as part of this Regional Freight Plan. There are several freight assets within and proximate to the HAMPO region that are a competitive advantage for attracting freight-related industries. Within the HAMPO region these include I-95 and US 84 which are the backbone of the multimodal freight system. State Route 196 and US 17 are also critical routes as these provide access to the interstate highway system for some of the region's biggest freight clusters.

Though freight rail movements are not substantial in terms of volume, the freight rail system is critical to the region's largest manufacturers. Stakeholders emphasized the importance of the Riceboro Southern Railway shortline in their supply chains. It provides primary rail access to the CSX mainline and the Port of Savannah.

Neighboring the HAMPO region, the Savannah-Hilton Head International Airport and the Port of Savannah are major freight assets. Though air cargo activity is an infrequently used mode, it is important to have for supply chain emergencies such as stock-outs or the breakdown of a critical tool in a manufacturing process. Along with the freight rail and interstate highway systems, the Port of Savannah is the most important freight asset for the State. It is the driving force behind much of the freight activity in the HAMPO region and the reason freight-related industries choose to locate in Hinesville. Freight stakeholders indicated that improving access to the Port of Savannah is among their most pressing concerns.

Overall, the HAMPO region's highway freight system currently performs well and is projected to continue providing a high level of service to motor carriers in the future. However, there is room for critical improvement on some key corridors to improve and maintain a high level of service. The region's highway freight performance challenges are concentrated on its major freight routes, US 84, US 17, SR 119, and SR 196. In the case of US 84, performance is affected by the concentration of commercial development along the corridor along with the significant presence of driveways, traffic signals and the urban segments with very high AADT for a four lane road.

All indications point to increased freight activity on the HAMPO freight system. The 2040 Metropolitan Transportation Plan projected increased commercial development and population growth for the HAMPO region. The analysis of commodity flow data indicated that freight demand will grow substantially over the forecast horizon. Together, these findings indicate that existing challenges will only worsen over time if there is no intervention.

Based on these conclusions, we make the following freight system recommendations:

- **Complete the US 84/ Hinesville Bypass and continue to upgrade its component roadways over time.**

  The US 84/ Hinesville Bypass will divert truck traffic away from the urban core of the region. This will improve safety and performance on US 84. To maximize the benefits that will be achieved through the US 84/ Hinesville Bypass, the region should continue to upgrade its component roadways over time to increase capacity, decrease travel times, limit conflicting vehicle movements, and to ensure a truck-friendly geometric design throughout the entirety of the corridor. These upgrades will increase the diversion potential of the bypass and help it to capture truck traffic growth over time.

- **Maintain a state of good repair on major truck routes.**

Trucks place a greater amount of stress on roadways than passenger vehicles resulting in damage to pavements, sidewalks, and gutters. Thus, it is important to preserve the physical condition of major freight routes. Routes that carry significant truck volumes should be maintained at greater frequencies in order to account for this. Also, lower volume routes that are last-mile freight connectors should be high priority roadways for maintenance.

- **Develop corridor signal timing on major freight routes.**

  Resources should be invested in improving traffic operations on major freight routes throughout the HAMPO region, similar to many of the investments being implemented as part of the *US 84 Comprehensive Corridor Study*. As there are limited funds for capacity expansions, operational improvements offer the opportunity to maximize the efficiency of existing infrastructure. GDOT has been deploying "smart" signals at intersections throughout the State which allow for updates to signal timing in real time based on actual roadway conditions. While adaptive signals have been deployed in other parts of the State, they have not yet been implemented in the HAMPO region. Adaptive signals could be a good solution for facilitating truck movements on the HAMPO region's major freight corridors and alleviating their contribution to congestion. Candidate corridors for signal optimization investments include US 84 and SR 119/SR 196/ E.G. Miles Pkwy.

- **Engage and partner with the Riceboro Southern Railway (RSOR) to improve the performance of the freight rail system.**

  Stakeholders indicated that the performance of the RSOR rail line is a hindrance to freight mobility in the HAMPO region. Both the GDOT *Georgia Statewide Freight and Logistics Plan* and *Georgia State Rail Plan* determined that underfunded shortlines face speed limitations that hinder operations and degrade service quality levels. The HAMPO region is no exception. The HAMPO region should engage the RSOR and partner with the railroad and GDOT to work to upgrade the track class so that higher speeds can be accommodated. This investment would help to retain current rail-dependent companies and to attract others.

- **Guide the development of land around the I-95/US 84 interchange such that freight mobility and accessibility is not threatened.**

  The analysis of future land uses performed as part of the *2040 Metropolitan Transportation Plan* predicted intense development along the eastern portion of US 84, near its interchange with I-95. The HAMPO region's largest freight-related industries are able to avoid many of the mobility challenges on US 84 because current commercial development is concentrated near downtown Hinesville. As the US 84 corridor continues to develop and as that development advances eastward, it is important that growth does not hinder truck operations in this part of the region. This can be accomplished by carefully guiding the development of land along the eastern half of US 84. This includes limiting the encroachment of non-industrial land uses into industrial areas, limiting driveway access to US 84, and developing alternate routes that allow access to future developments so that traffic is not concentrated on US 84.

- **Establish a Regional Multimodal Freight Transportation Network.**

  Establish a formal Regional Multimodal Freight Transportation Network in order to help focus freight investments and ensure consistent operations across jurisdictions. The State Freight Transportation Network, National Highway Freight Network, interstate highways, state routes, and freight rail lines

should be included on the regional system. In addition to these, local roadways that serve as first- and last-mile connectors should be included on the network. The Freight Focus Corridors identified in chapter 4.3 could serve as the foundation for the Regional Multimodal Freight Transportation Network.

A challenge often faced by motor carriers operating in metropolitan regions is a discontinuous truck route system. For instance, a route is open to trucks in one jurisdiction but is restricted upon crossing the boundary into another jurisdiction. While the HAMPO region was not found to currently face this challenge, the region should be proactive in defining its truck routes as it continues to grow. A Regional Multimodal Freight Transportation System will help to ensure consistency and encourage seamless truck routes across municipalities and counties.

6.1 Short-Term Infrastructure Improvement Recommendations

The proposed short-term projects can be implemented in less than 5 years and provide immediate benefits to goods movement in the HAMPO region. These projects are primarily operational as opposed to time- and resource-intensive widening or bridge replacement projects. The Safety/Access projects on US 84 include adding raised median barriers which improve safety and mobility by limiting conflicting vehicle movements resulting from numerous driveways. Those Safety/ Access Control projects on US 84 that are along the western portion of the corridor are prioritized over those along the eastern portion because that is where much of the congestion and safety challenges are concentrated.

High ranking short-term projects also include signal optimizations along US 84 and portions of SR 119 and SR 196. Signal timing projects have the ability to increase throughput on the region's busiest corridors without investing in major capacity expansions requiring much more time. Through GDOT's statewide initiative on adaptive signals, timing plans on upgraded corridors can be updated in real time in response to changing traffic conditions. Adaptive signals will be very beneficial to the HAMPO region and are also a good tool for handling recurring non-scheduled events that operate outside of traditional traffic demand patterns.

Table 6.1 Short-Term Infrastructure Improvement Recommendations

Rank	Roadway	From	To	Project Type
3	US 84/ Oglethorpe Hwy.	General Stewart Way	MLK Jr. Drive	Safety/ Access Control
4	US 84/ Oglethorpe Hwy.	General Screven Way	Flowers Drive	Safety/ Access Control
5	US 84/ Oglethorpe Hwy.	MLK Jr. Drive	General Screven Way	Safety/ Access Control
6	US 84/ Oglethorpe Hwy.	Old Hines Road	General Stewart Way	Safety/ Access Control
7	US 84/ Oglethorpe Hwy.	Flowers Drive	Topi Trail	Safety/ Access Control
9	US 84	Veterans Pkwy.	General Stewart Way	Operations
10	SR 196/ Veterans Pkwy.	SR 119/ SR 196/ E.G.	US 84	Operations

Rank	Roadway	From	To	Project Type
		Miles Pkwy.		
11	SR 119/ SR 196/ E.G. Miles Pkwy.	15th Street	SR 196/ Veterans Pkwy.	Operations
15	US 84/ Oglethorpe Hwy.	Topi Trail	Airport Road	Safety/ Access Control
16	US 84/ Oglethorpe Hwy.	Spires Drive	Old Hines Road	Safety/ Access Control
17	US 84/ Oglethorpe Hwy.	Bill Carter Road	SR 196	Safety/ Access Control
18	US 84/ Oglethorpe Hwy.	I-95	Charlie Butler Road	Safety/ Access Control l
19	US 84/ Oglethorpe Hwy.	John Martin Road	Spires Drive	Safety/ Access Control
20	US 84/ Oglethorpe Hwy.	Charlie Butler	Peach Street	Safety/ Access Control
21	US 84/ Oglethorpe Hwy.	Peach Street	Butler Avenue	Safety/ Access Control
22	US 84/ Oglethorpe Hwy.	Brights Lake Road	John Martin	Safety/ Access Control
23	US 84/ Oglethorpe Hwy.	SR 196	Brights Lake Road	Safety/ Access Control
24	US 84/ Oglethorpe Hwy.	US 17	Bill Carter Road	Safety/ Access Control
25	US 84/ Oglethorpe Hwy.	Butler Avenue	US 17	Safety/ Access Control
31	SR 119/ General Screven Access Improvements	US 84	Fort Stewart Gate 1	Safety/ Access Control
34	SR 196/ E.G. Miles Pkwy. Access Management	Pineland Avenue	General Screven Way	Safety/ Access Control
43	Main Street	Hendry Street	Memorial Drive	Operations

Source: GDOT, Georgia Statewide Freight and Logistics Plan, 2010 - 2050; Hinesville Area MPO, 2040 Metropolitan Transportation Plan; Cambridge Systematics, Inc. analysis.

6.2 Mid-Term Infrastructure Improvement Recommendations

Mid-term projects can be implemented between 6 to 15 years. These projects provide benefits to the HAMPO region that are more far-reaching than those achieved with short-term projects. They require more time for the activities of securing funding, environmental reviews, right-of-way acquisition, engineering design and much longer time for construction. Major improvements that should be achieved during the mid-term include completing the Hinesville Bypass including further upgrading the corridors along this route (such as increasing capacity) so that it has the maximum potential to divert truck traffic away from urban and commercial areas in Hinesville. Generally, these projects receive a higher priority due to their ability to significantly improve freight flows in the region and the level of importance attributed to the bypass over several planning cycles.

High ranking mid-term projects include intersection improvements and upgrades to last-mile freight connectors. The need for projects that improve last-mile connectivity was a common theme in stakeholder interviews. Projects that improve the condition and capacity of routes such as Interstate Paper Road, Sunbury Road, Islands Highway, and Industrial Road fall into this category.

Table 6.2 Mid-Term Infrastructure Improvement Recommendations

Rank	Roadway	From	To	Project Type
1	US 17/ Coastal Hwy.	SR 196	US 84	Widening
2	US 17/ Coastal Hwy.	US 84	Barrington Ferry Road	Widening
8	Islands Hwy.	I-95 Ramp	Sunbury Road	Widening, Safety/ Access Control
12	SR 119/ E.B. Cooper Hwy.	Barrington Ferry Road	Hinesville Bypass	Widening
13	US 84 Bridge at I-95	I-95	I-95	Widening
26	US 17	Midway	Riceboro	Widening
27	Barrington Ferry Road	US 17	SR 119	Intersection Improvements
28	Interstate Paper Road	US 17	Terminus at Interstate Paper LLC	Resurfacing, Widening
29	US 17/ Coastal Hwy.	Barrington Ferry Road	SR 119/ E.B. Cooper Hwy.	Widening
30	SR 119	US 84	US 17	Widening
26	US 17	Midway	Riceboro	Widening
27	Barrington Ferry Road	US 17	SR 119	Intersection Improvements
28	Interstate Paper Road	US 17	Terminus at Interstate Paper LLC	Resurfacing, Widening
29	US 17/ Coastal Hwy.	Barrington Ferry Road	SR 119/ E.B. Cooper Hwy.	Widening
30	SR 119	US 84	US 17	Widening
32	SR 119/ Talmadge Road	US 84	US 84/ Hinesville Bypass	Roadway Redesign
33	SR 119/ E.B. Cooper Hwy.	US 84/ Hinesville Bypass	Barrington Ferry Road	Widening
35	Industrial Road	US 84	Terminus at Midway Industrial Park	Resurfacing, Widening
36	SR 196 West (to US 301)	Hodges Road/ Central Connector	US 301	Widening
37	SR 196 West (to US 301)	SR 196/ Rye Patch Road	Hodges Road/ Central Connector	Widening
38	SR 57	US 84	US 84	Intersection Improvement
40	US 17/ Coastal Hwy.	Railroad	Blackbeard Creek (includes SR 119 intersection)	Intersection Improvements

Rank	Roadway	From	To	Project Type
41	Wright Field Road	Old Sunbury Road/ Fort Stewart Road	MidCoast Regional Airport	Resurfacing, Widening
42	I-95 Intersection Improvements	I-95 Exit 76		Gateway Enhancements
44	15th Street/ Frank Cochran Connector	Frank Cochran Drive	15th Street	New Connection
45	I-95 Intersection Improvements	I-95 Exit 67		Gateway Enhancements
46	Wright Army Air Field Access Road	Old Hines Road/ Flemington Loop	Midcoast Regional Airport	New Connection

Source: GDOT, Georgia Statewide Freight and Logistics Plan, 2010 - 2050; Hinesville Area MPO, 2040 Metropolitan Transportation Plan; Cambridge Systematics, Inc. analysis.

6.3 Long-Term Infrastructure Improvement Recommendations

Long-term projects require 16 or more years to be implemented. These projects will substantially physically alter the freight system and improve its ability to handle much higher levels of demand. Because of these reasons, long-term projects would require more time for activities such as securing funding, community outreach, right-of-way acquisition, engineering design, and construction.

Improvements to the Riceboro Southern Railway so that it can accommodate higher speeds is a higher ranking project. It is the primary source of rail access to the Port of Savannah and critical to the supply chains of the HAMPO region's largest industrial employers. Upgrading this corridor would take time as it would require the coordination of the region, the State, and the Riceboro Southern Railway.

Increasing capacity on I-95 was identified for the very long term in the GDOT *Georgia Statewide Freight and Logistics Plan*. Currently, capacity is sufficient on I-95 and was not projected to experience capacity constraints in the travel demand model. However, performance on this corridor will be closely monitored since for many shippers the attractiveness of the HAMPO region results from its accessibility to the Port of Savannah via I-95.

Table 6.3 Long-Term Infrastructure Improvement Recommendations

Rank	Roadway	From	To	Project Type
14	Riceboro Southern Railroad	Riceboro	Liberty-Bryan County line	Track Upgrade
39	I-95 (8 Lanes)	McIntosh County line	South of Jericho River (Bryan County line)	Widening

Source: GDOT, Georgia Statewide Freight and Logistics Plan, 2010 - 2050; Hinesville Area MPO, 2040 Metropolitan Transportation Plan; Cambridge Systematics, Inc. analysis.