

REGIONAL FREIGHT TRANSPORTATION PLAN UPDATE

FINAL REPORT



OCTOBER 2, 2023

Regional Freight Transportation Plan Update

Final Report

Prepared for



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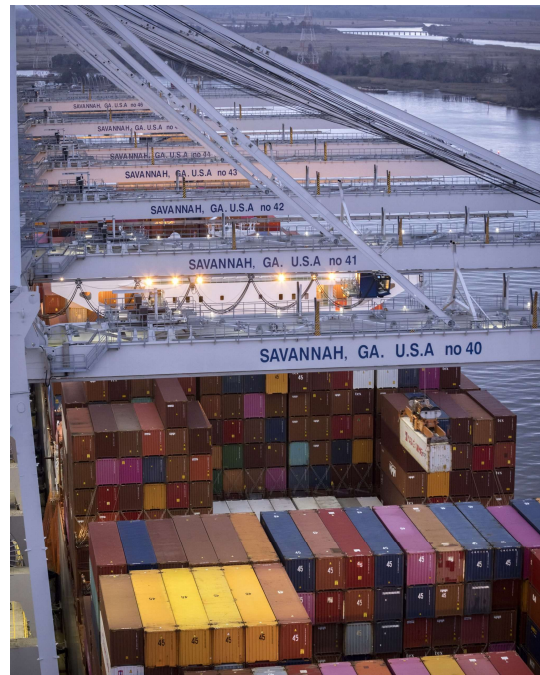
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1 PLAN PURPOSE AND OVERVIEW

The Coastal Region Metropolitan Planning Organization (CORE MPO) region serves a gateway for global trade and for freight movement in the Southeast, due in large part to the Port of Savannah – the nation's 4th largest container port. In addition to the Port of Savannah, the region contains a comprehensive multimodal network of freight railroads and rail yards, major highways, cargo-serving airports, as well as a substantial warehousing/distribution/logistics industry to manage freight movements over that network. In addition, the region is an emerging manufacturing hub for businesses looking to create and ship a diverse portfolio of finished products to clients around the globe. Overall, goods movement in the Savannah region has a major impact on the regional and state economy.

1.1 Purpose of the Regional Freight Transportation Plan Update

Since the 2016 Regional Freight Transportation Plan was completed, much has changed in the region. Among other developments, the Savannah Harbor Expansion Project (SHEP) has completed, the Mason Mega Rail Project has substantially increased on-dock rail capacity at the Port of Savannah, the Georgia Department of Transportation's (GDOT) Modern Mobility Improvement Program (MMIP) is expanding and enhancing the region's highway network, and the Hyundai Motor Group is developing an electric vehicle and battery manufacturing plant in Bryan County capable of producing up to 300,000 vehicles annually. Given those developments, the region's continued economic and population growth, and the growing intensity of freight movements between the Savannah and Atlanta regions, it is critically important to update the 2016 Regional Freight Transportation Plan. To that end, the CORE MPO has developed the 2023 Regional Freight Transportation Plan Update to provide a comprehensive blueprint for meeting the region's freight needs.



Credit: Georgia Ports Authority.

1.2 Vision, Goals, and Objectives

The vision for the Regional Freight Transportation Plan reflects the 2045 Metropolitan Transportation Plan's vision. That vision emphasized the importance of taking a comprehensive approach to addressing transportation needs that incorporates community values, needs, land use and modal alternatives.

The vision for the Regional Freight Transportation Plan is to promote sustainable economic growth throughout the region by ensuring safe, equitable, and quality access to an efficient and resilient shared multimodal network for people and goods.

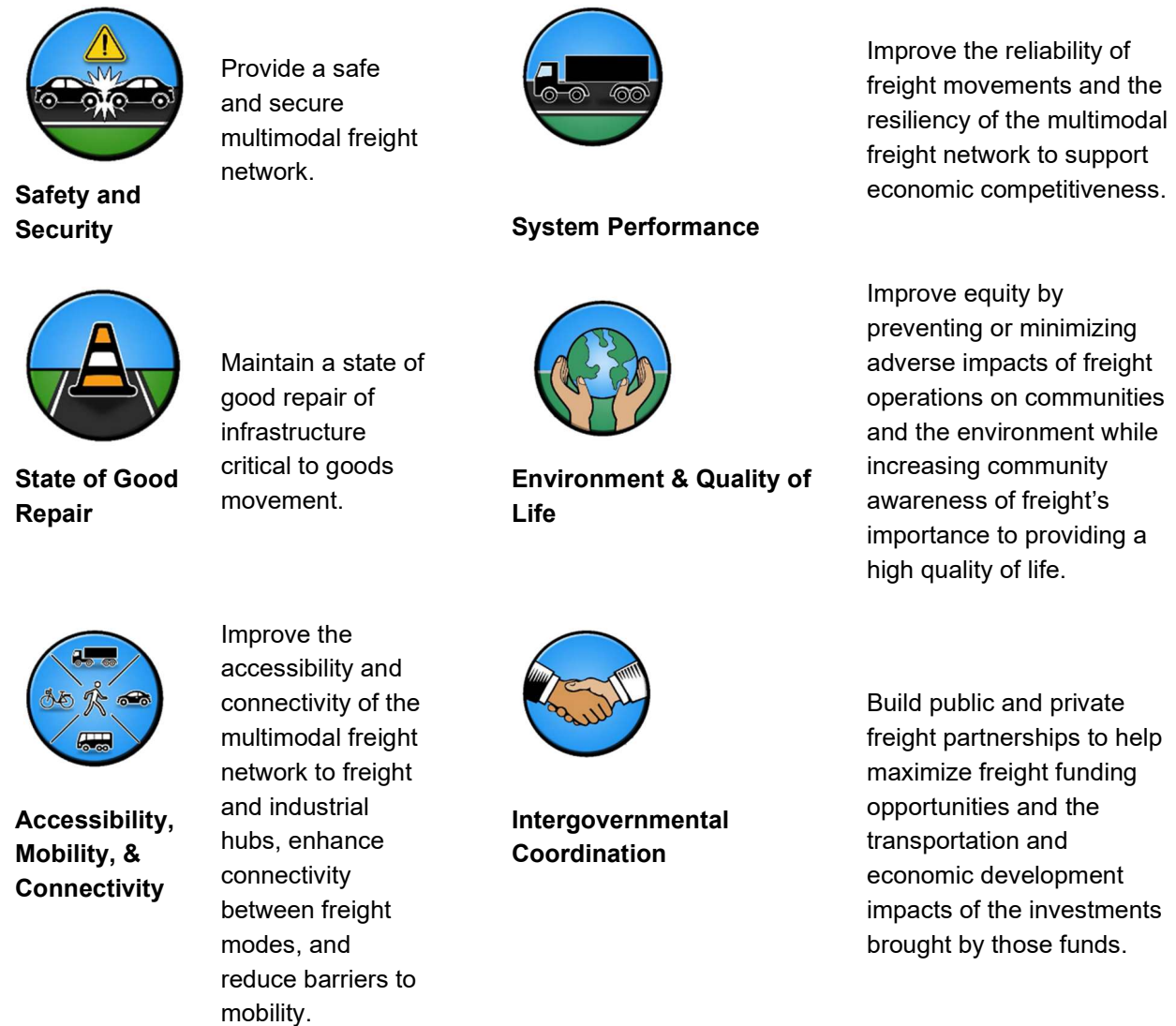
Defining goals and objectives was a critical first step for determining the strategic direction of the Regional Freight Transportation Plan and generally for taking a TPM-based approach to long range planning¹. Goals and objectives establish the means to measure and manage performance. Goals are broad statements articulating a desired end state that provide strategic direction for an agency. Objectives are specific, measurable statements that support achievement of a goal.²

The goals and objectives of the 2045 Metropolitan Transportation Plan (MTP) are the foundation for the Regional Freight Transportation Plan's goals. The goals and objectives, presented in Figure 1.1 and Figure 1.2 respectively, follow the same 6 major goal areas established in the 2045 Metropolitan Transportation Plan: Safety and Security; State of Good Repair; Accessibility, Mobility, and Connectivity; System Performance; Environment and Quality of Life; and Intergovernmental Coordination. However, it should be noted that the CORE MPO is in the process of updating its long-range plan and that the 2050 MTP will be completed in August 2024.

¹ <https://www.tpmtools.org/guidebook/chapter-01/>

² https://www.fhwa.dot.gov/planning/performance_based_planning/pbpp_guidebook/

FIGURE 1.1 REGIONAL FREIGHT TRANSPORTATION PLAN GOALS



Source: CORE MPO.

FIGURE 1.2 REGIONAL FREIGHT TRANSPORTATION PLAN OBJECTIVES

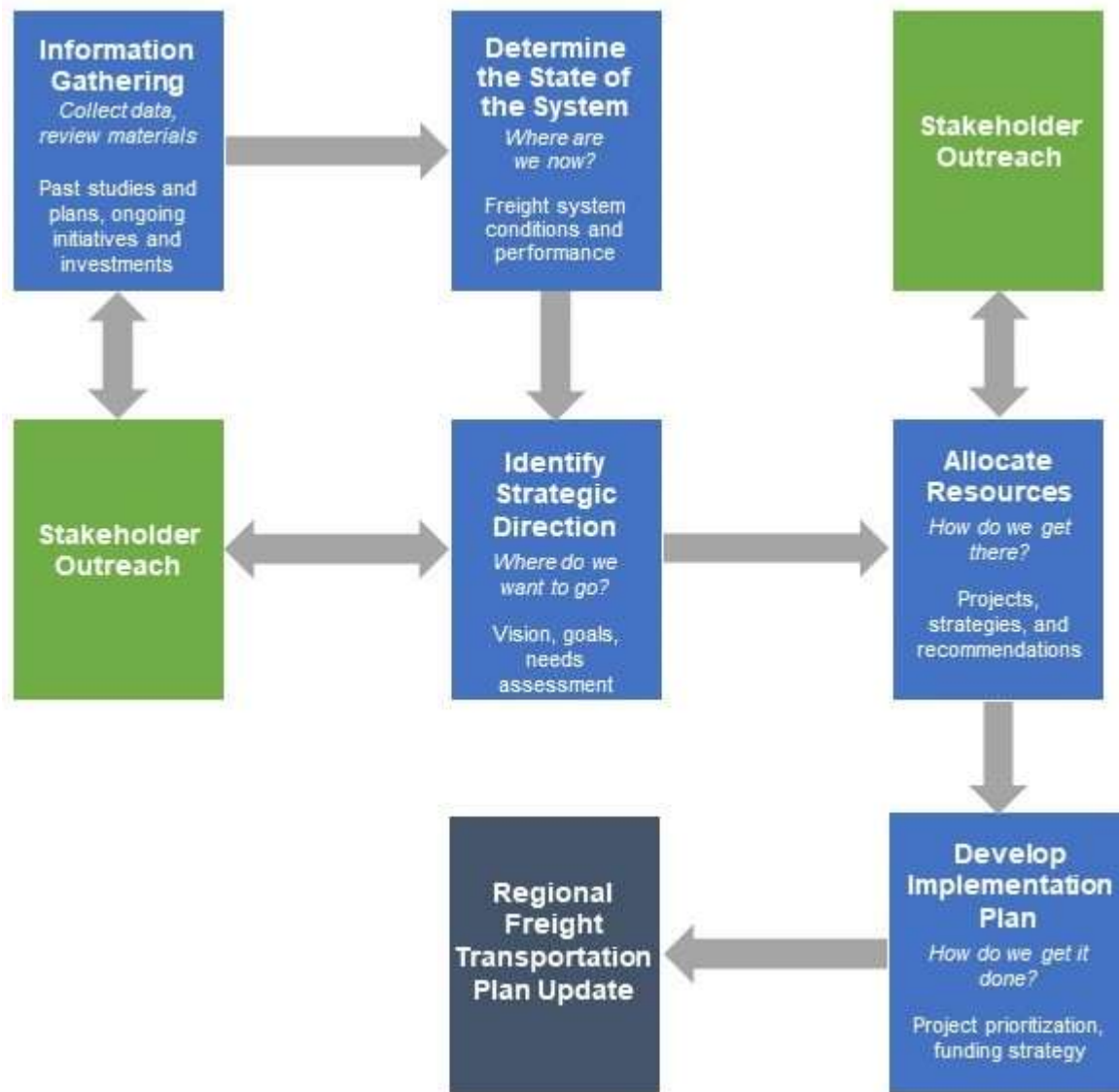
Safety and Security	State of Good Repair	Accessibility, Mobility, and Connectivity	System Performance	Intergovernmental Coordination	Environment and Quality of Life
<ul style="list-style-type: none"> • Reduce the number and rate of fatalities and injuries involving freight movements. • Improve access to truck parking in the region. 	<ul style="list-style-type: none"> • Maintain freight assets at acceptable conditions. 	<ul style="list-style-type: none"> • Reduce the number and magnitude of freight bottlenecks. • Increase the number and improve the quality of connections between freight modes. • Improve and enhance the safety, mobility and system connectivity through integration of intelligent transportation systems (ITS) technologies. 	<ul style="list-style-type: none"> • Provide reliable and predictable travel times along freight corridors using intelligent transportation systems (ITS) technologies and other methods. • Improve system resiliency by increasing redundancy and reducing the risk of disruptions due to environmental conditions and man-made events. 	<ul style="list-style-type: none"> • Facilitate partnerships between CORE MPO, GDOT, Georgia Ports Authority, freight service providers (including motor carriers, railroads, and others), and city and county governments. 	<ul style="list-style-type: none"> • Prevent (where possible) and reduce disproportionate negative freight impacts to environmental justice communities. • Reduce emissions and other environmental impacts associated with freight movements.

Source: CORE MPO.

1.3 Approach to Developing the Plan

The Regional Freight Transportation Plan Update utilized a data-driven, stakeholder-informed approach to identifying priorities, needs, and recommendations for the CORE MPO region. Figure 1.3 shows the approach for developing the Plan.

FIGURE 1.3 APPROACH TO DEVELOPING THE CORE MPO REGIONAL FREIGHT TRANSPORTATION PLAN UPDATE



Source: Cambridge Systematics.

These tasks resulted in a series of technical memorandums documenting the findings of each analysis phase. These documents should be referred to for more detailed discussions of the technical analyses included in the Regional Freight Transportation Plan Update:

- **Task 2.1: Existing and Future Freight and Goods Movement Assessment.** This task performed an assessment of existing and future freight movements throughout the region. There were three main components to the assessment: (1) commodity flow analysis, (2) freight activity pattern analysis, (3) and an inventory of warehouses/distribution centers and freight transportation facilities.
- **Task 2.2: Performance Measures.** This task provided a set of recommended freight performance measures for the CORE MPO region using recommended best practices for freight performance measurement. In addition, it links the recommended performance measures to the region's freight vision, goals, and objectives.
- **Task 2.3: Forecasting of Future Freight Growth.** Task 2.3 estimated future trends, characteristics, and freight volumes by mode and commodity for the CORE MPO region. Furthermore, it highlighted aspects of freight demand that may change relative to the current baseline such as new freight activity centers or emerging modes.
- **Task 2.4: Regional Freight Profiles and Assessment.** This task identified the existing multimodal freight assets of the CORE MPO region and assessed their performance and conditions.
- **Task 2.5: Freight Network Congestion, Bottleneck, Safety and Security Issues.** Task 2.5 identified system deficiencies related to congestion, travel time reliability, and safety across the region's multimodal freight network. Its purpose was to provide the foundation for identifying needs related to bottlenecks and safety so that the region may develop effective strategies to address those needs.
- **Task 2.6 Truck Parking Inventory and Truck Restrictions.** This task developed an inventory of truck parking facilities and reviewed and discussed the various truck parking restrictions and regulations imposed by county and municipal governments in the CORE MPO region.
- **Task 2.7: Freight Resiliency.** This task identified the risks, or hazards, which could disrupt the flow of goods across the CORE MPO region's freight network. It performed a hazard assessment for a select group of those risks, focusing on identifying those parts of the region which are most susceptible and identifying vulnerable freight transportation assets.
- **Task 2.8: Freight Needs Assessment and Analysis.** Using the findings of Tasks 2.1 through 2.7, Task 2.8 painted a comprehensive picture of existing and projected freight system performance and needs.
- **Task 3: Land Use Assessment.** Task 3 described the current land uses within the region and examined potential future land uses. It also discussed the implications of current and future land use decisions on the region's transportation system, highlighting instances where conflicts may arise between freight-intensive and non-freight-intensive land uses so that they may be addressed through future infrastructure, policy, and programmatic solutions.
- **Task 4: Economic Development Market Assessment.** This task reviewed and analyzed the region's population and economic trends and identified freight-related (or freight-intensive) industries and discussed how they contribute to the economic health of the region. It also investigated how various national and international trends may impact these industries.

- **Task 5: Environmental and Community Impact Scan and Analysis.** Task 5 characterized the impacts of goods movement on the environment and community. This included describing how freight impacts vary in different parts of the region, identifying communities that are disproportionately impacted, and quantifies the magnitude of those impacts. It also included an environmental impacts analysis that examined freight impacts to wildlife habitats, wetlands, national parks, and other natural resources.
- **Task 6: Land Use Recommendations.** Task 6 detailed specific, actionable next steps for the CORE MPO region to take in order to align the region's goals for safety, quality of life, and economic development with the realities of a freight-intensive economy and its associated land uses.
- **Task 7: Draft Recommendations – Identification Of Improvements, Strategies, and Solutions.** This task defined a comprehensive set of short-, mid-, and long-term strategies for improving the performance and reducing the negative impacts of the regional goods movement system while capitalizing on development opportunities.

1.4 Stakeholder Engagement

Stakeholder engagement was critical throughout the development of the Regional Freight Transportation Plan update to ensure that residents, businesses, community leaders, and other stakeholders had an opportunity to actively participate in the process and support the final project recommendations. Stakeholder engagement as part of the Regional Freight Transportation Plan Update was designed to identify key partner agencies, local governments, citizens, and the business community and to outline ways in which they can provide meaningful input to project processes and outcomes. As a result, there were many stakeholders in both the public and private sectors that contributed valuable knowledge and insight into the update of this plan. In accordance with the CORE MPO's Public Participation Plan, the goals of public participation for the Regional Freight Transportation Plan were to:

- Inform residents, businesses, and other stakeholders of the Regional Freight Transportation Plan and how they can be involved in the plan.
- Ensure that stakeholders had adequate, appropriate, and meaningful opportunities to participate.
- Utilize the Stakeholder Advisory Committee to reach interested parties in the community and within the planning area.

Economic Development & Freight Advisory Committee (EDFAC)

The Economic Development & Freight Advisory Committee (EDFAC) is an established committee of the CORE MPO. This group served as the primary stakeholder group to provide input and guidance on the update of the Regional Freight Study. The project team engaged with the EDFAC throughout the plan development process. The EDFAC includes representatives from the following organizations.

- Chatham County
- Georgia Ports Authority
- City of Savannah
- Chatham Emergency Management Agency

- Development Authority of Bryan County
- Effingham Industrial Development Authority
- Federal Highway Administration
- Georgia Department of Transportation
- Savannah Airport Commission
- Savannah Economic Development Authority

Presentations were provided to the EDFAC as follows:

- Meeting 1: Kick-off, June 16, 2022. Introduction of the EDFAC to the project team, review the Regional Plan Update scope of work, and confirm the plan goals and approach.
- Meeting 2: Existing Conditions, October 20, 2022. Presentation and discussion of the findings of data collection and assessment, including freight system conditions and performance.
- Meeting 3: Strategies & Policies, February 16, 2023. Presentation and discussion of potential strategies and policies to enhance regional freight movement.
- Meeting 4: Draft Plan, June 26, 2023. Presentation and discussion of plan highlights, key findings, prioritized needs, and recommendations.

Steering Committee

In addition to the EDFAC, a Steering Committee met monthly throughout the plan development to provide regular input and feedback. The purpose of the Steering Committee was to provide more frequent guidance to the direction of the Regional Freight Transportation Plan Update to ensure it reflects the study area's needs. This committee included representatives from the Georgia Department of Transportation (GDOT), the CORE MPO, Chatham County, and Federal Highway Administration (FHWA).

Stakeholder Interviews

Another engagement method used in developing the Regional Freight Transportation Plan Update was one-on-one stakeholder interviews. These interviews provided insight on the region's industries use of the freight system, identified the challenges associated with goods movement within the region, and opportunities for improvement. Interviews were conducted with the following organizations:

- Georgia Ports Authority
- Development Authority of Bryan County
- Effingham Industrial Development Authority
- Savannah Economic Development Authority
- Joint Industrial Development Authority
- BH Transfer
- Colonial Oil
- Dulany Industries
- Port City Logistics
- Moran Tug

A summary of the feedback gathered through these interviews is provided below. Individual responses are not correlated with the interviewee:

- Economic Growth and Emerging Freight Activity Centers.** Stakeholders stated that while historically the region's industrial and freight activity centered on areas adjacent to the Port of Savannah and east of downtown along President Street, new activity centers are being developed throughout the region. The most significant of these is the western portion of I-16 in Bryan and Chatham Counties (i.e., West I-16) where the Hyundai assembly plant will be located. The development of the Hyundai plant is expected to attract suppliers wanting to set up manufacturing plants near the main facility. Besides the West I-16 area, freight activity centers are also emerging to the north (i.e., north Effingham County) and south (i.e., Rockingham Industrial Park in Savannah and the Belfast Commerce Park in Bryan County) of the region's urban core. Furthermore, existing freight activity centers like the President Street corridor still have land available, and plans under development, to add more production capacity. The emergence new freight activity centers, and the growth of existing ones, will impact freight traffic patterns throughout the region.
- Congestion and Reliability.** Stakeholders acknowledged that there have been multiple investments in the region's transportation network over the years that have helped to improve freight mobility. An example is the extension of Jimmy Deloach Parkway to I-16. In addition, there are several ongoing efforts to address the region's challenges such as the redesign of the I-16/I-95 interchange. However, given the region's growth there still remain freight mobility challenges on key corridors such as SR 21, SR 204, I-16, and I-95. In several cases, stakeholders observed that commuter traffic volume is the primary driver of challenges on these corridors as opposed to truck traffic.
- Infrastructure Conditions.** The primary infrastructure condition issues raised by stakeholders include rough at-grade crossings, poor pavement conditions, and low vertical clearances. Crossings are worn down and made rough by high volumes of vehicle and rail traffic. Regarding pavement conditions, stakeholders observed that pavements on smaller roadways near the Port of Savannah, such as Foundation Drive and Lathrop Avenue, are in poor condition. They also noted that overweight truck trips directly between port facilities do not require a permit which is likely a contributing factor. Stakeholders only identified one location where vertical clearance was a challenge. Trucks often get stuck in the underpass for a rail bridge where E. Lathrop Avenue intersects with Louisville Road.
- Freight Network Connectivity.** Stakeholders identified two primary challenges that impact network connectivity in the region: (1) at-grade crossings and (2) lack of east-west roadway connectivity in certain areas. At-grade crossings are prevalent throughout the region and create mobility and accessibility challenges. These challenges are most prevalent in the Garden City area, the SR 21 corridor, and the President Street corridor.

Regarding east-west roadway connectivity, stakeholders primarily identified Effingham County and the President Street area east of downtown Savannah as being challenged. For Effingham County, east-west connectivity between SR 21 and I-16 was viewed as critical for accommodating growth and addressing existing challenges on SR 21. The Effingham County Transportation Master Plan identified this project as one of its most critical. For the President Street area, the primary routes providing access to interstate highways or the Port of Savannah's terminals are President Street-to-Bay Street and Truman Parkway-to-DeRenne Avenue. The President Street-to-Bay Street route is the most direct but goes through the core of the Historic District impacting its cultural resources. The Truman Parkway-to-DeRenne Avenue route avoids the Historic District but is longer and has challenges related to queueing

at intersections, travel time delay, access management, and pedestrian safety and mobility. The City of Savannah and GDOT have an ongoing project to address these issues, but it remains a current challenge for network connectivity.

- **Truck Parking.** Some stakeholders noted truck parking challenges in the region. For example, stakeholders stated that unauthorized truck parking occurs in industrial parks and sometimes on roadway shoulders. The Crossroads Business Park, Savannah River International Trade Park, and Morgan Lakes Industrial Park were cited as examples. Other stakeholders stated that the region generally lacks truck parking. They observed that, though outside the 3-county study area, rest areas along I-16 are lined with trucks and that trucks sometime park on shoulders (which creates a safety challenge). Anecdotally, long-haul drivers sometimes compete for space at truck stops with local owner-operators who do not have a dedicated terminal for their trucks. Third-party companies that connect drivers with private property owners willing to allow them to park are very active in the region (e.g., SecurSpace, Park My Truck).

Online Engagement

Throughout the Regional Freight Transportation Plan Update, the CORE MPO hosted a project-specific page on its website that served as a hub for all information, project documentation, findings, and schedules for the study (see Figure 1.4 and Figure 1.5). Links to online surveys were also provided on the project website. The online surveys developed as part of the Regional Freight Transportation Plan Update were conducted for both freight industry stakeholders and the general public. The purpose of these surveys was to collect input on freight system needs, challenges, and potential solutions. Each set of surveys an interactive mapping exercise which allowed participants to drop a pin at a specific location and provide comments. The surveys were sent to over 150 regional stakeholders and distributed by economic development agency partners.

FIGURE 1.4 REGIONAL FREIGHT TRANSPORTATION PLAN SURVEY

Community Survey

CORE MPO Regional Freight Needs Identification

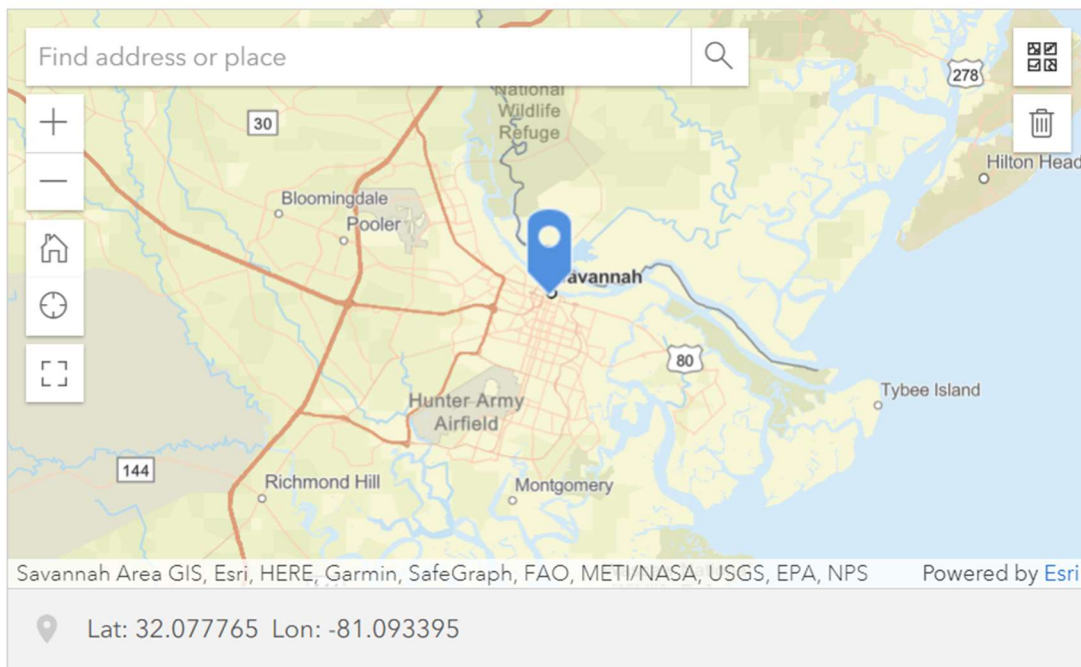
Where are the most significant freight needs?

A component of the CORE MPO Regional Freight Transportation Plan is identifying and assessing freight needs to develop a freight investment plan. These needs can be current or anticipated weaknesses in the freight network that could lead to delays, safety concerns, detours, or other issues.

Please share your expertise and identify locations with current or anticipated freight issues. Feedback is welcome for highway corridors, intersections, rail intermodal terminals, or any other locations with a particular freight need.

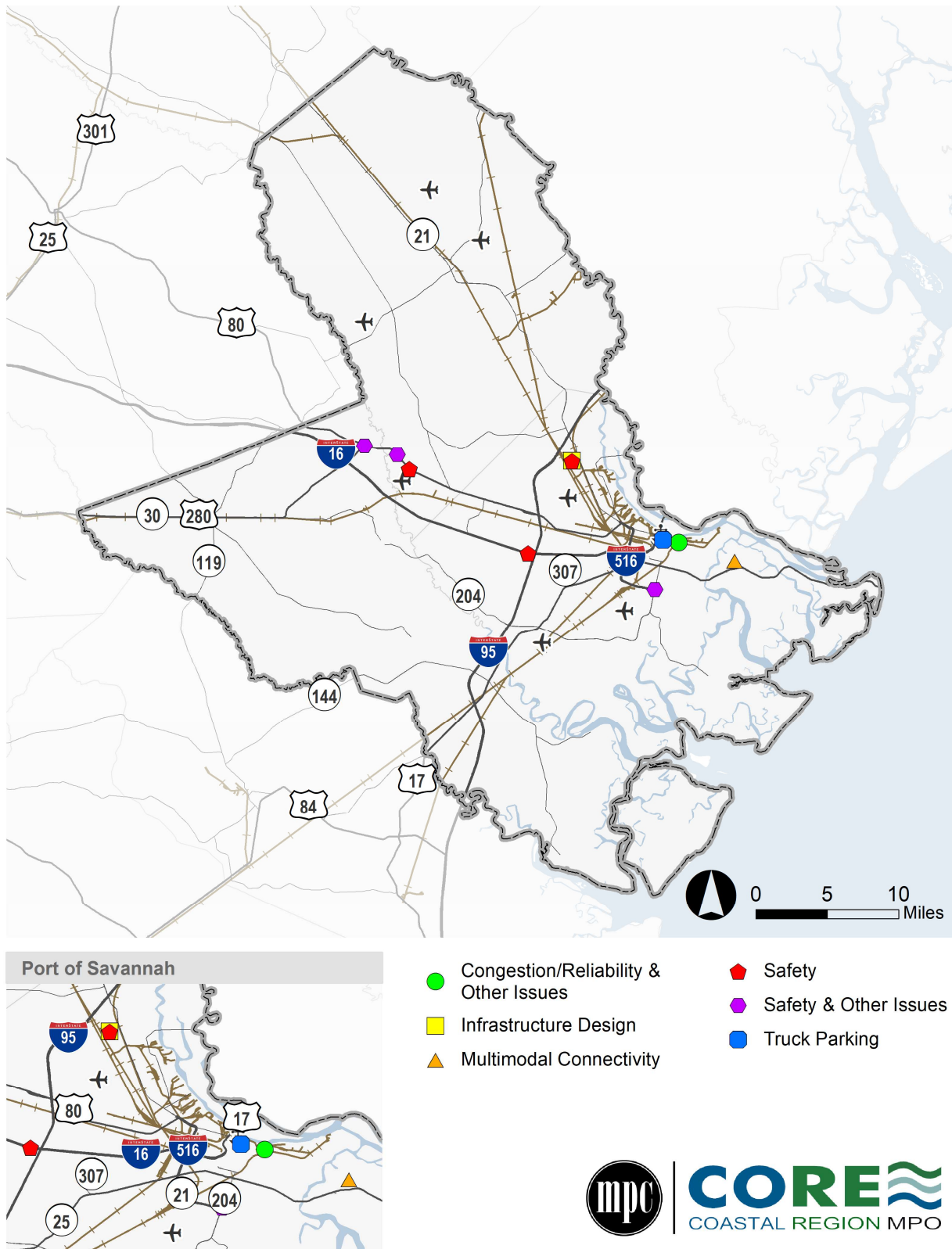
Please add a marker to the map below to identify areas that are a barrier to efficient freight movement.

Simply click anywhere on the map to add a marker. Use ctrl+scroll to zoom in on the map.



Source: CORE MPO; Symbioscity; Cambridge Systematics.

FIGURE 1.5 REGIONAL FREIGHT TRANSPORTATION PLAN SURVEY RESPONSES



Source: CORE MPO; Symbioscity; Cambridge Systematics.

Stakeholder Forums

Two stakeholder forums were conducted as part of the Regional Freight Transportation Plan Update. The first forum was held on Monday, March 25, 2023, at 6 p.m. The purpose of this forum was to provide an overview of the Regional Freight Transportation Plan, gather feedback on needs, discuss prioritization factors, and outline potential strategies to consider. The second forum was held on Monday, June 26, 2023, to present the freight analysis and hear feedback on early project recommendations.

In addition to the two forums, a discussion was held with the East Savannah Industrial Coalition at their October 25, 2022 meeting. The East Savannah Industrial Coalition represents businesses located east of downtown Savannah along the President Street corridor. This area is an existing freight cluster that is poised for additional growth and development given its location along the Savannah River and direct access to rail services.

2 FREIGHT IN THE CORE MPO REGION

In the Savannah region, freight moves through a transportation system that encompasses all modes. The region is served by a deepwater port, two Class I railroads, three rail terminals (including the Mason Mega Rail Terminal), and one commercial service airport that also provides cargo services. The region's roadway network connects all these assets to provide truck access from the intermodal terminals (seaports, rail yards, and airports) to origins or destinations of goods. This section of the report provides an overview of the CORE MPO region's multimodal freight network. For interested readers, please refer to the **Task 2.1: Existing and Future Freight and Goods Movement Assessment**, **Task 2.3: Forecasting of Future Freight Growth**, **Task 2.4: Regional Freight Profiles and Assessment**, and **Task 4: Economic Development Market Assessment** technical memoranda for a more detailed discussion of the region's freight network.

2.1 Economic Contribution of Freight Transportation to the CORE MPO Region

Freight-intensive industries are those that are major producers and/or consumers of goods in the CORE MPO region, or industries that provide either storage or carry services for freight production and freight attractions in the region. Historically, the region has been very successful in attracting freight-intensive industries in the Transportation and Warehousing sector. There has been significant development of warehouses, distribution centers, and other

logistics-focused firms near the Port of Savannah. The region has also historically performed well in attracting industries in transportation equipment manufacturing (i.e., aerospace), chemical manufacturing, paper manufacturing, and forestry

and logging. Recently, the region has experienced additional success in the manufacturing sector as the Hyundai Motor Company is currently developing a major assembly plant in the region. The development of the plant in the CORE MPO region has already begun to attract automotive parts suppliers who will consume some of the available land, which is a departure from warehousing/distribution center development which has historically been most prevalent in the region.



In 2021, freight-intensive industries provided nearly 45,000 jobs throughout the CORE MPO region.³ This accounted for approximately 18 percent of all jobs. This is an increase over 2011 values as the freight-intensive industry share of total employment rose from about 16 percent to 18 percent. It demonstrates that these industries are an increasingly important source of jobs for the region.

³ Regional Economic Models, Inc. (REMI) TranSight model for Georgia regions, Atlanta, and the rest of the U.S.

45,000 jobs provided by freight-intensive industries to the CORE MPO region.

18% of all jobs in the region are in freight-intensive sectors.

Construction, transportation equipment manufacturing, and truck transportation are particularly notable as these industry sectors accounted for representing 23,771 jobs or 53 percent of the total employment under the freight-intensive industries in the region.

Furthermore, four industry sectors added

more than 1,300 to 3,000 jobs each to the region over the 2011-2021 time period. These included couriers and messengers (e.g., express delivery services of parcels), construction, warehousing and storage, and truck transportation.

2.2 Multimodal Freight Network

Highways

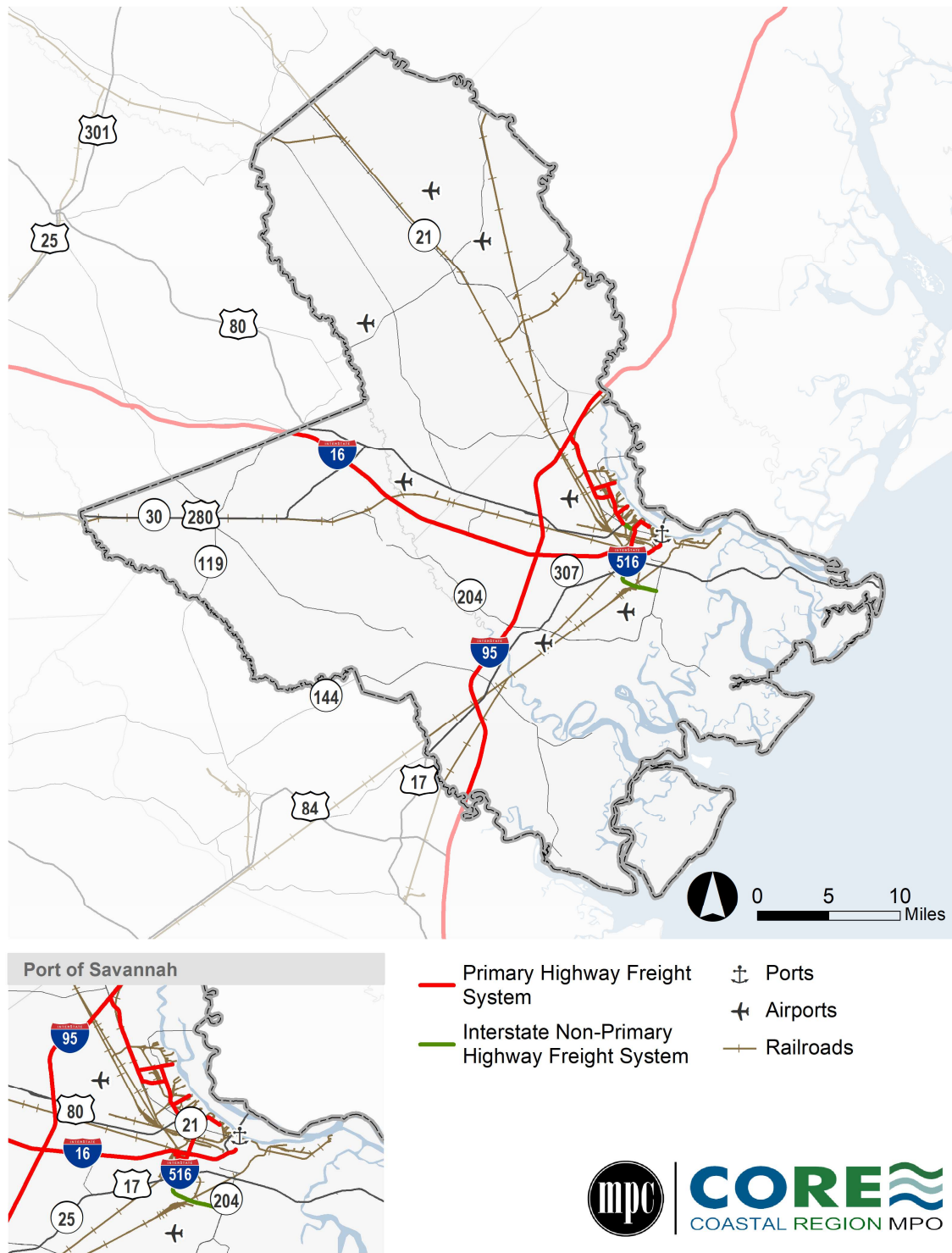
The roadway network provides a critical connection between users and producers of goods throughout the state, the nation, and the world. The CORE MPO region's highways are a vital part of the multimodal freight network as they carry the majority of freight traffic and serve as a connection to the Port of Savannah and the region's rail terminals. The region's highway freight network is comprised of approximately 8,694 miles of roadways⁴, 311 bridges⁵, 22 truck parking facilities, and several intelligent transportation system (ITS) devices that work to improve the safety and mobility of the CORE MPO region's highway network for people and freight.

Two important subsystems of the CORE MPO region's highway freight network are the National Highway Freight Network (NHFN) and the Strategic Highway Network (STRAHNET). The NHFN consists of roadways that are considered the most critical for moving goods at the national level. Its purpose is to strategically direct federal resources and policies toward improved performance of highway portions of the U.S. freight transportation system. The NHFN is designated by FHWA in coordination with state DOTs. As shown in Figure 2.1, in the CORE MPO region all of I-16 and I-95 are included on the NHFN while portions of I-516, SR 21, and SR 25 are on the network.

⁴ Highway Performance Monitoring System, Year 2020.

⁵ National Bridge Inventory, 2022.

FIGURE 2.1 NATIONAL HIGHWAY FREIGHT NETWORK

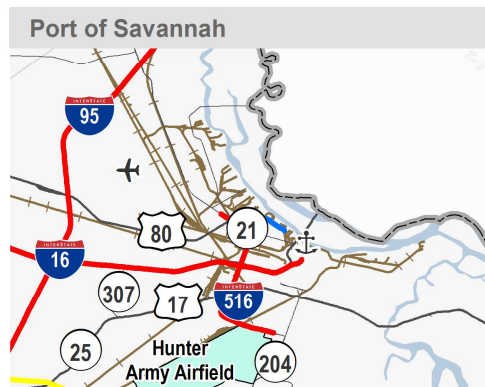
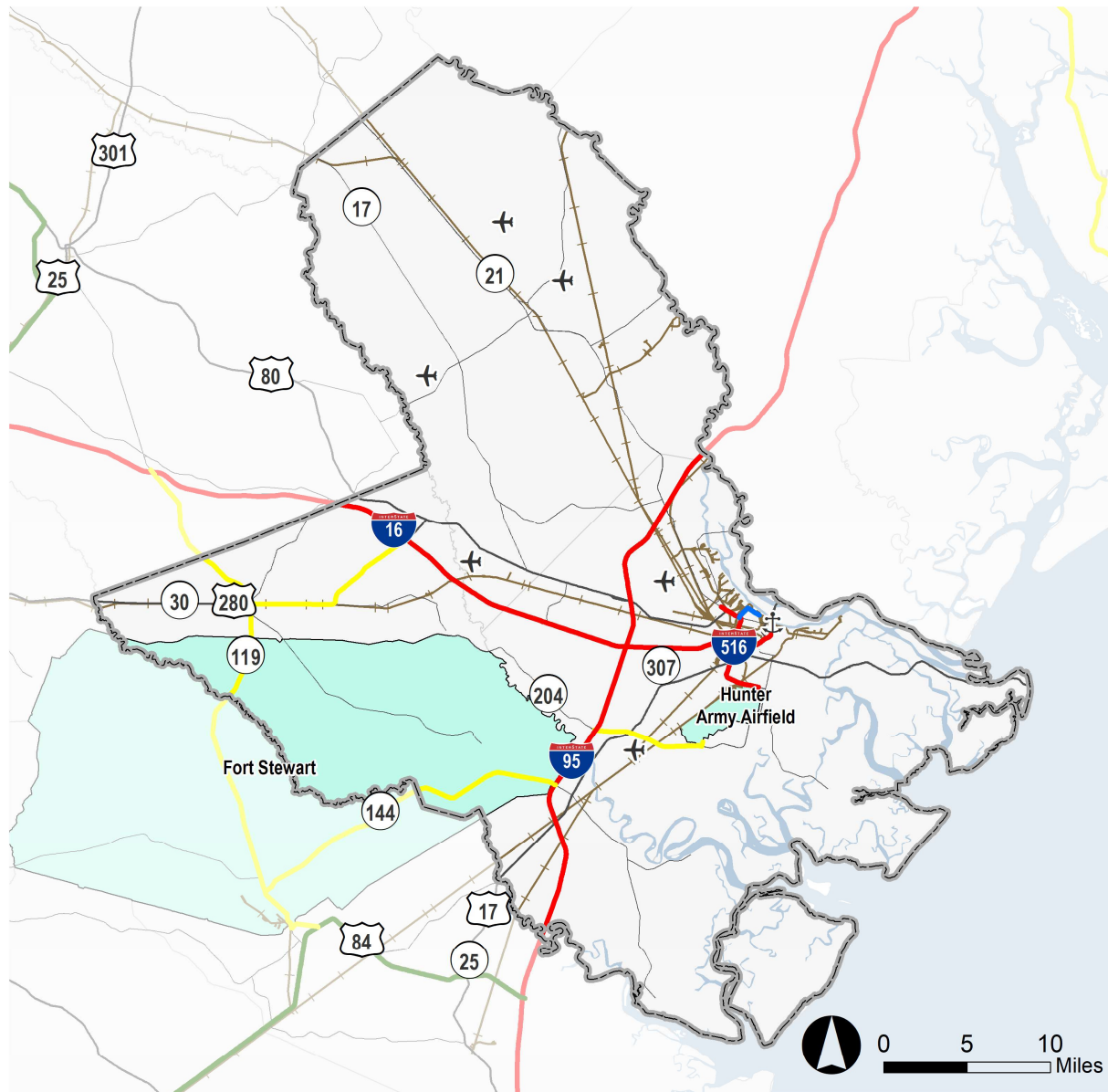


Source: Federal Highway Administration.

Another important highway freight network is the Strategic Highway Network (STRAHNET). The STRAHNET is a system of roads deemed necessary for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities to support U.S. military operations. It provides defense, continuity, and emergency capabilities for the nation's military installations. There are over 62,000 miles of STRAHNET roadways which consists of both Interstate and non-Interstate routes.

The STRAHNET through the CORE MPO region is shown in Figure 2.2. It includes all the region's Interstate highways. It also includes corridors that provide access to Hunter Army Airfield and Fort Stewart in Bryan and Liberty Counties. These corridors include US 280, SR 67, SR 119, SR 144, and SR 204.

FIGURE 2.2 STRAHNET



- Interstate
- Non-Interstate STRAHNET
- Intermodal Connector & Non-Interstate STRAHNET
- STRAHNET Connector



Source: Federal Highway Administration HPMS; U.S. Census Bureau, TIGER/Line Shapefiles Database.

Truck Parking

Truck parking facilities are an important element of the highway network as they provide drivers with safe, authorized locations to park and meet federal regulations for hours-of-service, rest breaks, or staging ahead of delivery or pick-up (see Figure 2.3). They are also critical for roadway safety as fatigued drivers present safety hazards to themselves and the traveling public. In total, there are 22 truck parking facilities - 4 public and 18 commercial – in the CORE MPO region. As shown in Table 2.1, these facilities provide an estimated 1,163 truck parking spaces. Just over 50 percent of capacity in terms of total spaces is located in Bryan County. Chatham County provides nearly 41 percent of the region's capacity with the remainder in Effingham County.

FIGURE 2.3 REASONS TRUCK DRIVERS PARK



Source: Cambridge Systematics, Inc.

TABLE 2.1 TRUCK PARKING BY COUNTY, 2022

County	Number of Facilities	Percent of Total Facilities	Number of Spaces	Percent of Total Spaces
Bryan	7	31.8%	590	50.7%
Chatham	13	59.1%	474	40.8%
Effingham	2	9.1%	99	8.5%
Total	22	100.0%	1,163	100.0%

Source: Cambridge Systematics, Inc.

Notably, Bryan County has about 32 percent of the region's truck parking facilities but over 50 percent of capacity. The facilities in Bryan are generally larger than those in other parts of the region with multiple facilities that contain more than 100 truck parking spaces. These types of facilities tend to be used to meet drivers' needs for 10-hour mandated rest breaks and overnight parking. Chatham County has about 59 percent of the region's truck parking facilities and nearly 41 percent of capacity. It has a mix of small (e.g., 10 spaces or fewer), medium (e.g., 11 to 50 spaces), and large (e.g., 100 or more spaces) facilities. Small

parking facilities are important for meeting drivers' needs for short-term parking which includes 30-minute federally mandated rest breaks and staging. The concentration of small parking facilities in Chatham County likely reflects the limited availability of parcels for larger facilities and the prevalence of manufacturing plants, port facilities, and other businesses that would require drivers to stage pick-ups or deliveries.

Intelligent Transportation Systems

Intelligent transportation systems (ITS) improve transportation safety and mobility through the integration of advanced communications technologies into the transportation infrastructure and within vehicles.⁶ ITS encompasses a broad range of wireless and wire line communications-based information and electronics technologies. This is important for freight as most of the state's goods travel on the highway system. In this regard, the state's ITS is critical for facilitating the efficient movement of goods and for mitigating disruptions on the system due to crashes and other forms of non-recurring congestion.

GDOT ITS assets located within the study area, or that are physically outside the study area but provide coverage, include the GDOT NaviGator, Traffic Management Center (TMC), and various field equipment. The GDOT NaviGator is the State's Advanced Traffic Management System (ATMS) which provides real time speed, volume, and travel time data by using field devices like closed circuit television and detection cameras, ramp meters and dynamic message signs.

The various elements of the state's ITS are managed by the GDOT Traffic Management Center (TMC). TMCs serve as operational centers with one or more human operators that provide access to all data collection, processing, and dissemination equipment available. Though located outside the region, the GDOT TMC monitors travel conditions on state roadways in the CORE MPO region and communicates to the traveling public (i.e., via dynamic message signs, the NaviGator web, and other means) useful information to improve safety and mobility. The City of Savannah and GDOT are in the process of developing a traffic control center that will be located in the CORE MPO region to serve as a regional TMC and support ITS infrastructure and operational improvements.⁷

Table 2.2 summarizes the various ITS field devices located in the CORE MPO region. Though not included in the inventory of devices, it should be noted that several traffic signals throughout the region are monitored and managed as part of GDOT's Regional Traffic Operations Program (RTOP). RTOP uses cameras and remote communication capabilities to actively manage arterial traffic flows thereby relieving congestion and improving reliability.

TABLE 2.2 ITS DEVICES IN THE CORE MPO REGION

Device	Description	No. of Devices
Closed-Circuit Television (CCTV) Camera	CCTV cameras provide coverage on high-traffic corridors. They feed back to the traffic management centers, allowing for quick response times to incidents on the road network.	77
Dynamic Message Signs (DMS)	Dynamic message signs display important messages to drivers on key corridors.	9
Weigh in Motion Stations (WIM)	WIM stations capture and record truck axle weights and gross vehicle weights as they drive over a sensor. They can also be used to provide vehicle counts.	15

⁶ Federal Highway Administration, <https://highways.dot.gov/safety/other/intelligent-transportation-systems-safety>.

⁷ GDOT PI #0017973, <https://www.dot.ga.gov/applications/geopi/Pages/Dashboard.aspx?ProjectID=0017973>.

Device	Description	No. of Devices
Classification Count Stations (CCS)	Classification count stations provide information on both the volume of vehicles traversing a section of roadway and their classification according to the FHWA 13-vehicle classification system.	6
Radar Detection System (RDS)	Radar detection systems provide information on traffic conditions such as volume and speed.	3
Environmental Sensor Stations (ESS)	Environmental sensor stations are fixed roadway locations with one or more sensors measuring atmospheric, surface (i.e., pavement and soil), and/or hydrologic (i.e., water level) conditions.	1

Source: Cambridge Systematics, Inc.

Rail

With a history of service that dates to the 1830's, freight rail in Georgia has been a prominent and critical economic driver for the state and the southeast region more broadly. The CORE MPO region represents a key node in the statewide freight rail system, a status that is only growing as the Port of Savannah continues to experience record freight volumes year over year. Ongoing rail capacity expansion projects at the Port of Savannah should further cement the region's status as a critical freight hub for Georgia and the southeastern United States, and freight rail service will continue to play a major role in this dynamic in the years ahead.

The statewide rail network has 4,684 miles of track, which places Georgia as the seventh-largest network in the country.⁸ Of that total, 278.9 miles of the state's system are located within the three-county region. Freight railroads are categorized as Class I, Class II, or Class III based on their annual revenues.⁹ Class I railroads are the largest, and generally include those operators that carry freight longer distances across state lines and into other regions of the United States or internationally into Canada and Mexico. Class II railroads tend to operate regionally while Class III railroads are typically short-line operations that provide direct, last-mile connections to key destinations in the freight network, including ports, industrial facilities, and warehousing and distribution centers. For example, the Savannah Port Terminal Railroad (SAPT) provides services to the Mason Mega Rail Terminal at the Port of Savannah.

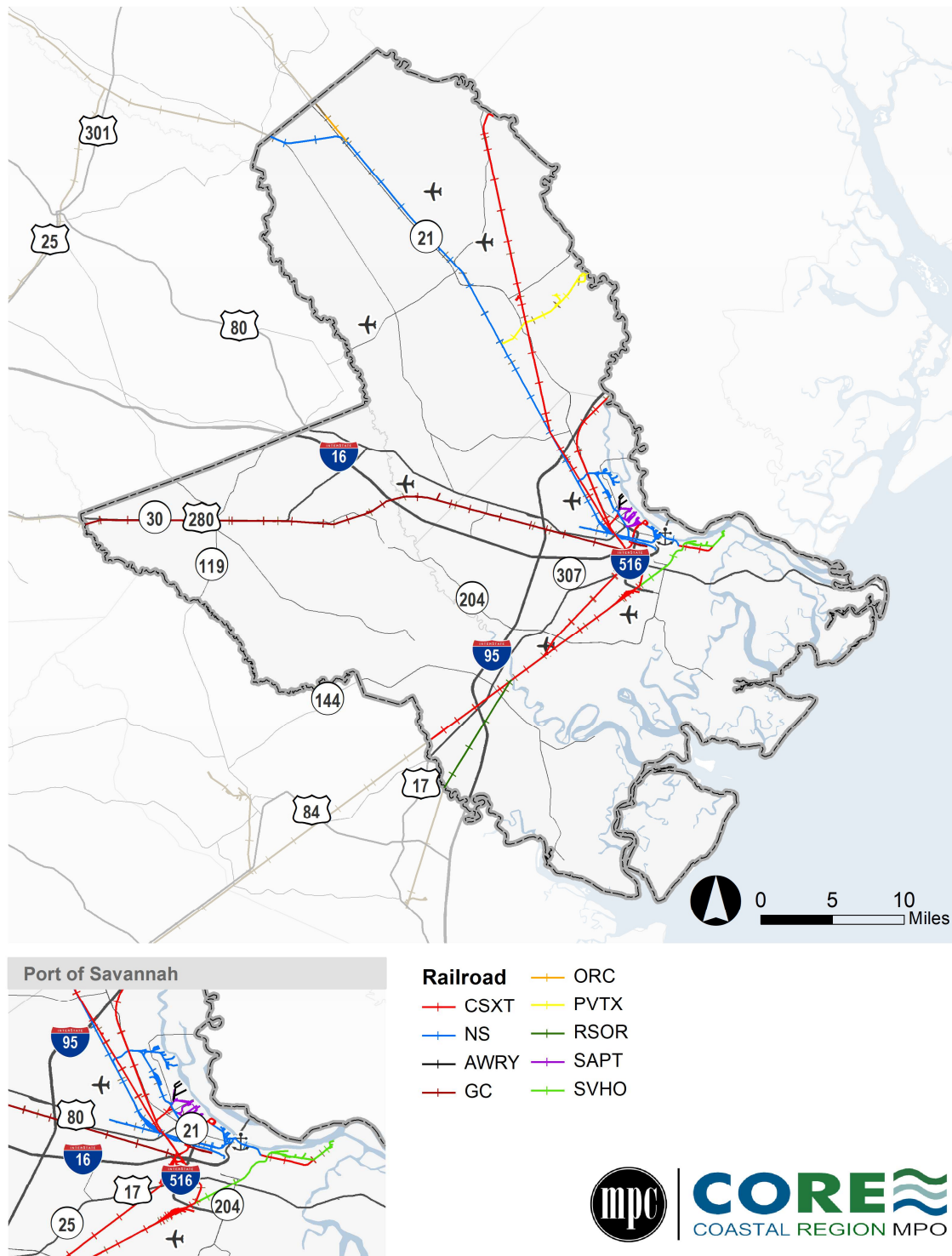
As shown in Figure 2.4, there are two Class I railroads operating in the region, Norfolk Southern and CSX Transportation, while the remainder are Class III railroads.

Class III Railroads in the CORE MPO Region

- Georgia Central Railway (GC)
- PVTX (private railroad serving Georgia Power and Georgia Pacific facilities)
 - Savannah Port Terminal Railroad (SAPT)
 - Savannah & Old Fort Railroad (SVHO)
 - Riceboro Southern Railway (RSOR)
 - Ogeechee Railroad Company (ORC)
- Allegheny & Western Railway Company (AWRY)

⁸ GDOT, Georgia State Rail Plan, 2021.

⁹ Current Surface Transportation Board thresholds establish Class I carriers as any carrier earning revenue greater than \$943.9 million, Class II carriers as those earning revenue between \$42.4 million and \$943.9 million, and Class III carriers as those earning revenue less than \$42.4 million (<https://www.stb.gov/reports-data/economic-data/>).

FIGURE 2.4 STUDY AREA RAILROADS, 2022

Source: Bureau of Transportation Statistics, National Transportation Atlas Database, 2022.

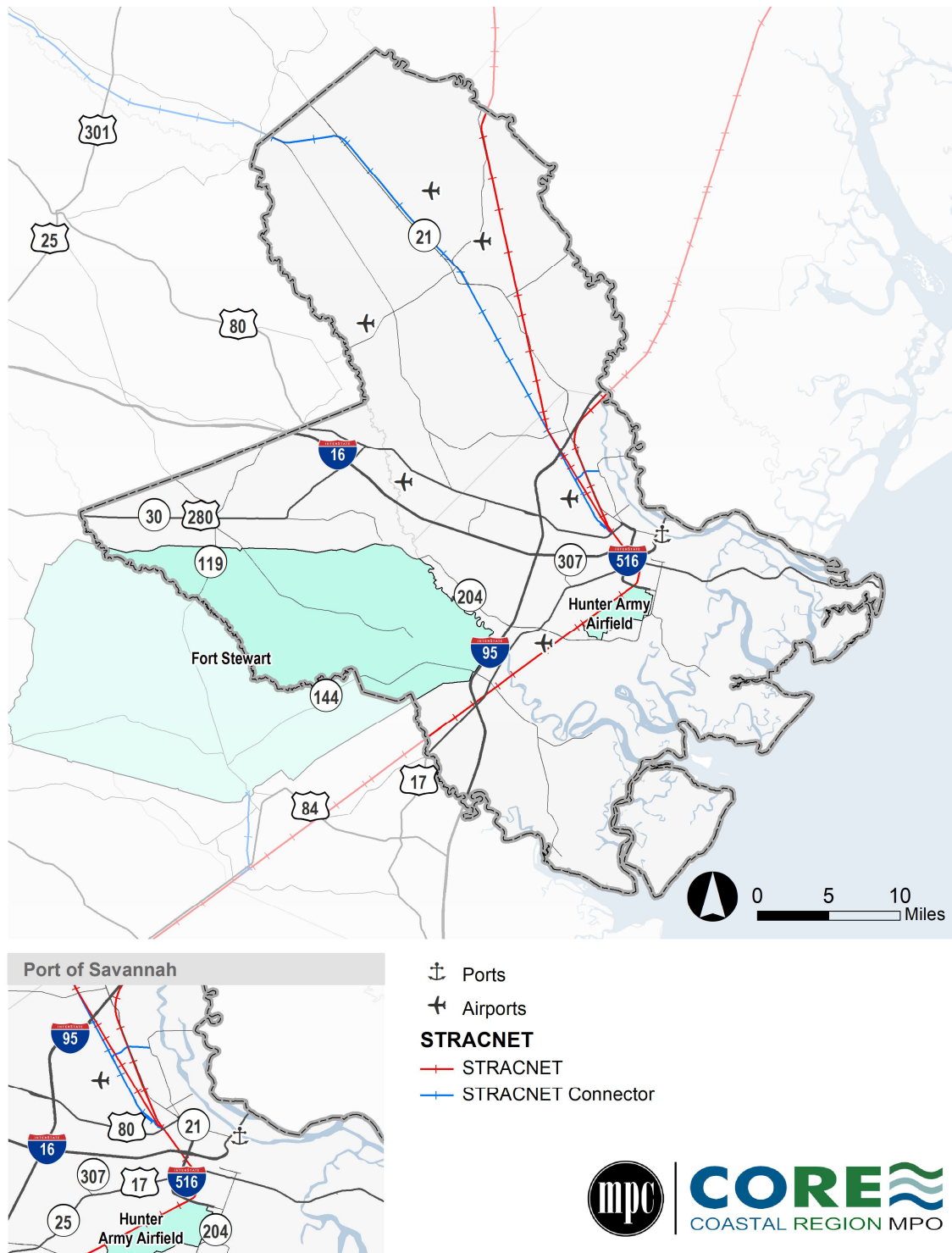
CSX Transportation (CSXT) operates the nation's third-largest rail network serving all major metropolitan areas east of the Mississippi River with extensions into the Canadian provinces of Ontario and Quebec. CSXT owns and operates nearly 1,500 miles of freight rail in Georgia, including 104 miles of rail within the

three-county study area. CSXT's assets in the study area include rail lines heading north and southwest from the Port of Savannah, Savannah Yard near the I-16/I-516 interchange, Southover Yard adjacent to Hunter Army Airfield, and spur line connections to key destinations on the Savannah River such as Colonial Terminals. In addition, CSXT and Norfolk Southern jointly operate the Mason Mega Rail Terminal, the Port of Savannah's Garden City Terminal on-dock rail terminal.

Norfolk Southern Railway (NS) operates 21,000 route miles in 22 eastern states, the District of Columbia, and the Province of Ontario. NS's network in the study area includes Dillard Yard in Garden City and a rail line extending northwest from Dillard Yard through Effingham County to points further west. Other key NS assets in the study area include the S Line Yard along Louisville Road in Savannah and several spur lines connecting to industrial locations along the Savannah River.

The Strategic Rail Corridor Network (STRACNET) is an important subsystem of the region's freight rail network. Like its highway counterpart the STRAHNET, the STRACNET serves the freight rail transportation needs of Fort Stewart, Hunter Army Airfield and other military installations outside the region and state. Depicted in Figure 2.5, the STRACNET ensures the readiness capability of the national railroad network to support defense deployment and peacetime needs.

FIGURE 2.5 STRACNET, 2022



Source: Bureau of Transportation Statistics, National Transportation Atlas Database, 2022; U.S. Census Bureau, TIGER/Line Shapefiles Database.

Major Freight Rail Terminals

Freight rail terminals are facilities where the transfer of freight between rail and other transportation modes, including but not limited to the movement of containers and trailers, bulk transloads, and automobile distribution. These facilities are critical components of the region's multimodal freight network. Rail intermodal terminals are those facilities that allow for the transfer of shipping containers between rail and other modes, including cargo ships and tractor trailers. Two rail intermodal terminals are components of the freight rail system in the three-county study area. Those facilities include:

- Mason Mega Rail Terminal.** The Mason Mega Rail Terminal is a rail intermodal terminal adjacent to the Port of Savannah's Garden City Terminal that opened at full capacity in 2022. This terminal combines the existing Chatham Intermodal Container Transfer Facility (ICTF), operated by CSX, and the existing Mason ICTF, operated by Norfolk Southern. Combining these two formerly separate facilities allows for the addition of 97,000 new feet of rail at Garden City Terminal, a more efficient terminal design that can use higher productivity loaders shortening freight transfer times while doubling the Port of Savannah's rail lift capacity to 1 million containers annually. Both Class I railroads will continue to operate from this location and benefit from the resulting expansion of the Port of Savannah's service area, which now stretches west to Dallas and Memphis and into the midwestern United States.¹⁰



Credit: Georgia Ports Authority.

- CSX Savannah Yard.** Savannah Yard is a rail intermodal terminal operated by CSX. It is located southwest of the I-16/I-516 interchange. The CSX Savannah Yard has approximately 4,800 feet of loading track and can handle as many as 50,000 lifts per year.

¹⁰ [Mason Mega Rail - Georgia Ports Authority \(gaports.com\)](https://www.gaports.com/mason-mega-rail)

In addition to rail intermodal terminals, the region also has rail bulk and carload terminals which are important components of the regional freight rail network. Rail bulk terminals are those facilities that allow for the transfer of dry or liquid bulk goods such as petroleum products and minerals between rail and trucks. Other types of terminals include roll-on roll-off facilities and breakbulk terminals, which allow for the transfer of automobiles and other types of goods on and off of the freight rail network.

Rail Bulk and Other Terminals in the CORE MPO Region

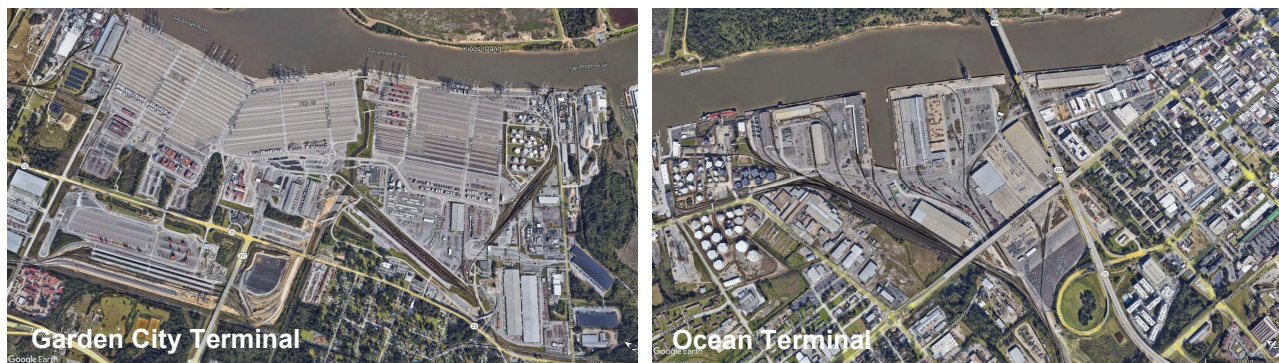
- Colonia Terminals
- CSX TRANSFLO
- CSX Southover Yard
 - NS Dillard Yard
- Vopak Terminal Savannah
- Southeastern Ship Terminal
- Savannah Marine Terminal
- Seonus Stevedoring-Savannah

Ports

The Savannah River and the region's coastal location provides a valuable waterborne connection to national and international markets. The Port of Savannah is critically important to the regional and state economy and generates much of the freight traffic through the region. The Port of Savannah is the largest and fastest growing container terminal in America and the 3rd busiest container port complex in U.S., after L.A./ Long Beach and New York-New Jersey.¹¹ It is the largest gateway for agricultural exports. In 2021, despite the COVID-19 pandemic's substantial disruption of national and international supply chains, the Georgia Ports Authority handled 41.6 million tons of trade including 5.6 million twenty-foot equivalent container units (TEUs).

The Port of Savannah is comprised of two terminals: Garden City and Ocean. The Garden City Terminal handles container traffic and has on-terminal rail intermodal access. Both Norfolk Southern (NS) and CSX Transportation operate at the Mason Mega Rail Terminal located on the Garden City Terminal. The Ocean Terminal handles breakbulk, roll-on/roll-off (Ro/Ro), and container traffic. However, this facility is in the process of being converted to primarily handle containers. It also has on-dock rail access via NS and CSX.

FIGURE 2.6 DEEPWATER TERMINALS AT THE PORT OF SAVANNAH



Source: Google Earth.

¹¹ Georgia Ports Authority, <https://gaports.com/facilities/port-of-savannah/>.

The Ocean Terminal serves breakbulk, Roll-on / Roll-off, and containers. It covers 200.4 acres and provides more than 1.4 million square feet of storage¹². The Garden City Terminal is the Port of Savannah's primary container handling facility and is the 4th busiest container terminal in the United States. It occupies about 1,345 acres and handled approximately 538,000 rail containers in 2021¹³. Over 1.1 million square feet of warehousing is located at the Garden City Terminal.¹⁴ There are ongoing efforts to expand the Garden City Terminal (i.e., Garden City Terminal West) to include a container yard with a capacity of 750,000 TEUs.

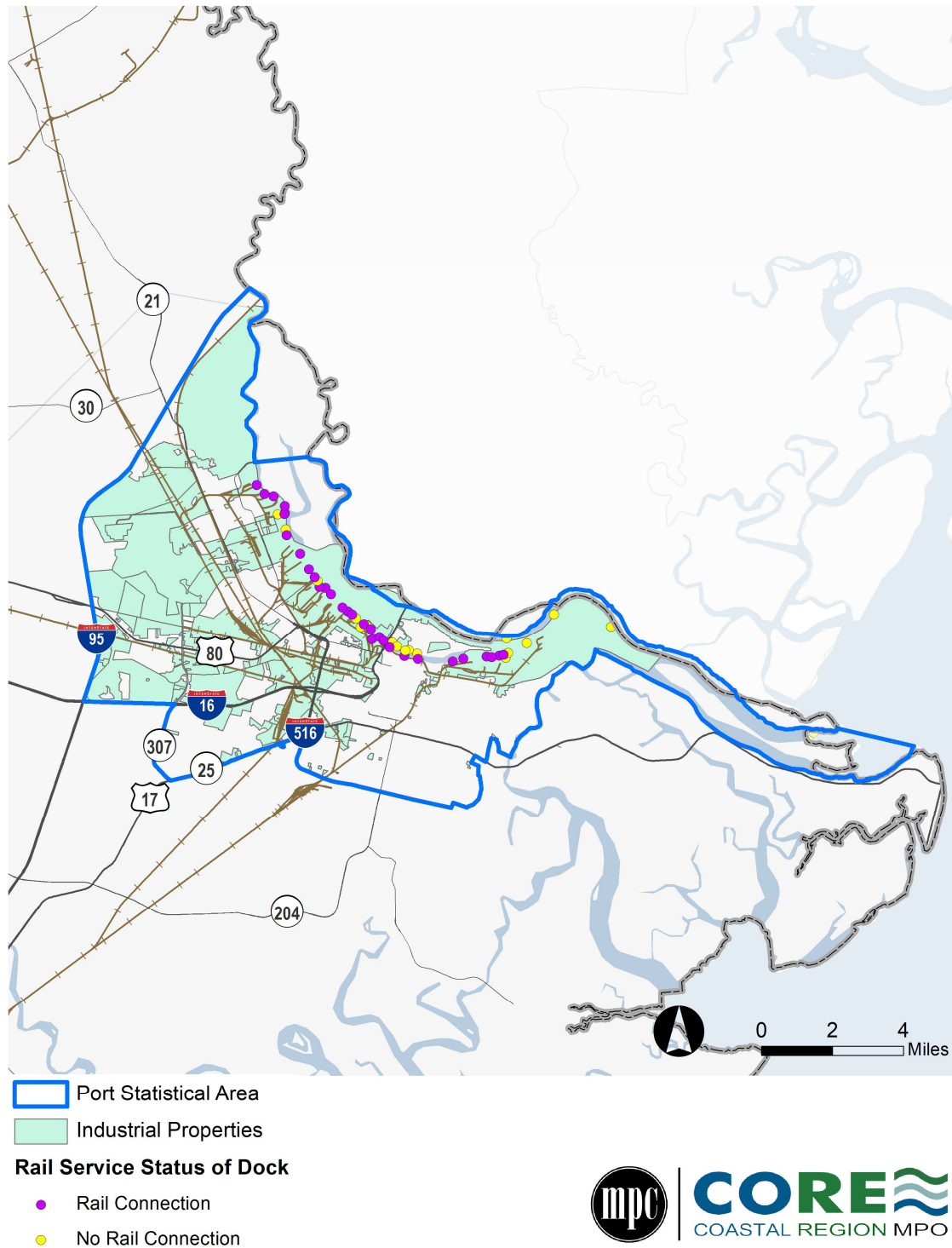
While the inventory of assets focuses on facilities owned by the Georgia Ports Authority, it is important to note that there are several rail terminals, truck terminals, rail-served docks, and other facilities that effectively expand the footprint of the port and the amount of capacity it may handle. This is apparent when viewing the cargo-serving docks (i.e., as opposed to docks used for maintenance, tourism, or other purposes) and industrial zoned properties within the port statistical area (see Figure 2.7). The port statistical area represents the port limits as defined by legislative enactments of state, county, or city governments. Along with the cargo-serving docks and industrial zoned properties, the port statistical area illustrates the broad reach of the port in terms of the facilities that support port operations.

¹² <https://gaports.com/facilities/port-of-savannah/ocean-terminal/>

¹³ Georgia Ports Authority, 2021 Annual Report, <https://gaports.dcatalog.com/v/FY21-Annual-Report/?1655986353>.

¹⁴ Georgia Ports Authority, <https://gaports.com/facilities/port-of-savannah/garden-city-terminal/>

FIGURE 2.7 INDUSTRIAL PROPERTIES AND CARGO-SERVING DOCKS WITHIN THE PORT OF SAVANNAH'S PORT STATISTICAL AREA, 2022



Source: U.S. Army Corps of Engineers; CORE MPO; Cambridge Systematics, Inc. analysis.

Air

Air cargo has a significant role in the multimodal freight network as it provides the fastest service for long-distance shipments of goods. The high service quality provided by air cargo results in higher shipping costs for this mode. As a result, air cargo tends to be limited to high-value and low-weight goods such as medical supplies, flowers, and electronics.

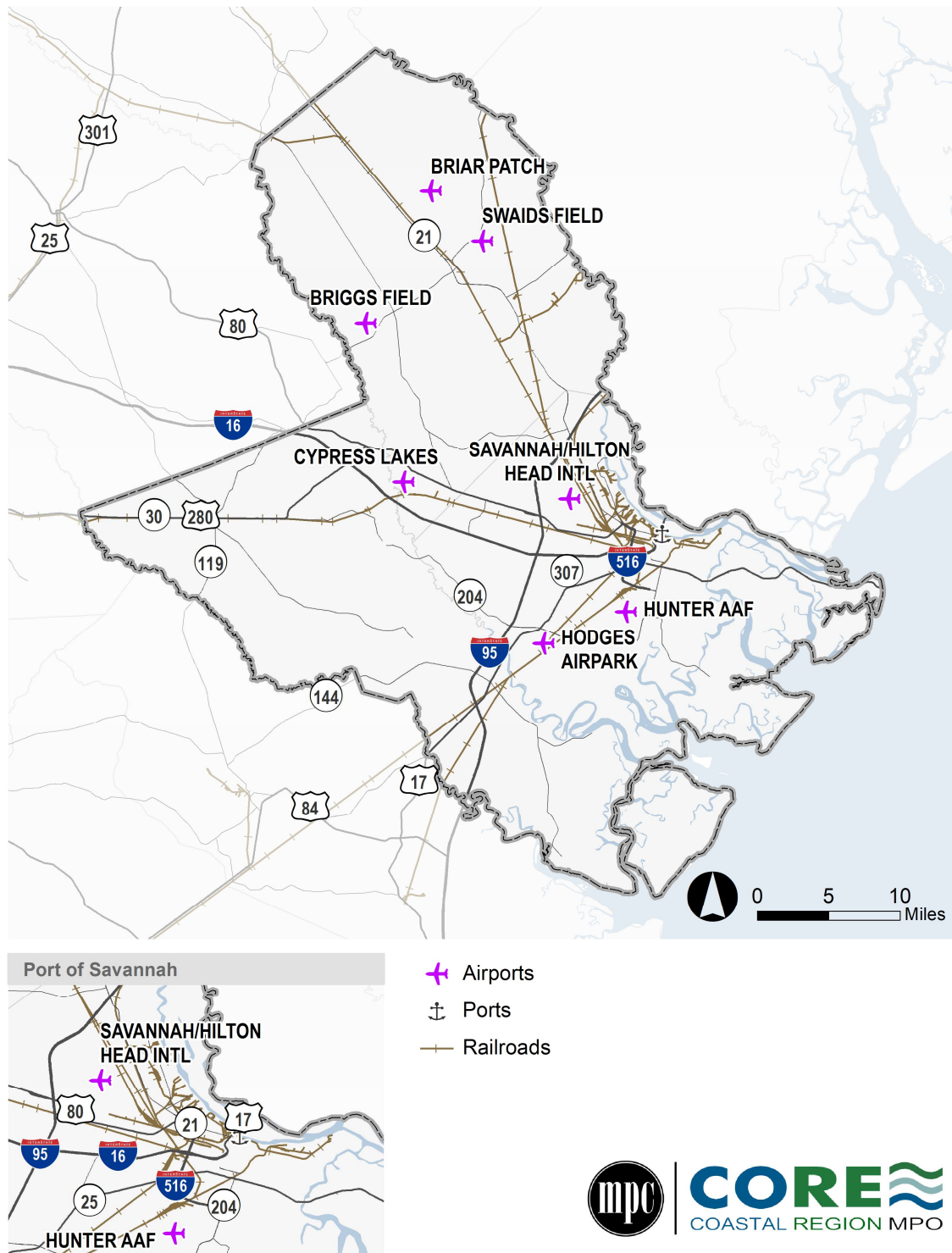
There are seven airports in the 3-county region as shown in Figure 2.8. These include Cypress Lake, Swaids Field, Hodges Airpark, Briggs Field, and Briar Patch which are privately owned and do not handle cargo. Savannah-Hilton Head International Airport (SAV) is the only public airport and the only one that handles cargo in the region. Dedicated cargo carriers at SAV include Air Cargo Carriers, Federal Express (FedEx), Martinaire Aviation, Sky Way Enterprises, and Suburban Air Freight.^{15,16} In total, there is about 138,000 square feet of air cargo warehouse space at SAV.¹⁷ This includes an approximately 80,000-square foot general cargo building open to all carriers as well as an approximately 58,000-square foot air cargo facility dedicated to a single tenant. Both facilities are along Bob Harmon Road which is accessed by SR 307/Dean Forest Road. As air cargo is typically interchanged with highway freight, SAV impacts these and surrounding roadways by generating truck traffic to and from its air cargo facilities.

¹⁵ Savannah-Hilton Head International Airport, *Comprehensive Annual Financial Report*, 2020, <https://savannahairport.com/wp-content/uploads/2021/07/Savannah-Airport-Commission-2020-Comprehensive-Annual-Financial-Report.pdf>.

¹⁶ <http://savannahairport.com/about/general-aviation>

¹⁷ Savannah/Hilton Head International Airport Short-Term Development Program Draft Environmental Assessment, November 2019, https://savannahairport.com/wp-content/uploads/2019/11/191111_SAV-Short-Term-CIP-Draft-EA_rev1a_2s_rfs.pdf

FIGURE 2.8 AIRPORTS IN THE CORE MPO REGION, 2022

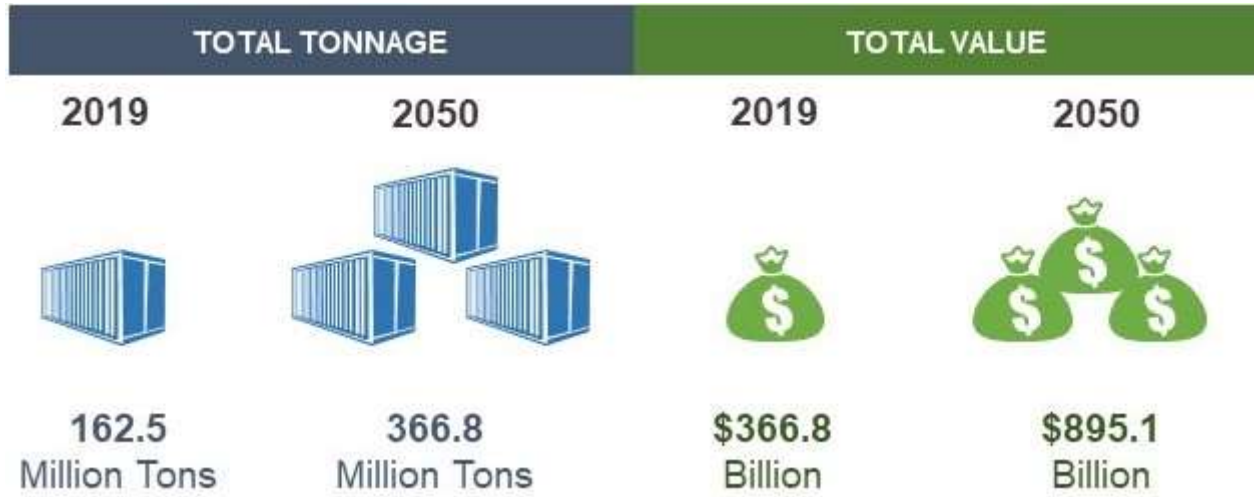


Source: Bureau of Transportation Statistics, National Transportation Atlas Database, 2022.

2.3 Freight Demand

The needs of the Savannah region's freight system are driven by both the current and future demand for freight transportation. This section of the report examines the demand for freight transportation services in the region by analyzing the commodities flows underlying that demand. Overall, in 2019 nearly 163 million tons of freight worth \$367 billion were transported to, from, within, or through (i.e., truck and rail only) the CORE MPO Region as shown in Figure 2.9. This is projected to more than double in 2050 and grow to over 392 million tons worth \$895 billion.

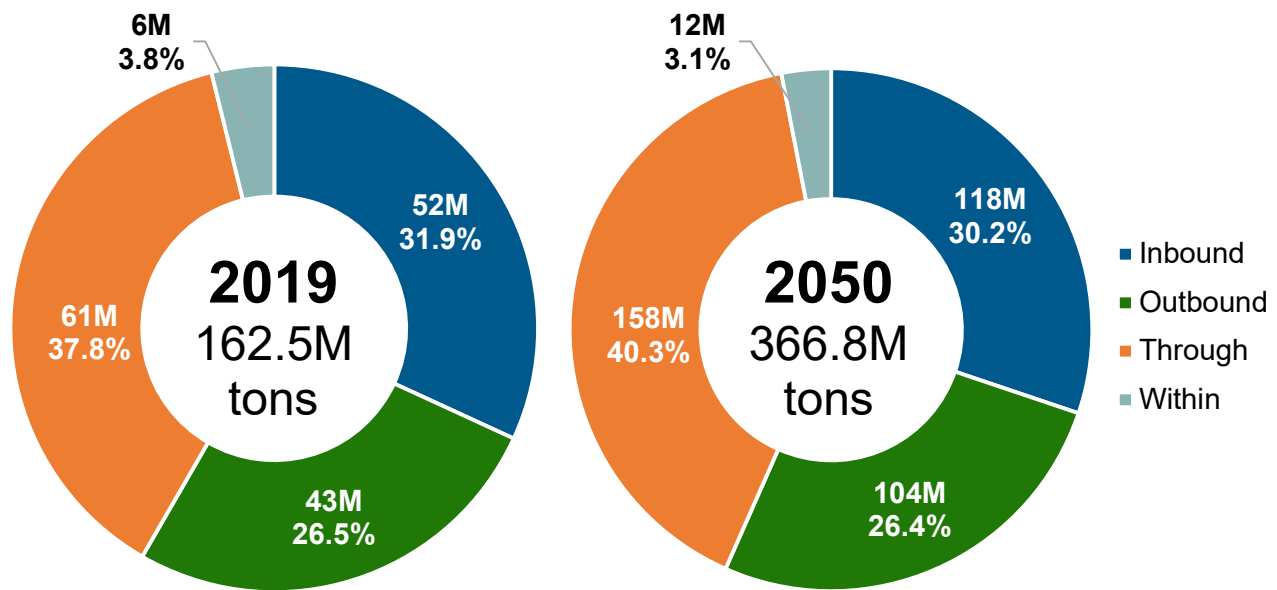
FIGURE 2.9 FREIGHT DEMAND IN THE CORE MPO REGION, 2019 AND 2050



Source: TRANSEARCH; USA Trade Online; Cambridge Systematics, Inc. analysis.

Directional Split

Figure 2.10 shows the flow of goods by tonnage across the study region by direction in 2019 and 2050. In 2019, almost 38 percent of all freight tonnage was moved through the region without making a stop. Through movements accounted for the largest share of tonnage. This is due, in large part, to freight shipments traveling along I-95 as it provides access to Florida and major population centers along the east coast. The prevalence of through movements is also due to the region's rail network as CSX Transportation and Norfolk Southern have main lines traversing the study area.

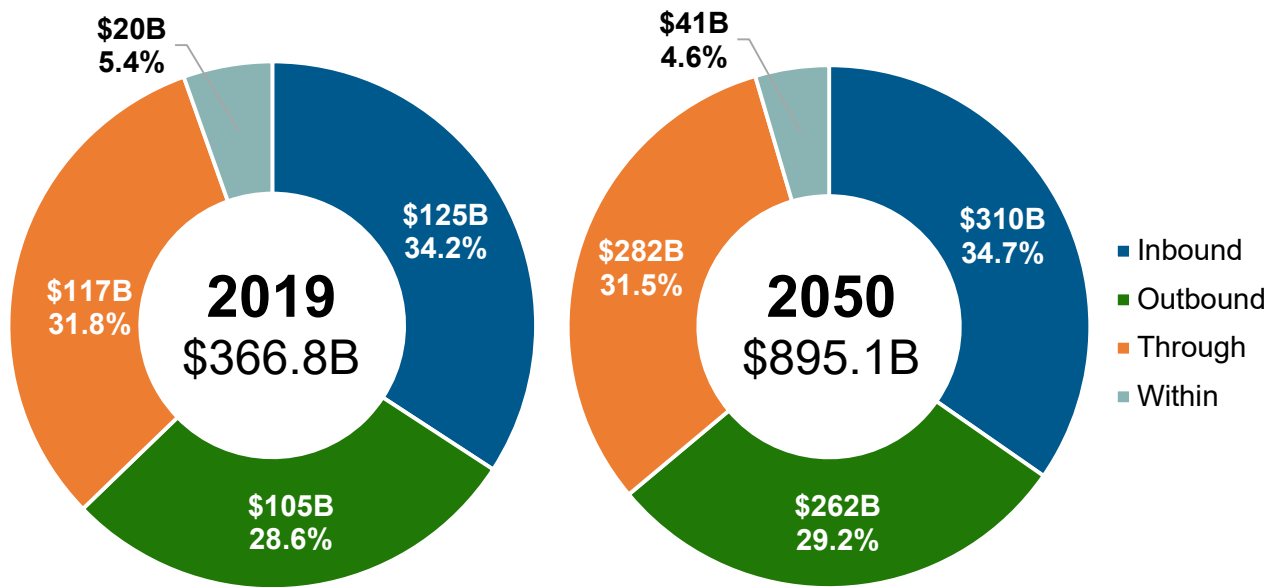
FIGURE 2.10 CORE MPO TONS BY DIRECTION, 2019 AND 2050

Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

Inbound shipments accounted for the next highest share of goods by total tonnage. They represented 32 percent of total tons in 2019. Outbound shipments represented 27 percent of goods in 2019. About 4 percent of tonnage has an origin or destination within the region.

By 2050, the proportions of tonnage by direction are projected to remain largely consistent with 2019 values. Through tonnage will have grown 2.5 percent to over 40 percent by 2050, while the remaining directions will have decreased slightly from their respective 2019 percentages. Inbound shipments are estimated to still exceed outbound shipments in terms of total tonnage, but the gap between them will shrink from about 5.4 percentage points in 2019 to 3.8 percentage points in 2050.

Figure 2.11 shows the breakdown of freight movements in the CORE MPO region by direction with respect to value for 2019 and 2050. By value, inbound shipments comprise the highest share of value by direction with about 34 percent in 2019. Through movements comprise the next highest share at nearly 32 percent. Outbound and within shipments make up approximately 29 percent and 5 percent of total value. That the share by total value of inbound, outbound, and inbound shipments exceed their shares by total tonnage implies that those goods have a higher average value per ton of freight than those that pass through the region without stopping. Outbound freight falls into a similar category of having a higher percentage of freight value in each year than freight tonnage. 2050 projections of value by direction are largely consistent with the 2019 results.

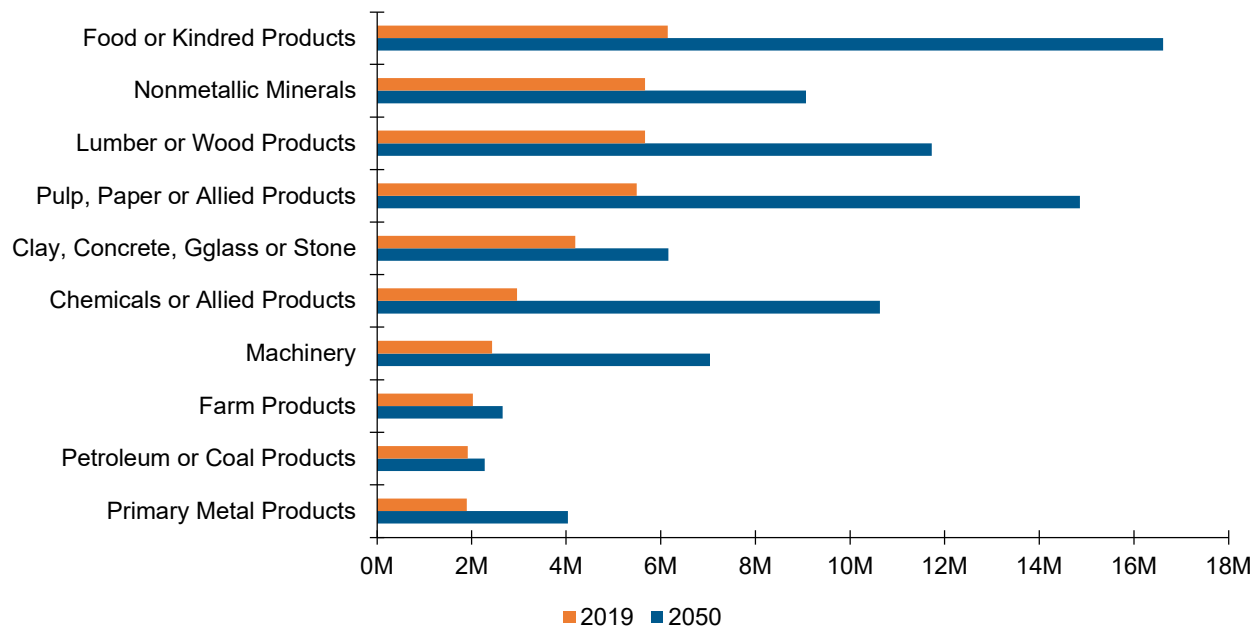
FIGURE 2.11 CORE MPO VALUE BY DIRECTION, 2019 AND 2050

Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

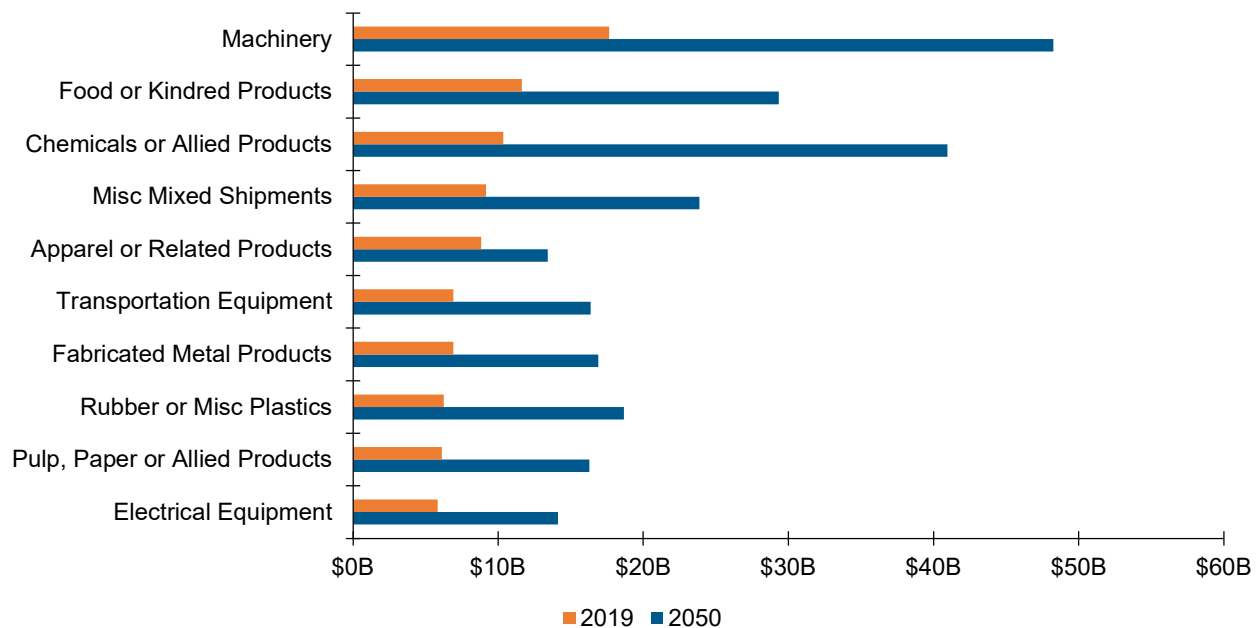
Top Inbound and Outbound Commodities

Figure 2.12 shows the top commodities for inbound shipments for 2019 and 2050. Food or kindred products was the top commodity shipped into the region. In 2019 it accounted for nearly 6.15 million tons and is projected to increase to over 16 million tons by 2050. This commodity includes goods such as meat, milk, fruits, vegetables, and flour, among others. It was followed by nonmetallic minerals, lumber or wood products, pulp and paper products, and clay, concretion, glass, or stone. As previously mentioned, many of these commodities can be linked to major industry sectors in the coastal region and throughout Georgia – such as forestry and paper products manufacturing. By 2050, lumber and wood products and pulp and paper products are projected to surpass nonmetallic minerals in total tonnage.

Figure 2.13 shows the top inbound commodities by value. Machinery was the top commodity shipped into the region representing \$17.7 billion worth of engines, farm equipment, construction equipment, cranes, and other goods. By 2050, this is projected to increase to over \$48.2 billion. Machinery was followed by food or kindred products, chemicals, mixed shipments (e.g., various goods that are grouped together for shipping), and apparel as top commodities. Chemicals or allied products (e.g., soap, paints, drugs) are projected to surpass food or kindred products as the second highest value commodity class shipped inbound to the region by 2050.

FIGURE 2.12 TOP INBOUND COMMODITIES BY TONNAGE, 2019 AND 2050

Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

FIGURE 2.13 TOP INBOUND COMMODITIES BY VALUE, 2019 AND 2050

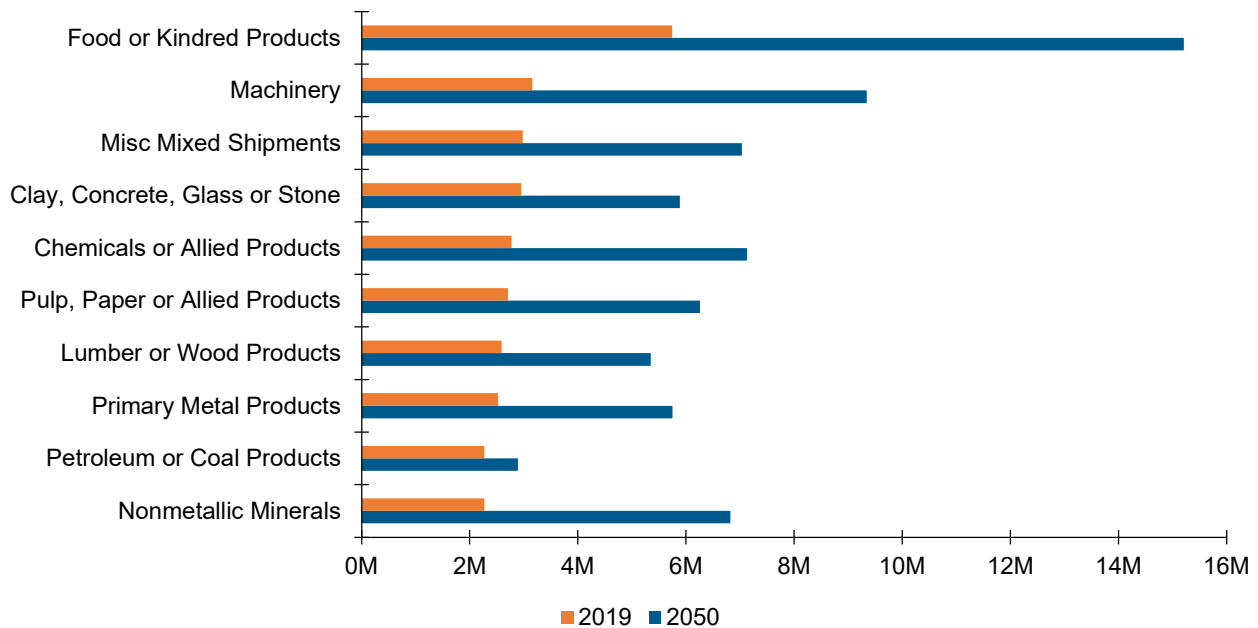
Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

Figure 2.14 shows the top commodities for outbound shipments for 2019 and 2050. The most prevalent goods shipped outbound from the region are largely consistent with the top inbound shipments. The exception is that “miscellaneous mixed shipments” replaces farm products as a top commodity.

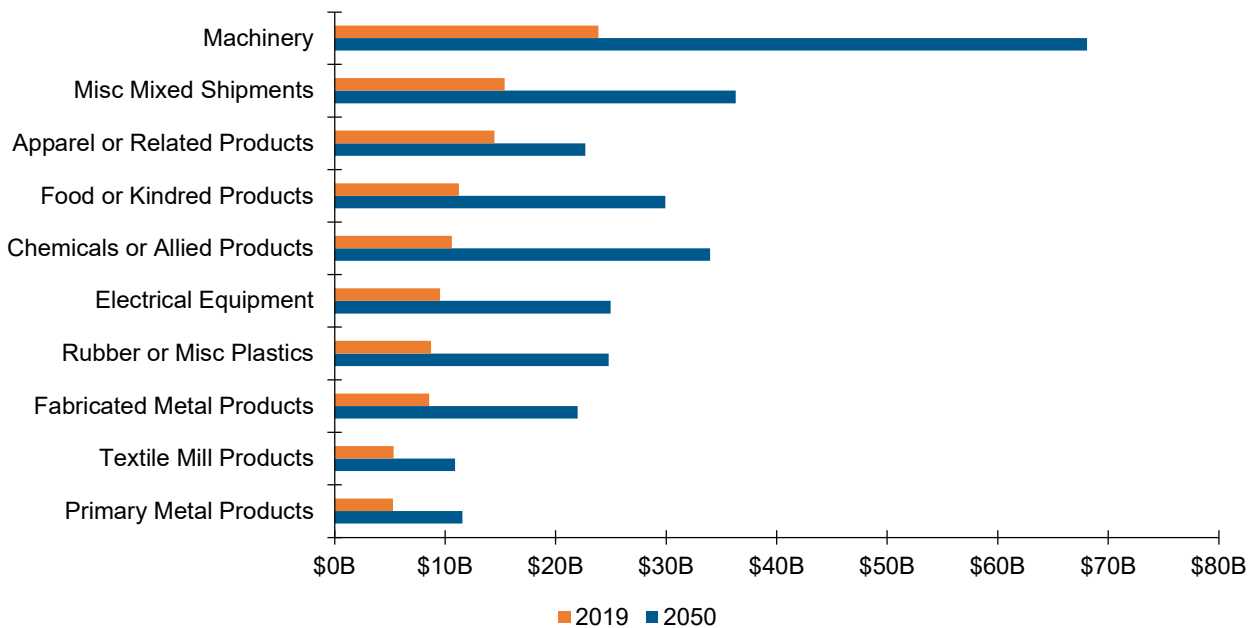
Miscellaneous mixed shipments are two or more different commodity types packaged together for shipping. Food or kindred products was a top commodity for both inbound (6 million tons in 2019 and 16 million tons in 2050) and outbound (6 million tons in 2019 and 15 million tons in 2050) flows in both analysis years. Shipments of clay, concrete, glass, or stone is the only other commodity in the top five for both inbound and outbound.

Figure 2.15 contains the top outbound commodities by value. The top 10 commodities by value are the same as those by weight except that the “textile mill products” and “primary metal products” commodity groups replacing the “transportation equipment” and “pulp, paper, or allied products” commodity groups. Textile mill products include goods such as fabrics, floor coverings, yarn and thread, and tire cords and fabrics, among others. Primary metal products include steel works and rolling mill products, iron and steel castings, and metal basic shapes as examples. Machinery is the top outbound commodity by value.

FIGURE 2.14 TOP OUTBOUND COMMODITIES BY TONNAGE, 2019 AND 2050



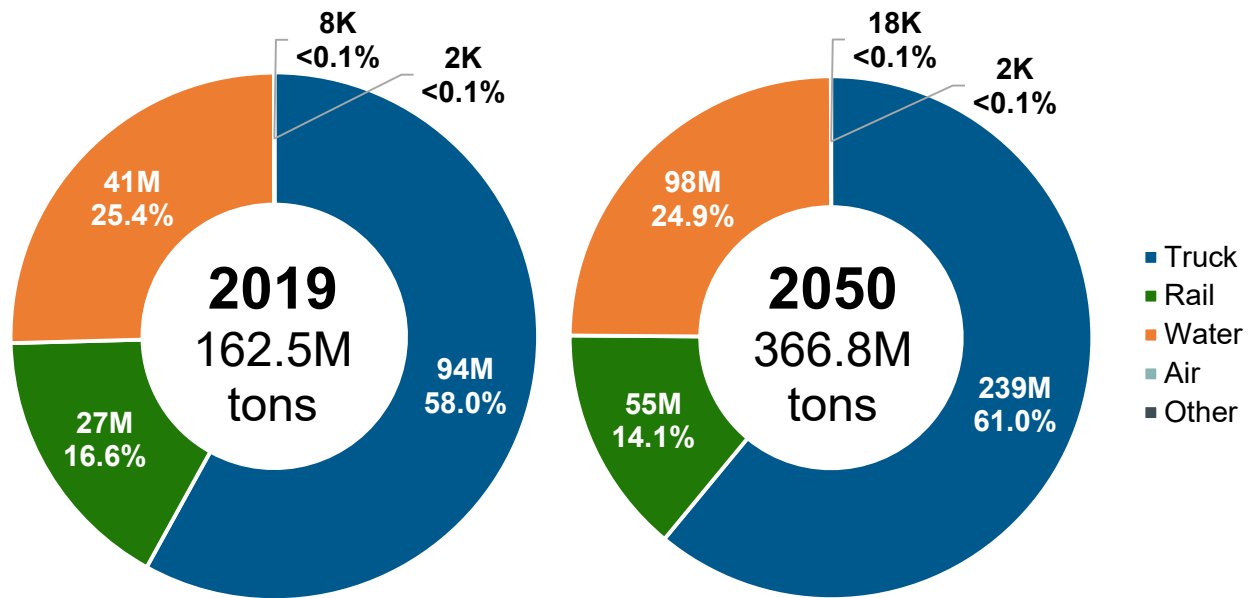
Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

FIGURE 2.15 TOP OUTBOUND COMMODITIES BY VALUE, 2019 AND 2050

Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

Modal Split

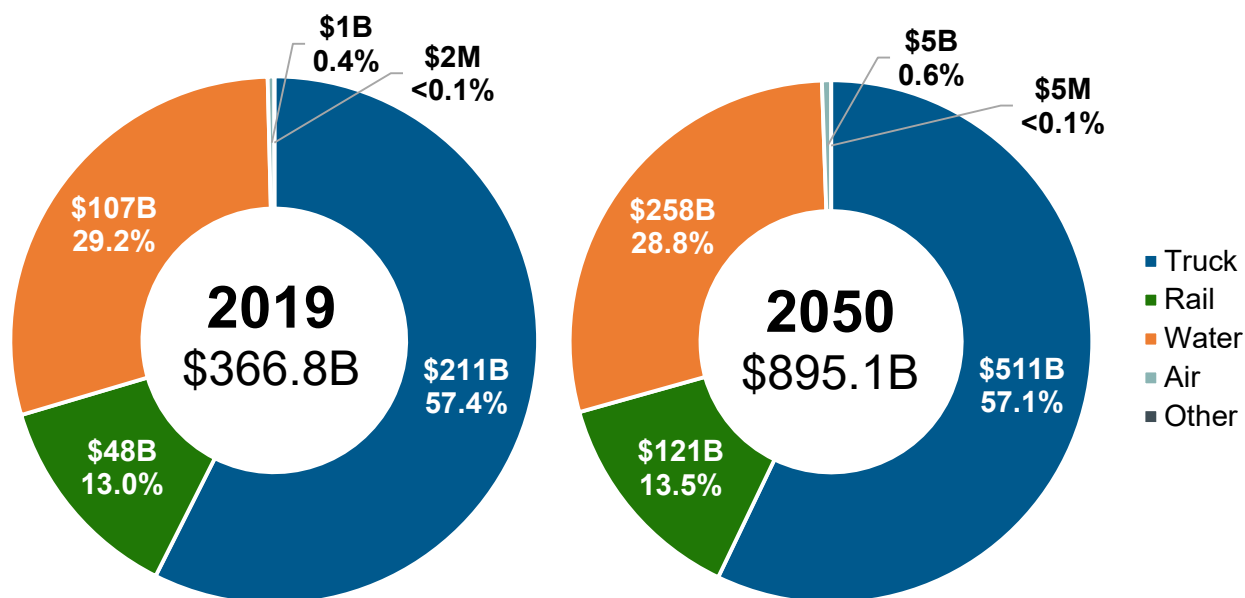
Figure 2.16 shows the total tonnage by mode for 2019 and 2050. The majority of freight in the CORE MPO region is moved by truck – over 58 percent in 2019. By 2050, trucking is projected to increase its share of total goods moved throughout the region to about 61 percent.

FIGURE 2.16 CORE MPO TONS BY MODE, 2019 AND 2050

Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

After trucking, the region's ports and waterways accounted next largest share of total tons. In 2019, about 25 percent of the region's goods were transported by water. This share was projected to remain nearly constant at about 25 percent in 2050. Rail was the next largest mode by total tonnage. It accounted for about 17 percent of the region's total tonnage in 2019. By 2050, though the magnitude of goods shipped by rail throughout the region is projected to increase, the share is expected to decrease to about 14 percent by 2050. Air and "other modes" account for small shares, less than 1 percent, of the region's freight activity in terms of tonnage.

Figure 2.17 examines mode share in the CORE MPO region by value. By value, the majority of the region's goods are moved by truck. In 2019, trucking accounted for over 57 percent (about \$211 billion) of the region's goods movement in terms of value. This share is projected to remain nearly constant over the long term. By 2050, trucking is expected to carry about \$511 billion worth of goods through the region which represents about 57 percent of total value. Waterborne goods account for the next largest share of freight by value. In 2019, the share of freight value moved by water was about 29 percent. This is projected to remain nearly constant through 2050. Goods transported by air tend to have higher values than those shipped by other freight modes. In 2019, about \$1 billion in goods were transported to or from the region via air. This is projected to grow to about \$5 billion by 2050.

FIGURE 2.17 CORE MPO VALUE BY MODE, 2019 AND 2050

Source: TRANSEARCH; U.S. Census Bureau, USA Trade Online; Cambridge Systematics, Inc. analysis.

2.4 Trends Impacting Freight in the CORE MPO Region

Future demand for freight transportation in the CORE MPO region may be impacted several factors. Emerging freight modes, new freight activity centers, and changes in the growth trajectory for the Port of Savannah all have the potential to alter where and how goods move on the region's multimodal freight network. Understanding the potential for these factors to impact long-term growth is important for developing strategies and recommendations that hedge against the uncertainty of long-term forecasts.

Emerging Freight Modes

While freight modes such as trucks and trains have been in use for over a century, advancements in technology have begun to change available modes to include options such as drones, delivery robots, and connected and autonomous trucks deployed in platoons. Emerging freight modes have the potential to increase the demand for freight transportation services on the CORE MPO region's multimodal network.

Drones are lightweight aircraft which operate remotely without a pilot physically onboard whereas a delivery robot is an automated robot which conducts deliveries on the ground. Drones must, however, be operated by a pilot registered with the Federal Aviation Administration (FAA).¹⁸ Through 2021, over 850,000 drones have been registered with nearly 260,000 remote pilots receiving their certification.

¹⁸ Code of Federal Regulations. Title 14, Chapter I, Subchapter F, Part 107 – Small Unmanned Aircraft Systems, § 107.12 Requirement for a remote pilot certificate with a small UAS rating. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-107>

FIGURE 2.18 EXAMPLE OF A DELIVERY DRONE

Source: Amazon; USA Today.

The concept of drone delivery for freight purposes began in 2013 with an announcement from Amazon that drones, also known as unmanned aerial vehicles (UAVs), would be used to deliver lightweight commercial products (see Figure 2.18).^{19 20} Since then, the FAA has set up Small Unmanned Aircraft Systems (UAS) test sites seven locations across the nation. While drones are not envisioned to fully replace trucks, they can offer an advantage for last-mile deliveries. This reduces vehicle miles traveled on the roadway and offers a solution to truck driver shortages for limited markets, although drone pilots are needed to operate the UAVs. The allowable use of drones has continued to evolve with night operations allowed as of April 2021.²¹ These changes to the FAA's UAS Rule, Part 107 also allowed for drones under 0.55 pounds to fly over people and moving vehicles. Such changes can allow for remote traffic monitoring and surveying to enhance traffic information.

Delivery robots (also called personal delivery devices) are being deployed mostly in urban markets (see Figure 2.19).²² Their adoption took off during the pandemic lockdowns, but regulation of the technology has been uneven. Nuro's R2 received USDOT and NHTSA autonomous vehicle exemption to operate on public roads without certain equipment required of passenger vehicles, such as side mirrors or a windshield.²³

¹⁹ BBC News. "Amazon Testing Drones for Deliveries." (December 2, 2013).

²⁰ Light commercial products. Drone deliveries are limited by the carrying capacity of the UAVs. While most hobby drones can only carry a few pounds, professional drones may be able to transport upwards of 200 pounds. However, as the allowable payload increases, so too does cost. For example, a Dragon X12 U11 Drone has a recommended payload of up to 100 pounds and costs over \$30,000.

²¹ Code of Federal Regulations. Title 14, Chapter I, Subchapter F, Part 107 – Small Unmanned Aircraft Systems. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-107>

²² Gizmodo. (2021). "Domino's Has a New Pizza Delivery Robot That Lets You Track Your Order While It Drives It Over." <https://gizmodo.com/domino-s-has-a-new-pizza-delivery-robot-lets-you-track-1846710108>

²³ U.S. Department of Transportation, Automated Vehicles Comprehensive Plan, January 11, 2021, https://www.transportation.gov/sites/dot.gov/files/2021-01/USDOT_AVCP.pdf

Refraction AI, a robotics company focused on last-mile deliveries, began operating in cities in 2021.²⁴ California-based Coco launched food delivery within a two-mile radius, utilizing pedestrian routes.²⁵

FIGURE 2.19 EXAMPLE OF A PERSONAL DELIVERY DEVICE



Source: Amazon.

In Georgia, state law was amended to account for the advent of personal delivery devices on the state's transportation network.²⁶ House Bill 1009 was passed in 2022 which amended Title 40 (Motor Vehicles and Traffic) of the Official Code of Georgia Annotated to include personal delivery devices. Specifically, it allows personal delivery devices to be operated on bicycle lanes, sidewalks, shared use paths, and non-limited access highways. Additionally, House Bill 1009 established regulations for personal delivery devices pertaining to maximum operating speeds (4 miles per hour on sidewalks and shared use paths, 20 miles per hour on bicycle lanes and highways), weight limits (500 pounds unladen and 600 pounds loaded with cargo), and requirements for lights and prominently displayed contact and identification information, among others.

Connected vehicle (CV) technology utilizes short-range communications (commonly referred to as V2X or vehicle-to-everything) to sense what other travelers are doing and to identify potential hazards. Vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) allow for vehicles to have an awareness of each other's location. Connected and autonomous trucks (see Figure 2.20) may be viewed as a distinct new freight mode, especially in the case of trucks deployed in platoons. Fleet operators that are able to deploy trucks in platoons can potentially realize fuel cost savings, labor cost savings, and greater operational efficiencies.

²⁴ KXAN. (June 2021). "Delivery Robots will be on the Road in Austin starting Monday." <https://www.kxan.com/news/delivery-robots-will-be-on-the-road-in-austin-starting-monday/>

²⁵ Culture Map Houston. (March 2022). California Company Rolls into Houston with Robot Food Delivery in 15 Minutes. <https://houston.culturemap.com/news/innovation/03-22-22-coco-food-delivery-robots-houston/>

²⁶ <https://www.legis.ga.gov/api/legislation/document/20212022/207968>

Truck platoons use vehicle-to-vehicle (V2V) communications and autonomous vehicle control technology to electronically “tether” tractor-trailers together in a convoy formation. Platooning can yield greater fuel efficiency due to reduced aerodynamic drag on the following vehicle(s).²⁷ It can yield labor cost savings if the following trucks in the convoy are not operated by humans, but instead are tethered to a lead truck with a human driver. Combined with the potential fuel and labor cost savings, the ability to deploy trucks in a platoon would result in greater operational efficiencies for the trucking industry.

FIGURE 2.20 EXAMPLE OF A CONNECTED AND AUTONOMOUS HEAVY TRUCK



Source: TUSimple.

It is important to note that the use of drones and robots for freight delivery remains early in the testing and development stage. However, they have potential to reduce demand for smaller delivery trucks and step vans for making last-mile deliveries. Removing heavier delivery vehicles from the roadway system would reduce vehicle miles traveled which in turn potentially reduce crashes, emissions, congestion, and roadway maintenance costs.

Regarding connected and autonomous trucks deployed in platoons, this emerging mode has the potential to increase demand for trucking and reduce demand for rail. This is because rail and trucking compete for many of the same types of freight traffic such as containerized cargo and moderate-value bulk goods. Competition may be enhanced in regions that contain both extensive rail and highway networks. On a per-mile basis, labor and fuel are the two highest operational costs for the trucking industry. Connected and autonomous trucks deployed in platoons would lower these costs for the trucking industry and make motor carriers more cost competitive for shipments that might have otherwise traveled by rail.

Emerging Freight Activity Centers

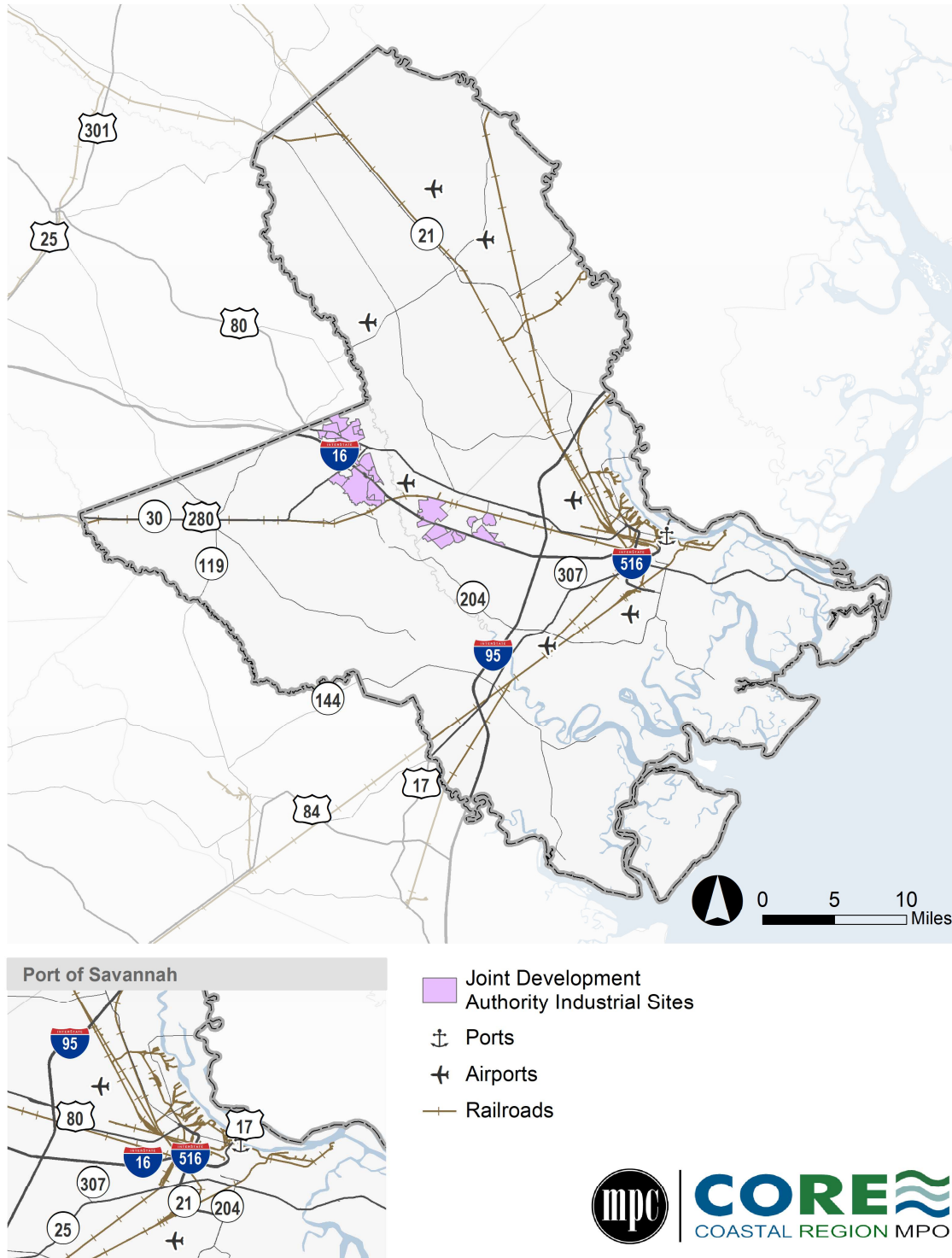
Data available from the region's various economic development agencies indicate that there are multiple emerging freight activity centers in the region. While historically the region's industrial and freight activity centered on areas adjacent to the Port of Savannah and east of downtown along President Street, new

²⁷ Lammert, M., Duran, A., Diez, J., Burton, K. et al., "Effect of Platooning on Fuel Consumption of Class 8 Vehicles Over a Range of Speeds, Following Distances, and Mass," SAE Int. J. Commer. Veh. 7(2):2014, doi:10.4271/2014-01-2438.

activity centers are being developed to the north (i.e., north Effingham County), south (i.e., Rockingham Industrial Park in Savannah and the Belfast Commerce Park in Bryan County), and west (i.e., West I-16) of the region's urban core. The emergence of these freight activity centers will impact freight traffic patterns throughout the region. As Hyundai Motor Company is currently developing a major assembly plant in the region, the emergence of these freight activity centers will be hastened as automotive parts suppliers have already begun acquiring land within these areas in anticipation of the new plant.

The Savannah Harbor-Interstate 16 Corridor Joint Development Authority (JDA) includes the development authorities of Bryan, Bulloch, Chatham, and Effingham Counties. The JDA combines the resources of its member counties to attract and facilitate regionally significant projects. Figure 2.21 shows the JDA industrial sites throughout the CORE MPO region. These sites comprise over 13,000 acres of land that is likely to be developed to include substantial volumes of warehouse, distribution, and other logistics space. They include the Bryan County megasite that will contain the Hyundai Motor Company assembly plant. The development of the plant in the CORE MPO region has already begun to attract automotive parts suppliers who will consume some of the available land, which is a departure from warehousing/distribution center development which has historically been most prevalent in the region. As shown in Figure 2.21, these sites are concentrated along the I-16 corridor with much of the acreage being located in Bryan and Effingham Counties. It suggests that the west I-16 corridor is an emerging freight activity center.

FIGURE 2.21 JOINT DEVELOPMENT AUTHORITY INDUSTRIAL SITES IN THE CORE MPO REGION

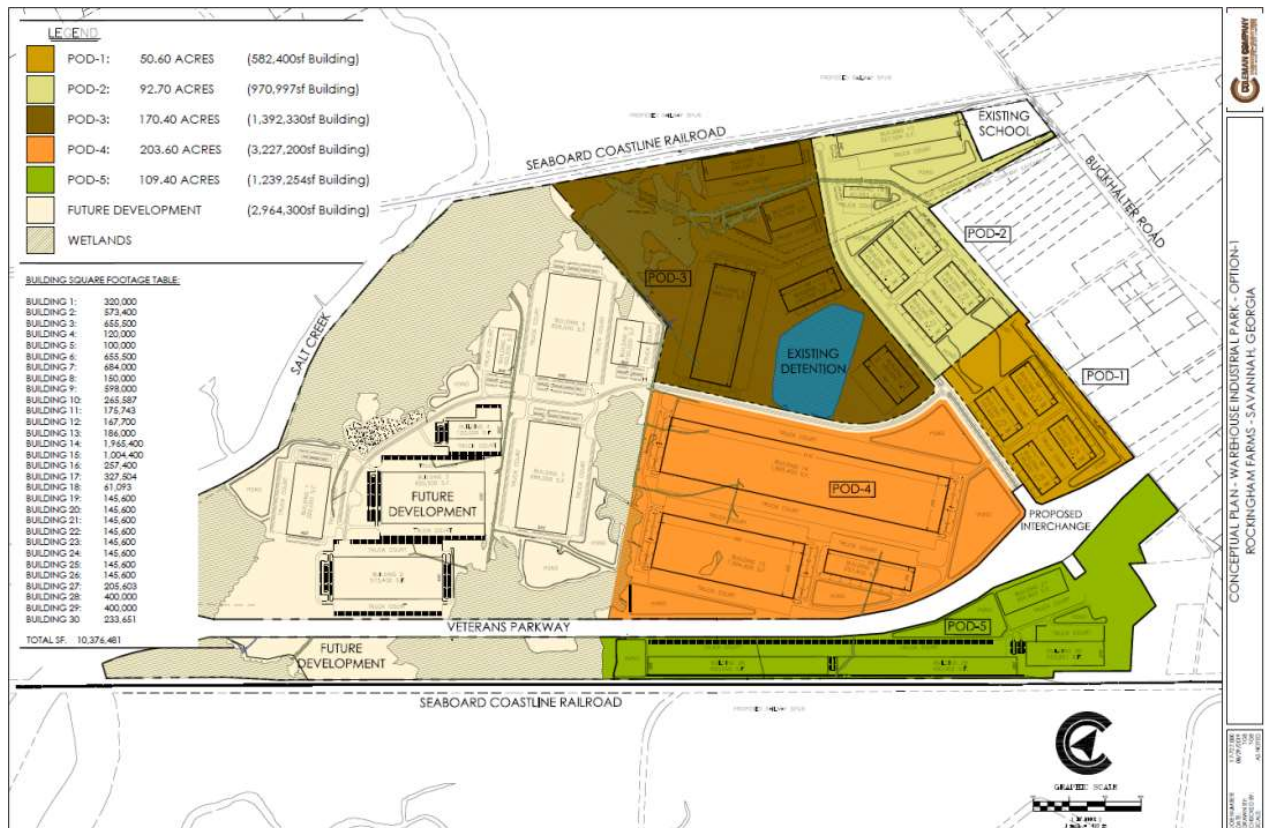


Source: U.S. Census Bureau, County Business Patterns; Cambridge Systematics, Inc. analysis.

To the region's south, the Rockingham Farms Industrial Park is also an emerging freight activity center. The industrial park is currently under development along Veterans Parkway south of US 17 and east of a tributary

of the Ogeechee River. It will occupy approximately 1,125 acres with the capacity to build up to 10 million square feet of warehouses, distribution centers, factories, and other light industrial facilities as shown in Figure 2.22. The site is rail and highway-accessible with a new interchange under construction along Veterans Parkway to provide greater access.

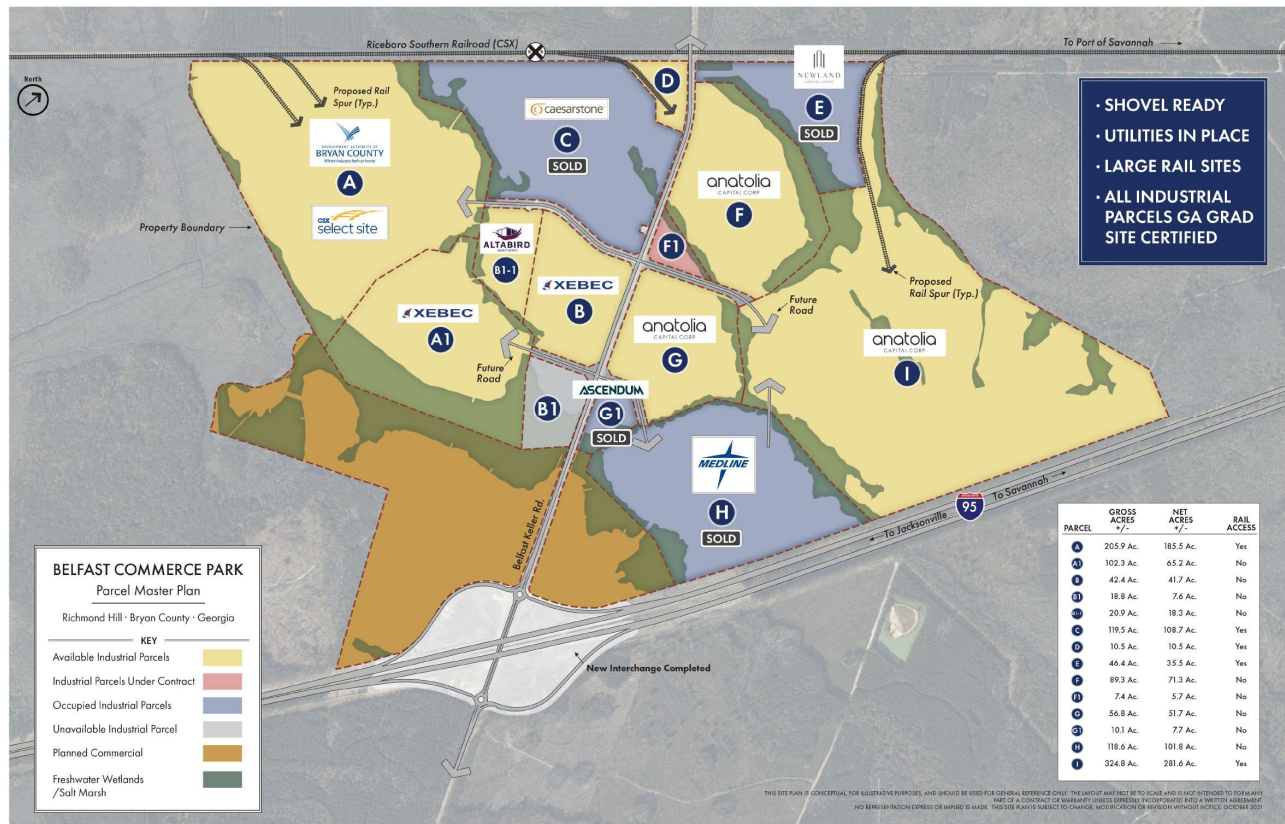
FIGURE 2.22 ROCKINGHAM FARMS INDUSTRIAL PARK



Source: City of Savannah.

Further south in Bryan County, the Belfast Commerce Park is another emerging freight activity center. The industrial park is currently under development along Belfast Keller Road near its interchange with I-95 in Bryan County. It will occupy approximately 1,174 acres and provide both highway and rail access as shown in Figure 2.23. A Federal Express (FedEx) distribution center has already been constructed on the site. In November 2022, automotive parts supplier Hyundai Mobis announced it will locate a 1.2 million square foot manufacturing facility in Belfast Commerce Park.²⁸ Together with the Rockingham Farms Industrial Park, the development of the Belfast Commerce Park will result in a new freight activity center to the region's south.

²⁸ Snyder, F., "New Hyundai Mobis plan expected to bring 1,500 jobs to Richmond Hill," WTOC 11, <https://www.wtoc.com/2022/11/28/new-hyundai-mobis-plant-expected-bring-1500-jobs-richmond-hill/>

FIGURE 2.23 BELFAST COMMERCE PARK

Source: Bryan County Economic Development Agency.

In Effingham County, large industrial developments are planned in the northern part of the county along McCall Road, Old Augusta Road, and SR 21.²⁹ Along McCall Road, the Savannah Gateway Industrial Hub occupies approximately 2,635 acres. The property has access to McCall Road, SR 21, and Class I rail service. The Grande View industrial site occupies about 448 acres and is located east of Old Augusta Road and south of the Georgia Pacific plant. The proposed Georgia International Rail Park sits on 1,416 acres and is located west of SR 21 and east of McCall Road near Rincon. The property has access to both the CSX and NS networks. The development of these properties would create a new freight activity center in the northern part of the CORE MPO region.

These emerging freight activity centers have the potential to increase in freight demand throughout the region, especially on the highway and rail networks. This is because the facilities (e.g., warehouses, distribution centers, manufacturing plants) developed at these freight activity centers increase the region's capacity to handle and process goods. Increases in freight volumes are likely to be concentrated on the highway and rail networks with highways experiencing more significant increases. Furthermore, the increase in highway freight volumes will be more pronounced on regional freight routes (such as US 280, Veterans Parkway, and Belfast Keller Road) than on Interstate highways.

In addition, these new centers will alter where freight moves in the region. While historically the region's industrial and freight activity centered on areas adjacent to the Port of Savannah and east of downtown

²⁹ <https://effinghamindustry.com/doing-business-here/available-properties/>

along President Street, new activity centers are being developed to the north (i.e., north Effingham County), south (i.e., Rockingham Industrial Park in Savannah and the Belfast Commerce Park in Bryan County), and west (i.e., West I-16) of the region's urban core. The emergence of these freight activity centers will impact freight traffic patterns throughout the region.

Port of Savannah Growth

Infrastructure expansion efforts currently underway at the Port of Savannah will grow its annual throughput capacity from 6 million twenty-foot equivalent units (TEUs) to approximately 10.7 million TEUs per year.³⁰ Discussed in detail in the Task 2.4 technical memorandum, these investments include the following: an expansion of the Garden City West Terminal; a cross dock facility upriver from the Garden City Terminal; the Peak Capacity Project which expands the Port's footprint and adds container handling space; improvements to Berth 1 so that it may to simultaneously serve four 16,000-TEU vessels; the development of the Northeast Inland Port in Hall County; and the development of the Savannah Container Terminal which will be a new facility on Hutchinson Island.³¹ In addition, not included in the 6 million TEU capacity expansion is the proposed Jasper Ocean Terminal.³² This would be a new 7 million TEU marine container terminal along the north bank of the Savannah River in Jasper County, South Carolina – about 8 miles upriver from the Garden City Terminal. However, there is no current timeline for the development of this facility.

Given historical growth trends, the Port's current infrastructure expansion efforts is expected to meet future demand. Historically, the Port of Savannah has experienced annual growth in container trade of about 8.5 percent based on 1980-2021 container volumes as shown in Figure 2.24.³³ However, since the onset of the COVID-19 pandemic annual growth has been closer to about 10.5 percent based on 2019-2021 container volumes. Container traffic increased from nearly 4.6 million TEUs in 2019 to over 5.6 million in 2021. 2022 container volumes are on track to exceed 2021 levels.³⁴

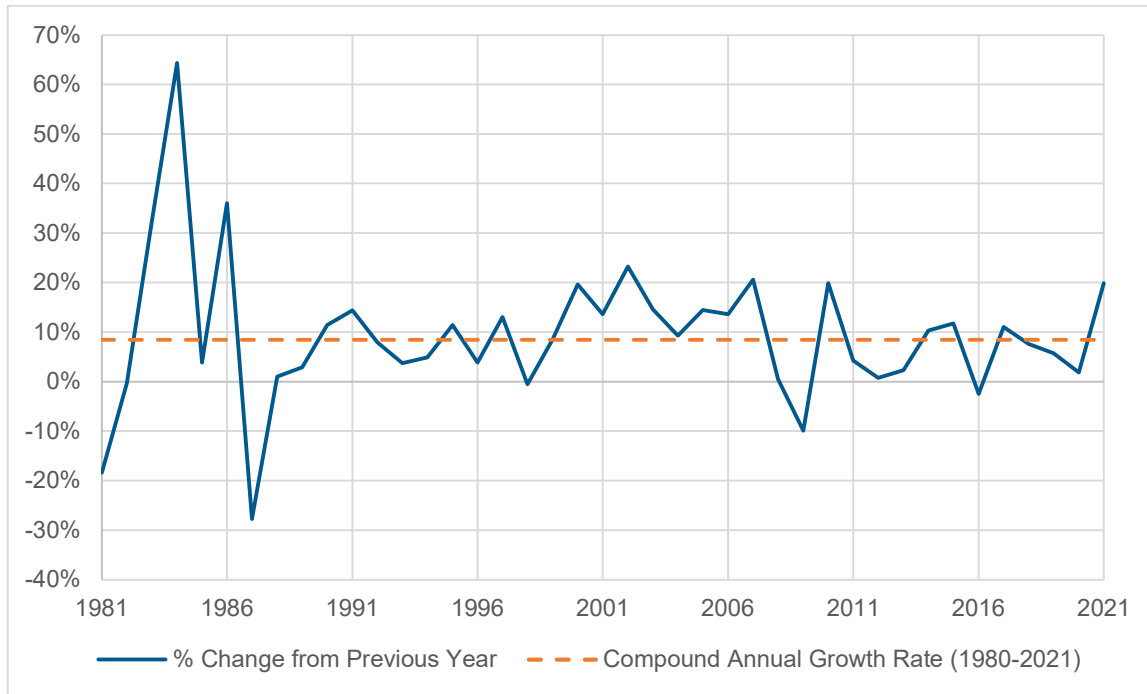
³⁰ Georgia Ports Authority, 2021 Annual Report.

³¹ <https://gaports.com/press-releases/gpa-details-capacity-operations-expansion/>

³² <http://www.jasperoceanterminaleis.com/Project.aspx>

³³ Georgia Ports Authority, "By the Numbers," Total Annual Container Trade for Calendar Years 2017 through 2021, May 2022, <https://gaports.com/wp-content/uploads/2022/05/CY21-Annual-Container-Trade.pdf?1667954238>; American Association of Port Authorities, "Port Industry Statistics", North America Container Traffic 1980-2018, <https://www.aapa-ports.org/unifying/content.aspx?ItemNumber=21048>.

³⁴ Georgia Ports Authority, "Port of Savannah TEU Throughput by Month (through September 2022)," <https://gaports.com/sales/by-the-numbers/>, Accessed November 8, 2022.

FIGURE 2.24 PORT OF SAVANNAH CONTAINER TRADE (TEUS), 1980 - 2021

Source: Georgia Ports Authority; American Association of Port Authorities.

A key question is will growth return to the historical norm, or has the pandemic changed the trajectory of growth and represents a new normal. Returning to this historical rate of growth, the Port of Savannah would reach the limit of its published program of expanded capacity (i.e., 10.7 million TEUs) by 2029. Should the recent higher growth rate which has been experienced since the onset of the COVID-19 pandemic continue, the port would reach the limit of its published program of expanded capacity by 2027. Given that the port generally prefers to maintain a 20 percent buffer between demand and capacity so that spikes in demand or other unforeseen challenges can be accommodated³⁵, the higher growth rate would imply that the Port of Savannah would need to begin considering additional capacity expansions as soon as 2025. Shipping indicators in October and November 2022 point to a return to normal or less than normal growth due to uncertainty in the U.S. and global economy.

Sustained higher than normal growth at the Port of Savannah would substantially increase freight demand across all of the region's primary freight modes – trucking, rail, and ports/waterways. Goods imported or exported by water must also travel on the region's highway and rail networks. As a result, these modes would experience a significant increase in demand on par with increased growth at the Port of Savannah.

Another implication of sustained higher than normal growth at the Port of Savannah is that in addition to completing its published program of expanded capacity, the Georgia Ports Authority would have to begin considering other expansion opportunities. These could be expansions within the CORE MPO region or projects located outside the study area, such as additional inland ports in other parts of the state. Expansions within the region would alter existing land uses and impact freight activity patterns, primarily on the highway

³⁵ Interview with Georgia Ports Authority, October 31, 2022.

network. In the event that expansions occur outside the region in the form of inland ports or other facilities, the region is still likely to experience greater volumes on its rail network and impacts to at-grade crossings.

3 FREIGHT SYSTEM ASSESSMENT

While the CORE MPO region's multimodal freight network contributes significantly to the economic prosperity of the region, key freight needs and opportunities limits its ability to further contribute to the region's success. As shown in Table 3.1, there are several needs and opportunities on the CORE MPO region's multimodal freight network within the framework of seven critical performance areas: congestion and reliability, infrastructure conditions and network connectivity, safety, truck parking, resiliency, community and environmental impacts, and land use. These needs and opportunities were determined through data analysis and stakeholder engagement, which was a vital part of understanding needs as it allowed for feedback from users who interact with the freight system regularly. As freight demand is projected to grow substantially over the long-term, the region's freight needs will be exacerbated unless actions are taken now. To this end, these needs and opportunities served as the basis for the recommendations and strategies proposed as part of the Regional Freight Transportation Plan Update. For more details on the data and analyses included in this section of the Plan, please refer to the **Task 2.8: Freight Needs Assessment and Analysis**, **Task 3: Land Use Assessment**, and **Task 5: Environmental and Community Impact Scan and Analysis** technical memoranda.

TABLE 3.1 OVERVIEW OF NEEDS AND OPPORTUNITIES

Need or Opportunity	Summary
Congestion and Reliability	<ul style="list-style-type: none"> Multiple freight routes exhibit high levels of congestion or unreliable travel times. The prevalence of at-grade crossings contributes to the region's congestion and reliability challenges.
Infrastructure Conditions and Network Connectivity	<ul style="list-style-type: none"> Several freight corridors have poor pavement conditions. Some bridges crossing freight routes have low vertical clearances and act as physical constraints to freight mobility. Related to congestion and reliability challenges is the lack of roadway connectivity in certain parts of the region. At-grade crossings and infrastructure conditions (i.e., pavement conditions and low vertical clearances) contribute to access challenges for existing multimodal connections.
Safety	<ul style="list-style-type: none"> Multiple corridors that are critical to freight mobility exhibit crash rates that exceed region-wide averages. Some at-grade rail crossings have experienced multiple crashes over the past ten years.
Truck Parking	<ul style="list-style-type: none"> Truck parking capacity appears to satisfy current demand, but capacity is becoming constrained. Future growth in trucking activity may quickly consume existing capacity and worsen the existing need.
Resiliency	<ul style="list-style-type: none"> Several of the region's freight assets are at risk to disruption from multiple hazards.
Community and Environmental Impacts	<ul style="list-style-type: none"> Some communities are disproportionately impacted by goods movement, including experiencing more intense truck congestion, accommodating a greater share of freight activity and its associated negative externalities, and have higher rates of truck-involved crashes.
Land Use	<ul style="list-style-type: none"> Freight-generating land uses are becoming more prevalent throughout the region. Though these industries bring jobs and other economic benefits, they also further strain the region's multimodal freight network and sometimes result in conflicts with residential, commercial, and other land uses.

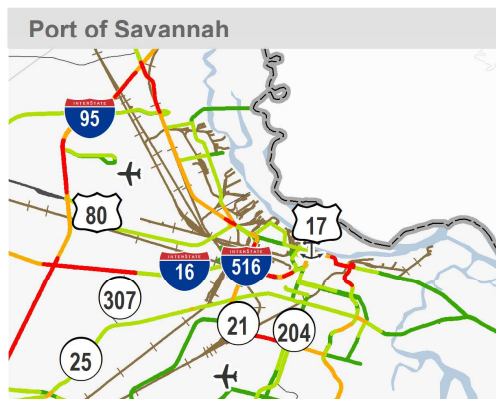
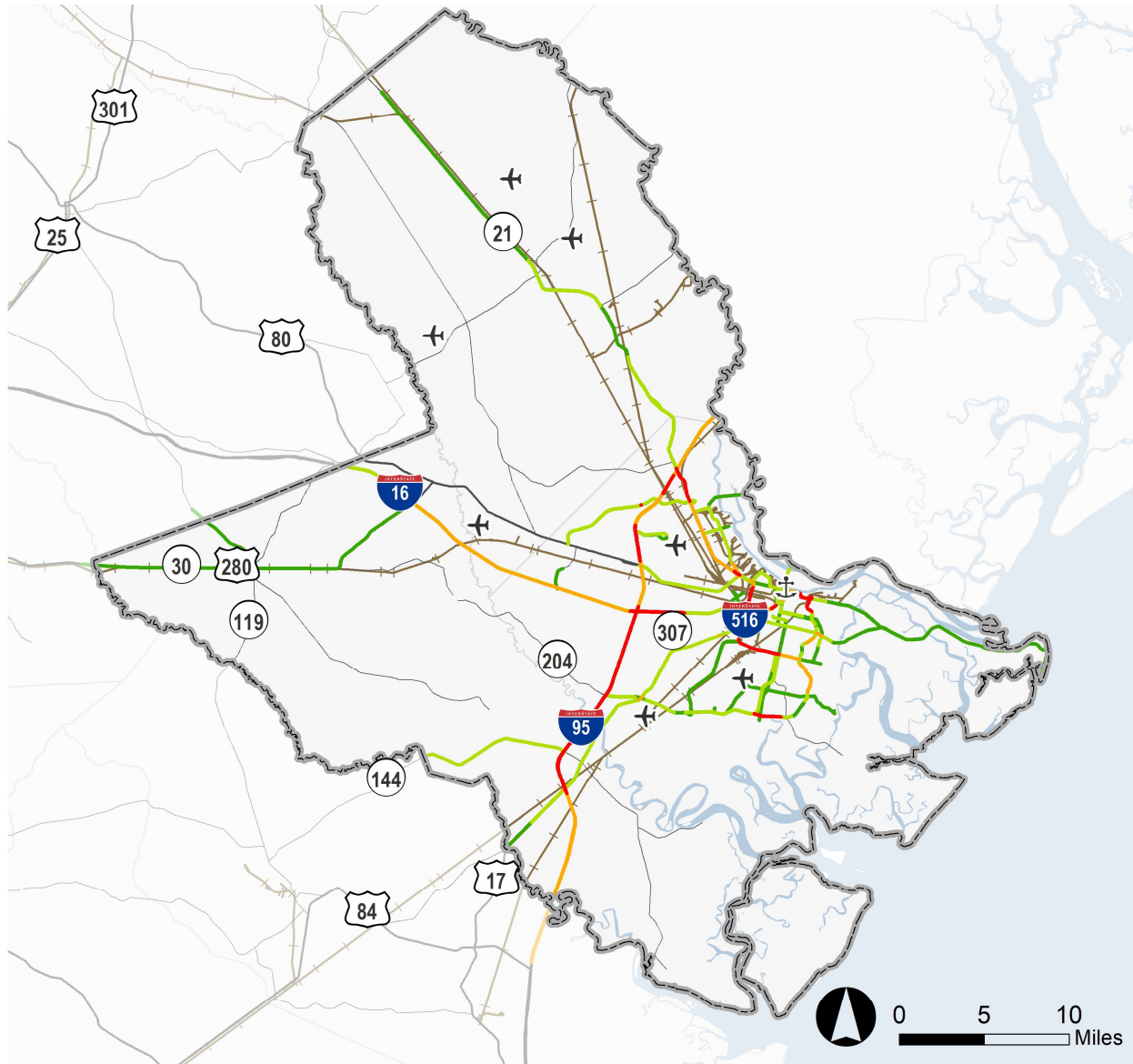
Source: CORE MPO; Cambridge Systematics; AECOM; Symbioscity.

3.1 Congestion and Reliability

Fast and reliable truck transportation is critical to modern supply chains and the companies that rely on them. The ability of the CORE MPO region to support these supply chains impacts economic development opportunities and quality of life across the region. As a result, addressing needs related to congestion and unreliability is a crucial element of the Regional Freight Transportation Plan Update.

One measure of congestion is Annual Truck Hours of Delay per Mile. This measure emphasizes corridors with both a substantial difference between actual and reference travel times as well as those that carry high volumes of trucks. The results of the analysis are shown in Figure 3.1. Overall, they indicate that truck delay is largely concentrated on a handful of the region's major freight corridors. These include I-95, I-16, I-516, and SR 21.

FIGURE 3.1 TRUCK-HOURS OF DELAY PER MILE



Truck-Hours of Delay per Mile

- < 1,000
- 1,000 - 5,000
- 5,000 - 10,000
- > 10,000

- Ports
- Airports
- Railroads

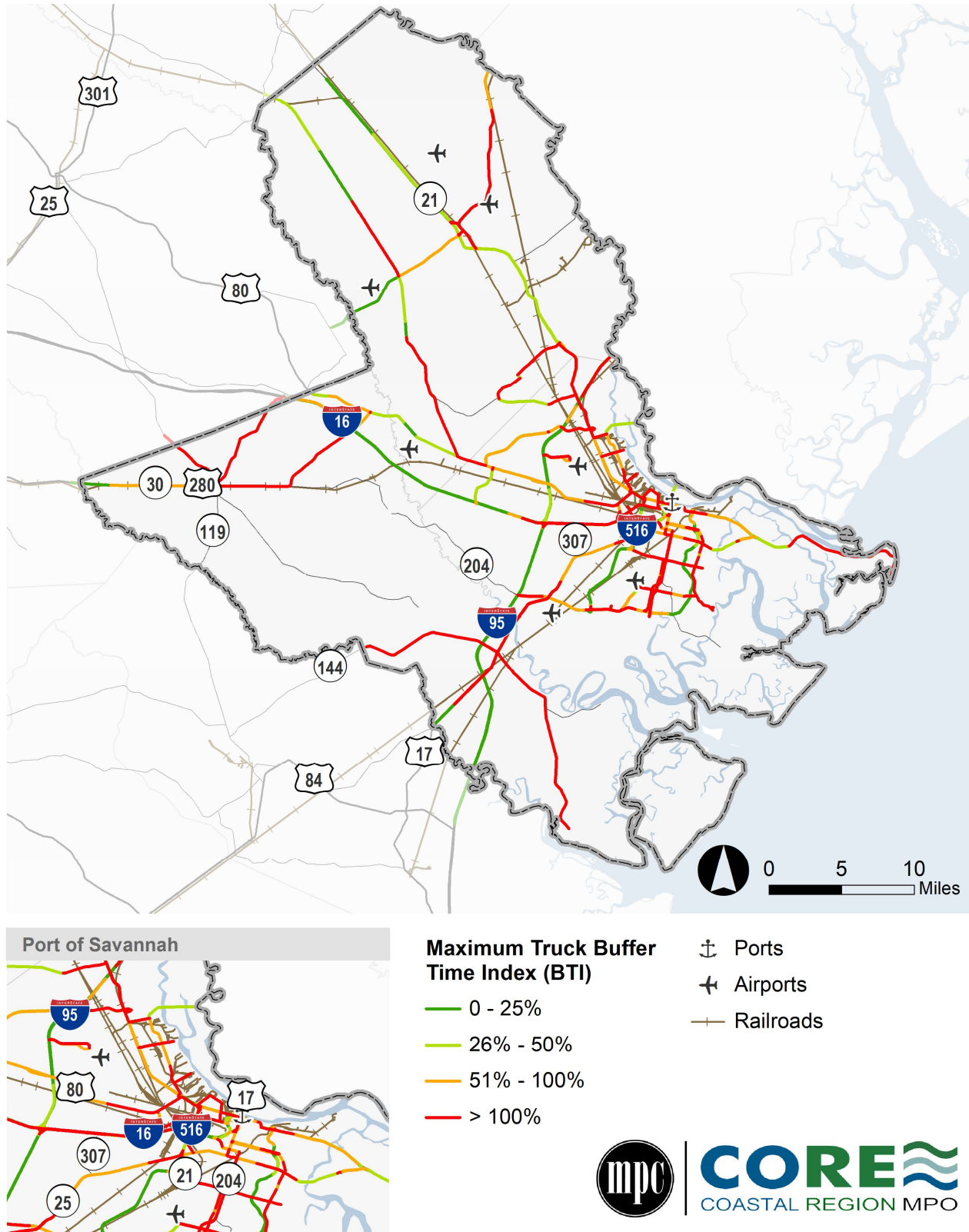


Source: National Performance Management Research Data Set, 2021; AECOM; Cambridge Systematics.

Regarding travel time reliability, one useful measure is the truck buffer time index (BTI). The BTI is the ratio of the difference between the 95th percentile truck travel time and average travel time to the average travel time: $[(95\text{th Percentile Travel Time} - \text{Average Travel Time}) / \text{Average Travel Time}] \times 100\%$. Thus, buffer time index is expressed as a percentage. For example, if BTI and average travel time are 20% and 10 minutes, then the buffer time would be 2 minutes. Since it is calculated by 95th percentile travel time, it represents almost all worst-case delay scenarios and assures travelers to be on-time 95 percent of all trips. A higher BTI indicates the opposite, that extra travel time is needed to traverse a corridor. BTI is a useful measure because it is an indicator of the extra time (and associated cost) that motor carriers must factor into schedules to ensure on-time deliveries and pick-ups.

Trucks experience poor reliability on I-16 between Pooler Parkway and I-516 and also west of US 280 in Bryan County. I-95 north of SR 17/Jimmy Deloach Pkwy. also experiences poor reliability. For I-16, some of this performance may be attributed to ongoing construction work as part of the GDOT Major Mobility Investment Program (MMIP). However, this portion of the I-16 corridor has been considered for some time to be challenged from a freight mobility perspective, hence the MMIP investments. Regarding I-95, some amount of this performance challenge may be attributed to trucks and other vehicles accessing the Port of Savannah and the large cluster of warehouses and distribution centers located along SR 17/Jimmy Deloach Pkwy. and SR 21. However, the unreliability exhibited by this portion of I-95 is likely due to the reduction in number of lanes as the highway crosses into South Carolina – dropping from a 6-lane to a 4-lane highway. Both of these locations are among the region's busiest corridors for freight traffic.

FIGURE 3.2 TRUCK BUFFER TIME INDEX, 2021



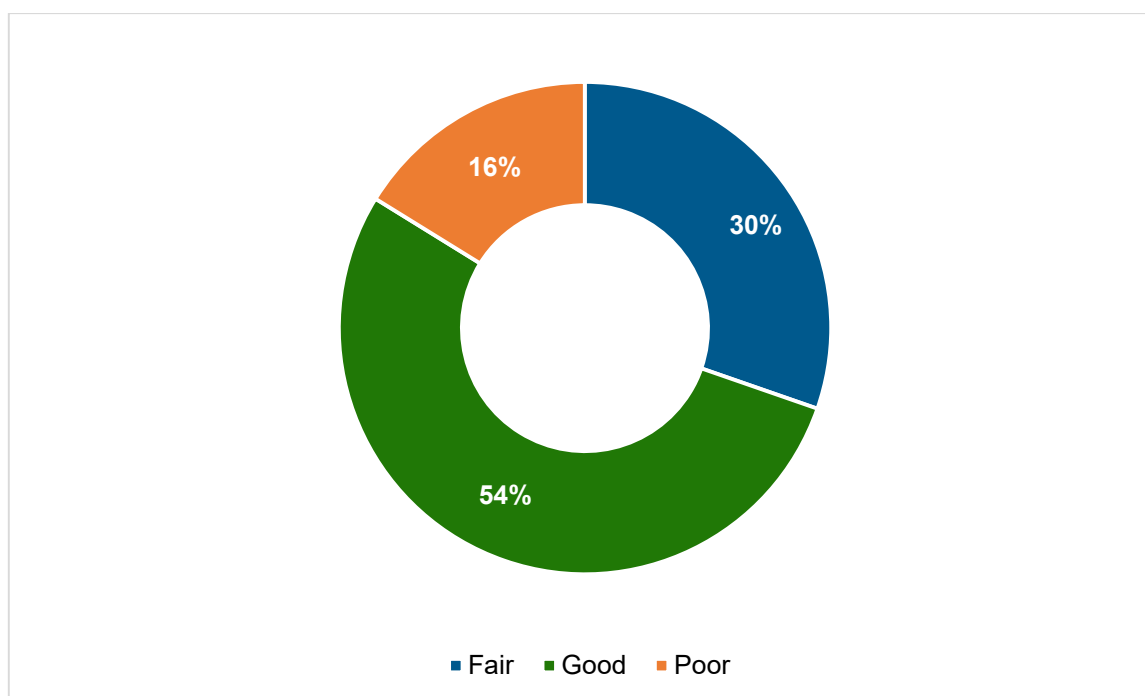
Source: National Performance Management Research Data Set, 2021; AECOM; Cambridge Systematics.

3.2 Infrastructure Conditions and Network Connectivity

Poor pavement conditions and lack of network connectivity can impact the cost and safety of travel for passengers and freight. Cracked and rutting roadway surfaces can cause additional wear and tear on freight vehicles as well as damage the goods they are transporting. They can also result in increased travel times and negatively impact safety if drivers maneuver into other lanes to avoid potholes or other condition-related hazards. Building and maintaining the freight network to a condition that facilitates the efficient movement of goods is a critical regionwide need.

Poor pavements are largely concentrated in the urban center of the region in the City of Savannah and on corridors outside the urban center that carry heavy volumes of freight traffic. Examples include SR 21 near the Port of Savannah and portions of SR 307/Bourne Avenue. By functional classification, poorer pavements are concentrated on minor arterials and major collectors. These roadways have over 20 percent of lane-miles that are in poor condition compared to 11-12 percent for minor collectors and principal arterials. Often, minor arterials and major collectors represent the first and last miles for freight shipments.

FIGURE 3.3 PERCENT OF LANE-MILES BY CONDITION CATEGORY, 2020



Source: Federal Highway Administration, Highway Performance Monitoring System, 2020; Cambridge Systematics, Inc.

Generally, the region's bridges are in good condition. Only two of the region's bridges were rated as being in poor condition and both of these bridges have been programmed to be replaced. Posted bridges are those with a weight limit below the standard truck axle distribution weight, which means heavier trucks must either detour around the bridge or reduce its payload. In total, there are 9 posted bridges in the region. Only two of these generally handle truck traffic.

However, bridge vertical clearance does represent an investment need for the region. Vertical clearance can impact freight mobility as trucks are forced to divert to less efficient routes if a facility does not have sufficient vertical clearance. There are 9 bridges across the region that do not meet the current GDOT standard for minimum vertical clearance. Some of these bridges cross over arterials, which typically carry substantial volumes of freight traffic.

FIGURE 3.4 VERTICAL CLEARANCE AT E. LATHROP AVENUE



Source: Google.

Related to the region's infrastructure conditions challenges are issues related to network connectivity. As the region has grown and new freight activity centers are emerging, formerly rural communities are now experiencing an influx of freight-oriented developments. While these developments are situated on or adjacent to major freight corridors, the existing freight network does not efficiently handle the origin-destination patterns generated by these developments.

Effingham County provides an example of this challenge. Warehouses, distribution centers, and other freight-oriented land uses have been developed along or near freight corridors such as SR 21, McCall Road, and Old Augusta Road. While the current roadway network provides good north-south connectivity to I-95 and the Port of Savannah, it does not provide good east-west connectivity to I-16. This contributes to congestion and reliability challenges on corridors such as SR 21 as they must facilitate east-west freight trips generated by these land uses due to a lack of connectivity.

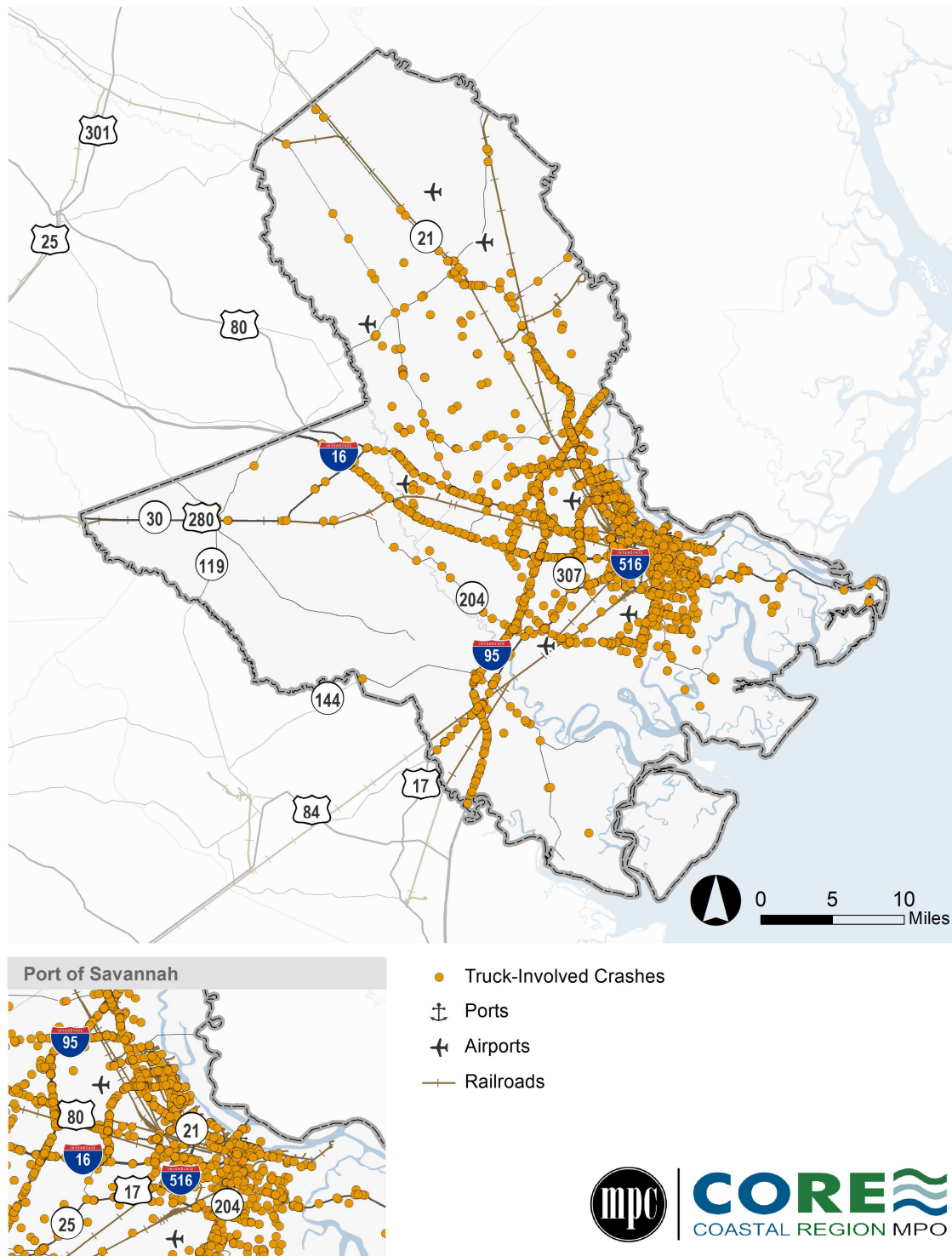
Connectivity challenges also impact established freight activity centers such as the President Street corridor. Trucks traveling east-west across the region have few direct options other than DeRenne Avenue or Bay Street. Shippers along this corridor are also impacted by grade crossings along President Street that cause delays to motor carriers and commuters.

3.3 Safety

Transportation safety is extremely important and is one of the highest priorities at all levels of transportation planning and engineering – national, statewide, regional, and local. Roadway safety represents an important measure of performance not only because of the potential loss of life and damage to property, but also because of the role it plays in congestion and unreliability. As depicted in Figure 3.5, there were 3,716

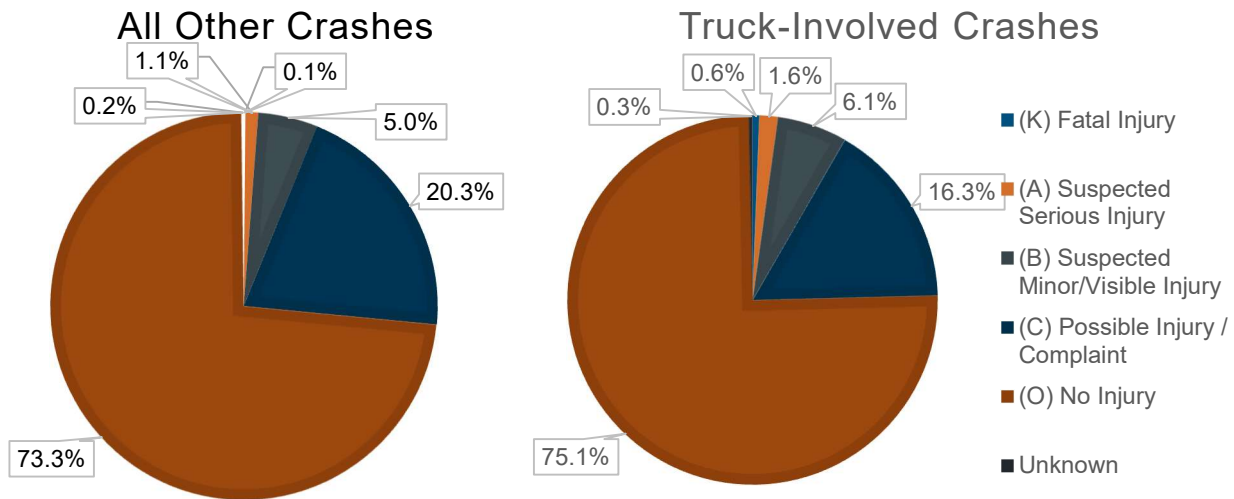
crashes involving trucks in the 3-county region based on 2016-2020 data from the GDOT Numetrics database. Over 83 percent of those crashes occurred in Chatham County – driven, in part, by Chatham County containing a substantial share of the region’s highway freight network (55 percent of lane-miles) and freight activity (67 percent of truck vehicle-miles traveled).³⁶

³⁶ Federal Highway Administration, Highway Performance Monitoring System, 2020.

FIGURE 3.5 TRUCK-INVOLVED CRASHES, 2016 - 2020

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

Most crashes in the region did not result in an injury as shown in Figure 3.6. However, about 2.2 percent truck-involved crashes (82 in total) did result in a serious injury or fatality. This is higher than the total percentage of non-truck-involved crashes resulting in serious injury or death (about 1.2 percent).

FIGURE 3.6 CRASHES BY SEVERITY, 2016 - 2020

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

For crashes involving trucks, angle, sideswipe - same direction, and rear end collision types were the most prevalent and accounted for nearly 67 percent of truck-involved crashes observed during the analysis period. Lane width and worn or inadequate pavement markings are typical contributing factors for sideswipe crashes.³⁷ For rear end crashes, congestion and inappropriate approach speeds are contributing factors.³⁸

Prior studies have proposed various operational and intersection improvements that will positively impact safety. For example, the SR 307 Corridor Study and the SR 21 Access Management Study identified several improvements for the SR 307 and SR 21 corridors. However, the analysis of crash data, field review results, and stakeholder feedback indicate that safety continues to represent an investment need for the region.

3.4 Truck Parking

Truck drivers need to park for different reasons and there are unique challenges for various types of parking needs. Drivers must adhere to Federal hours of service (HOS) regulations that place specific time limits on driving and rest intervals. Drivers almost always need to park and wait for delivery windows at shippers and receivers, and sometimes are impacted by unexpected road closures or congestion. Finally, truck drivers are essential workers, who need to take personal breaks for rest and safety. Because of these and other reasons, truck parking is an essential element of the CORE MPO region's multimodal freight network and represents a key investment need to consider as part of the Regional Freight Transportation Plan Update.

In total, there are 22 truck parking facilities - 4 public and 18 commercial – that provide 1,163 truck parking spaces in the CORE MPO region. Figure 3.7 shows truck parking facilities along with their estimated capacities. Truck parking capacity appears to satisfy current demand, but capacity is becoming constrained. An analysis of truck trip trajectory data suggested that during peak periods, about 75 percent of the region's

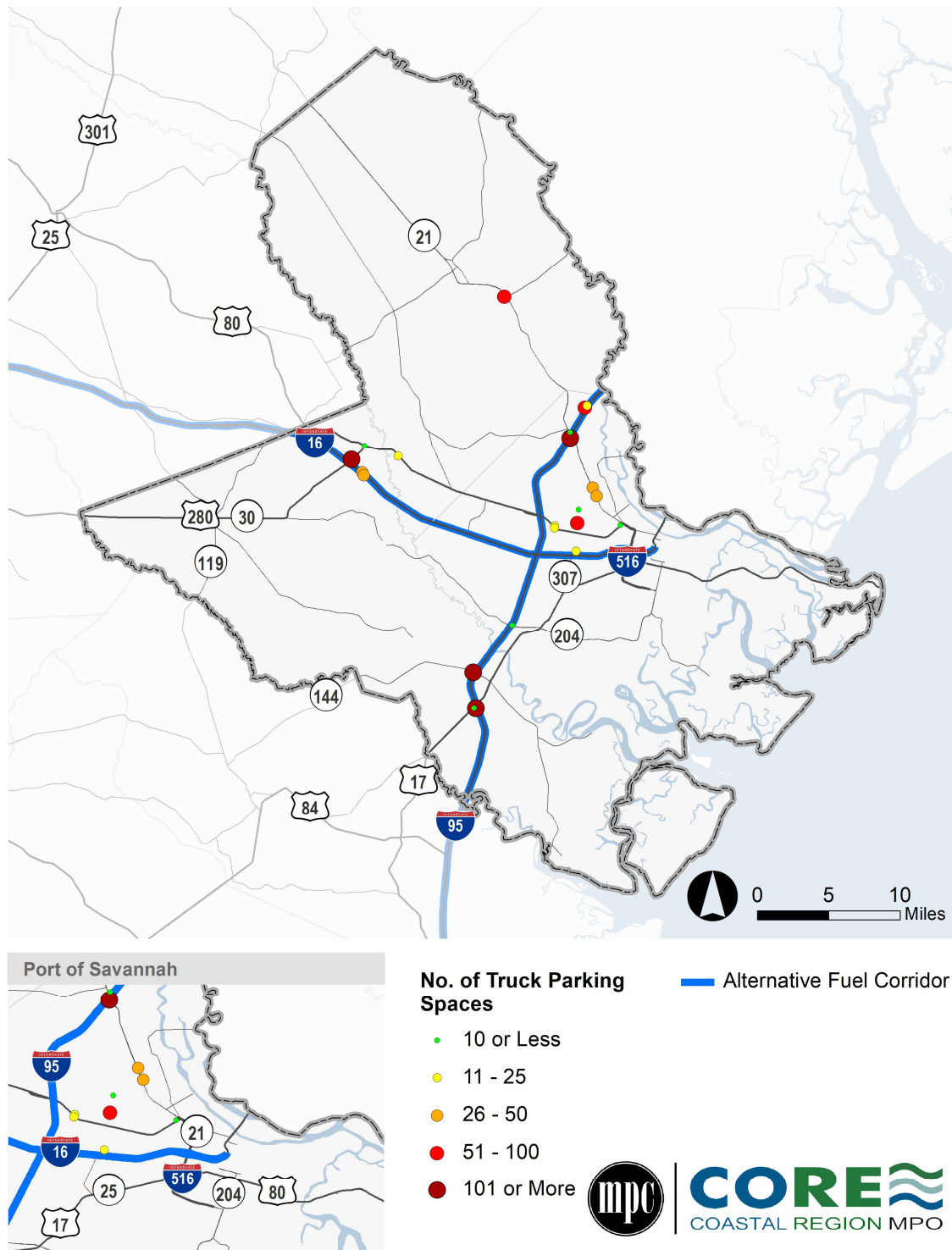
³⁷ Ibid.

³⁸ Ibid.

truck parking spaces are occupied.³⁹ In addition, some stakeholders observed that the region generally lacks truck parking given the level of trucking activity and provided examples of unauthorized truck parking occurring in industrial parks and on roadway shoulders. Given the region's projected growth in freight activity and planned capacity expansions at the Port of Savannah, the region's existing truck parking needs will worsen over time.

³⁹ Refer to the Task 2.6: Truck Parking Inventory and Truck Restrictions memorandum for more details.

FIGURE 3.7 TRUCK PARKING FACILITIES AND ALTERNATIVE FUEL CORRIDORS



Source: GDOT, Georgia Electric Vehicle Infrastructure Deployment Plan, August 2022; Cambridge Systematics, Inc.

Aligning future investments in the region's truck parking capacity with emissions reductions initiatives, including zero emissions fuels, represents an opportunity for the CORE MPO region. For example, truck stop electrification is an emissions reduction strategy that uses external equipment to provide services to truck

drivers, such as heating and cooling, which are otherwise powered by engine idling (see Figure 3.8).⁴⁰ Regarding zero emissions fuels, because of the time required to charge a heavy truck in the most economic manner, it makes sense to collocate truck parking with electric truck charging. AFCs, shown in Figure 3.7 for the CORE MPO region, comprise a national network of plug-in electric vehicle (EV) charging and hydrogen, propane, and natural gas fueling infrastructure along national highway system corridors.⁴¹ Of the region's 1,163 truck parking spaces, 826 (about 71 percent) are within a half-mile radius of the AFC network.

FIGURE 3.8 TRUCK STOP ELECTRIFICATION – KNOXVILLE, TN



Source: <https://www.fhwa.dot.gov/publications/publicroads/05mar/02.cfm>.

3.5 Resiliency

Over the last decade, metropolitan planning organizations (MPOs), state departments of transportation (DOTs), and other transportation agencies have taken steps to assess the vulnerability of transportation infrastructure to extreme weather events and to integrate resilience planning considerations into transportation decision-making. The Federal Highway Administration (FHWA) defines resilience as “the ability to anticipate, prepare for, and adapt to, changing conditions and withstand, respond to, and recover rapidly from disruptions.”⁴² Freight resiliency entails the ability of the multimodal freight network to withstand disruptions with minimal impacts to safety and the economy. As large-scale disruptions to the freight network and associated supply chains have become more common, resiliency has become a much more important component of freight transportation planning.

⁴⁰ https://afdc.energy.gov/conserve/idle_reduction_equipment.html

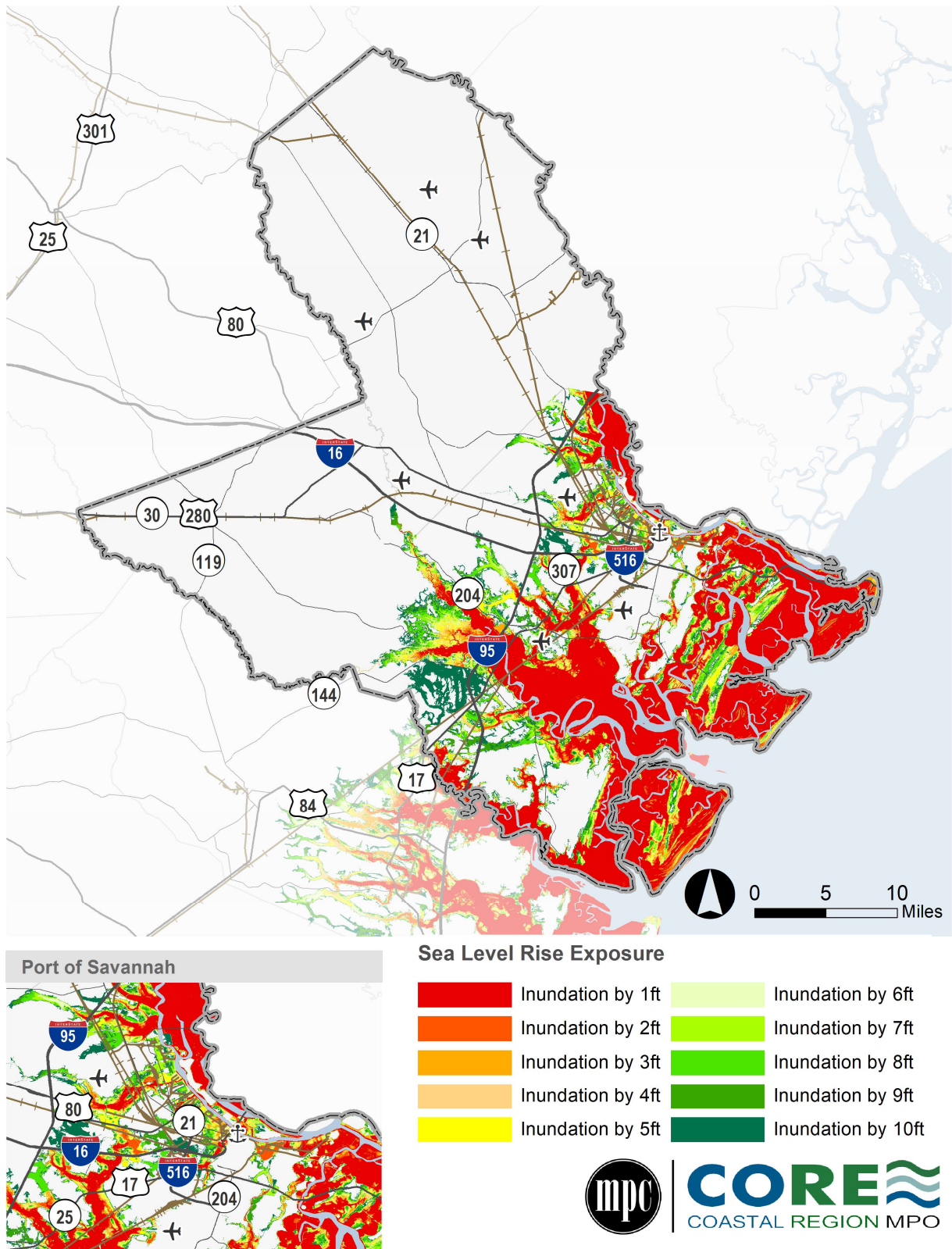
⁴¹ https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/index.cfm

⁴² FHWA: <https://www.fhwa.dot.gov/legisregs/directives/orders/5520.cfm>

Based on data from the Federal Emergency Management Agency (FEMA) National Risk Index (NRI) dataset and online tool, much of the region and its multimodal freight network is at risk to disruption from multiple hazards – namely sea level rise/coastal flooding, riverine flooding, and hurricanes.⁴³ The FEMA NRI illustrates the risk level (“Very Low” to “Very High”) for 18 natural hazards across the U.S. at the Census tract or county level based on their NRI score. The areas of the region that are most at-risk due to sea level rise/coastal flooding are those closest to the Atlantic Ocean in the eastern part of the region (see Figure 3.9). Much of the region to the east of I-95 is at either very high or high risk to sea level rise. For riverine flooding, the areas in the easternmost part of the region near Tybee Island, areas south of the Ogeechee River, and areas east of I-95 are most at-risk to riverine flooding. Other high-risk areas include Pooler, Port Wentworth, Bloomingdale, and Eden. Most of the region is at-risk to hurricane damage with the highest risk locations being located in north Effingham County, along the I-95 corridor, and the south and eastern parts of the region near the Atlantic Ocean.

⁴³ Federal Emergency Management Agency, National Risk Index Technical Documentation, version 1.18.1, November 2021.

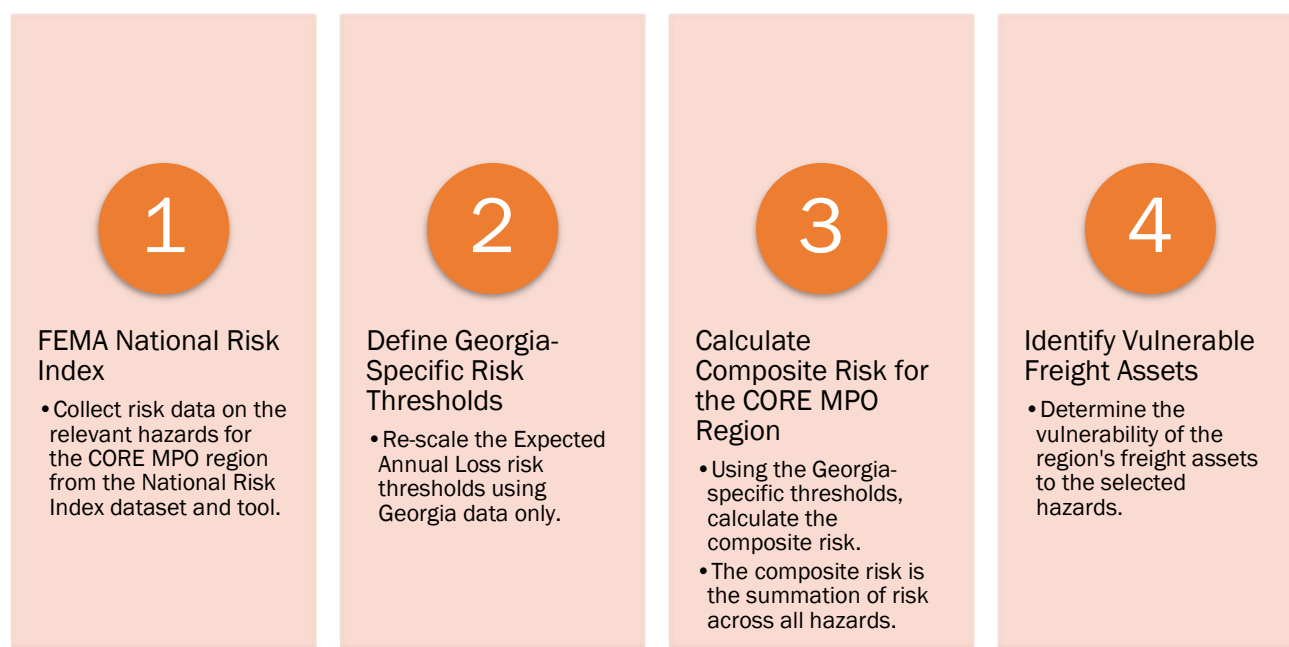
FIGURE 3.9 SEA LEVEL RISE EXPOSURE



Source: National Oceanic Atmospheric Administration, 2022.

Risk data was collected from the FEMA NRI dataset and tool for the CORE MPO region for three natural hazards that are especially relevant to the region: sea level rise/coastal flooding, riverine flooding, and hurricanes. Specifically, Expected Annual Loss data (the anticipated economic damage resulting from natural hazards measured in dollars) for each of the hazards was collected. Information on Expected Annual Loss was used to define Georgia-specific risk thresholds (i.e., “Very Low” to “Very High”) and develop total composite risk quintiles for the state of Georgia. Table 3.2 shows the breakdown for the total composite risk quintiles for the state of Georgia.

FIGURE 3.10 QUANTIFYING RISK FOR THE CORE MPO REGION’S FREIGHT NETWORK



Source: Federal Emergency Management Agency, 2022; Cambridge Systematics.

TABLE 3.2 COMPOSITE RISK EXPECTED ANNUAL LOSS CATEGORIES FOR GEORGIA

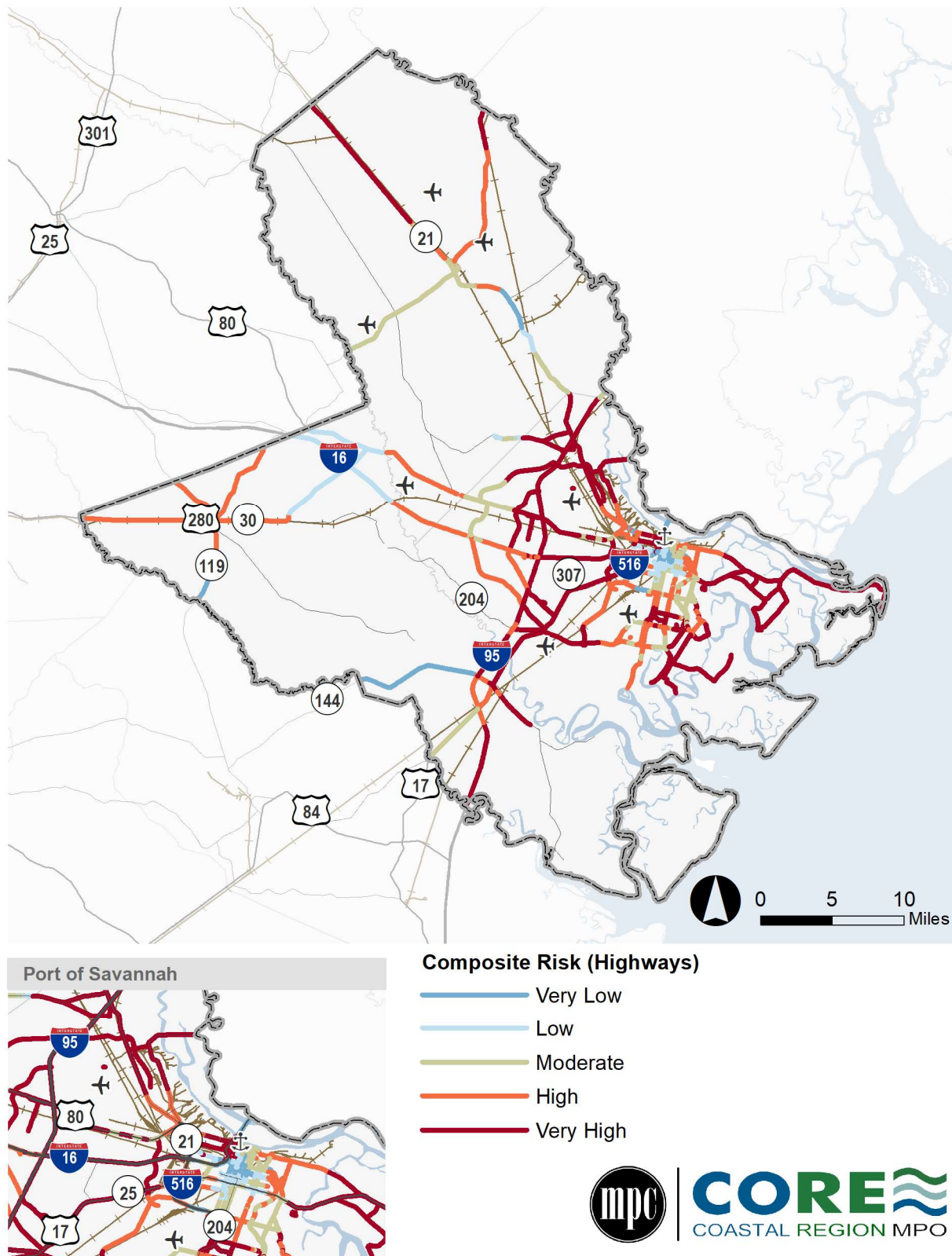
Category	Quintile	Composite Risk = Coastal Flooding + Riverine Flooding + Hurricanes
Very Low	0% - 20%	\$0 - \$7,654
Low	20% - 40%	\$7,654 - \$17,626
Moderate	40% - 60%	\$17,626 - \$33,292
High	60% - 80%	\$33,292 - \$72,807
Very High	80% - 100%	\$72,807 - \$1,134,797

Source: Federal Emergency Management Agency, 2022; Cambridge Systematics, Inc. analysis.

These hazards place several of the region's major freight terminals at risk to disruption. For example, Figure 3.11 shows highway assets in the CORE MPO region and depicts their composite risk vulnerability (only arterial roadways and Interstate highways are included in the map). The Port of Savannah is the most significant freight asset in the region and the State. Its composite risk ranges from “low” to “very high” given the significant amount of land occupied by the port. Generally, the Savannah/Hilton Head International

Airport in an area of “very high” combined risk. The three major rail yards in the region are all in risk areas of at least “moderate” combined risk. The CSX Southover Yard and Savannah Yard are within “high” risk areas, while the Norfolk Southern Savannah Yard is in a “moderate” risk area. Out of the 22 truck parking facilities in the region, half are under “very high” risk. Overall, these findings demonstrate the importance of investments in resiliency for the CORE MPO region.

FIGURE 3.11 VULNERABLE HIGHWAY ASSETS



Source: FEMA, 2022; Highway Performance Management System, 2021; Cambridge Systematics, Inc. analysis.

3.6 Community and Environmental Impacts

The region's resiliency challenges are directly related to issues surrounding equity and the environmental impacts of goods movement. Communities with certain sociodemographic factors (e.g., median age, per capita income, unemployment, and other factors) tend to be more exposed to hazards and most vulnerable for experiencing negative outcomes from those hazards.⁴⁴ Goods movement contributes to resiliency challenges as transportation activities accounted for 36.2 percent of U.S. CO₂ emissions from fossil fuel combustion in 2020, with the largest contributors being passenger vehicles (38.5 percent), followed by freight trucks (26.3 percent) and light-duty trucks (18.9 percent). Furthermore, these same types of sociodemographic factors are also indicative of communities that tend to be co-located with freight assets and experience the negative externalities (e.g., emissions, noise, etc.) of goods movement. This is evidenced by the USDOT's inclusion of the FEMA NRI as an indicator of transportation disadvantaged communities.⁴⁵ As a result, strategies aimed at reducing the community and environmental impacts of freight also benefit the region's resiliency to extreme weather events and other hazards.

Transportation equity seeks fairness in mobility and accessibility to meet the needs of all community members⁴⁶. A core tenet of transportation equity is ensuring that the benefits and burdens of the transportation system are equitably distributed, especially underserved communities.⁴⁷ Advancing transportation equity within a freight context is challenging. The benefits of freight (e.g., jobs, tax revenue, etc.) are diffuse as they are broadly distributed across geography and stakeholders, while the burdens of freight (e.g., increased noise, higher emissions, reduced mobility and accessibility, etc.) tend to be localized and disproportionately borne by communities adjacent to freight assets. Developing a freight program that delivers benefits to burdened communities while mitigating or avoiding negative impacts is no small task.

Equity is defined as “the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.”

Presidential Documents: Executive Order 13985 of January 20, 2021.

The first step in addressing equity as part of the Regional Freight Transportation Plan Update was to identify communities that tend to be negatively impacted by the transportation system. The CORE MPO Environmental Justice Plan and the USDOT Justice40 Initiative guided this process. The CORE MPO Environmental Justice Plan defines EJ communities as those with shares of minority populations and low-income populations that exceed the regional average. Historically disadvantaged communities are defined by USDOT as Census

⁴⁴ Federal Emergency Management Agency, National Risk Index Technical Documentation, version 1.18.1, November 2021.

⁴⁵ <https://www.arcgis.com/apps/dashboards/d6f90dfcc8b44525b04c7ce748a3674a>

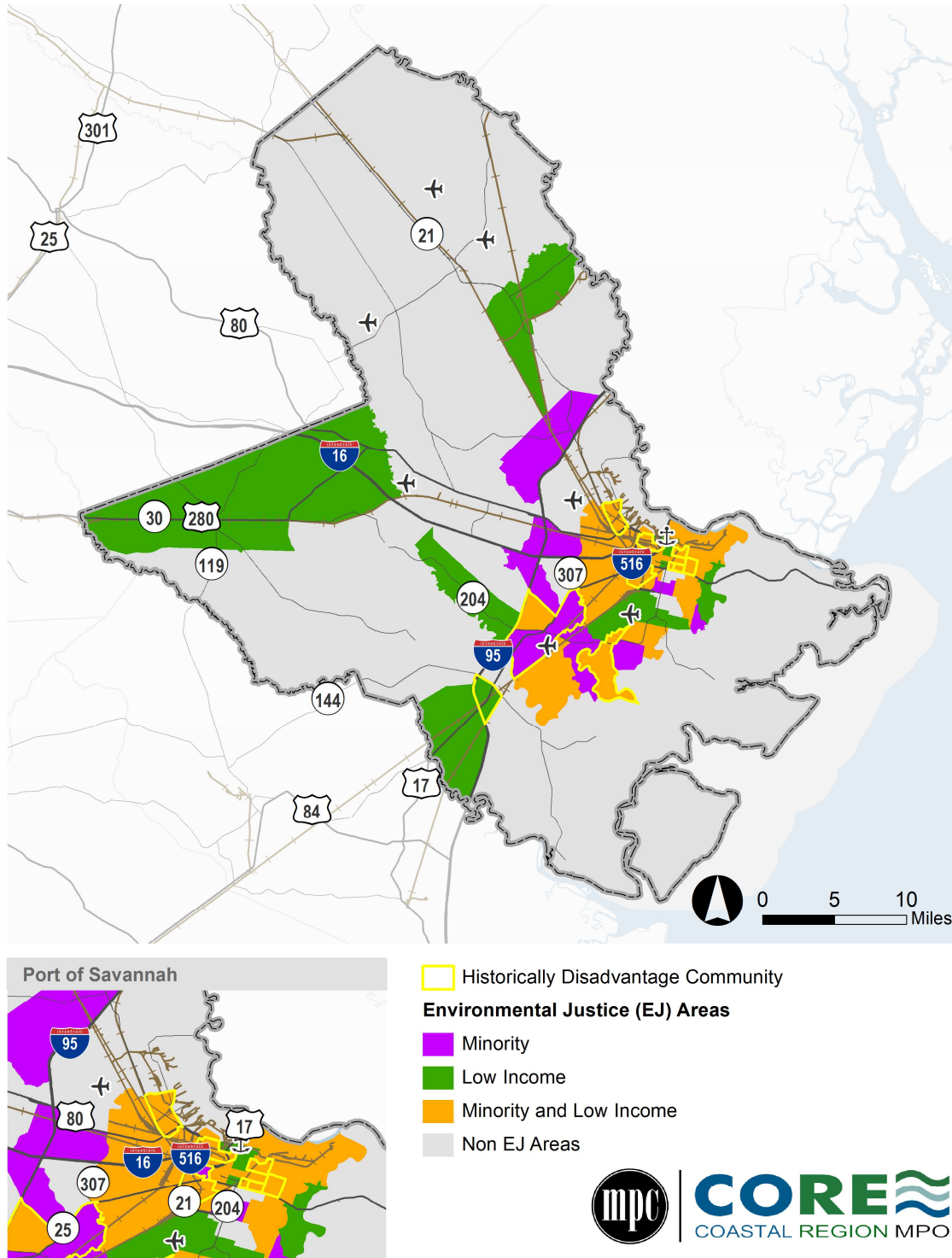
⁴⁶ FHWA, Transportation Planning and Capacity Building. Transportation Equity. https://www.planning.dot.gov/planning/topic_transportationequity.aspx.

⁴⁷ Federal Register Vol. 86, No. 14, Monday, January 25, 2021. Presidential Documents: Executive Order 13985 of January 20, 2021. <https://www.govinfo.gov/content/pkg/FR-2021-01-25/pdf/2021-01753.pdf>.

tracts according to six indicators related to transportation access, health, and environment, among others.⁴⁸ Environmental justice (EJ) areas and historically disadvantaged communities in the CORE MPO region are shown in Figure 3.12.

⁴⁸ CDC Social Vulnerability Index, Census America Community Survey, EPA Smart Location Map, HUD Location Affordability Index, EPA EJ Screen, FEMA Resilience Analysis & Planning Tool, and FEMA National Risk Index.

FIGURE 3.12 ENVIRONMENTAL JUSTICE TARGET AREAS AND HISTORICALLY DISADVANTAGED COMMUNITIES, 2022

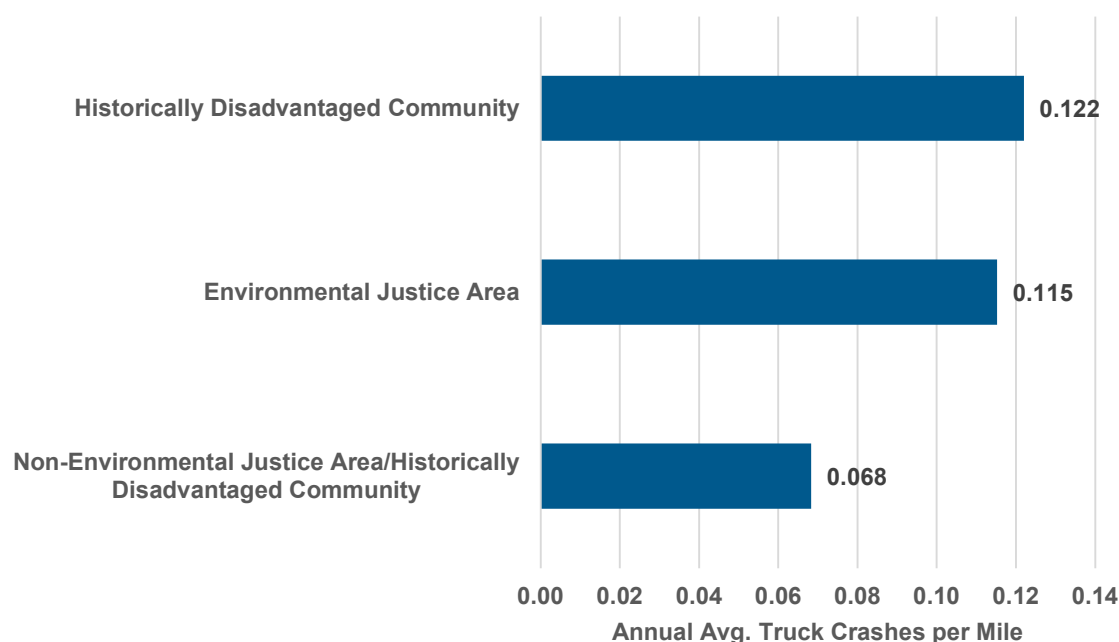


Source: U.S. Census Bureau, 2020 Decennial Census and the 2016-2020 American Community Survey 5-Year Estimates; U.S. Department of Transportation; Cambridge Systematics, Inc. analysis.

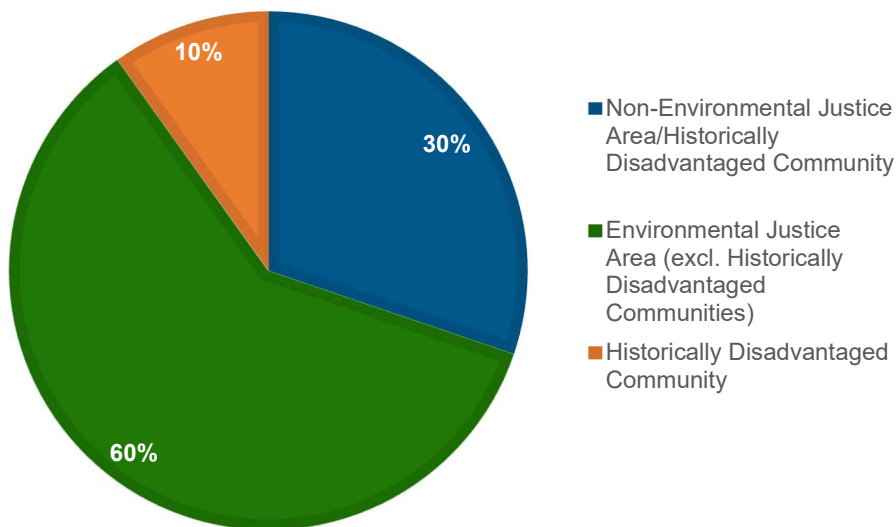
In advancing freight transportation equity across the CORE MPO region, the Regional Freight Transportation Plan Update focused on the distribution of the negative impacts related to highway infrastructure relative to these communities. This was because data are most readily available for this mode, and negative impacts present the greatest opportunity for long-range planning consideration. While the analysis focused on identifying and mitigating negative impacts as part of long-range planning, it is important to note that freight also brings positive outcomes to communities in terms of jobs and access to goods. Key findings of the analysis included the following:

- **Congestion and Reliability.** EJ areas on average experience truck travel times that are less reliable than non-EJ area/historically disadvantaged communities. In addition, on average they also experience more intense truck congestion than non-EJ area/historically disadvantaged communities.
- **Freight Activity.** Due to historical land use development patterns, freight assets such as major highways and rail terminals tend to be clustered in those communities. As a result, EJ areas and historically disadvantaged communities often bear a disproportionate share of freight activity and its associated negative externalities. The analysis found that historically disadvantaged and EJ areas handle larger shares of trucking activity compared to non-EJ areas/historically disadvantaged communities.
- **Safety.** Relative to non-EJ areas/historically disadvantaged communities, EJ areas and historically disadvantaged communities experience a higher rate of truck-involved crashes (see Figure 3.13). At-grade crossings are also potential safety hazards as they present an opportunity for trains to collide with vehicles, pedestrians, or other roadway users. 90 percent of at-grade crossings are located in EJ areas and historically disadvantaged communities as shown in Figure 3.14.

FIGURE 3.13 COMPARISON OF TRUCK-INVOLVED CRASH RATES ACROSS COMMUNITIES



Source: Federal Railroad Administration, Highway-Rail Crossing Inventory; Cambridge Systematics, Inc.

FIGURE 3.14 DISTRIBUTION OF AT-GRADE RAIL CROSSINGS ACROSS COMMUNITIES

Source: Federal Railroad Administration, Highway-Rail Crossing Inventory; Cambridge Systematics, Inc.

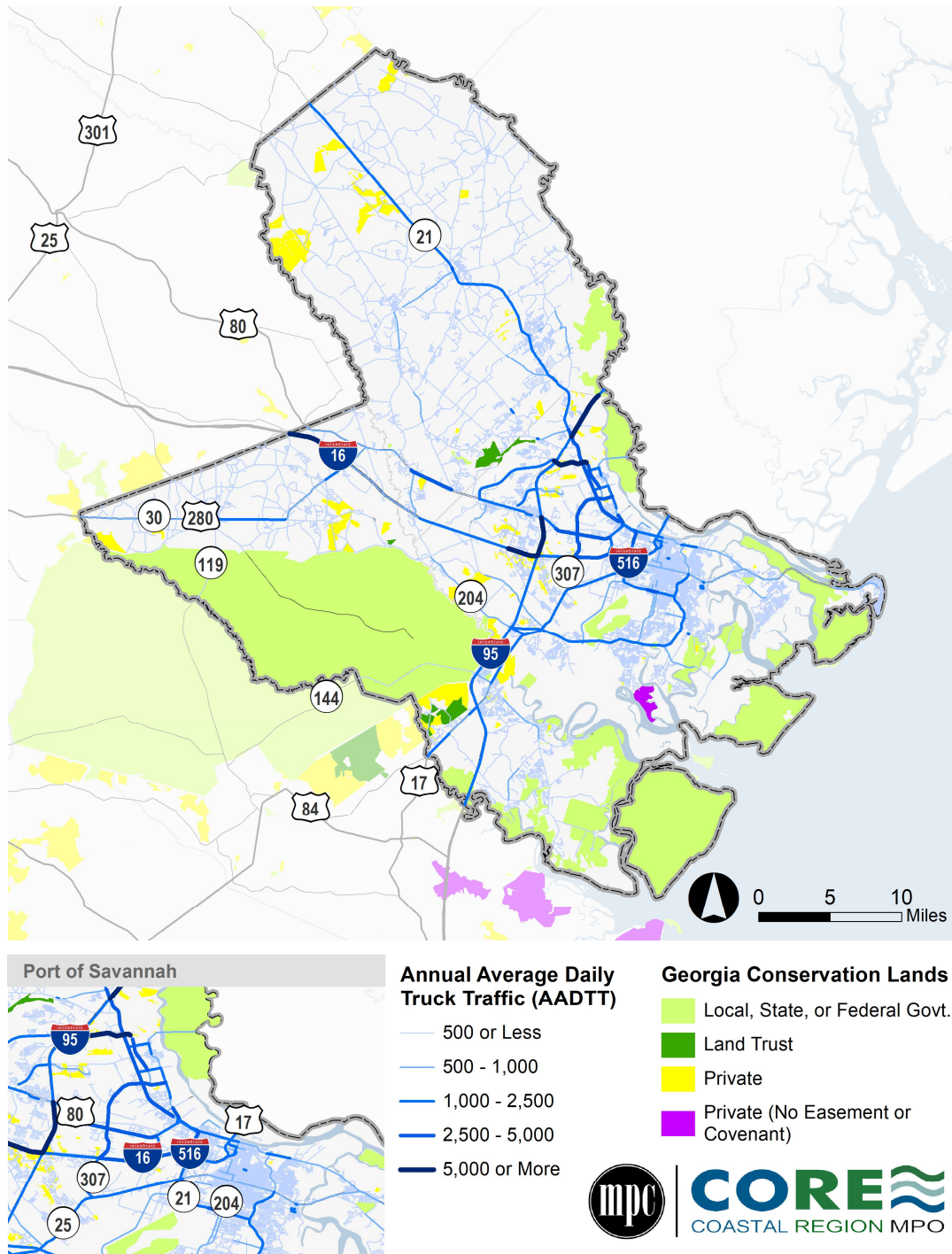
Environmental considerations are an important aspect of freight transportation planning, project development and operations. Transportation networks intertwine with wildlife habitats and can have adverse effects such as loss of habitat, degradation of habitat quality, crashes that can reduce animal populations, and population fragmentation and isolation. Freight impacts the environment in the form of emissions from freight vehicles and infrastructure development that results in the loss or adverse impacts to wildlife habitats and ecosystems. These impacts also contribute to the region's resiliency challenges, especially as it pertains to extreme weather and flooding. Understanding where the region's multimodal freight network intersects its environmental assets is an important step to including environmental considerations into the freight transportation planning process.

Environmental assets include the multiple state parks, national parks, land trusts, wildlife management areas, and privately held conservation lands in the region that serve as wildlife habitats. Additionally, much of the region is covered by wetlands which are a vital part of the region that provide benefits for people and wildlife (both aquatic and terrestrial).⁴⁹ The 2040 Chatham County-Savannah Comprehensive Plan observed that upland areas of the region have forested and vegetated isolated wetlands that are frequently targeted for development and that Chatham County was estimated to have lost 5.5 square miles of wetlands between 1996-2016.⁵⁰ Figure 3.15 shows these areas in relation to its multimodal freight network.

⁴⁹ <https://www.epa.gov/wetlands/why-are-wetlands-important#:~:text=Far%20from%20being%20useless%2C%20disease,our%20use%20at%20no%20cost.>

⁵⁰ Plan 2040: Chatham County-Savannah Comprehensive Plan.

FIGURE 3.15 WILDLIFE HABITATS AND TRUCK TRAFFIC



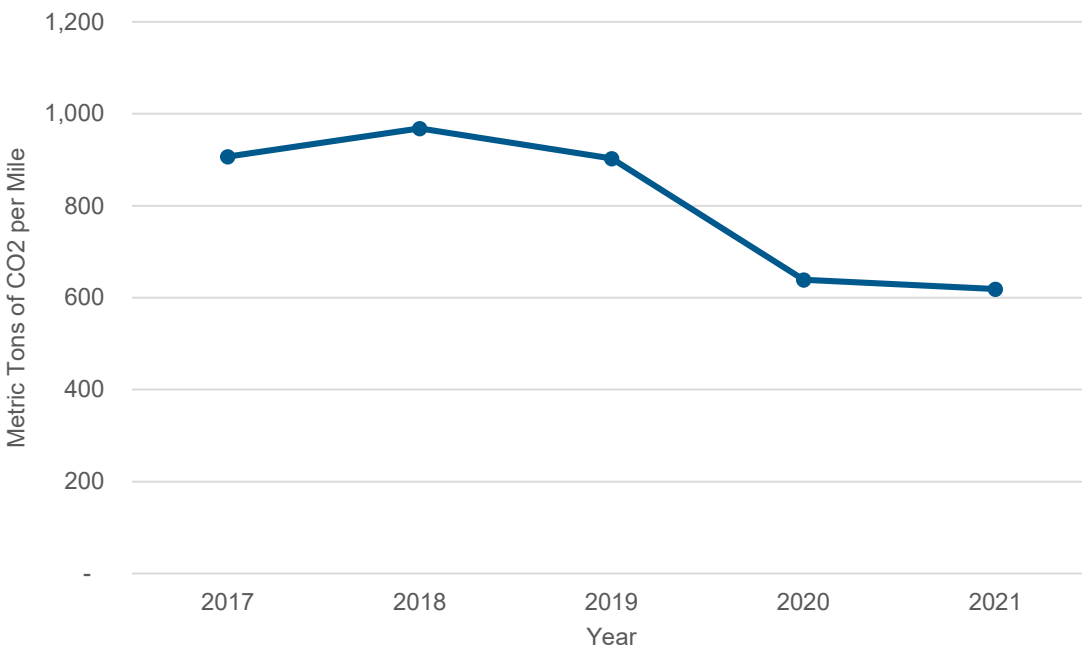
Source: Bryan County Planning and Zoning, 2021; Chatham County-Savannah Plan 2040, 2020; Effingham County Planning and Zoning, 2019.

The burning of fossil fuels such as coal and oil, along with deforestation, land-use changes, and other activities have caused the concentrations of heat-trapping greenhouse gases (GHG) to increase significantly

in the Earth's atmosphere.⁵¹ These gases in the atmosphere absorb some of the energy being radiated from the surface of the Earth that would otherwise be lost to space, which makes the Earth's surface warmer than it would be otherwise. This has implications for rainfall patterns, snow and ice cover, sea level, other aspects of climate.

Among the various GHG, CO₂ is the largest source of U.S. emissions and has accounted for over 75 percent of total U.S. gross emissions across the 1990 – 2020 time period.⁵² Transportation activities accounted for 36.2 percent of U.S. CO₂ emissions from fossil fuel combustion in 2020. As part of its Freight Mobility Trends Report, the FHWA estimates the amount of CO₂ generated per mile of National Highway System (NHS) roadways for states and urbanized areas. For the Savannah urbanized area, truck traffic on NHS roadways was estimated to generate approximately 619 metric tons of CO₂ per mile in 2021 as shown in Figure 3.16. The substantial decrease in CO₂ emissions per mile for 2020-2021, from a peak of 968 metric tons per mile in 2018, is likely due to the nationwide decrease in traffic volumes that resulted from the COVID-19 pandemic.⁵³ Though truck volumes largely remained consistent with pre-pandemic levels, they were operating on less congested roadways due to reduced commuter traffic. As a result, the improvement in efficiency for trucks reduced their emissions.

FIGURE 3.16 TRUCK CO₂ EMISSIONS IN THE CORE MPO REGION, 2017-2021



Source: Federal Highway Administration, Freight Mobility Trends Report.

⁵¹ Intergovernmental Panel on Climate Change, Climate Change 2021, <https://www.ipcc.ch/report/ar6/wg1/>.

⁵² United States Environmental Protection Agency, "Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2020," <https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-main-text.pdf>.

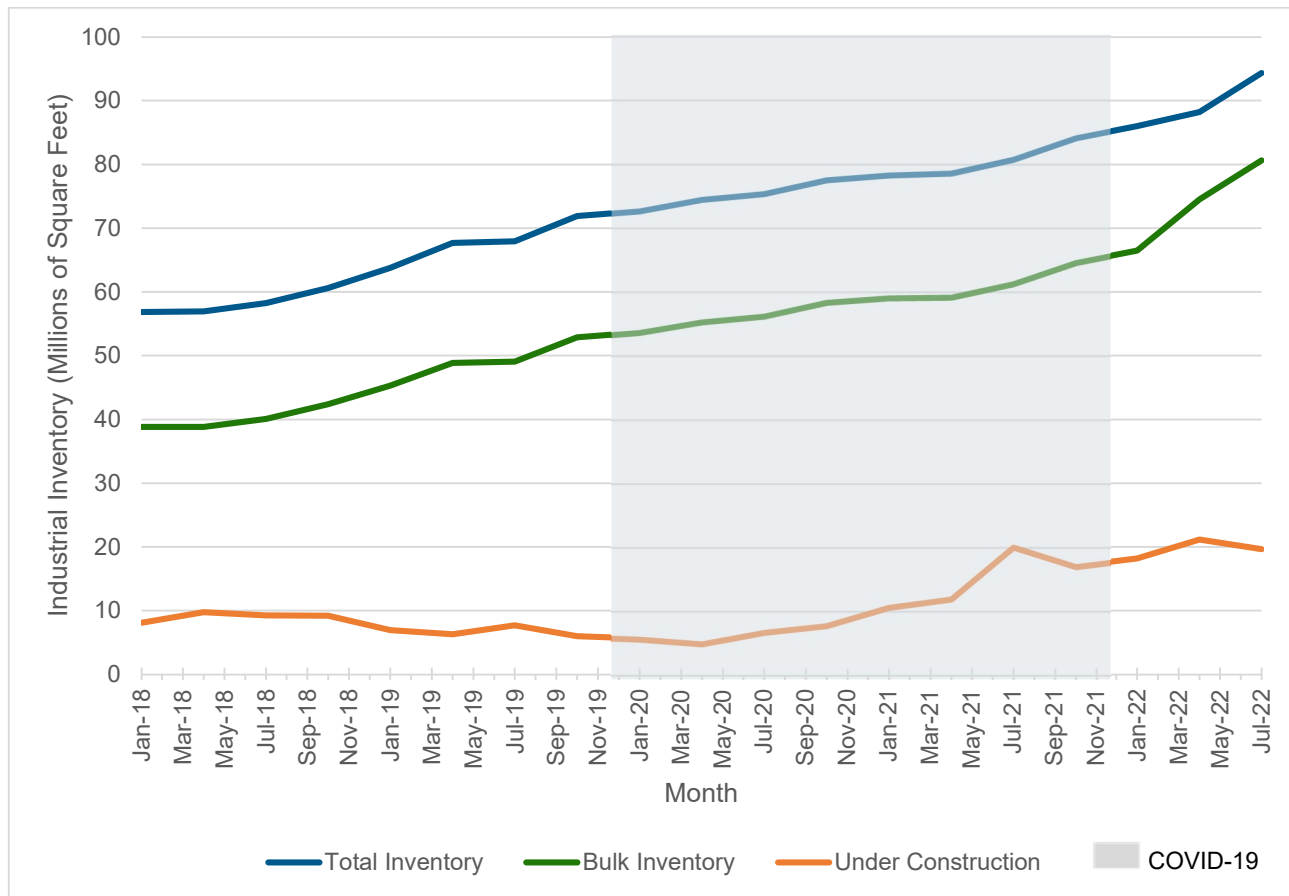
Washington DC, 2021. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2019>.

⁵³ Monthly traffic volumes for 2020 were much lower than 2019 values. Though volumes increased in 2021, they remained below 2019 values. Source: FHWA, Office of Highway Policy Information, https://www.fhwa.dot.gov/policyinformation/travel_monitoring/tvt.cfm, Accessed December 3, 2022.

3.7 Land Use

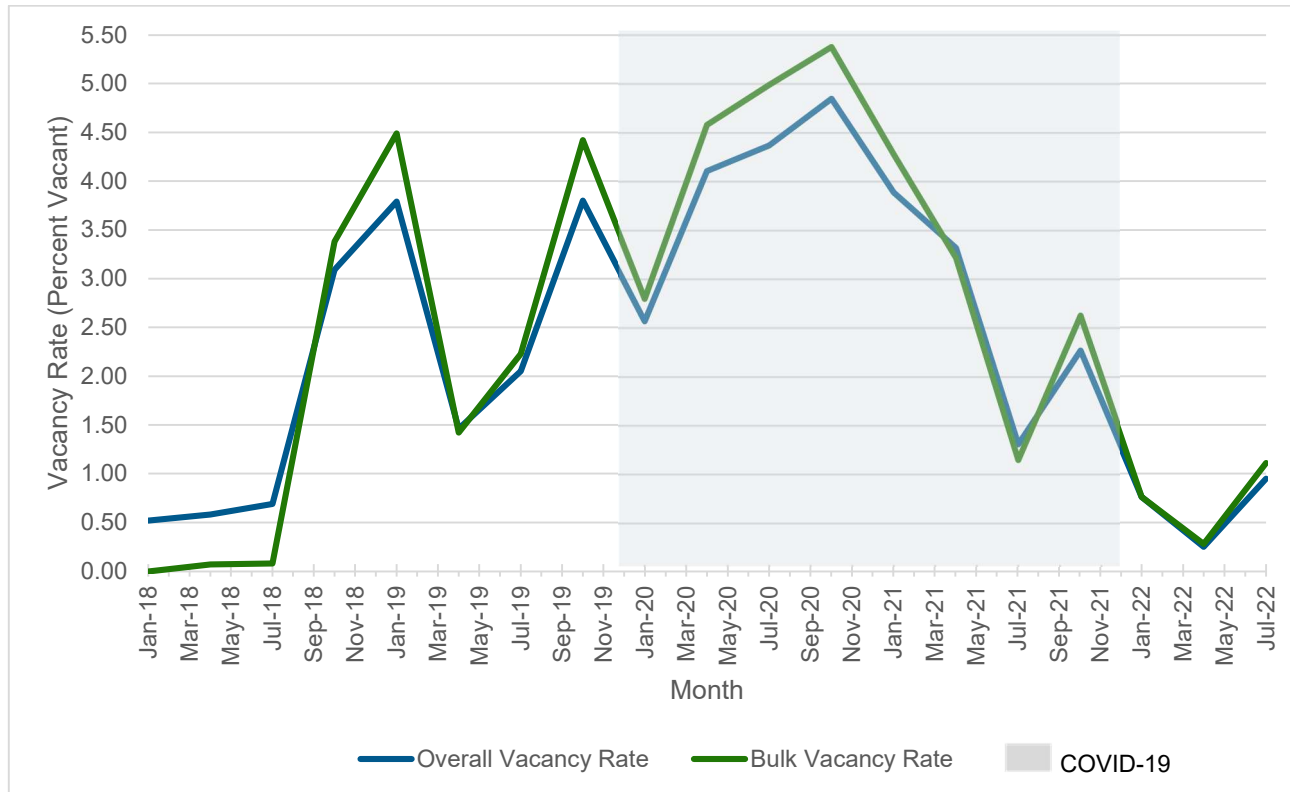
Transportation has a strong relationship with the current land use and development patterns in the CORE MPO region. For example, additional roadway and transit capacity may be necessary to support an influx of new homes and businesses, while modifications to current intersection designs and new truck parking facilities may be necessary to accommodate trucks serving those homes and businesses. Likewise, these transportation investments spur new development (and redevelopment) as companies and communities take advantage of improved accessibility and new capacity. A key component of the Regional Freight Transportation Plan Update was an analysis of current and future land uses within the CORE MPO region. Furthermore, the analysis investigated the implications of current and future land use decisions on the region's transportation system, highlighting instances where conflicts may arise between freight-intensive and non-freight-intensive land uses so that they may be addressed through future infrastructure, policy, and programmatic solutions.

Overall, freight-generating land uses have been increasing throughout the CORE MPO region at a rapid pace. As shown in Figure 3.17, between July of 2018 and July of 2022, warehouse inventory across the region increased from 57 million square feet to 94 million square feet, an average increase of 9.3 million square feet annually. Bulk inventory, defined as facilities that are 100,000 square feet or larger, increased from 39 million square feet to 81 million square feet over this same time period, an average annual increase of 10.5 million square feet. This represents a significant acceleration in the construction of bulk inventory since 2018, as the prior five-year period (2013-2018) saw a total increase in bulk inventory of 13.8 million square feet across the region, or 2.8 million square feet per year.

FIGURE 3.17 SAVANNAH INDUSTRIAL REAL ESTATE INVENTORY

Source: Colliers Quarterly Industrial Market Reports, 2018-2022.

The increase in inventory has coincided with a decrease in vacancy rates. As shown in Figure 3.18, aside from an uptick during the Covid-19 pandemic (2019-2020), industrial vacancy rates in the region have been in steady decline. Vacancy rates fell from over 11 percent in 2012 to a low of 0.28 percent in April 2022.

FIGURE 3.18 SAVANNAH INDUSTRIAL REAL ESTATE VACANCY RATE

Source: Colliers Quarterly Industrial Market Reports, 2018-2022.

In addition to existing freight-generating land uses, there are several planned new warehouse and logistics developments throughout the region. Table 3.3 and Figure 3.19 highlights several of these hubs throughout the study area. They tend to be concentrated near major transportation arteries – including interstate highways, state highways, and Class I rail lines – making them appealing to companies seeking efficient access to the Port of Savannah and markets beyond the Savannah region. These hubs comprise over 15,000 acres of future freight-intensive land uses in the region. Several of the region’s major new freight-related development projects have been in or near one of these sites including the forthcoming Hyundai Metaplant within the Bryan County Mega-Site.

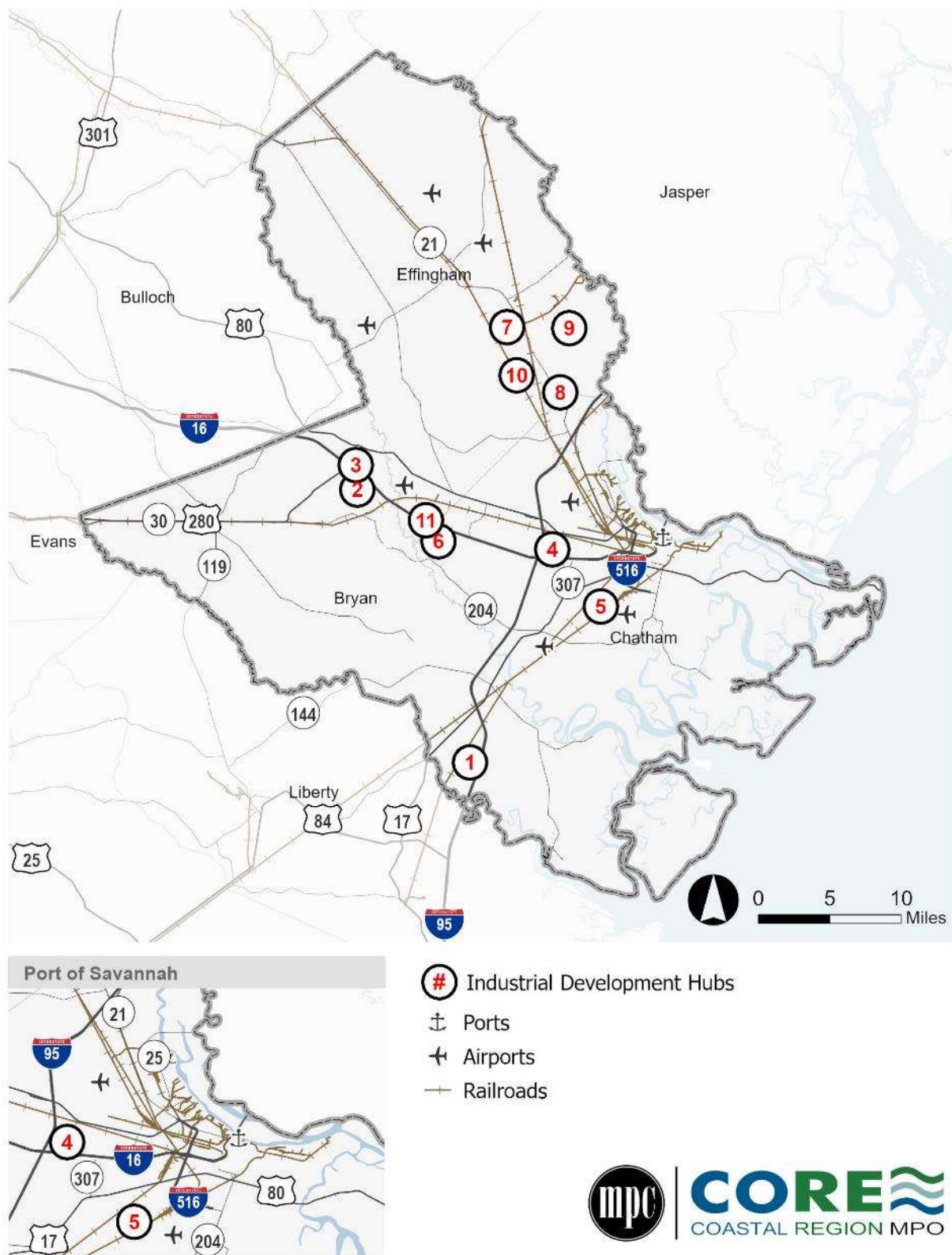
TABLE 3.3 INDUSTRIAL DEVELOPMENT HUBS

Map ID#	County	Site	Acres
1	Bryan	Belfast Commerce Park	1,065
2	Bryan	Bryan County Mega-Site	2,284
3	Bryan	Interstate Centre	1,100
4	Chatham	Chatham County Economic Development Site	1,557
5	Chatham	Rockingham Farms Industrial Park	1,125
6	Chatham	Savannah Chatham Manufacturing Center	744
7	Effingham	Georgia International Rail Park	1,500
8	Effingham	Georgia International Trade Center	1,150
9	Effingham	Grande View	448

10	Effingham	Savannah Gateway Industrial Hub	2,640
11	Effingham	Savannah Portside International Park	1,550
Total			15,163

Source: Development Authority of Bryan County, Effingham County Industrial Development Authority, Savannah Economic Development Authority, Savannah Harbor-Interstate 16 Joint Development Authority.

FIGURE 3.19 REGIONAL INDUSTRIAL DEVELOPMENT HUBS



Source: Development Authority of Bryan County, Effingham County Industrial Development Authority, Savannah Economic Development Authority, Savannah Harbor-Interstate 16 Joint Development Authority.

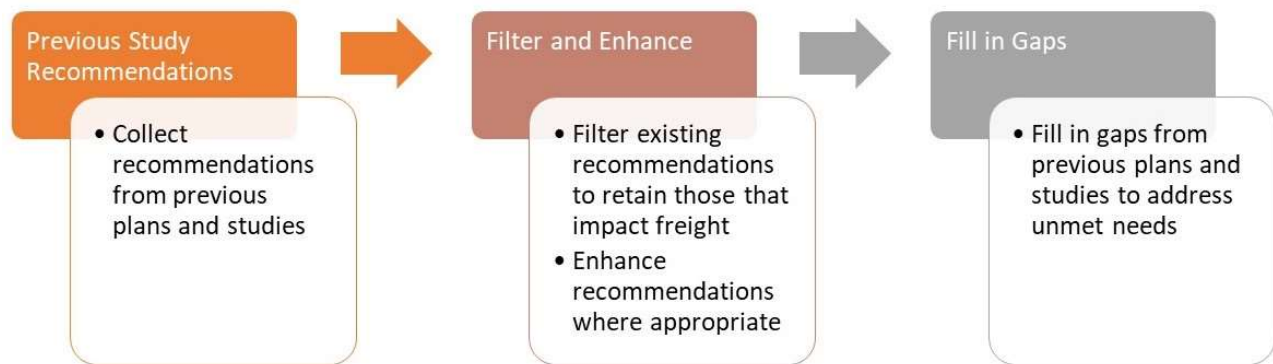
4 STRATEGIES AND RECOMMENDATIONS

This section of the report defines a comprehensive set of strategies for improving the performance and reducing the negative impacts of the regional goods movement system while capitalizing on development opportunities. It develops short-, mid-, and long-term strategies for addressing critical freight needs and deficiencies while mitigating potential negative impacts. These strategies are presented as “solution packages” that combine infrastructure, operational, and policy-level recommendations to address critical freight needs. Accompanying the strategies and recommendations is an implementation plan that outlines the action steps, potential funding sources, and planning level cost estimates needed to execute the recommendations. More details on the strategies and recommendations may be found in the **Task 6: Land Use Recommendations** and **Task 7: Draft Recommendations – Identification Of Improvements, Strategies, and Solutions** technical memoranda.

4.1 Project Identification, Evaluation, and Prioritization

The recommendations and strategies presented in this memorandum were initially identified through stakeholder interviews, public meetings, discussions with the Steering Committee, feedback from the Economic Development and Freight Advisory Committee (EDFAC), the findings of the needs assessment conducted as part of the Regional Freight Transportation Plan Update, and through a review of previous projects and studies. The project identification process is shown in Figure 4.1.

FIGURE 4.1 PROJECT IDENTIFICATION PROCESS



Source: Cambridge Systematics.

The first step in the project identification process was a review of recommendations made by previous studies. Several studies have been recently completed that have made project recommendations that could impact freight mobility and reliability in the CORE MPO region. Specifically, the SR 21 Access Management Study, SR 307 Corridor Study, Effingham County Transportation Master Plan, 2023 Chatham County Transportation Special-Purpose Local-Option Sales Tax (TSPLOST) list, the North and South Bryan County Transportation Studies, and the Georgia Department of Transportation (GDOT) Coastal Empire Study were all completed in 2021 or later and identified investments aimed at improving performance on major freight corridors. Notably, the Coastal Empire Study project recommendations were incorporated into the 2023 Georgia Statewide Freight and Logistics Plan. Project recommendations from those studies have been incorporated into the Regional Freight Transportation Plan Update. A broad, overarching recommendation of

the Regional Freight Transportation Update is that the CORE MPO and its partners work to advance these projects by building support and identifying potential funding sources including for local match requirements. Furthermore, given that much of the region's freight demand is generated by the Port of Savannah, the State and the Georgia Ports Authority should continue existing and increase future investment in the region's infrastructure.

The next step in the project identification process was to filter and enhance previous recommendations. Previous project recommendations were screened and filtered based on their potential to positively impact the freight network. Recommendations that were not located on or proximate to freight corridors were screened out. Also, projects that did not address capacity, operational, or other freight-focused needs as indicated by the needs assessment (e.g., active transportation, transit, etc.) were also screened out. Furthermore, previous recommendations were refined or enhanced (where appropriate) based on the region's needs. It should be noted that although active transportation and transit projects were generally screened out, these types of projects can benefit freight mobility by reducing demand from non-freight users on the highway network, improving safety for other roadway users, and addressing some equity concerns.

The last step in the project identification process was to fill in gaps. If there were no previous recommendations that addressed an identified need, a new recommendation was developed to address the unmet need. For example, there were few previous recommendations that addressed needs related to land use and truck parking.

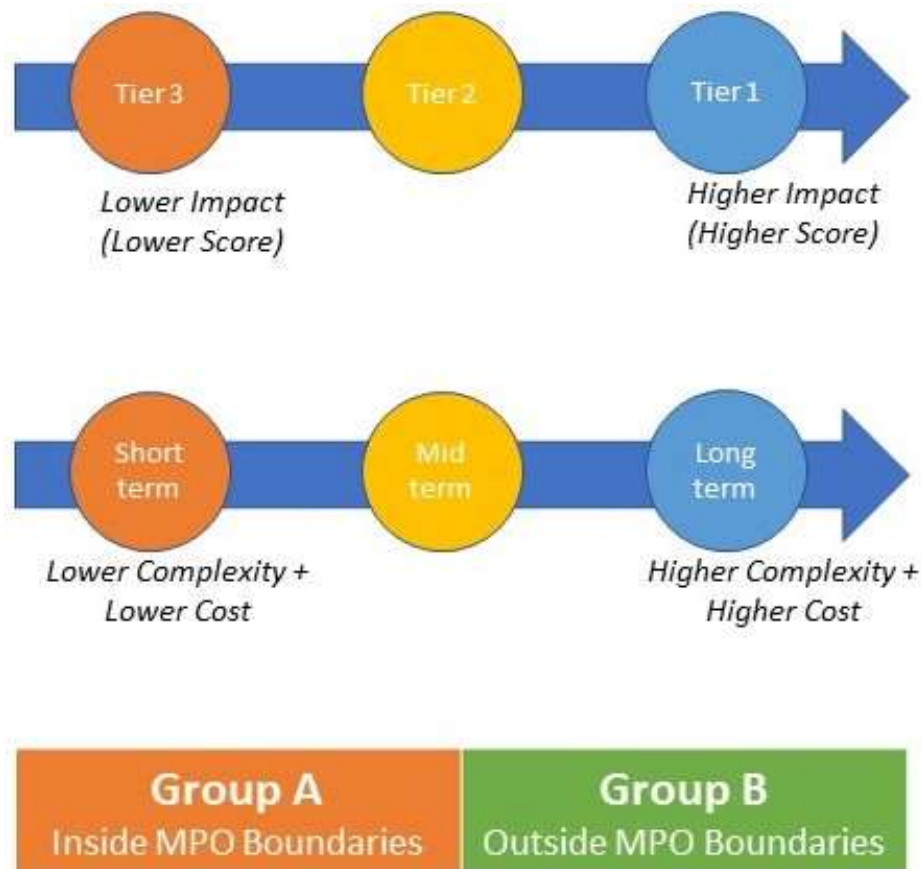
After project identification, the Regional Freight Transportation Plan moved on to scoring the recommendations for the purpose of prioritizing projects. Projects were scored according to their ability to positively impact the transportation network and advance the region's freight transportation goals. As shown in Figure 4.2, projects were eligible to receive a maximum of 100 points. The Safety and Security as well as the Accessibility, Mobility, and Connectivity goal areas accounted for the most points a project may receive. This is reflective of feedback from the EDFAC as well as public outreach.

FIGURE 4.2 PROJECT SCORING

Source: Cambridge Systematics.

After the recommended projects were scored, they were then prioritized according to three factors which are illustrated in Figure 4.3:

- **Tier** – Projects with a potentially higher impact to the freight network (as indicated by the project score) were designated as Tier 1 while those with lower potential impacts were designated as Tier 3.
- **Time Frame** – Projects were separated into implementation time frames based on their potential complexity and cost. Short-term projects (0 – 5 years) are less complex and costly. Thus, they can be implemented on a shorter time frame. Mid-term projects (5-10 years) have moderate complexity and cost while long-term projects (10 years or more) are potentially very complex and costly. For projects sourced from previous initiatives, planning-level cost estimates from those efforts are reported in the Regional Freight Transportation Plan. For newly recommended projects, planning-level cost estimates were developed as part of this effort.
- **Location** – Group A projects are those that are within or intersect the CORE MPO boundaries. As such, they are eligible to be included in the Transportation Improvement Program (TIP). Group B projects are those that fall outside of MPO boundaries but are still important to regional freight mobility.

FIGURE 4.3 PROJECT PRIORITIZATION PROCESS

Source: Cambridge Systematics.

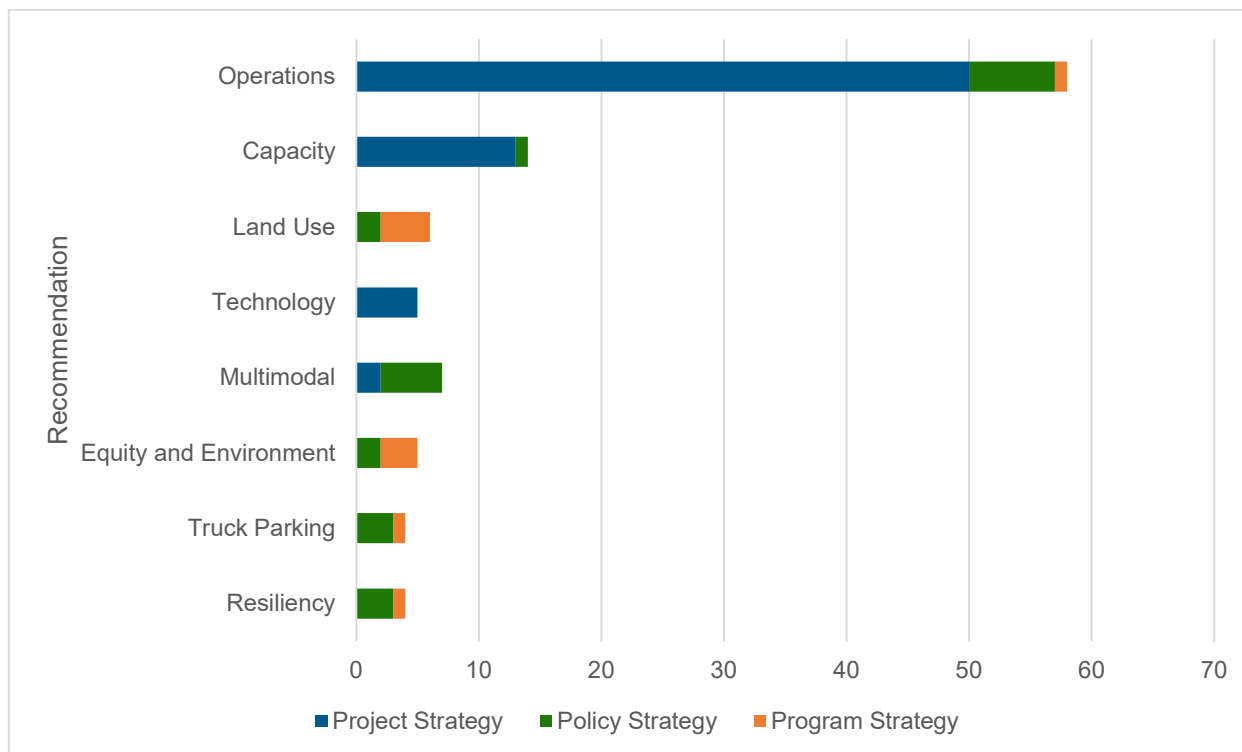
4.2 Recommendations and Implementation Plan

From the quantitative and qualitative analysis, the project identification process resulted in eight broad, overarching recommendations. Those eight recommendations are shown in Figure 4.4. Each overarching recommendation is comprised of a set of specific project, policy, and program recommendations. Project recommendations are those that make capital, operational, or technology investments on the multimodal freight network. Policy recommendations are those that provide guidelines or principles that shape the way the region approaches its freight needs. Programmatic recommendations are those that feature ongoing actions, initiatives, or activities. Figure 4.5 and Table 4.1 summarize the recommendations by category and by type. In total, 103 specific recommendations were made as part of the Regional Freight Transportation Plan Update.

FIGURE 4.4 REGIONAL FREIGHT TRANSPORTATION PLAN RECOMMENDATIONS

Advance Strategic Capacity Expansions, Proactively Increase Network Connectivity	<ul style="list-style-type: none"> • Provide relief to existing bottlenecks and get ahead of new demand by expanding the physical footprint of the network.
Implement Operational Strategies to Enhance Freight Mobility and Safety	<ul style="list-style-type: none"> • Improve the ease, efficiency, and safety of freight operations with minimal impacts to the footprint of the network.
Support Increased Capacity, Enhanced Operations, and Safety on the Freight Rail Network	<ul style="list-style-type: none"> • Ensure that shippers have an alternative to trucking and support economic competitiveness.
Implement Technology Strategies to Enhance Freight Operations and Safety	<ul style="list-style-type: none"> • Use technology and information to ease freight-related congestion and improve the mobility and efficiency of freight operations.
Increase Access to Safe Truck Parking	<ul style="list-style-type: none"> • Improve safety for truck drivers and provide relief for areas that experience unauthorized truck parking.
Improve Freight Network Resiliency	<ul style="list-style-type: none"> • Improve the freight network's ability to withstand and recover from disruptions.
Mitigate Freight Impacts on Communities and the Environment	<ul style="list-style-type: none"> • Avoid where possible and limit the negative impacts of freight to communities and the environment.
Integrate Freight Considerations into Land Use Planning	<ul style="list-style-type: none"> • Guide where and how freight-generating land uses are developed to limit negative environmental impacts, community impacts, and freight-related congestion.

Source: Cambridge Systematics.

FIGURE 4.5 SUMMARY OF RECOMMENDATIONS BY CATEGORY

Source: Cambridge Systematics.

TABLE 4.1 SUMMARY OF RECOMMENDATIONS BY TYPE

Type	No. of Recommendations	Percent of Total
Project	79	68.0%
Policy	23	22.3%
Program	10	9.7%
Total	103	100%

Source: CORE MPO; Cambridge Systematics; AECOM; Symbioscity.

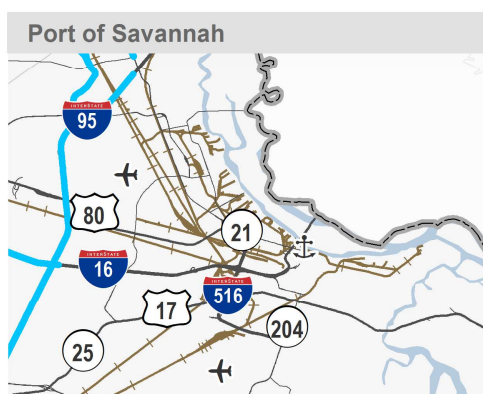
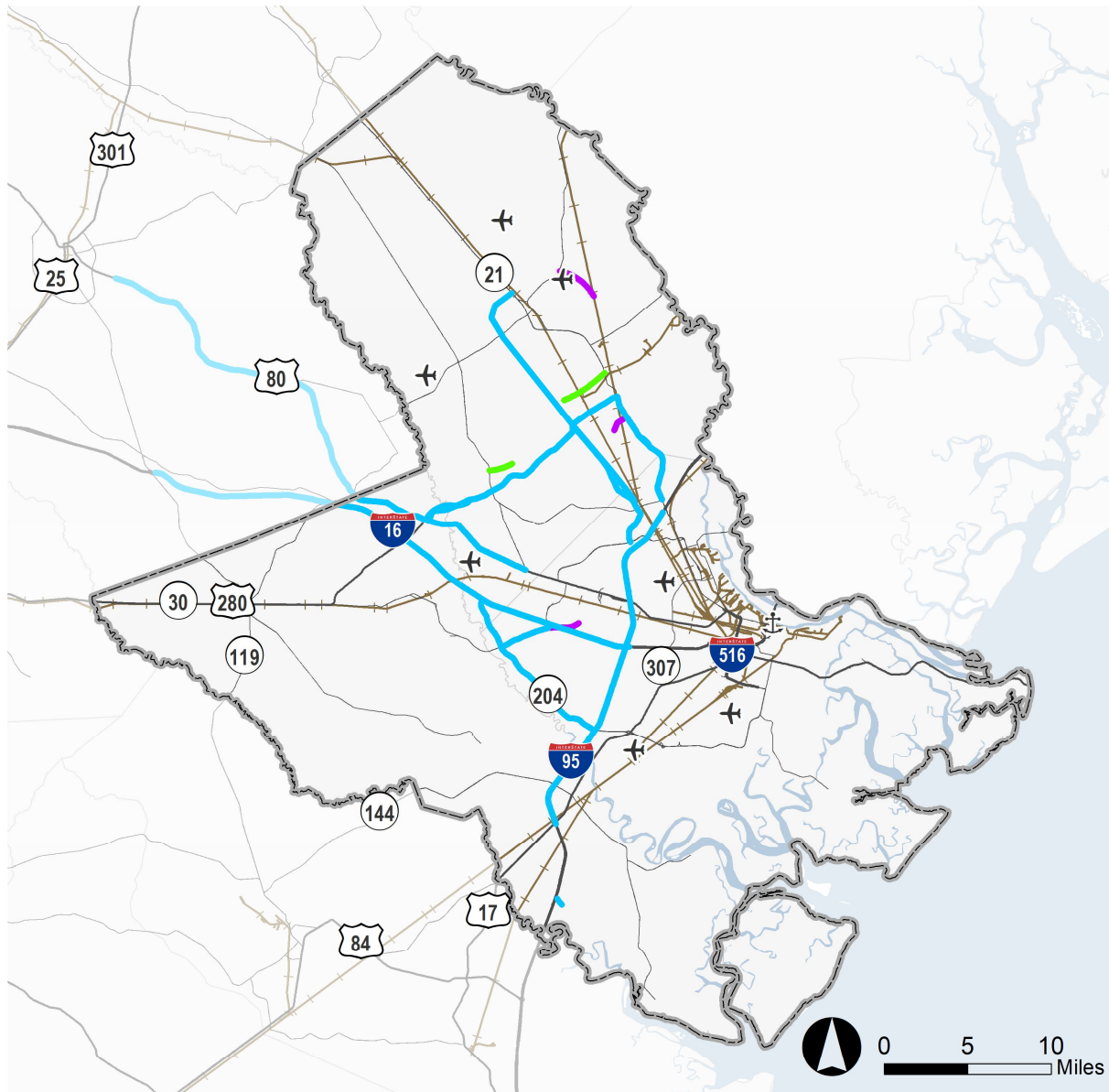
The overarching recommendations, as well as the specific recommendations that comprise them, are discussed in detail in the sections that follow.

Advance Strategic Expansions to Capacity and Proactively Increase Network Connectivity in Emerging Freight Clusters

The improvements included as part of this recommendation are intended to provide relief to existing bottlenecks and to proactively address emerging demand by expanding the physical footprint of the network. As indicated by performance measures such as truck delay per mile and the truck travel time index, major freight routes including I-16, I-516, I-95, and SR 21 experience recurring and often severe freight-related congestion. These conditions are expected to persist over the long term due to greater volumes of freight and commuter traffic. In some cases, operational strategies will be unable to address long-term performance challenges and it may be necessary to expand capacity to meet current and future demand.

The region has already identified multiple potential capacity expansions to address current and anticipated freight volumes. For example, both the CORE MPO FY2021-2024 TIP and the GDOT Coastal Empire Study identified I-16 and Old River Road as corridors for capacity expansions due to freight volumes. The Effingham County Transportation Master Plan and the Coastal Empire Study also recommended capacity expansions SR 21, an expansion and extension of Effingham Parkway, and an extension of Blue Jay Road. Based on the technical findings as well as outreach to stakeholders, the Regional Freight Transportation Plan (RFTP) supports these and other recommendations as shown in Figure 4.6.

FIGURE 4.6 STRATEGIC EXPANSIONS TO CAPACITY AND PROACTIVELY INCREASE NETWORK CONNECTIVITY



- Tier 1 Projects ⚓ Ports
- Tier 2 Projects ✈ Airports
- Tier 3 Projects — Railroads



Source: Cambridge Systematics, Inc.

Implement Operational Strategies to Enhance Freight Mobility and Safety

Operational strategies are those improvements that can be implemented without expanding the physical footprint of the multimodal freight network. They include intersection/interchange redesigns, signal timing adjustments on freight corridors, signage, and other projects. Relative to capacity and network expansions, operational strategies generally have lower costs and fewer environmental and community impacts. As a result, they can often be completed faster and at lower costs. The proposed operational strategies for the CORE MPO region are shown in Figure 4.7.

In addition to the infrastructure projects included in this recommendation category, there are also policy recommendations. Some of the notable policy recommendations are briefly discussed below:

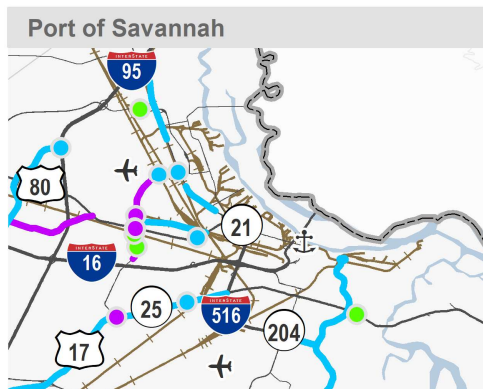
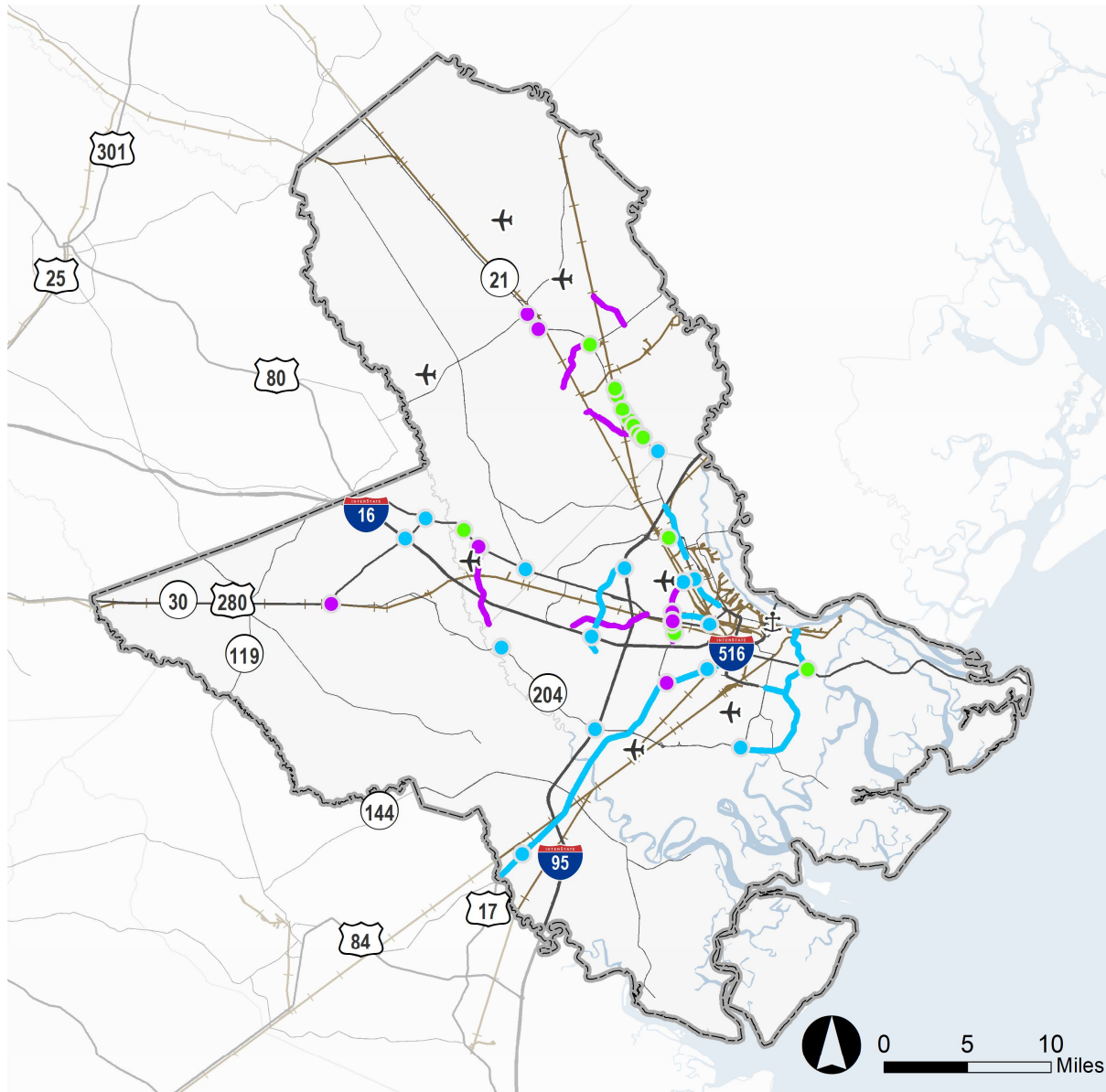
- US 80 at Skidaway Road and SR 204/Truman Parkway Area Safety Improvements.** The area around US 80 at Skidaway Road and SR 204/Truman Parkway experiences a relatively high rate of truck-involved crashes – primarily sideswipe same direction and rear end crashes. The area is characterized by a substantial number of commercial developments with multiple, closely spaced driveways. Perform a safety audit at this location to identify potential solutions for improving truck safety.
- US 17 Corridor Study Phase II.** Perform a corridor study focused on safety, operations, and access management for US 17 between SR 196 and I-516. Both the South Bryan Transportation Study and the Regional Freight Transportation Plan observed performance challenges along this corridor. Note that the 2023 Chatham County TSPLOST recommended a corridor study for US 17 as a Tier 1 project and Chatham County is currently in the process of beginning this study. However, the Regional Freight Transportation Plan recommends adding a second phase as part of a future study that extends the project limits south to SR 196.
- Port Area Pavement Conditions.** Roadways in the immediate vicinity of the Port tend to have poor pavement conditions due to the prevalence of heavy truck traffic. In addition, trucks that travel directly between terminals in this area are allowed to exceed gross vehicle weight limits. This project recommends upgrading in pavement conditions throughout the constitutionally exempted sub-area bounded by the Savannah River and the municipal limits of Garden City, Savannah, and Port Wentworth in unincorporated Chatham County (see Figure 4.8). Furthermore, this recommendation provides an opportunity for a public-private partnership. Another recommendation made by the RFTP (discussed in detail in the land use section of the report) is for the region to support community improvement districts (CID) centered on the region's freight activity centers. This is the type of project that a CID would be well-positioned to contribute funding towards and to lead on behalf of the region.
- East-West Connectivity: DeRenne Ave. Access Control, SR 204/Truman Pkwy. at White Bluff Rd. and Abercorn St. Interchange, and I-95 at SR 204 Interchange.** The lack of east-west connectivity for freight movements across the City of Savannah is an issue that came up often as part of stakeholder outreach. The RFTP proposes a series of recommendations focused on existing critical east-west routes – DeRenne Ave. and SR 204/Truman Pkwy. – to address this challenge.

For DeRenne Ave., the ongoing Project DeRenne will address several safety and operational issues over the most challenged portion of the corridor - i.e., west of White Bluff Road. Additionally, GDOT has a

current project (PI 0008359) to improve the safety and operations of the eastern portion of the corridor. However, DeRenne Ave. is the primary east-west route for the President St. industrial hub which has plans for expansion. To improve east-west connectivity, as redevelopment occurs along the north side of the corridor the region should work to close existing driveways and increase access control via a combination of new frontage roads and existing parallel roads (i.e., E. 72nd St.).

The intersection of SR 204/Truman Pkwy. with White Bluff Rd. and Abercorn St. is a significant source of truck delay per mile, especially for westbound Truman Pkwy. To improve east-west connectivity for freight traffic, perform an interchange modification report to identify solutions for easing congestion and making the route is more viable for freight activity, including converting to an interchange. Similarly, the RFTP recommends conducting an interchange study for I-95 at SR 204 to improve and upgrade the existing interchange to better facilitate east-west freight movements.

FIGURE 4.7 OPERATIONAL STRATEGIES TO ENHANCE FREIGHT MOBILITY AND SAFETY



- Tier 1 Projects — Tier 1 Projects ⚓ Ports
- Tier 2 Projects — Tier 2 Projects ✈ Airports
- Tier 3 Projects — Tier 3 Projects — Railroads



Source: Cambridge Systematics.

FIGURE 4.8 CONSTITUTIONALLY EXEMPT AREA NEAR THE PORT OF SAVANNAH



Support Increased Capacity, Enhanced Operations, and Safety on the Multimodal Freight Network

The region's air cargo, port, and freight rail assets are essential elements of the multimodal freight network. Air cargo has a significant role in the multimodal freight network as it provides the fastest service for long-distance shipments of goods, especially high-value and low-weight products such as medical supplies, flowers, and electronics. The Port of Savannah is critically important to the regional and state economy and generates much of the freight traffic through the region. Freight rail transportation can provide a safe, cost-effective way to move goods into and out of the CORE MPO region. Furthermore, moving goods by rail positively impacts roadway congestion, safety, and emissions as it reduces the number of truck trips.

For the Savannah-Hilton Head International Airport and the Port of Savannah, the region should focus on addressing landside access issues to those freight terminals as on-terminal challenges are under the purview of their operating authorities. Though included under the strategic capacity and operations recommendations, several recommended projects would improve congestion, reliability, and safety challenges on corridors serving those facilities. Regarding the rail recommendations it should be noted that the region's freight rail infrastructure is largely privately owned and, though the MPO's bylaws designate seats on the EDFAC for the region's Class I railroads, historically railroad companies have not participated in MPO activities. To some extent, this is likely due to the challenge of differing public and private sector planning timelines for identifying and implementing freight system investments. However, participation from the railroads is essential for implementing the recommendations put forth in the Regional Freight Transportation Plan Update. As a result, the region (along with its state and federal partners) should continue to foster relationships with railroads and identify opportunities for them to participate in the long-range planning process with a focus on increasing the region's rail takeaway capacity, enhancing operations, and improving safety.

Implement Technology Strategies to Enhance Freight Operations and Safety

Transportation technology is evolving rapidly and has the potential to improve the mobility, reliability, and safety of freight travel. Furthermore, technology solutions are able to yield system improvements with fewer environmental and community impacts. The region has been growing its ability to leverage transportation technologies as GDOT has invested in connected vehicle technologies for corridors connecting to the Port of Savannah and the City of Savannah is developing a Traffic Control Center (TCC) to better manage traffic. The strategies presented below in Figure 4.9 are opportunities for the region to leverage technology solutions to address its freight challenges.

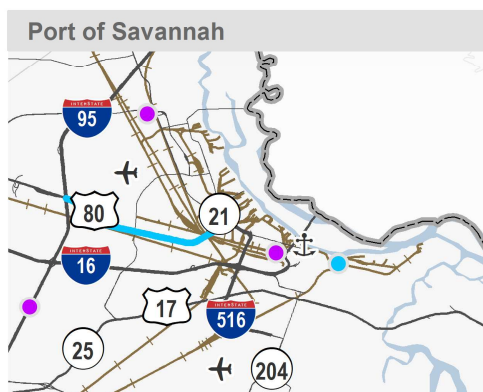
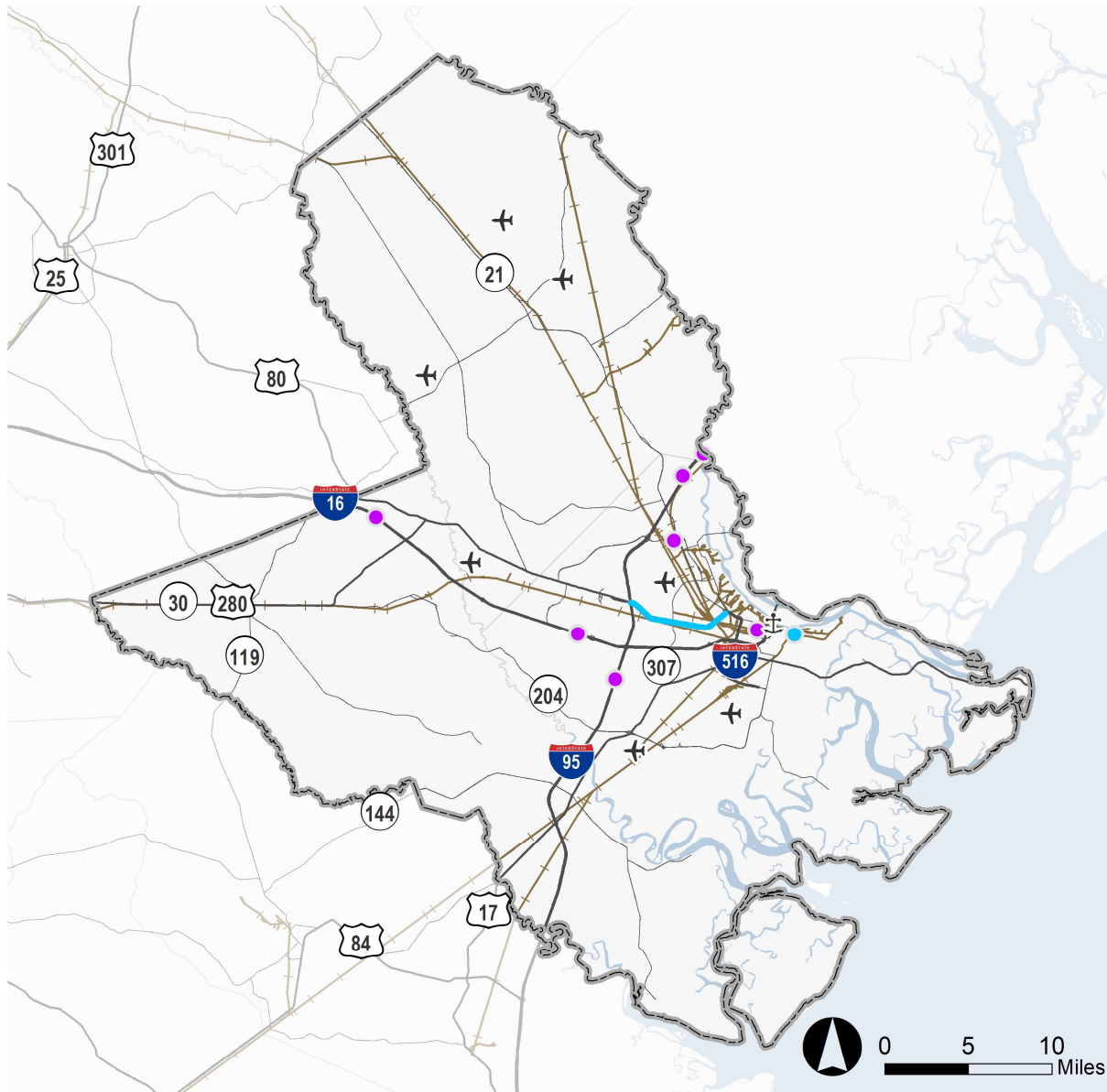
Some of the notable technology recommendations are briefly discussed below:

- Lathrop Ave. Over-Height Warning System.** In some instances, a truck may be operating without awareness of an upcoming potential hazard, such as a low overpass. Lack of awareness can result in crashes, damaged infrastructure, and can be a source of nonrecurring congestion if lanes or sections of roadway must be closed due to the errant vehicle. The CORE MPO and its local and state partners should install advanced warning systems at locations along the highway network with over-height or overweight hazards. A specific location to deploy an advanced warning system to alert over-height trucks

is at the intersection E. Lathrop Ave. and the Norfolk Southern rail line north of Louisville Rd. There is a low vertical clearance at this location and stakeholders indicated that trucks often get stuck and cause congestion on the surrounding roadway network. Additionally, this intersection is in an area targeted for freight equity improvements.

- **President Street At-Grade Crossing Dynamic Message Sign.** Just as lack of awareness of over-height and overweight hazards negatively impact the safety and efficiency of truck travel, so too does the lack of awareness of blocked crossings. In recent years, GDOT has deployed freight ITS solutions along Jimmy DeLoach Pkwy. and SR 21 that warn trucks to the presence of blocked rail crossings near the Port of Savannah. Having been documented as a challenge in the 2016 Regional Freight Transportation and included in the 2023 Chatham County T-SPLOST, the intersection of President Street and the Savannah & Old Fort Railroad (SVHO) is a well-known source of non-recurring congestion as the at-grade rail crossing is often blocked for extended periods of time. As a temporary solution, in partnership with GDOT and the City of Savannah Traffic Control Center the region should deploy a freight ITS solution including a dynamic message sign at this crossing to alert motorists and motor carriers that the crossing blocked. Over the long term, the region should continue with ongoing efforts for identifying feasible options for separating this crossing.
- **Truck Parking Availability System Pilot.** Partner with GDOT to conduct a truck parking availability system pilot project at the I-95 Southbound Georgia Welcome Center. Based on the outcomes of the pilot project, consider making the system permanent and expanding it to other facilities in the region.

FIGURE 4.9 TECHNOLOGY STRATEGIES TO ENHANCE FREIGHT OPERATIONS AND SAFETY



- Tier 1 Projects — Tier 1 Projects ⚓ Ports
- Tier 2 Projects — Tier 2 Projects ✈ Airports
- Tier 3 Projects — Tier 3 Projects — Railroads



Source: Cambridge Systematics.

Increase Access to Safe Truck Parking

Truck drivers need to park for different reasons and there are unique challenges for various types of parking needs. Drivers must adhere to Federal hours of service (HOS) regulations that place specific time limits on driving and rest intervals. Drivers almost always need to park and wait for delivery windows at shippers and receivers, and sometimes are impacted by unexpected road closures or congestion. Finally, truck drivers are essential workers, who need to take personal breaks for rest and safety.

Lack of authorized or designated truck parking results in drivers parked on shoulders, on-off ramps, and in the lots of neighboring businesses. Improving these conditions improves safety and operations not only for motor carriers, but also for the traveling public as they benefit from better visibility and roadway shoulders that are clear for emergency use. Because of these reasons, the CORE MPO and its state and regional partners should work to increase access to truck parking throughout the region.

Furthermore, the region should work to align future investments in the region's truck parking capacity with the state's alternative fuel corridors (AFCs). Heavy duty electric trucks offer significant greenhouse gas emissions reductions per mile compared to diesel vehicles. As discussed in section 3.4, AFCs comprise a national network of plug-in electric vehicle (EV) charging and hydrogen, propane, and natural gas fueling infrastructure along national highway system corridors.⁵⁴ Because of the time required to charge a heavy truck in the most economic manner, it makes sense to collocate truck parking with electric truck charging.

The strategies included in this recommendation category, discussed below, offer potential solutions for increasing access to truck parking throughout the region.

- Regional Truck Parking Demand Estimation Study.** Conduct a study to estimate the truck parking demand generated by new commercial and industrial developments. The FHWA Truck Parking Demand Estimation Tool may serve as the starting point.
- Incorporate Truck Parking into Traffic Impact Assessments.** Local governments within the CORE MPO region generally require traffic impact assessments for new developments. However, these processes do not always consider the specific transportation and truck parking needs generated by freight activity. Traffic impact assessment processes should be revised to include anticipated truck volumes at a site, the impacts of staging near the site, and the potential for truck parking demand generated farther from the site. The truck parking demand estimates generated from the revised traffic impact assessments can then be used to evaluate parking requirements for new freight-generating developments.
- Revise Planning Ordinances and Policies to include Truck Parking.** Several local governments in the region have regulations that generally prohibit truck parking in right-of-way and in certain areas (e.g., residential zones). Additionally, local ordinances routinely set employee and customer parking requirements for developments but do not include requirements for on-site truck parking and staging areas. Local governments throughout the region should revise planning ordinances to include on-site truck parking minimums. Notably, the City of Richmond Hill already has in its Unified Development Ordinance truck parking minimums for freight-generating developments.

⁵⁴ https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/index.cfm

- Incorporate Zero Emissions Fueling and Other Green Infrastructure into Truck Parking Facilities.** Though the technology to support heavy duty electric vehicles is not as advanced as other transportation sectors, the electrification of drayage vehicles which serve ports and intermodal terminals appears to have early traction. As a result, the CORE MPO region is an ideal candidate for alternative fuel charging given the presence of the Port of Savannah. The Bipartisan Infrastructure Law (BIL) provides funding to private industry, administered by the State, to deploy EV charging and hydrogen/propane/natural gas fueling infrastructure along designated AFCs. The CORE MPO, GDOT, and the Georgia Ports Authority (GPA) should consider partnering to submit a Charging and Fueling Infrastructure grant application to fund the development of a truck parking facility that offers alternative fuel charging.

Improve Freight Network Resiliency

Much of the region, and its multimodal freight network, is at risk to disruption from multiple hazards – namely sea level rise/coastal flooding, riverine flooding, and hurricanes. These hazards place several of the region’s major freight terminals at risk to disruption. For example, the Port of Savannah is the most significant freight asset in the region and the State. Its composite risk ranges from “low” to “very high” given the significant amount of land occupied by the port. The three major rail yards in the region are all in risk areas of at least “moderate” combined risk. Out of the 22 truck parking facilities in the region, half are under “very high” risk.

The strategies developed as part of this recommendation aim to help the region improve the resiliency of its multimodal freight network. Strategies include conducting a freight supply chain resilience study and implementing an action plan for handling freight disruptions, among others. Furthermore, both the American Association of State Highway and Transportation Officials (AASHTO) Center for Environmental Excellence⁵⁵ and the FHWA Office of Planning⁵⁶ offer resources that could help the CORE MPO to improve the region’s resiliency.

- Implement the Natural Resources Strategies Recommended in Plan 2040 – Chatham County-Savannah Comprehensive Plan.** The 2020 Update of the Plan 2040 – Chatham County-Savannah Comprehensive Plan put forth several recommendations to improve the resiliency of the CORE MPO region. For example, Plan 2040 recommended that funding be restored for the Chatham County



Source: Google Earth.

Resource Protection Commission which acted as a land acquisition program for the protection of high priority habitats. Such a program could be used to acquire and protect natural barriers to flooding, sea level rise, and other negative impacts of climate change. Plan 2040 also recommended that the CORE MPO develop a long-range regional plan for sea level rise that evaluates multiple adaptation and mitigation

methods with short, medium, and long-term goals for implementation. These and other

⁵⁵ <https://environment.transportation.org/>

⁵⁶ <https://www.fhwa.dot.gov/environment/sustainability/>

recommendations made as part of Plan 2040 should be the first step towards improving the region's resiliency to climate change and extreme weather events.

- Conduct an Engineering Informed Vulnerability Assessment for a Selection of Critical Freight Assets.** While the Regional Freight Transportation Plan Update performed a high-level, indicator-based review of resiliency for the multimodal freight network, the next step should be a detailed engineering vulnerability assessment for a selection of critical freight assets. As articulated in the FHWA Vulnerability Assessment and Adaptation Framework, engineering-informed adaptation studies are characterized by a greater level of asset specific data and analysis than a geographically broad assessment that considers multiple assets.⁵⁷ A detailed engineering vulnerability assessment evaluates risks to particular transportation assets in response to climate stressors. The resiliency analysis conducted as part of the Regional Freight Transportation Plan Update may be used as the basis for choosing the selection of freight assets for the more detailed engineering study. These assessments would help the CORE MPO anticipate the effectiveness of specific adaptation measures and their respective return on investment if adopted. Furthermore, this recommendation is consistent with Plan 2040 as it recommended that the region identify and prioritize critical transportation infrastructure according to projected sea level rise impacts for elevation and/or relocation.
- Supply Chain Resilience Study.** The region should conduct a freight supply chain resilience study to learn more about supply chains that are critical to bringing necessary products and services to the CORE MPO region and how these flows could be slowed or stopped in different situations. The study will analyze the elements of the freight supply chain in the region to identify: (1) the supply chains for critical goods or services; (2) potential effects on these supply chains from different disaster scenarios and disaster scenario combinations; and (3) levels of resiliency in critical freight supply chains. A key outcome of the study will be recommended actions to mitigate impacts and strengthen supply chain resilience.
- Implement Action Plan for Handling Disruptions to Freight Assets.** As a next step to the supply chain resilience study, the region should implement the action plan for handling supply chain disruptions as a set of policies for the region's freight system stakeholders and operators. The action plan would identify the entities as well as their roles and responsibilities for managing a supply chain disruption.

Though not presented explicitly as a resiliency strategy, it should be noted that the green infrastructure solutions proposed to mitigate community and environmental impacts would also benefit resiliency. For example, bioswales, planter boxes, street trees and other green infrastructure would improve the region's resiliency to flooding and climate change.

Mitigate Freight Impacts on Communities and the Environment

Compared to passenger travel, freight transportation has a higher marginal impact on surrounding communities. This is because of freight transportation's contribution to increased noise, higher emissions, reduced safety (as crash outcomes are typically more severe), infrastructure degradation, and often reduced mobility and accessibility (as freight corridors can act as physical barriers) for the communities adjacent to freight assets. Advancing transportation equity within a freight context is challenging. The benefits of freight are diffuse as they are broadly distributed across geography and stakeholders. Meanwhile, the burdens of

⁵⁷ Federal Highway Administration, Vulnerability Assessment and Adaptation Framework, 3rd ed., December 2017, https://www.fhwa.dot.gov/environment/sustainability/resilience/adaptation_framework/climate_adaptation.pdf.

freight tend to be localized and disproportionately borne by communities adjacent to freight assets. The strategies discussed below focus on providing freight-related benefits to burdened communities while mitigating or avoiding negative impacts.

- Adopt and Track Freight Equity Indicators.** This strategy defines a set of freight equity indicators that may be tracked over time. Indicators developed in this report include those related to congestion and reliability, freight activity, and safety. By tracking how indicators of freight equity change over time, the region can better identify where its efforts need to be focused and proactively address freight transportation equity concerns. It will also allow the region to gauge how well current efforts are performing.
- Develop a Freight Equity Analysis and Screening Tool.** This strategy focuses on developing tools for addressing freight equity. For example, the North Jersey Transportation Planning Authority (NJTPA) and the Delaware Valley Regional Planning Commission (DVRPC) employ tools for identifying traditionally underserved populations to aid agency staff and partner agencies in considering equity in their planning and project development processes. LA Metro developed a Rapid Equity Assessment Tool to assist agency staff in identifying and prioritizing equity opportunities. The screening tool consists of a set of questions to be asked and answered before a transportation decision is made. The development and deployment of equity analysis and evaluation screening tools can help the region proactively address freight transportation equity concerns.
- Partner with Chatham Area Transit (CAT) to Incorporate Industrial Hubs into the Transit Strategy.** Under this strategy, the CORE MPO would partner with CAT to include industrial employment centers in the region's transit strategy. Options may include fixed route service, vanpools, and on-demand transit services. The inclusion of industrial employment hubs advances freight equity in the region by connecting residents of Historically Disadvantaged communities to employment opportunities.
- Install Green Infrastructure along Freight Routes and in Industrial Hubs.** This strategy would incorporate green infrastructure such as bioswales, planter boxes, and street trees into freight corridors to help filter roadway surface pollutants from stormwater runoff before they enter water bodies. They also generally serve as another layer of flooding control for freight corridors. Green infrastructure can also help to preserve existing, aging gray infrastructure (e.g., curbs, gutters, pipes) as green infrastructure would divert some stormwater before it enters those systems. While this recommendation is shown as a policy strategy, if the region identifies a corridor for deploying green infrastructure and moves forward with implementation, the project would be eligible for federal funding under the PROTECT Program.

GDOT GREEN INFRASTRUCTURE ON I-20



Source: GDOT; City of Atlanta Department of Watershed Management.

- **Estimate and Monitor Transportation Emissions to Support Mobility 2045 Environmental Goals.**

Two key environmental objectives from Mobility 2045 were to reduce emissions and energy consumption. To support these objectives, the CORE MPO should consider estimating and monitoring transportation emissions on a periodic basis. This would allow the CORE MPO to periodically assess and (as necessary) adjust its initiatives to reduce vehicle-miles traveled, thereby reducing transportation emissions. The Drawdown Georgia Project is a statewide initiative consisting of partners from the philanthropic/non-profit sector, public sector, education, and the private sector whose goal is to accelerate progress toward net zero greenhouse gas emissions.⁵⁸ As part of this initiative, the Drawdown Georgia Project created the Georgia GHG Emissions Tracker⁵⁹ which estimates and monitors GHG emissions at the county level. This tool could serve as the basis for the CORE MPO to develop its own tool for monitoring transportation emissions in the region.

Integrate Freight Considerations into Land Use Planning

The rapid pace of land development in the CORE MPO region and the significant extent to which much of this ongoing and future development is likely to be freight-intensive in nature requires an evolving approach to land-use policymaking. To be successful in accommodating continued economic development while supporting the quality of life of its residents, this approach must holistically consider the ways in which freight transportation impacts the region while bringing stakeholders to the table to advance strategies to mitigate these impacts. To meet this need, the RFTP recommends that the region adopt a Freight-Efficient Land Use (FELU) approach to land use policies and practices. The driving goal of FELU policies are to reduce conflicts between freight and non-freight uses in a region while supporting freight-intensive uses as an important avenue for future regional economic growth and development.

FELUs are governed by five principles:

1. **Minimize the private and external costs of supply chains and their stages.** This includes considering not just the impacts on the region of large-scale freight operations, such as the Port of Savannah, but also smaller freight operations that support these larger users further down the supply chain.
2. **Reduce the distance traveled at supply chain stages, upstream and downstream.** This principle emphasizes the importance of limiting truck vehicle miles traveled between various freight traffic generators, such as warehouses and the manufacturing facilities they supply, to avoid adding unnecessary truck traffic to local and regional roadways.
3. **Mitigate or eliminate the externalities at supply chain nodes and Large Traffic Generators (LTGs).** This recognizes the specific impacts that the largest freight facilities, such as the Port of Savannah and the forthcoming Hyundai Metaplant, have on the surrounding communities and calls for addressing these impacts through thoughtful mitigation measures.

⁵⁸ <https://www.drawdownga.org/about-us/>

⁵⁹ <https://drawdownga.gatech.edu/docs/>

4. **Recognize and account for local conditions.** Mitigation measures for freight impacts should be tailored to the communities in which they are implemented, responding to the needs of each community.
5. **Engage all stakeholders.** Freight planning efforts should proceed in partnership with all key parties, including both freight users and local community members, to ensure policies and plans reflect the goals of all stakeholders.

The Regional Freight Transportation Plan Update proposes a range of policy and programmatic solutions to guide freight-intensive land uses such that the region continues to reap the economic benefits from freight-intensive industries while mitigating their impacts. There are three major themes under which the land use recommendations are organized:

1. Update Land Use Strategies Utilizing FELU Principles
2. New Regional Approaches to Planning
3. Proactive Policymaking to Anticipate Emerging Needs

These recommendations are discussed in further detail below.

- **Update Land Use Strategies Using FELU Principles.** The first group of recommendations aims to reconsider the land-use strategies recommended in the prior RFTP by viewing them through the lens of Freight Efficient Land Use principles while updating them to reflect changing regional conditions.
 - **Support Freight-Intensive Use Clustering, Infilling, and Right-of-Way Reservation.** Support infill development at existing freight clusters and promote the reuse or redevelopment of legacy freight facilities to meet emerging needs. In this context, infill development means locating new freight-intensive uses on sites that are adjacent to or near existing freight users. This strategy should take priority over greenfield development of major freight-generating facilities – development of freight-intensive uses on previously undeveloped sites far from existing freight users – and should emphasize the need to retain existing land for freight-intensive uses given the projected future demand for these uses.

Regulations make it difficult to proactively bank land (i.e., purchase land and prohibit condemnations) unless there is a programmed project that is underway. Alternatively, as part of new developments the region should require reserved right of way that developers must not build on, that state and local partners can purchase at a later date for purposes of making transportation network improvements. The creation or expansion of freight clusters should happen only where significant freight transportation capacity already exists, such as along major highways, interstates, and rail lines. Where direct rail access does not exist, the feasibility of creating dedicated rail spurs to serve especially freight-intensive clusters should be explored.

- **Discourage Greenfield Freight Development Except for Specific Strategic Sites.** This strategy recommends that the CORE MPO and its state and regional partners discourage greenfield freight-generating developments except for strategic sites that have direct rail and interstate access. Additionally, where greenfield development occurs, uses that directly support each other (e.g., the Hyundai Metaplant and its regional parts suppliers) should be co-located rather dispersed across greenfield sites throughout the region. Such a strategy has the potential to limit truck vehicle-miles traveled (thereby reducing emissions and congestion). Several recommendations in Plan 2040 are

consistent with, and mutually supportive of, this recommendation. For example, Plan 2040 recommended the implementation more stringent development standards to conserve undeveloped land and preserve open space areas to improve the region's resiliency and guard it against the impacts of climate change.

Greenfield development without significant strategic value should be discouraged, especially for isolated freight-intensive users that have the potential to be sited at infill, redevelopment, or brownfield sites within existing freight clusters. Generally, cities and counties use growth management policies to discourage greenfield development and direct development to more appropriate sites. Growth management policies are implemented through regulatory tools such as design standards, comprehensive plans, zoning ordinances (that are ideally aligned with comprehensive plans), and development exactions, among others. For example, revised subdivision regulations are a useful tool as they strengthen existing regulations to require governments to adopt a structured process for considering impacts on the natural environment and wildlife habitats before land is allowed to be subdivided. Often, the subdivision of a large tract of land is one of the first steps in the development of a greenfield site.



Source: Georgia Ports Authority.

Another tool to discourage greenfield development is a transfer of development rights (TDR) program. Transfer of Development Rights (TDR) programs use zoning to allow owners of land in areas to be preserved (i.e., "sending districts") to sever the development rights from their property and transfer those rights to owners of property located in areas where higher intensity development is encouraged (i.e., "receiving districts"). Essential components of a TDR program include a designated preservation area (sending zone), a designated growth area (receiving zone), development rights that can be severed from the land, and a procedure for transferring development rights between properties. The Cities of Milton⁶⁰ and Madison⁶¹, GA are examples of areas that have implemented TDR programs to discourage greenfield development of valuable farmland, habitat, and environmentally sensitive land while encouraging growth in the areas suitable for denser development.

- **New Regional Approaches to Planning.** The second group of recommendations encourages the region to move beyond existing processes and methods to create a toolbox that positions the region to address the pressing needs resulting more fully from increasing freight-intensive development.

⁶⁰ [https://www.miltonga.gov/government/community-development/land-conservation/transfer-of-development-rights-program#:~:text=Transfer%20of%20Development%20Rights%20\(TDR\)&text=The%20program%20allows%20landowners%20the,a%20different%20parcel%20of%20land.](https://www.miltonga.gov/government/community-development/land-conservation/transfer-of-development-rights-program#:~:text=Transfer%20of%20Development%20Rights%20(TDR)&text=The%20program%20allows%20landowners%20the,a%20different%20parcel%20of%20land.)

⁶¹ <https://www.madisonga.com/626/Transfer-of-Development-Rights-TDR-Progr>

- **Develop a Freight-Efficient Land Use (FELU) Plan.** The development of a FELU plan is foundational for advancing planning in the region at the intersection of land use and freight transportation. A FELU plan should outline a long-run vision and set of goals for the region that guide land use in a way that improves freight efficiency. It should provide a framework for the region to navigate freight-related land use challenges in a way that is adaptable to changing future conditions. Furthermore, it should provide a set of solutions that advance freight-efficient land uses in the region.
- **Encourage Consistent Land Use Categories.** Consistent land use categories at the county and municipal level would allow for more effective and coordinated land use planning across the region. Importantly, new land use categories should account for traditional freight-generating land use categories, such as industrial, and also non-traditional categories such as retail, accommodations, and food services uses. Future land use planning in the region should more fully recognize these non-traditional freight-generating land uses as important parts of the freight ecosystem and ensure that zoning codes reflect the impacts of these uses by appropriately siting and regulating them. Without a standardized approach to categorizing and regulating freight-intensive land uses in the region, planning for these uses across the three-county area will continue to be burdened by a patchwork of approaches that do not adequately communicate with or complement each other.
- **Proactive Policymaking to Anticipate Emerging Needs.** The third and final group of recommendations seeks to anticipate the future demands that freight-intensive land uses will place on the region's transportation system and consider ways in which these stressors might be mitigated through proactive land-use policymaking.
 - **Study the Impacts of Potential Industrial Expansion into South Carolina.** With increased freight-related development in the study area as well as the planned Georgia Ports Authority development of new facilities on Hutchinson Island, there is potential for freight-oriented growth to begin to shift into Jasper County, South Carolina - particularly along I-95 and US 17. The region should be proactive and perform a study of the potential land use and traffic impacts of increased industrial growth in this area on the CORE MPO region.
 - **Encourage Community Improvement Districts to Support Freight Operations and Address Challenges in Freight Clusters.** Foster the creation community improvement districts (CID) centered on freight clusters to create a mechanism for freight-intensive users to fund improvements to regional infrastructure and to mitigate impacts to surrounding communities. In addition to providing a new funding stream, CIDs provide a path for implementing freight system improvements faster while giving freight users a more prominent seat at the table in prioritizing such projects. Example uses of these funds could be to improve buffers between freight-intensive and other land uses, maintain roadways, and invest in safety-related infrastructure at locations with high numbers of truck-involved crashes.

4.3 Potential Funding Sources

Transportation funding for projects in the region can come from a number of sources including federal programs, state programs, and funds raised locally within the region. Importantly, in November 2022 the Infrastructure Investment and Jobs (IIJA) Act was passed which authorized multiple new formula and discretionary transportation funding programs for fiscal years 2022 through 2026. This section of the report discusses the funding opportunities available to the region for implementing the recommendations discussed earlier.

Federal Funding Sources

Federal Formula Funding

Federal formula funding programs allocate funding to recipients based on formulas set by Congress. USDOT distributes these funds states, federally recognized tribal entities, and transit agencies. Those funds are then further allocated to counties, cities, and other localities. Federal formula programs that are relevant to the Regional Freight Transportation Plan include the National Highway Freight Program (NHFP), National Highway Performance Program (NHPP), and the Surface Transportation Block Grant Program (STBG).

Formula funds are distributed across Georgia by Congressional District and are allocated proportional to population.⁶² Funding is divided between MPO and non-MPO areas. For projects to be eligible for federal formula funding, they must be included in the Transportation Improvement Program (TIP). Additionally, most federal formula funding requires matching funds (typically at least 20 percent of the project cost) from state, local, or private sources.

Furthermore, Georgia sets aside a portion of federal formula funding for eleven groups of projects that do not substantially increase roadway capacity – Lump Sum funding. The Lump Sum projects program is intended to allow the State and MPOs to address projects of immediate concern while fulfilling the requirements of the Statewide Transportation Improvement Program (STIP). Funds are set up in lump sum banks to undertake improvements that emerge and are developed after the STIP is approved. Projects must be included in the STIP to be eligible for Lump Sum funding. Table 4.2 summarizes the lump sum funding programs. Several of these programs are relevant for the recommendations proposed in Chapter 3.

TABLE 4.2 LUMP SUM FUNDING PROGRAMS

Lump Sum Program	Description
Transportation Enhance Program	Non-traditional projects that strengthen the cultural, aesthetic, and environmental aspects of the intermodal transportation system
Transportation Alternatives Program	Non-motorized transportation improvements including pedestrian and bicycle facilities, environmental mitigation, and safe routes to school among others
Maintenance	Roadway and bridge resurfacing, preservation, and rehabilitation
Lighting	Projects that install new or upgraded lighting systems
Rights-of-Way – Protective Buying and Hardship Acquisitions	Acquisition of ROW for future projects that are in jeopardy of development
Safety	Projects that improve rail crossing or roadway safety
Operations	Projects that provide traffic signal upgrades or operational improvements at intersections and interchanges
Wetland Mitigation	Wetland enhancement, restoration, or preservation
Low Impact Bridges	Projects that minimize the impact of bridges and streamline their delivery
Freight Operations	Projects that improve roads and bridges heavily traversed by trucks, address safety issues, and enhance the efficiency of freight movements
Rural Development	Safety and broadband improvements in rural areas

⁶² Georgia Department of Transportation, Statewide Transportation Improvement Program: FY 2021-2024, https://www.dot.ga.gov/InvestSmart/STIP/FY21-24/DRAFTSTIP-FY21-24_v2.pdf

Source: Cambridge Systematics.

National Highway Performance Program (NHPP)

The Infrastructure Investment and Jobs (IIJA) Act continues the NHPP which was initially established under MAP-21 and continued under the FAST Act. The NHPP provides support for the condition and performance of the National Highway System (NHS) – which includes the interstate system, principal arterials, intermodal connectors for motor vehicles, and highways important to U.S. defense (STRAHNET) – and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan. As such, funds from this source can be put towards either new facilities or maintenance of existing facilities, with an emphasis on ensuring that performance measures on NHS roadways are met (pavement quality, bridge, quality, etc.). The NHPP is also intended to provide support for activities to increase the resiliency of the NHS to sea level rise, extreme weather events, flooding, wildfires, or other natural disasters. For fiscal years 2022 – 2026, NHPP funds are projected to be over \$4.8 billion for Georgia.⁶³

Surface Transportation Block Grant (STBG)

The Surface Transportation Block Grant (STBG) program has the most flexible eligibilities among all Federal-aid highway programs. In fiscal years 2022-2026, there is projected to be over \$2.3 billion for Georgia.⁶⁴ There are fewer limitations on these funds as they can be applied to any project that satisfies any number of categories such as bridge and tunnel, pedestrian and bicycle, transit capital, and federal-aid highways. In general, funds from the STBG program may not be applied to local roads or rural minor collectors. Exceptions to that rule that may impact the region include projects that include, among others, infrastructure-based ITS capital improvements, truck parking facilities, and electric vehicle charging infrastructure.⁶⁵

Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program (HSIP) is another of the Federal-aid highway programs. It focuses on projects that improve safety on all public roads. This program is projected to have nearly \$507million for Georgia for fiscal years 2022-2026.⁶⁶ Alongside this program, each state must create performance measures for the upcoming year that relate to:

- The number of fatalities;
- The number of serious injuries;
- Fatality rate per hundred million vehicle miles traveled;
- Serious injury rate per hundred million vehicle miles traveled; and
- The number of non-motorized fatalities and serious injuries.

⁶³ Federal Highway Administration, Bipartisan Infrastructure Law – Funding, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/funding.cfm>, Accessed 8/20/2023.

⁶⁴ Ibid.

⁶⁵ Federal Highway Administration, Surface Transportation Block Grant Program Implementation Guidance, June 1, 2022, https://www.fhwa.dot.gov/specialfunding/stp/bil_stbg_implementation_guidance-05_25_22.pdf

⁶⁶ Federal Highway Administration, Bipartisan Infrastructure Law – Funding, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/funding.cfm>, Accessed 8/20/2023.

Funds from the HSIP must be directed to projects that help the state meet these performance measures. In addition, projects must be consistent with each state's Strategic Highway Safety Plan (SHSP).⁶⁷ HSIP funds represent an opportunity for implementing safety improvements in the region, especially for freight corridors with relatively high crash rates and severe outcomes.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

The Congestion Mitigation and Air Quality (CMAQ) Program is a Federal-aid program that may be used for projects that improve congestion and air quality within a state. Within each state, extra money is apportioned to non-attainment areas which are defined as those areas that do not meet Federal standards for air quality due to levels of particulate matter, ozone, or other pollutants. As the CORE MPO region is within attainment of Federal standards, it currently cannot access these funds. However, CMAQ is still included as a potential funding source in the event that the region's attainment status changes.

Potential projects eligible for CMAQ funds include intelligent transportation systems, bicycle and pedestrian facilities, transit improvements, travel demand management programs, idle reduction/advanced truck technology programs, among others. In fiscal years 2022-2026, Georgia is projected to receive over \$385 million in CMAQ dollars.⁶⁸ The IIJA continued all prior CMAQ eligibilities and added four new eligibilities, two of which are potentially relevant to the Regional Freight Transportation Plan.⁶⁹ It added the purchase of diesel replacements, or medium-duty or heavy-duty zero emission vehicles and related charging equipment, as an eligible project. Also, IIJA added vehicle refueling infrastructure projects that would reduce emissions from nonroad vehicles and nonroad engines used in construction projects or port-related freight operations.

Transportation Alternatives (TA)

The Transportation Alternatives Set-Aside is a subset of the Surface Transportation Block Grant Program that provides money for transportation alternatives, such as pedestrian/bicycle facilities, streetscapes, safe routes to school, vulnerable road user safety assessments, and other smaller-scale transportation projects. Though this federal funding program is generally less relevant for freight-oriented projects, it can be an important source of funding for safety and active transportation improvements on corridors that are shared by freight and other roadway users. For fiscal years 2022-2026, approximately \$135 million will be allocated to Georgia from this program.⁷⁰ Federal regulations require state DOTs or MPOs to administer Transportation Alternatives funds through a competitive process.⁷¹

National Highway Freight Program (NHFP)

The IIJA Act continues the National Highway Freight Program, which was established under the FAST Act. The purpose of the National Highway Freight Program is to improve the efficient movement of freight on the National Highway Freight Network (NHFN) and support several goals, including:

⁶⁷ Federal Highway Administration, Highway Safety Improvement Program Fact Sheet, February 8, 2022, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/hsip.cfm>

⁶⁸ Federal Highway Administration, Bipartisan Infrastructure Law – Funding, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/funding.cfm>, Accessed 8/20/2023.

⁶⁹ Federal Highway Administration, Congestion Mitigation and Air Quality Improvement Program Fact Sheet, February 8, 2022, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/cmaq.cfm>

⁷⁰ Georgia Department of Transportation, Statewide Transportation Improvement Program: FY 2021-2024, Hwy Table 2, https://www.dot.ga.gov/InvestSmart/STIP/FY21-24/DRAFTSTIP-FY21-24_v2.pdf

⁷¹ Federal Highway Administration, Transportation Alternatives Program Fact Sheet, February 8, 2022, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/ta.cfm>

- Investing in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity;
- Improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas.
- Improving the state of good repair of the NHFN.
- Using innovation and advanced technology to improve NHFN safety, efficiency, and reliability.
- Improving the efficiency and productivity of the NHFN.
- Improving State flexibility to support multi-State corridor planning and address highway freight connectivity.
- Reducing the environmental impacts of freight movement on the NHFN.

Generally, NHFP funds must contribute to the efficient movement of freight on the NHFN and be identified in a freight investment plan included in the State's freight plan. For fiscal years 2022 – 2026, NHFP funds are projected to be over \$233 million for Georgia.⁷²

Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) Formula Funding and Discretionary Grant Program

The PROTECT Program provides both formula funds and discretionary funds via a competitive grant program. It funds projects that address the climate crisis by improving the resilience of the surface transportation system, including highways, public transportation, ports, and intercity passenger rail.⁷³ Projects selected under this program should support the continued operation or rapid recovery of crucial local, regional, or national surface transportation facilities. Furthermore, projects funded under this program should utilize innovative and collaborative approaches to risk reduction, including the use of natural infrastructure strategies. Natural infrastructure strategies are those that use conservation, restoration, or construction of marshes, wetlands, native vegetation, stormwater bioswales, and other riparian and streambed treatments to reduce flood risks, erosion, and heat impacts among other benefits. For fiscal years 2022 – 2025, PROTECT formula funds are projected to be nearly \$240 million for Georgia.⁷⁴

Other Federal Formula Funding Programs

Other federal formula funding programs that are potentially relevant to the Regional Freight Transportation Plan are summarized in Table 4.3. These programs tend to be less relevant for freight projects, or generally provide far fewer funds than those discussed in the previous section. However, they are potential sources of funding for the Regional Freight Transportation Plan recommendations.

⁷² Federal Highway Administration, Bipartisan Infrastructure Law – Funding, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/funding.cfm>, Accessed 8/20/2023.

⁷³ <https://www.fhwa.dot.gov/environment/protect/discretionary/>

⁷⁴ Federal Highway Administration, Bipartisan Infrastructure Law – Funding, <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/funding.cfm>, Accessed 8/20/2023.

TABLE 4.3 SUMMARY OF OTHER FEDERAL FORMULA FUNDING PROGRAMS

Federal Formula Funding Program	Description
Carbon Reduction Program	Aimed to reduce transportation emissions, eligible projects establish or operate traffic monitoring, management, and control facility or program.
National Electric Vehicle Infrastructure Program	This program makes available funding to deploy charging facilities and establish an interconnected network to facilitate data collection.
Railway-Highway Crossings Program (RHCP)	This is a set aside from HSIP and provides funds for safety improvements to reduce the number of fatalities, injuries, and crashes at public railway-highway grade crossings.

Source: Cambridge Systematics.

Federal Discretionary Grant Funding

Discretionary grant funding is federal funding that is provided on a competitive basis upon a call for projects (i.e., a Notice of Funding Opportunity or NOFO). Projects must compete for funds with discretionary grant programs, requiring applicants to use all the data, tools, and resources available to make their most compelling cases for selecting their project. As such, pursuing a federal discretionary grant can be resource-intensive with states and MPOs typically reserving such pursuits for the highest priority projects with broad support. Federal discretionary grant programs that are potential funding sources for projects are discussed in the remainder of this section. Note that this discussion does not provide an exhaustive list of all federal discretionary grant programs, but instead focuses on those that are most relevant for the Regional Freight Transportation Plan.

Nationally Significant Multimodal Freight and Highway Projects Program (INFRA)

The Nationally Significant Multimodal Freight and Highway Projects (INFRA) Grants Program is a federally funded competitive grant program for multimodal freight and highway projects of national or regional significance to improve the safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas. The minimum grant size is \$5 million. Key competitiveness factors for a project include its economic vitality, its leverage (with special attention given to public-private partnerships), its innovation, and its performance. Relevant to the Regional Freight Transportation Plan, eligible projects include those on the National Highway Freight Network or National Multimodal Freight Network, projects at railway-highway grade crossings, or freight intermodal projects.⁷⁵

National Infrastructure Project Assistance (MEGA) Grant Program

The MEGA Program (the National Infrastructure Project Assistance program) supports large, complex projects that are difficult to fund by other means and likely to generate national or regional economic, mobility, or safety benefits.⁷⁶ Eligible projects include:

- A highway or bridge project on the National Multimodal Freight Network.
- A highway or bridge project on the National Highway Freight Network.

⁷⁵ <https://www.transportation.gov/grants/infra-grant-program>

⁷⁶ <https://www.transportation.gov/grants/mega-grant-program>

- A highway or bridge project on the National Highway System.
- A freight intermodal (including public ports) or freight rail project that provides public benefit.
- A railway highway grade separation or elimination project.
- An intercity passenger rail project.
- A public transportation project that is eligible under assistance under Chapter 53 of title 49 and is a part of any of the project types described above.

Rural Surface Transportation Grant Program (RSTP)

The Rural Surface Transportation Grant Program supports projects that improve and expand the surface transportation infrastructure in rural areas to increase connectivity, improve the safety and reliability of the movement of people and freight, and generate regional economic growth and improve quality of life.⁷⁷

Eligible projects include:

- A highway, bridge, or tunnel project eligible under National Highway Performance Program.
- A highway, bridge, or tunnel project eligible under Surface Transportation Block Grant.
- A highway, bridge, or tunnel project eligible under Tribal Transportation Program.
- A highway freight project eligible under National Highway Freight Program.
- A highway safety improvement project, including a project to improve a high-risk rural road as defined by the Highway Safety Improvement Program.
- A project on a publicly owned highway or bridge that provides or increases access to an agricultural, commercial, energy, or intermodal facility that supports the economy of a rural area.
- A project to develop, establish, or maintain an integrated mobility management system, a transportation demand management system, or on-demand mobility services.

Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Program

The RAISE Program, previously known as Better Utilizing Investments to Leverage Development (BUILD) Program, is a federally funded competitive grant program.⁷⁸ In 2023, the program gave out more than \$2.2 billion worth of grants to 162 different transportation infrastructure projects. In comparison to the INFRA program, RAISE program grants can generally be used to fund a wider variety of projects. Criteria that are used to evaluate projects include safety, economic competitiveness, environmental sustainability, quality of life, and innovation.

⁷⁷ <https://www.transportation.gov/grants/rural-surface-transportation-grant-program>

⁷⁸ <https://www.transportation.gov/RAISEgrants>

Railroad Crossing Elimination (RCE) Grant Program

This program is administered through the Federal Railroad Administration and provides funding for highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods. Specifically, eligible projects include:

- Grade separation or closure, including through the use of a bridge, embankment, tunnel, or combination thereof;
- Track relocation;
- Improvement or installation of protective devices, signals, signs, or other;
- Measures to improve safety related to a separation, closure, or track relocation project;
- Other means to improve the safety if related to the mobility of people and goods at highway-rail grade crossings (including technological solutions);
- The planning, environmental review, and design of an eligible project type.

Chatham County received funding from the RCE Program in fiscal year 2022 for planning and project development for a track relocation and one grade separation near the Port of Savannah. Given the prevalence of at-grade crossings throughout the region, this discretionary funding program is especially relevant for the region.

Innovative Technology Deployment (ITD) Program

The ITD Program (formerly known as CVISN) provides an additional funding source for truck parking projects through the Federal Motor Carrier Safety Administration High-Priority—ITD Grant. Historically, the ITD Program has focused on commercial vehicle enforcement with funds supporting three deployment areas: electronic credentialing, safety information exchange, and electronic screening. The FY2018, 2019, and 2020 grant cycles highlight truck parking as a priority project area for States that have achieved Core Compliance in the Program.²⁰ Projects should demonstrate real-time truck parking availability information dissemination to drivers using dynamic message signs, interactive voice recognition, smartphone applications, or other proven technology. Projects are funded at an 85 percent Federal/15 percent State match level. Washington DOT's Traffic Operations Division, in collaboration with the University of Washington STAR Lab, received a \$2.3M ITD grant in 2021 to deploy TPIMS at existing weigh stations and rest areas along I-5 and I-90 (470 stalls at 28 locations).

State Funding Sources

State Motor Fuel Tax and State Bonds

The largest state source of funding for transportation improvement projects in Georgia is from taxes on fuel and state-issued bonds. For fiscal years 2021-2024, the State is projected to have approximately \$2.91 billion available from these sources.⁷⁹ This money is only eligible to be spent on road and bridge projects, per the constitution of Georgia. GDOT programs such as the Local Maintenance and Improvement Grant

⁷⁹ Georgia Department of Transportation, Statewide Transportation Improvement Program: FY 2021-2024, Hwy Table 2, https://www.dot.ga.gov/InvestSmart/STIP/FY21-24/DRAFTSTIP-FY21-24_v2.pdf

(LMIG) Program and the Quick Response Project Program are examples of funding sources for the maintenance of local and state roads. Additionally, a large portion of state motor fuel taxes are used to provide matching funds required for accessing federal funding sources.

Georgia Transportation Infrastructure Bank (GTIB)

The Georgia Transportation Infrastructure Bank is a program that provides grants and low-interest loans for transportation projects.⁸⁰ It is run by the State Road & Tollway Authority (SRTA) and the funds generally come from the state motor fuel tax, so projects submitted must be related to roads and bridges. Up to \$14.5 million in funds will be awarded in 2023. Applications are evaluated based on the following criteria:

- **Transportation Merit:** Projects that advance a clear transportation need, produce a strong public benefit, and improve mobility, congestion, connectivity, system efficiency and/or safety.
- **Project Specifics:** Projects that provide a higher degree of non-state matching funds and projects that are close to and/or at the construction phase of the project.
- **Economic Merit:** Projects that provide direct economic benefits to the local community, region and/or state and may include a reduction in unemployment, attraction of new business to the state, growth in private-sector employment, and/or improved access to jobs.

Local and County Funding Sources

Special-Purpose Local-Option Sales Tax

Special-Purpose Local-Option Sales Taxes (SPLOST) have been utilized in the region since 1985. A SPLOST is an optional one percent county sales tax used to fund capital outlay projects proposed by the county government and participating qualified municipal governments.⁸¹ In general, county and municipal governments may not use SPLOST proceeds for operating expenses or maintenance of a SPLOST project or any other county or municipal facility or service. Furthermore, SPLOST referendums require a pre-approved project list on which to vote. Bryan, Chatham, and Effingham Counties have passed SPLOST referendums over the years.

County and local governments may choose to dedicate a SPLOST to a particular type of capital outlay project such as education or transportation. When a SPLOST is dedicated to transportation, a so-called T-SPLOST, revenue generated from the sales tax goes toward transportation-related projects including bridges, resurfacings, intersections, road widenings, sidewalks, and more. The most recent T-SPLOST referendum in Chatham County did not pass, but both Bryan and Effingham Counties have recently passed T-SPLOST referendums that are still ongoing. A SPLOST or T-SPLOST can be a critical funding source for the local match required of federally funded projects.

Community Improvement Districts

Community Improvement Districts (CIDs) represent a new transportation funding opportunity for the region. CIDs are special purpose, autonomous, nonprofit, public-private partnerships with the power to self-tax

⁸⁰ <https://srta.ga.gov/gtib/>

⁸¹ Association of County Commissioners of Georgia, *Special Purpose Local Option Sales Tax: A Guide for County Officials*, 6th ed., <https://www.accg.org/library/legal/SPLOST%202016.pdf>

industrial and commercial property owners within their districts and pool those funds for public improvement projects (e.g., roadway capacity or operations, active transportation infrastructure, beautification, public safety, etc.).⁸² CIDs are created under the authority of the Constitution of Georgia. To create a CID, there must be an enabling act by the city or county where it is located. A petition must be signed by a majority of property owners representing at least 75 percent of the property value and a map must be drawn up of the proposed district. Next, the city or county must pass a resolution approving the creation of the CID. Once a CID is formed, it sets the fees for commercial properties in the district which are usually between three and five mills (\$3 to \$5 per \$1,000 of appraised property value). Fees are collected with regular property tax payments by the tax commissioner who then sends them to the CID. Single-family and multifamily residential properties, as well as tax-exempt properties, are exempt from CID fees.

The CID model provides significant resources for advancing transportation priorities as they are often more flexible and nimbler than local governments working alone. CIDs allow private commercial property owners to self-invest in transportation and other projects that are most important to the local community.⁸³ Additionally, CIDs are often successful in attracting outside investment. It was estimated that that on average, for every dollar spent by CIDs, five more dollars are leveraged in outside funding.⁸⁴ CIDs also provide mechanisms to receive grants and matching funding from state and federal agencies to support development initiatives as well as provide local matching funds for federally funded projects.

4.4 Other Action Steps

Identifying essential stakeholders, determining project lead/sponsor agencies, and identifying potential funding sources are critical items for implementing the recommendations presented in sections 3.1 to 3.8. However, there are other action steps that the region should take to begin advancing these recommendations. Those action items for each recommendation category are discussed below.

Advance Strategic Expansions to Capacity and Proactively Increase Network Connectivity in Emerging Freight Clusters

1. Add high-ranking projects within the MPO's boundaries to the transportation improvement program (TIP). For all high-ranking projects, inside or outside MPO boundaries, coordinate with the region's counties to add those projects to the next SPLOST.
2. Begin positioning high-priority projects for competitive grant and other funding. This includes gathering support from local and state officials, using travel demand or other modeling tools (as appropriate) to develop detailed estimates of projects' transportation impacts, and conducting benefit-cost analyses.
3. For new developments, require developers to include reserved right-of-way for capacity and network expansions, especially in areas with substantial development activity. Reserved right-of-way cannot be built upon, and local governments preserve the option to purchase the land at a later date for purposes of network expansion.

Implement Operational Strategies to Enhance Freight Mobility and Safety

⁸² https://www.fhwa.dot.gov/ipd/pdfs/value_capture/strategies_in_practice/ga_community_improvement_districts.pdf

⁸³ <https://www.raineyandvaughan.com/community-improvement-districts.html>

⁸⁴ Center for Quality Growth & Regional Development, Georgia Institute of Technology; Lexicon Strategies. *Ready for the Smart(er) City: How Community Improvement Districts (CIDs) are Building the Future*. February 2021.

1. Add high-ranking projects within the MPO's boundaries to the TIP. For all high-ranking projects, inside or outside MPO boundaries, coordinate with the region's counties to add those projects to the next SPLOST.
2. Begin positioning for competitive grant and other funding. This includes gathering support from local and state officials, using travel demand or other modeling tools (as appropriate) to develop detailed estimates of projects' transportation impacts, and conducting benefit-cost analyses.
3. For intersections and corridors requiring further study to address their safety and operational challenges, begin drafting scopes of work detailing the study areas and specific tasks that should be performed. Additionally, prioritize locations for intersection studies, corridor studies, and road safety audits.

Support Increased Capacity, Enhanced Operations, and Safety on the Multimodal Freight Network

1. Reach out to the railroads, Savannah-Hilton Head International Airport, and the Port of Savannah to discuss how the region can support landside access issues and help advance multimodal initiatives that alleviate freight-related challenges (e.g., safety, congestion, etc.) and improve economic competitiveness.
2. As part of this recommendation category, the RFTP made specific recommendations for upgrading pavement conditions at rough rail crossings, upgrading safety equipment at crossings that have experienced crashes, and implementing quiet zones to lessen impacts on residential areas. As a first step, the region should prioritize at-grade crossings for these upgrades. Factors such as traffic volumes, proximity to an equity focus area, and crash rate and severity among others should be considered in the prioritization. After that, reach out to the railroads to coordinate on implementing these improvements. For pavement condition upgrades at rail crossings, typically the public pays for materials while railroad pays for design and installation. Consider installing full-depth rubber crossings for improved operations and maintenance.

Implement Technology Strategies to Enhance Freight Operations and Safety

1. Reach out to the GDOT Office of Traffic Operations and the City of Savannah to discuss opportunities to advance and coordinate on the technology recommendations included in the Regional Freight Transportation Plan. Also discuss opportunities for the continued deployment of ITS to address general freight challenges and needs, such as truck parking locations, safety hotspots, blocked rail crossings, and real-time travel times.
2. Develop a deployment and assessment strategy for the proposed truck parking availability system pilot project at the I-95 Southbound Welcome Center. The strategy will outline the tools and steps needed to conduct the pilot project. It will also specify the data and methods used to determine the effectiveness of the pilot. This information will enable the State and the region to determine if the pilot project should be expanded into a permanent project.

Increase Access to Safe Truck Parking

1. Develop a scope of work and pursue funding for the Regional Truck Parking Demand Study.
2. Reach out to the region's counties and municipalities to discuss opportunities for integrating truck parking needs into local zoning ordinances. Upon completion of the Regional Truck Parking Demand

Study, reconvene with local governments to discuss options for incorporating those findings into traffic impact assessments.

Improve Freight Network Resiliency

1. Reach out to the railroads, Savannah-Hilton Head International Airport, and the Port of Savannah to discuss opportunities for improving the resiliency of those freight assets including strategies for managing through disruptions.
2. Begin discussions with GDOT to identify and prioritize freight corridors to “harden” against extreme events. Shorter-term opportunities include strengthening roadway slopes and shoulders and maintaining culverts to remove debris. Longer-term opportunities include elevating roadways, bridges, rail lines, runways, and other critical transportation facilities so they are less prone to flooding.
3. Develop a scope of work and pursue funding for the Freight Supply Chain Resilience Study.

Mitigate Freight Impacts on Communities and the Environment

1. Using the freight equity analysis performed as part of the Regional Freight Transportation Plan as a foundation, develop a draft set of freight equity indicators. Seek approval and adoption from the EDFAC, TCC, and MPO Board.
2. Identify and prioritize segments along freight corridors on which to install green infrastructure. Corridors that experience flooding and are proximate to equity focus areas should be among the factors considered in prioritization. Additionally, coordinate with GDOT to identify design standards and best practices for green infrastructure on freight corridors.

Integrate Freight Considerations into Land Use Planning

1. Draft scopes of work and pursue funding to conduct a Freight Efficient Land Use plan for the region as well as conduct the study of potential impacts from industrial expansion into Jasper County, South Carolina.
2. Convene the region’s counties and municipalities to begin developing strategies for bringing consistency to defining land use categories as well as coordinating land use across the region.
3. Request that the region’s economic development agencies lead outreach to freight-intensive businesses for developing a community improvement districts (CIDs) centered on freight clusters. Coordinate with the TCC and EDFAC on the development of an MPO program that supports CIDs in conducting transportation studies and implementing improvement projects. For example, a portion of funds could be set aside for the planning and implementation of projects in CIDs.

5 CLOSING THOUGHTS

The CORE MPO region has prospered, in part, due to the economic benefits that stem from serving as a global center for trade. In addition, the region has successfully leveraged its strengths in logistics to become an emerging manufacturing hub for businesses looking to create and ship a diverse portfolio of finished products to clients around the globe. However, this success has also created challenges in the form of freight-induced congestion, environmental impacts, and safety, among others. The recommendations and action steps outlined in the Regional Freight Transportation Plan Update are crucial to addressing these challenges and demonstrate the region's continued commitment to supporting economic development, environmental sustainability, equity, and improved quality of life for its residents and businesses.

Implementation will only be successful with the participation and collaboration of all public and private sector users and owners of the transportation system. CORE MPO has an important role to play in identifying and planning for long-term strategic investments in the transportation network and helping to guide land use decisions that impact that network; GDOT is essential for maintaining, operating, and where appropriate expanding state-owned freight transportation infrastructure; GPA is a critical partner as the owner and operator of the Port of Savannah, which is the primary driver of freight activity throughout the region. However, those partners cannot be solely responsible for implementing all of the policy, program, and project recommendations. These recommendations can only become actionable with strong coordination with and cooperation among all stakeholders both public and private: motor carriers, railroads, warehousing and logistics providers, shippers, manufacturers, industrial real estate developers, and other freight industry stakeholders, as well as with federal and other state agencies, cities, and counties.



Appendix A. List of Strategies and Recommendations

A.1 Advance Strategic Expansions to Capacity and Proactively Increase Network Connectivity in Emerging Freight Clusters

TABLE A.1 STRATEGIC EXPANSIONS TO CAPACITY AND PROACTIVELY INCREASE NETWORK CONNECTIVITY

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
I-16 Widening	Project Strategy	Widen I-16 from 4 to 6 lanes between I-95 and SR 67 in Bulloch County border.	GDOT , CORE MPO, Chatham County, Bryan County, Bulloch County	\$481,000,000	CORE MPO FY2021-2024 TIP, Coastal Empire Study	Tier 1A	Long-term	State MFT, INFRA, MEGA, NHFP, NHPP
I-95 Auxiliary Lanes	Project Strategy	Add an auxiliary lane to in each direction between SR 21 and US 17.	GDOT , CORE MPO, Chatham County, Bryan County, Effingham County, Savannah, Pooler, Port Wentworth	\$121,000,000	Coastal Empire Study	Tier 1A	Long-term	State MFT, INFRA, MEGA, NHFP, NHPP
Belfast Keller Road Widening	Project Strategy	Widen Belfast Keller Road to a six-lane divided section between I-95 and Great Ogeechee Parkway.	GDOT , Bryan County, Richmond Hill	\$3,500,000	Belfast Keller Road Transportation Assessment, Coastal Empire Study	Tier 1B	Mid-term	State MFT, PROTECT (Discretionary and Formula), RSTP, STBG
John Carter Road Widening	Project Strategy	Widen John Carter Road to 4 lanes from Little Neck Road to Old River Road. Identify and implement operational improvements as suggested in the Chatham County 2023 TSPLOST.	Chatham County , CORE MPO	\$15,000,000	Chatham County 2023 TSPLOST, Coastal Empire Study	Tier 1A	Mid-term	State MFT, RSTP, STBG

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Old River Road Widening	Project Strategy	Widen Old River Road to 4 lanes between SR 204 and I-16.	Chatham County, Effingham County, CORE MPO	\$16,000,000	CORE MPO FY2021-2024 TIP, Coastal Empire Study	Tier 1A	Mid-term	State MFT, RSTP, STBG
State Route 204 Widening	Project Strategy	Widen SR 204 to 4 lanes between Old River Road and I-95.	GDOT, CORE MPO, Savannah, Chatham County	\$16,000,000	Coastal Empire Study	Tier 1A	Long-term	State MFT, INFRA, RAISE, RSTP
State Route 21 Widening	Project Strategy	Widen SR 21 to 6 lanes between SR 30 and 9th St. in Rincon; provide raised median and median opening at every 1,000 ft.; provide sidewalk where not present (for urban section).	GDOT, Chatham County, Effingham County, CORE MPO	\$68,000,000	Effingham County Transportation Master Plan (N-20), Coastal Empire Study	Tier 1A	Long-term	State MFT, PROTECT (Formula), STBG
Effingham Parkway Widening and Extension	Project Strategy	This project consists of three parts: (a) widen Effingham Parkway to 4 lanes; (b) extend the corridor north to SR 21 in Springfield; (c) extend the corridor south to Jimmy Deloach Parkway in Savannah. For the southern extension, consider connecting to Jimmy Deloach Pkwy. via Expansion Blvd. and existing utility easements.**	GDOT, Effingham County, Chatham County, CORE MPO	(a) \$61,000,000 (b) \$59,000,000 (c) \$33,000,000	Effingham County Transportation Master Plan (N-22), Coastal Empire Study	(a) Tier 1B (b) Tier 1B (c) Tier 1A	(a) Long-term (b) Long-term (c) Mid-term	State MFT, RAISE, RSTP, STBG
Blue Jay Road Extension and Freight Upgrades	Project Strategy	Extend Blue Jay Road from SR 21 to US 80/US 280; widen travel lanes and improve roadway structures to support truck movements.	Effingham County, Bryan County, GDOT	\$45,000,000	Coastal Empire Study, Effingham County Transportation Master Plan (ID N-19 and N-21)	Tier 1B	Mid-term	State MFT, PROTECT (Discretionary and Grant), RSTP, STBG

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Low Ground Road Extension East	Project Strategy	Extend Low Ground Road east from McCall Road to SR 21.	Effingham County , GDOT	\$14,333,000	Coastal Empire Study, Effingham County Transportation Master Plan (ID N-8)	Tier 3B	Long-term	State MFT, RSTP, STBG
Low Ground Road Extension West	Project Strategy	Extend Low Ground Road West from bend towards Blue Jay Road to SR 17.	Effingham County , GDOT	\$7,060,000	Coastal Empire Study, Effingham County Transportation Master Plan (ID N-16)	Tier 3B	Long-term	State MFT, RSTP, STBG
US 80 Widening	Project Strategy	Widen SR 26/US 80 to 4 lanes between the Bryan County border and SR 17 in Effingham County	GDOT , Bulloch County, Bryan County, Effingham County	\$176,000,000	Coastal Empire Study, North Bryan Transportation Study	Tier 1B	Long-term	State MFT, PROTECT (Discretionary and Grant), RSTP, STBG
Long Bridge Road Extension and Freight Upgrades	Project Strategy	This project consists of two parts: (a) Extend Long Bridge Road northwest to SR 119 and construct the roadway accommodate freight movements; (b) Widen travel lanes and improve structure of the existing roadway to support truck movement. Add the improved and extended roadway to the Effingham County truck ordinance as an extension of the Old Augusta Road truck route.	Effingham County , GDOT	(a) \$12,751,000 (b) \$6,926,000	Effingham County Transportation Master Plan (ID-N-12)	(a) Tier 2B (b) Tier 2B	Medium-term	State MFT, RSTP, STBG
Proactively Increase Network Redundancy in Emerging Freight Clusters	Policy Strategy	Conduct a study to evaluate the need and alternatives for increased network redundancy in the emerging Belfast-Keller Road and Rockingham Farms freight clusters.	CORE MPO , Bryan County, Chatham County	\$300,000	Regional Freight Transportation Plan	Tier 2A	Short-term	FHWA Discretionary PL Funds

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Gateway Parkway Extension	Project Strategy	Extend Gateway Parkway east to connect to SR 21 and west to connect to the planned Effingham Parkway. This would increase network redundancy in an emerging freight center by providing a new east-west connection. This recommendation requires coordination with Norfolk Southern as it would cross the rail line.	Effingham County , GDOT, Norfolk Southern	\$14,800,000	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2B	Mid-term	State MFT, RSTP, STBG

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.

**Note: The Regional Freight Transportation Plan Update proposes an alternative alignment to those recommended in the Coastal Empire Study and the Effingham County Transportation Master Plan.

A.2 Implement Operational Strategies to Enhance Freight Mobility and Safety

TABLE A.2 OPERATIONAL STRATEGIES TO ENHANCE FREIGHT MOBILITY AND SAFETY

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Transportation Improvements in the Vicinity of the Bryan County Megasite	Project Strategy	Construct multilane roundabout at US 280 at I-16 interchange and implement other improvements such as widening of adjacent roadways and the construction of a new access point to I-16.	GDOT , Bryan County	\$175,000,000	North Bryan Transportation Study, GDOT PI No. 0016618, Coastal Empire Study	Tier 1B	Mid-term	Funded
US 17 at Belfast Keller Rd Intersection Improvement	Project Strategy	Convert the unsignalized intersection to a signalized intersection.	GDOT , Bryan County	\$500,000	Richmond Hill-South Bryan County Transportation Study, Coastal Empire Study	Tier 1B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
US 17 at Chatham Pkwy Intersection Improvement	Project Strategy	Provide dual eastbound left-turn lanes, a westbound right-turn lane, and a southbound right-turn lane.	GDOT , Chatham County, CORE MPO	\$5,300,000	Coastal Empire Study	Tier 1A	Mid-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 21 at Old Augusta Rd Intersection Improvement	Project Strategy	Widen SR 21 to provide additional through lanes and dual northbound right-turn lanes.	GDOT , Effingham County	\$2,100,000	Effingham County Transportation Master Plan (ID I-30), Coastal Empire Study	Tier 1B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
US 80 at US 280 Intersection Improvement	Project Strategy	Convert the signalized intersection to a multilane roundabout.	GDOT , Effingham County	\$5,900,000	Coastal Empire Study, GDOT PI 0018386	Tier 1B	Mid-term	Funded
US 80 at Chatham Parkway Intersection Improvement	Project Strategy	Remove Heidt Avenue access to the intersection; converting the four-legged intersection to a T-intersection to eliminate the existing split phasing and allow more green time for US 80.	GDOT , CORE MPO, Garden City	\$900,000	Coastal Empire Study	Tier 1A	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
I-16 at Pooler Parkway Interchange Improvement	Project Strategy	Provide dual southbound left-turn lanes from Pooler Parkway onto the I-16 eastbound ramp; provide an additional shared lane on the I-16 westbound exit ramp and configure the lanes as dual westbound left-turn lanes and a westbound right-turn lane.	GDOT , Chatham County, CORE MPO	\$4,700,000	Coastal Empire Study	Tier 1A	Short-term	STBG, NHFP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
I-95 at Airways Avenue/Pooler Parkway	Project Strategy	Coordinate signal timing, remove the median opening and signal at Mill Creek Circle, widen Pooler Parkway approaching the I-95 interchange, and reconfigure the Benton Boulevard intersection.	Chatham County , GDOT, CORE MPO, Savannah-Hilton Head Intl. Airport	\$3,100,000	Chatham County 2023 TSPLOST, Coastal Empire Study	Tier 1A	Short-term	STBG, NHFP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 204 at Old River Road Intersection Improvement	Project Strategy	Convert the unsignalized intersection to a single-lane roundabout.	GDOT , CORE MPO, Chatham County	\$4,000,000	Coastal Empire Study	Tier 1A	Short-term	STBG, RSTP, HSIP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
US 80 at SR 17/SR30 Intersection Improvement	Project Strategy	Convert the signalized intersection to a multilane roundabout with an eastbound bypass right-turn lane from US 80.	GDOT , Effingham County	\$6,000,000	Effingham County Transportation Master Plan (ID I-19), Coastal Empire Study	Tier 1B	Mid-term	STBG, RSTP, HSIP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Truman Parkway at East President Street	Project Strategy	Elevate East Bay Street and reconstruct the interchange to eliminate the railroad and vehicular traffic conflict.	Chatham County , Savannah and Old Fort Railroad , GDOT, CORE MPO	\$98,000,000	CORE MPO 2045 Metropolitan Transportation Plan, Coastal Empire Study	Tier 1A	Long-term	INFRA, MEGA, NHFP, NHPP, RCE, State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Old River Road Freight and Safety Improvements	Project Strategy	A relatively high density of truck-involved crashes was observed in the area around Old River Road between US 80 and I-16. Widen travel lanes and improve roadway structure to support truck movements. Add safety upgrades including re-striping, paved shoulders, and rumble strips. Consider adding turning lanes at the truck entrances for major freight generators along this route.	Effingham County, GDOT	\$12,508,000	Effingham County Transportation Master Plan (ID N-15), Regional Freight Transportation Plan Update	Tier 2B	Short-term	STBG, RSTP, HSIP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 21 South Safety and Operational Improvements	Project Strategy	Make the following improvements along SR 21 from Minus Avenue to Smith Avenue: install a raised median, upgrade signalized intersections, implement school zone enhancements, consolidate driveways, upgrade crosswalks so that they are compliant with the Americans with Disabilities Act, and install a multi-use path along both sides of SR 21.	Chatham County, CORE MPO, GDOT	\$4,250,000	SR 21 Access Management Study	Tier 1A	Short-term	STBG, HSIP, TA, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 21 North Safety and Operational Improvements	Policy Strategy	SR 21 between I-95 and Gulfstream Road experiences significant truck delay. Further study this segment of SR 21 and develop solutions focusing on access management, safety, and operations. Specific focus should be given to the intersection of SR 21 and Gulfstream Rd. and also on access management near the I-95 interchange.	CORE MPO, Chatham, County, GDOT	\$200,000	Regional Freight Transportation Plan	Tier 1A	Short-term	FHWA Discretionary PL Funds
SR 307 and SR 21 At-Grade Rail Separation and Operational Improvements	Project Strategy	Construct a grade-separated crossing of SR 307/Bourne Avenue over CSX Railroad crossing #632473Y and SR 21/ Augusta Road and make necessary adjustments to the street network to make the separation feasible.	GDOT, CSX Transportation, Chatham County, CORE MPO	\$36,410,000	SR 307 Corridor Study (ID GS-01)	Tier 1A	Long-term	INFRA, NHFP, NHPP, RCE, State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
SR 307/Dean Forest Road Grade Separation at Norfolk Southern Crossing #855067U	Project Strategy	Construct a grade-separated crossing of SR 307/Dean Forest Road over Norfolk Southern crossing #885067U and make necessary adjustments to the street network to make the separation feasible.	GDOT, Norfolk Southern, Chatham County, CORE MPO	\$17,600,000	SR 307 Corridor Study (GS-02)	Tier 1A	Long-term	INFRA, NHFP, NHPP, RCE, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Chatham Multimodal Community Improvement Project (CMCIP)	Project Strategy	The CMCIP makes numerous rail improvements near the Port of Savannah that will eliminate 11 at-grade crossings, allow for more efficient rail operations at the Port, and lessen impacts to the surrounding community. The CMCIP was awarded a Railroad Crossing Elimination (RCE) Grant in fiscal year 2022.	GDOT, CSX Transportation, Chatham County, CORE MPO	\$2,805,000 <i>(non-federal contribution, remainder of total project cost)</i>	Chatham County RCE Grant Award	Tier 1A	Mid-Term	STBG, HSIP, State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)
SR 307 Access Management from Pine Meadow Drive to SR 26/US 80/Louisville Road	Project Strategy	Construct raised median along SR 307 beginning south of Pine Meadow Drive to Morgan Industrial Boulevard; construct restricted crossing U-turn (RCUT) intersection at Old Dean Forest Road; construct southbound U-turn eyebrow at Prosperity Drive and Morgan Industrial Boulevard intersections; construct northbound U-turn eyebrow at Jamaica Run Road.	Chatham County, GDOT, CORE MPO	\$19,300,000	SR 307 Corridor Study (AC-01)	Tier 2A	Mid-term	STBG, HSIP, TA, State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
SR 307 Access Management from SR 26/US 80/Louisville Road to Robert B. Miller Road	Project Strategy	Construct raised median along SR 307 from SR 26/US 80/Louisville Road to Robert B. Miller Road; construct northbound U-turn eyebrows at Old Louisville Road, Distribution Drive, and Davidson Road; construct southbound U-turn eyebrows at Sonny Perdue Drive and Product Support Road; construct restricted crossing U-turn (RCUT) intersection at Hangar Road/Darque Road and Billy B. Hair Drive.	Chatham County, GDOT, CORE MPO	\$28,560,000	SR 307 Corridor Study (AC-02)	Tier 2A	Mid-term	STBG, HSIP, TA, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 307 at Distribution Drive	Project Strategy	Convert the unsignalized intersection to a signalized intersection.	Chatham County, GDOT, CORE MPO	\$695,000	SR 307 Corridor Study (IN-01)	Tier 2A	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 307 at SR 26/US 80/Louisville Road Auxiliary Lanes	Project Strategy	Install dual left-turn lanes and extend right-turn lane storage for each approach; install pedestrian signals, crosswalks, and ramps.	Chatham County, GDOT, CORE MPO	\$3,190,000	SR 307 Corridor Study (IN-02)	Tier 2A	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 307 Corridor Signal Retiming	Project Strategy	Conduct a signal timing review to improve vehicular flow through time-of-day coordinated operations and optimize signal cycle length, splits, and offsets; replace existing three-section permissive signal heads on SR 307 at Old Louisville Road intersection with four-section flashing yellow arrow signal heads; replace existing five-section protected/permissive signal heads on SR 307 at Robert B. Miller Road with four-section flashing yellow arrow signal heads.	Chatham County, GDOT, CORE MPO	\$425,000	SR 307 Corridor Study (IN-03)	Tier 2A	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
SR 307 at SR 25/US 17/Ogeechee Road Intersection Improvements	Project Strategy	Install dual eastbound left-turn lanes; remove free-flow channelization for the westbound right-turn lane to accommodate eastbound dual left-turn receiving lanes; shift westbound through lanes north to accommodate additional eastbound left-turn lane; modify signal phasing to provide protected-only operation for eastbound left-turn movement and permitted-overlap phasing for westbound right-turn movement.	Chatham County , GDOT, CORE MPO	\$1,060,000	SR 307 Corridor Study (IN-04)	Tier 2A	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 307 at Jamaica Run Road	Project Strategy	Convert the unsignalized intersection to a signalized intersection; install a westbound left-turn lane and a westbound right-turn lane.	Chatham County , GDOT, CORE MPO	\$580,000	SR 307 Corridor Study (IN-05)	Tier 2A	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 307 at Morgan Industrial Boulevard	Project Strategy	Convert the unsignalized intersection to a signalized intersection.	Chatham County , GDOT, CORE MPO	\$760,000	SR 307 Corridor Study (IN-06)	Tier 2A	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 307 at SR 26/US 80/Louisville Road Interchange	Policy Strategy	Monitor the intersection of US 80 and SR 307 for future growth and performance. If performance continues to deteriorate, convert the intersection to an interchange.	GDOT , Chatham County, CORE MPO	TBD	SR 307 Corridor Study (GS-03)	Tier 2A	Long-term	TBD
Lane Improvements at SR 17 and US 80/SR 26	Project Strategy	Install southbound dual left turn lanes and provide an overlap phase for the westbound right turn movement	Effingham County , GDOT	\$670,000	Effingham County Transportation Master Plan (ID I-19)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Lane Improvements at SR 21 and SR 119	Project Strategy	Install additional northbound dual left turn lane and provide overlap phase for eastbound right turn movement	Effingham County , GDOT	\$838,000	Effingham County Transportation Master Plan (ID I-20)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Traffic Signal at SR 21 and McCall Road (North)	Project Strategy	Signalize intersection, install northbound left turn lane, provide permissive-protected signal phase for westbound and northbound left turn movements, provide overlap phase for eastbound right turn movement	Effingham County, GDOT	\$1,321,000	Effingham County Transportation Master Plan (ID I-39)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Lane Improvements at SR 21 and 9th Street	Project Strategy	Install eastbound right turn lane, provide permissive-protected signal phase for side street left turning movements, provide overlap phase for eastbound right turn movement	Effingham County, GDOT	\$187,000	Effingham County Transportation Master Plan (ID I-12)	Tier 3B	Short-term	State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)
Lane Improvements at SR 21 and Fort Howard Road	Project Strategy	Remove channelized islands at Rincon Commercial Park Dr. and Fort Howard Rd.; convert existing northbound right-turn lane to a through lane; install northbound right-turn lane; convert westbound left-turn lane to dual left-turn; provide overlap phases for northbound and westbound right-turn movements	Effingham County, GDOT	\$905,000	Effingham County Transportation Master Plan (ID I-23)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Lane Improvements at SR 21 and Walmart Access Driveway	Project Strategy	Install northbound right turn lane	Effingham County, GDOT	\$244,000	Effingham County Transportation Master Plan (ID I-24)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Median U-turn (MUT) Intersection at SR 21 and Towne Park Dr	Project Strategy	Prohibit left turns along SR 21; convert intersection to partial MUT configuration; provide U-turn locations north and south of the intersection.	Effingham County, GDOT	\$1,748,000	Effingham County Transportation Master Plan (ID I-25)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Median U-turn (MUT) Intersection at SR 21 and Westwood Dr	Project Strategy	Prohibit left turns Along SR 21, converting intersection to partial MUT configuration, Provide U-turn locations north and south of the intersection	Effingham County, GDOT	\$1,748,000	Effingham County Transportation Master Plan (ID I-26)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Lane Improvements at SR 21 and McCall Road (South)	Project Strategy	Install additional northbound left turn lane, install additional eastbound left turn lane, convert eastbound right turn lane to a channelized free-flowing movement	Effingham County, GDOT	\$1,088,000	Effingham County Transportation Master Plan (ID I-27)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Lane Improvements at SR 21 SB and Goshen Road	Project Strategy	Install westbound left turn lane along Goshen Road	Effingham County, GDOT	\$670,000	Effingham County Transportation Master Plan (ID I-28)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Lane Improvements at SR 21 NB and Goshen Road	Project Strategy	Install eastbound left turn and westbound right turn lanes on Goshen road, widen SR 21 southbound to three through lanes, provide permissive-protected signal phasing for eastbound left turn movement	Effingham County, GDOT	\$2,044,000	Effingham County Transportation Master Plan (ID I-29)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Median U-turn (MUT) Intersection at SR 21 and Old Augusta Road	Project Strategy	Prohibit left turns along SR 21, converting intersection to partial MUT configuration, provide U-turn locations north and south of the intersection, Convert eastbound right turn lane to channelized free-flow conditions with downstream merge	Effingham County, GDOT	\$1,922,000	Effingham County Transportation Master Plan (ID I-30)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Traffic Signal at US 80 and Sand Hill Road	Project Strategy	Install traffic signal with southbound left and right turn lanes	Effingham County, GDOT	\$1,696,000	Effingham County Transportation Master Plan (ID I-32)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Traffic Signal at US 80 and Old River Road Connector	Project Strategy	Conduct signal warrant study and install signal.	Effingham County, GDOT	\$652,000	Effingham County Transportation Master Plan (ID I-41)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Traffic Signal at SR 21 and 4th St	Project Strategy	Signalize intersection and install westbound left turn lane	Effingham County, GDOT	\$1,108,000	Effingham County Transportation Master Plan (ID I-43)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 21 at Fort Howard Road Safety Improvements	Project Strategy	Convert driveways along Fort Howard Road and SR 21 within 500 ft of their intersection to right in/right out or RCUT configuration	Effingham County, GDOT	\$335,000	Effingham County Transportation Master Plan (ID I-21)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
SR 21 at Ebenezer Road Truck Safety Improvements	Project Strategy	Move back stop bar for the eastbound through/left lane, modify northbound right turn lane to provide wider curb radius	Effingham County, GDOT	\$109,000	Effingham County Transportation Master Plan (ID I-35)	Tier 3B	Short-term	State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)
Old River Road at US 80 Lane Improvements	Project Strategy	Construct Old River Road Connector and convert existing segment of Old River Road to one-way; install westbound left-turn lane at the new intersection of US 80 at the Old River Rd Connector (future traffic signal in project I-41)	Effingham County, GDOT	\$752,000	Effingham County Transportation Master Plan (ID I-1)	Tier 3B	Short-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Long Bridge Road Freight Upgrades	Project Strategy	Widen travel lanes and improve roadway structure to support truck movement. Upon completion, addition of this roadway to the County truck ordinance (as an extension of the Old Augusta Road truck route) should be considered.	Effingham County, GDOT	\$6,926,000	Effingham County Transportation Master Plan (ID N-11)	Tier 3B	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Rahn Station Road Freight Upgrades	Project Strategy	Widen travel lanes and improve roadway structure to support truck movement. Upon completion, addition of this segment to the County truck ordinance as truck routes should be considered.	Effingham County, GDOT	\$9,112,000	Effingham County Transportation Master Plan (ID N-10)	Tier 3B	Mid-term	State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Blue Jay Road/McCall Road Freight Upgrades	Project Strategy	Widen travel lanes and improve roadway structure to support truck movement. Upon completion, addition of these segments to the County truck ordinance as truck routes should be considered.	Effingham County, GDOT	\$18,478,000	Effingham County Transportation Master Plan (ID N-9)	Tier 3B	Long-term	STBG, RSTP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Pine Barren Road Freight Upgrades	Project Strategy	Widen and reconstruct roadway structure to support truck traffic. Upon completion (or simultaneously), connect to John Carter Road via the John Carter-Pine Barren Road Connector project.	Chatham County, GDOT, CORE MPO	\$7,000,000	Chatham County 2023 TSPLOST, Regional Freight Plan Update	Tier 2A	Mid-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
McCall Road (south) Freight Improvements	Project Strategy	Widen travel lanes and improve roadway structure to support truck movement. Upon completion this roadway should be considered for addition to the County truck ordinance.	Effingham County, GDOT	\$9,485,000	Effingham County Transportation Master Plan (ID N-18)	Tier 2B	Medium-term	STBG, RSTP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
US 80 at Skidaway Road and SR 204/Truman Parkway Area Safety Improvements	Policy Strategy	The area around US 80 at Skidaway Road and SR 204/Truman Parkway experiences a relatively high rate of truck-involved crashes. Perform a safety audit at this location to identify potential solutions for improving truck safety.	Savannah, CORE MPO, GDOT	TBD	Regional Freight Transportation Plan	Tier 1B	Short-term	FHWA Discretionary PL Funds
US 280 at SR 204 Multilane Roundabout	Project Strategy	Convert the stop-controlled intersection of US 280 and SR 204 to a multilane roundabout. Remove the US 280 East-to-SR 204 East connector roadway.	Bryan County, GDOT	\$1,580,000	Regional Freight Transportation Plan	Tier 2A	Mid-term	STBG, RSTP, HSIP, State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
US 17 Corridor Study Phase II	Policy Strategy	As a second phase to the pending US 17 Corridor Study, extend the analysis south to SR 196 in Liberty County.	Bryan County, GDOT	\$300,000	South Bryan Transportation Study, Chatham County 2023 TSP/OST, Regional Freight Transportation Plan	Tier 1A	Short-term	FHWA Discretionary PL Funds
US 80 East Operational Improvements	Policy Strategy	Coordinate with the ongoing US 80 Corridor Study to revisit signal timing and other operational challenges along US 80 between Pooler Parkway and I-516.	Chatham County, CORE MPO, GDOT	TBD	Regional Freight Transportation Plan	Tier 1B	Short-term	FHWA Discretionary PL Funds
East-West Connectivity: DeRenne Avenue Access Control	Policy Strategy	As redevelopment occurs along the north side of DeRenne Ave. between White Bluff Rd. and Truman Pkwy., the region should work to close existing driveways and increase access control via a combination of new frontage roads and existing parallel roads.	Savannah, CORE MPO, GDOT	\$0	Regional Freight Transportation Plan	Tier 1B	Short-term	Not Applicable
East-West Connectivity: Truman Pkwy. at SR 204/Abercorn St. Interchange Modification Report	Policy Strategy	Perform an interchange modification report to identify solutions for easing congestion and making the route is more viable for freight activity, including converting to an interchange.	Chatham County, Savannah, CORE MPO, GDOT	\$300,000	Regional Freight Transportation Plan	Tier 1A	Mid-term	FHWA Discretionary PL Funds
Port Area Pavement Condition Improvements	Project Strategy	Upgrade pavements throughout the constitutionally exempt sub-area bounded by the Savannah River and the municipal limits of Garden City, Savannah, and Port Wentworth in unincorporated Chatham County.	Chatham County, Georgia Ports Authority, GDOT	\$50,100,000	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2B	Mid-term	State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Jimmy DeLoach Pkwy. at Expansion Blvd.	Project Strategy	Increase intersection turning radii, or install a mountable curb, to accommodate truck traffic. Measure the sight distance at this intersection and increase if determined to be insufficient.	Chatham County , GDOT, CORE MPO	\$32,000	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2B	Short-term	State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)
Freight Corridor Lighting Study	Policy Strategy	Stakeholders noted that a significant amount of trucking activity occurs in the early morning and dusk hours before sunrise. Consider performing a lighting study for key freight corridors such as SR 307, SR 21, and others.	CORE MPO , Chatham County , Effingham County, Bryan County, GDOT	\$200,000	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2B	Mid-term	FHWA Discretionary PL Funds
Old Louisville Road Improvements	Project Strategy	Design and construct road improvements on Old Louisville Road between State Route 307 to Heidt Road.	Chatham County , GDOT, CORE MPO	\$8,500,000	Chatham County 2023 TSPLOST	Tier 1A	Mid-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
East-West Connectivity: I-95 at SR 204/Gateway Interchange	Policy Strategy	Perform an interchange study to improve and upgrade the existing interchange.	Chatham County , GDOT, CORE MPO	\$9,000,000**	Chatham County 2023 TSPLOST	Tier 1A	Mid-term	FHWA Discretionary PL Funds
Truman Parkway Improvement Project	Project Strategy	Upgrade Truman Pkwy. between President Street and SR 204 to include resurfacing, shoulder and median improvements, guardrail upgrades, drainage improvements and other maintenance work.	Chatham County , CORE MPO, GDOT	\$10,000,000	Chatham County 2023 TSPLOST	Tier 1A	Mid-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)
Pooler Parkway Operational Improvements	Project Strategy	Implement capacity, operational and safety improvements on Pooler Parkway in the City of Pooler.	Chatham County , CORE MPO, GDOT	\$5,835,692	Chatham County 2023 TSPLOST	Tier 1A	Short-term	STBG, State MFT (incl. LMIG and Other GDOT Funding Opportunities)

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.

**Note: The project cost includes the local match for federal funds to improve and upgrade the existing interchange.

A.3 Support Increased Capacity, Enhanced Operations, and Safety on the Multimodal Freight Network

TABLE A.3 INCREASED CAPACITY, ENHANCED OPERATIONS, AND SAFETY ON THE MULTIMODAL FREIGHT NETWORK

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Support Expansion of Local Freight Rail Capacity	Policy Strategy	Partner with railroads to perform a feasibility study that identifies potential locations for shared rail yards including engaging with rail operators to determine the potential of leasing space at nearby rail yards.	CSX, Norfolk Southern, CORE MPO, GDOT	Not Applicable	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2A	Short-term	MPO Staff Time
Support Expansion of Regional Freight Rail Capacity	Policy Strategy	Partner with rail operators and the State to identify existing sidings that could be extended or potential development sites for new sidings as a strategy for increasing the region's rail capacity.	CSX, Norfolk Southern, CORE MPO, GDOT	Not Applicable	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2B	Short-term	MPO Staff Time
Support Capacity and Operational Improvements at SAV	Policy Strategy	Coordinate with SAV to identify and prioritize landside access improvements to air cargo facilities.	Savannah-Hilton Head Intl. Airport, CORE MPO, GDOT	Not Applicable	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2A	Short-term	MPO Staff Time
Support Capacity and Operational Improvements at the Port of Savannah	Policy Strategy	Coordinate with the Georgia Ports Authority to identify and prioritize landside access improvements to port facilities.	Georgia Ports Authority, CORE MPO, GDOT	Not Applicable	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2A	Short-term	MPO Staff Time
Implement Rail Quiet Zones	Policy Strategy	Identify candidate crossings for quiet zones and work with the region's rail operators and the State to meet the requirements for quiet zones for the selected crossings.	CSX, Norfolk Southern, CORE MPO, GDOT	Not Applicable	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2B	Short-term	MPO Staff Time

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Rail Crossing Safety Improvements	Project Strategy	The region has nearly 200 at-grade rail crossings, but highway-rail incidents were concentrated at 34 crossings. The region should upgrade the safety equipment at these crossings.	CSX, Norfolk Southern, Chatham County, Bryan County, Effingham County, CORE MPO, GDOT	\$6,900,000	Regional Freight Transportation Plan	Tier 2B	Mid-term	HSIP
Rough Rail Crossings Improvements	Project Strategy	Rough rail crossings impact the safety and operations of the region's freight corridors. Partner with the region's railroads to prioritize and upgrade pavement conditions at the 30 worst crossings. Consider installing full-depth rubber crossings for improved operations and maintenance.	CSX, Norfolk Southern, Chatham County, Bryan County, Effingham County, CORE MPO, GDOT	\$17,700,000	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 2B	Mid-term	HSIP, State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.

A.4 Implement Technology Strategies to Enhance Freight Operations and Safety

TABLE A.4 TECHNOLOGY STRATEGIES TO ENHANCE FREIGHT OPERATIONS AND SAFETY

Name	Type	Description	Key Stakeholders*	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Deploy Freight Signal Priority along US 80	Project Strategy	Deploy freight signal priority along US 80 between I-95 and SR 21 to connect to the Brampton Road Connector project.	GDOT , Chatham County, CORE MPO	\$900,000	Regional Freight Transportation Plan	Tier 1A	Mid-term	STBG, CMAQ, State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)
Truck Parking Availability System Pilot	Project Strategy	Partner with GDOT to conduct a truck parking availability system pilot project at the I-95 Southbound Georgia Welcome Center.	GDOT , Savannah , Chatham County, CORE MPO	TBD	Regional Freight Transportation Plan	Tier 2A	Mid-term	STBG, ITD, AID
Lathrop Avenue Over-Height Warning System	Project Strategy	Deploy an advanced warning system to alert over-height trucks at the intersection E. Lathrop Ave. and the Norfolk Southern rail line north of Louisville Rd.	Savannah , CORE MPO, GDOT	\$58,000	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 1A	Short-term	STBG, State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)
President Street At-Grade Crossing Dynamic Message Sign	Project Strategy	Deploy a freight ITS solution including a dynamic message sign at this crossing to alert motorists and motor carriers that the crossing is blocked.	Chatham County , Savannah , GDOT, CORE MPO	\$104,000	Stakeholder Outreach, Regional Freight Transportation Plan	Tier 1A	Short-term	STBG, State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)
Real-Time Information Signage for Port Traffic	Project Strategy	Provide drivers with real-time travel times to the terminal gates via dynamic message signs (DMS). DMS should be provided at the following locations: I-95 southbound at the Georgia/South Carolina state line, Jimmy Deloach Parkway east of I-95, I-16 eastbound west of I-95, I-16 eastbound west of US 280**, and I-95 south of I-16.	GDOT , Georgia Ports Authority , CORE MPO, Chatham County	\$293,000	Coastal Empire Study, Regional Freight Transportation Plan	Tier 2A	Mid-term	STBG, CMAQ, State MFT (incl. Quick Response, LMIG, and Other GDOT Funding Opportunities)

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.

****Note:** The Regional Freight Transportation Plan proposes a different location for this dynamic message sign than what was proposed in the Coastal Empire Study. The analysis of truck GPS data indicated that some trucks access the port via the I-16-to-US 280-to-US 80 where they then connect to either Jimmy Deloach Pkwy. or SR 307.

A.5 Increase Access to Safe Truck Parking

TABLE A.5 INCREASE ACCESS TO SAFE TRUCK PARKING

Name	Type	Description	Key Stakeholders	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Regional Truck Parking Demand Estimation Study	Policy Strategy	Conduct a study to estimate the truck parking demand generated by new commercial and industrial developments.	Chatham County, Bryan County, Effingham County, CORE MPO, GDOT, FHWA	\$300,000	Regional Freight Transportation Plan	Tier 2A	Short-term	FHWA Discretionary PL Funds
Incorporate Truck Parking into Traffic Impact Assessments	Policy Strategy	Revise local traffic impact assessment processes to include anticipated truck volumes at a site, the impacts of staging near the site, and the potential for truck parking demand generated farther from the site. The truck parking demand estimates generated from the revised traffic impact assessments can then be used to evaluate parking requirements for new freight-generating developments.	Chatham County, Bryan County, Effingham County, CORE MPO, GDOT	\$100,000	Regional Freight Transportation Plan	Tier 2A	Short-term	FHWA Discretionary PL Funds
Revise Planning Ordinances and Policies to Include Truck Parking	Policy Strategy	Local governments throughout the region should revise planning ordinances to include on-site truck parking minimums.	Chatham County, Bryan County, Effingham County, CORE MPO	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO and County Staff Time
Incorporate Zero Emissions Fueling and Other Green Infrastructure into Truck Parking Facilities	Policy Strategy	The CORE MPO region is an ideal candidate for alternative fuel charging given the presence of the Port of Savannah and the drayage trucks that serve it. The CORE MPO, GDOT, and the Georgia Ports Authority (GPA) should consider partnering to pursue federal funding for the development of a truck parking facility that offers alternative fuel charging.	Chatham County, Bryan County, Effingham County, CORE MPO, GDOT, GPA	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Short-term	MPO, County, GDOT, and GPA Staff Time

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.

A.6 Improve Freight Network Resiliency

TABLE A.6 IMPROVE FREIGHT NETWORK RESILIENCY

Name	Type	Description	Key Stakeholders	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Implement the Natural Resources Strategies Recommended in Plan 2040 – Chatham County-Savannah Comprehensive Plan	Policy Strategy	The 2020 Update of the Plan 2040 – Chatham County-Savannah Comprehensive Plan put forth several recommendations to improve the resiliency of the CORE MPO region. Recommendations made as part of Plan 2040 should be the first step towards improving the region's resiliency to climate change and extreme weather events.	CORE MPO, GDOT, Georgia Ports Authority, Chatham County, Bryan County, Effingham County	Not Applicable	Plan 2040 – Chatham County-Savannah Comprehensive Plan	Tier 2A	Mid-term	MPO, County, GDOT, and GPA Staff Time
Engineering Informed Vulnerability Assessment for a Selection of Critical Freight Assets	Policy Strategy	Conduct a detailed engineering vulnerability assessment for a selection of critical freight assets. A detailed engineering vulnerability assessment evaluates risks to particular transportation assets in response to climate stressors. These assessments would help the CORE MPO anticipate the effectiveness of specific adaptation measures and their respective return on investment if adopted.	CORE MPO, GDOT, Georgia Ports Authority, Chatham County, Bryan County, Effingham County	\$500,000	Plan 2040 – Chatham County-Savannah Comprehensive Plan	Tier 2A	Mid-term	PROTECT (Discretionary and Formula), FHWA Discretionary PL Funds
Freight Supply Chain Resilience Study	Policy Strategy	Conduct a Freight Supply Chain Resilience Study that analyzes the elements of the freight supply chain in the region and identifies: (1) the supply chains for critical goods or services; (2) potential effects on these supply chains from different disaster scenarios and disaster scenario combinations; and (3) levels of resiliency in critical freight supply chains.	CORE MPO, GDOT, Georgia Ports Authority, Chatham County, Bryan County, Effingham County	\$500,000	Regional Freight Transportation Plan	Tier 2A	Mid-term	PROTECT (Discretionary and Formula), FHWA Discretionary PL Funds

Name	Type	Description	Key Stakeholders	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Implement Action Plan for Handling Disruptions to Freight Assets	Program Strategy	Implement the action plan for handling supply chain disruptions as a set of policies for the region's freight system stakeholders and operators.	CORE MPO, GDOT, Georgia Ports Authority, Chatham County, Bryan County, Effingham County, Savannah	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Long-term	MPO, GDOT, and GPA Staff Time

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.

A.7 Mitigate Freight Impacts on Communities and the Environment

TABLE A.7 MITIGATE FREIGHT IMPACTS ON COMMUNITIES AND THE ENVIRONMENT

Name	Type	Description	Key Stakeholders	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Adopt and Track Freight Equity Indicators	Program Strategy	Define and track over time a set of freight equity indicators so that the region may assess freight equity impacts, identify areas of need, and proactively address freight transportation equity issues.	CORE MPO , Chatham County, Bryan County, Effingham County, Savannah	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO Staff Time
Develop a Freight Equity Analysis Screening Tool	Policy Strategy	Develop and deploy a freight equity analysis and evaluation screening tool to help the region proactively address freight transportation equity concerns.	CORE MPO , Chatham County, Bryan County, Effingham County, Savannah	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO Staff Time
Partner with Chatham Area Transit (CAT) to Incorporate Industrial Hubs into Transit Routes	Program Strategy	Partner with CAT to include industrial employment centers in the region's transit strategy.	Chatham Area Transit, CORE MPO , Chatham County, Bryan County, Effingham County, Savannah	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO and CAT Staff Time
Install Green Infrastructure along Freight Routes and in Industrial Hubs	Policy Strategy	Incorporate green infrastructure such as bioswales, planter boxes, and street trees into the design of freight corridors.	CORE MPO, GDOT , Chatham County, Bryan County, Effingham County, Savannah	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO and GDOT Staff Time

Name	Type	Description	Key Stakeholders	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Estimate and Monitor Transportation Emissions to Support Mobility 2045 Environmental Goals	Policy Strategy	The CORE MPO should consider estimating and monitoring transportation emissions on a periodic basis. This would allow the CORE MPO to periodically assess and (as necessary) adjust its initiatives to reduce vehicle-miles traveled, thereby reducing transportation emissions. The Drawdown Georgia Project's Georgia GHG Emissions Tracker tool could serve as the basis for the CORE MPO to develop its own tool for monitoring transportation emissions in the region.	CORE MPO , Chatham County, Bryan County, Effingham County, Savannah	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO Staff Time

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.

A.8 Integrate Freight Considerations into Land Use Planning

TABLE A.8 INTEGRATE FREIGHT CONSIDERATIONS INTO LAND USE PLANNING

Name	Type	Description	Key Stakeholders	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Support Freight-Intensive Use Clustering, Infilling, and Right-of-Way Reservation	Program Strategy	Support infill development at existing freight clusters, promote the reuse or redevelopment of legacy freight facilities to meet emerging needs, and where possible reserve right-of-way adjacent to existing freight clusters for future freight network improvements.	CORE MPO , Chatham County, Bryan County, Effingham County	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO Staff Time
Discourage Greenfield Freight Development Except for Specific Strategic Sites	Policy Strategy	Discourage greenfield freight-related development except for sites that currently have (or will have as part of the development) direct rail and/or interstate access.	CORE MPO , Chatham County, Bryan County, Effingham County	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO Staff Time
Develop a Regional Freight Efficient Land Use Plan	Policy Strategy	Develop a FELU plan that provides a framework for improving freight efficiency and helping the region to navigate current and future freight-related land use challenges.	CORE MPO , Chatham County, Bryan County, Effingham County, GDOT, FHWA	\$350,000	Regional Freight Transportation Plan	Tier 2A	Short-term	FHWA Discretionary PL Funds
Encourage Consistent Land Use Categories	Policy Strategy	Encourage consistent land use categories at the county and municipal level to allow for more effective and coordinated land use planning across the region.	CORE MPO , Chatham County, Bryan County, Effingham County	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Mid-term	MPO Staff Time
Study the Impacts of Potential Industrial Expansion into South Carolina	Policy Strategy	There is potential for freight-oriented growth to begin to shift into Jasper County, South Carolina. Study the potential land use and traffic impacts to the region of industrial expansion into Jasper County, South Carolina.	CORE MPO , Chatham County, Bryan County, Effingham County, GDOT, FHWA	\$350,000	Regional Freight Transportation Plan	Tier 2A	Mid-term	FHWA Discretionary PL Funds

Name	Type	Description	Key Stakeholders	Cost	Source(s)	Tier	Implementation Time Frame	Funding Source(s)
Encourage Community Improvement Districts to Support Freight Operations and Address Challenges in Freight Clusters	Program Strategy	Foster the creation of community improvement districts (CID) centered on freight clusters to create a new mechanism for funding and implementing freight system improvements.	Savannah Economic Development Authority, Effingham County Industrial Development Authority, Development Authority of Bryan County, Savannah Harbor-Interstate 16 Corridor Joint Development Authority, Chatham County, Bryan County, Effingham County, CORE MPO	Not Applicable	Regional Freight Transportation Plan	Tier 2A	Short-term	MPO Staff Time

Source: CORE MPO Regional Freight Transportation Plan Update, 2023.

*Note: The recommended lead sponsor agency is indicated with **bold** type.