Northeast Florida Freight Movement Study

Technical Report

September 2018

NORTHEAST FLORIDA
FREIGHT MOVEMENT STUDY

Executive Summary

Background

In developing a comprehensive regional freight planning and improvement program, it is vital to recognize the goals, strategies, and outcomes of previous studies, plans, initiatives, and policies. The timeline below provides an overview of key federal, state, and regional efforts affecting the movement of freight and goods.

2012

JANUARY

***MAP-21* |** Established a framework for a streamlined, performance-based, and multimodal transportation program. The law included a number of provisions with the ultimate objective of improving the condition and performance of the national freight network while supporting the continued investment in freight infrastructure.

DECEMBER

North Florida Freight, Logistics and Intermodal Framework Plan | The North Florida TPO's approach included efforts to better understand the needs and driving forces of the freight operating and planning partners, establish how each of their efforts connect to the bigger picture, and to evaluate the processes, strategies and missions of North Florida's port competitors.

2014

SEPTEMBER

Florida Freight Mobility and Trade Plan (FMTP) | In response to legislative and gubernatorial goals of increasing domestic and international trade, increasing the development of intermodal logistics centers, increasing manufacturing within the state, and increasing the implementation of natural gas and propane energy policies. The FMTP is composed of two elements: a Policy and an Investment Element; together the FMTP guides the implementation and identification of freight transportation infrastructure needs. The FMTP identified 77 freight project needs at an estimated cost of $4.1 billion within District Two. Since the adoption of the FMTP, many of the projects identified in District Two have been implemented or are currently under development.

2015

OCTOBER

NATIONAL FREIGHT STRATEGIC PLAN (NFSP) | Provided a comprehensive overview of network condition and performance, freight needs, and opportunities affecting goods movement in the United States and identified key strategies for improvement. Building on previous initiatives, the NFSP provides solutions and strategies using a multifaceted approach to address infrastructure, institutional, and financial constraints.

DECEMBER

FAST Act | New provisions of the FAST Act included the recommendation for states to establish State Freight Advisory Committees, the requirement to maintain Statewide Freight Plans, a new formula funding program for freight projects, the establishment of the National Highway Freight Program (NHFP), and direction to USDOT to identify and establish a National Multimodal Freight Network to include all freight supportive infrastructures - roads, rails, ports (air and sea), waterways, and other strategic assets.

Florida Transportation Plan (FTP) | The FTP is the long-range transportation plan for the entire State of Florida. The purpose of the FTP is to provide strategic direction to the Florida Department of Transportation (FDOT) and all of its planning partners, at all levels of government; statewide, regional, and local.

2016

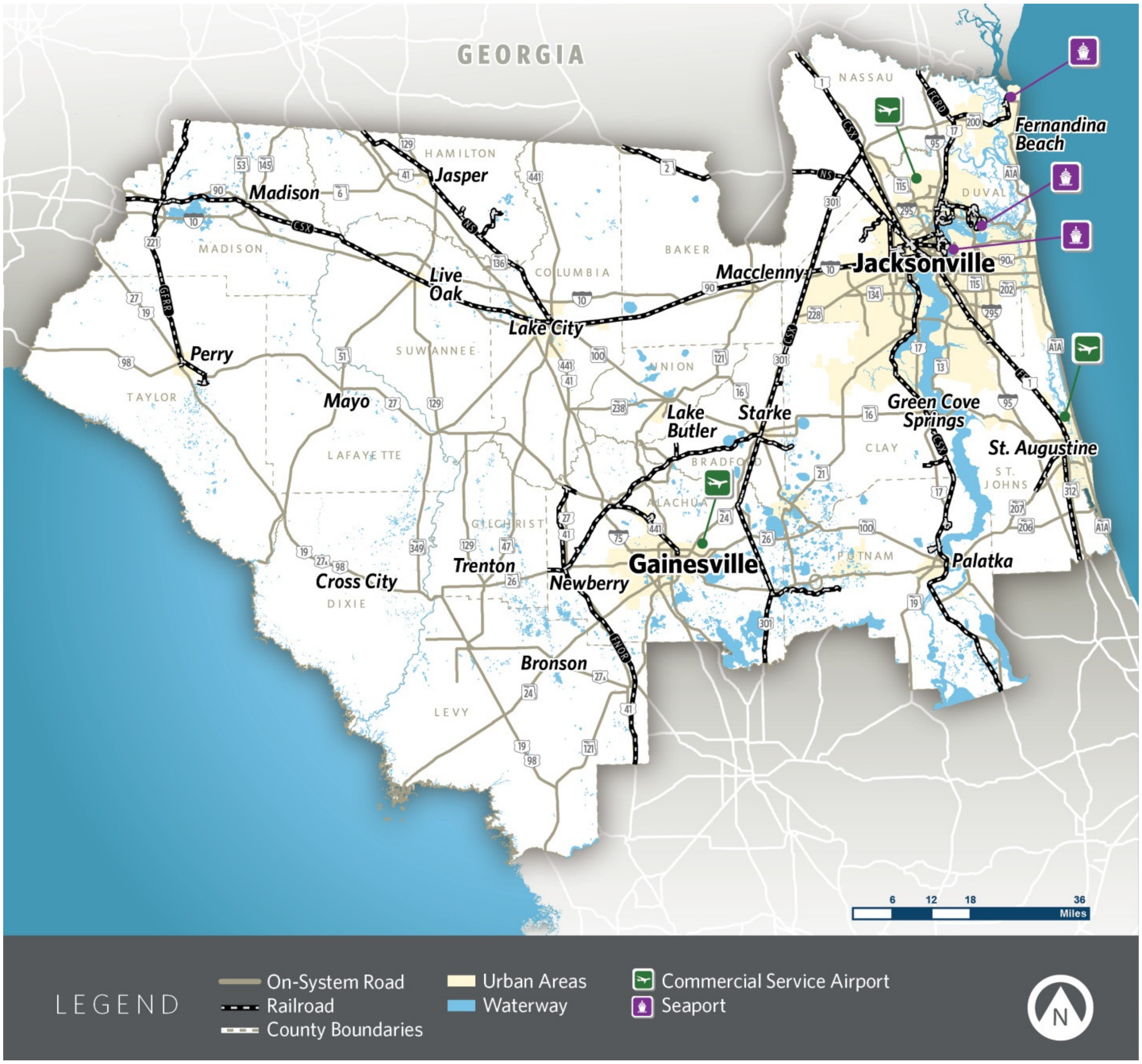
MARCH

Strategic Intermodal System (SIS) Policy Plan | The Plan identified five implementation emphasis areas intended to guide the implementation and update of SIS designation criteria, the identification and prioritization of SIS improvements, and to guide the overall integrated multimodal planning process.

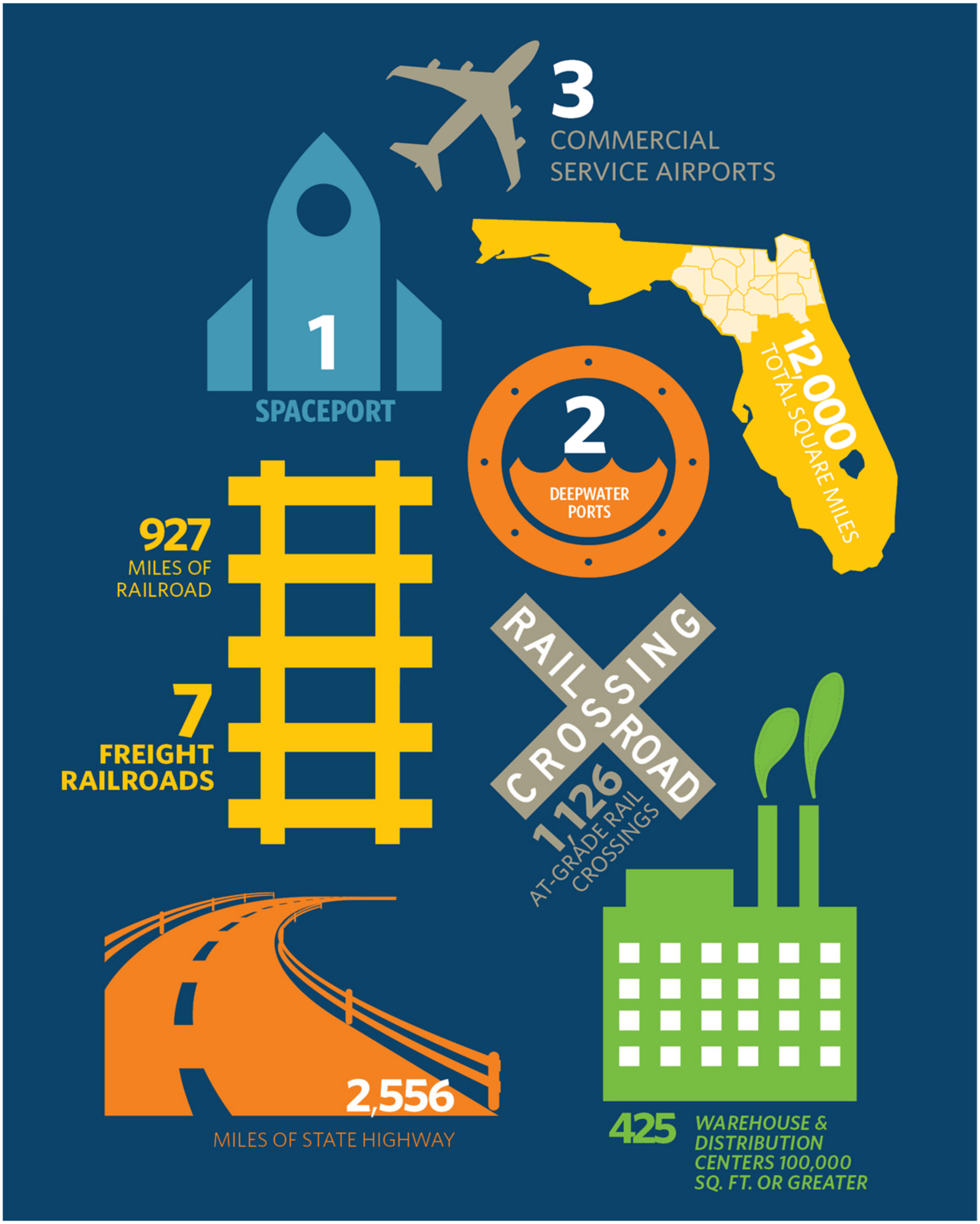
Study Area

The Northeast Florida region is a major freight gateway with the convergence of intermodal transportation facilities, supportive warehousing and distribution centers, and a highly skilled workforce. Northeast Florida covers over 12,000 square miles and is located on the state border with Georgia.

The region is composed of 18 counties each with their own unique economic and demographic profile. Altogether Northeast Florida is home to more than 1.9 million residents and a diverse workforce over 1 million strong. Understanding each county's existing conditions, demographics, major industry sectors, trade information, and transportation infrastructure is important to understand how each county fits into the larger regional and state economy.



Northeast Florida: By the Numbers



Study Objectives

The Northeast Florida Freight Movement Study is being conducted by the Florida Department of Transportation District Two with the overall goal of enhancing and expanding freight mobility for the 18-county Northeast Florida region.

The Study objectives include:

- Develop a regional branding for freight and related services;
- Leverage public-private-partnership opportunities;
- Create a living document that is a useful tool for public and private sector stakeholders;
- Design the document to be upward looking to align with Federal and State policies while being tailored to meet local and regional freight needs;
- Create a defensible list of priority projects; and
- Position District Two for future funding opportunities.

Methodology and Approach

PARTNER AND STAKEHOLDER ENGAGEMENT

REVIEW OF EXISTING PLANS AND POLICIES

INVENTORY OF FREIGHT SYSTEM ASSETS

IDENTIFICATION OF EXISTING FREIGHT SYSTEM CONDITIONS

ANALYSIS OF REGIONAL COMMODITY FLOWS AND SUPPLY CHAIN

IDENTIFICATION OF FREIGHT SYSTEM CURRENT AND FUTURE NEEDS

EVALUATION OF FREIGHT IMPROVEMENT STRATEGIES

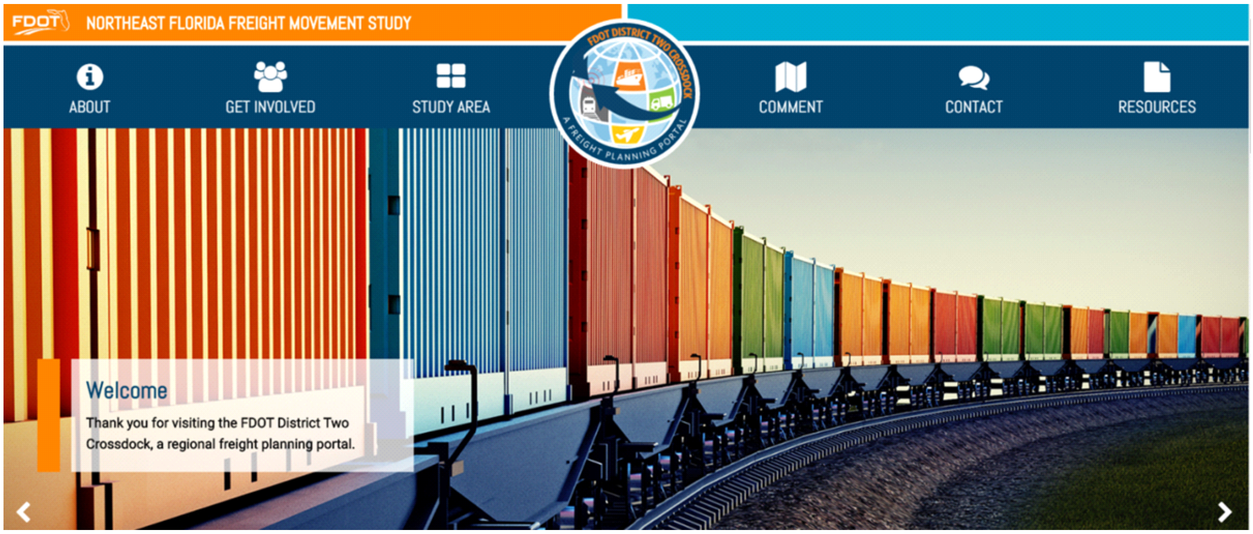
DEVELOPMENT OF ACTIONABLE SOLUTIONS

Engaging the Industry and Partner Agencies

Utilizing input from freight stakeholders and the general public is crucial for the development of strong plans and implementation of successful strategies. FDOT understands the need for coordination between the public and private sectors to address challenges and recognize opportunities in the freight transportation system. It was essential to engage people who use the freight network every day, on all levels and all modes. The success of the Study depends on responding to real challenges and opportunities, as well as recommendations that are supported by public and private sector interests.

Study Website

A Study website was created to serve as an online information center providing study-related information and related resources, opportunities to participate, and as a means of providing feedback. The website was designed for use beyond the current study to provide a mechanism for making the Study a living resource and implementing follow-up actions



Stakeholder Meetings

The District conducted 26 one-on-one meetings with representatives from the freight transportation industry and from state, county and local agencies, as well as local enforcement and state regulatory agencies. The purpose of the one-on-one meetings was to gain a comprehensive understanding of the desired objectives of each stakeholder, their challenges and opportunities, synergies for partnership, and how the Study could bring value to them.

Industry Forums

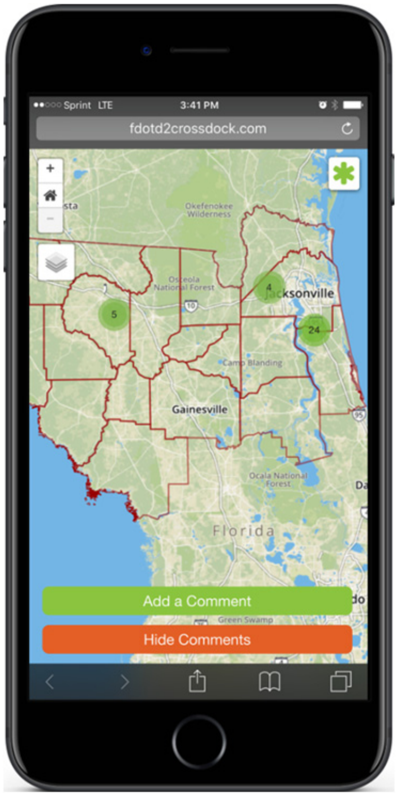
FDOT District Two held its inaugural Northeast Florida Freight Movement Forums in January 2017 at the FDOT District Two District Office in Lake City and the FDOT District Two Urban Office in Jacksonville.

Online Survey

An online survey was also developed and deployed to reach and receive feedback from all interested parties. The survey was sent directly to nearly 200 stakeholders and was forwarded on by several partners to their contacts, including the North Florida Logistics Advisory Group, reaching a total of over 300 stakeholders.

A total of 109 responses were received from public agency and industry stakeholders. Congestion was the most common issue identified by stakeholders; followed by first-mile / last-mile challenges and intersection design (turning radius, queue length, etc.). Based on the feedback received from stakeholders, it was evident that first-mile / last-mile operational issues are the key challenges. To better understand these challenges, FDOT initiated an operational analysis to identify immediate first-mile / last-mile issues and potential solutions.

Interactive Web-based Comment Map



As a method of identifying location-specific infrastructure challenges and reaching out to daily freight system users, an interactive web-based comment map was developed and incorporated as an element of the Study's website. The map application allowed users to pinpoint areas of concern, specify the type of issue (signalization, bottlenecks, congestion, infrastructure conditions, access concerns, and design-related issues), and to provide additional details about the operational challenge.

Recurring congestion and bottlenecks were identified by stakeholders as a global and location-specific issue while signalization and operational issues on first and last mile connectors were also noted frequently. Based on this feedback, the District conducted a detailed operational analysis on critical freight roadway connections. Detailed findings from this analysis are found in *Section Six: First-Mile / Last-Mile Connections*.

Regional Commodity Flow

There are multiple commodity-based datasets that can be explored to quantify and help answer questions regarding freight movements. For the Northeast Florida Freight Mobility Study, the District utilized Transearch by IHS Global Insight, STB Carload Waybill, PIERS by IHS Markit, and the BTS T-100 datasets. This information provides the amount of freight produced or consumed, the origin-destination patterns, and modes used.

Northeast Florida's freight movement activity, both domestic and international flows are the result of three core activities:

Production	Consumption	Gateway Trade
By Northeast Florida industries.	By Northeast Florida industries, military/ government facilities, and resident and visitor populations.	International imports and exports between the rest of the US and other countries that pass through District Two's ports and airports.

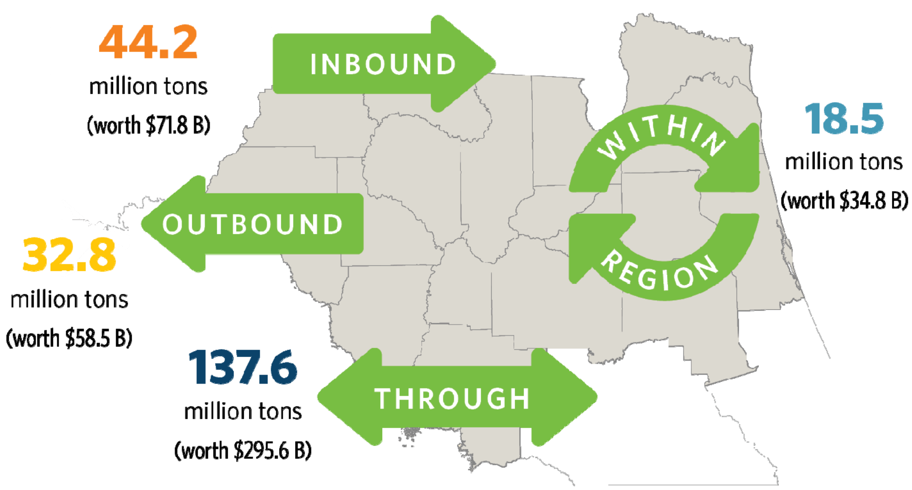
The analysis of available commodity-based data helps answer the following questions:

- *How much freight?*
- *What types of goods?*
- *Who are we trading with?*
- *How is freight moving?*
- *What are the top commodities?*
- *What shares do they represent?*

How Much Freight?

Around 46% of tonnage and 43% of value were inbound; 34% of tonnage and 36% of value were outbound; and 20% of tonnage and 21% of value were within Northeast Florida.

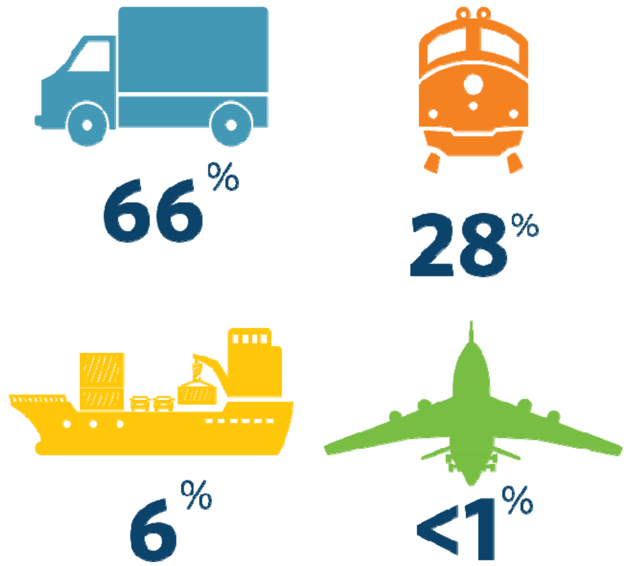
Like most of Florida, Northeast Florida is a net importer of freight, although the imbalance is not as dramatic as other major Florida metropolitan areas.



How is Freight Moving?

Northeast Florida contains an extensive highway, rail, port, and airport infrastructure, and regional freight movement relies on each of these to different extents, and for different purposes. It is very important to understand the modal dependence on freight as it has significant bearing on the overall system impacts.

Within the study area, freight movement is dominated by truck movements with 66% of total tonnage modal share which accounts for 64% of total commodity value. Some of the causes for this volume majority relate to commodity type, the use of trucks for drayage between intermodal movements, and ultimately the need to move goods the last mile.



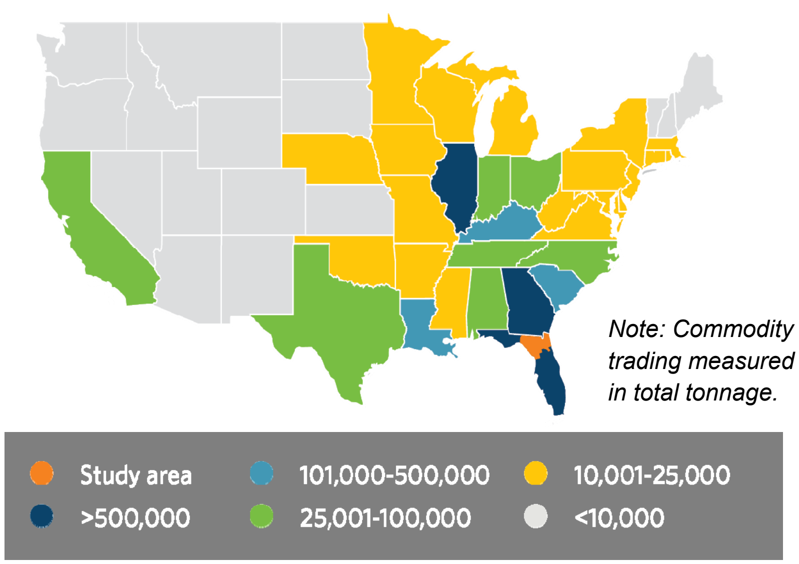
Note: Percentage by Total Volume

Who Are We Trading With?

Understanding the origins and destinations of Northeast Florida's top commodities and who the region is trading with provides insight into modal choice, length of haul, and overall market penetration as well as providing prospective as to how Northeast Florida fits into the larger southeast regional, national, and global economies.

For generated traffic, Duval County is responsible for about half of District Two's tonnage and 85% of its value. For received traffic, Duval County is responsible for 57% of tonnage and 82% of value. This is due largely to the high concentration of transportation and logistics facilities in Duval County, along with its large population of consumers and industries.

Northeast Florida's leading trade partners include the remainder of Florida, the remainder of the U.S., Canada and Mexico. For freight moving outbound from Northeast Florida, the leading destination states for tonnage and value are: Georgia, Illinois (in part due to rail traffic interchanged between eastern and western railroads), South Carolina, and Alabama.

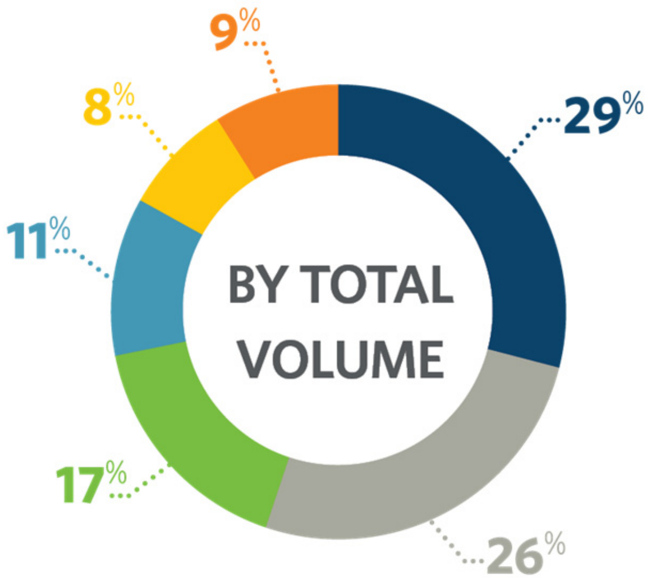


Note: Commodity trading measured in total tonnage.

For freight moving inbound to Northeast Florida, the leading origin states are: Georgia, Kentucky, Illinois and Louisiana for tonnage; and remainder of Florida, Georgia, Louisiana, Illinois, Ohio, South Carolina and Michigan for value.

What Type of Goods?

Understanding what is moving and the type of commodities being transported along the region's freight transportation system can give insight into modal choice and into the potential effectiveness of different types of operational strategies.



Using commodity groupings, the leading commodity tonnage groups are warehoused goods and construction materials, followed by fuels and energy, industrial products, agricultural and forest products, and consumer goods. The leading value-based commodity group is warehoused goods which represents nearly half of the value of Northeast Florida freight movement; while construction materials is the leading volume-based commodity category.

Commodity Details

Consumer Goods	Includes food/kindred products, tobacco, apparel, furniture, printed matter, leather, electronics, and ordinance
Transportation Products	Includes automobiles and associated parts
Construction Materials	Includes non-metallic minerals, logs/Lumber / wood products, and clay
Industrial Products	Includes metallic ores, textile mill products, pulp, and paper
Fuels & Energy	Includes bituminous coal, petroleum and coal products, and natural gas
Warehoused Goods	Miscellaneous encompassing commodities moved by shipping container

**Excludes through movements*

Freight Highway Network

Trucks serve as the primary freight mode in Northeast Florida and this is the case in many metropolitan areas as generally they are the most flexible and responsive of the freight modes. Freight users employ trucks for all types of movements and distances: short, medium, and long-haul trips. Trucks are also utilized for drayage movements between intermodal terminals (seaports, rail terminals, and other warehouse/distribution centers) and to provide the “last mile” connections.

The Northeast Florida region is served by more than 6,753 centerline miles of roadways, of which approximately 420 miles are interstates or toll expressways and 1,403 miles are principal arterials, including limited access facilities. Commercial vehicles utilize the entire highway system, whether it is providing access to residential areas for mail and parcel delivery or local warehousing and distribution functions.

Truck Driven Commodities

Construction materials, consumer goods, agricultural and forest products, and commodity waste are truck-focused commodity groups. In addition, transportation and logistics commodity types are primarily truck movements but there is also a significant rail component. One of the leading truck movements is actually rail intermodal drayage.

Connecting Intermodal Terminals

One of the primary roles of the roadway network and critical freight corridors is to provide access and connectivity to the region’s intermodal facilities including airports, rail terminals, seaports, and supportive warehousing and distribution centers. Each of these modal nodes requires an interconnecting network of roadways to support freight movement and overall commerce. Stakeholder survey findings identified “first and last mile issues” as a top industry challenge. Issues range from facility design to recurring operational challenges at and approaching intermodal terminals.

*Over **60 Million** Consumers or **20% of U.S. Population** is within one day truck trip from Northeast Florida*

Highway Outlook

The trucking community reports good operating conditions on the region's major highway facilities; however, some areas of recurring congestion and operational constraints or bottlenecks were reported, including signal timing and signage concerns, pavement issues on local roads, insufficient turning radii, and turning lane and exit queue lengths. A number of freight corridors were commonly recognized by industry stakeholders in regard to recurring congestion including: I-75, I-95, I-295, I-10, and US 301.

Commercial vehicle safety is vital to reliable freight distribution and community quality of life. This issue is of top importance to FDOT and the freight industry on a national level. FDOT and its partner agencies are working diligently to improve safety and security throughout the State of Florida.

Critical Freight Corridors

The highway network and roadway corridors are key elements in Northeast Florida's intermodal freight transportation system. The highway network provides mobility for long- and short-haul shipments while also providing essential intermodal access and connectivity between other modal terminals (marine, sea, air, rail, and pipeline). The identification and establishment of regionally significant freight corridors allows for focused planning and targeted investment based on system performance and contribution to freight and goods movement. This enables planning for improved freight mobility, as well as optimal utilization of limited public funding opportunities.

Florida's Strategic Intermodal System (SIS)

SIS is a statewide network of high-priority transportation facilities and aligns the state's limited transportation resources with the facilities most significant for interregional, interstate, and international travel and trade. The SIS highway system is composed of: SIS Corridors, SIS Connectors, and Military Access Facilities. Within Northeast Florida, SIS Corridors include approximately 910 miles of roadway while SIS Connectors, which serve first and last mile connections, include approximately 77.5 miles of roadways.

National Highway Freight Network (NHFN)

Among new provisions in the FAST Act, FHWA was required to designate the NHFN. The NHFN is composed of four sub-categories of roadways: Primary Highway Freight System (PHFS), other interstate routes not on the PHFS, Critical Urban Freight Corridors (CUFC), and Critical Rural Freight Corridors (CRFC).

The Primary Highway Freight System (PHFS) is a network of highways identified as the most critical highway portions of the U.S. freight transportation system. Within Northeast Florida (District Two), the PHFS includes I-95, I-75, I-10, and segments of I-295 which totals to 360 designated miles;

Critical Rural Freight Corridors (CRFC) are public roads not in an urbanized area which provide access and connection to the PHFS and the Interstate with ports, public transportation facilities, or other intermodal freight facilities. Within Northeast Florida (District Two), 49 miles of US 301 segments are designated as CRFCs throughout Alachua County and along southern and northern segments in Bradford County while the portion of US 301 traveling through the Starke area is designated as a Critical Urban Freight Corridor; and

Critical Urban Freight Corridors (CUFC) are public roads in urbanized areas which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities. Within Northeast Florida, 29.5 miles are designated as CUFCs including US 301 through Starke and segments of I-295 in Jacksonville.

Northeast Florida Deepwater Seaports

Northeast Florida is served by two deepwater seaports. The Port of Jacksonville consists of over 20 marine terminals including Jacksonville Port Authority (JAXPORT), military and several private terminals. JAXPORT owns and maintains three terminals at the Port of Jacksonville: Talleyrand Marine Terminal (TMT), Blount Island Marine Terminal (BIMT), and Dames Point Marine Terminal (DPMT). The Port of Fernandina consists of one deepwater shipping terminal located on the Amelia River.

Seaport Demand

Northeast Florida's seaports handle primarily containerized cargo but also handle large quantities of import automobiles via roll-on roll-off (RORO) ships and various bulk commodities. In 2015, Northeast Florida's ports handled about 5.97 million tons of cargo worth over $5.96 billion. Based on volume, over 61% of total seaport commodities are represented by petroleum refining products and miscellaneous coal/petroleum products. Northeast Florida seaports handle 6% of the region's total commodity tonnage which has a value share of 32% of total commodities pertaining to domestic water movements.

Seaport Outlook

Both ports are actively working to grow and diversify cargo operations. JAXPORT is in the process of dredging to increase port channel depth. Channel deepening to at least 47 feet is essential to keep JAXPORT competitive. With the shipping industry trending towards larger vessels, without a deeper channel, Northeast Florida will be at a competitive disadvantage in both retaining existing customers and attracting new ones. Recently, JAXPORT completed the Mile Point Project to improve operational reliability. The project corrected daily tidal cross currents which previously affected large container ship movements on the St. Johns River. In advancing Northeast Florida's seaports, significant investment in supportive highway and rail infrastructure has been made or is currently underway, including:

- JAXPORT's Intermodal Container Transfer Facility (ICTF) enables the direct transfer of containers between vessels and trains;
- The I-295/Heckscher Drive Interchange reconstruction project provides direct access to the TraPac Cargo Container Terminal and the new ICTF; and
- Martin Luther King, Jr. Pkwy / 21st Street Interchange project allows for improved access to JAXPORT's Talleyrand Terminal while improving safety along Martin Luther King, Jr. Pkwy.

Northeast Florida Commercial Service Airports

Air travel is primarily used for time sensitive cargo. Air cargo is all about location; a few miles closer to target destinations makes a difference. Thus, air cargo facilities are typically located near large population centers. Northeast Florida is served by three commercial service airports with reported air cargo activity. Three facilities provide dedicated air cargo carrier operations and commercial service belly cargo.

These commercial service airports include: Jacksonville International Airport (JAX), Gainesville Regional Airport (GNV), and Northeast Florida Regional Airport (UST/SGJ). In addition to these three commercial service airports, there are several General Aviation (GA) airports that serve private and corporate aviation demand within the region. One unique aspect of Northeast Florida's aviation system is the future spaceport operations being planned for Cecil Field.

Air Cargo Demand

Air cargo makes up less than 1 percent of the total commodity volume share and just over 1 percent of total value share. While this mode carries a relatively small portion of commodity volume, commodities moved via air are typically light weight, high value, and time sensitive. This mode provides a fast, reliable, and secure goods movement option. In 2015, Northeast Florida's air cargo facilities, primarily Jacksonville International Airport, handled 8,000 tons of air cargo valued at $1.7 billion. This equates to an average value of $223,226.00 per air cargo ton. Major air commodities include miscellaneous manufacturing products, machinery, prescription drugs, and miscellaneous (FAK) shipments. Mail and express traffic also make up a large portion of Northeast Florida's air cargo.

Air Cargo Outlook

Air cargo demand in the region is adequately met by current infrastructure capacity. Access to the airports is reportedly good, particularly when compared to competing gateway airports, Atlanta-Hartsfield International and Miami International. Although, some freight shippers serving the airports reported congestion and issues once drivers leave the immediate airport area. High growth areas were also identified in North Jacksonville and the Cecil area while air cargo stakeholders reported concerns with externalities generated by surrounding commercial development and the growth of e-commerce facilities have generated additional demands on the transportation network.

Freight Rail Systems

Northeast Florida is served by two Class I Railroads (CSXT and Norfolk Southern), one Class II railroad (Florida East Coast Railway), three Class III (First Coast Railroad, Florida Northern Railroad, and Georgia and Florida Railway) railroads, and one railroad specializing in switching and terminals (Jacksonville Port Terminal Railroad). In combination, Northeast Florida's rail network is made up of 927 route miles of track with 1,126 rail crossings with 87 grade separated rail crossings.

Northeast Florida's rail network is supported by eight rail intermodal and rail trans-loading facilities including the CSX Intermodal Terminal in Jacksonville, Norfolk Southern Intermodal Terminal in Jacksonville, Florida East Coast Intermodal Terminal in Jacksonville, CSX Jacksonville's Transflo Transload Site, Florida Northern Railroad Newberry Transload Site and Williston Transload Site, First Coast Railroad's Fernandina Beach Transload Site, and Norfolk Southern's Jacksonville Thoroughbred Bulk Transfer Site.

Freight Rail Demand

While trucks serve the major share of freight demand within Northeast Florida, rail plays a significant role by providing long distance intermodal connections. In 2015, Northeast Florida's rail network carried 26.9 million tons of cargo valued over $52 billion. The region's rail facilities served 28 percent of the total commodity volume which holds 32 percent of total value share. The top five rail-based commodities by volume include: Bituminous Coal, FAK Shipments, Broken Stone / Riprap, Fertilizers, and Motor Vehicles.

Freight Rail Outlook

Northeast Florida has a robust and extensive freight rail and terminal network serving both urban population centers and rural communities. With rail being a limited access network, very few railroad infrastructure specific challenges were identified while several freight industry participants expressed concerns relating to intermodal connectivity. Feedback and concerns focused on highway congestion and its impact on freight rail and rail terminal operations and overall goods movement reliability.

Addressing Regional Freight Movement Needs

Identifying needs and implementing solutions to accommodate increasing demand for freight and goods movement in Northeast Florida is critical to the region's economic vitality and quality of life. Maintaining the competitive edge in terms of the freight transportation system requires the region to fully integrate freight movement considerations into its transportation planning and development process. The ultimate goal of this Study is not to identify projects that simply add additional capacity, but rather identify a combination of solutions that maximize the mobility and reliability of the region's intermodal freight transportation system.

Needs Assessment

A core objective of the Study is to identify system needs and opportunities while creating justifiable list of priority projects which improve freight mobility while enhancing safety, the environment, and overall quality of life. Freight system needs were organized into three core categories:

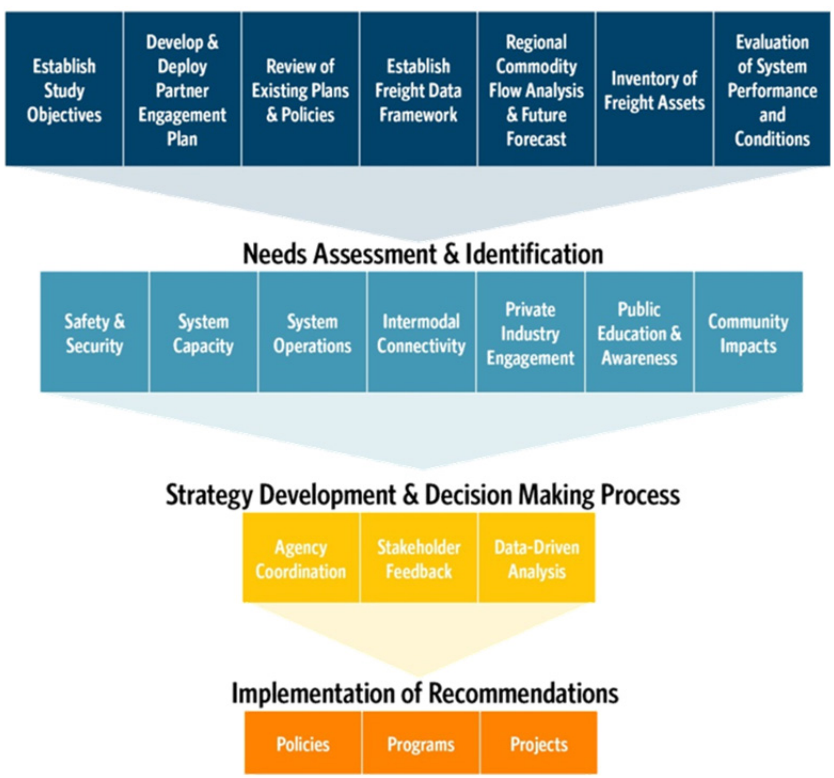
Physical relates to asset conditions, system capacity, and infrastructure constraints on existing freight supportive facilities;

Operational relates to how the transportation system is being optimized; and

Institutional relates to the governmental policy, regulatory factors or other environmental factors affecting goods movement.

Study Process and Recommendation Development

FDOT District Two can improve the productivity and reliability of the movement of freight in and through Northeast Florida through the identification and implementation of freight improvement policies, programs, and projects. The identification, strategy development and recommendation process documented freight needs based on various inputs and guidelines, including the objectives of the Study and the identification of the Florida Strategic Intermodal System and the National Highway Freight Network.



From Investigation to Implementation

Florida, along with the rest of the United States, is preparing for growth opportunities arising from increases in trade and freight volumes. The Northeast Florida region needs to be prepared to take full advantage of these opportunities, which means the region's transportation system must be able to handle the increase in demand.

Strategies

The Northeast Florida Freight Movement Study provides three multimodal and broad-based improvement strategies for addressing freight transportation challenges in FDOT District Two. The recommendations highlight the importance of continued investment, coordination, maintenance, system management and operations, and innovation.

These strategies are necessary to address the magnitude and complexity of freight transportation challenges confronting the region. These three recommendation types are not mutually exclusive. Rather, the attainment of one strategy will in many cases depend on the successful accomplishment of another. This highlights the importance of continuous, highly-coordinated and orchestrated implementation of all freight mobility improvement recommendations.

Policy Recommendations: The District will continue to develop and administer a comprehensive and multi-modal freight planning program, focused both on developing strategies, policies and methodologies - to facilitate the safe and efficient movement of people and goods; improve and expand the freight transportation system's capacity and operational reliability while mitigating community impacts; and link the different modes of freight movements to ensure the development of a system with adequate and available access points that facilitates the use of alternative transportation modes.

Program Recommendations: These recommendations support policy objectives and also address the freight transportation challenges identified in this Study. The recommendations include several initiatives requiring public and private sector coordination and partnership to effectively enhance freight mobility and support the region's and state's economic development goals and objectives.

Project Recommendations: The project recommendations reflect the scale and complexity of supply chains operating within Northeast Florida. They help the region focus on short- and mid-term strategies, as well as plan for the longer term strategic freight transportation investments needed to address future freight movements and to enhance Northeast Florida's economic competitiveness. The project recommendations are organized into four modal categories: highway, rail, air/space, and seaport.

Next Steps

The Northeast Florida Freight Movement Study was the first districtwide comprehensive review and analysis of freight infrastructure and operational issues. The Study identified critical freight transportation challenges and outlined opportunities for improvement. The Study also highlighted the importance of freight to the economy and quality of life in Northeast Florida. As such, freight and logistics considerations need to be taken into account in all aspects of regional transportation and land use planning to ensure future safe and efficient movement of goods. The policies, programs, and projects summarized in the Study provide a framework for addressing freight needs in Northeast Florida. In addition to these recommendations, a number of common themes were recognized for continued and future freight planning efforts, including:

- Taking a balanced approach to freight transportation system enhancement by fostering innovative strategies and technology solutions;
- Assisting in leveraging public and private sector investment to improve the capacity, reliability, and efficiency of Northeast Florida's freight system;
- Focusing not only on maintaining and improving existing facilities, but also developing future freight corridors both highway and rail;
- Working collaboratively with local government partners to address first and last mile connection challenges including safety and travel time reliability issues; and
- Fostering a multi-jurisdictional and cross-sectorial approach to plan and prepare for freight needs.

It is important to note, not all the recommendations described in this Freight Study fall under the role and responsibility of the FDOT. Execution of many of the recommendations is the responsibility of other agencies - Metropolitan Planning Organizations (MPOs), local governments and private-sector entities. As such, a strong partnership and collaborative approach among all planning partners and industry stakeholders is necessary to effectively and successfully implement the Study recommendations.

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Plans and Policies Review

Introduction

In developing a comprehensive regional freight movement study, it is vital to recognize the goals, strategies, and outcomes of previous studies, plans, and policies. Connecting these past plans and policies and understanding how each fits into the overall vision and objective will allow for a holistic and rational study that provides actionable and valuable recommendations. In conducting this plans and policy review, pertinent policies and transportation plans, from the past and present and from federal, state, regional, and local levels were reviewed. The following sections summarize the research conducted in this effort, including critical documents that will shape and guide the results of this study.

Literature Review

Federal Plans and Policies

Moving Ahead for Progress in the 21st Century Act (MAP-21)

Signed into law on July 6, 2012, Moving Ahead for Progress in the 21st Century Act (MAP-21) aimed to create a streamlined, performance-based, and multimodal transportation program. The law included a number of provisions with the ultimate objective of improving the condition and performance of the national freight network while supporting the continued investment in freight infrastructure. Key elements included: the establishment of a national freight policy and primary freight network, administrative direction to State Departments of Transportation (DOTs), a focus on performance-based planning using data driven and outcome-oriented approaches, and encouraged partnership with the private sector stakeholders by establishing cross-sectorial freight advisory committees at the state level.

Draft National Freight Strategic Plan (NFSP)

In October 2015, USDOT Secretary Anthony Foxx released the draft National Freight Strategic Plan (NFSP). The draft NFSP provided a comprehensive overview of network condition and performance, freight needs, and opportunities affecting goods movement in the United States and identified key strategies for improvement. The NFSP identified and discussed the following six major trends and resulting challenges. Addressing and resolving these were noted as essential to ensuring the nation's economic competiveness and continuing our quality of life:

- Expected growth in freight tonnage;
- Underinvestment in freight system;
- Difficulty in planning and implementing freight projects;
- Continued need to address safety, security, and resilience;

- Increased global economic competition; and
- Application and deployment of new technologies.

Building on existing initiatives, the NFSP provides solutions and strategies using a multifaceted approach to address infrastructure, institutional, and financial constraints. The draft NFSP explores each of the strategies below by providing reasoning, context, case examples, and economic effects.

Strategies to Address Infrastructure Bottlenecks

- Reduce congestion to improve performance of the freight transportation system;
- Improve the safety, security, and resilience of the freight transportation system;
- Facilitate intermodal connectivity;
- Identify major trade gateways and multimodal national freight networks;
- Mitigate impacts of freight movement on communities; and
- Support research and promote adoption of new technologies and best practices.

Strategies to Address Institutional Bottlenecks

- Streamline project planning, review, permitting , and approvals;
- Facilitate multijurisdictional, multimodal collaboration and solutions;
- Improve coordination between public and private sectors;
- Ensure availability of better data and models; and
- Develop the next generation of freight transportation workforce.

Strategies to Address Financial Bottlenecks

- Ensure dedicated freight funding; and
- Use existing grant programs to support freight.

At the time of its release, the NFSP also provided recommendations and called for the fostering and prioritization of freight improvements in future federal reauthorization bills. Months later, Congress passed the Fixing America's Surface Transportation (FAST) Act. This new federal transportation reauthorization bill included many of the recommendations proposed in the draft NFSP including the provision of dedicated federal funding for freight projects. This national freight planning document is to be updated every five years [49 U.S.C. 70102].

Fixing America's Surface Transportation Act (FAST)

Signed into law on December 4, 2015, the Fixing America's Surface Transportation (FAST) Act builds upon the previous federal transportation act, MAP-21, and the NFSP, by continuing the focus on transportation system condition and performance while providing greater emphasis on intermodal freight strategies with goals focusing on the importance of system safety, security, efficiency, productivity, reliability, and resiliency. The Act also aims to reduce the environmental impacts of freight movement while providing the United States with a platform to compete in the global marketplace.

New provisions to the FAST Act include: the recommendation for states to establish State Freight Advisory Committees, the requirement to maintain Statewide Freight Plans, a new formula funding program for freight projects, the establishment of the National Highway Freight

Program (NHFP), and direction to USDOT to identify and establish a National Multimodal Freight Network [49 U.S.C. 70103] to include all freight supportive infrastructures – roads, rails, ports (air and sea), waterways, and other strategic assets. Required under the Act, USDOT must immediately establish an interim network to include:

- The National Highway Freight Network established by USDOT under the National Freight Highway Program (23 U.S.C. 167);
- The freight rail systems of Class I railroads;
- U.S. public ports that have a total annual foreign and domestic trade of a least 2 million short tons;
- U.S. Inland and intercostal waterways;
- The Great Lakes, the St. Lawrence Seaway, and coastal and ocean domestic freight routes;
- The 50 U.S. airports with the highest annual landed weight; and
- Other strategic freight assets, including strategic intermodal facilities and other freight rail lines.

By December 2016, USDOT must designate a final National Freight Multimodal Network through a public process as defined in 49 U.S.C. 70103(c) and the network designation process is to be continually revisited every five (5) years thereafter. The following tables outline the multimodal freight facilities identified in Northeast Florida by USDOT.

Table 1-1 | Highway Multimodal Freight Network Routes

Route Number	Start Point	End Point	Length (Miles)
I-10	AL/FL Line	I-95	362.11
I-75	SR 821	GA/FL Line	467.90
I-95	US 41	GA/FL Line	381.05
I-295 (western segment)	I-95	I-95	34.77

Table 1-2 | Highway Multimodal Freight Network STRAHNET Connectors

Facility ID	Description	Length (Miles)
MIL_FL8P1	I-95 to FL 105, FL 105 E to Blount Island Terminal	1.53
MIL_FL4P1	US 17 S to I-295	3.03
MIL_FL7P1	FL 173 N to FL 296, FL 296 E to US 90, US 90 N to FL 297, FL 297 N to I-10	15.00
MIL_FL6P1	FL 101 S to FL A1A, FL A1A S to FL 10, FL 10 W FL 9A, FL 9A N to I-295 and I-95	9.86
MIL_FL3P1	AVE D N to FL 16 W to FL 225, FL 225 NW to US 301, US 301 N to I-10	26.49

Table 1-3 | Highway Multimodal Freight Network Intermodal Connectors

Facility Name	Facility ID	Description	Length (Miles)
Florida East Coast Railroad	FL25R	University Blvd/SR109, Phillips Hwy/US1, J Turner Butler Blvd/SR202: from (I-95@Unversity Blvd and I-95@J. Turner Butler Blvd) to Parsec entrance	2.80
Norfolk Southern Simpson Yard	FL27R	SR 111/Cassat Ave, Edgewood Ave, Edgewood Dr: from I-10 to Yard property*	3.80
Jacksonville Port Authority	FL28P	20th St Expressway, Phoenix Ave, 21st St, N Talleyrand Ave: from I-95 to north entrance	4.62
CSX-T Intermodal Facility	FL31R	Pritchard Rd, Sportsman Club Rd: from I-295 to CSX entrance	0.98
Jacksonville International Airport	FL26A	SR 102/Airport Rd: from I-95 ramps to Airport entrance	2.51
Gainesville Regional Airport	FL34A	NE/NW 39th Avenue (Entrance to I-75)	10.28

* Access will be changed to Soutel Drive as part of current yard improvement project

Table 1-4 | National Multimodal Freight Network Marine Highways

Designation	Description
M-10 Corridor	The M-10 Corridor includes the Gulf of Mexico, the Gulf Intracoastal Waterway, and connecting commercial navigation channels, ports, and harbors. It stretches from Brownsville, TX to Jacksonville and Port Manatee, FL and includes Texas, Louisiana, Mississippi, Alabama, and Florida. It connects to the M-49 Corridor at Morgan City, LA, the M-65 Corridor in Mobile, AL, and the M-55 in New Orleans, LA.

Based on the identified networks, states will use the new formula-driven program to advance eligible project improvements. The table below shows the estimated NHFP nationwide funding for the next five years.

Table 1-5 | National Multimodal Freight Network Funding Forecast

Fiscal Year	2016	2017	2018	2019	2020
Authorization	$1.14 B	$1.09 B	$1.19 B	$1.34 B	$1.49 B

The FAST Act also established the Nationally Significant Freight and Highway Projects (NSFHP) program which provides competitive grants called FASTLANE grants (which stands for Fostering Advancements in Shipping and Transportation for the Long-Term Achievement of National Efficiencies) and other credit assistance. The table below shows the estimated FASTLANE grant funding for the next five years.

Table 1-6 | FASTLANE Grant Funding Forecast

Fiscal Year	2016	2017	2018	2019	2020
Authorization	$800 M	$850 M	$900 M	$950 M	$1.0 B

As a component of the National Multimodal Freight Network, the FAST Act requires FHWA in coordination with state DOTs to establish the National Highway Freight Network (NHFN). The NHFN network is to be composed of the following subsystem of roadways as defined in the FAST Act Section 1116 Implementation Guidance:

The ***Primary Highway Freight System (PHFS)*** is a network of highways identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data. The PHFS consists of 41,518 centerline miles, including 37,436 centerline miles of Interstate and 4,082 centerline miles of non-Interstate roads.

Other Interstate Routes not on the PHFS consists of the remaining portion of Interstate roads not included in the PHFS. This includes 9,511 centerline miles of Interstate nationwide. It is noted that this category of Interstate roadways will fluctuate with additions and deletions to the Interstate Highway System.

Critical Rural Freight Corridors (CRFCs) are public roads not in an urbanized area which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities. These public roads serve first and last mile connectivity and provide immediate links between such freight generators as manufacturers, distribution points, rail intermodal and port facilities and a distribution pathway. As defined in 23 U.S.C. 167(e), states may designate a public road within the borders of the state as a CRFC if the public road is not in an urbanized area, and meets one or more of the following seven elements:

1. Is a rural principal arterial roadway and has a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks (Federal Highway Administration vehicle class 8 to 13);
2. Provides access to energy exploration, development, installation, or production areas;
3. Connects the PHFS or the Interstate System to facilities that handle more than:
    a) 50,000 20-foot equivalent units per year; or
    b) 500,000 tons per year of bulk commodities;
4. Provides access to:
    a. a grain elevator;
    b. an agricultural facility;
    c. a mining facility;
    d. a forestry facility;
    e. or an intermodal facility;
5. Connects to an international port of entry;

6. Provides access to significant air, rail, water, or other freight facilities in the State; or
7. Is determined by the State to be vital to improving the efficient movement of freight of importance to the economy of the State.

FHWA has encouraged states, when making CRFC designations, to consider first or last mile connector routes from high-volume freight corridors to key rural freight facilities, including manufacturing centers, agricultural processing centers, farms, intermodal, and military facilities. The CRFC maximum mileage limit for state designation in Florida is 320 miles.

Critical Urban Freight Corridors (CUFCs) are public roads in urbanized areas which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities. As defined in 23 U.S.C. 167(f), in an urbanized area with a population of 500,000 or more individuals, the MPO, in consultation with the state, may designate a CUFC. In an urbanized area with a population of less than 500,000 individuals, the state, in consultation with the MPO, may designate a CUFC. Regardless of population, CUFCs must meet one or more of the following four elements:

1. Connects an intermodal facility to:
    a. the PHFS;
    b. the Interstate System; or
    c. an intermodal freight facility;
2. Is located within a corridor of a route on the PHFS and provides an alternative highway option important to goods movement;
3. Serves a major freight generator, logistics center, or manufacturing and warehouse industrial land; or
4. Is important to the movement of freight within the region, as determined by the MPO or the state.

By designating these critical corridors, states can strategically direct resources toward improved system performance and efficient movement of freight on the NHFN. The designation of CRFCs and CUFCs will also increase the state's NHFN, allowing expanded use of NHFP formula funds and FASTLANE Grant Program funds for eligible projects that support national goals identified in 23 U.S.C. 167(b) and 23 U.S.C. 117(a)(2). The CUFC maximum mileage limit for state designation in Florida is 160 miles; as such, prioritizing these corridors is very important.

Federal Commercial Vehicle Weight and Size Regulations

Updated and reaffirmed with the adoption of the FAST Act and the Consolidated Appropriations Act, commercial vehicle operating weight, size, and access is established in the United States Code under Titles 23 and 49. The National Vehicle Size and Weight Team, a part of FHWA's Office of Freight Management and Operations, oversees state enforcement of heavy truck and bus size and weight standards in the United States.

The following provisions are applicable to truck size and weight under the FAST Act:

- 23 U.S.C. 127 – Vehicle weight limitations on the Interstate System
- 49 U.S.C. 31111 – Length limitations
- 49 U.S.C. 31112 – Property-carrying unit limitation

- 49 U.S.C. 31113 – Width limitations
- 49 U.S.C. 31114 – Access to the Interstate System

Commercial Vehicle Weight Standards

National weight standards apply only to commercial vehicles operating on the Interstate Highway System (IHS), approximately 40,000 miles nationwide, while states have the ability to set their own weight standards for facilities off the IHS. The maximum commercial vehicle standards are categorized based on number of axles and by gross vehicle weight to include:

- Single Axle: 20,000 pounds
- Tandem Axle: 34,000 pounds
- Gross Vehicle Weight: 80,000 pounds

One exception to the commercial vehicle weight limitations relates to bridges on the IHS. Based on the bridge formula introduced in 1975, the formula may require a lower gross vehicle weight depending on the number and spacing of the vehicle's axles.

Commercial Vehicle Length and Width Standards

National commercial vehicle size standards apply to a larger roadway network known as the National Network of Highways. This network includes the IHS and other highways formerly classified as Primary System Routes as certified by the FHWA. This network encompasses approximately 200,000 miles nationwide. The table below outlines the Federal commercial vehicle size limits on the National Network.

Table 1-7 | Federal Commercial Vehicle Size Standards

Dimension	Standard / Limitations
Overall Vehicle Length	No Federal length limit is imposed on most truck tractor-semitrailers operation on the National Network. With the exception of combination vehicles (truck tractor plus semitrailer or trailer) designed and used specifically to carry automobiles or boats in specially designed racks, vehicles may not exceed a maximum overall vehicle length of 65 feet, or 75 feet, depending on the type of connection between the tractor and trailer.
Trailer Length	Federal law provides that no state may impose a length limitation of less than 48 feet (or longer if provided by grandfather rights) on a semitrailer operating in any truck-tractor-semitrailer combination on the National Network although states may permit longer trailers to operate on its National Network highways. Similarly, federal law provides that no state may impose a length limitation of less than 28 feet on a semitrailer or trailer operating in a truck tractor-semitrailer-trailer (twin-trailer) combination on the National Network.
Vehicle Width	On the National Network, no state may impose a width limitation of more or less than 102 inches. Safety devices (e.g., mirrors, handholds) necessary for the safe and efficient operation of motor vehicles may not be included in the calculation of width.
Vehicle Height	No federal vehicle height limit is imposed.

State Plans and Policies

Florida Transportation Plan (FTP)

The Florida Transportation Plan (FTP) is the long-range transportation plan for the entire State of Florida. The purpose of the FTP is to provide strategic direction to the Florida Department of Transportation (FDOT) and all of its planning partners, at all levels of government; statewide, regional, and local. As a collaborative effort, the FTP was developed in partnership with both public and private stakeholders with direction provided by a 35-member steering committee, four issue-focused advisory groups, and an extensive public involvement process consisting of a statewide summit, open houses, webinars, workshops, and briefings.

The FTP is composed of three distinct elements:

The ***Vision Element*** has a 50-year horizon and was released in August 2015. This element is future focused and identifies Florida's transportation system vision based on stakeholder input which was influenced by the examination of historic trends, forecasted growth, identified uncertainties, and other emerging themes.

The ***Policy Element*** has a 25-year horizon and was released in December 2015. Building upon the identified Vision, this element outlines the goals and objectives for Florida's transportation system while providing a policy framework for the allocation of state and federal funding.

The ***Implementation Element*** is currently under development (as of July 2017). Once complete, this element will provide specific direction, identify the role and responsibly for each planning partner, and will call for performance measures as a means of implementing, and evaluating the progress of the FTP.

Strategic Intermodal System (SIS) Policy Plan

The Strategic Intermodal System (SIS) Policy Plan was released in March 2016 in response to the framework and guidance established in the FTP Policy Element. This Plan identifies policies, objectives, and strategies to guide the development and investment on Florida's high priority SIS transportation network. The Plan is focused around three core objectives: Interregional Connectivity, Intermodal Connectivity, and Economic Development.

The SIS Policy Plan identifies five implementation emphasis areas. The following emphasis areas are intended to be used in the implementation and update of SIS designation criteria, the identification and prioritization SIS project improvements, and to guide the overall integrated multimodal planning process:

- Statewide and regional economic development opportunities;
- Freight mobility and trade development;
- Innovation and technology;
- Modal and system connectivity; and
- Coordination with regional and local transportation and land use decisions.

The SIS Policy Plan will also provide the policy framework for the future update, development, and implementation of the following SIS plans and products:

The ***SIS First Five Year Plan*** is updated annually and identifies which SIS projects are in the FDOT Work Program (years one through five) and State Transportation Improvement Program.

The ***SIS Second Five Year Plan*** is updated annually, following the update of the SIS First Five Year Plan and accounts for projects identified for funding outside of the FDOT Work Programs (years six through ten).

The ***SIS Cost Feasible Plan*** was last updated in January 2017. This long range plan identifies SIS projects that are forecasted to be financially feasible within the next 15 to 20 years.

The ***SIS Multimodal Unfunded Needs Plan*** was last updated in 2017. This plan identifies projects on the SIS network that require continued investment but where funding is not forecasted to be available during the SIS Cost Feasible Plan horizon.

The ***SIS Atlas*** is a publication containing maps and tables identifying the designated and emerging SIS facilities throughout the state.

Freight Mobility and Trade Plan (FMTP)

In 2012, FDOT began the process of developing FMTP in response to legislative and gubernatorial goals of increasing domestic and international trade, increasing the development of intermodal logistics centers, increasing manufacturing within the state, and increasing the implementation of natural gas and propane energy policies. During the same timeframe, MAP-21 was signed into law and recommended that states develop comprehensive freight plans. With federal and state direction, FDOT's Office of Freight, Logistics, and Passenger Operations took the lead in setting the framework for the FMTP with the intent of providing the state a comprehensive and highly integrated plan that would improve freight and goods movement while ensuring MAP-21 compliance.

The FMTP is composed of two elements:

The ***Policy Element*** was adopted in June 2013 with the intent of "telling Florida's Freight Story." This was accomplished by developing an inventory of existing freight infrastructure; analyzing commodities, patterns and performance; identifying critical issues and emerging trends; and ultimately setting the key objectives and strategies. Another important component of the Policy Element was the Implementation Guide. The Implementation Guide assigned and outlined the specific primary and supporting agencies responsible for carrying out each of the established strategies.

The ***Investment Element*** was adopted in September 2014 and, in conjunction with the Policy Element, identified freight needs, developed criteria for evaluating freight investments, prioritized freight investments based on the established evaluation criteria, and identified preliminary funding and financing opportunities. It is important to note that the FMTP identified 77 freight project needs at an estimated cost of $4.1 billion within District Two. These freight project needs are described in *Technical Memorandum 10: Needs Assessment*.

2015 Florida Seaport & Waterways System Plan

The Florida Seaport & Waterways System Plan was updated in 2015 to ensure that the State of Florida's actions regarding seaports are guided by a strategic system-wide approach, demonstrate benefits of a coordinated state seaport system, and highlight increased jobs and tax base. The Plan considered the information from the 2010 Seaport Systems Plan which accounts for recent industry developments and planning efforts. The focus areas and strategies presented in the plan provided insight into how the state's seaport program seeks to implement the planning policies of the Florida Transportation Plan (FTP), the Strategic Intermodal System (SIS) Plan, and the Freight Mobility and Trade Plan (FMTP).

The Seaport & Waterways System Plan provides an introduction and background of the state's seaport system and includes detailed profiles for each of Florida's 15 public seaports. The Plan also provides global, national and statewide analysis of Florida's seaports, intermodal freight and industry trends and conditions. Based on stakeholder feedback, key issues impacting Florida's seaports were acknowledged and summarized while FDOT's infrastructure program and focused planning efforts were also outlined.

Driven by four focus areas: 1) Seaport Access Enhancement, 2) Seaport Capacity Expansion, 3) Seaport Efficiency Improvement, and 4) Waterborne Freight Supply Chain Optimization; the Plan set a vision for Florida's Seaport System, identified key issues, and established performance objectives, and seaport program strategies. The Plan also focused on identifying needs at the system and individual port levels and set a course of action for implementing improvements. The Seaport Systems Plan looked locally and globally at critical issues, future opportunities, and potential challenges. With an intermodal emphasis, the Plan also recommended system-wide improvements to landside connections to airports, seaports, and rail terminals; enhanced regional distribution networks; strategic expansion of distribution center capacity; the development and maintenance of high-capacity freight corridors (rail, water, and roadway); and the establishment of land use plans and policies that support freight intensive activities.

Relating to Northeast Florida, the Plan identified JAXPORT as the number one vehicle exporter in the United States and noted that it was one of the busiest ports in the nation for total vehicle handling. In 2015, JAXPORT was ranked the number one container port in Florida.

Florida Rail System Plan

The Florida Rail System Plan was originally completed in 2000 and includes several updates. The most recent update occurred in two parts: the Policy Element was adopted in 2009 and the Investment Element was adopted in 2010. The Policy Element established a vision for passenger and freight rail transportation in Florida and created a policy framework of goals, policies, and strategies to guide future state rail investments and decisions. The Investment Element identified an inventory of needs, established priorities for the investment of state funds using the policy framework of the Policy Element, and set forth future action steps necessary to implement the Plan. The key goals and findings for each component are summarized below.

Policy Plan

- Eliminate chokepoints and improve corridor operations;
- Improve the interaction between rail, seaports, and trucking;
- Upgrade short line railroads to handle industry-standard cars;
- Improve rail yard operations and opportunities for passing sidings; and
- Respond to the increasing demand for passenger rail service while ensuring continued freight access on shared corridors.

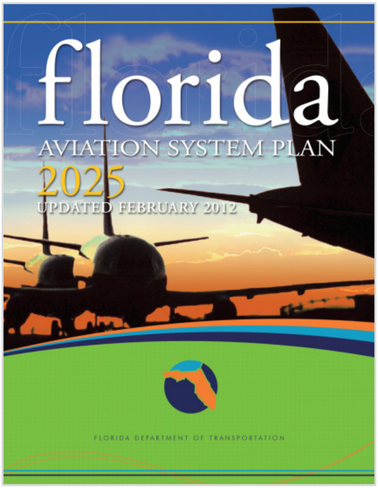
Investment Plan

- Provide an inventory of existing and abandoned rail systems and their role within Florida's surface transportation system;
- Describe the passenger rail system with a performance evaluation;
- Identify and prioritize rail infrastructure needs; and
- Discuss existing and potential funding opportunities.

Another component of the Plan analyzed commodity flows and identified rail traffic origins and termination points. Relating to Northeast Florida, over 9.3 million tons of cargo originated and over 18.9 million tons of cargo terminated in FDOT District 2 in 2008.

Florida Aviation System Plan (FASP)

The Florida Aviation System Plan (FASP) was originally completed in 2005 and was updated in 2012 to address conditions through 2025. The FASP evaluated current and future challenges facing the aviation industry and provided both goals and initiatives. Several of the major goals and initiatives are provided below.



Goals

- Support new technologies and innovations;
- Contribute to sustainable growth while remaining sensitive to the environment;
- Provide efficient, safe, convenient, and secure airports;
- Protect airspace and promote compatible land use planning around airports; and
- Promote aviation to business, government, and the public.

Initiatives

- Investment to promote economic development;
- Intervention into local land-use decision-making to remove barriers for important aviation projects;
- Support for technological innovations in aviation;
- Build an in-state air service system to improve scheduled service and to reduce highway congestion; and
- Investment to meet security and passenger needs at major airports.

Florida Motor Carrier System Plan

The FDOT's Rail and Motor Carrier Operations Office is currently in the process of finalizing the Florida Motor Carrier System Plan. Historically, FDOT has focused on asset and infrastructure protection and safety, with specific attention to vehicle and operator compliance. With direction from the FTP and FMTP, the Florida Motor Carrier System Plan will continue its focus on safety and compliance while also emphasizing truck mobility and the identification and resolution of critical policy issues affecting the motor carrier industry.

The Plan will be developed in coordination with both private and public sector stakeholders. This is to be achieved through the use of working group meetings and business forums.

Business Forum One was held on January 21, 2016 at the University of West Florida in Pensacola, Florida. This forum was the public kick-off meeting and provided an opportunity to solicit input from stakeholders relating to the purpose of the Motor Carrier Systems Plan and to identify and confirm critical motor carrier issues. The following issues were identified and preliminarily discussed:

- Hours of Service;
- Compliance, Safety, and Accountability (CSA);
- Driver Shortage;
- Driver Retention;
- Truck Parking;
- ELD Mandate;
- Driver Health and Wellness;
- Economy;
- Infrastructure and Congestion;
- Driver Distraction;
- Empty Backhauls;
- Alternative Fuels;
- Regulatory Consistency and Harmonization with Neighboring States;
- Truck Size and Weight;
- Technology Implementation and Implications;
- Last Mile Connectivity; and
- Data.

Business Forum Two was held on April 7, 2016 at Polk State College in Bartow, Florida. This second forum focused on validating the critical issues identified at the first business forum, examining what others are doing across the United States (state of the practice), and reviewing the draft goals, objectives, and strategies for the Motor Carrier Systems Plan. The goals and focus areas discussed centered on providing a high quality system that is safe and secure; reliable, agile and resilient; supportive of economic competitiveness; provides options; and conserves energy and mitigates environmental impact while balancing regional needs and community impact.

Business Forum Three was held on June 30, 2016 at the FDOT District 4 Auditorium in Fort Lauderdale, Florida. This third forum provided a summary of findings from the first two forums and then focused the discussion and interaction on establishing and confirming Motor Carrier System Plan goals, objectives, and strategies. An overview presentation on FDOT's Heavy Truck Corridors Study was also presented and included a facilitated stakeholder discussion.

Business Forum Four was held on October 13, 2016 at the FDOT District 2 Training Building in Jacksonville, Florida. At the fourth and final business forum, FDOT outlined the Motor Carrier Systems Plan structure and key components and discussed the findings from the preliminary policy framework survey. Utilizing an interactive session, updates to the draft strategies were presented and discussed. At the conclusion of the meeting FDOT staff identified the next steps regarding plan development

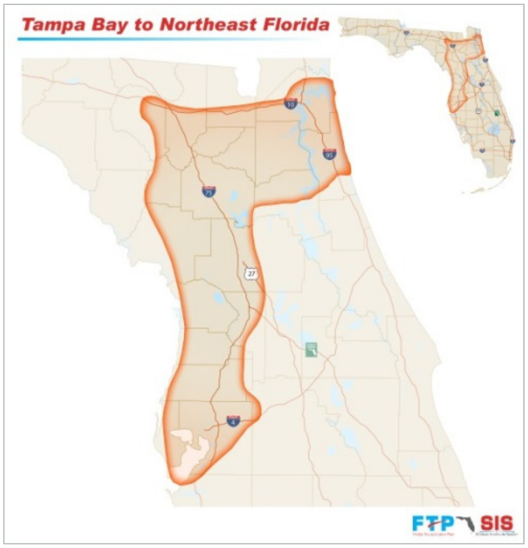
Following the completion of the Florida Motor Carrier System Plan, two main conclusions were identified, 1) the issues confronting Motor Carrier vehicles, drivers, and the industry in its entirety are related, connected, and dependent upon on another adding to the complexity of analyzing them and addressing them; and 2) a coordinated approach using multiple offices within FDOT and fostering strategic partnerships with key local, state, and federal agencies and associations and stakeholder is essential to address and resolve Motor Carrier System Issues.

The Florida Ports Council: 2016 Seaport Mission Plan

In partnership with the Florida Department of Economic Opportunity (DEO), the Florida Ports Council developed the Five-Year Florida Seaport Mission Plan which was released in April 2016. The Plan concentrates on the cutting-edge investments and capital improvements of Florida's Ports, the economic benefits of seaports, global trends and opportunities, and waterborne import and export indicators. The Plan also explores the implications of larger vessels, major trading partners by volume and value, commodity types, and the influence of data and technology. Passenger cruise operations are also addressed in detail; with a focus on economic impact and future opportunities given the industry's steady growth and introduction of new and larger generations of cruise ships. Another element of the Plan offers a general overview and brief profile for each port; identifying their specific goals and objectives, trading partners, recent accomplishments, and current and future investments. Profile information regarding seaports located in Northeast Florida will be provided in Technical Memo #5: Freight Asset Inventory.

Florida's Future Corridors

Initiated by the FDOT following the 2060 FTP, the Future Corridors Program is a statewide effort to identify and plan for critical transportation corridors that will support the state's economic competitiveness and quality of life. The future corridor planning process is composed of three (3) phases. The planning process included a concept phase where study areas are defined and needs evaluated, an evaluation phase where potential corridors are identified and assessed based on established criteria, and a project development phase where the specific alternatives are identified for further detailed analysis. Five (5) prospective study areas were identified for exploration with the goal of linking regional pairs with limited existing connectivity. The study areas include: Tampa Bay to Central Florida, Tampa Bay to Northeast Florida, Southeast Florida through the Heartland to Central Florida, Southwest Florida through the Heartland to Central Florida, and Northwest Florida.



The concept phase of the Tampa Bay to Northeast Florida study area was released in October 2013. Findings from the study included the identification of mobility and connectivity needs with freight mobility noted as a critical issue and the need for strategic investment in roadway and rail infrastructure. Improvement strategies included: the transformation of the Interstate 75 (I-75) corridor to potentially include managed lanes, truck-only lanes, enhanced parking lots, and staging areas to accommodate future truck volumes; enhancements to passenger rail service; improvements to the freight rail connectivity and access to proactively relocate existing rail lines to improve capacity and reduce impacts to the surrounding communities; and potential interstate reliever concepts for I-75.

FDOT District Seven: Freight Roadway Design Considerations

In 2014, as an element of the Tampa Bay Regional Strategic Freight Plan, FDOT District Seven released the Freight Roadway and Design Considerations (FRDC) report as a form of implementation guidance. The FRDC considers land use context and freight facility function to balance facility needs and influence appropriate design specifications. With the goal of balancing livability and freight activity, the FRDC focuses on individual roadways and the FDOT District Seven Freight Activity and Land Use Compatibility Analysis (FALUCA) model which emphasizes four unique planning areas and the transitional areas between each: Community Oriented Areas, Low Activity Areas, Diverse Activity Areas, and Freight Oriented Areas. Following the FALUCA classification, five key context topics are addressed to refine design intent:

1. Design Vehicle
2. Truck Turning Encroachment
3. Modal Emphasis
4. Target Speed
5. Fine Tuning Access and Mobility

The FRDC expanded the implementation guidance with design strategies including the development of prototypes, user perspectives, design nuances, diverse area considerations, and special cases. The District Seven FRDC has been well received by the planning industry and is now under consideration for statewide implementation.

Transportation Planning Organization Plans and Policies

North Florida Transportation Planning Organization (TPO)

The North Florida Transportation Planning Organization (TPO) is tasked under federal and state law to oversee the regional transportation planning and funding process for Duval, Clay, Nassau and St. Johns Counties. The TPO engages in long-range planning and short-term capital programming. Given the economic and community impact, the North Florida TPO is highly engaged in freight planning and in focused coordination with its freight and cargo operating partners. The TPO has commissioned and developed multiple plans and studies relating to improving intermodal freight movement, the subsections below will summarize these efforts.

Long Range Transportation Plan (LRTP)

The 2040 Long Range Transportation Plan (LRTP) was adopted in February 2015 with an element focusing on freight and intermodal systems. The LRTP addressed existing conditions, critical freight facilities, the total amount, type, and direction of commodities moving, key trading partners, future freight demand and the implications to the roadway and overall freight network, and identified over 50 short-term, mid-term, and long-term needs and intermodal projects at an estimated present day cost of $3.4 billion. The following list is a subset of project needs categorized as major priorities; each of these priorities is being actively advanced or are currently under construction:

- Mile Point Navigation Improvements;
- Jacksonville Harbor Deepening;
- Rail capacity projects for CSX, Norfolk Southern, and FEC;
- Intermodal yard improvements and access for CSX, Norfolk Southern, and FEC;
- North Area/JIA Corridor; and
- Port access improvements at the Port of Fernandina.

The LRTP also identified the need for additional rail intermodal facility capacity, in addition to the Intermodal Container Transfer Facility (ICTF) at Dames Point, to serve future container growth, and called for additional rail track improvements to balance the region's future passenger and freight rail needs and the associated operational conflicts.

List of Priority Projects

Each year, the North Florida TPO goes through the process of updating its list of priority transportation improvement projects. Projects are ranked in coordination with local government partners and approved by its advisory committees and board before being submitted to FDOT for their use in developing the five-year work program and transportation improvement program. The projects are organized into 10 distinct categories, including: region-wide projects, SIS projects, Jacksonville Transit Authority mass transit projects, St. Johns County mass transit projects, aviation projects, Jacksonville Port Authority (JAXPORT) projects, Port of Fernandina projects, freight projects, transportation alternative projects, and Transportation Regional Incentive Projects.

For purposes of this study, this subsection will focus on the following categories: Region-wide, SIS, Aviation, Seaports, and Freight priorities. As of June 2015, the North Florida TPO has 20 region-wide priority projects. This category of improvements focuses on creating new roads, adding lane capacity to existing roads, and making intersection and interchange modifications. SIS projects are also ranked in coordination with FDOT; the TPO has 19 SIS projects with targeted investments on I-10, I-95, I-295, and SR 9B. The four aviation project priorities include the design and construction of an air traffic control tower and consolidated rental car facility at Jacksonville International Airport, and hanger rehabilitation and construction at Cecil Airport and Herlong Recreational Airport. Seaport priorities include wharf reconstruction at the Blount Island and Talleyrand Marine Terminals, the rail extension at JAXPORT's Dames Point Terminal, and pier rehabilitation and storage at the Port of Fernandina. The North Florida TPO also has 14 existing freight project priorities including the deepening of the harbor, roadway/rail grade separation projects, rail capacity upgrades, access improvements, and the implementation and construction of the North Rail corridor.

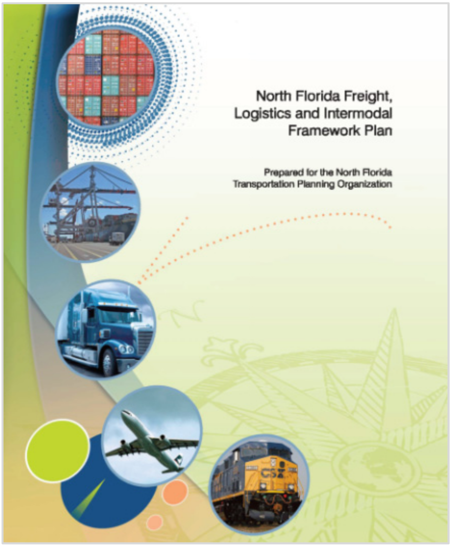
Transportation Improvement Program (TIP)

The Transportation Improvement Program (TIP) is a five-year financial program that describes the schedule for obligating funds to specific projects. The TIP documents the transportation expenditures that are planned to be spent over the next five years. As a matter of process, projects are initially identified in the LRTP, are then prioritized in the list of priority projects, and then entered into the TIP for programing federal, state, and/or local funds. The North Florida TPO in coordination with FDOT updates this program annually, adding the new fifth year of the work program.

From fiscal year 2016/17 through 2020/21, an estimated $2.3 billion of federal, state, and local funds will be invested into the Northeast Florida TPO region's multimodal transportation system through planning, design, engineering, right-of-way acquisition, construction, and maintenance projects. Project specifics are identified in the adopted TIP by project, segment, work description, phase, and funding type. The TIP also accounts for prior investments and estimated future costs outside of the current improvement program.

North Florida Freight, Logistics and Intermodal Framework Plan

In December 2012, the North Florida TPO completed its Freight, Logistics and Intermodal Framework Plan. The approach included efforts to better understand the needs and driving forces of the freight operating and planning partners, establish how each of their efforts connect to the bigger picture, and to evaluate the processes, strategies and missions of North Florida's port competitors.



The plan also set guiding principles with emphasis on positioning North Florida as a global gateway, the importance of coordination and collaboration among public and private sector partners, and the continuation of the One Florida approach to targeted statewide planning and investment. Infrastructure supporting the movement of freight was also analyzed as part of the plan which highlighted critical corridors and upcoming investments. As a recommendation of the infrastructure component, three focus areas were discussed for future implementation:

- The need for improved roadway and rail connections between major freight facilities to support increased connectivity between modes;
- Completion of the North Area/Jacksonville International Airport (JIA) Corridor to better serve existing and future marine terminals and the ICTF while reducing at-grade road/rail conflicts; and
- Continued port terminal improvements and modernizations.

Market characteristics and the business climate were also examined to understand existing conditions and opportunities, future freight levels, and issues impacting the freight industry. National and state legislation and policies affecting freight and goods movement were analyzed and documented with specific implications identified. The plan established a framework for advancing North Florida's freight and logistics needs by providing a means of engaging the industry, guiding future investment, and ensuring a qualified workforce is available to meet current and future industry demands.

North Area/JIA Corridor Rail Feasibility Study

In January 2014, the North Florida TPO completed its work on the North Area/JIA Corridor Rail Feasibility Study. The feasibility study's goal was to identify and evaluate alternative alignments serving east-west rail movements between marine terminals marine terminals, the ICTF and North/ South rail mainlines. With limited existing capacity, the need for extensive and costly upgrades to the existing line, adverse community impacts (noise and at-grade crossing conflicts), and the effects of future growth on rail movements; multiple alignments were assessed with focus on mobility, community, the environment, and economic impact. The study used a two-tier approach to evaluating and selecting the proposed alternatives.

The first screening tier evaluated 17 preliminary alternatives using the following criteria:

- Potential grade separations-roadway and railroad bridge/trestles;
- Potential at-grade crossings;
- Passenger rail connectivity to JIA;
- Avoidance of managed lands;
- Existing property use compatibility; and
- Rail accessibility.

Following the tier one evaluation, 12 of the 17 alternatives were eliminated. The second tier evaluated the five remaining alternatives using the following criteria:

- Emergency response;
- Proximity to existing residential properties;
- Consistency with local and regional plans;
- Rail accessibility to future freight intensive land uses; and
- Wetland mitigation.

It was noted that the second tier was prepared for informational purposes only and would not be prioritized. Following the tier two evaluations, four of the five alternatives were recommended for a more detailed alternatives analysis including preliminary engineering, cost estimation, and right-of-way negotiations. Following the Tier Two analysis, four alignments (N3, M4a, M7, and M8) were recommended to be evaluated through a more detailed Alternatives Analysis (AA) Planning Phase/EIS process to identify a single preferred alignment within the North Area/JIA Corridor. The AA and EIS process is the next step in project development.

St. Augustine Truck Parking Study

In an effort to better manage and reduce truck delivery impacts on the historic City of St. Augustine, the North Florida TPO conducted a truck parking study in 2015 to find a solution that mitigated delivery impacts in high traffic and tourism-focused areas (particularly the Spanish Quarter) while ensuring freight operators adequately and effectively serve local businesses. The planning study analyzed existing parking inventories, traffic data, and designated truck routes, conducted a commercial vehicle parking occupancy study and user surveys, and engaged the public as a whole.

The study utilized case studies to identify and compare how other areas are addressing this same issue. Following the discovery stage, eight alternatives were considered, each with independent utility, these include:

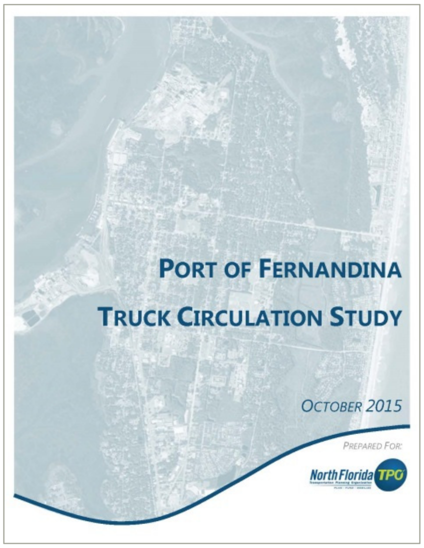
- Truck waiting areas;
- Central distribution center;
- Centralized loading zones for extended times;
- Time restrictions in loading zones;

- Smart parking management systems;
- Redesign existing parking lots;
- Restricting permits, fines, and loading zone fees; and
- Truck routes.

Following a comprehensive evaluation of alternatives, the study recommended implementing time restrictions in loading zones during peak periods, the redesign of existing parking and loading areas (Tolomato and Court lots, and the Spanish Street and Toques loading zones), utilizing new smart parking management systems to manage space availability and enforcement efforts, updating and restructuring permit and loading zone fees and fines, and identifying and establishing a truck route network to better circulate and reduce impacts in historic areas.

Port of Fernandina Truck Circulation Study

In October 2015, in partnership with the Port of Fernandina, the North Florida TPO completed the Port of Fernandina Truck Circulation Study to evaluate truck traffic generated by the port and major industrial sites (mills) in close proximity to the port. The study focused on two major corridors providing north-south port access and network connectivity: 8th Street/SR A1A and 14th Street/SR 105.



As a freight-focused traffic circulation study, the work composed of field data collection, evaluation of existing traffic, turning movement and intersection analysis, and identifying directional movements. After a comprehensive evaluation, the study found:

- The majority of daily truck traffic entered the study area via 8th Street/SR A1A to serve the major industrial sites (mills);
- The truck traffic generated by the Port is minimal with minor impact of overall traffic operations in the study area;
- The Port generated about 90 trucks per day; and
- The intersections' level of service (LOS) during peak hours operated at a LOS of C or better.

Gainesville Metropolitan Transportation Planning Organization

The North Central Florida Regional Planning Council (NCFPRC) houses and provides staff support for the Metropolitan TPO for the Gainesville Urbanized Area. This planning area does not include all of Alachua County, but rather the developed and developing portions in and around the City of Gainesville. As with all federally recognized MPO/TPOs, three core plans and programs are required to be produced and adopted: the LRTP, the list of priority projects, and the TIP. The following subsection will summarize these items.

Long Range Transportation Plan (LRTP)

The 2040 LRTP for the Gainesville Urbanized Area was adopted in October 2015. With the 2040 vision statement, "a transportation system that is safe and efficient; serves the mobility needs of people and freight and fosters economic prosperity while minimizing transportation-related fuel consumption and air pollution," system needs and project solutions were identified to:

- Support economic vitality;
- Increase safety and security for motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life and promote consistency between transportation improvements and state and local planned growth and economic patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation; and
- Emphasize the preservation of the existing transportation system.

The adopted 2040 LRTP contained 11 cost feasible projects using federal and state transportation funding, including the modifications to the I-95 interchange at SR 121, resurfacing projects, and multiple complete streets described projects.

List of Priority Projects

Like all metropolitan transportation planning organizations (MPOs/TPOs), the list of priority projects is reviewed annually, updated, and submitted to FDOT for use in developing the state's work program. The Metropolitan TPO for the Gainesville Urbanized Area establishes project lists for the following categories: bicycle/pedestrian priorities, transit priorities, and TRIP priorities. As of June 2016, four safe routes to school projects, seven state highway system funded pedestrian projects, four SUNTrail funded projects, and nine transportation alternative funded pedestrian and bicycle projects were identified and prioritized. The list of priority projects also includes 11 mass transit improvements. One TRIP funded project has been identified, the SW 62 Connector from SR 331 (Williston Rd) to SR 26 (Newberry Rd); this extension is projected to alleviate congestion along I-75 by improving system connectivity and increasing roadway capacity.

Transportation Improvement Program (TIP)

Developed in cooperation with FDOT, Alachua County, the City of Gainesville, and the University of Florida, the TIP identifies an estimated $165 million of federal, state, and local funds, from fiscal year 2016/17 through 2020/21, to be invested in the Gainesville Urbanized Area's multimodal transportation system through planning, design, engineering, right-of-way acquisition, construction, and maintenance projects. The TIP also calls attention to the process used in developing the program, which includes technical review and public involvement. In this section, the narrative notes that freight shippers are specifically invited to participate in the program's development. The TIP identified regionally significant principle arterial facilities, including: I-75, US 441, SR 20, SR 24, SR 26, SR 121, SR 222, and SR 331 – although noting no capacity enhancement projects on these facilities are scheduled in the TIP within the Gainesville Metropolitan Area. Notable projects identified in the 2016/17-2020/21 improvement program include the construction of the SW 40 extension, intersection improvements and traffic signalization at various locations, and preliminary engineering and renovation/construction of the rest area on I-75 at SR 121.

Summary of Local Plans and Policies

This section provides a summary of locally adopted planning policies impacting the way freight and goods are moved through local jurisdictions, specifically counties. **Figure 1-1** displays the 18 counties located within District Two. County comprehensive plans within FDOT District Two were reviewed. Overall, the comprehensive plan policies focus on preserving natural resources and local environment while encouraging industry growth, maximizing transportation options for the movement of people and goods across the region, and encouraging coordination among stakeholders both private and public.

The following subsections provide a general overview of how each local comprehensive plan topic relates to and supports the movement of freight and its associated industries.

Figure 1-1 | FDOT District Two Counties

Land Use

Counties favor the strategic preservation and separation of freight- and goods-generating land uses to encourage economic growth as well as appeal to industries to locate freight and goods generators. Plans included policies to separate schools and residential land uses from industry, but also permit light industry within mixed-use land classifications, provided there is a natural land barrier between neighboring properties to limit any adverse impacts. Freight-related industry is encouraged to be located in industrial land use zones, which are usually located near large transportation corridors for freight routes and can be easily connected to public utilities.

Roadways

County comprehensive plans included policies to promote freight within county boundaries. Lands designated for industrial land uses are located to provide access to arterial roadways, or appropriate collector roadways (non-residential). Roads are designed to allow trucks to perform U-Turns, provide for separate entrances specifically for freight vehicles, and have enough space to properly maneuver trucks and other freight on private roadways and property outside of street-view. Comprehensive plans note the importance of coordinating transportation system planning with future land use planning to ensure that existing and proposed population densities, housing, employment patterns, and land uses are consistent with the transportation modes and services proposed to serve these areas. Some plans also include reference to adopted level of service standards as it relates to adding new through traffic lanes. Technical Memorandum #6: Freight Asset Inventory will provide location specific commercial vehicle weight limitation and local route restrictions.

Railroads

County comprehensive plans provided recommendations for improving freight rail service and encouraging the maximum use of rail systems. Policies have been enacted to study possible improvements to freight rail service, including expanding services to ports and connecting existing rail lines.

Seaports and Airports

The expansion of seaport and airport services for freight is encouraged by county comprehensive plans to handle increased traffic and forecasted growth. Land use designations near these facilities usually allow for industrial development. Plans typically encourage the integration of multiple methods of transportation to connect with these facilities, including increased rail services and access to arterial roadways.

Conservation

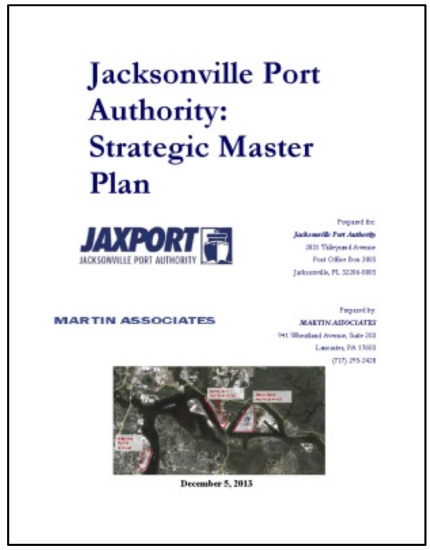
County comprehensive plans created general restrictions in order to preserve the environment and conserve natural resources. These policies included avoiding the placement of industrial and mineral resource locations near or within wetlands or conservation areas. Industrial businesses must also monitor water consumption and discharge of their sites into the environment; and as the comprehensive plans direct, the quality and quantity of surface water, ground water, and the aquifer should not be adversely impacted.

Conclusion

Local governments within FDOT District Two recognize and emphasize the importance of freight movement within the state and its relationship to the local economy. Counties have adopted policies to support the freight and goods movement industry while preserving natural areas and balancing overall community impact.

Intermodal Operating Agency Plans and Policies

JAXPORT: Strategic Master Plan



The Jacksonville Port Authority (JAXPORT) owns and maintains three terminals at the Port of Jacksonville: Talleyrand Marine Terminal (TMT), Blount Island Marine Terminal (BIMT), and Dames Point Marine Terminal (DPMT). The Jacksonville Port Authority Strategic Master Plan was published in 2013 with the purpose of guiding the future development of the port.

The strategic master plan is designed to be a living document with short-term actions that are governed by an overall vision/long term strategic development plan. The plan was guided by the following six principles: develop near term and longer term plans that are operationally and financially compatible; pursue channel deepening to 47 feet; preserve the diversity of business scope; ensure that there are plans for annual business growth in the next three to seven years; balance the interests of all the constituent groups and connect with key industry initiatives focused on environmental stewardship; and operate in a fiscally responsible fashion and demand a return for the money spent.

The plan was developed by conducting a detailed market analysis and assessing the gap in current demand compared to the capacity of existing facilities under an optimal state. The plan resulted in a number of action steps, short-term opportunities, and long-term strategies. Short-term opportunities related to freight are shown below.

- Create business plans that will focus on profitable revenue growth over the next three to seven years
  - Niche carrier development that exploits JAXPORT's prime geographical location
    - Pursue niche markets in Caribbean and Central America
  - Develop plans for High/Heavy Roll-On Roll-Off Segment
    - Focus on exports to support mining and construction in South America and Africa
  - Develop plans to thrust new business over existing port and tenant facilities
    - Identified commodities include wood pellets, grain, and other bulk commodities
  - Develop plans to engage Tier One and Tier Two retailers regarding the development of North Florida regional logistics infrastructure that creates synergies with JAXPORT
- Develop plans to use liquefied natural gas as bunker fuel in the Puerto Rico market along with other Caribbean destinations
- Develop plans that minimize deep water activities and deep water capital spending at TMT
  - TMT has high dredging maintenance costs. TMT should be focused on serving Caribbean and Central America carriers, which tend to use shallower vessels; or those carriers operating vessels with a maximum draft of 38 feet

- Develop plans that will create additional capacity to support the acquisition and implementation of new business opportunities
- Develop plans to improve throughput utilization at the MOL/TraPac facility at Dames Point
- Develop, model, and implement environmentally compliant plans to support the near- and long-term management of dredging material within the JAXPORT harbor
- Develop a prioritized list of all current property opportunities and the potential use of land

Long-term strategic actions are focused on the successful completion of the channel deepening and guiding near-term decisions.

Major projects recently completed or ongoing and short-term opportunities related to freight movement include the following:

- ***Channel Deepening:*** Channel deepening to at least 47 feet is essential to keep JAXPORT competitive. Without a deeper channel, Northeast Florida will be at a competitive disadvantage in both retaining existing customers and attracting new ones. Construction is underway.
- ***Mile Point:*** Due to tidal effects at the Mile Point location, larger container ships could only travel the St. Johns River during two four-hour periods. Phase I of the project has significantly reduced this restriction, saving carriers and shippers time as these ships unload and load at JAXPORT terminals.
- ***DPMT ICTF:*** Construction of the ICTF was completed and the first trains arrived in April 2016. The ICTF connects directly to CSX's mainline while also providing roadway access with two truck lanes on I-295.
- ***Future Rail Corridors Study:*** This ongoing study is identifying and evaluating new and more efficient rail connections to the ICTF.
- ***Heckscher Drive/I-295 Interchange Improvements:*** Construction began in February 2014 and was completed in 2016.

Port of Fernandina: Master Plan

The Port of Fernandina consists of one deep water shipping terminal located on the Amelia River. The Port serves two basic commercial shipping trades: export of break bulk cargoes, primarily kraft paper, wood pulp and lumber; and liner shipping involving small independent container vessel operators serving Latin America, the Caribbean and Bermuda.

The Port of Fernandina Master Plan was updated in August 2015. The primary purpose of the Plan is to clearly define the Port's direction for the future. As a strategic plan, it includes an economic development component which identifies targeted business opportunities and future markets for increasing and attracting new business; an infrastructure development element that identifies needed improvements within the Port's planning area; and incorporated an identification and analysis of physical, environmental, and regulatory barriers.

The Master Plan also included a detail transportation/traffic impact analysis, identification of industrial development opportunities in Nassau County, intergovernmental coordination, and solicited feedback from public and private stakeholders.

Jacksonville Aviation Authority

The Jacksonville Aviation Authority (JAA) is an independent government agency created by the Florida legislature that operates primarily as a landlord, managing the upkeep, improvement and expansion of its facilities and coordinating their use by private companies. JAA owns and operates four airports: Jacksonville International, Cecil, Craig Municipal, and Herlong. The vision of the JAA is to enhance its standing as a premiere economic engine for the City of Jacksonville and the Northeast Florida region. Jacksonville International and Cecil are the JAA-owned airports that currently serve or plan to serve air cargo. The Jacksonville International and Cecil Airport's master plans are summarized in the following sections.

Jacksonville International Airport Master Plan

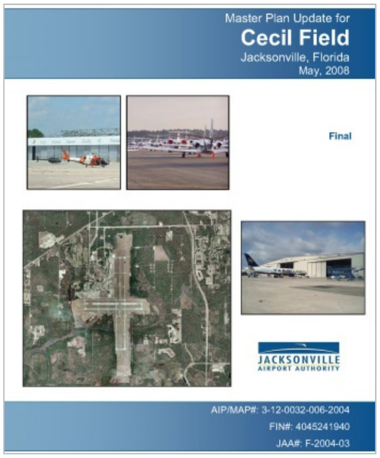
Jacksonville International Airport (JIA) is located approximately 11 miles north of downtown Jacksonville, and serves as the primary commercial service airport for Northeast Florida. The update to the JIA Master Plan, completed in 2010, is intended to provide a vision for the growth and development of the Airport over the next 20 years and establish a framework for the development of airport facilities and guide long-term on-airport land use and development decisions. The JIA Master Plan does not lay out goals and policies; however, it contains air cargo volume projects and plans to facilitate growth in air cargo volumes through the 2027 planning horizon.

The JIA Master Plan shows the volume of cargo, including freight and mail, handled at JIA will continue to increase over the planning period. The volume of cargo transported in the belly compartments of passenger aircraft is forecast to increase an average of 2.0 percent per year during the planning period, from 3.0 million pounds in 2007 to 4.4 million pounds in 2027. Cargo volume carried by the all-cargo carriers is forecast to increase an average of 3.3 percent per year, from 75 million pounds in 2007 to 143 million pounds in 2027. JIA accommodates several cargo tenants and freight forwarders including United Parcel Service (UPS) and Federal Express (FedEx).

Although no new cargo building facilities are called for in the initial planning periods, additional spaces should be reserved adjacent to the existing cargo area of the airport to accommodate incremental growth from freight-only carriers and others with a need for heavy lift cargo access. The existing cargo area is constrained by existing Taxiway N to the west, the proposed Runway 25L to the south, and Pecan Park Road to the East, limiting the number of additional air cargo facilities that could be built. An additional 74,800 square feet of cargo buildings could be constructed south of Cargo Buildings two and three. However, available space for automobile parking, tractor trailer staging areas, and other landside infrastructures would be limited. If the demand for air cargo warrants the need for additional cargo facilities in the long-term future, it is recommended that additional facilities be built along the proposed south parallel runway. These facilities would be built prior to the runway expansion supported by a new taxiway system.

Cecil Field Airport Master Plan

Cecil Field Airport is located in southwest Duval County and is situated west of I-295, south of I-10, and east of US 301. The 1998 Cecil Field Strategic Master Plan was used to guide the facility's transition from a military base to a public use (General Aviation) facility. The 2008 Master Plan Update was prepared with the primary goal of identifying current and projected aviation demand and providing guidance for future development strategies.



Previous planning studies for Cecil Field Airport considered air cargo activity. The Master Plan Update acknowledges that to date regular air cargo activity has not been realized; however, it remains a goal of JAA to support this activity should the opportunity present itself. In the section on air cargo trends and forecasts (Section 3.9) the Plan notes that the most likely all-cargo activity would occur to support industrial activities or the Cecil Commerce Center.

Overall development goals were identified by airport management through conversations and during public meetings held by JAA. The following development goals relate to air cargo:

- Market Air Cargo Operations and develop Air Cargo Facilities; and
- Construct a mid-field development area for aviation-related commercial and industrial developments along with maintenance, repair, and overhaul facilities.

Cecil Field Development Strategy

JAA published the Cecil Field Development Strategy in July 2010. This strategic plan uses a three tiered approach:

1. Tier One: Sustain and grow existing businesses at the airport;
2. Tier Two: Attract new tenants including business adjacencies;
3. Tier Three: Develop a longer range strategy to develop Cecil Field as a global logistics hub.

The Tier Three strategy contains multiple financial supports, political support, and industry alliance initiatives related to the development of air cargo activity. The initiatives related to development of air cargo activity are summarized below.

- Identify, coordinate and develop comprehensive incentive packages that are state and nationally competitive to attract new global logistics companies to locate at Cecil Field.
- Seek federal and state infrastructure grant funding to improve Cecil Field's marketability for air cargo and logistics activities.
- Work with the City of Jacksonville and the Jacksonville Economic

Development Council and their master plan developer to explore options for a coordinated marketing and financing plan for attracting prospective air cargo and logistics companies.

- Meet and hold strategy sessions with air cargo companies, consultants, and freight forwarders.
- Energize federal, state, and local elected officials to increase their understanding and awareness of the importance of developing a logistics business base at the airport.
- Develop working relationships with air cargo industry sectors.
- Develop a marketing plan for attracting air cargo businesses.
- Provide support documents to show premier development site and strategic location to JAXPORT, rail, and roadway network to demonstrate businesses have incoming and outgoing global capability.

Cecil Spaceport Master Plan

JAA published the Cecil Spaceport Master Plan in March 2012. The master plan is intended to help guide the process of bringing the space industry to Northeast Florida, where it can provide economic growth for the Spaceport, JAA and the community as a whole. For the time being, JAA's existing business plan for the Airport Master Plan for Cecil Airport will remain as is, with only a limited focus on space activities. However, that plan will be revised as necessary as Cecil Spaceport's business matures. Related to air cargo, the Spaceport Master Plan notes the opportunity of suborbital point-to-point cargo delivery.

Gainesville Regional Airport Master Plan

The Gainesville Regional Master Plan Update was completed in June 2006. The Plan identified goals and objectives including the following related to air cargo:

- Develop a schedule for development and expansion of air cargo facilities, and
- Increase the availability and flexibility of funds for air cargo needs.

Air cargo service at Gainesville Regional Airport is provided by Federal Express. The Plan forecasted that air cargo would increase at an annual average rate of 2.5 percent from 2014 to 2023. The Plan analyzed alternatives for potential new sites for airside access, truck access, and future expansion potential for air cargo facilities. The Plan recommends that an air cargo complex be developed.

Summary of Findings

In the process of developing this technical memorandum, numerous federal, state, regional and local plans, studies and policies were reviewed and summarized, noting key findings relating to freight movement and its supportive industries. Findings from existing plans and studies will be utilized in subsequent activities of this work to ensure consistency and to build on previous initiatives. This study will leverage these works to align with new funding opportunities and to encourage partnership across sectors.

Following the comprehensive review and evaluation of the above described planning and policy documents, it is evident there has been an increased focus and targeted investment on freight movement at all levels of government. Most plans and studies aimed to increase freight activity as a means of economic growth with recognition of the importance of an efficient freight transportation system to compete in the national and global economy. As a demand-driven industry, previous plans and studies have emphasized the critical nature of freight, calling attention to the intermodal dependence on all freight modes to bring goods to the marketplace through a highly connected system.

Most plans recognize Northeast Florida as well positioned for freight and goods movement activity due to its strategic east coast location, inland opportunities, and existing rail, roadway, and seaport infrastructure. While previous works have noted the strength of the existing system, they have also called attention to the need for capacity and operational improvements to respond to current and future needs while minimizing environmental and community impacts. It is important to note, while multiple studies and plans have been previously conducted in the Northeast Florida region, none have encompassed the entire 18-county FDOT District Two. This study will be the first to cover the full FDOT district while accounting for the full spectrum of freight needs and solutions.

While this study will be tailored to the District Two region, it must also consider national, statewide, regional, and intermodal operating agency plans and policies. As projects are identified and evaluated, this memorandum will serve as a reference to the plans and policies with which each project should align.

Section One: Reference Sources

Table 1-8 | Plans and Policy Review Sources

Agency	Name of Plan/Study	Source
USDOT	MAP-21	http://www.dot.gov/map21
USDOT	FAST Act	http://www.fhwa.dot.gov/fastact
USDOT	National Freight Strategic Plan	https://www.transportation.gov/freight/NFSP
USDOT	Commercial Vehicle Program	http://ops.fhwa.dot.gov/Freight/sw/overview/index.htm
FDOT	Florida Transportation Plan	http://floridatransportationplan.com/
FDOT	Freight Mobility and Trade Plan	http://www.freightmovesflorida.com/freight-mobility-and-trade-plan
FDOT	Florida Seaport System Plan	http://www.fdot.gov/seaport/pdfs/2015%20Florida%20Seaport%20 System%20Plan_Final.pdf
FDOT	Florida Rail System Plan	http://www.dot.state.fl.us/rail/publications.shtm
FDOT	Florida Aviation System Plan	http://www.dot.state.fl.us/aviation/FASP_details.shtm
FDOT	Strategic Intermodal System (SIS) Strategic Plan	http://floridatransportationplan.com/
FDOT	Florida Motor Carrier System Plan	http://freightmovesflorida.com/motor-carrier-system-plan/overview
FDOT	Florida's Future Corridors	http://www.dot.state.fl.us/planning/policy/corridors/
Florida Ports Council	2016 Seaport Mission Plan	http://static.flaports.org/2016-Seaport-Mission-Plan.pdf
North Florida TPO	Long Range Transportation Plan	http://northfloridatpo.com/planning-studies/
North Florida TPO	List of Priority Projects	http://northfloridatpo.com/planning-studies/
North Florida TPO	Transportation Improvement Program	http://northfloridatpo.com/planning-studies/
North Florida TPO	North Florida Freight, Logistics and Intermodal Framework Plan	http://northfloridatpo.com/planning-studies/
North Florida TPO	North Area/JIA Corridor Rail Feasibility Study	http://northfloridatpo.com/planning-studies/
North Florida TPO	Port of Fernandina Truck Circulation Study	http://northfloridatpo.com/planning-studies/
Gainesville Metropolitan TPO	Long Range Transportation Plan	http://ncfrpc.org/mtpo/LRTP.html
Gainesville Metropolitan TPO	List of Priority Projects	http://ncfrpc.org/mtpo/publications/LOPP/LOPP15a.pdf
Gainesville Metropolitan TPO	Transportation Improvement Program	http://ncfrpc.org/mtpo/publications/TIP/TIPDOC15d.pdf
JAXPORT	Jacksonville Port Authority: Strategic Master Plan	https://www.jaxport.com/corporate/strategic-plan
Port of Fernandina	Port Master Plan	http://www.portoffernandina.org/#!port-features/c2f
JAA	Jacksonville International Airport Master Plan	http://www.flyjacksonville.com/content2015.aspx?id=558
JAA	Cecil Field Airport Master Plan	http://www.flyjacksonville.com/content2015.aspx?id=58
JAA	Cecil Field Development Strategy	http://www.flyjacksonville.com/PDFs/2010-Cecil-Field-Development-Strategy.pdf
JAA	Cecil Spaceport Master Plan	http://www.flyjacksonville.com/Cecil/Spaceport/spaceport-mp.pdf
Gainesville Regional Airport	Gainesville Regional Airport Master Plan	Lynn Noffsinger, Grants and Contracts Administrator – Provided CD Copy of Master Plan

Section Two:

Data Dictionary

Overview of Data Sources

For the public-sector freight transportation planning, reliable and robust freight data can lead to better infrastructure and policy decisions that support improved freight operations and community quality of life. For the private sector, supply chain reliability is crucial for businesses as they advance strategies to create and maintain competitive advantages. The Florida Department of Transportation (FDOT) and its regional planning partners strive for balance between system demand and community goals such as economic development, sustainable land use, environmental protection, and livable communities as they undertake multimodal transportation activities. Reliable data that addresses urban goods movement issues from multiple perspectives, such as land use, infrastructure investment, traffic operations, safety, and economic development, is often difficult to obtain because much of the useful information resides with private sector businesses providing transportation services or producing the products being delivered. This technical memorandum serves as a data dictionary and outlines the comprehensive set of data types and sources utilized for the Northeast Florida Freight Movement Study.

Data Sources and Utility

Primary and secondary data sources have strengths and limitations for supporting planning activities. Primary sources such as surveys or stakeholder input can provide the level of detail often needed for urban and suburban level planning but they can also require significant time and resources. Secondary freight data sources, both public and private, do exist (i.e., annual truck counts and commodity data) but often do not capture the levels of detail needed for infrastructure focused freight planning (e.g., routing details). Used in combination, secondary freight data sources along with primary source information can be fused to provide insight for public planners and their stakeholders who are addressing goods movement issues.

Facility Characteristics Data

Facility characteristics involve the physical aspects and location of a facility. These types of characteristics are essential in preserving the maintenance and performance of the roadway infrastructure that allows freight to travel from origin to destination safely and efficiently. Identifying and assessing the organizational, physical, geographic, and operational aspects that make up a roadway helps maintain, manage, and improve roadway conditions and address future growth. Knowing the characteristics that allow and prohibit movement of freight, goods, and services is critical to maintaining an efficient and reliable a freight transportation network.

Roadway Number of Lanes

The number of lanes of a roadway is collected by FDOT District planners, reported to the FDOT Transportation Data and Analytics Office and stored in an online Roadway Characteristics Inventory (RCI) database. The number of lanes is used by other FDOT offices and by districts for transportation planning purposes, including statistics, public transit, maintenance, safety, and rail and motor carrier operations. Knowing this data, traffic engineers and transportation planners can forecast future roadway capacity and traffic demand and can plan for growth accordingly.

Data Collection: Inventory via FDOT District planners
Developer: FDOT Office of Transportation Data and Analytics
Update Frequency: Weekly
Temporal Coverage: N/A
Geographical Coverage: Statewide
Geographical Resolution: Roadway
Data Format: CSV, GIS shapefile, Oracle SQL

Pavement Condition

The Pavement Condition Unit of the State Materials Office conducts annual surveys in support of the FDOT's Pavement Management program. The data collected is used to assess the condition and performance of the state's roadways as well as to predict future rehabilitation needs. The data collected during the pavement condition survey is used as input into the pavement management system and for project evaluation purposes. It is important to proactively plan for and maintain pavement condition in order to preserve a safe and reliable operating environment.

Data Collection: Flexible and rigid pavement condition survey – crack, ride and rut measurements
Developer: FDOT State Materials Office
Update Frequency: Annually
Temporal Coverage: N/A
Geographical Coverage: Statewide
Geographical Resolution: Roadway
Data Format: PDF

Bridge Condition

FDOT inspects all public highway bridges in the state. The bridge inventory uses a systematic method to identify functionally obsolete or structurally deficient bridges. Classifying the functionality of the bridge helps prioritize and determine which bridges need to be scheduled for replacement or rehabilitation. The primary goal is to keep the bridges in acceptable condition to preserve the maintenance and operation of the transportation system. Reconstructing bridges to prepare for future traffic and growth demands is essential for performance and operational purposes.

Data Collection: Bridge is looked at for potholes, cracking, excessive wear, and sounded for hollow areas; superstructure and substructure are inspected
Developer: FDOT Structures Maintenance Office
Update Frequency: Quarterly
Temporal Coverage: N/A
Geographical Coverage: Statewide
Geographical Resolution: Bridge
Data Format: PDF

Rest Areas and Truck Parking Locations

Data Collection: Jason's Law Survey inventory
Developer: FDOT Office of Maintenance
Update Frequency: Annually
Temporal Coverage: Annual
Geographical Coverage: Statewide
Geographical Resolution: Point
Data Format: GIS shapefile, Tabular

A rest area is a public facility, located next to a large thoroughfare such as a highway, expressway, or freeway at which drivers and passengers can rest, eat, and refuel (only on Florida's Turnpike) without exiting onto secondary roads. Truck parking locations are designed and designated for parking trucks and other commercial vehicles when they are idling or not in use. These types of facilities are open and available to any commercial vehicle and are constructed to accommodate freight drivers' needs. Truck parking facilities play a key role in ensuring truck driver and motoring public safety by offering locations with available parking and direct corridor access. Currently, location information is being used through numerous offices within FDOT; some include the Office of Policy and Planning, Safety Office, and Traffic Operations. Information about these locations can be used for emergency response planning and truck parking studies to better accommodate the trucking industries needs, and for regulatory management and compliance purposes.

Weigh in Motion (WIM) Locations

Data Collection: WIM equipment through sensors installed in the ground
Developer: FDOT Office of Transportation Data and Analytics
Update Frequency: Weekly
Temporal Coverage: 1974 - Present
Geographical Coverage: Statewide
Geographical Resolution: Point
Data Format: CSV, GIS shapefile, Oracle SQL

Weigh in Motion (WIM) locations are monitored through a weight enforcement program to protect Florida's highway system and bridges from damage by overweight vehicles. The data collected is maintained in an Oracle database system which stores per-vehicle, time-stamped information including speed, volume, vehicle classification, and other attributes. Currently FDOT Central Office is exploring the use of data collected at WIM locations for project traffic forecasting and traffic performance measures. These locations can be used for validation in modeling and performance measures and can be used for a synthesis of truck traffic by type and loading conditions using WIM data. As freight demand is increasing and the demand for movement of goods is growing, preserving the roadways is essential to maintaining the performance and operation of the transportation infrastructure.

Major Freight Facilities

Freight facilities in Florida include those with key activities related to warehousing and distribution centers, light and heavy manufacturing, packaging plants, and more. By providing insight on freight facility locations, transportation planners and engineers can better understand the dynamics of freight movement and the factors affecting the movement of goods. Having an understanding of the location of freight facilities in Florida can help increase connections and help provide for seamless and efficient transfers between modes and the major facilities. Based on existing economic conditions, freight traffic demands on the public transportation network is growing; this growth is then further augmented by increased international trade.

Data Collection: Inventory by utilizing the DOR tax parcel data, Google maps, and FDOT data resources
Developer: FDOT and FDOR
Update Frequency: Bi-Annually
Temporal Coverage: 2015
Geographical Coverage: Statewide
Geographical Resolution: Parcel
Data Format: Tabular CSV, GIS shapefile

Jason's Law Report

Jason's Law required the United States Department of Transportation (USDOT) to conduct a survey to evaluate the capability of each state to provide adequate truck parking and rest facilities. The report summarizes the survey's key findings which include parking capacity, private truck stop usage and needs, driver perceptions, truck parking volumes at each location, and more. A system of metrics was developed to describe the areas necessary to assess and measure in order to develop a more comprehensive grasp of truck parking. Assisting with the improvements of truck parking for commercial vehicle operators and increasing parking facilities to meet the need and demand is an essential part of freight planning. To better accommodate freight drivers' needs, it is important to understand that truck parking shortages are a national safety concern and an inadequate supply of truck parking spaces could yield negative economic and safety implications.

Data Collection: Customized questionnaire for stakeholder community members including representatives from truck drivers, trucking firm logistics personnel and service plaza and truck stop owners and operators
Developer: USDOT/FHWA
Update Frequency: N/A
Temporal Coverage: 2015
Geographical Coverage: Nationwide
Geographical Resolution: Point
Data Format: GIS shapefile, Tabular

Traffic and Mobility Data

Traffic and mobility data are important considerations for both citizens and freight operators. Transportation networks function most optimally when social and economic needs are met. In serving these needs, demand is generated and can be associated to the number, frequency, and overall performance of transportation infrastructure. Joined with facility characteristics, traffic and mobility data can provide a dashboard of system performance measures.

Annual Average Daily Traffic (AADT)

Data Collection: Permanent Telemetered Traffic Monitoring Sites (TTMS) and Portable Traffic Monitoring Sites (PTMS)
Developer: FDOT Office of Transportation Data and Analytics
Update Frequency: Annually
Temporal Coverage: Annual
Geographical Coverage: Statewide
Geographical Resolution: Roadway
Data Format: GIS shapefile

The AADT is the total volume passing a point or segment of a roadway in both directions for one year, divided by the number of days in the year. Through the annual traffic data collection program, surveys, raw counts, and current and historic databases for the State's Highway System are collected. Currently, AADT is used for traffic demand forecasting, freight performance projections, and emergency management planning and operations. AADT is also utilized for future planning, congestion management, sustainable transportation investments, and roadway maintenance.

Annual Average Daily Truck Traffic (AADTT)

Data Collection: Permanent Telemetered Traffic Monitoring Sites (TTMS) and Portable Traffic Monitoring Sites (PTMS)
Developer: FDOT Office of Transportation Data and Analytics
Update Frequency: Annually
Temporal Coverage: Annual
Geographical Coverage: Statewide
Geographical Resolution: Roadway
Data Format: GIS shapefile

The AADTT is the total truck volume passing a point or segment of a roadway in both directions for one year, divided by the number of days in the year. Currently, this information is being used to analyze traffic demand forecasting, freight performance, emergency management, and accessibility to and from the Florida ports. This information can be used in future transportation planning and freight planning for sustainable infrastructure investment, pavement and bridge maintenance, and congestion management.

Annual Average Daily Level of Service (LOS)

Data Collection: Calculated through the latest edition of the HCM, or a methodology by FDOT
Developer: FDOT
Update Frequency: Annually
Temporal Coverage: Annual
Geographical Coverage: Statewide
Geographical resolution: Roadway
Data Format: GIS shapefile, Excel table

The annual average daily LOS is a quantitative stratification of quality of service into six letter grades; A through F. It reflects the quality of service as measured by a scale associated with user satisfaction and is convertible for multimodal use of roadway infrastructure, including automobiles, trucks, and buses. LOS provides a generalized and conceptual planning measure that addresses multimodal service inside the roadway environment. With the A through F LOS scheme, engineers and planners are able to more easily explain operating and design concepts to the general public and elected officials. It is intended to promote public safety and general welfare, ensure the mobility of people and goods, and preserve the facilities on the State Highway System.

National Performance Management Research Data Set (NPMRDS)

Data Collection: Mobile devices, connected autos, portable navigation devices, commercial fleet and sensors
Developer: HERE Traffic and ATRI databases
Update Frequency: Annually, with monthly release
Temporal Coverage: Daily speed with five minute increments
Geographical Coverage: Nationwide
Geographical Resolution: Statewide and regional level
Data Format: CSV, GIS shapefile

Real-time, vehicle probe-based travel data for passenger autos and trucks are collected through a variety of sources and developed and recorded on databases maintained by HERE and the American Transportation Research Institute (ATRI). The data is available as a Traffic Message Channel (TMC) static file that contains TMC information and travel times are available as it identifies the roadways geo-referenced to the TMC location codes. Both datasets need to be joined in GIS-based software to obtain the full picture. Currently, NPMRDS is utilized within FDOT's Office of Transportation Data and Analytics to analyze the express lane reliability measures and data for Florida's mobility performance measures. NPMRDS can be applied to many applications for future transportation planning purposes on the following topics; congestion management, traffic operations and services, sustainable transportation investment, and safety.

American Transportation Research Institute (ATRI)

ATRI aims to conduct research with an emphasis on the trucking industry's essential role in a safe, efficient, and viable transportation system. Probe data gathered through wireless communication systems on trucks are aggregated on a GPS-database. Source attributes include geospatial and temporal information for the corresponding trucks. This produces average speed, travel time and reliability of truck movement on highly traveled segments of the transportation network. The data is also used to identify and measure highway bottlenecks, congestion and localized system deficiencies - and produce information describing the demand for truck routes and highway facilities throughout Northeast Florida and the United States.

Data Collection: Vehicle data including periodic time, location, speed, and anonymous identification information
Developer: American Trucking Associations Federation
Update Frequency: Monthly
Temporal Coverage: Real-time
Geographical Coverage: North America
Geographical Resolution: XY Coordinates
Data Format: CSV

Safety Data

Safety is an important consideration for both citizens and freight operators. Freight vehicles due to their size, performance, and payload require the planning and design process consider additional factors such as larger loads, visual obstructions, and longer stopping distances. For purposes of the Northeast Florida Freight Movement Study, the Signal Four Crash Database was utilized.

Crashes, Injuries, and Fatalities Involving Commercial Vehicles

Crashes involving trucks and commercial vehicles can have different characteristics and impacts from that of automobiles due to the weight, size and associated inertia. The Florida Signal Four Analytics Crash Database is an interactive web-based tool used to obtain crash and crash injury and fatality data and reports. The tool was designed to support the crash mapping and analysis needs of multiple agencies and research facilities in the state. This system provides crash and street data paired with interactive analysis and visualization tools via web browser for eligible users. Features include the ability to sort and filter based on day of the week, time of day, vehicle type, level of severity, and other factors collected on a crash report form.

Data Collection: Crash data collected electronically by FHP officers at crash sites
Developer: GeoPlan Center at the University of Florida and Signal Four Analytics
Update Frequency: Daily
Temporal Coverage: Daily-Hourly
Geographical Coverage: Statewide
Geographical Resolution: Point
Data Format: Tabular, GIS shapefiles

Commodity Type and Flow Data

Commodity flows are typically used in freight planning to provide insights about the economic and trade environment of a region. Commodity flow attributes help tie goods movement to economic development by providing information about consumption dependencies such as raw material or service input markets (imports), and markets for finished products (exports). In addition, commodity flow information is also used to generate trip estimates in some travel demand modeling applications (e.g., Florida Freight Model: FreightSIM). Commodity flow data also can help identify industries in a regional economy that are highly dependent on transportation. In most cases, freight flow data is origin-destination information about commodity shipments. These records typically contain an origin-destination, type of commodity, weight and/or values of the commodity, and mode of shipment.

IHS Global Insight: TRANSEARCH Database

TRANSEARCH data relies on economic models and provides very detailed information about most domestic shipments and more than 340 commodity types. The data shares information between US counties by commodity type and mode of transportation. Some of the data provided includes truckload, less-than-truckload, private truck, rail carload, rail/highway intermodal, air and water, tonnage, dollar value, units, and ton-miles. Currently, the Systems Planning Office, Transportation Data and Analytics Office, and Freight, Logistics and Passenger Operations Office analyze freight mobility, freight intensity measures, and county-wide freight and logistics. TRANSEARCH can be applied to many applications for future transportation planning purposes on the following topics: congestion management, traffic operations and services, sustainable transportation investment, emergency preparedness, and security and intermodal trade corridors.

Data Collection: Outbound, inbound, intra and through shipments; volumes routes along individual trade lanes or corridors
Developer: IHS Global Insight, Inc.
Update Frequency: Annually
Temporal Coverage: Annual
Geographical Coverage: Nationwide
Geographical Resolution: Countywide
Data Format: MS Access Database, ESRI Network Data

Freight Analysis Framework 4 (FAF4)

The Freight Analysis Framework (FAF) creates a comprehensive picture of freight movement via integrating data from a variety of sources for all modes of transportation. The FAF version 4 (FAF4) baseline edition provides estimates for tonnage and value by regions of origin and destination, commodity type, and mode to show the movement among states and major metropolitan areas. Currently, the FAF4 is implemented within

Data Collection: USDA, EIA, PIERS, CFS, Census data
Developer: Federal Highway Administration (FHWA)
Update Frequency: Five years
Temporal Coverage: Annual
Geographical Coverage: Nationwide and internationally
Geographical Resolution: 123 domestic FAF zones – 8 international FAF zones
Data Format: Microsoft Access Database ESRI/TransCAD Network Data

the Office of Planning Policy and Office of Transportation Data and Analytics to analyze the impacts of transportation, travel demand, and Florida's transportation trends and conditions. The FAF4 can be applied to many applications for future transportation planning purposes such as: congestion management, traffic operations and services, and transportation investment.

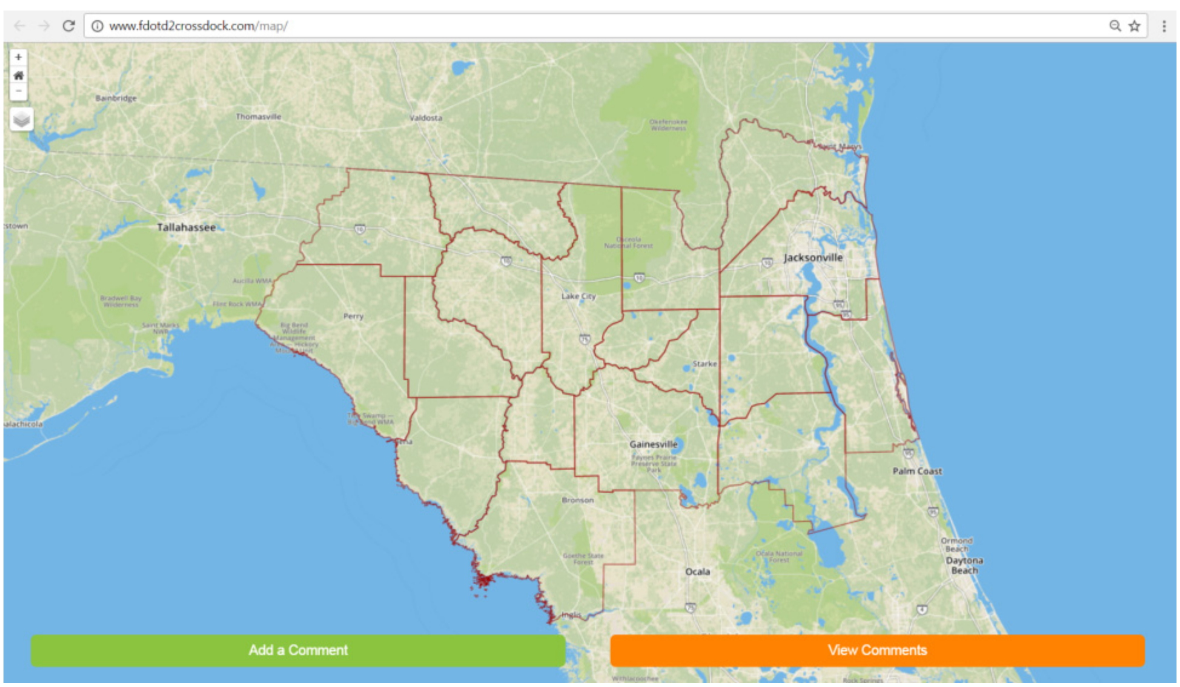
Surface Transportation Board – Carload Waybill

The Carload Waybill, also referred to as the Rail Waybill, contains shipment data from a stratified sample of rail waybills. The Carload Waybill sample was made for public-use from the confidential Waybills submitted by freight railroads to the Surface Transportation Board. The Waybill contains origin and destination points, types of commodity, number of cars, tons, length of haul, and more information pertaining to shipment deliveries and interchanges. This data is used to develop a database of rail shipment information and can be implemented into statewide planning efforts.

> **Data Collection:** Shipment and revenue information submitted by freight railroads to the STB and collected by the Association of American Railroads
> **Developer:** Surface Transportation Board (STB)
> **Update Frequency:** Annually
> **Temporal Coverage:** Annual
> **Geographical Coverage:** Nationwide
> **Geographical Resolution:** Freight railroads
> **Data Format:** Tabular

Stakeholder Provided Locational Data

As a component of the study's partner and stakeholder engagement process, an interactive web-based mapping application was created. The web application allows participants to identify and provide locational specific feedback relating to the transportation system. Comments and feedback submitted into the web map application will be utilized during the existing conditions and needs assessment component of the Study.



Data Framework and Hub

Through the use of Geographic Information Systems (GIS) software and advanced analytics tools, the data sources below were assembled and made available for review and analysis. These datasets will be used to create the Asset Inventory and the Needs Assessment for the Study.

Data Type	Data Source	Developer	Data Format	Update Frequency	Temporal Coverage	Geographical Coverage	Geographical Resolution
Facility Characteristics	Number of Lanes	FDOT	GIS	Weekly	N/A	Statewide	Roadway segment
	Pavement Condition	FDOT State's Maintenance Office	PDF	Annually	N/A	Statewide	Roadway segment
	Bridge Condition	FDOT	PDF	Quarterly	N/A	Statewide	Point
	Rest Areas / Truck Parking	FDOT Office of Maintenance	GIS	Annually	Annual	Statewide	Point
	Weight in Motion (WIM) Stations	FDOT	CSV, Oracle, GIS	Weekly	1974 - Present	Statewide	Point
	Freight Facilities	FDOT and FDOR	GIS	Annually	Annual	Statewide	Parcel
	Jason's Law Report	USDOT FHWA	GIS, Tabular	N/A	2015	Nationwide	Point
Traffic and Mobility	AADT	FDOT	GIS	Annually	Annual	Statewide	Roadway segment or point
	AADTT	FDOT	GIS	Annually	Annual	Statewide	Roadway segment or point
	Annual Level of Service (LOS)	FDOT	GIS, PDF	Annually	Annual	Statewide	Roadway segment or point
	National Performance Management Research Dataset (NPMRDS)	HERE Traffic and ATRI databases	CSV, GIS	Annually	Daily speed with five minute increments	Nationwide	Statewide or regional level
	ATRI	American Trucking Associations Federation	CSV	Monthly	Real-time	North America	XY Coordinates

Data Type	Data Source	Developer	Data Format	Update Frequency	Temporal Coverage	Geographical Coverage	Geographical Resolution
Safety	Crash Locations	GeoPlan Center	Tabular, GIS	Daily	Daily/Hourly	Statewide	Point
	Crash Fatalities	GeoPlan Center	Tabular, GIS	Daily	Daily/Hourly	Statewide	Point
	Crash Injuries	GeoPlan Center	Tabular, GIS	Daily	Daily/Hourly	Statewide	Point
Commodity Flow	TRANSEARCH	IHS Global Insight, Inc	MS Access Database, ESRI	Annually	Annual	Nationwide	Countywide
	Freight Analysis Framework 4 (FAF4)	FHWA	Microsoft Access Database ESRI/TransCAD Network Data	Every five years	Annual	Nationwide	123 domestic FAF zones – 8 international FAF zones
	STB – Carload Waybill	Surface Transportation Board	Tabular	Annually	Annual	Nationwide	Freight railroads
Stakeholder Feedback	Interactive Web Map Findings	HDR, Inc.	GIS, CSV	Daily	Daily	Districtwide	Point

Section Three:

Commodity Flow Analysis

Introduction

The purpose of this section is to describe freight movements into, from, and within Northeast Florida – District Two of the Florida Department of Transportation (FDOT). The District includes 18 counties in Northeast Florida as shown in the ***Figure 3-1*** below.

Figure 3-1 | Northeast Florida / FDOT District Two

Source: FDOT

Freight Movement Generators

District Two's total freight movement picture activity – its domestic and international flows, moving in all directions via all modes – is the result of three main activities:

Production
- By Northeast Florida Industries

Consumption
- By Northeast Florida industries, military / government facilities, and resident / visiting population

Gateway Trade
- International imports and exports between the rest of the US and other countries that pass through District Two's ports and airports

These activities generate the following kinds of freight movements:

- Domestic freight movement entirely within District Two
- Domestic trade between District Two and the remainder of Florida
- Domestic trade between District Two and other US states
- International trade between District Two and other countries
- Trade between the remainder of Florida/other US states and other countries, which moves on District Two infrastructure

Data Sources and Approach

There is no single dataset that provides authoritative information on these types of freight movement. However, there are many different datasets – both public and commercial – that provide valuable information. For planning purposes, the Florida Department of Transportation (FDOT) has obtained or purchased a variety of public and commercial freight datasets, each of which contributes to the larger story. Principal data sources used in the analysis found in this section and subsequent activities include:

- ***IHS Global Insight Transearch*** data provides information on the tonnage, value, units, and (for trucking) vehicle miles traveled (VMT) for commodities moving to, from, within, and through the District Two counties. Key data fields include volume, commodity class, and origin/destination. Origins and destinations within Florida are specified at the county level; other regions are specified at the state or business economic area level. Domestic moves attached to international trade are counted in the database; for surface trade, Canadian and Mexican origins and destinations are identified, but there is no international origin or destination information for air or water traffic. Information includes tons and value for each commodity movement and a forecast of these volumes from 2015 through 2040 in 5-year increments
- ***US Census Trade Online*** provides tonnage and value estimates for the international legs of international flows, which are not provided in Transearch.
- ***USDOT Freight Analysis Framework 4.1 (FAF 4.1)*** includes tonnage and value forecasts for international flows, which are not explicitly provided in Transearch.
- ***PIERS (Ports Import-Export Reporting Service) data*** includes detailed information (origin, destination, commodity, tonnage, etc.) for international waterborne trade through all US Ports. For this analysis, data for the ports of Jacksonville and Fernandina Beach was evaluated.

Section Organization

This section provides an overview of commodity flow and freight movement within Northeast Florida. The section is organized as follows:

- Introduction
- Analysis of Transearch Data
- Analysis of Supplemental International Freight Data
- Illustrative Logistics and Supply Chain Descriptions

Analysis of Transearch Data

The analysis of Transearch data addresses the following commodity-based inquiries:

- Freight movement by direction – How much freight?
- Freight movement by commodity – What types of goods?
- Freight movement by trade partner – Who are we trading with?
- Freight movement by mode – How is freight moving?
- Leading outbound and inbound flows – Top Commodities
- Pass-through and international flows – What shares do they represent?
- Future Commodity Forecasts – What's next?

Freight Movement by Direction

Transearch data indicates that in year 2015, District Two counties handled ***95.5 million tons*** of freight worth over ***$165.0 billion***. This includes freight and goods moving into, out of, and within District Two, and excludes pass-through traffic (which is addressed in a later section).

Around 46% of tonnage and 43% of value were inbound; 34% of tonnage and 35% of value were outbound; and 19% of tonnage and 21% of value were within District Two. Like most of Florida, District Two is a net importer of freight, although the imbalance is not as significant as other Florida regions.

Figure 3-2 | Tonnage and Value by Direction, Excluding Pass-Thru Traffic, 2015

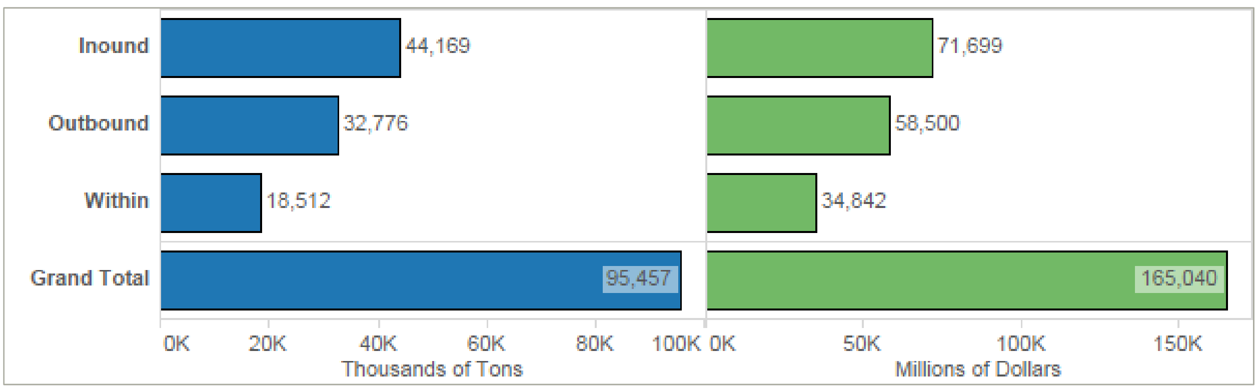
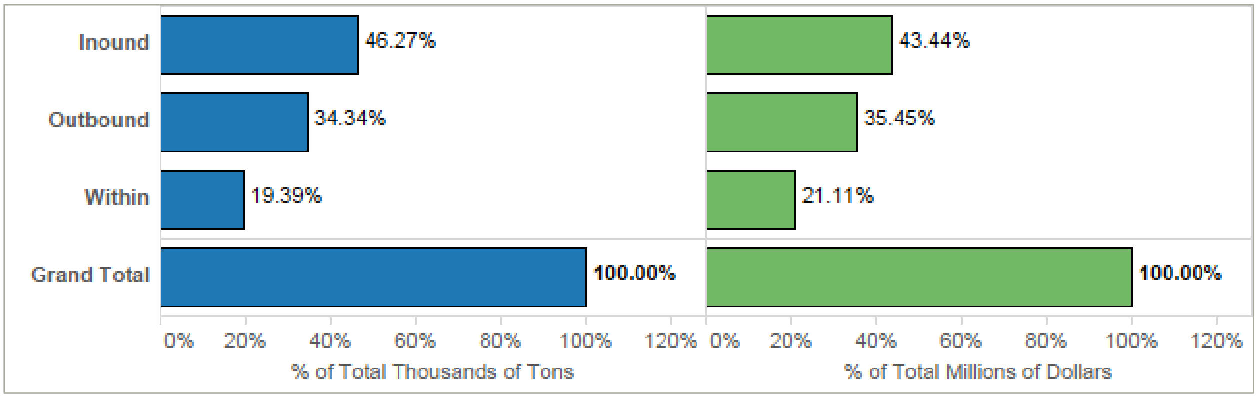


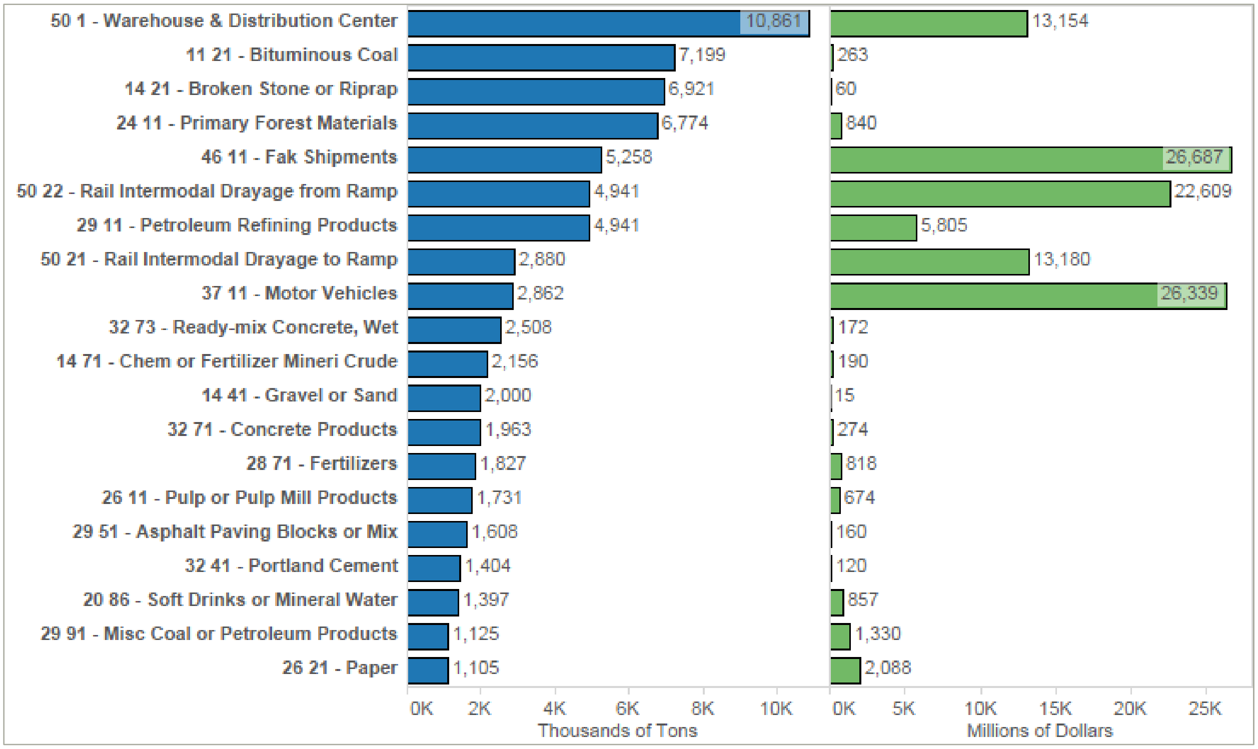
Figure 3-3 | Tonnage and Value Shares by Direction, Excluding Pass-Thru Traffic, 2015



Freight Movement by Commodity

For inbound, outbound, and internal freight tonnage, the top 20 tonnage commodities account for 75% of District Two tonnage and 70% of District Two value.

Figure 3-4 | District Two Top 20 Commodities by Tonnage, 2015



The leading tonnage commodities are: warehouse and distribution center traffic (any freight that is believed to have gone through warehouse/DC facilities); coal; stone; forest materials; FAK ("freight all kinds," primarily mixed shipments in intermodal containers); rail intermodal drayage (truck moves to and from rail intermodal facilities); refined petroleum; and motor vehicles.

The leading value commodities are:

1. FAK shipments;
2. Motor vehicles;
3. Rail intermodal drayage; and
4. Warehouse/distribution center traffic.

This commodity distribution has some expected features – for example, high value goods dominate the value category, while heavy bulk goods are well-represented in the tonnage commodity. However, District Two is atypically well-represented in terms of its strength in the warehouse/distribution, FAK, and rail intermodal drayage categories – all of which show that District Two is heavily focused on high-value goods, intermodal freight handling, and transportation logistics activities.

Figure 3-4 presents commodity tonnage and value at the Standard Transportation Commodity Code (STCC) "four digit" level. This is a standard coding system used by Transearch. Another way to look at commodities is by their users and handling types. For this analysis, an alternative classification system was developed: featuring nine primary groupings of STCC 2 commodity groups:

- Agricultural and Forest Products
- Commodity Waste (scrap metal, paper, etc. with monetary value)
- Construction Materials
- Consumer Goods (food, furniture, apparel, electronics, etc.)
- Fuels and Energy
- Industrial Products (pulp and paper, metal products, machinery, chemicals, etc.)
- Transportation and Logistics (goods moving through warehouse/distribution facilities and intermodal terminals)
- Transportation Products (automobiles, trucks, boats, parts, etc.)
- Not Classified (other)

Table 3-1 | District Two Commodity Groupings

STCC2	STCC2 Name	Commodity Analysis Grouping
01	Farm products	Agricultural and Forest Products
08	Forest products	Agricultural and Forest Products
09	Fresh fish or marine products	Agricultural and Forest Products
10	Metallic ores	Industrial Products
11	Coal	Fuels and Energy
13	Petroleum products, natural gas	Fuels and Energy
14	Non-metallic minerals	Construction Materials, Industrial Products
19	Ordnance or accessories	Consumer Goods
20	Food or kindred products	Consumer Goods
21	Tobacco products	Consumer Goods
22	Textile mill products	Industrial Products
23	Apparel or related products	Consumer Goods
24	Logs, lumber, wood products	Agricultural and Forest Products, Construction Materials
25	Furniture or fixtures	Consumer Goods
26	Pulp, paper or allied products	Industrial Products
27	Printed matter	Consumer Goods
28	Chemicals or allied products	Industrial Products, Consumer Goods
29	Petroleum and coal products	Fuels and Energy, Construction Materials
30	Rubber or misc. plastics	Industrial Products
31	Leather or leather products	Consumer Goods
32	Clay concrete glass stone	Construction Materials
33	Primary metal products	Industrial Products
34	Fabricated metal products	Industrial Products
35	Machinery	Industrial Products
36	Electrical equipment	Industrial Products, Consumer Goods
37	Autos	Transportation Products
38	Instruments, photo equip, optical equip	Industrial Products

STCC2	STCC2 Name	Commodity Analysis Grouping
39	Misc. manufacturing products	Consumer Goods
40	Waste or scrap products	Commodity Waste
41	Misc. freight shipments	Transportation and Logistics
42	Shipping containers	Transportation and Logistics
43	Mail or contract traffic	Transportation and Logistics
46	Misc. mixed shipments	Transportation and Logistics
47	Small package freight shipments	Transportation and Logistics
50	Warehouse/distribution	Transportation and Logistics
99	Not classified	Not Classified

Using the District Two commodity groupings, the leading tonnage groups are transportation and logistics and construction materials, followed by fuels and energy, industrial products, agricultural and forest products, and consumer goods. The leading value group, by a wide margin, is transportation and logistics, representing nearly half the value of District Two freight movement.

Figure 3-5 | Commodity Tonnage and Value, Custom Grouping, Excluding Pass-Thru Traffic, 2015

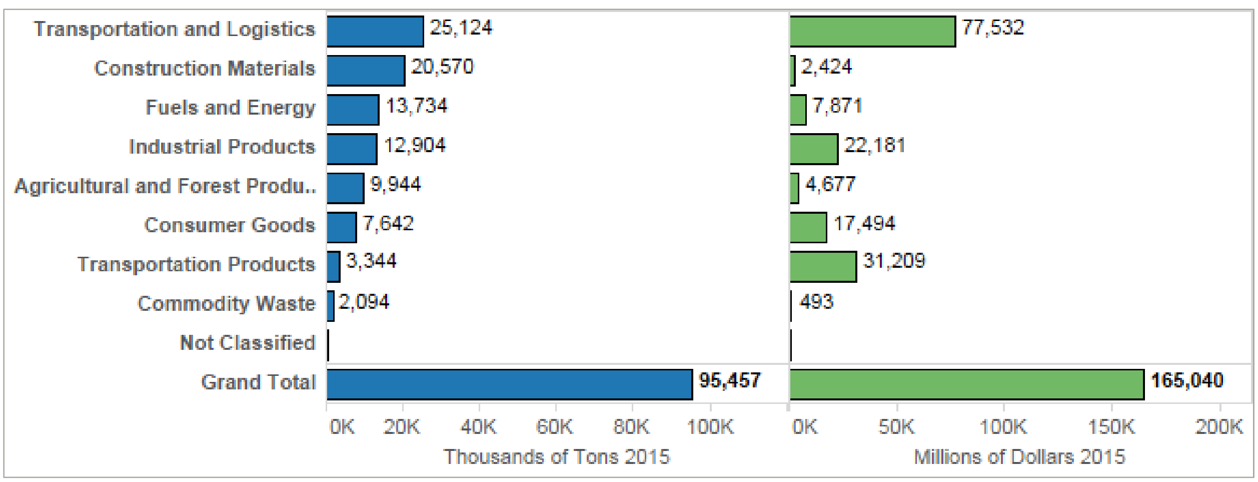
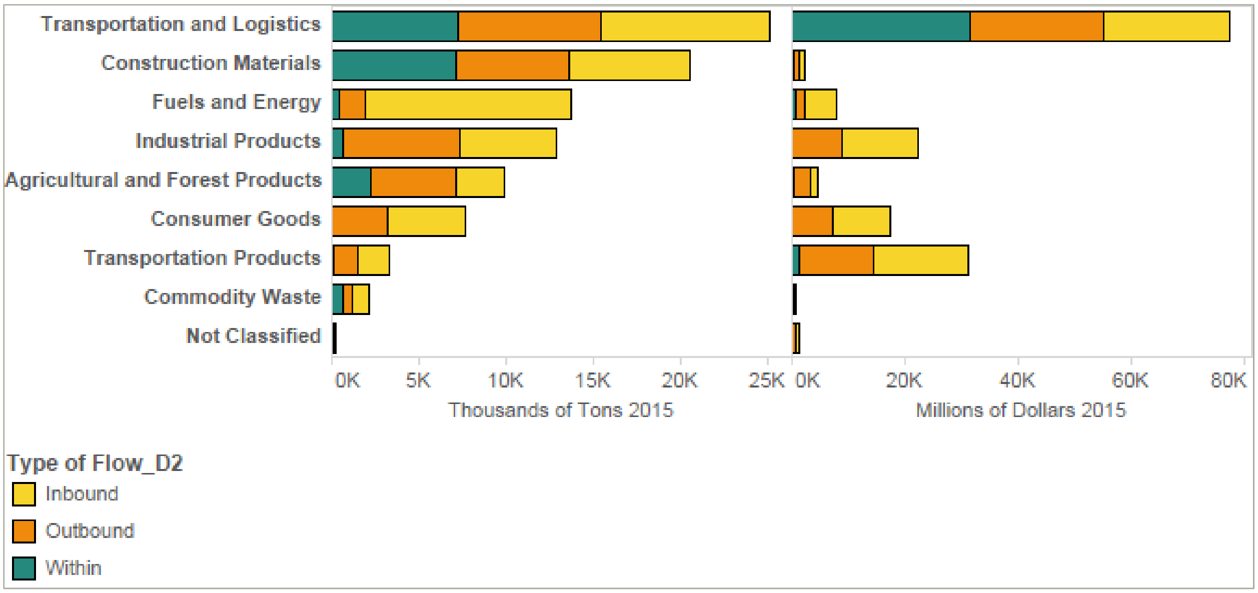


Figure 3-6 | Commodity Tonnage and Value, By Direction, Excluding Pass-Thru Traffic, 2015



Transportation and logistics commodities and construction materials are relatively balanced between inbound, outbound, and internal movements; these two groups account for nearly all of District Two's internal tonnage flows. Industrial products, agricultural and forest products, consumer goods, and transportation products are relatively balanced between inbound and outbound movements. The most imbalanced commodity trade, which is far heavier on the inbound side, is fuels and energy – primarily coal and refined petroleum.

Freight Movement by Trade Partner

Transearch allows for the analysis of trade partners within District Two by county, and for trade partners outside of District Two by county (if within Florida) or state (if outside Florida). It also includes Mexican states and Canadian provinces, but does not include information on trade partners other than North America.

Trade by District Two County

The leading District Two counties generating and receiving freight are shown below. "Generated" freight includes all freight that originates in a county, including outbound movements and within District Two movements. "Received" freight includes all freight that terminates in a county, including inbound movements and within District Two movements. Note that generated plus received freight sums to more than the tonnage and value totals shown previously in ***Figures 3-1*** and ***3-2***, because at the county level, within District Two tonnage is counted twice – once as generated traffic, and once as received traffic.

For generated traffic, Duval County is responsible for about half of District Two's tonnage and 85% of its value. For received traffic, Duval County is responsible for 57% of tonnage and 82% of value. This is due largely to the high concentration of transportation and logistics facilities in Duval County, along with its large population of consumers and industries. District Two counties are profiled individually later in the report within *Section Five*; this analysis is intended only to introduce and summarize primary origin-destination patterns for District Two freight.

Figure 3-7 | Overview of District Two Generated Tonnage and Value by County, 2015

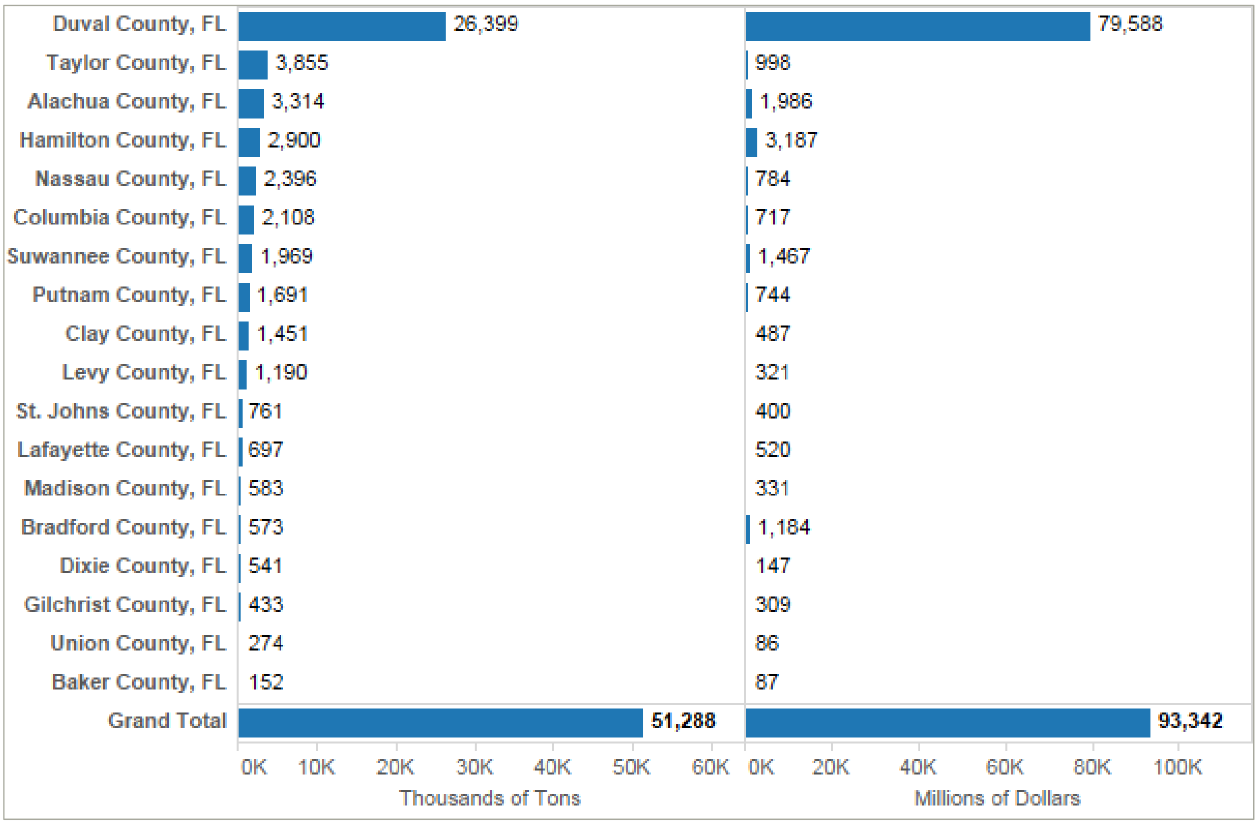
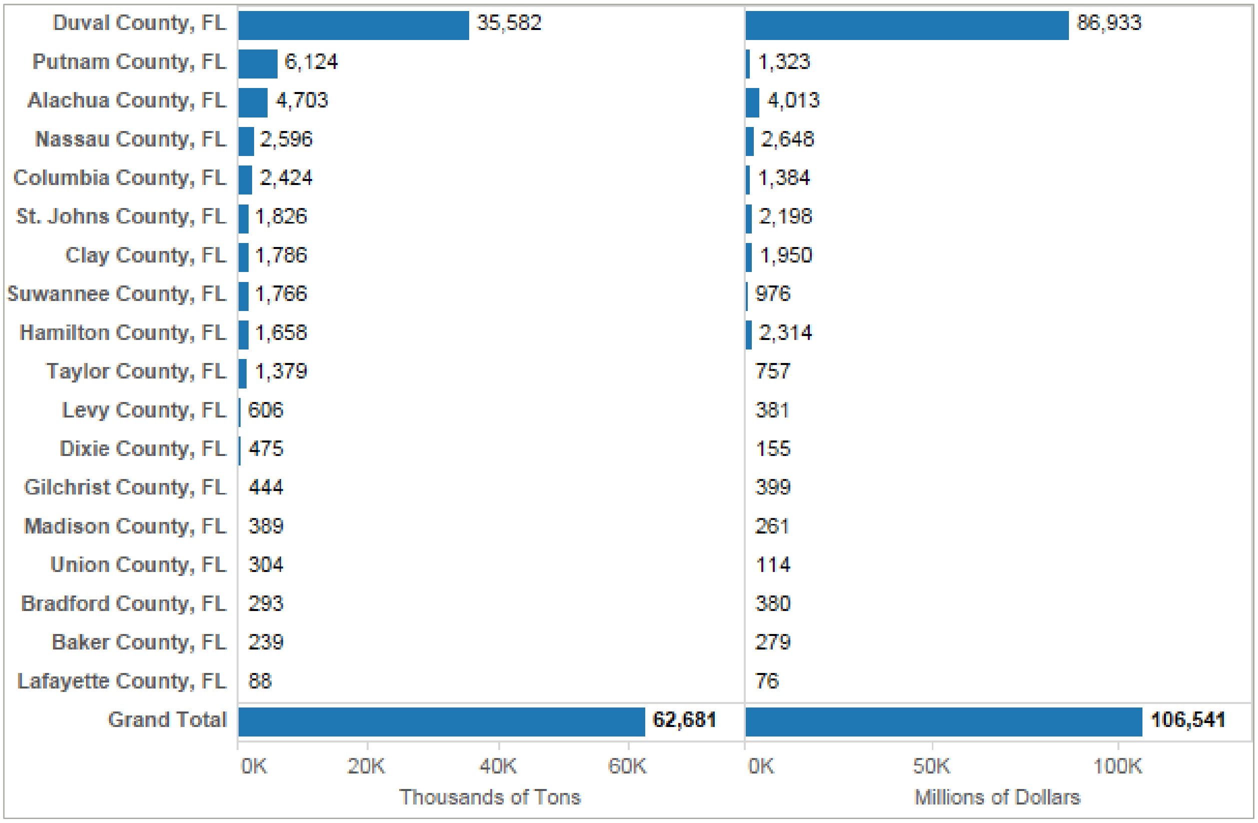


Figure 3-8 | Overview of District Two Received Tonnage and Value by County, 2015



Trade Partner by State

District Two's leading trade partners include the remainder of Florida, the remainder of the US, and Canada and Mexico. For freight moving outbound from District Two, the leading destination states for tonnage and value are: remainder of Florida; Georgia; Illinois (in part due to rail traffic interchanged between eastern and western railroads); South Carolina; and Alabama. For freight moving inbound to District Two, the leading origin states are: remainder of Florida, Georgia, Kentucky, Illinois and Louisiana for tonnage; and remainder of Florida, Georgia, Louisiana, Illinois, Ohio, South Carolina and Michigan for value. District Two's North American trade tonnage is summarized below.

Figure 3-9 | Destination States for Freight Moved Outbound from District Two, 2015

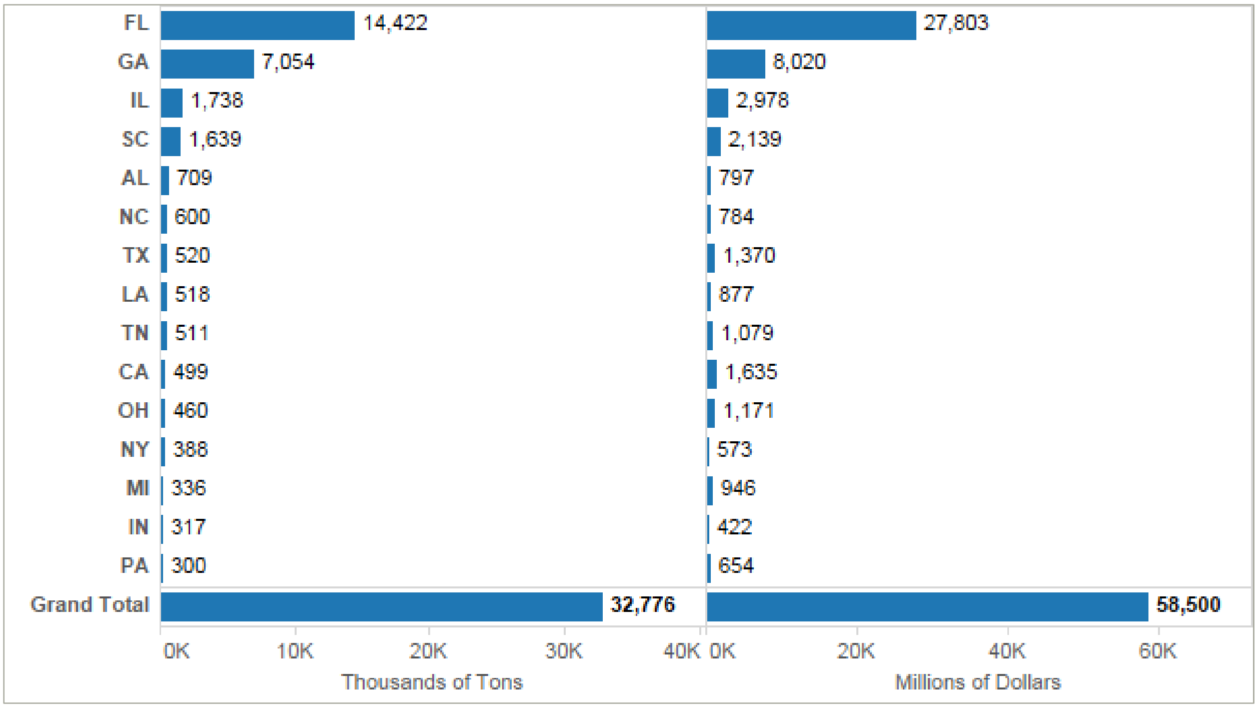
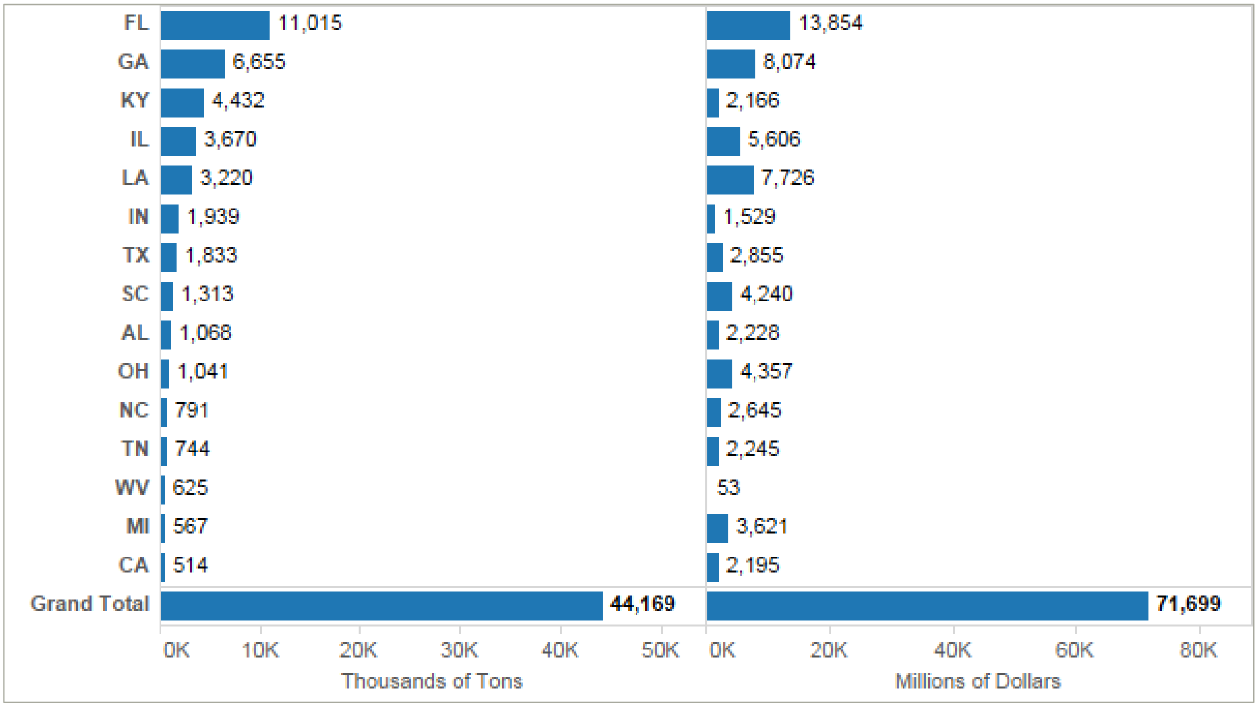


Figure 3-10 | Origin States for Freight Moved Inbound to District Two, 2015



Looking at the top ten destination states for outbound tonnage, the leading commodity groups (over 100,000 tons) are shown in ***Figure 3-11***. Outbound trade to the remainder of Florida consists primarily of transportation and logistics goods and construction materials, but other groups are strongly represented. Outbound trade to Georgia is largely in agricultural and forest products, construction materials and industrial. Outbound trade to Illinois is mostly industrial products.

Looking at the top ten origin states for outbound tonnage, the leading commodity groups (over 100,000 tons) are shown in ***Figure 3-12***. Inbound trade from the remainder of Florida consists primarily of transportation and logistics goods and construction materials. Inbound trade from Georgia is largely in construction materials. Inbound commodities from Kentucky, Louisiana, Texas, and Indiana are dominated by energy products. Illinois also provides energy products along with a diverse range of other commodity types.

Figure 3-11 | Top Ten Destination States and Leading Commodity Groups for Outbound Freight, 2015

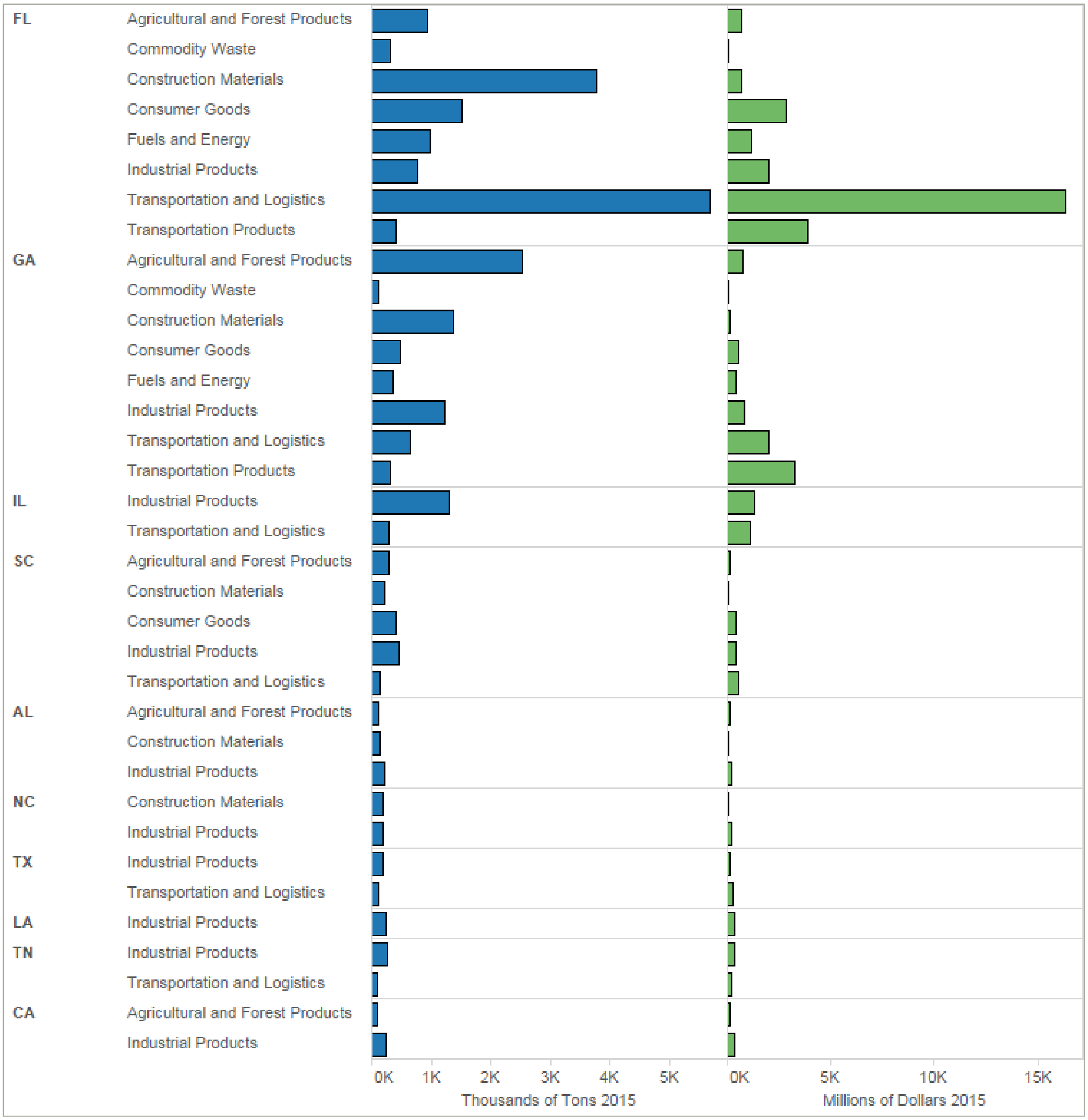
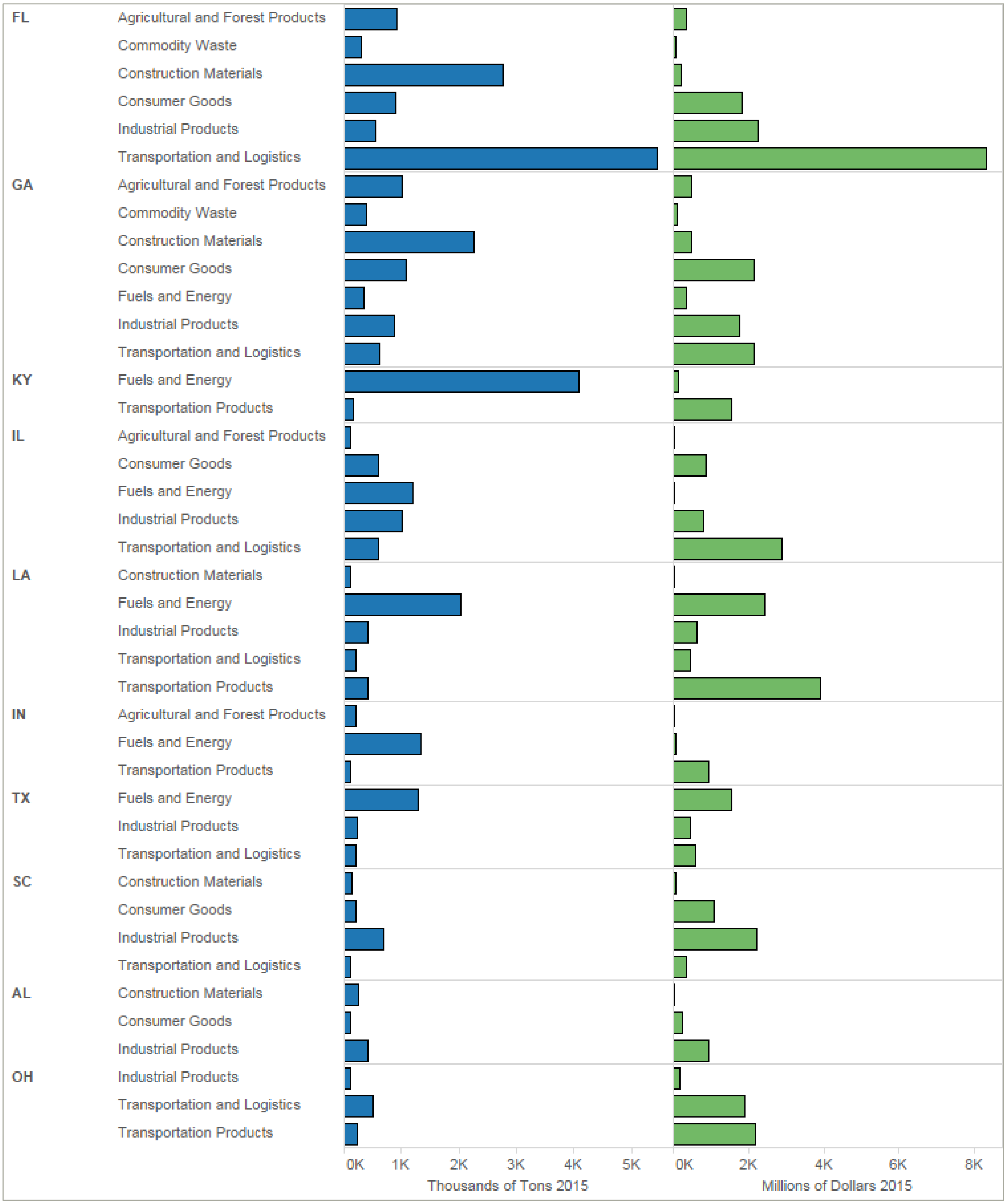


Figure 3-12 | Top Ten Origin States and Leading Commodity Groups for Inbound Freight, 2015



Remainder of Florida Trade by County

District Two's trade with the remainder of Florida is widely distributed among counties throughout the state. For freight moving outbound from District Two to the rest of Florida, Miami-Dade and Broward County receive around 25% of tonnage and 40% of value, but there is also significant trade with all parts of the state. Inbound freight is more highly concentrated, with Miami-Dade and Broward representing 40% of tonnage and 55% of value, presumably due to the large amount of international port and airport gateway traffic handled in these counties.

Figure 3-13 | Destination Florida Counties for Freight Moved Outbound from District Two, 2015

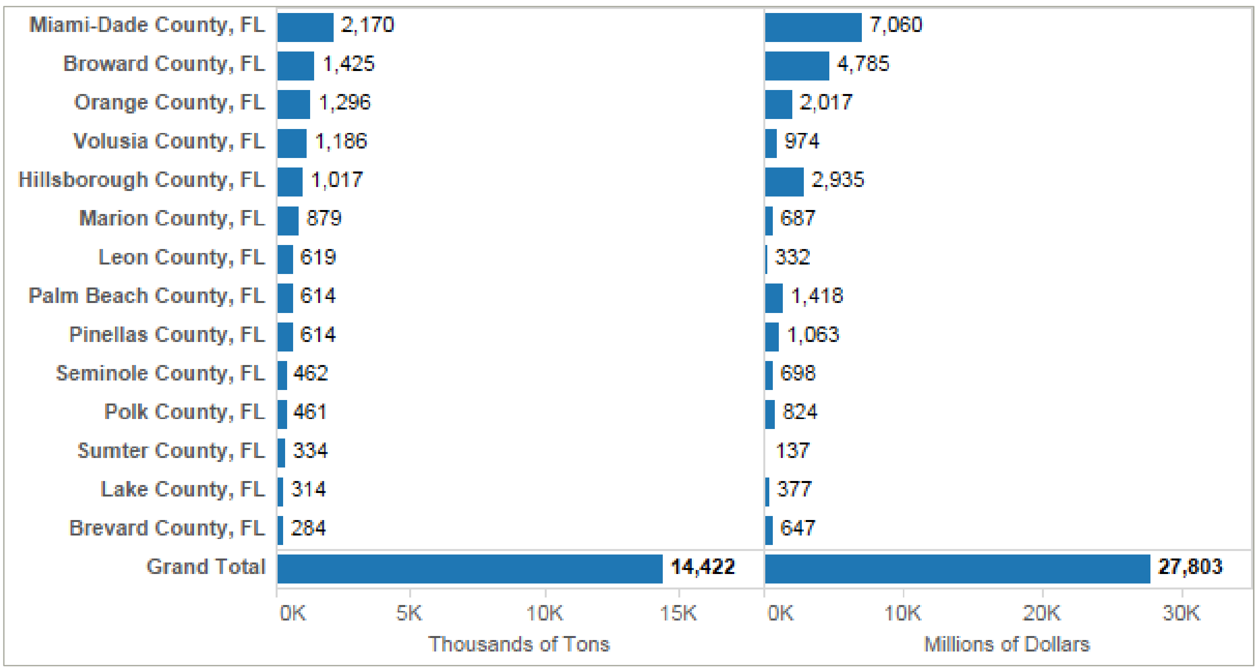
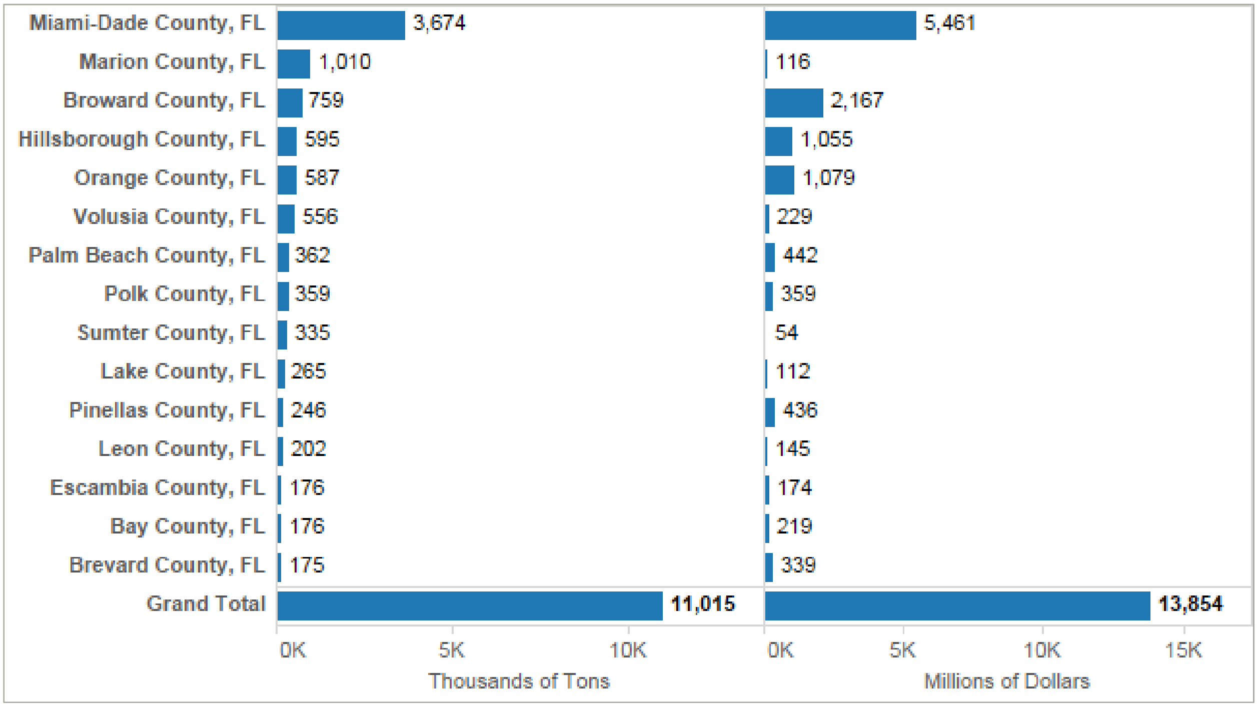


Figure 3-14 | Origin Florida Counties for Freight Moved Inbound to District Two, 2015



Freight Movement by Mode

District Two includes extensive highway, rail, port, and airport infrastructure, and District freight movement relies on each of these to different extents, and for different purposes. To explore those purposes, it is useful to present an overview of modal tonnage and value, and then look at more detailed analyses that combine different variables – mode, commodity, type of flow, and origin-destination.

Modal Overview

At a high level, Transearch shows (for domestic trips and the domestic leg of international trips) that:

- Trucks handle 66% of tonnage and 64% of value
- Rail handles 28% of tonnage and 32% of value – this is a very high share, and reflects the concentration of rail freight activity in District Two
- Water handles 6% of tonnage and 4% of value – again, this represents domestic water movements only, and does not capture international waterborne movements
- Air handles a negligible amount of tonnage but 1% of value (primarily low-weight, high-value goods)

Figure 3-15 | District Two Tonnage and Value by Mode, Excluding Pass-Thru Traffic, 2015

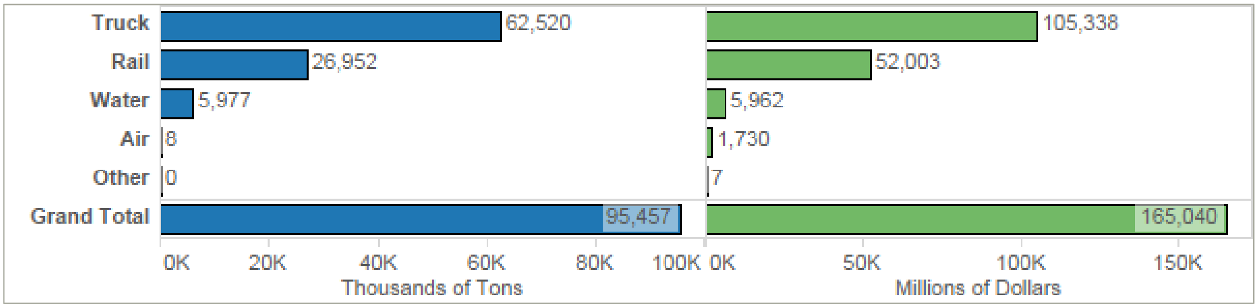
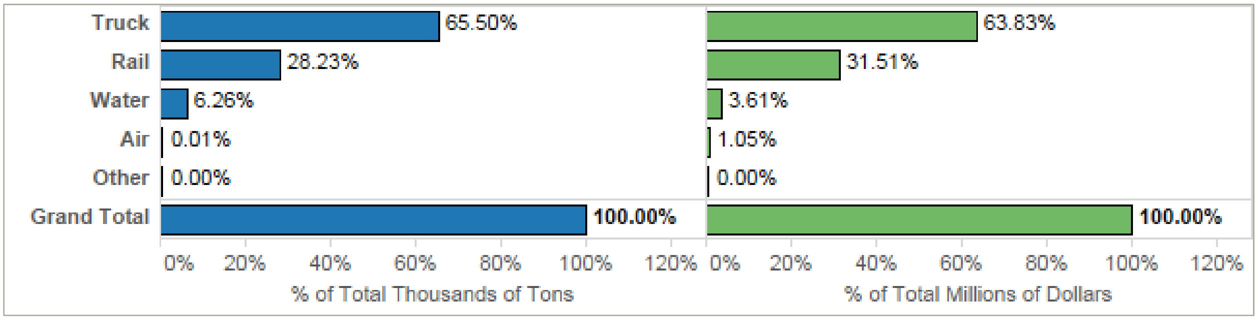
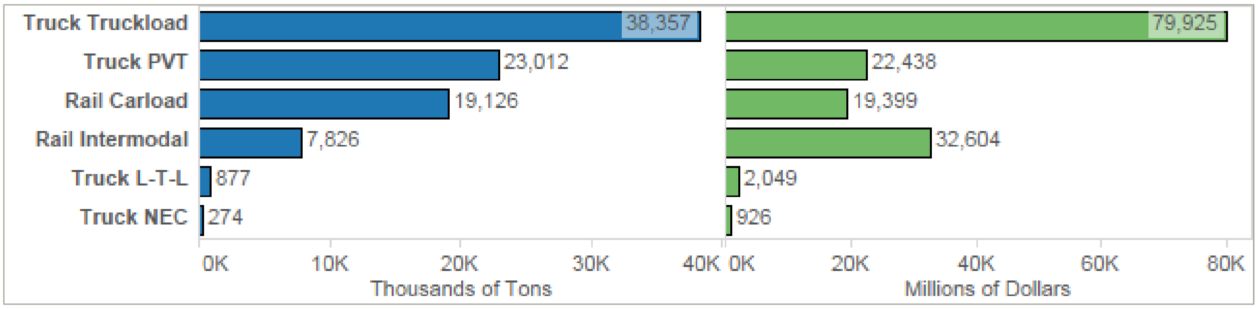


Figure 3-16 | District Two Tonnage and Value Shares by Mode, Excluding Pass-Thru Traffic, 2015



Transearch provides additional detail within the truck and rail modes. For rail, around 1/4th of tonnage is intermodal (in shipping containers), while 3/4ths is carload (all other equipment types), but intermodal represents around 60% of rail value; this is because intermodal commodities tend to be lower weight and higher value, compared to carload commodities. For trucking, most of tonnage and value is in truckload (full truck shipments) and “PVT” (private fleet trucking). “LTL” (less-than truckload shipments, involving the consolidation of small loads to fill trailers) and “NEC” (not elsewhere classified) shipments represent only a small share of trucking tonnage and value.

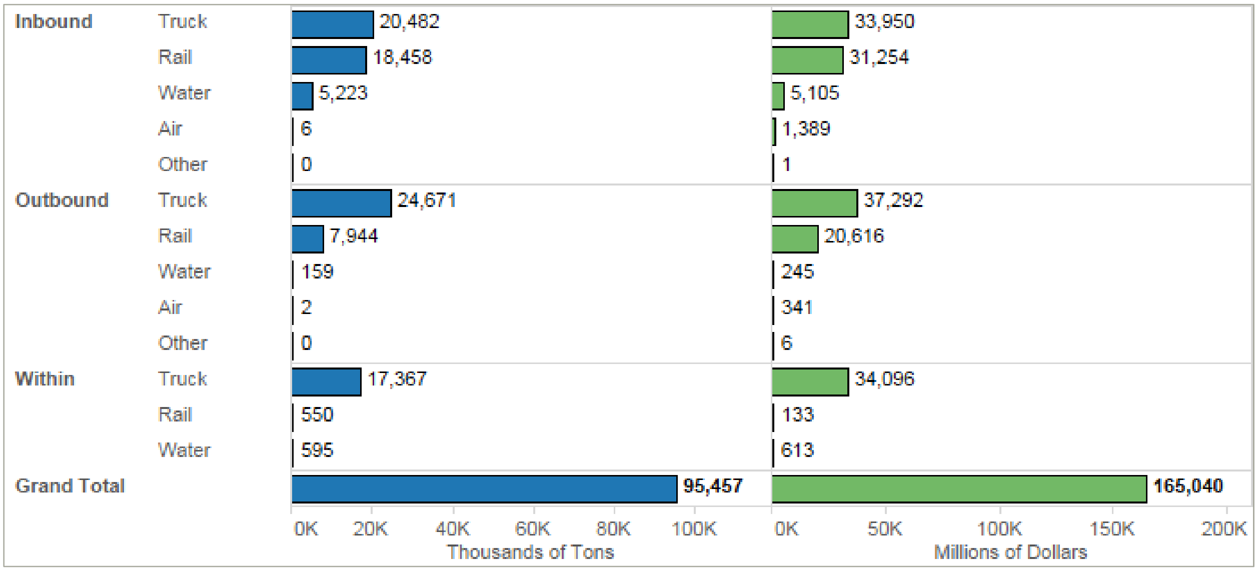
Figure 3-17 | District Two Tonnage and Value by Truck and Rail Submodes, Excluding Pass-Thru Traffic, 2015



Modes and Direction of Trade, Commodities, and Origins-Destinations

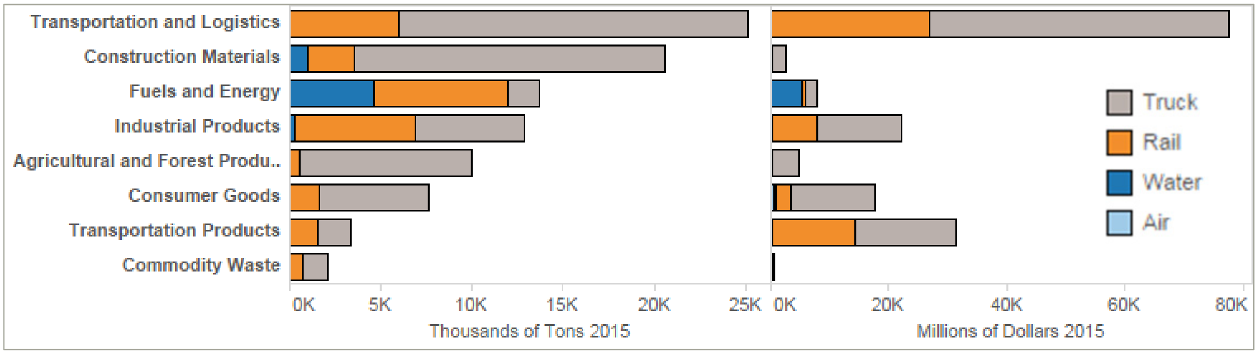
Truck and rail handle roughly equal shares of inbound freight, with water also making contribution. Truck is the dominant mode for outbound freight, although rail is also significant. For internal freight moving within District Two, truck is the clearly dominant mode.

Figure 3-18 | District Two Tonnage and Value by Mode and Direction, Excluding Pass-Thru Traffic, 2015



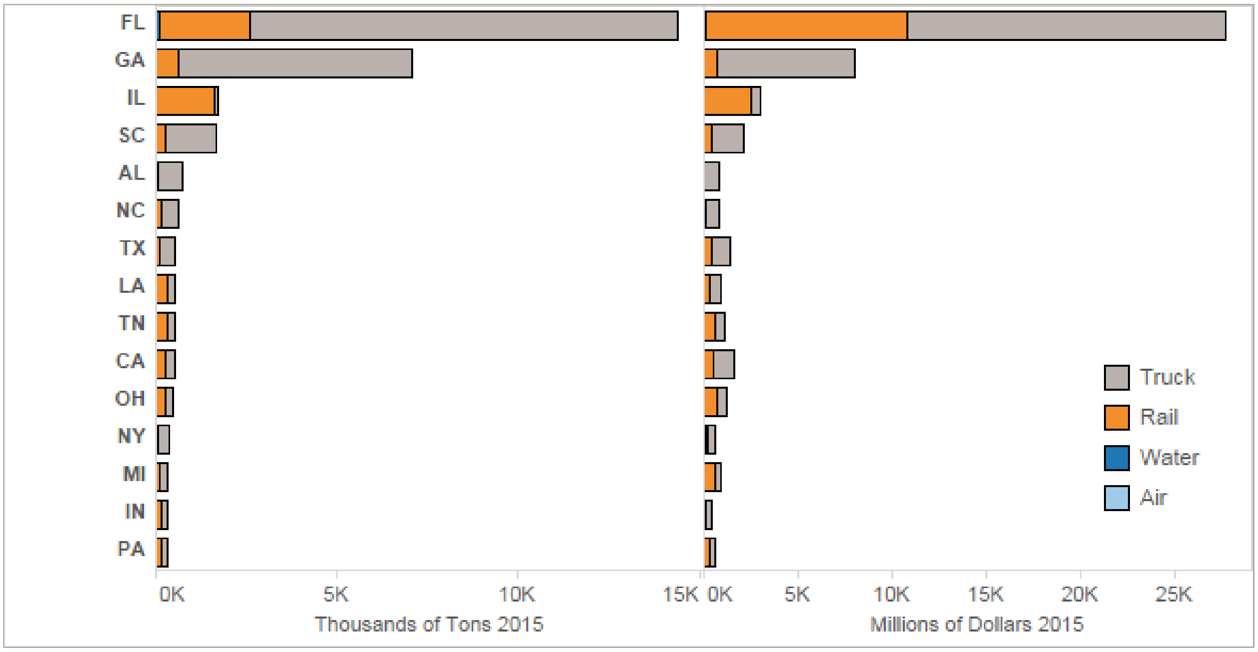
Each District Two freight commodity is associated with one or more transportation modes. Some commodities are diversified across multiple modes, while others are highly concentrated in a single mode. Construction materials, consumer goods, agricultural and forest products, and commodity waste are very truck-focused. Transportation and Logistics is primarily truck but there is a very significant rail component, and one of the leading truck moves is rail intermodal drayage. Transportation products and industrial products are balanced between truck and rail, while fuels and energy are handled mostly by rail and water.

Figure 3-19 | Modal Share by Commodity Tonnage, Excluding Pass-Thru Traffic, 2015



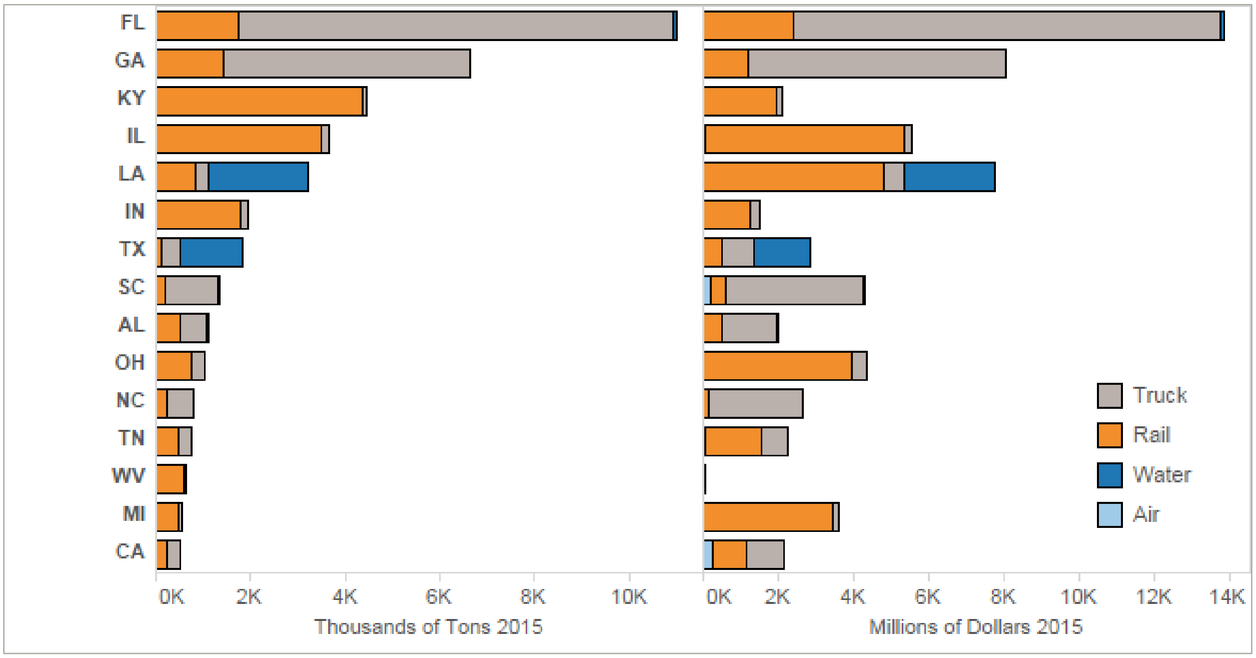
Freight moving outbound from District Two to the remainder of Florida is primarily by truck, although there is a significant share of tonnage and a very significant share of value moving by rail. Freight to South Carolina, Alabama, North Carolina, and Texas is mostly truck; freight to Louisiana, Tennessee, California and Ohio is balanced between truck and rail; and freight to Illinois is heavily rail-oriented.

Figure 3-20 | Modal Shares and Destination by Outbound Tonnage, Excluding Pass-Thru Traffic, 2015



Freight moving inbound to District Two from remainder of Florida and Georgia is primarily by truck, although there is a significant share moving by rail. Freight from Kentucky, Illinois, Indiana, Ohio, West Virginia, and Michigan is heavily rail oriented. Freight from Louisiana and Texas, is heavily water oriented, reflecting inbound shipments of energy products via water. As previously mentioned, inbound tonnage is higher than outbound tonnage, and more diversified across trading partners; it is also more diversified in its use of multiple transportation modes.

Figure 3-21 | Modal Shares and Origins by Inbound Tonnage, Excluding Pass-Thru Traffic, 2015



Modal Detail

Detailed profiles of freight flows by truck, rail, water, and air are presented in ***Figure 3-22*** through ***Figure 3-25*** on the following pages. Each profile shows the tonnage and value for a single mode, by type of flow (inbound, outbound, and internal), at the full 4-digit commodity code level.

Figure 3-22 | Truck Tonnage and Value Detail, Excluding Pass-Thru Traffic, 2015

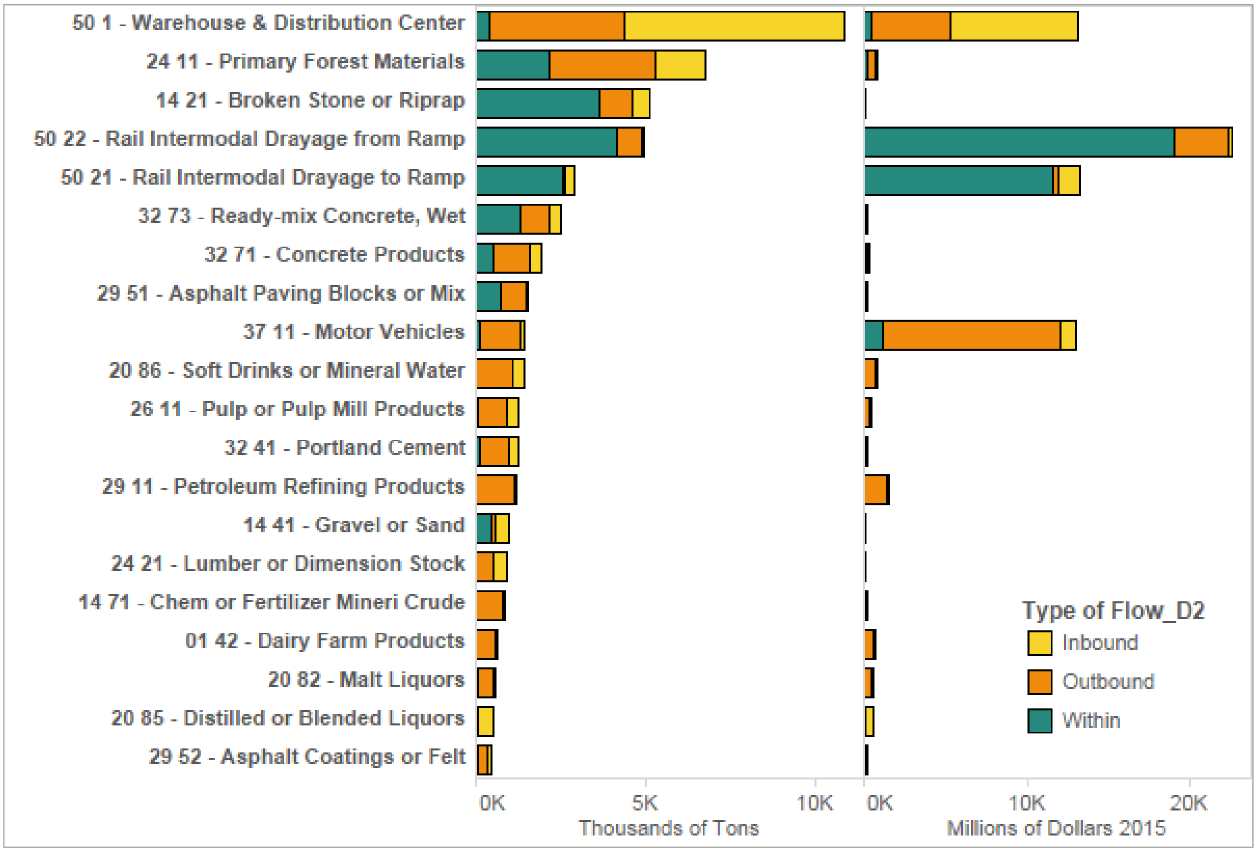


Figure 3-23 | Rail Tonnage and Value Detail, Excluding Pass-Thru Traffic, 2015

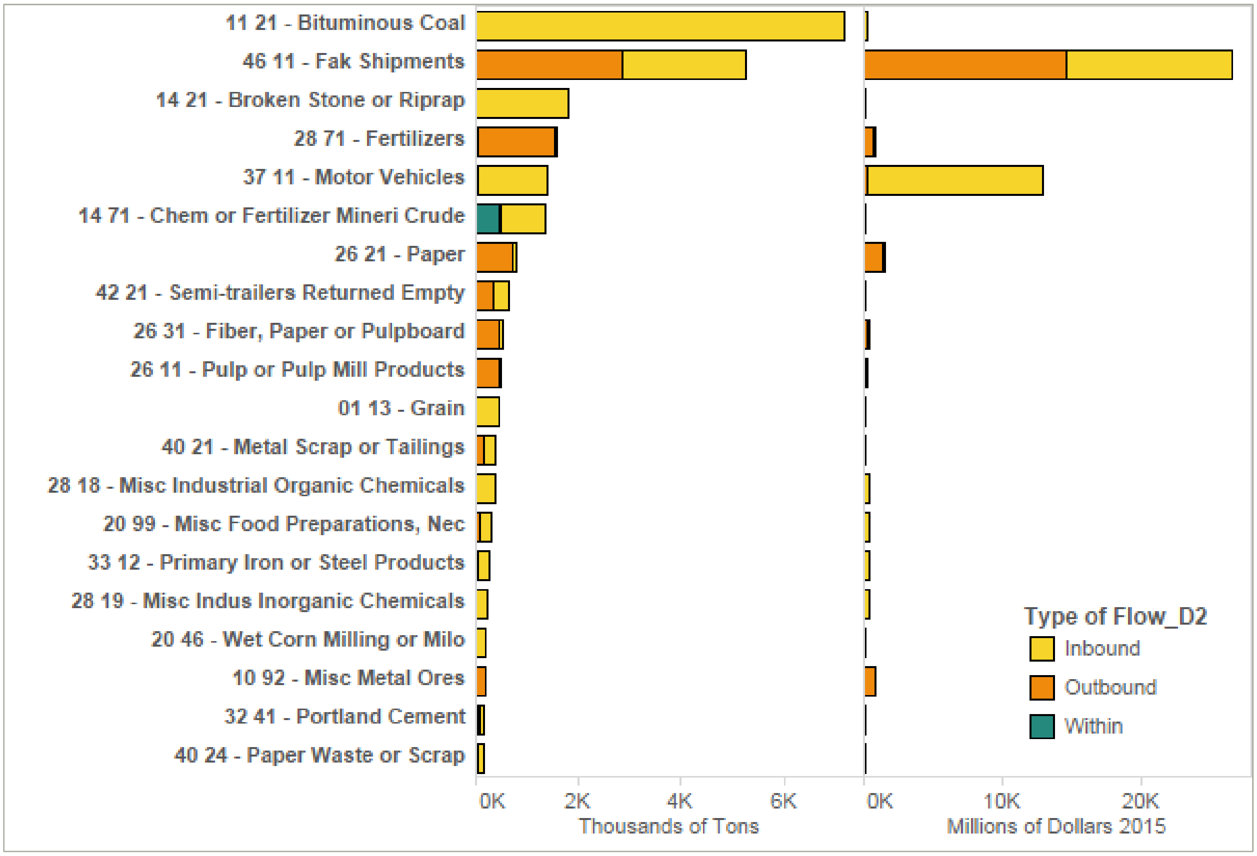


Figure 3-24 | Waterborne Tonnage and Value Detail, Excluding Pass-Thru Traffic, 2015

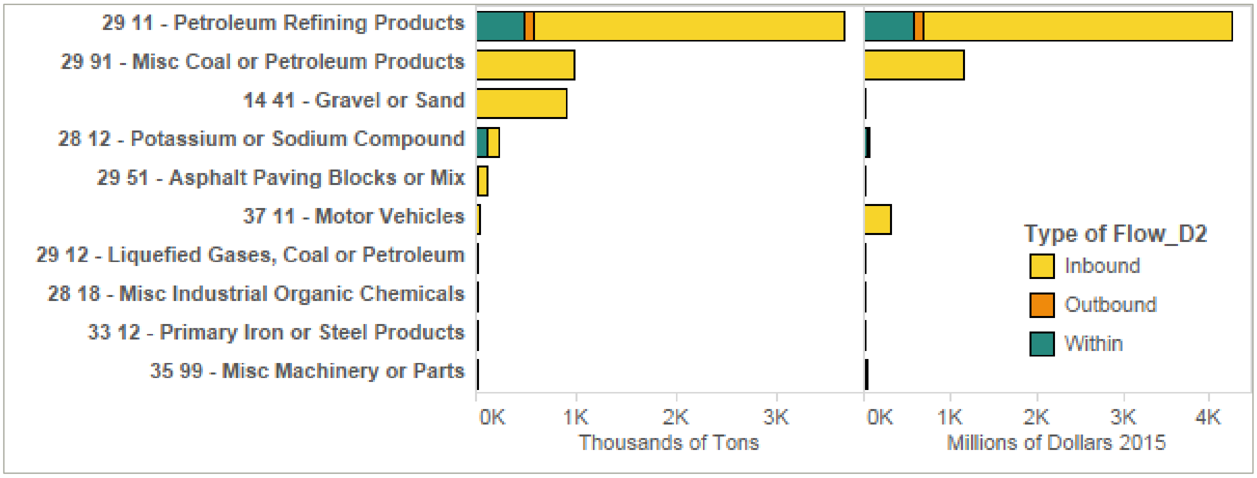
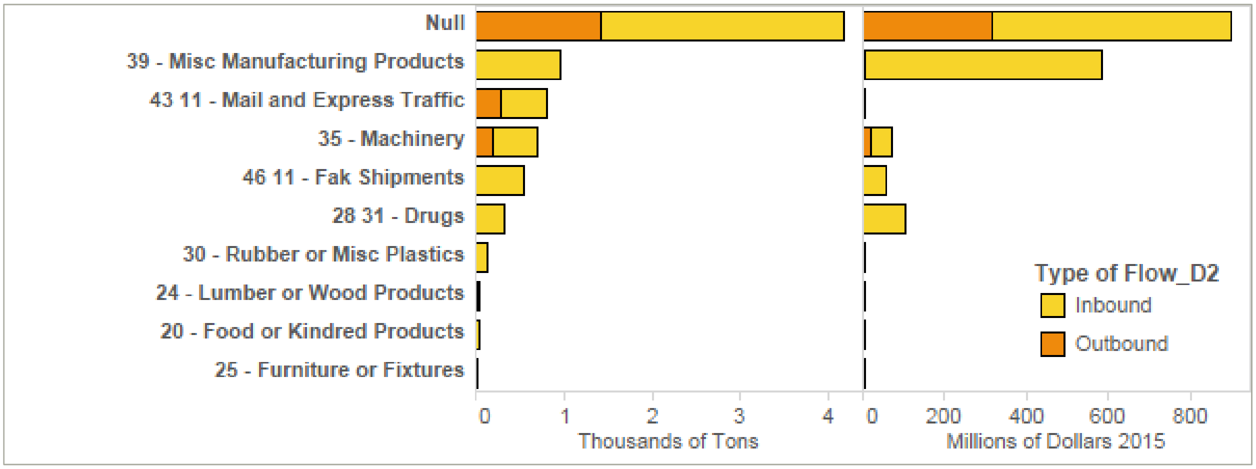


Figure 3-25 | Air Cargo Tonnage and Value Detail, Excluding Pass-Thru Traffic, 2015



Pertaining to ***Figure 3-25***, while accounting for the majority of air cargo, the "Null" categorization means tonnage and value specific to a unique commodity group was not assigned by Transearch. Generally this is due to small shipment sizes, data confidentiality issues, or other issues preventing a reliable assignment to a commodity group. The second most important commodity group, miscellaneous manufacturing products, includes items like jewelry, musical instruments, toys, and sporting and athletic goods.

Leading Outbound and Inbound Flows

Another useful way to explore freight flows is to identify the leading tonnage flows, and then describe the directions, commodities, trading partners, and modes they are attached to. This provides a snapshot of primary activity, and while it does not capture all activity, it helps to identify the major movements that impact the District Two economy and transportation system.

Figure 3-26 | Inbound Tonnage Flows of 400,000 Tons of More, 2015

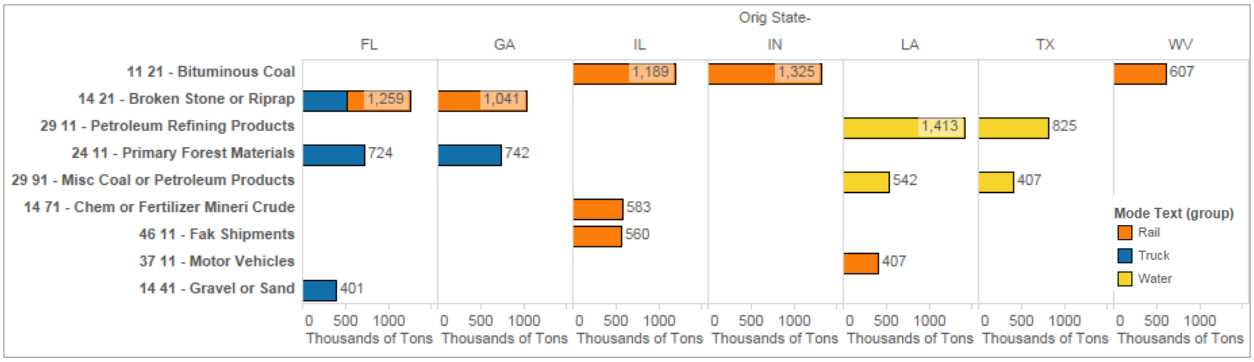
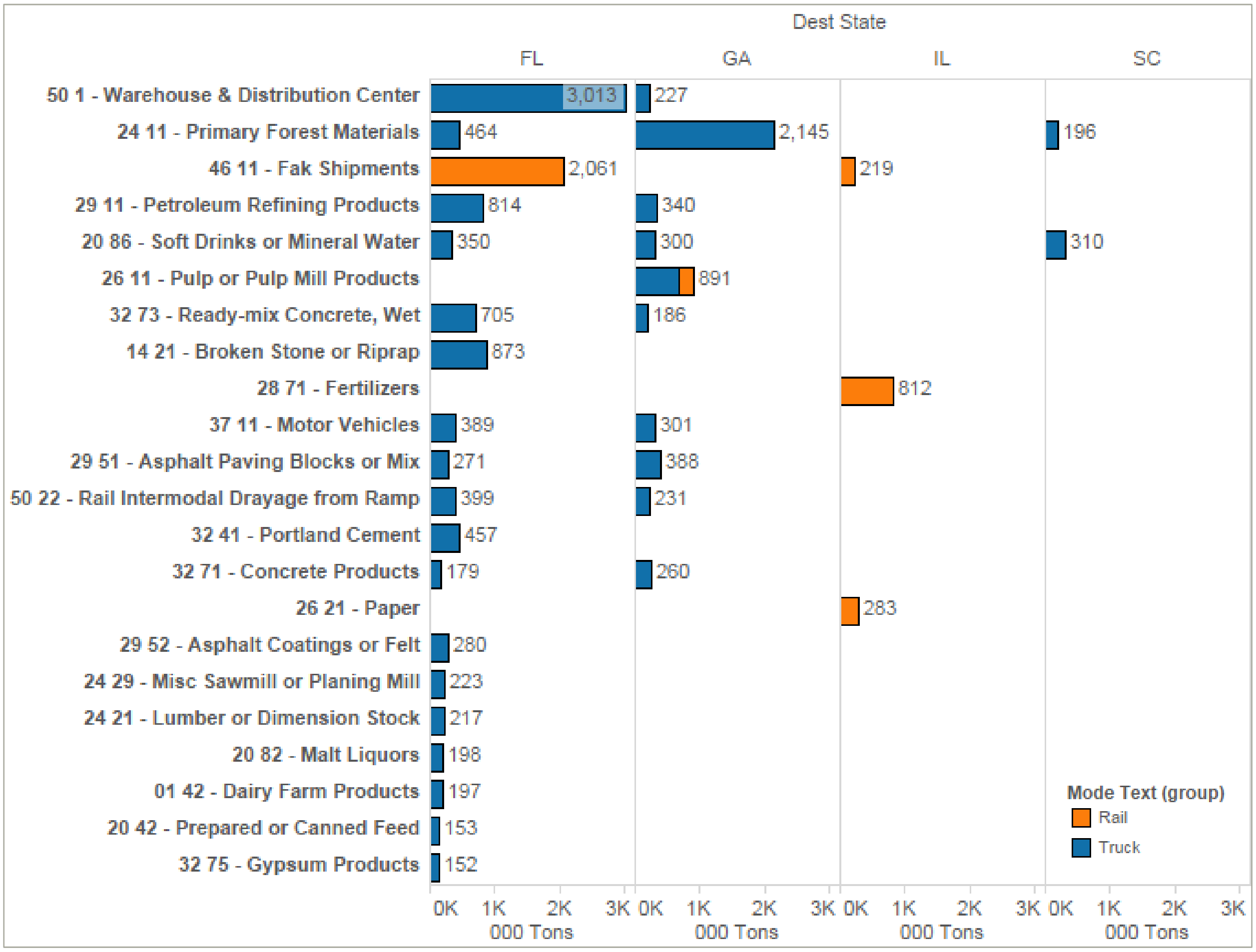


Figure 3-27 | Outbound Tonnage Flows of 150,000 Tons or More, 2015



Pass-Through and International Flows

Pass-Through Flows

Transearch includes data records for all flows that “touch” Florida, including freight that is passing through Florida, moving between states other than Florida via Florida’s highway and rail networks. At the state level, this pass-through tonnage is easy to isolate (by selecting records that have a non-FL origin and a non-FL destination).

At the district level, the analysis is far more challenging, because each O-D pair must be routed, and then records that are routed over highway segments within District Two must be selected. This analysis was undertaken using truck and rail routing files provided with the Transearch data.

The results show that pass-through traffic is an extremely high share of total District Two freight movement, representing 59% of combined (inbound, outbound, and within) tonnage and 64% of combined value. Rail accounts for nearly 31 million pass-through tons, while trucking accounts for nearly 107 million pass-through tons.

Figure 3-28 | Combined Inbound and Outbound, International and Pass-Through Tonnage and Value, 2015

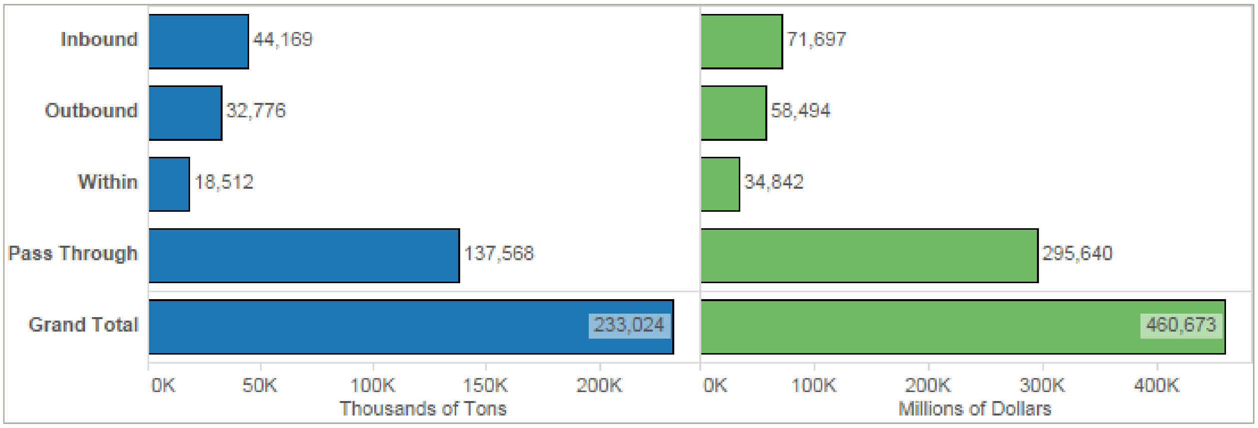


Figure 3-29 | Combined Inbound and Outbound, International and Pass-Through Shares, 2015

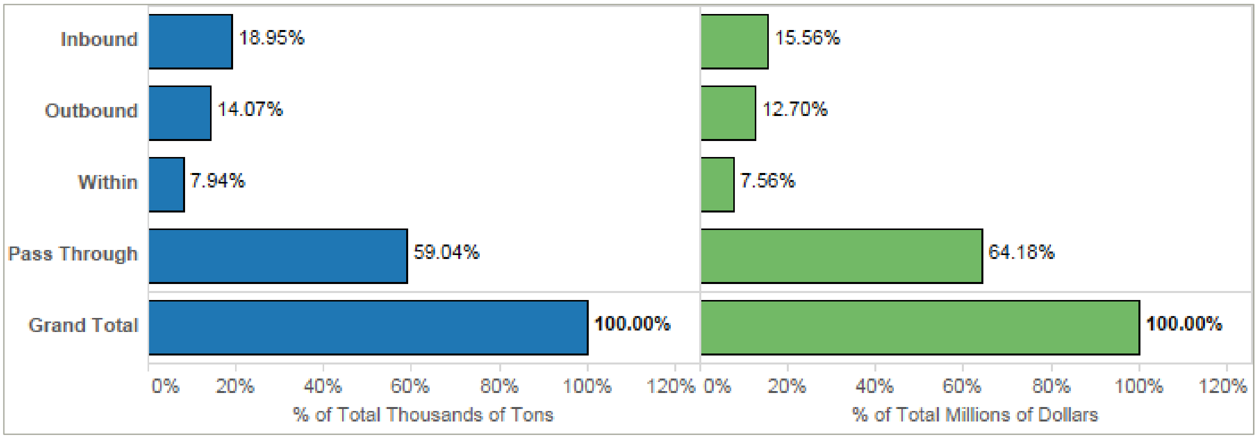
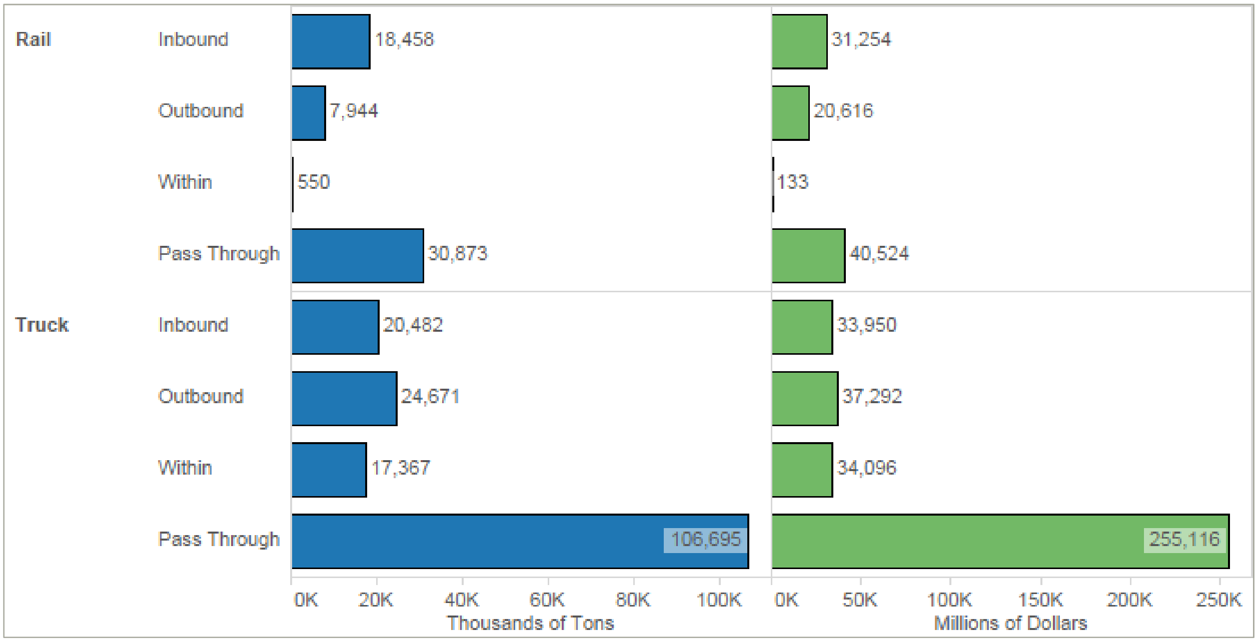


Figure 3-30 | Rail and Truck Tonnage and Value Including Pass-Through, 2015



District Two is at the northern edge of Florida, and much of the traffic between points south of District Two and the rest of the US must traverse District Two's highway and rail infrastructure.

The key take-aways from this analysis are:

- *District Two's highway and rail infrastructure is of critical importance to the state as a whole;*
- *Pass-through traffic is a significant contributor to highway and rail system utilization; and*
- *District Two's transportation infrastructure must be designed to accommodate not only District Two traffic, but also these high levels of pass-through traffic.*

International Flows

Although Transearch does not provide information on the international leg of international flows, it does provide information on the domestic leg of international flows. In other words, all the international tonnage is present in the dataset, but it is attached to the modes that are used domestically. For example, export tonnage via the Port of Jacksonville is represented as either truck or rail tonnage (depending on how it arrives at the Port), not as waterborne tonnage. Additionally, it is possible that Transearch is undercounting the amount of domestic freight that is attached to international movements – if the freight changes modes, or goes through value-added processing, the data may lose the linkage between the domestic and international legs.

For this reason, international flows are best examined through other datasets, like US Census Trade (which captures air and water movements), the FHWA Freight Analysis Framework (which includes high-level movements and forecasts), and PIERS (which offers detailed port-level information on international trade). Each of these are discussed in the "Analysis of Other Freight Datasets" portion of this section.

With these caveats in mind, Transearch information on international flows is worth examining for informational purposes. According to Transearch, around 9% of District Two tonnage and 13% of District Two value is associated with international freight movement. ***Figures 3-31*** and ***3-32*** display Transearch quantities and shares for international tonnage and value flows.

Figure 3-31 | Tonnage and Value by Trade Type, Excluding Pass-Through, 2015

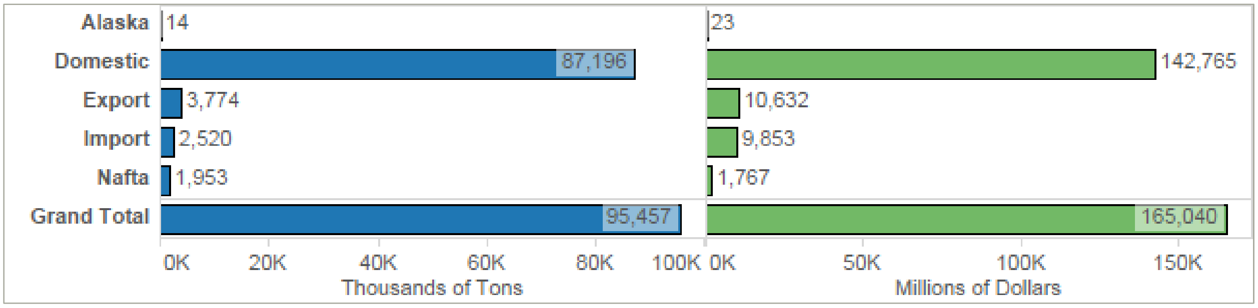
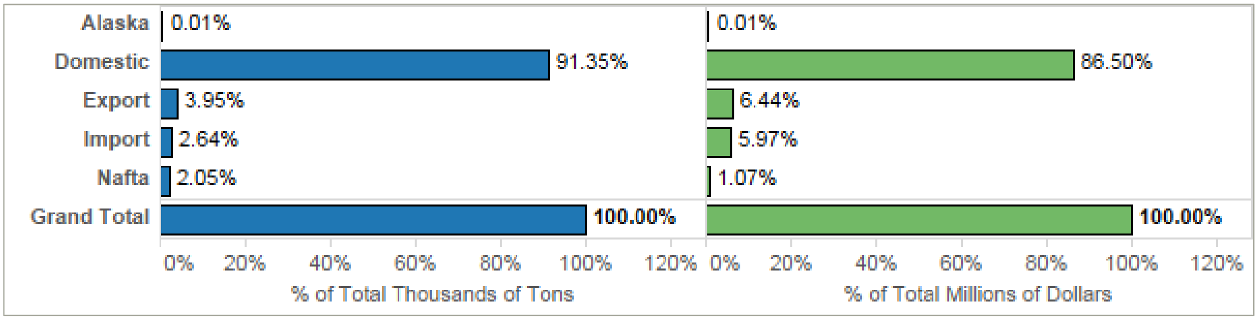


Figure 3-32 | Tonnage and Value Shares by Trade Type, Excluding Pass-Through, 2015



Future Baseline Commodity Flow Forecast

Transearch includes a forecast to the year 2040, based on the *IHS Global Insight* international econometric model. There is only one forecast scenario, and its exact conditions and assumptions are not known, but it is useful to consider as a potential baseline scenario depicting possible future growth.

- According to Transearch, District Two tonnage (excluding pass-through) will grow from 95,457,000 tons in 2015 to 127,535,000 tons in 2040. This represents approximately 34% growth over the 25-year span or a compound annual growth rate of 1.2% per year.
- Including pass-through traffic, District Two tonnage will grow from 233,025,000 tons in 2015 to 344,553,000 tons in 2040, reflecting approximately 48% growth over the 25-year span or a compound annual growth rate of 1.8%.

Looking first at commodity groups and inbound/outbound/internal traffic, the most significant finding is that Transportation and Logistics tonnage is forecast to grow significantly, overtaking Construction Materials as District Two's leading commodity group. Excluding pass-through traffic, Transportation and Logistics currently represents 26% of District Two tonnage; in 2040 it will represent 35% of District Two tonnage; and of the 32 million tons District Two will add between 2015 and 2040, 61% will be in Transportation and Logistics. Consumer Goods and Industrial Products will also see strong growth, representing increasing shares of District Two tonnage; Commodity Waste, and Transportation Products will see moderate growth; and Construction Materials and Fuel and Energy Products and Agricultural and Forest Products will be essentially flat.

Figure 3-33 | Tonnage Growth by Commodity Group, Excluding Pass-Through, 2015

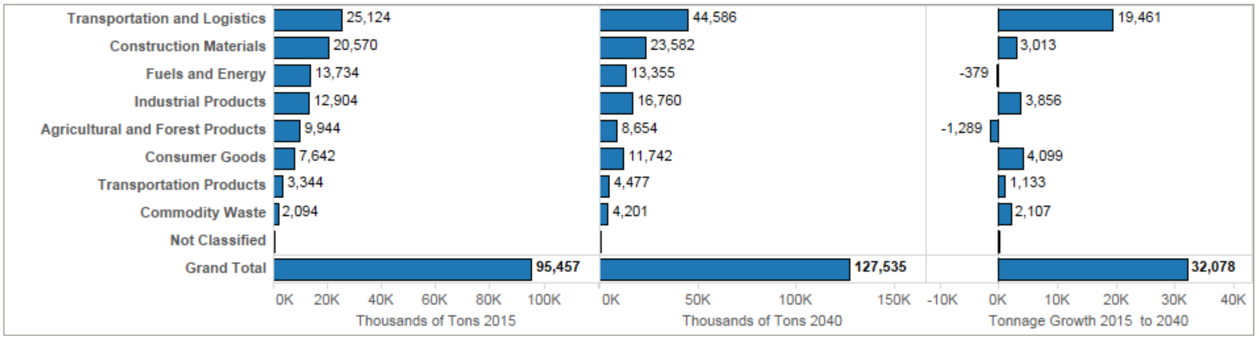
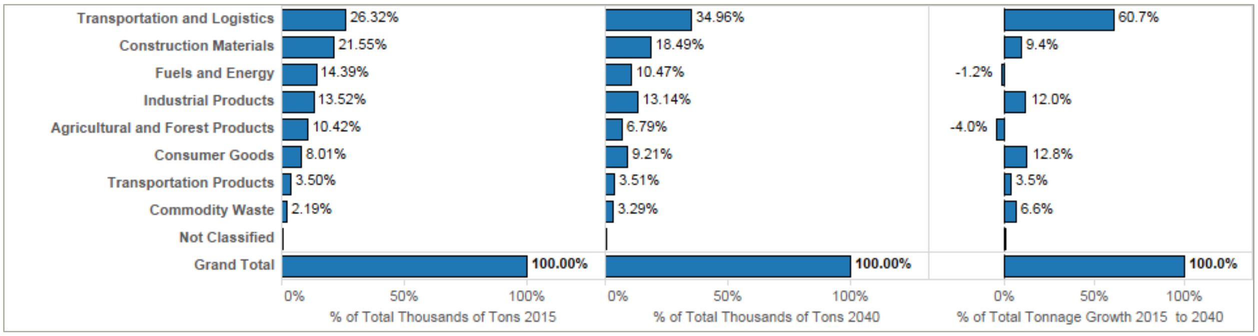


Figure 3-34 | Tonnage Shares by Commodity Group, Excluding Pass-Through, 2015



Looking next at tonnage by direction of trade, including pass-through traffic, the most significant finding is the strong projected growth in Pass-Through traffic. Pass-Through is currently at 138 million tons, and another 79 million tons will be added between 2015 and 2040, an increase of 57%. Inbound and Outbound tonnage will grow moderately in absolute terms, while internal tonnage will grow modestly.

Figure 3-35 | Tonnage Growth by Direction of Trade, 2015 through 2040

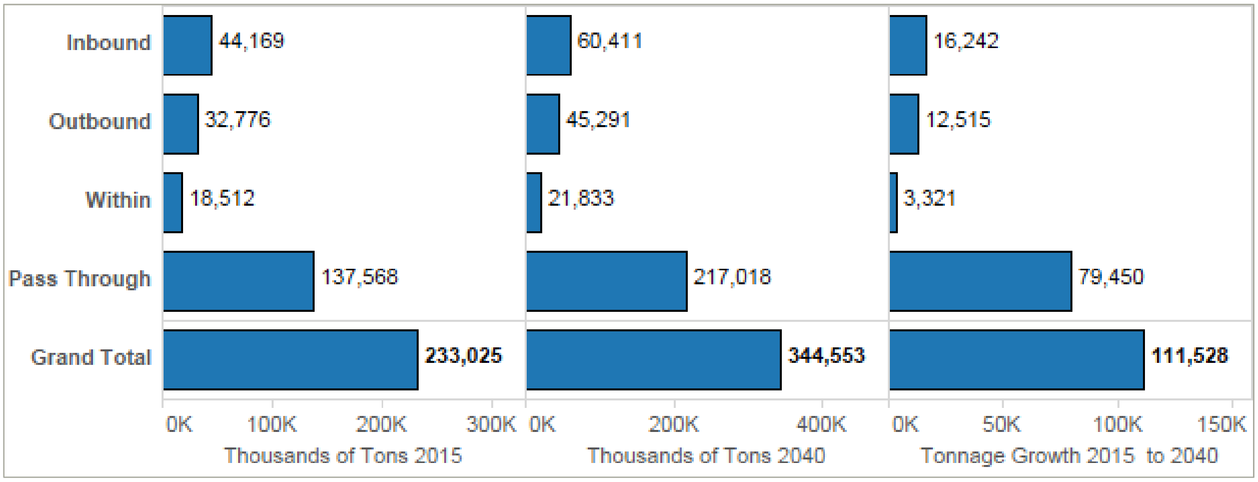
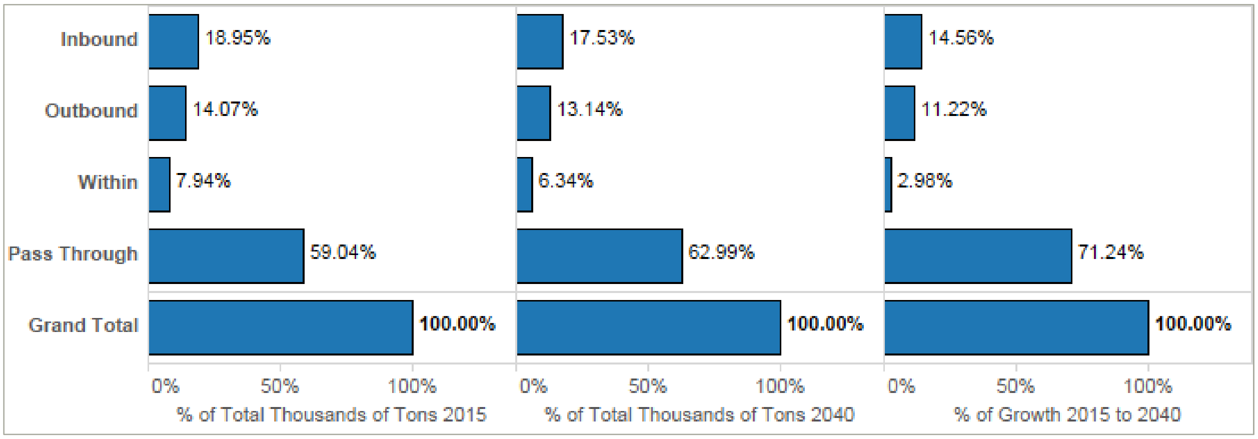


Figure 3-36 | Tonnage Shares by Direction of Trade, 2015 through 2040



Finally, looking at tonnage by mode, the most significant finding is the strong projected growth in truck tonnage, fueled by increases in Transportation and Logistics commodities (which favor truck) and Pass-Through traffic (of which the majority is truck). Truck tonnage (including pass-through) will increase from 165 million tons in 2015 to 265 million tons in 2040; its modal share will increase from 72% to 86%. Rail will see absolute growth, largely from its handling of Transportation and Logistics commodities, but its modal share will drop due to increased trucking; and air and water tonnage is projected to be flat.

Figure 3-37 | Tonnage Growth by Mode, 2015 through 2040

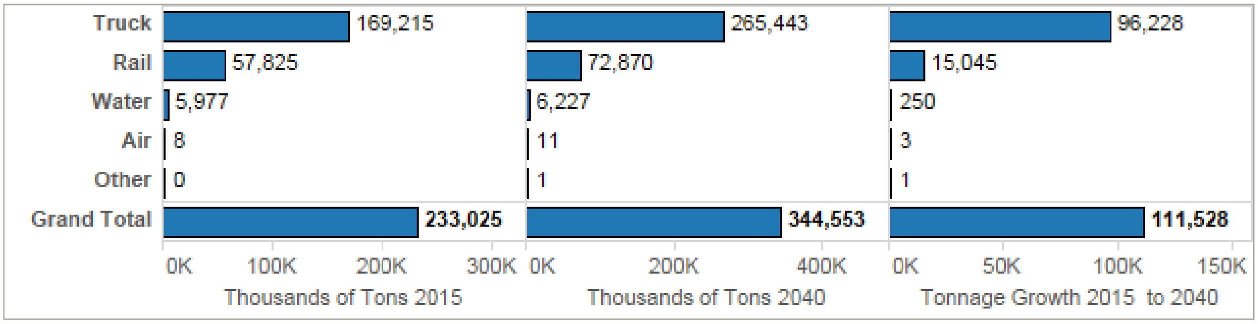
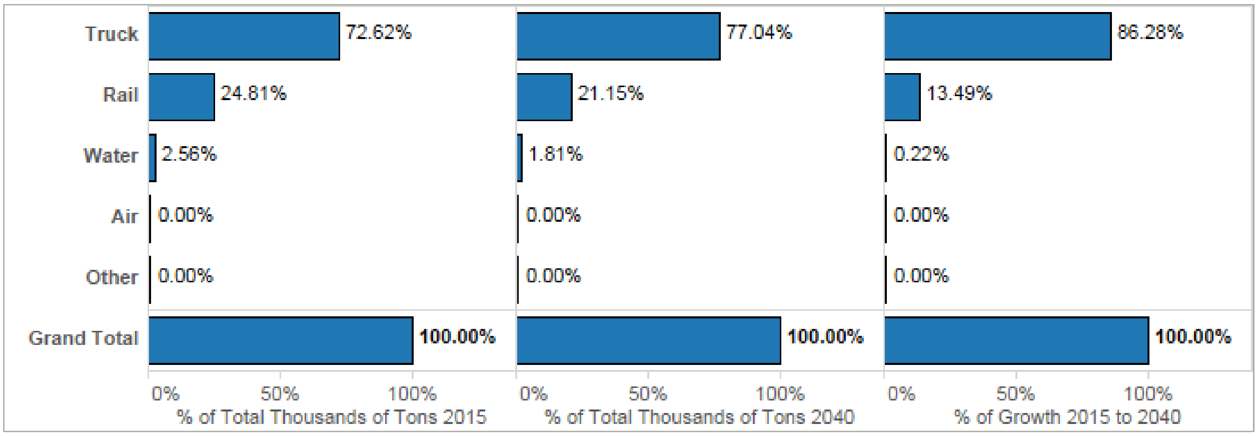


Figure 3-38 | Tonnage Shares by Mode, 2015 through 2040



Forecast Sensitivity and Emerging Trends

The Transearch forecast represents one possible future, based on econometric projections of commodity production and consumption. In any given trade lane, it assumes that commodities will retain their current modal shares and preferences. And because its modal data addresses only domestic movements and the domestic legs of international moves, it does not capture growth for international air and water modes.

These forecasts should be interpreted as one possible future. There are econometric reasons to believe this future is plausible, but it could be very different. Perhaps the most important variable is public policy - if District Two and the State of Florida invest in infrastructure and technologies that support particular modes, routes, or growth industries, these numbers would change. As a matter of policy, it is worth considering two questions:

1) Can we, or should we, set targets for mode or commodity volumes and shares?
2) What are the appropriate public and private policies and investments necessary to achieve them?

Other important variables impacting the forecast scenario include:

- National and state economy (determining supply and demand of commodities)
- Global trade (impacting domestic versus international sourcing and sales)
- District Two population growth and economic development climate
- Changing logistics strategies, especially E-commerce and direct-to-home delivery
- Changes in fuel and other logistics costs, leading to changes in demand and/or shifts between freight transportation modes
- Changes in manufacturing and production technologies
- Changes in transportation service company assets, operations, and technologies
- Capacity, reliability, cost, and overall performance of District Two's multimodal freight transportation system and facilities

Some of the most important leading-edge national trends, which may significantly impact the baseline freight forecast for District Two, are discussed below.

Connected and Automated/Autonomous Vehicles and Truck Platoons Could Reduce Trucking Costs, Increase Trucking Mode Share, and Support Higher Economic Activity

In October 2016 in Colorado Springs, CO, the first automated freight delivery was completed by the self-driving truck company OTTO, carrying a 120-mile shipment of Budweiser beer for Anheuser-Busch InBev.[1] This is remarkable not only as a transportation milestone, but for the degree of automation: the beverages rolled off the production line onto the truck and continued from the plant to the delivery point with little or no direct involvement of labor. Effectively, this made the delivery process an extension of the manufacturing process – and OTTO in fact is marketing itself as a "self-driving solution for lean factories".[2]

This kind of capability redefines the production function for shippers and for freight carriers. The American Transportation Research Institute (ATRI), an arm of the American Trucking Association, reports that an OTTO retrofit can be obtained for trucks now on the road for $30,000[3] – not a small number, but not a prohibitive one when compared to approximately $130,000 for a new Class 8 truck. ATRI also identifies a graduated series of automated upgrades that can be added to a truck for $13,000-$23,000 – and fleets already employ technology to assist and manage driver performance. In other words, it does not require a radical reinvestment in new vehicles for the trucking industry to move into automated operations. Considering that a shortage of qualified drivers has troubled the trucking industry for many years, there is ample motivation for carriers to explore it - as there is motivation for non-traditional companies to enter the industry. OTTO itself was previously acquired by the ride-hailing corporation Uber, while on the passenger side, General Motors has invested in the Uber competitor Lyft and Ford Motor Company is positioning itself as a mobility services business. The concept is that driverless vehicles combined with booking, scheduling, and analytic

[1] "Self-Driving Truck's First Mission: A 120-Mile Beer Run", New York Times, 10/25/16.
[2] www.ottomotors.com, accessed 2/24/17
[3] "Identifying Autonomous Vehicle Technology Impacts on the Trucking Industry", American Transportation Research Institute, November 2016.

software will allow vehicle ownership to be supplanted to some degree by automated transportation services.

Truck platoons are an aspect of connected and automated/autonomous truck technology that is apt to be especially meaningful on I-95, I-10, and I-75, or in potential shuttle operations connected to seaports. Platoons consist of two or more trucks traveling closely behind one another, using automated sensors and controls to maintain short headway distances between vehicles, which in turn allows the vehicles behind the lead truck to reduce fuel consumption by air drafting. Fuel savings change according to position in the line: the first truck faces wind resistance and saves nothing, while the trucks drafting behind it can improve their miles per gallon. Estimates of fuel savings vary: the Texas A&M Transportation Institute quotes savings of 5-20 percent [4] and a European manufacturer claims an average fuel savings of 10 percent.[5] Coupled with the potential for drivers to switch to autonomous "autopilot" mode (especially in the trailing vehicles, although the lead vehicle could do the same), significant cost savings become available in fuel and labor, which are the two largest cost components in trucking. Live demonstrations of truck platoons have been conducted in the US and Europe,[6] including a successful 2016 European Union "challenge" that saw half a dozen truck manufacturers run platoons over separate public roadways through five countries – thus testing the regulatory as well as the operational concept.[7] Truck platoons clearly are viable and thus far safer, truck manufacturers are pushing them, and the cost savings to shippers and carriers appear attractive and even compelling. The use of truck platoons could also be concerning to railroads; although they are not long combination vehicles, their cost profile particularly in driverless mode may divert rail traffic to highways.

Advanced Intermodal Rail Technology and Operations, Along with Domestic Market Growth, Offer the Potential for Rail to Maintain its Modal Share

Intermodal traffic (containers and trailers on flatcars) has been a growth market for freight railroads for many years. It set traffic records in 2015 with 17.5 million units in North America and 13.7 million units in the U.S., and it accounted for nearly a quarter of U.S. Class I railroad revenue, their single largest revenue source.[8] Jacksonville is a critical intermodal center for Florida due to its location (at the convergence of NS, CSX, and FEC), regional ports and rail-served manufacturing, and consuming population.

Prior to the recession of 2008-09, international business had been the engine of intermodal traffic growth, but since that point, domestic traffic has grown much faster. A good part of domestic intermodal growth has come on shorter haul lanes in the east, where the eastern railroads have enjoyed less direct benefit from Asian trade and have shorter distances between

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[4] "Autonomous Truck Platooning a Game Changer for Fuel Efficiency, Safety", Texas A&M Today, 2/26/16.
[5] "New NXP Technology Allows Tighter Truck Platooning", Forbes, 11/7/16.
[6] "Truck Platooning, Past, Present and Future", TruckingInfo.com, April 2016
[7] "European Truck Platooning Challenge 2016", Dutch Ministry of Infrastructure and the Environment, available at https://www.eutruckplatooning.com/home/default.aspx
[8] "Rail Intermodal Keeps America Moving", Association of American Railroads (AAR), May 2016. The North American figure comes from the Intermodal Association of North America (IANA).

metropolitan areas. The eastern market now has seen the introduction of a new intermodal operating model by CSX, which previously had functioned under a hub-and-spoke system. Under the leadership of former CEO Hunter Harrison, the CSX system was transformed from a hub-and-spoke network to a precision-scheduled point-to-point system. Under the precision-scheduled model, CSX is able to transport the same or more freight with far less capital in the form of railcars, locomotives, and switching facilities. Now trains deliver from origin to destination more expeditiously by removing the intermediate stops utilized under the former hub-and-spoke model.[9]

One challenge in rail forecasting is that railroads, as private for-profit companies, are operated to maximize revenues, not necessarily to maximize tonnage. When rail services are in high demand, railroads may choose to serve more high-value/high-revenue goods, at the expense of lower-profit shipments; when rail services are in low demand, they may expand their range of service offerings. Railroads have to balance revenue potential against their cost for equipment, labor, fuel, track infrastructure, terminal infrastructure, interchange costs (especially important in Florida), and other factors. Historically, coal and other fuels have comprised a large share of railroad capacity and revenues, but these are very cyclical commodities and appear to be in significant decline at the moment, so railroads may be more inclined to “reach” for business in a wider range of locations and commodity markets. While railroads will see increased challenges from new trucking technologies that will improve the economics of longer haul movement over the road, the combination of railroad operating and marketing innovations suggest that rail is well-positioned to at least retain its market share.

Warehouse Automation and Location Changes May Lead to More Smaller and Centrally-Located Facilities, Impacting the Use of Truck Routes and Corridors

The number of Distribution Centers (DCs) utilized by US supply chains has tripled in the past four years, from an average of six per company to an average of eighteen, according to data collected by the Tompkins International Supply Chain Consortium, a benchmarking organization of Fortune 500-type companies, approximately half of them retailers and half manufacturers.[10] Tompkins reports that growth in DCs has been pronounced in both sectors, although it is strongest among retailers. The reason for this dramatic increase in facilities is the rising importance of faster time to market, which requires that the staging points for goods be placed closer to the points of consumption. Conversely the average size of DCs has reduced in size, partly because inventory is divided up and some of the added facilities are simple cross-docks, but also because warehouse automation has made it possible to reduce the physical footprint of DCs by two-thirds with no sacrifice in throughput.[11] This implies that automated facilities can have *three times* the freight generation per square foot of traditional DCs.

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[9] “Why Hunter Harrison’s Railroad Revolution will outlive him at CSX” Fortune.com, January 20, 2018.
[10] Tompkins International citations here and below are taken from public presentations of the Triangle Regional Freight Plan, Capitol Area MPO, Durham-Chapel Hill-Cary MPO, and North Carolina DOT, December 2015.
[11] Direct experience of a major retailer, reported in “Logistics and Supply Chain Asset Study”, Michigan Economic Development Corporation, March 2015

Sixty percent of Tompkins Consortium members report increased use of warehouse automation in the past three years and eighty percent expect increases in the next three years. While automation can mean a number of things, a key feature is the replacement of forklifts by robotic systems, which enable the aisles between storage racks to be narrower, and the racks to reach up higher. The effect is greater density of stored product both horizontally and vertically. Ceiling heights in new warehouses can be in the range of 40 to 50 feet, whereas 30 feet was considered high just a few years ago; and the ceiling in one new DC in the Atlanta region reaches 80 feet.[12] The implications are that sites which were not viable for distribution can become viable, because the acreage and cost of land required is smaller, and that facilities designed for more labor-intensive warehouse operations gradually may become obsolete. Research from Tompkins now indicates[13] that regional DCs starting at 100,000 square feet (SF) will be automated facilities in the next few years. A 100,000 SF DC generally requires a land parcel of just 8 acres, indicating an opportunity and a need for redevelopment of existing warehouse building stock.

Distribution in Northeast Florida is a principal freight activity. While facilities in outlying areas with very low land costs will remain desirable for some functions, the need for and economic viability of satellite facilities closer to metropolitan areas is expected to grow. In addition, the reduction in warehouse footprints enabled by automation can mean less demand for enormous DCs on large land parcels in relatively rural exurbs, and more demand for modern facilities on smaller plots of urban land. All of this affects land use plans, the disposition of development sites, and the significance of performance on transportation corridors that connect facilities to industrial and consumer markets. Indeed, because faster time to market is the purpose of DC proliferation, the corollary is that slow and unreliable performance on transportation networks demands a greater number of distribution facilities to compensate, which adds to cost.

E-Commerce Will Continue to Drive Direct-to-Home Trucking Activity

A major reason for the emphasis on time to market is the growth in consumer home delivery. One hundred percent of Tompkins Consortium members – retailers and manufacturers alike – expect direct to consumer sales to increase in the next three years. In the ten years from 2004 to 2014 (the latest data fully available) the US Census Retail Trade Survey reports that electronic commerce rose from 2.1 percent of total retail trade to 6.4 percent, climbing at a compound annual growth rate of 17 percent compared to 2.7 percent for traditional retail. This trend underlies fierce competition between electronic and store-front retailers, and has given rise to so-called omni-channel retail, which denotes the attempt to merge in-store with on-line shopping. A department store customer can view merchandise from their smart phone, know which stores have it in stock, examine it in the store, buy it, bring it home or have it delivered, order a different style from another store or DC, pick it up or send it home – or handle the entire transaction from home on their smart phone. This has two advantages: inventory management

[12] Reported in "Atlanta Regional Freight Mobility Plan Update, Final Report", Atlanta Regional Commission, May 2016; other citations in this sentence derive from the same source.
[13] Tompkins International national survey for the Triangle Regional Freight Plan, Capitol Area MPO, Durham-Chapel Hill-Cary MPO, and North Carolina DOT, February 2017.

for the retailer and convenience and choice for the customer. FedEx reports[14] that home deliveries now include such every-day and bulky household items as pet food and paper products. This was confirmed in a 2016 consumer survey by AlixPartners, which shows meaningful growth in on-line purchases for essentially every product type, and indicates that a wide variety of household needs can be met by e-commerce.

Underlying these marketing strategies are logistics strategies. The more volume an on-line retailer like Amazon is able to command in the light density lanes into residential areas, the lower its cost and the less room there is for competitors. Store-front retailers in turn are obliged to match the fast delivery service for customers who prefer it. For both electronic and store-front merchants, the goods have to be positioned to fulfill the time commitment, requiring facilities – DCs, stores and other staging points – close enough to accomplish this. Half the respondents in a recent supply chain survey expect the need to have facilities within same day truck delivery range of customers will increase.[15] While consolidation of next day and same day deliveries can be achieved through the networks of such major package carriers as UPS, FedEx, and USPS, smaller time windows reduce the opportunity for it.

As a result, it is expected that:

- Truck deliveries into residential communities will continue to climb, will carry a greater range of goods, will replace some passenger trips to stores, and will occur in urban, suburban, and rural settings.
- Truck deliveries will emanate from a greater variety of locations: carrier terminals and stores as well as new local staging points. Land use policies and zoning will intersect with this. Moreover, retailers report an increase in the frequency of inbound delivery to stores, [16] necessitated by customer pick-up of on-line orders (and presumably resulting in a reduction in payloads on the trucks).
- Delivery vehicles mainly should remain trucks because they are best able to produce volume economies, although bicycles, motorized tricycles, and ride-hailing automobiles (such as Uber, Lyft and taxicabs) are being tried in urban areas. Package vehicles (as used by UPS, FedEx and USPS) are the workhorse, but Less-Than-Truckload (LTL) carriers (using 28' trailers and larger trucks) also report increasing home deliveries.
- Delivery delays and their causes will be more visible to District Two freight customers. This could lead to a higher incidence of complaints, but could also make the challenges of freight delivery more tangible and meaningful to citizens.

[14] FedEx citations here and below are from interviews reported in the "Atlanta Regional Freight Mobility Plan Update", Atlanta Regional Commission, May 2016

[15] From the 2/17 Tompkins International national survey for the Triangle Regional Freight Plan, ibid., which included retailers and manufacturers; retailers would need to be within same day range of consumers, and manufacturers within same day range of retailers and other customers.

[16] "State of the Retail Supply Chain – Outlook for 2016", Stifel Transportation Research, January 4, 2016

- Concern for the safety and environmental qualities of delivery trucks should go up. Adoption of different and new technology is apt to accelerate: natural gas and hybrid electric trucks, and especially safety advances associated with connected and automated/autonomous vehicles.

Supply Chain Sourcing Will Impact the Regional Economy and Port Activity

Over the past two decades, “off-shoring” (the shifting of US manufacturing to overseas locations) has been a prominent trend. Off-shoring increases transportation costs and supply chain complexity, but can provide significant savings in labor and possibly other costs. Off-shoring shuttered around 40 percent of large US factories in the 2000s[17] -- even though US manufacturing output was almost 40 percent higher in 2011 than in 2001, and has grown since.[18] The seeming paradox of fewer US manufacturing facilities and higher US manufacturing output can be explained by higher productivity (enabled by automation and information technology) as well as lower labor components for some of the production that stayed in the US.

However, Chinese wages began to rise in the mid-2000s, and fuel prices also climbed, leading to a belief that off-shoring might retract, notably in seven industry groups where the cost differential seemed promising: computers and electronics; machinery; transportation goods; fabricated metal products; appliances and electrical equipment; furniture; and plastics and rubber products.[19] This has led many analysts to consider the potential for “re-shoring” (the return of manufacturing from Asia to US shores) and “near-shoring” (manufacturing returning from Asia to nearby, non-US locations, specifically but not exclusively Mexico). Recent research from A.T. Kearney indicates that re-shoring has not materialized, apart from a blip in 2011.[20] The reasons given are that production has moved elsewhere in Asia (e.g., Vietnam), Chinese wages moderated under weaker economic conditions and fuel prices fell. The A.T. Kearney report does cite scores of instances where re-shoring occurred in the same industries cited above, with time, cost, and quality factors motivating the shift, but the key message is that there has not been a sea change. Even so, other survey research conducted at the same time as the A.T. Kearney report found 31 percent of North American manufacturers considered near-shoring a possible opportunity for their company, with the US and Mexico about equally attractive.[21]

[17] “The Future of Chicago Manufacturing? Fewer People Doing More”, Chicago Tribune, 9/19/15, quoting from a White House press release of July 2015
[18] US GDP by Industry, issued by Bureau of Economic Analysis, US Department of Census, extracted 2/17.
[19] A key source of this analysis was The Boston Consulting Group, “U.S. Manufacturing Nears the Tipping Point”, March 2012.
[20] “U.S. Re-Shoring: Over Before It Began?”, A.T. Kearney, 12/15
[21] “Nearshoring Gaining Popularity in Western Europe While N. American Activity Slows”, AlixPartners, reported by Stifel Nicolaus & Company, 9/9/15

3D Printing Will Impact Truck Delivery Activity

3D printing (or "additive manufacturing") is not a new technology, but its appearance in new applications with advanced materials is bringing it more deeply into manufacturing processes and supply chains. The technology replaces traditional fabrication in factories with production from specialized printing devices operating in three dimensions, using a variety of materials, and able to be located almost anywhere. Its principal transportation effect is to substitute local production for longer distance transportation from plants and DCs. Currently, 3D printing is best suited to "low volume, moderate valued products that require high customization on short lead times".[22] These factors apply not only to finished products, but also to product components, and they can correlate with dispersed demand. The top markets today are in consumer electronics, automotive, and medical devices;[23] a new market is developing in food products, particularly in the manufacturing process for foods like pasta, and for specialties like confectionary.[24] A key consideration is the reduction or elimination of inventories required in small amounts that need positioning in many locations. While replacement parts are a prime example of goods that fit the profile, and are an early application of the technology, manufacturing components in general are being evaluated by industry for possible 3D fabrication – recognizing that the process in some ways represents the ultimate in just-in-time production.

Facilitating this development is a new joint venture[25] launched in May 2016. The venture has three partners: UPS, which is a third-party logistics provider (3PL) as well as the world's largest freight carrier; SAP, a leading producer of enterprise software for supply chain management; and Fast Radius, a maker of machine parts using 3D printers. A network of printers has been established at over sixty UPS Store locations nationwide as well as a factory at the UPS global air hub in Louisville, KY. The partners describe the venture as "distributed on-demand manufacturing" and it can be regarded as an integrated supply chain solution: companies on the SAP system can connect to and optimize their use of the network, schedule production at an appropriate location, and receive next day UPS delivery from the Louisville hub or a store location in their region. Both SAP and UPS have large numbers of users, rendering the venture a platform for many of the nation's supply chains to acquire experience with 3D applications and a catalyst for growth and development.

Over the long term, 3D printing has the potential to create new truck distribution patterns, moving input materials to 3D printing centers, and from 3D printing centers to customer locations.

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[22] Quotation and chart taken from "How 3D Printing Could Disrupt Your Supply Chain", authored by GRA Supply Chain Pty Ltd, reported in Industry Week, October 30, 2015

[23] "3D Printing: The Next Revolution in Industrial Manufacturing", United Parcel Service/Consumer Technology Association, May 2016, available at: https://www.ups.com/media/en/3D_Printing_executive_summary.pdf

[24] "From Pixels to Plate, Food Has Become 3D Printing's Delicious New Frontier", Digital Trends, April 19, 2017.

[25] "UPS to Launch On-Demand 3D Printing Manufacturing Network", UPS Press Room, May 18, 2016

Analysis of Supplemental International Trade Data

Need for Supplemental International Trade Data

Transearch, as previously mentioned, provides estimates for the domestic tonnage and value, and indicates whether that tonnage is believed to be linked to international trade. International trade data can, therefore, be estimated by inference. The Transearch estimate for year 2015, as presented in ***Figure 3-31***, is 8,247,000 tons.

However, Transearch does not provide information on the foreign origin or destination of traded goods, or on the modes used for import and export activities. Therefore, for a fuller picture of District Two international trade, it is useful to consider three additional datasets:

- Census Trade Online;
- Freight Analysis Framework; and
- PIERS

The US Census Trade Online database is an authoritative source for international trade data, and provides tonnage and value estimates for international freight moving through District Two's seaports and airports. Analysis of Census data shows that in year 2015, District Two facilities shipped and received 11,533,500 tons of international freight (almost all by water), worth over $24 billion.

Table 3-2 | Census Trade Data for District Two Imports and Exports, 2015

	Tons	Dollars
Waterborne Cargo	11,533,500	$ 24,075,700,000
Air Cargo	300	$ 22,400,000
Total	**11,533,800**	**$24,098,100,000**

Total flows by water – both domestic and international – can then be estimated as follows:

- 5,977,000 domestic tons (from ***Figure 3-15***)
- 11,533,200 international tons (from ***Table 3-2***)
- 17,510,200 total tons

As a final check, this total can be compared with statistics published by the American Association of Port Authorities (AAPA). For year 2015, AAPA shows Jacksonville with 17,577,034 tons – which is very close to the combined estimate of 17,510,200 tons above. Jaxport tonnage in FY2015 was 8,188,888 tons; the remaining tonnage was through the Port of Fernandina, and through various privately-owned terminals.

Freight Analysis Framework

International trade forecasts for the Jacksonville Business Economic Area (which includes Jacksonville and Fernandina Beach, and corresponds roughly to District Two) can be extracted from the USDOT's Freight Analysis Framework 4.1 dataset. Looking at projected 2015 and projected international 2040 tonnages, FAF suggests a very robust compound annual growth rate of 5.1% per year.

These forecasts are higher than many analysts have predicted. Nationally, the consensus forecast for bulk commodities tends to run between 1% and 3% per year, while the forecast for intermodal and high-value goods tends to run between 3% and 6% per year. FAF is therefore at the high end of this forecast range.

Jaxport's 2013 Strategic Plan[26] presented a comprehensive analysis of potential growth in key commodity handling types. It found that between 1994 and 2012, container traffic grew at 2.8% per year; breakbulk grew at 6.3% per year; autos grew at 3.9% per year; and bulk declined at (0.4%) per year. It also identified a strong upside potential of 2.0 to 2.8 million TEUs for Jaxport by the year 2035, depending on channel deepening and the extent of business attraction from competing ports; compared to actual 2016 fiscal year volume of 968,279 TEUs (as reported by the American Association of Port Authorities), this represents continuing growth rates between 3.9% and 5.7% per year.

PIERS Data Analysis

To develop a more detailed picture of international trade flows through Jaxport and the Port of Fernandina Beach, PIERS data made available through the Florida Department of Transportation was analyzed by WSP.

The analysis period was the most recent available 12 months (June 2015 through May 2016). The key volume measures provided by PIERS are: metric tons (Mtons); number of containers in twenty-foot equivalent units (TEUs); and value in dollars (value). For this analysis, metric tons were converted to short tons, for easier comparison with other data sources. These measures include only international cargo – domestic cargo is not included.

PIERS also provides information on foreign country of origin/destination, as well as the US origin/destination. The US origin/destination is based on either the shipper or consignee address, where available; in some cases however, the address may represent a business headquarters rather than a physical pickup or delivery location. This analysis did not attempt to modify or adjust the PIERS data to compensate for this effect.

Totals

In the most recent 12-month analysis period, Fernandina Beach handled 163,724 tons of cargo and 2,541 TEUs of international cargo, worth nearly 182 million dollars. For the same period,

[26] Jacksonville Port Authority Strategic Plan; Martin Associates, 2013.

Jacksonville handled 10,445,375 tons and 537,841 TEUs of international cargo, worth nearly 22 billion dollars.

Table 3-3 | International Tons, TEUs and Value, Most Recent 12 Months

		Export	Import	Grand Total
FERNANDINA BEACH	Tons	154,918	8,806	**163,724**
	TEUs	2,409	132	**2,541**
	Value	$ 171,222,998	$ 10,463,190	**$ 181,686,189**
JACKSONVILLE	Tons	3,182,251	7,263,124	**10,445,375**
	TEUs	339,988	197,854	**537,841**
	Value	$ 11,243,996,743	$ 10,517,253,170	**$ 21,761,249,912**

Fernandina Beach

Looking at international trade through the port of Fernandina Beach in the most recent 12-month period for which PIERS data is available, key highlights include the following:

- Fernandina handled nearly 164,000 tons of freight, of which almost 155,000 tons was exported. Over 108,000 tons was associated with the export of paper and paperboard, including waste paper recycling. The export of logs and lumber represented nearly 20,000 tons.
- Fernandina handled 2,541 TEUs, of which 2,409 was exported. Leading containerized commodities include general cargo, pulp and paperboard, grocery products, furniture, beverages, building materials, and logs and lumber, all moving as exports.
- Fernandina handled nearly 182 million dollars in value, of which more than 171 million was export traffic. The leading value commodities are: general cargo, pulp and paperboard, and grocery products, all moving as exports; furniture, moving as imports; and non-alcoholic beverages, building materials, log and lumber, household goods, plastic products, and fuel, moving as exports.
- By tonnage, over 40% of trade is with Ecuador; over 28% is with the Dominican Republic; and over 19% is with Bermuda; these three countries represent 88% of total tonnage. By TEUs, over 98% of trade is with Bermuda and the remainder is with the Netherlands.
- By tonnage, the leading US origin-destination markets are New York (39%), Florida (37%), and Georgia (18%), which together account for more than 94% of tons. By TEUs, the leading markets are Florida (58%), Ohio (9%), Tennessee (6%), South Carolina (6%), and Illinois (5%).

Table 3-4 | Fernandina Beach Int'l Commodity Tons, Most Recent 12 Months

	Export	Import	Grand Total
PAPER & PAPERBOARD, INCL WASTE	108,041	-	108,041
LOGS & LUMBER	19,801	-	19,801
GENERAL CARGO, MISC	10,020	32	10,052
EMPTY CONTAINERS, DRUMS ETC.	69	7,475	7,544
NON-ALCOHOLIC BEVERAGES	2,391	-	2,391
GROCERY PRODS, MISC.	2,028	-	2,028
PETROLEUM / CRUDE & FUEL OIL	872	790	1,662
STARCH, CHEMICAL	1,206	-	1,206
BUILDING MATERIALS	1,012	8	1,019
VENEERS & PLYWOOD	837	-	837
All Other	8,641	502	9,144
Grand Total	**154,918**	**8,806**	**163,724**

Table 3-5 | Fernandina Beach Int'l Commodity TEUs, Most Recent 12 Months

	Export	Import	Grand Total
GENERAL CARGO, MISC	497	4	501
PAPER & PAPERBOARD, INCL WASTE	264	-	264
GROCERY PRODS, MISC.	192	-	192
FURNITURE	145	-	145
NON-ALCOHOLIC BEVERAGES	137	-	137
BUILDING MATERIALS	129	2	131
LOGS & LUMBER	120	-	120
HOUSEHOLD GOODS	84	20	104
PLASTIC PRODS, MISC	78	-	78
PETROLEUM / CRUDE & FUEL OIL	42	34	76
All Other	721	72	793
Grand Total	**2,409**	**132**	**2,541**

Table 3-6 | Fernandina Beach Int'l Value, Most Recent 12 Months

	Export	Import	Grand Total
GENERAL CARGO, MISC	68,169,304	214,996	68,384,300
PAPER & PAPERBOARD, INCL WASTE	47,386,093	-	47,386,093
GROCERY PRODS, MISC.	9,315,455	-	9,315,455
FURNITURE	177,546	8,469,549	8,647,094
NON-ALCOHOLIC BEVERAGES	8,430,515	-	8,430,515
BUILDING MATERIALS	4,307,632	-	4,307,632
LOGS & LUMBER	3,454,433	-	3,454,433
HOUSEHOLD GOODS	2,702,266	-	2,702,266
PLASTIC PRODS, MISC	1,908,696	16,663	1,925,359
PETROLEUM / CRUDE & FUEL OIL	1,923,801	-	1,923,801
All Other	23,447,257	1,761,982	25,209,241
Grand Total	**171,222,998**	**10,463,190**	**181,686,189**

Table 3-7 | Fernandina Beach Int'l Trade Partners by Share of Tonnage, Most Recent 12 Months

	Export	Import	Grand Total
ECUADOR	40.8%	-	40.8%
DOMINICAN REPUBLIC	28.3%	-	28.3%
BERMUDA	13.7%	5.0%	18.7%
SPAIN	8.3%	-	8.3%
TRINIDAD AND TOBAGO	1.3%	-	1.3%
JAMAICA	1.1%	-	1.1%
HAITI	0.7%	-	0.7%
NETHERLANDS	0.3%	0.3%	0.6%
ITALY	0.2%	-	0.2%
LEEWARD AND WINDWARD ISLANDS	0.2%	-	0.2%
All Other	0.0%	0.1%	0.1%
Grand Total	**94.6%**	**5.4%**	**100.0%**

Table 3-8 | Fernandina Beach Int'l Trade Partners by Share of TEUs, Most Recent 12 Months

	Export	Import	Grand Total
BERMUDA	94.8%	3.5%	98.3%
NETHERLANDS	1.7%	1.7%	1.7%
Grand Total	**94.8%**	**5.2%**	**100.0%**

Table 3-9 | Fernandina Beach Domestic Markets for Int'l Trade by Share of Tonnage, Most Recent 12 Months

	Export	Import	Grand Total
NY	38.7%	-	38.7%
FL	31.9%	5.3%	37.2%
GA	18.3%	-	18.3%
IL	1.7%	-	1.7%
OH	0.6%	-	0.6%
TN	0.6%	-	0.6%
AL	0.4%	-	0.4%
SC	0.4%	-	0.4%
MA	0.3%	-	0.3%
NE	0.3%	-	0.3%
All Other	1.4%	0.1%	1.5%
Grand Total	**94.6%**	**5.4%**	**100.0%**

Table 3-10 | Fernandina Beach Domestic Markets for Int'l Trade by Share of TEUs, Most Recent 12 Months

	Export	Import	Grand Total
FL	53.7%	4.4%	58.2%
OH	9.3%	-	9.3%
TN	6.4%	-	6.4%
SC	6.3%	-	6.4%
IL	5.2%	-	5.2%
GA	1.7%	0.2%	1.9%
WI	1.1%	-	1.1%
NE	1.1%	-	1.1%
CA	1.0%	-	1.0%
NJ	1.0%	-	1.0%
All Other	8.0%	0.6%	8.4%
Grand Total	**94.8%**	**5.2%**	**100.0%**

Jacksonville

Looking at international trade through Jacksonville in the most recent 12-month period for which PIERS data is available, key highlights include the following:

- Jacksonville handled over 10.4 million tons of freight, with more than two-thirds being imported. The leading import commodities are: coal and coke; limestone chips; fuel; automobiles; pulp and paperboard; general cargo; and wood pulp. The leading export commodities are: general cargo; grocery products; paper and paperboard; automobiles; and wood pulp.
- Jacksonville handled nearly 540,000 TEUs, with nearly two-thirds being exported. The leading containerized exports are: general cargo; grocery products; paper and paperboard; wood pulp; auto parts; and chemicals. The leading containerized imports are: furniture; general cargo; medical equipment; paper and paperboard; and plastics. Jacksonville handles a diverse range of containerized goods, and the top ten commodities represent only around half of all containers.
- Jacksonville handled nearly 22 billion dollars in value, with imports and exports relatively balanced. The leading value commodities are: general cargo; automobiles; medical equipment; grocery products; paper and paper board; and hardware.
- By tonnage, over 23% of trade is with Puerto Rico and over 23% is with Columbia; other important partners include Mexico, China, Brazil, Bahamas, Japan, and Finland. By TEUs, over 60% of trade is with Puerto Rico and over 15% is with China.
- By tonnage, the leading US origin-destination markets are Florida (47%), Illinois (8%), Alabama (6%), Georgia (6%) California (6%), and Texas (5%). By TEUs, the leading markets are Florida (37%), Georgia (11%), Illinois (10%) and California (6%).

Table 3-11 | Jacksonville Int'l Commodity Tons, Most Recent 12 Months

	Export	Import	Grand Total
COAL & COKE	150	2,501,604	2,501,754
LIMESTONE CHIPS	289	1,050,753	1,051,042
AUTOMOBILES	159,665	529,681	689,346
GENERAL CARGO, MISC	452,158	217,441	669,598
PAPER & PAPERBOARD, INCL WASTE	235,921	339,410	575,330
PETROLEUM / CRUDE & FUEL OIL	10,119	558,691	568,810
GROCERY PRODS, MISC.	298,162	28,608	326,769
WOOD PULP	120,540	187,274	307,813
UNCLASSIFIABLE CHEMICALS	62,926	73,802	136,728
POULTRY, CHIEFLY FRESH & FROZEN	135,514	108	135,621
All Other	1,706,808	1,775,752	3,482,564
Grand Total	**3,182,251**	**7,263,124**	**10,445,375**

Table 3-12 | Jacksonville Int'l Commodity TEUs, Most Recent 12 Months

	Export	Import	Grand Total
GENERAL CARGO, MISC	54,752	11,689	66,442
GROCERY PRODS, MISC.	38,932	2,987	41,919
PAPER & PAPERBOARD, INCL WASTE	26,160	8,411	34,571
FURNITURE	4,638	28,171	32,809
MEDICAL EQUIP & SUPPLIES	6,848	9,881	16,729
AUTO PARTS	11,322	3,369	14,691
PLASTIC PRODS, MISC	7,021	6,251	13,272
WOOD PULP	12,220	542	12,763
DRUGS	6,947	4,791	11,738
UNCLASSIFIABLE CHEMICALS	7,485	1,758	9,243
All Other	163,663	120,004	283,664
Grand Total	**339,988**	**197,854**	**537,841**

Table 3-13 | Jacksonville Int'l Value, Most Recent 12 Months

	Export	Import	Grand Total
GENERAL CARGO, MISC	2,968,475,807	1,472,160,572	4,440,636,379
AUTOMOBILES	1,031,004,621	2,352,808,801	3,383,813,422
MEDICAL EQUIP & SUPPLIES	392,144,175	613,780,754	1,005,924,929
GROCERY PRODS, MISC.	629,986,839	54,442,279	684,429,117
PAPER & PAPERBOARD INCL WASTE	163,156,220	335,705,113	498,861,333
HARDWARE, MISC	422,938,056	29,545,563	452,483,619
PERFUME, COLOGNE	423,287,737	211,900	423,499,637
FURNITURE	90,767,042	305,479,549	396,246,591
PLASTIC PRODS, MISC	246,924,768	118,688,615	365,613,383
FLAVORS	45,647,313	302,219,391	347,866,704
All Other	4,829,664,165	4,932,210,633	9,761,874,798
Grand Total	**11,243,996,743**	**10,517,253,170**	**21,761,249,912**

Table 3-14 | Jacksonville Int'l Trade Partners by Share of Tonnage, Most Recent 12 Months

	Export	Import	Grand Total
PUERTO RICO	19.1%	4.1%	23.2%
COLOMBIA	0.1%	23.1%	23.2%
MEXICO	0.1%	6.7%	6.8%
PEOPLES REP OF CHINA	2.3%	3.6%	5.9%
BRAZIL	1.4%	3.6%	5.0%
BAHAMAS	0.2%	4.3%	4.5%
CANADA	-	4.2%	4.2%
JAPAN	0.6%	3.0%	3.6%
FINLAND	-	2.9%	2.9%
All Other	6.7%	14.0%	20.7%
Grand Total	**30.5%**	**69.5%**	**100.0%**

Table 3-15 | Jacksonville Int'l Trade Partners by Share of TEUs, Most Recent 12 Months

	Export	Import	Grand Total
PUERTO RICO	47.9%	12.1%	60.1%
PEOPLES REP OF CHINA	3.0%	12.1%	15.1%
BRAZIL	3.3%	1.6%	4.8%
VIETNAM	0.1%	2.3%	2.4%
REPUBLIC OF KOREA	0.4%	1.1%	1.5%
THAILAND	0.2%	1.3%	1.5%
JAPAN	0.9%	0.3%	1.3%
NETHERLANDS	0.0%	1.3%	1.3%
ARGENTINA	1.1%	0.2%	1.2%
VENEZUELA	0.9%	-	0.9%
All Other	5.4%	4.5%	9.9%
Grand Total	**63.2%**	**36.8%**	**100.0%**

Table 3-16 | Jacksonville Domestic Markets for Int'l Trade by Share of Tonnage, Most Recent 12 Months

	Export	Import	Grand Total
FL	10.4%	36.9%	47.2%
IL	2.4%	5.9%	8.4%
AL	0.5%	5.5%	6.0%
GA	3.3%	2.3%	5.7%
CA	2.2%	3.4%	5.6%
TX	0.9%	4.1%	5.1%
NJ	0.9%	2.3%	3.2%
MI	1.4%	1.5%	2.9%
NY	1.5%	1.2%	2.7%
TN	1.0%	1.0%	2.0%
All Other	6.0%	5.4%	11.2%
Grand Total	**30.5%**	**69.5%**	**100.0%**

Table 3-17 | Jacksonville Domestic Markets for Int'l Trade by Share of TEUs, Most Recent 12 Months

	Export	Import	Grand Total
FL	22.5%	14.5%	37.0%
GA	6.8%	3.8%	10.6%
IL	7.3%	2.1%	9.4%
CA	2.8%	3.4%	6.2%
TN	2.5%	1.8%	4.3%
TX	1.4%	2.1%	3.5%
OH	2.5%	0.4%	2.9%
NY	1.8%	1.1%	2.8%
NJ	1.7%	0.7%	2.4%
MI	2.2%	0.2%	2.4%
All Other	11.8%	6.8%	18.6%
Grand Total	**63.2%**	**36.8%**	**100.0%**

Illustrative Logistics / Supply Chain Descriptions

Another valuable way to understand regional commodity flows is to consider the Logistics and Supply Chain activities that generate the movements represented in the commodity flow data.

Definitions

Logistics are the methods by which goods are handled in supply chains, encompassing freight transportation networks, facilities (such as rail yards and warehouses), and the operations of the companies that run the facilities.

Supply chains are interconnected systems of suppliers, producers, and distributers that create goods, bring them to market, and ultimately put them in businesses and homes.

Logistics is big business. The U.S. business logistics system has accounted for 8.2 to 8.4 percent of gross domestic product (GDP) during the last several years, representing more than $1 trillion annually in freight transportation costs, inventory and warehousing costs, and management costs for the nation as a whole. The global figure for logistics spending is over $8 trillion, according to one estimate (28th Annual State of Logistics Report).

Successful supply chains incorporate a wide range of factors:

- **Materials and products to be moved** – Supply chains involve both inputs and outputs. For example, a candy manufacturer may receive regular shipments of sugar, caramel, cocoa, and nuts, along with wrappers and boxes; it will ship out finished candy bars to retailers. The company that supplies the candy manufacturer with boxes has its own supply chain, receiving logs or wood chips and shipping out boxes; the company that supplies the candy manufacturer with sugar receives raw sugar cane and ships out refined sugar. A major national retailer may receive a truckload of boxes of candy bars at its warehouse (where boxes are stored until needed at retail outlets) or at a distribution center (for delivery retailers, typically in mixed shipments, e.g., marshmallow ducks, circus peanuts, and wax moustaches). A single product—as simple as a candy bar, or as complicated as a car—is in your hand, or in your driveway, only because a complex, interconnected, and largely invisible set of supply chains put it there.

- **Locations of producers in relation to their suppliers and consumers –** Historically, manufacturers tended to be located geographically close to their suppliers for raw materials and/or to their consuming markets. For example, the auto industry originally co-located with steel-producing facilities. In farm states, local dairies served local needs. As transportation networks became more efficient, and as logistics strategies developed to link multiple transportation modes over longer distances and across country borders in intermodal supply chains, it became practical to lengthen supply chains. Steel for U.S. auto manufacturing can be imported from Asia; milk can come from dairies hundreds of miles away.

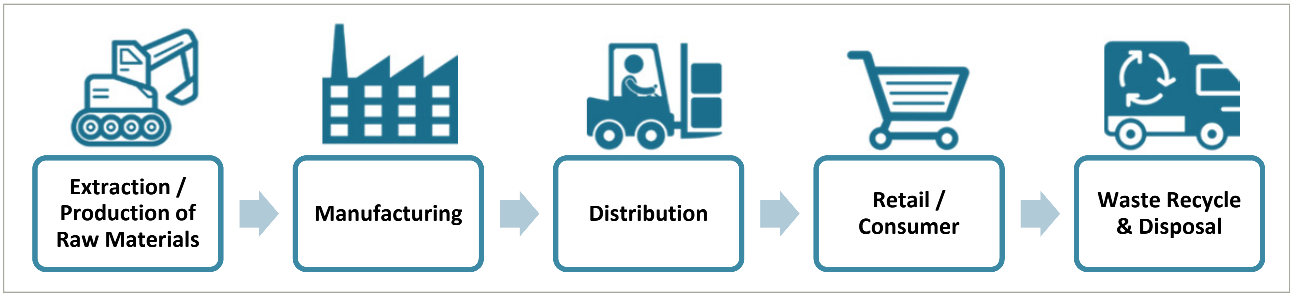
- **Available transportation services, networks, and facilities** – These include highways, railroads, waterways, airways, and pipelines, along with the intermodal facilities (ports, airports, rail terminals) that connect them. Typically, rail and water are used to transport heavy, lower-value, less time-sensitive shipments, and they also handle higher-value freight (in standardized intermodal shipping containers) over high-density long-haul corridors and trade lanes. Air is used for high-value, low-weight, time-sensitive shipments. Trucks may be used for anything over short distances; their unique strength is their ability to provide door-to-door service to anyone reachable by a road, and they are critical in connecting freight shippers and receivers with ports, airports, and rail terminals. Trucks are also critical for long-haul movement of high-value, time-sensitive, or specialized-handling shipments, filling a role between air and rail. Trade among the United States, Canada, and Mexico is largely met by trucking, although rail, air, and water also play important roles. Trade between the United States and other countries is by air (for the highest-value, most time-sensitive goods) and by water (for everything else).

The goal of logistics is to tie together sets of "fixed points" into effective supply chains that serve the needs of specific businesses. Fixed points include locations of natural resources, such as iron and petroleum; locations of processing infrastructure, such as refineries, factories, and distribution centers; locations of the appropriate labor force (based on skill set and education level, wage affordability, country preference, and other factors); and locations of product purchasers. The available tools to make linkages include choice of transportation modes, carriers, and routes; choice of international gateways; and choice of intermediate processing facility types (e.g., warehouse, distribution) and locations (e.g., urban, rural).

At the highest level, most supply chains include at least one of the following steps, and many include several:

- The extraction or production of raw materials from mining, agriculture, fishing and hunting, logging, etc.;
- The manufacturing of finished products from raw materials and "intermediate" manufactured goods, which are finished components that become inputs to other final products (for example, automotive components);
- The distribution of products to consumer market locations, for sale to industries, wholesalers, and retailers;
- The further distribution of products to end-user consumers via retail stores, e-commerce, and/or direct-to-home sales; and
- The collection and processing of commodity waste (consisting of scrap metal, waste paper, glass and plastics, and other post-consumer products with sale value, as opposed to trash or municipal waste).

Figure 3-39 | Simplified Overview of Supply Chain Steps



Supply Chain Analysis of Core Regional Commodities

For District Two, it is useful to examine the supply chains that are associated with the primary regional commodity groups identified previously in ***Table 3-1***:

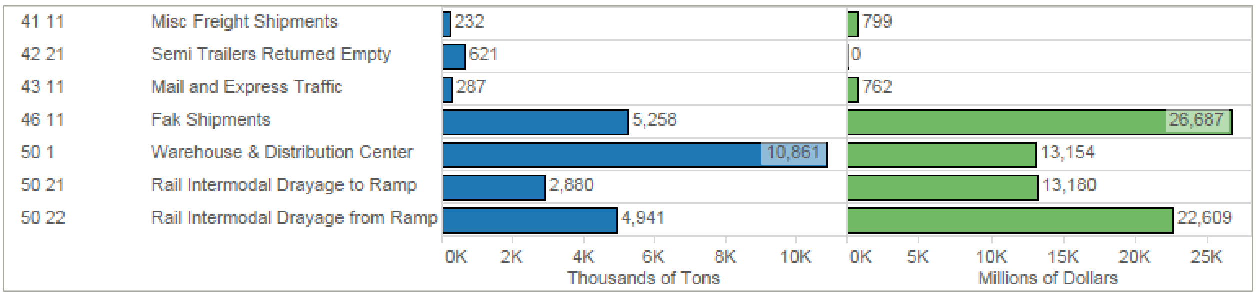
- Transportation and Logistics
- Construction Materials
- Fuels and Energy
- Industrial Products
- Agricultural and Forest Products
- Consumer Products
- Transportation Products

Transportation and Logistics Cluster

Within the Transportation and Logistics cluster, the leading District Two commodities are:

- Warehouse and distribution center traffic, representing materials moving to and from warehouse and distribution centers, within larger overall supply chains;
- “FAK” (freight all kinds), representing mixed freight shipments, often moved by “LTL” (less than truckload) carriers who consolidate smaller shipments into large trailer-sized loads; and
- Rail intermodal drayage, representing truck trips moving between intermodal rail terminals freight shippers/receivers.

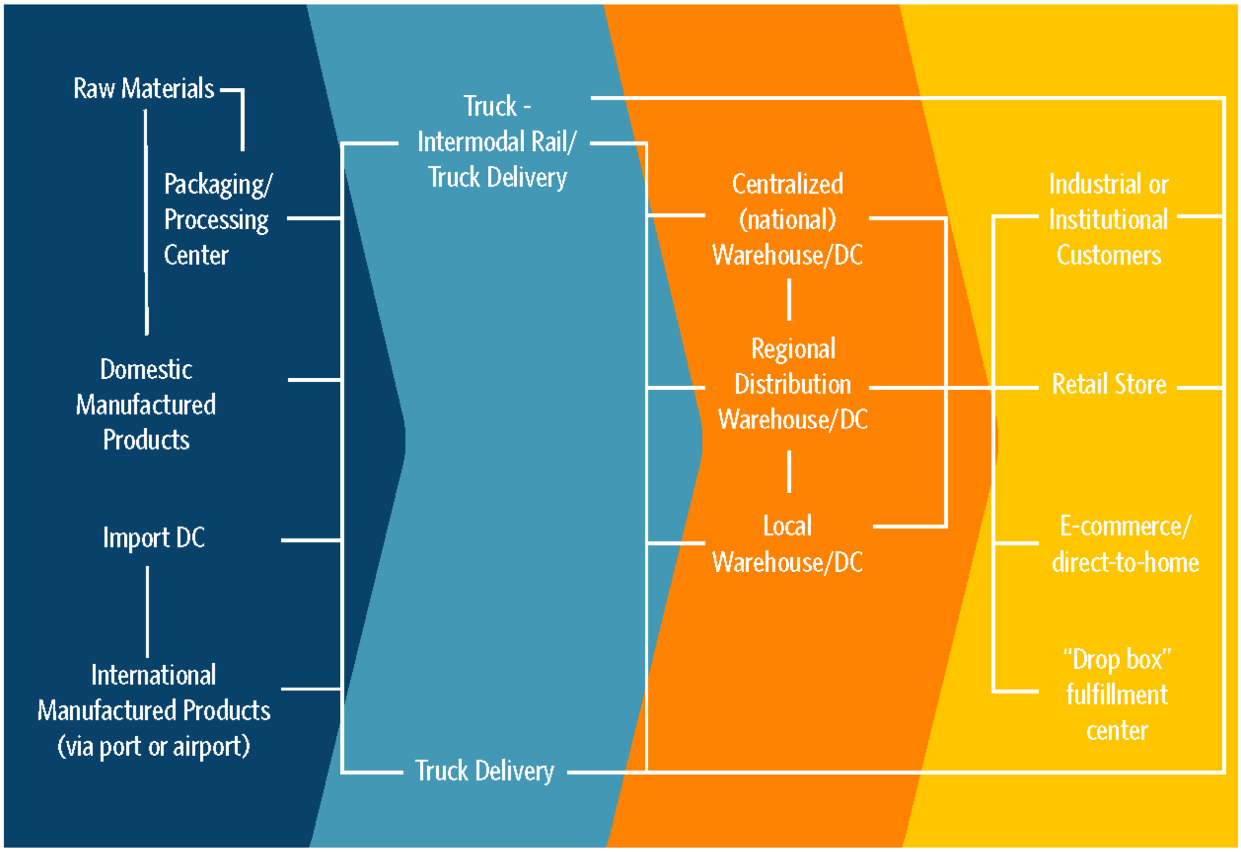
Figure 3-40 | Tonnage and Value, Transportation and Logistics Cluster, 2015



Within the Transportation and Logistics cluster, supply chains generally follow this pattern, as illustrated in ***Figure 3-41***:

- Raw materials are sent to a packaging/processing center, or to domestic manufacturing facilities. International goods are received via seaports and airports, and may be sent to an import distribution center or warehouse.
- Goods are moved from these facilities generally in two ways: via truck, then intermodal rail, then truck; or via truck without rail (which may involve air or water for some portion of the trip).
- Goods may then move to national warehouse/DC facilities, regional warehouse/DC facilities, or local warehouse/DC facilities. From there, goods may move to industrial or institutional customers, retail stores, or e-commerce / direct delivery processing locations. Alternatively, delivery may be made directly industrial or institutional customers or retail stores, bypassing warehouse/distribution facilities.

Figure 3-41 | Supply Chain Illustration, Transportation and Logistics Cluster



Source: WSP

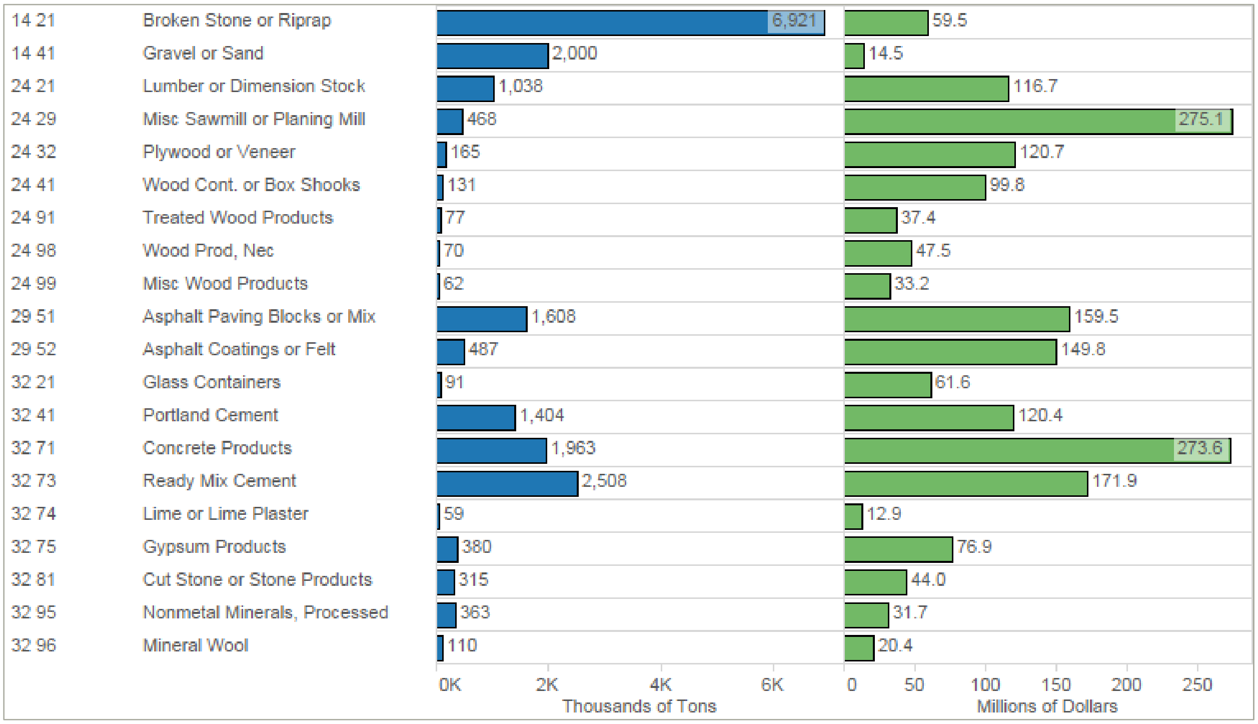
Example: Transportation and Logistics

A furniture company might receive imported goods and store them in an import DC. Some might be moved by truck to local retail stores; some might be moved by truck to a local warehouse/DC for later transfer to retail stores and e-commerce fulfillment; and some might be moved by intermodal rail to warehouse/DC locations in other parts of the country.

Construction Materials Cluster

Within the Construction Materials cluster, the leading District Two commodities by tonnage are broken stone/riprap, gravel/sand, ready-mix cement, concrete products, asphalts, portland cement, and lumber. By commodity value, the top construction material commodities are milled wood products, concrete products, ready-mix cement, asphalt paving blocks and coatings, plywood, portland cement, and dimensional lumber.

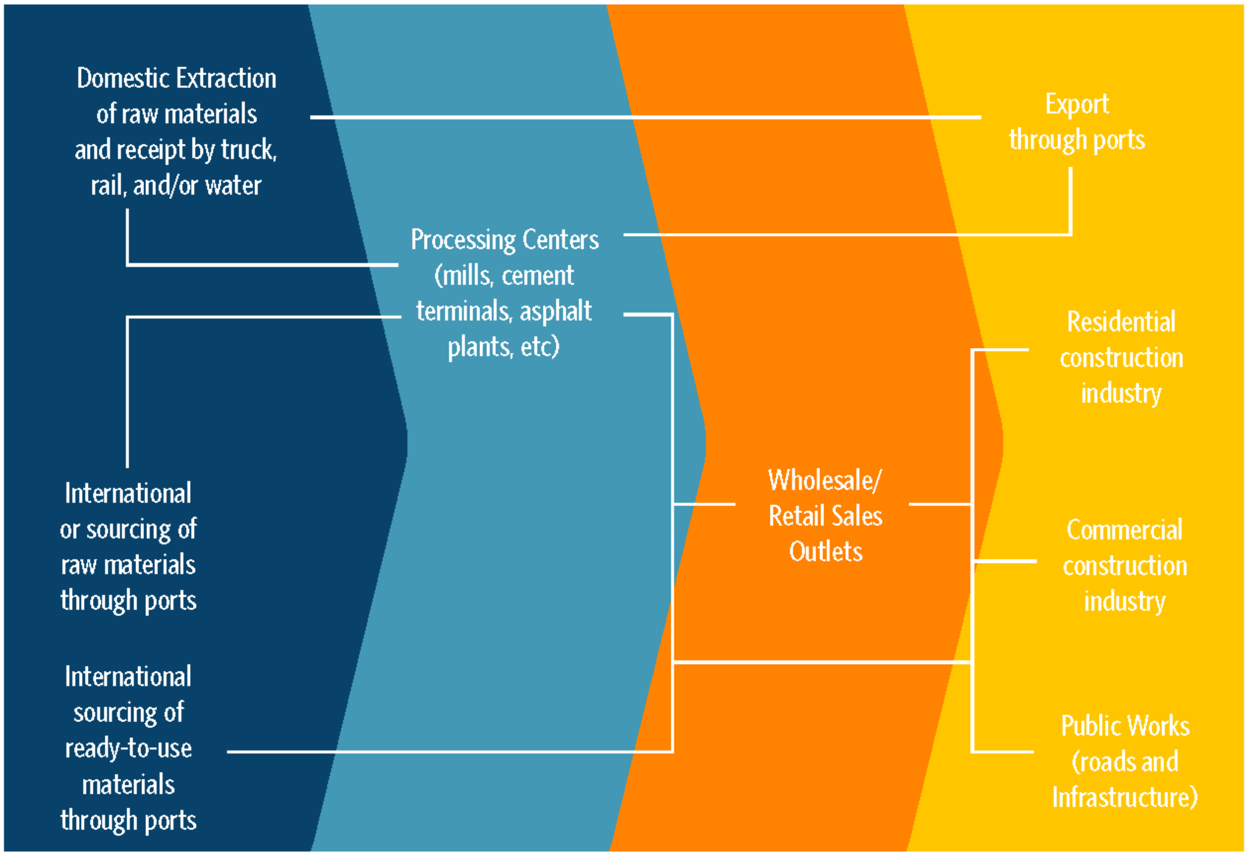
Figure 3-42 | Tonnage and Value, Construction Materials Cluster, 2015



Within the Construction Materials cluster, supply chains generally follow this pattern:

- Raw materials are extracted domestically and received by truck, rail, or water, or received as international cargo by water.
- Raw materials may be moved through processing centers – asphalt plants, cement plants, lumber mills, etc. – as necessary to create the required products. Ready-to-use materials may also be received from international sources.
- Ready-to-use goods may move directly to residential, commercial, or public sector customers, or they may move through wholesale/retail outlets and then to customers.
- Domestic raw materials and ready-to-use products may also move to ports for export and sales to international markets.

Figure 3-43 | Supply Chain Illustration, Construction Materials Cluster



Source: WSP

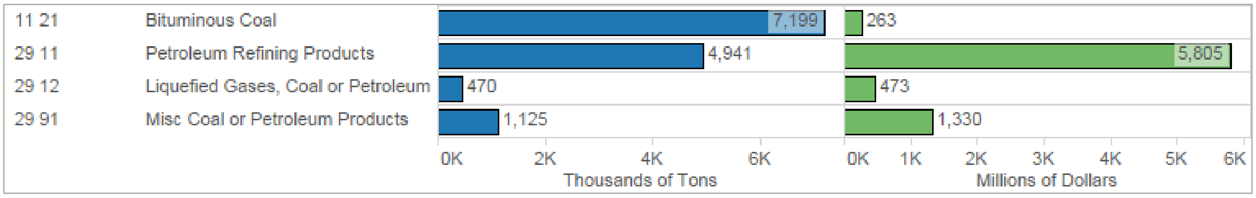
Example: Construction Materials

A 'big box' hardware chain store may receive dimensioned lumber from a foreign source via a port, then move it to a local warehouse or retail outlet via truck, for sale to the local construction trades or home repair market. The same chain store may receive landscaping gravel from a local supplier who receives and packages the extracted material.

Fuels and Energy Cluster

Within the Fuels and Energy cluster, the leading District Two commodities are: Bituminous coal, refined petroleum products (gasoline, etc.), Liquefied coal and petroleum gases, other miscellaneous coal and petroleum products.

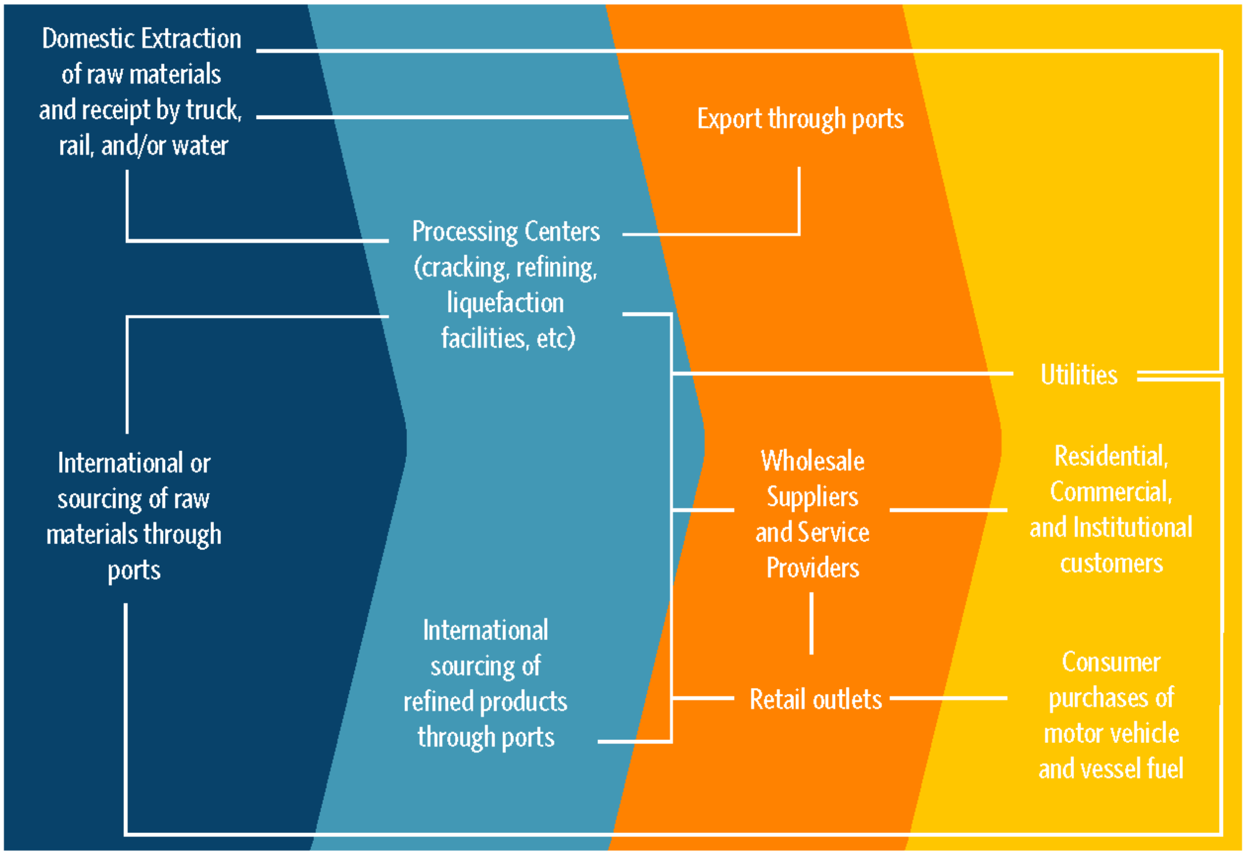
Figure 3-44 | Tonnage and Value, Fuels and Energy Cluster, 2015



Within the Fuels and Energy cluster, supply chains generally follow this pattern:

- Raw materials are extracted domestically and received by rail, water, and/or pipeline (and occasionally truck or even air in remote regions), or received as international cargo by water.
- Raw materials may be moved through processing centers – cracking plants and refineries, liquefaction facilities, etc. – and then exported to foreign markets (typically by water), or shipped to utilities (typically via truck or water), or moved to wholesale suppliers for sale to residential, commercial, or institutional customers, or moved to retail outlets for direct sales to consumers.
- Raw materials, whether domestically produced or foreign sourced, may also be shipped directly to utilities, without refining or substantial processing. Domestically produced raw materials may also be exported without refining or substantial processing.

Figure 3-45 | Supply Chain Illustration, Fuels and Energy Cluster



Source: WSP

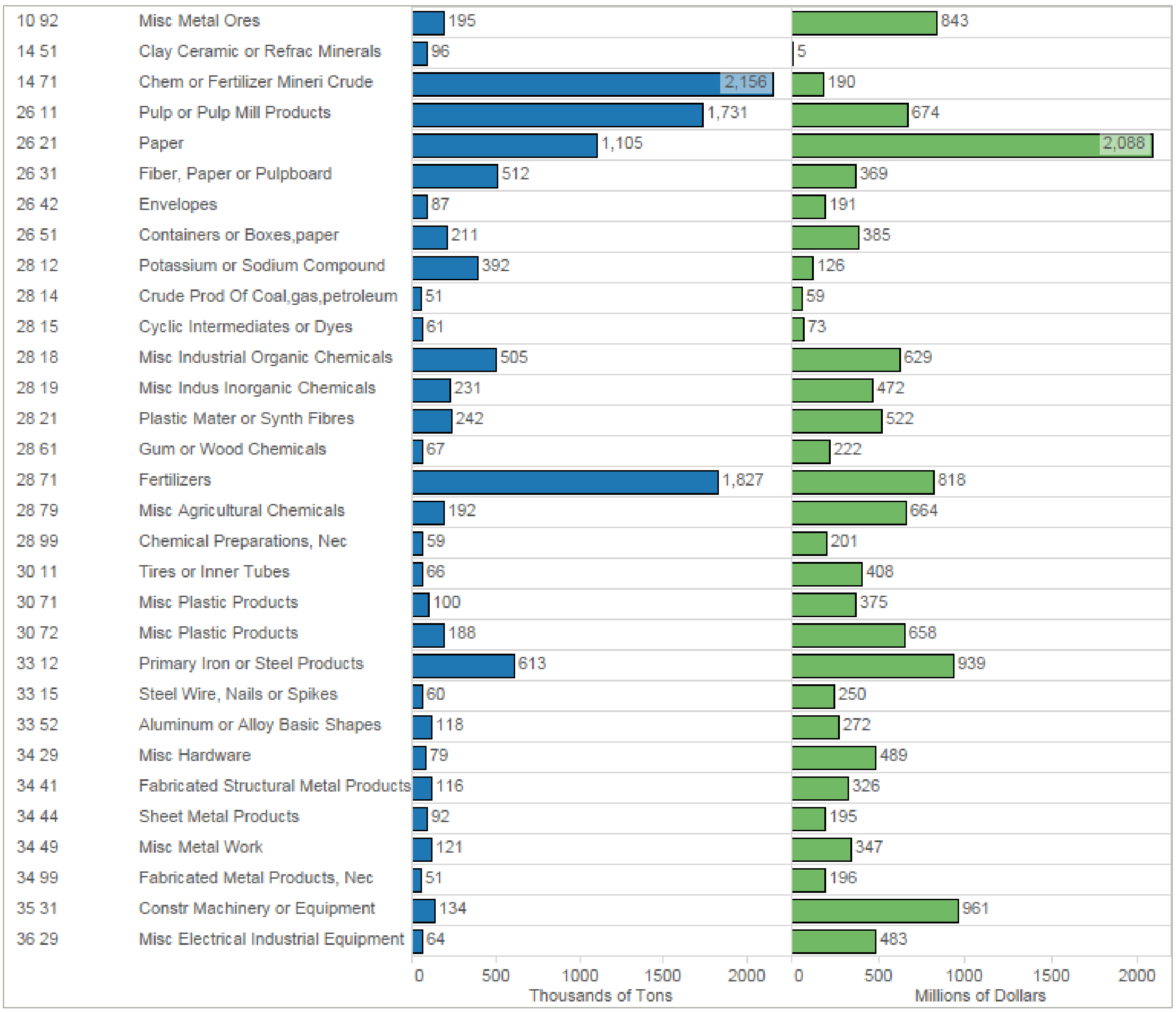
Example: Fuel & Energy

A power plant may receive coal that is mined in Wyoming's Powder River Basin or Appalachia via rail, or liquefied gas produced from Pennsylvania shale oils, or petroleum coke imported from overseas. The same power plant may fuel its vehicle fleet with compressed natural gas at a local retail fueling station, which is served through a wholesale distribution network.

Industrial Products Cluster

The Industrial Products cluster includes a very diverse range of products, including raw materials and processed goods. While each product has a characteristic set of preferred supply chains, they tend to share much in common. Within the Industrial Products cluster, the leading District Two commodities by tonnage are: crude mineral or chemical fertilizers, processed fertilizers, pulp mill products, paper products, iron and steel products, organic chemical products. The leading District Two commodities by value are: paper, construction machinery, iron and steel products, metallic ores, fertilizers, agricultural chemicals, pulp products, plastic products, organic chemicals, and electrical equipment.

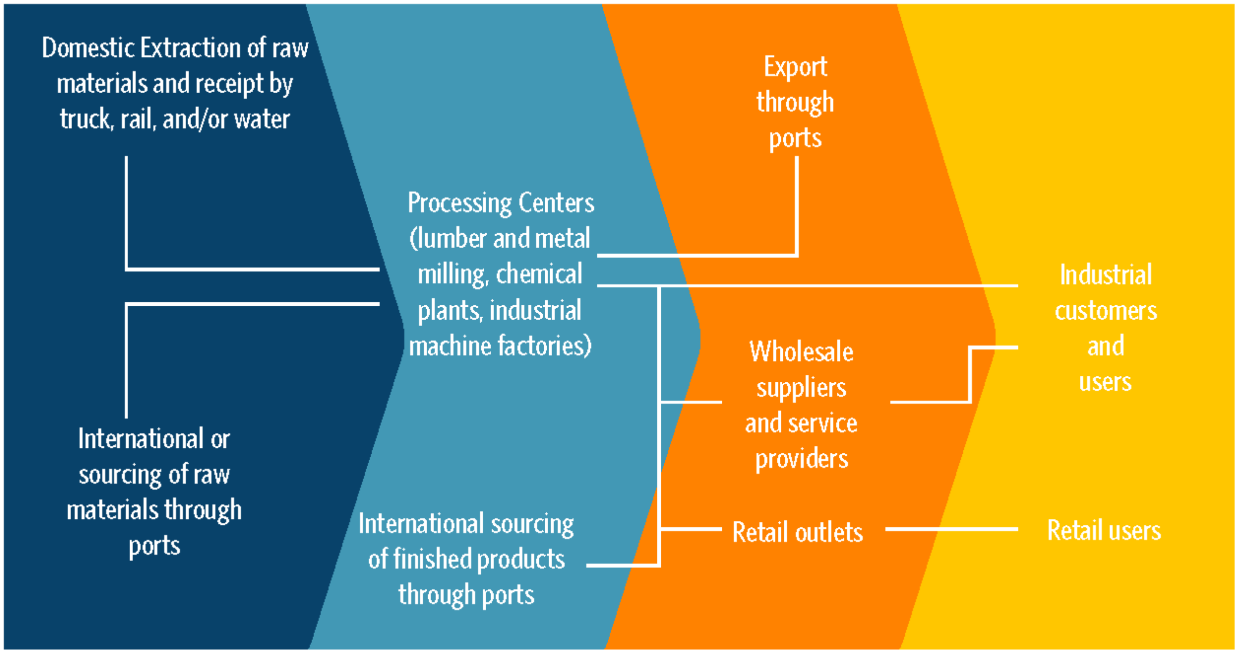
Figure 3-46 | Tonnage and Value, Industrial Product Cluster, 2015



Within the Industrial Products cluster, supply chains generally follow this pattern:

- Raw materials are extracted domestically and received by truck, rail or water, or received as international cargo by water.
- Raw materials are moved through processing centers – lumber and metal mills, chemical plants, industrial machine factories, etc. – and then exported to foreign markets (typically by water, or air in the case of high-value goods), or shipped to industrial users, or shipped to wholesale suppliers and service providers.
- Wholesalers may then sell directly to industrial customers and users, or to retail outlets who then sell to retail users.

Figure 3-47 | Supply Chain Illustration, Industrial Products Cluster



Source: WSP

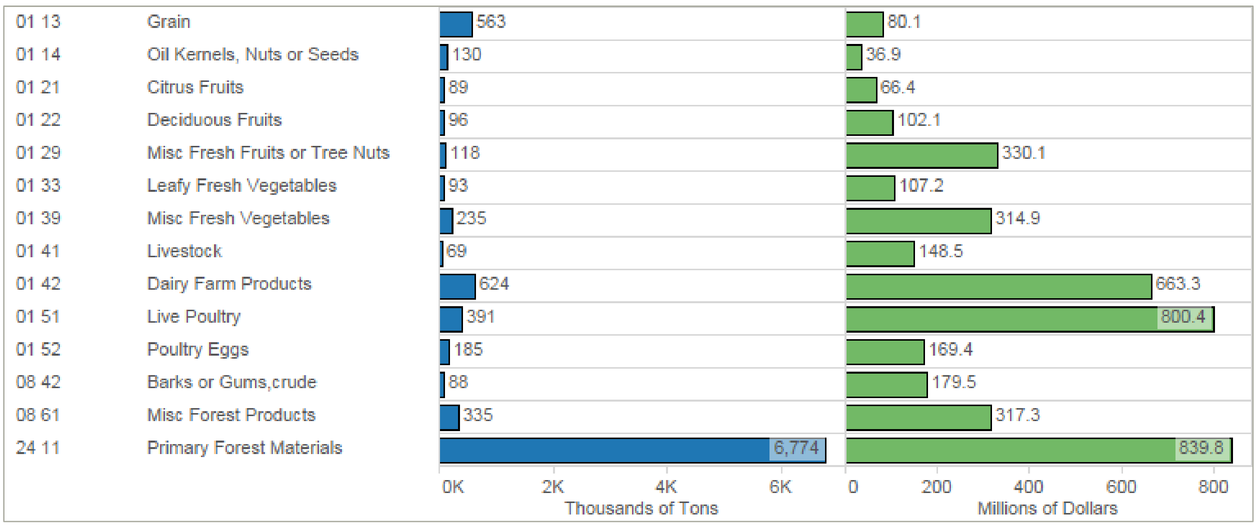
Example: Industrial Products

A fertilizer producer may receive phosphate rock from local mines via truck, and imported industrial chemicals via local ports. The materials are combined at a processing center to produce fertilizer and secondary by-products. The fertilizer may be sold directly in bulk to large farm cooperatives, or to wholesale suppliers who serve the agriculture industry, and by-products may be exported for use abroad.

Agricultural and Forest Products Cluster

Within the Agricultural and Forest Products cluster, the leading District Two commodity by tonnage is primary forest products, by a wide margin. Based on value, the leading District Two commodities are: primary forest materials; live poultry; dairy farm products; miscellaneous forest products; and fruits and vegetables.

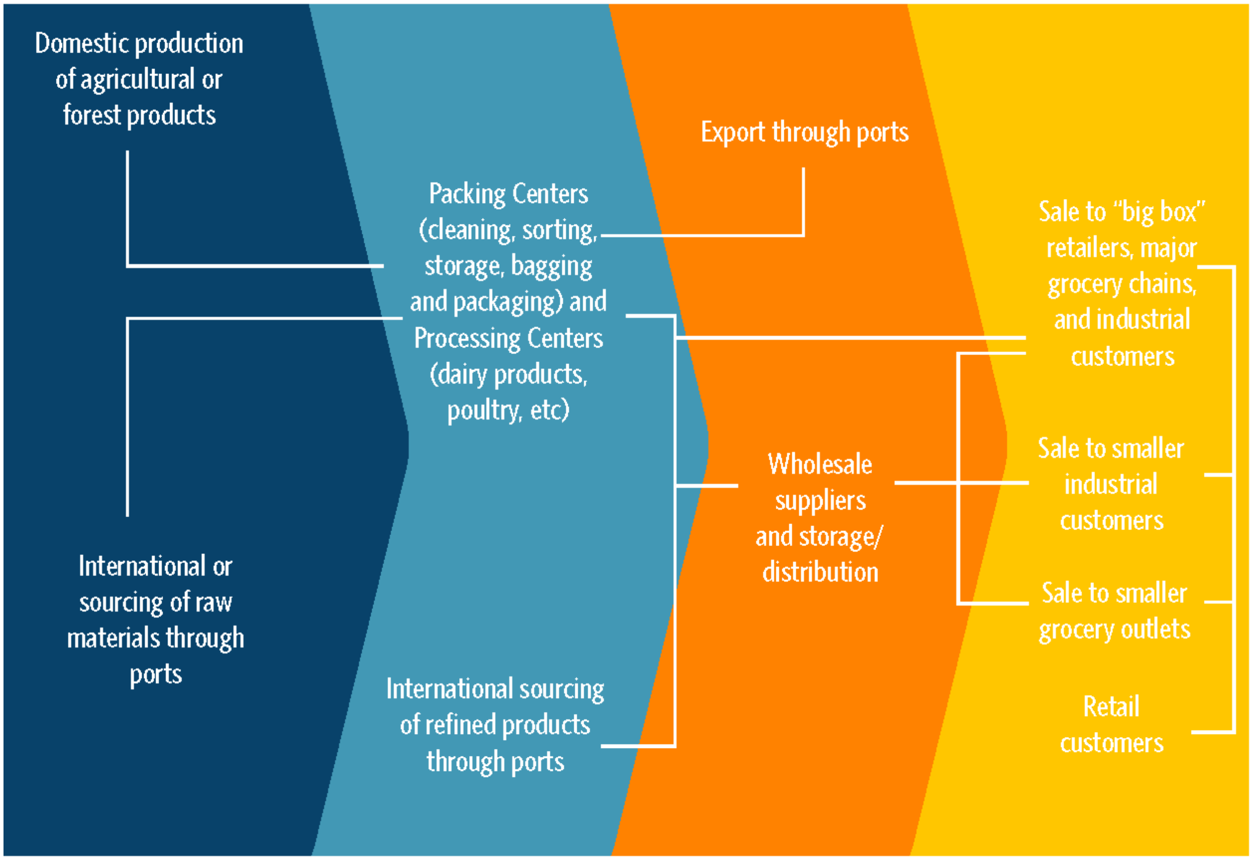
Figure 3-48 | Tonnage and Value, Agricultural and Forest Products Cluster, 2015



Within the Agricultural and Forest Products cluster, supply chains generally follow this pattern:

- Products are harvested domestically and received by truck, rail or water, or received as international cargo by water or occasionally air.
- Harvested products are moved through packing centers (for cleaning, sorting, storage, and bagging and packaging) or processing centers (for dairy products, poultry, etc.)
- Packed and processed products coming out of these centers are exported, or sold directly to “big box” retailers and major grocery chains and industrial customers, or to wholesale suppliers. Major customers and wholesale suppliers may also receive packaged/processed imports.
- Wholesale suppliers and storage/distribution facilities may sell to larger and smaller grocers (who in turn may sell to retail customers) or industrial customers.

Figure 3-49 | Supply Chain Illustration, Agricultural and Forest Products Cluster



Source: WSP

Example: Agriculture and Forest Products

Onions may be harvested and brought to a regional packing house for cleaning and sorting, then crated and shipped by train to a storage/distribution center in the northeastern US. The distribution center then sells, on an as-needed basis, to a variety of large and small customers in major metropolitan areas – food product producers, grocery chains and outlets, restaurants, etc. The same distribution center may receive dozens of product types – potatoes, asparagus, apples, oranges, etc. – from different suppliers all over the country.

Consumer Products (Not Elsewhere Captured) Cluster

The Consumer Products cluster consists of a broad range of goods typically found in the home. Many of these goods – electronics, furniture, clothing, fresh fruit and vegetables – are captured in Transportation and Logistics (as warehouse/distribution goods) and Agricultural and Forest Products categories. The remainder – primarily processed foods and beverages, pharmaceuticals, printed materials, and some manufactured goods -- are collected in this category. (Note that the figure below is sorted by value, not tonnage, to help highlight higher-value, low weight goods like pharmaceuticals.)

Figure 3-50 | Tonnage and Value, Consumer Products Cluster, 2015

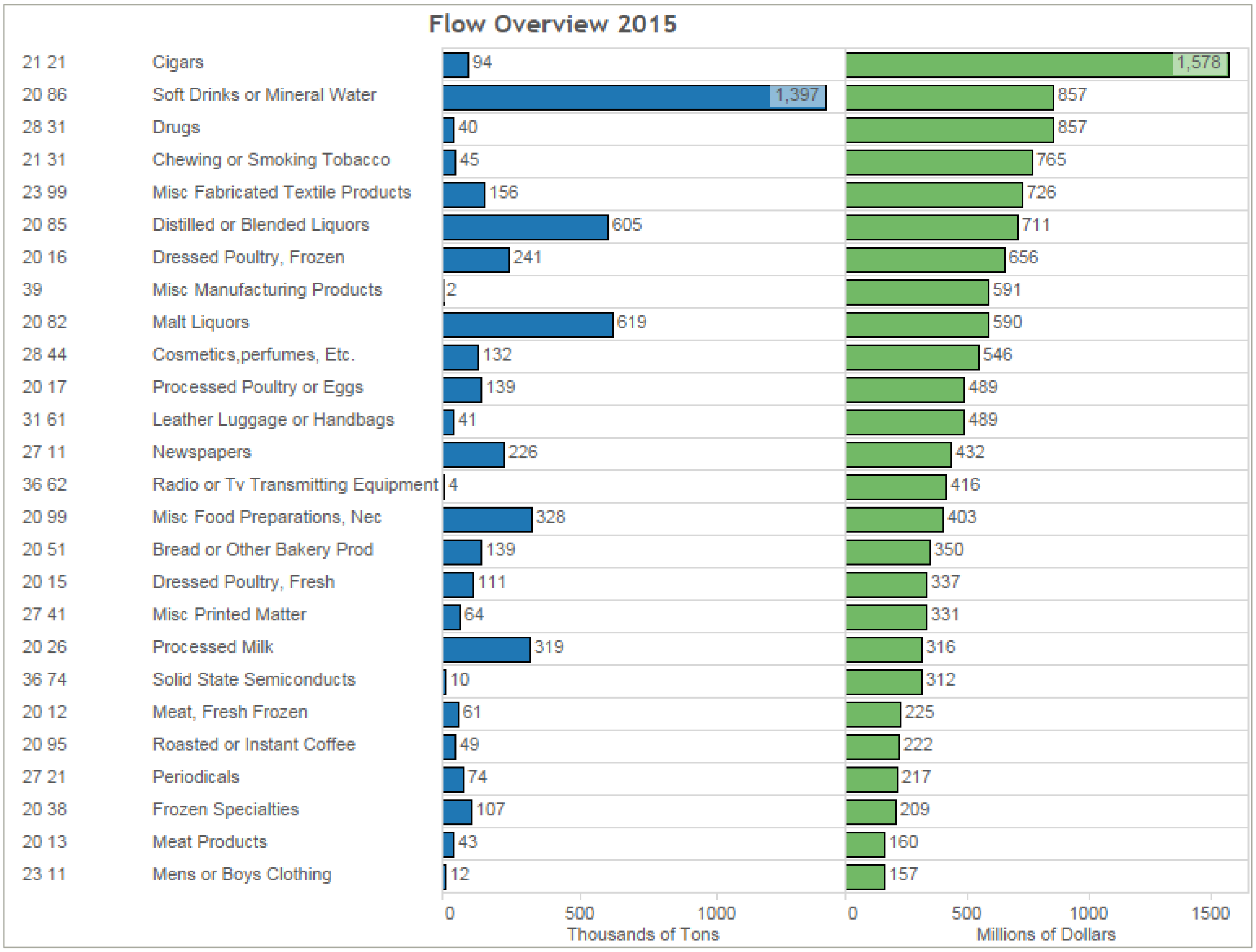
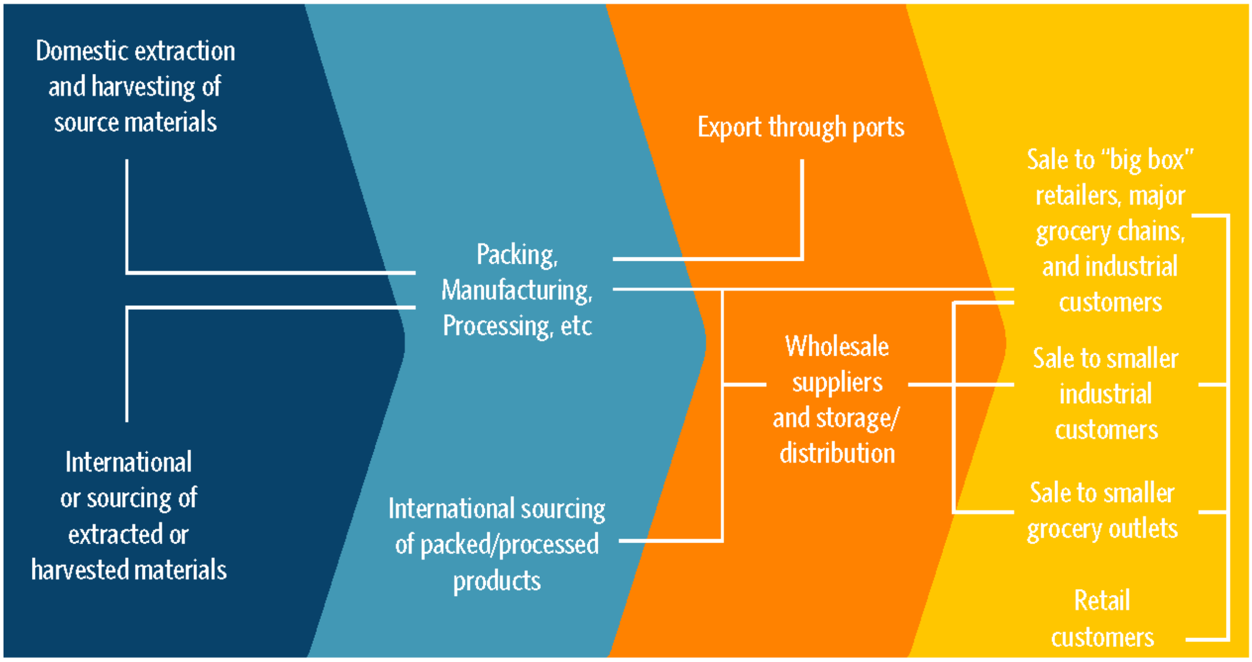


Figure 3-51 | Supply Chain Illustration, Consumer Products Cluster



Source: WSP

Within the Consumer Goods cluster, these 'remainder' products generally follow a supply chain pattern similar to Agricultural Products:

- Goods are harvested and/or raw materials are extracted domestically and received by truck, rail or water, or received as international cargo by water or occasionally air.
- Harvested and extracted materials are moved through facilities for packing, manufacture, and other processing.
- Packed and processed products coming out of these facilities may be exported, or sold directly to "big box" retailers and major industrial customers, or to wholesale suppliers. Major customers and wholesale suppliers may also receive packaged/processed imports.
- Wholesale suppliers and storage/distribution facilities may sell to larger and smaller retailers and industrial customers.

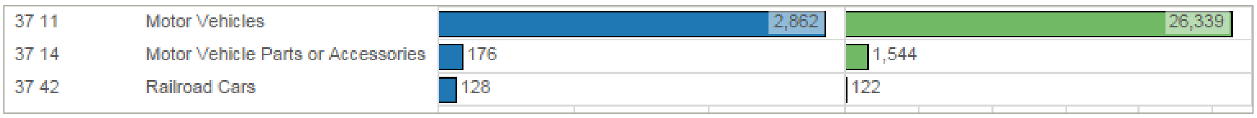
Example: Consumer Products

Water may be sourced and bottled in Maine, then moved by rail to a distribution facility in Northeast Florida, then sold to local big-box and grocery outlets for retail consumers.

Transportation Products Cluster

Within the Transportation Products cluster, the leading District Two commodity type is motor vehicles, followed by motor vehicle parts and accessories and railroad cars.

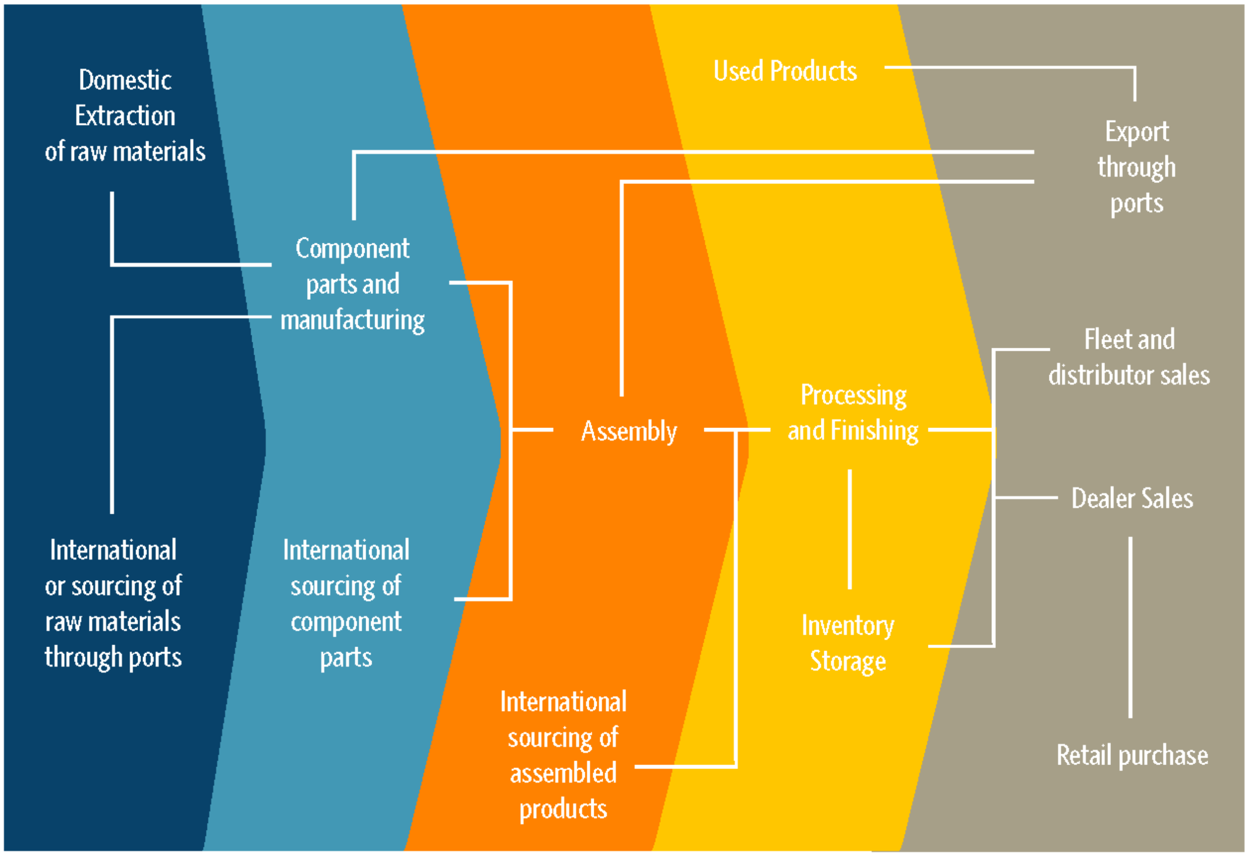
Figure 3-52 | Tonnage and Value, Transportation Products Cluster, 2015



Within the Transportation Products cluster, supply chains can be extremely complex, because the manufactured product requires many different input components and processing and distribution steps.

- Raw materials are extracted domestically and received by truck, rail or water, or received as international cargo by water.
- Component parts are manufactured domestically and may exported (for product assembly outside the US) or combined with any internationally-sourced component parts for product assembly at US plants.
- Assembled products manufactured domestically are moved to processing and finishing stages, and then to inventory storage if not for immediate sale, or may be exported prior to processing and finishing. Used products may also be exported.
- Assembled products received internationally via ports are typically moved to processing (installation of audio equipment, accessories, etc.) and inventory storage.
- After processing and inventory storage, products may be sold via fleet and distributor purchases, or to dealers. Dealers then sell products through retail outlets.

Figure 3-53 | Supply Chain Illustration, Transportation Products Cluster



Source: WSP

Example: Transportation Products

Car parts may be manufactured in Michigan, Mexico and Japan, and moved to an assembly plant in Ohio via truck, rail, air, and water. Some assembled vehicles may be moved by truck or rail to a port for export, while others go through processing for domestic sales.

Section Four:

Regional Freight Infrastructure

Introduction

Overview and Approach

Understanding the region's available infrastructure, capacity of its infrastructure, historic conditions, and current performance is a vital component of the Northeast Florida Freight Movement Study. This section will focus on northeast Florida's critical freight assets, across all modes, providing a description of existing roadways, railroad, sea and air cargo facilities, intermodal terminals, freight intensive land uses, and key activity centers. With a comprehensive inventory of existing assets and their interconnected relationship, future needs and more importantly effective solutions, can be identified and advanced.

With data as the foundation for decision making, the Study's approach will utilize a variety of available data types and sources, including findings from the plans and policy review in Section One, the data sources identified in Section Two, and feedback from stakeholder surveys. In conjunction with the commodity flow analysis and exploration of demographic and economic trends, these research and analysis phases will serve as the basis for identifying current and future freight transportation needs and next steps.

Multimodal Freight System

Freight and goods are moved in, out, within, and through the 18-county Northeast Florida region by use of the highway network, by water with seaport connections, by railroads, and by air. These four major freight modal categories provide the means of moving freight and goods across the supply chain to serve economic demands. ***Table 4-1*** summarizes the regional freight flows by weight and carrying mode. It is important to note, in many cases, a single mode will not meet the needs of the shipper or receiver requiring the utilization of more than one freight mode.

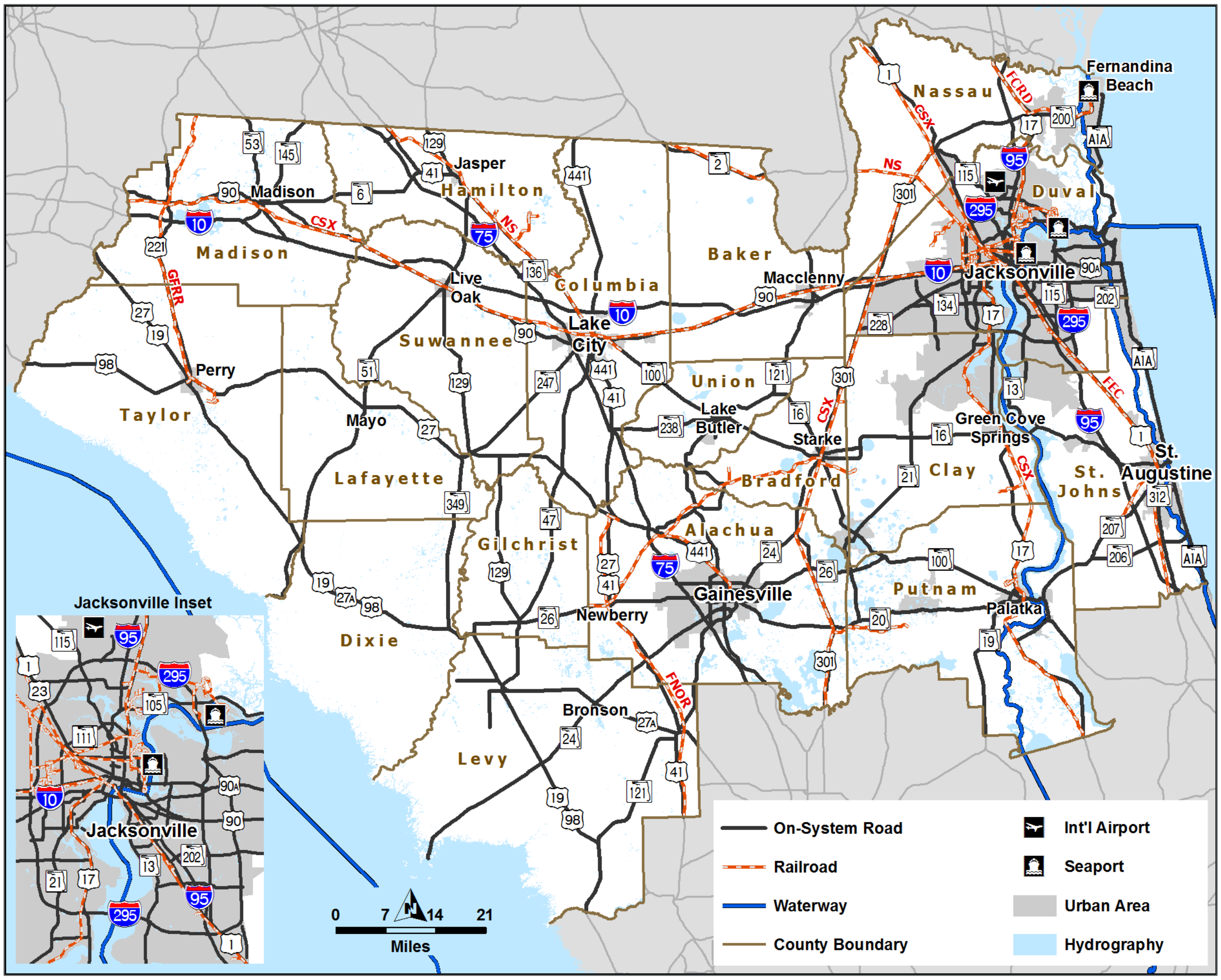
Table 4-1 | Regional Freight Flow Summary by Tonnage and Value, 2015

Tons | Value	Truck	Rail	Water	Other	Air	Total
Tonnage	62,520,000	26,952,000	5,977,000	<1,000	8,000	95,457,000
Value	$105,338 B	$52,003 B	$5,962 B	$7 B	1,730 B	$165,040 B

Source: IHS Global Insight – TRANSEACH Database, 2015

Figure 4-1 displays the regional multimodal freight transportation system serving Northeast Florida and FDOT District Two while the following sub-sections will provide specific details about each mode and component of the multimodal freight system.

Figure 4-1 | Northeast Florida Regional Freight Transportation System



Source: FDOT

The efficient movement of freight and goods highly depends upon well maintained and reliable transportation infrastructure. The freight industry and overall economy depends trucks, railroads, ships, and airplanes to bring goods to the marketplace and support the regional economy.

Section Organization

The section provides an overview for each of the freight modes at a systems level in Northeast Florida. The evaluation of the space cargo at Cecil Field is included in the Aviation subsection. While pipelines are utilized in the region for transporting liquid bulk materials (such as certain petroleum products), pipelines as a mode are not included in this evaluation. Each modal profile consists of a summary of modal demand, an inventory of infrastructure, and facility characteristics.

Roadway Infrastructure

Introduction

While each mode plays a critical role in bringing goods to market, trucks and tractor-trailers by way of the roadway network provide "last mile" and door-to-door service. Both businesses and customers depend on trucks and highways for pick-up and delivery operations and trucks and highways provide connections to and among every other mode of transport, along with warehouses, distribution centers, manufacturing plants, and other freight hubs. They act as a critical link in the Northeast Florida supply chain, yet they are vulnerable to interruptions, breakdowns and service failures due to the growing and competing demands of other daily users that must share the same highway system.

The 12,000 square mile region contains more than 2,556 centerline miles of roadways composed of 420 miles of limited access interstates and toll facilities, and approximately 1,403 miles of principle arterials, including limited access facilities. The roadway system experiences traffic volumes (including trucks) in excess of 98 million vehicle miles per day (FDOT, 2015). In 2015, a majority of all freight (66 percent, or more than 62.5 million tons) that moved across the region was hauled by truck (Transearch, 2015), highlighting the importance of highway facilities to the region's economy and the quality of life for its residents.

This section presents a freight-focused operational overview and comprehensive inventory of Northeast Florida's roadway network. Multiple data sources are presented on the major corridors connecting the commercial and industrial centers within the region to external markets, traffic operations, and location of intermodal connectors. This information is provided at a systems-level. This section also provides preliminary response to existing and future challenges on the region's roadway system. A more detailed analysis on deficiencies and needs will be provided in Section Seven.

Sources of Information

This section makes use of multiple sources to detail the current status of the study area highway network, including the Northeast Florida Regional Planning Model (NFRPM), data from FDOT (2015 Roadway Characteristics Inventory Database), feedback gathered from interviews and surveys, and issues identified from previous studies. The main sources of information include truck volume data from FDOT's annual traffic count and level of service analysis, safety/crash data collected by the Florida Highway Patrol, roadway facilities inventory data provided by FDOT and FHWA, and stakeholder feedback collected during face-to-face interviews, online surveys, and the use of an interactive web map posted on the Study's website (www.fdotd2crossdock.com).

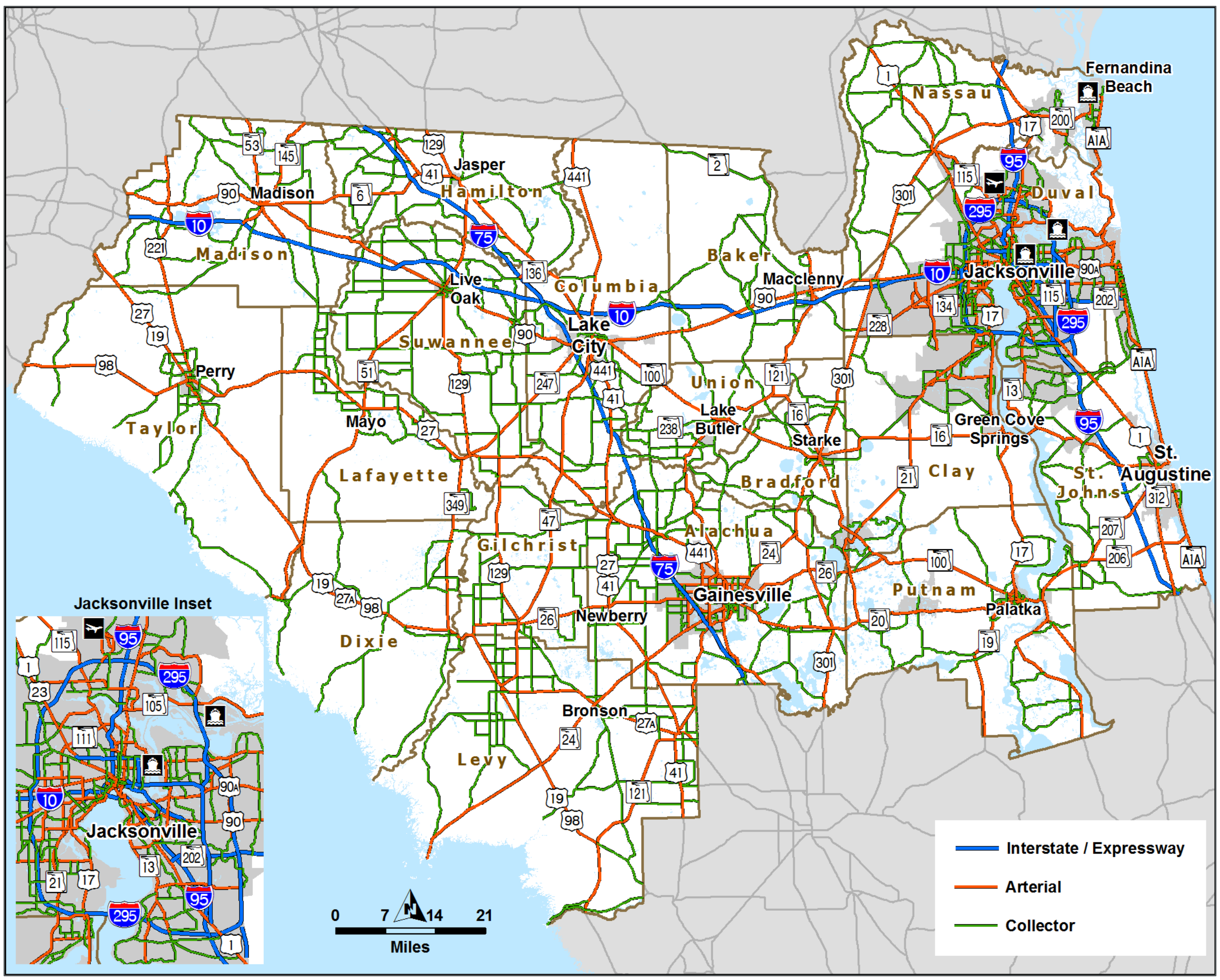
Network Hierarchy

This section provides an overview and inventory of the existing highway network in Northeast Florida and FDOT District Two. The following subsections will address the operating characteristics and performance at system and corridor levels.

Inventory of Roadway Assets

The roadway network in Northeast Florida is classified into a hierarchy of facilities based on form, function, and character of service, and is displayed in ***Figure 4-2*** below. While the network is constantly growing based on planned improvements, as of 2015, the regional roadway network is composed of 6,753 total centerline miles, consisting of 24,274 total lane miles (FDOT, 2015). Based on FDOT's functional classification process, the network is comprised of six typical roadway types including: interstate highways, other freeways and expressways, principal arterials, minor arterials, collector roads, and local roads.

Figure 4-2 | Northeast Florida Regional Roadway Network



Source: FDOT

Certain segments of the above-referenced roadway types can be further organized based on each specific roadway's standing in the State and Federal freight network establishment process. This additional classification refers to the following systems and networks:

- National Multimodal Freight Network (NMFN)
- Florida's Strategic Intermodal System (SIS)
- Florida's Freight Evaluation Network

National Multimodal Freight Network (NMFN)

The FAST Act was established as a national policy to maintain and improve the condition and performance of the NMFN and to ensure the NMFN provides a foundation for the United States to compete in the global economy. The network was established to assist states in strategically directing resources towards improved system performance for the efficient movement of freight to support the nation's economy, defense, and overall freight mobility. It was designed for freight transportation planning, to assist in the prioritization of Federal investments and to assess and support Federal investments to achieve the national multimodal freight policy goals. ***Table 4-2*** and ***Table 4-3*** below identify the NMFN highway routes (NMFN highway routes are also referred to as the Primary Highway Freight System (PHFS) and STRAHNET connectors located in Northeast Florida.

Table 4-2 | FDOT District Two: NMFN Highway Multimodal Freight Network Routes

Route Number	Start Point	End Point	Length (Miles)
I-10	AL/FL State Line	I-95	362.11
I-75	SR 821	GA/FL Line	467.90
I-95	US 41	GA/FL Line	381.05
I-295 (western segment)	I-95	I-95	34.77

Table 4-3 | FDOT District Two: NMFN Highway Freight Network STRAHNET Connectors

Facility ID	Description	Length (Miles)
MIL_FL8P1	I-95 to FL 105, FL 105 E to Blount Island Terminal	1.53
MIL_FL4P1	US 17 S to I-295	3.03
MIL_FL7P1	FL 173 N to FL 296, FL 296 E to US 90, US 90 N to FL 297, FL 297 N to I-10	15.00
MIL_FL6P1	FL 101 S to FL A1A, FL A1A S to FL 10, FL 10 W FL 9A, FL 9A N to I-295 and I-95	9.86
MIL_FL3P1	AVE D N to FL 16 W to FL 225, FL 225 NW to US 301, US 301 N to I-10	26.49

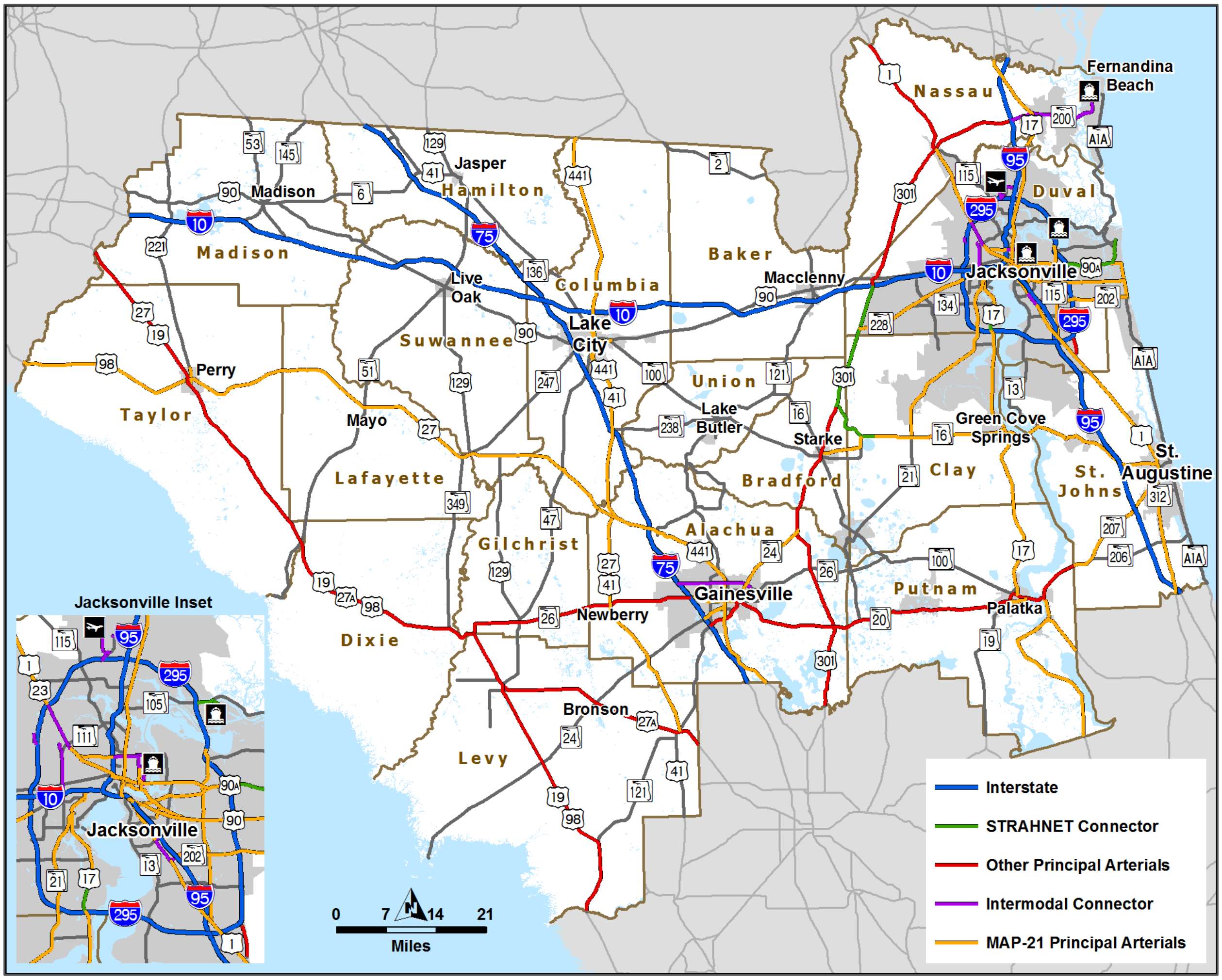
Source: USDOT / FHWA

Table 4-4 | FDOT District Two: NMFN Highway Freight Network Intermodal Connectors

Facility ID	Description	Length (Miles)
FL25R	FEC Railway - University Blvd / SR 109, Phillips Hwy/ US 1, JTB Blvd/SR 202: From I-95 @ University Blvd and I-95 and I-95 @ JTB Blvd to Parsec Entrance	2.80
FL27R	Norfolk Southern Simpson Yard - SR 111/ Cassat Ave, Edgewood Ave, Edgewood Drive: From I-10 to Yard property *(Note: Connection subject to change due to ongoing yard upgrades)*	3.80
FL28P	Jacksonville Port Authority - 20th St Expressway, Phoenix Ave, 21st St, N Talleyrand Ave: from I-95 to north entrance. US ALT 1, 8th St, S Talleyrand Ave: From junction of 20th St Expressway/US ALT 1 to south Entrance	4.59
FL31R	CSXT Intermodal Facility: Pritchard Rd, Sportsman Club Rd: From I-295 to CSX Entrance	1.00

Source: USDOT / FHWA

Figure 4-3 | FDOT District Two: NMFN Highway Network and STRAHNET Connectors



Source: USDOT / FHWA

Critical Urban and Critical Rural Freight Corridors

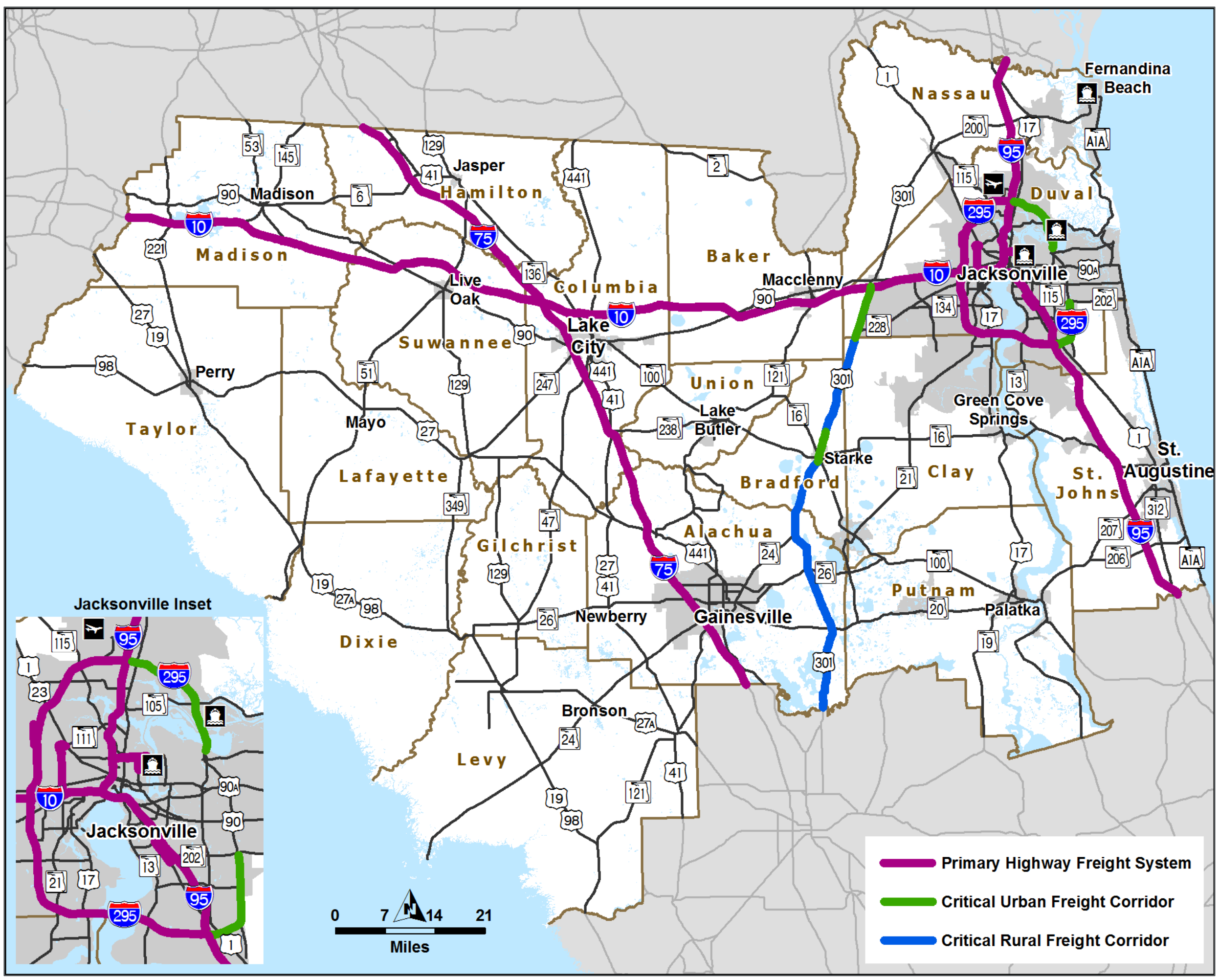
The FAST Act also required the designation of Critical Rural Freight Corridors (CRFC) and Critical Urban Freight Corridors (CUFC). As explored in *Section One,* these public roads provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities.

Table 4-5 | Critical Urban and Rural Freight Corridors

Route Number	Start Point	End Point	Designation
I-295	I-95	Heckscher Drive	CUFC
I-295	SR 202	I-95	CUFC
US 301	Marion / Alachua Co. Line	NE 193rd Street	CRFC
US 301	NE 193rd Street	South Walnut Street	CUFC
US 301	South Walnut Street	Clay / Duval Co. Line	CRFC
US 301	Clay / Duval Co. Line	I-10	CUFC

Source: FHWA / FDOT

Figure 4-4 | National Highway Freight Network, FDOT District Two



Source: FHWA / FDOT

Strategic Intermodal System (SIS)

The SIS was established by the Florida Legislature and Governor to enhance Florida's transportation mobility and economic competitiveness. The system is a statewide network of high-priority transportation facilities and focuses on the state's limited transportation resources on the facilities most significant for interregional, interstate, and international travel. The system contains all forms of transportation and the linkages that provide efficient transfers between modes and major facilities including passenger rail and intercity bus terminals, rail corridors, deep water seaports, and highways.

Pertaining to the highway network, the system itself is composed of four sub-categories: SIS Corridors, SIS Connectors, Emerging SIS Corridors, and Military Access Facilities.

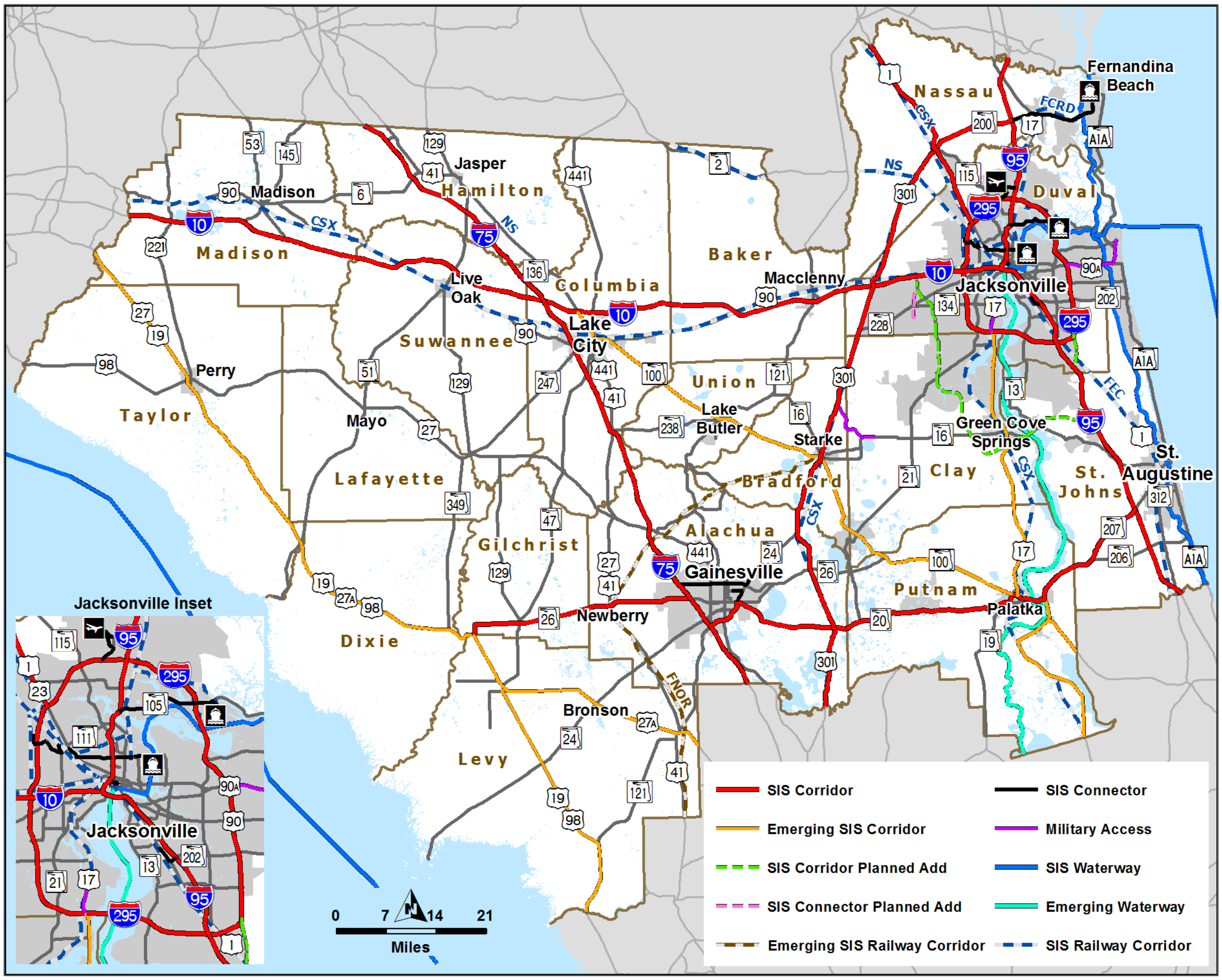
Table 4-6 | FDOT District Two: Strategic Intermodal System (SIS) Roadways

Roadway	SIS Designation	Limits
I-10	SIS Corridor	Districtwide
I-295	SIS Corridor	Districtwide
I-75	SIS Corridor	Districtwide
I-95	SIS Corridor	Districtwide
SR 26	SIS Corridor	Gilchrist County to I-75 in Alachua
US 17	SIS Corridor	SR 100 to SR 20
US 1	SIS Corridor	I-295 to Georgia state line
SR 207	SIS Corridor	I-95 to SR 100
Adams St	SIS Connector	Pearl St to I-95
Old Kings Rd	SIS Connector	Pritchard Rd to SR-111
Pritchard Rd	SIS Connector	Old Kings Rd to I-295
Sportsman Rd	SIS Connector	I-295 to Jax CSX Intermodal Terminal
SR 102	SIS Connector	I-95 in Duval to Jacksonville Int'l Airport
SR 105	SIS Connector	Port of Jacksonville to I-95 in Duval
SR 200	SIS Connector	Port of Fernandina to I-95 in Duval
SR 222	SIS Connector	I-75 to Gainesville Int'l Airport
SR 24/331/120	SIS Connector	SR-20 to Gainesville Greyhound
SR 243	SIS Connector	I-295 in Duval to Jacksonville Int'l Airport

Roadway	SIS Designation	Limits
SR 5	SIS Connector	I-95 to JAX FECR Intermodal Terminal
US 1/US 1A/SR 15/SR 115/SR 115A/SR 228	SIS Connector	Port of Jacksonville to US-1 in Duval
CR 225	Military Access	US-301 to Camp Blanding
US 17	Military Access	I-295 to Naval Air Station Jacksonville
US 90a/Mayport Rd	Military Access	I-295 to Mayport Naval Station
SR 100	Emerging SIS Corridor	I-10 in Columbia Co to Flagler Co Line
SR 100/20	Emerging SIS Corridor	US 17 to Flagler Co Line
US 17	Emerging SIS Corridor	I-295 to Volusia Co Line
US 27/19	Emerging SIS Corridor	Jefferson Co line to Citrus Co Line
US 27a	Emerging SIS Corridor	Chiefland in Levy Co to US 27 in Levy
US 98/19	Emerging SIS Corridor	US 27 in Taylor Co to Dixie Co Line
US 98/27a/19	Emerging SIS Corridor	Dixie Co Line to Chiefland in Levy

Source: FDOT

Figure 4-5 | Strategic Intermodal System (SIS) Highway Facilities



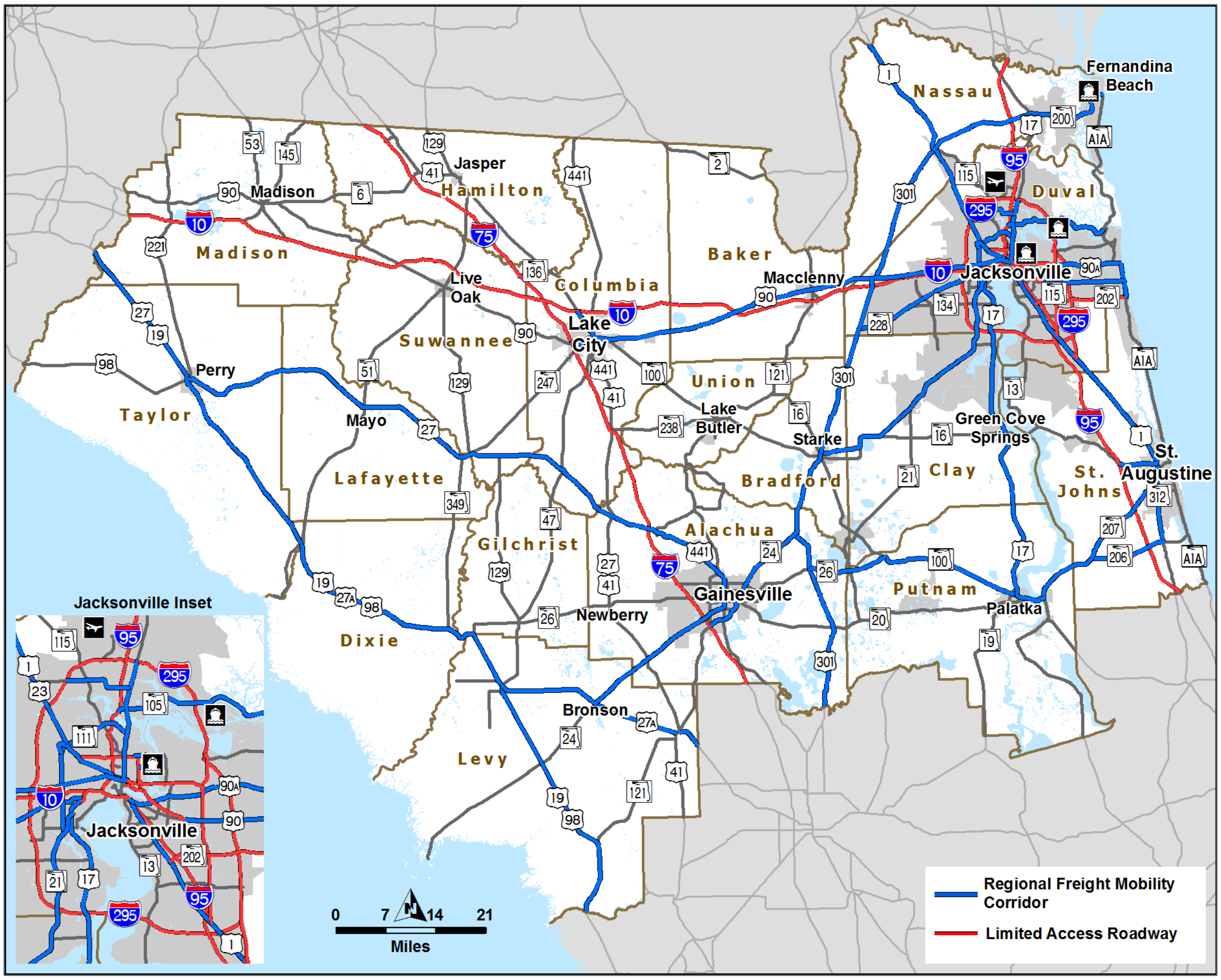
Source: FDOT

FDOT Freight Evaluation Network

In response to the FAST Act and as a means of standardizing the freight network establishment process, FDOT Central Office developed a methodology for defining and categorizing the freight roadway network based on the corridor function and role of transporting and delivering goods. The Freight Evaluation Network was organized into two categories: Limited Access Facilities and Regional Freight Mobility Corridors. These facilities provide uninterrupted flows for high volumes of traffic and serve as primary trade corridors connecting major centers within and outside of the state. Regional Freight Mobility Corridors provide high capacity connections between the Limited Access Facilities and Regional Freight Activity Centers. These facilities also serve regional through movements for long-haul truck trips and host high volumes of truck traffic. Regional Freight Mobility Corridors are a vital part of the freight roadway network and have a secondary role of distributing freight to commercial and other local destinations. Some of the regional freight mobility corridors are part of the Strategic Intermodal System. Many

Regional Freight Mobility Corridors also serve as important corridors for commuters traveling to major employment centers. ***Figure 4-6*** illustrates the Freight Evaluation Network located within Northeast Florida.

Figure 4-6 | FDOT Freight Evaluation Network within District Two



Source: FDOT

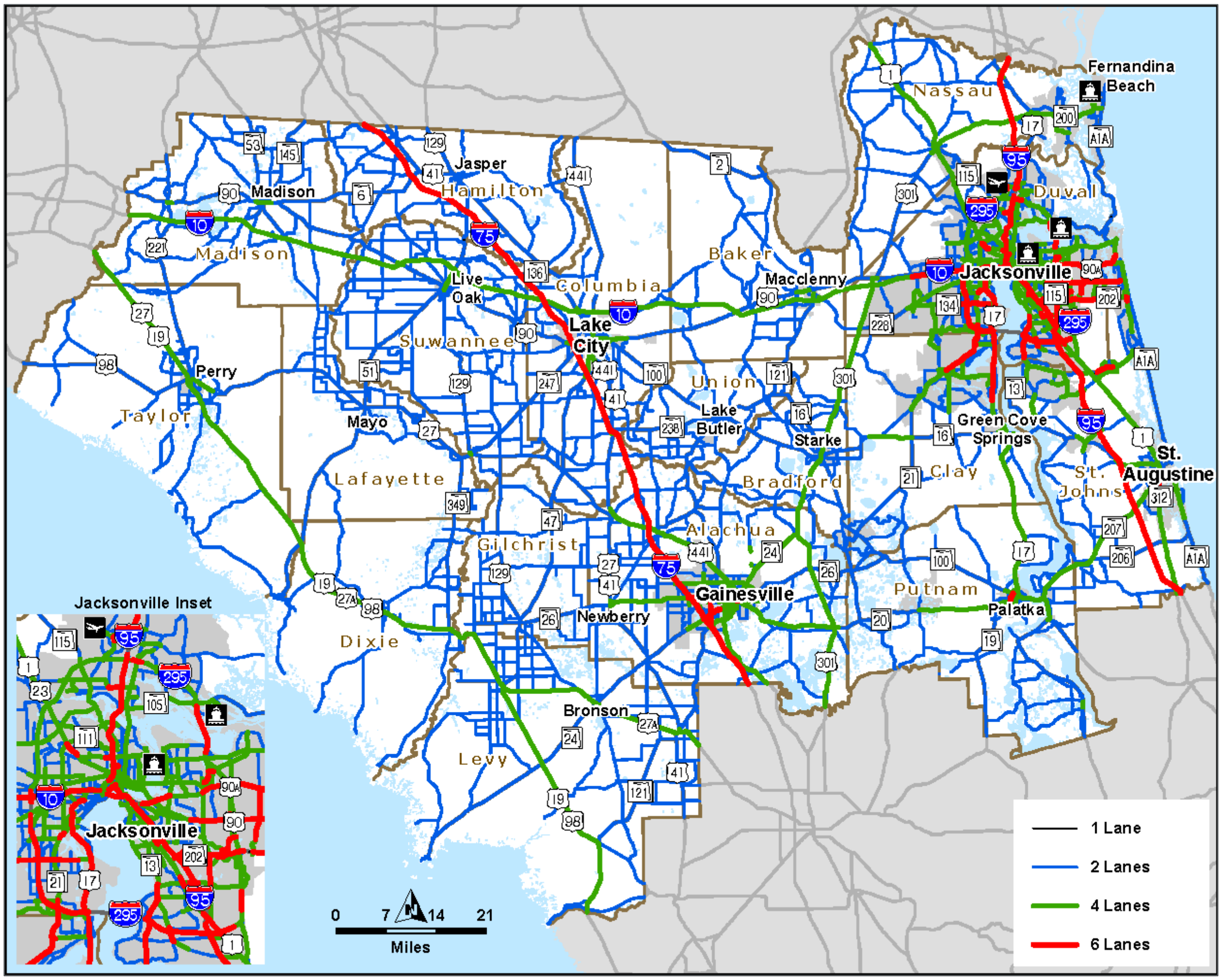
Roadway System Characteristics

Roadway facilities, even within the same highway classification group (interstates, state roads, local roads), can vary significantly in attributes such as capacity and condition. The level of truck activity impacts both the capacity and condition of highway facilities. To understand the region's highway system and the impacts of truck movements, an inventory of key characteristics of the highway network was conducted.

Number of Lanes

The more lanes a roadway has, the greater its capacity to serve higher traffic volumes and safely accommodate the shared usage of both automobile and truck traffic. Shared usage can be more of an issue when there are fewer lanes due to differing vehicle operating requirements such as deceleration, acceleration and merging. ***Figure 4-7*** illustrates the number of lanes (bi-directional) on the major roadways in District Two for year 2015. Interstates and toll roads have the greatest capacity within the region, with the highest lane capacities provided within the urbanized area.

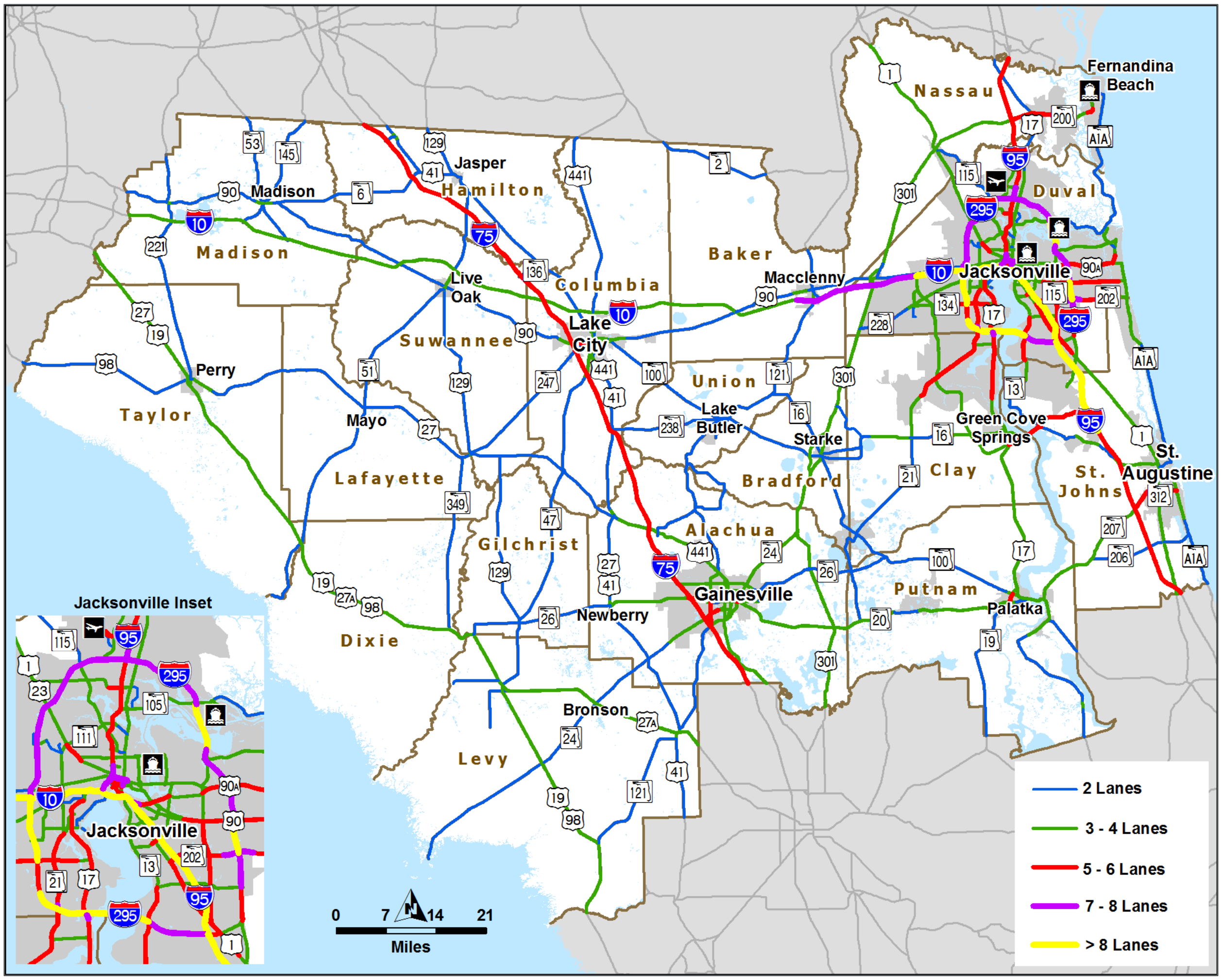
Figure 4-7 | Number of Lanes, 2015



Source: FDOT

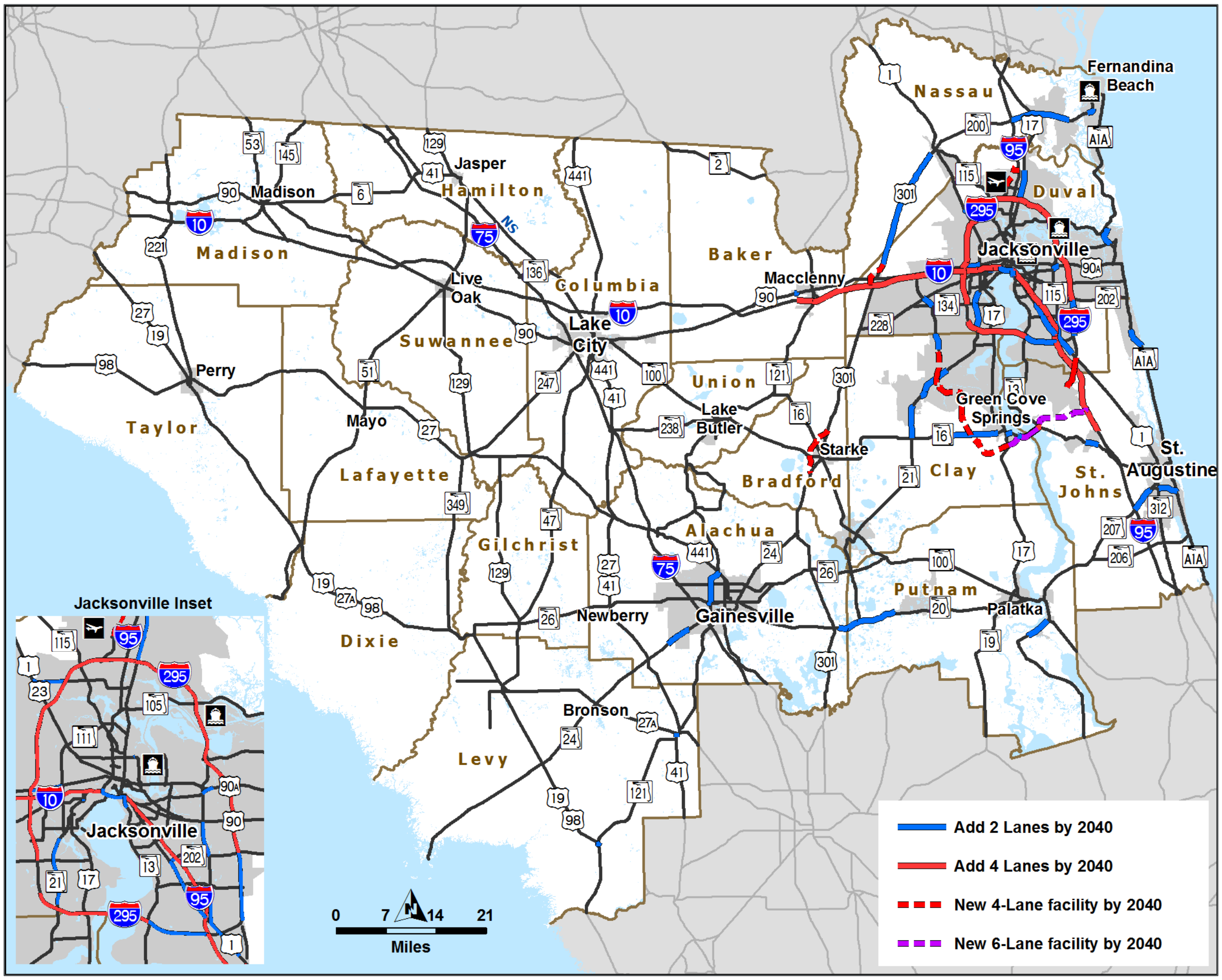
Planned improvements to the existing roadway network in Northeast Florida are identified in the region's Metropolitan Planning Organization's (MPO) long-range transportation plans, the FDOT's 5-Year Work Program and Strategic Intermodal System plans. From 2015 to 2040, an estimated 285 centerline miles consisting of over 912 lane miles will be added to the highway network. ***Figure 4-8*** depicts the number of lanes planned for the year 2040 while ***Figure 4-9*** illustrates the change in the number of lanes from 2015 to 2040.

Figure 4-8 | 2040 Future Number of Lanes



Source: FDOT

Figure 4-9 | Roadway Capacity Improvements 2015 to 2040

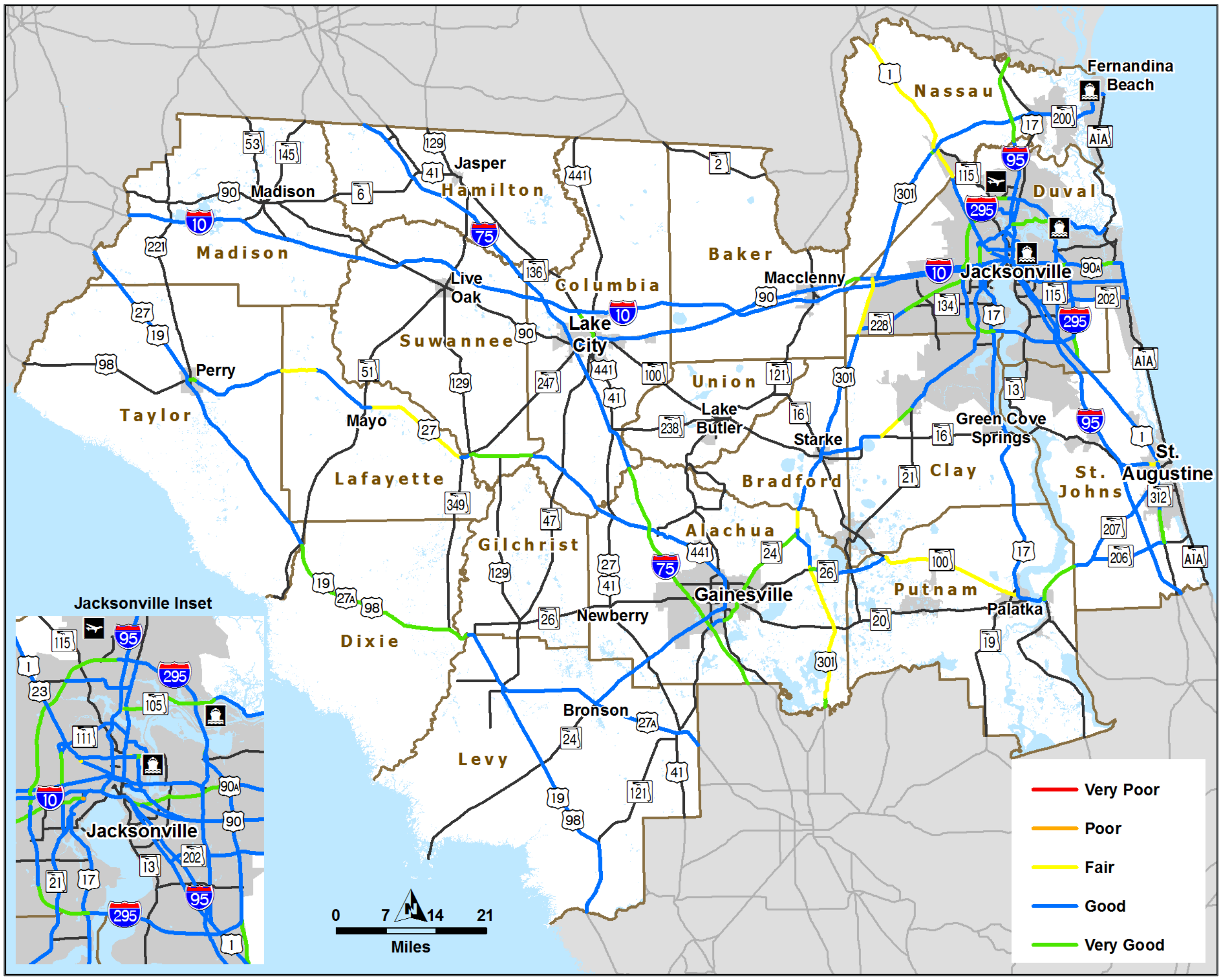


Source: FDOT

Pavement Condition

FDOT State's Materials Office conducts annual surveys to test the flexible, rigid, and total lane characteristics for all roadway segments on the state's highway system. FDOT utilizes the Pavement Condition Survey (PCS) to measure and classify pavement conditions. The PCS measures the cumulative deviation from a smooth surface in inches per mile – simply put; it sums up all the up-and-down road imperfections, from potholes to barely noticeable bumps or road roughness that a vehicle encounters while traveling one mile. ***Figure 4-10*** illustrates pavement conditions on the region's freight network.

Figure 4-10 | Northeast Florida Pavement Conditions, 2015



Source: FDOT

Bridge Condition

The bridge inventory in Florida ranks among the best in the nation. FDOT's primary bridge target is to have 90 percent of its bridges achieve a National Bridge Inventory (NBI) rating of 6 or higher. An NBI rating of 6 or 7 - means that a bridge is in good condition. In 2016, 95 percent of all FDOT-maintained bridges meet standards, exceeding FDOT's target of 90 percent, meaning the vast majority of Florida bridges do not show evidence of structural deterioration nor are limited by weight restrictions.

FDOT will continue to strive to achieve its bridge condition performance targets through the following actions:

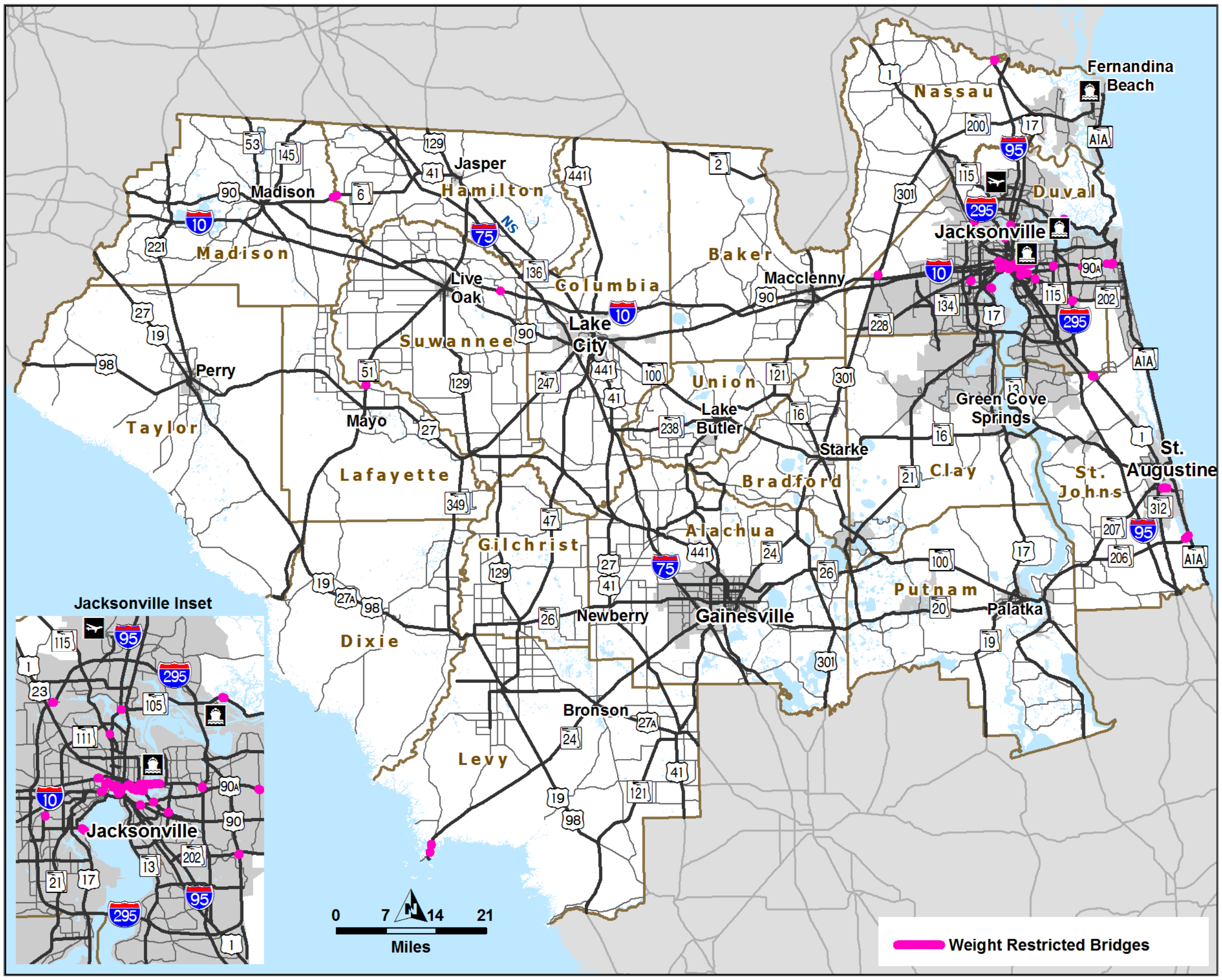
- Include projects for all FDOT-maintained bridges needing repair in the Work Program within 12 months of deficiency identification;
- Replace or repair all structurally deficient FDOT-maintained bridges and those bridges posted for weight restriction within six years of deficiency identification;
- Replace all other FDOT-maintained bridges designated for replacement within nine years of deficiency identification;
- Coordinate with FDOT's Motor Carrier Size and Weight Office and Florida Highway Patrol's Office of Commercial Vehicle Enforcement to reduce the illegal operation of commercial motor vehicles exceeding weight limits on Florida's public roads and bridges; and
- Continue to monitor bridges scheduled to be replaced and make interim repairs, as necessary, to safeguard the traveling public (Source: 2015 FDOT-CORE Measure Highlights)

Weight Restricted Bridges

Throughout Northeast Florida there are a total of 1,381 bridges across the 18-county region. The FDOT Office of Maintenance Structure Operations maintains an annual database of weight restricted bridges and structures. Based on the most recent 2016 evaluation, only 52 bridges were identified as weight restricted and requiring special permitting.

While permitting is obtainable, due to the structural weight restrictions, these bridges and associated highway routes affect the transportation of freight and goods in, out, through, and within Northeast Florida, especially for oversize and overweight commercial vehicles. ***Figure 4-11*** displays state weight restricted bridge structures while ***Table 4-7*** lists the bridge structures with recognized weight restrictions as documented in the FDOT Office of Maintenance's Truck Tractor Trailer (TTT) weight restriction 2016 database.

Figure 4-11 | Routes with Restricted Bridges



Source: FDOT – Office of Maintenance Structural Operations, October 2016

TTT classification (1, 2, and/or 3) has been determined by the FDOT Office of Maintenance Structural Operations based on a number of factors including: Minimum Number of Axles Required, Minimum Outer Bridge width, Maximum Gross Vehicle Weight, Maximum 1 Axle Group Weight, Maximum 2 Axle Group Weight, Maximum 3 Axle Group Weight, and Maximum Axle 4(+) Group Weight. In most cases, a bridge structure will have multiple TTT classifications, these instances are noted in ***Table 4-7***.

Table 4-7 | Weight Restricted Bridge Structures

Bridge Number	Facility Carried	Feature Intersected	TTT Classification
110077	SR 40	St Johns River	2,3
260118	Alachua Co. Pit Rd	Pareners Branch	1,2,3
290030	SR 136	Suwannee River	1,2,3
320017	SR 6	Withlacoochee River O/F	1,2,3
330009	SR 51 (Hal Adams)	Suwannee River	3
340003	SR 24	Number Three Channel	1,2,3
340053	SR 24	Havens Creek (Number Four Channel)	1,2
350030	SR 6	Withlacoochee River O/F	1,2
370013	Hogan Rd	I-10 (SR 8)	2,3
720005	SR 211	Ortega River	1,2,3
720022	US 1 (Main St)	St Johns River	1,2,3
720023	SR 105 SB	I-95 (SR 9)	2
720026	US 301 (SR 200)	CSXRR (ABND) Deep Creek Trib.	1,2,3
720031	SR 117	Moncrief Creek	1,2,3
720059	SR 105 (Heckscher)	Browns Creek	2
720076	SR 10A (Mathews)	St Johns River & USA-1	1,2
720100	SR 115A	SR 10A	2,3
720100	SR 115A	SR 10A	2,3
720108	US Alt. 1 (SR 228 WB)	US 90A (SR 10)	2
720111	US Alt. 1 (SR 228 WB)	University Blvd	3
720114	SR 228	Washington St	3
720124	US 90 (SR 212)	Atlantic Blvd EB	3
720163	I-95 (SR 9)	Myrtle Ave / I-95 / I-10 Ramp	3
720279	US Alt. 1 (SR 228 EB)	US 90A (SR 10)	2
720282	US Alt. 1 (SR 228 EB)	University Blvd	3
720366	Service Rd	San Pablo River	1,2
720369	Trout River Blvd	I-295 (SR 9A)	2,3
720402	SR 103 (Lane Ave)	Cedar River	1,2,3
720488	SR 228 (Leg E)	Adams St (from Hart Ramp)	1,2,3
720490	SR 228 (Leg G)	Duval St (from Hart Ramp)	1,2,3

Bridge Number	Facility Carried	Feature Intersected	TTT Classification
720502	SR 113 SB	SR 10A (Arlington Exwy)	3
720503	SR 113 NB	SR 10A (Arlington Exwy)	3
720574	SR 13 (Leg C)	Vacant Lot	1,2,3
720577	NB Acosta N. (Leg G)	Museum Circle	3
720578	SB Acosta N. (Leg H)	Parking Lot	1,2,3
720579	SR 13 (Leg J)	CSXRR	2,3
720580	NB Acosta N. (Leg G)	Riverside Ave & CSXRR	2,3
720581	SR 13 (Leg F)	Water St	1,2,3
720583	US 17 (Leg L)	CSXRR	3
720584	US 17 (Leg K)	CSXRR & Acosta N. Leg H	3
720644	I-10 EB to Forest	I-95 NB & I-10 EB	3
720664	US 90 (SR 10)	CSXRR	3
720683	SR 10 EB to A1A NB	SR 10	2,3
720702	I-295 SB	I-295	3
720763	SR 10 WB	Kernan Blvd	3
720764	SR 10 EB	Kernan Blvd	3
740008	US 17 (SR 5)	St Mary's River	2,3
780089	SR 312 EB	Matanzas River	1,2,3
780090	SR 206 (Crescent)	Matanzas River IWW	1,2,3
780103	US 1 (SR 5)	Oyster Creek	2,3
780121	US 1 SB (SR 5)	US 1 (SR 5) & Durbin Circle	2,3
790148	SR A1A	IWW Halifax River	3

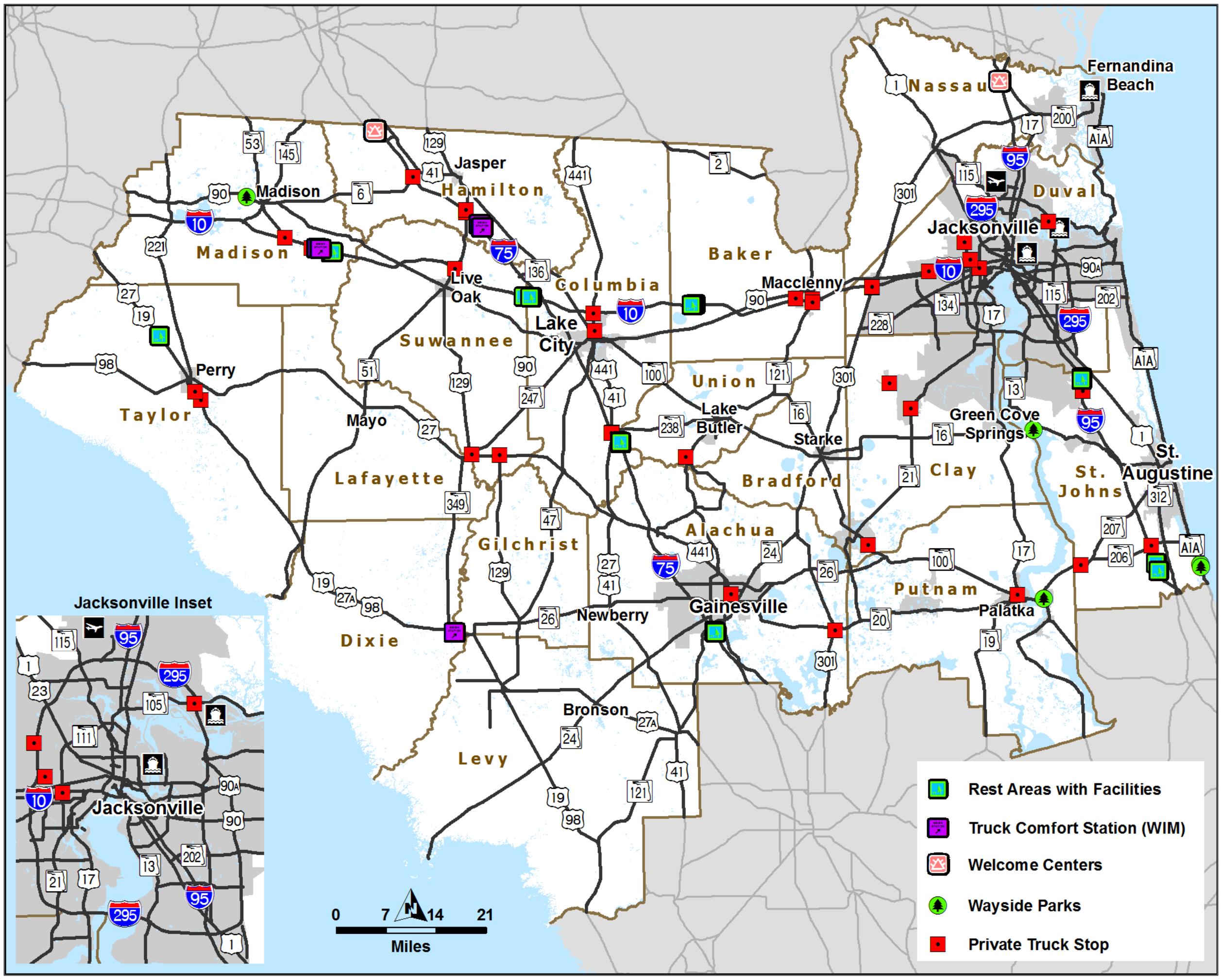
Source: FDOT – Office of Maintenance Structural Operations, October 2016

Detailed information relating to weight restriction vehicle configurations, permit regulations, and the online Permit Application System (PAS) can be found at the FDOT Office of Maintenance Structure Operations webpage: http://www.fdot.gov/maintenance/OWODPermits.shtm.

Truck Parking Facilities

Truck parking facilities are designed, reserved, and designated for commercial vehicle drivers to park when they are idling, for staging when they arrive early to their delivery destination, and for longer-term parking to comply with federal hours-of-service regulations. These areas are open to any commercial vehicle and play a key role in ensuring both commercial vehicle operator and public safety. Safety regulations imposed by the Federal Motor Carrier Safety Administration (FMCSA) limit the number of hours a driver can operate a truck in a 24-hour period and specify minimum off-duty requirements when operating a truck. To comply with these regulations, drivers need parking facilities along their routes to stop and rest. Full-service facilities (usually private and requiring a highway exit) can provide local economic benefits, public roadside limited-service truck stops enable trucks to remain on limited access highways. ***Figure 4-12*** identifies the locations of existing truck parking facilities and rest areas in Northeast Florida.

Figure 4-12 | Northeast Florida Truck Parking Facilities



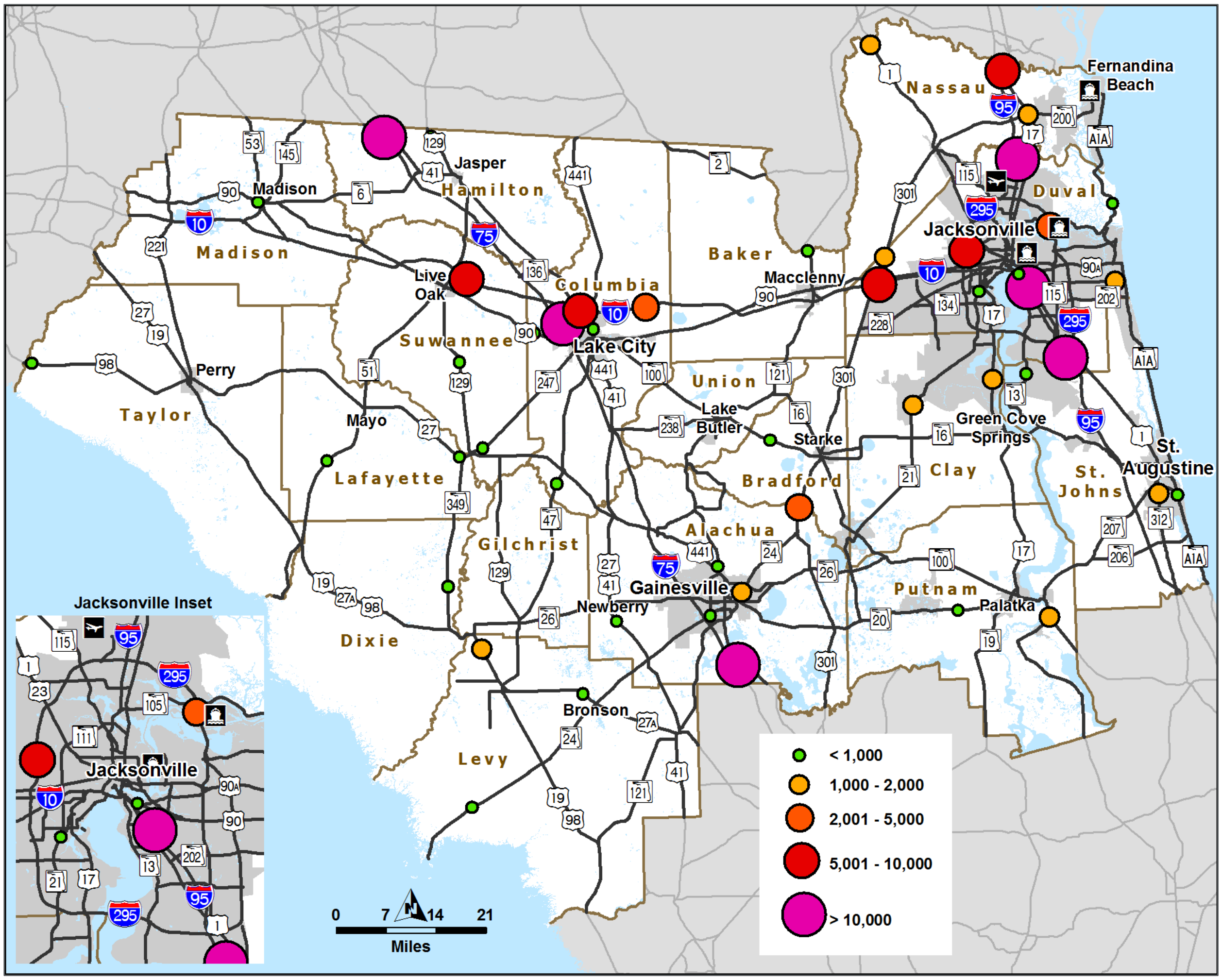
Source: USDOT – Jason's Law Survey

Existing Conditions

Annual Average Daily Truck Traffic (AADTT)

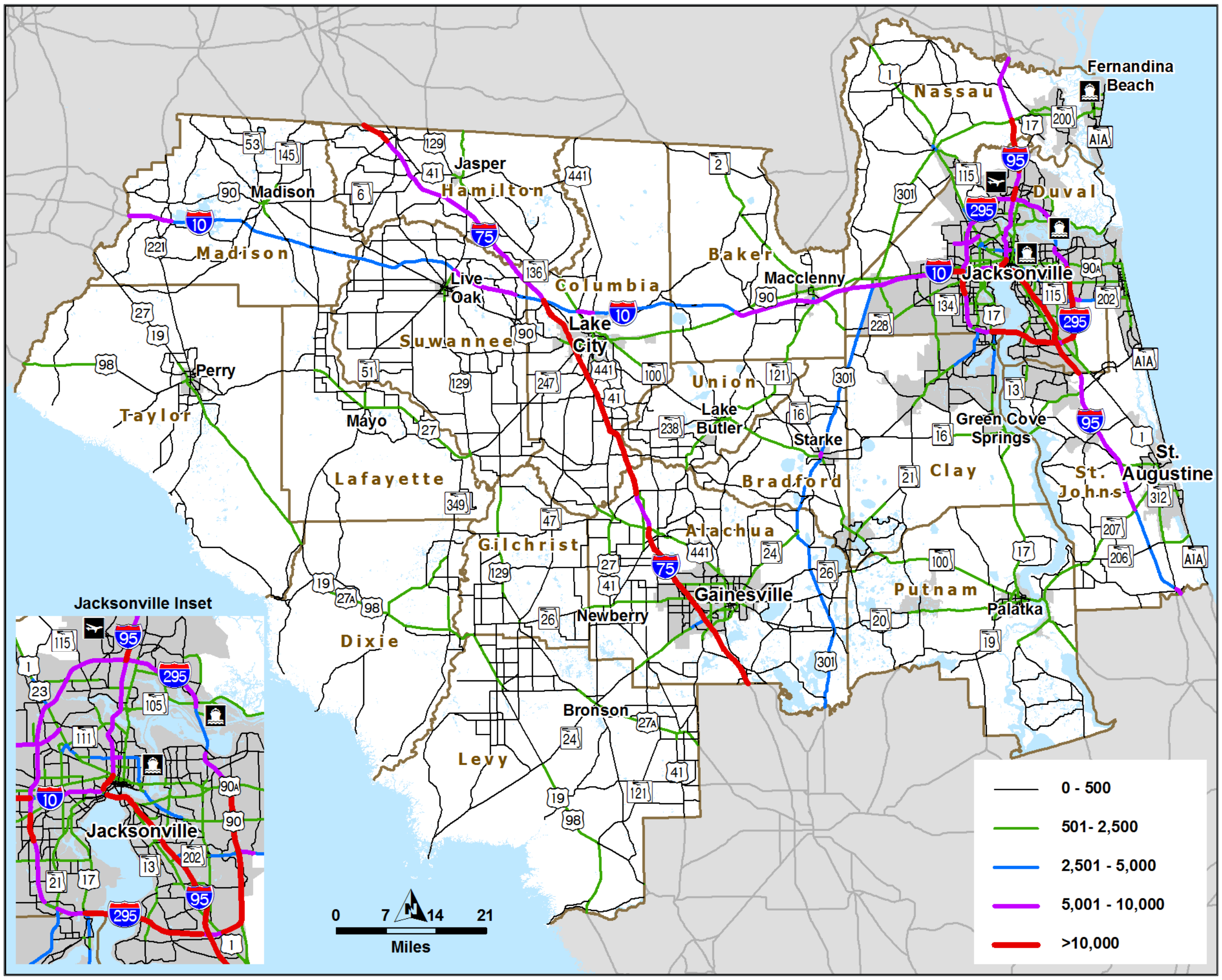
The FDOT Office of Data and Analytics is responsible for operating the continuous traffic monitoring, maintaining the traffic databases, and developing the AADTT estimates. The AADTT refers to the total truck volume passing a point or segment of a roadway. ***Figure 4-13*** identifies annual truck counts at permanent count locations for 2015 while ***Figure 4-14*** illustrates the AADTT volume range on the major corridors in Northeast Florida. The data indicates that the highest volumes of truck traffic occur on roadways that already experience a high level of overall traffic, with the highest truck volumes on I-95, I-10, I-75, and I-295; and notable volumes occur on US 301 and US 19.

Figure 4-13 | Truck Counts at Permanent Locations, 2015



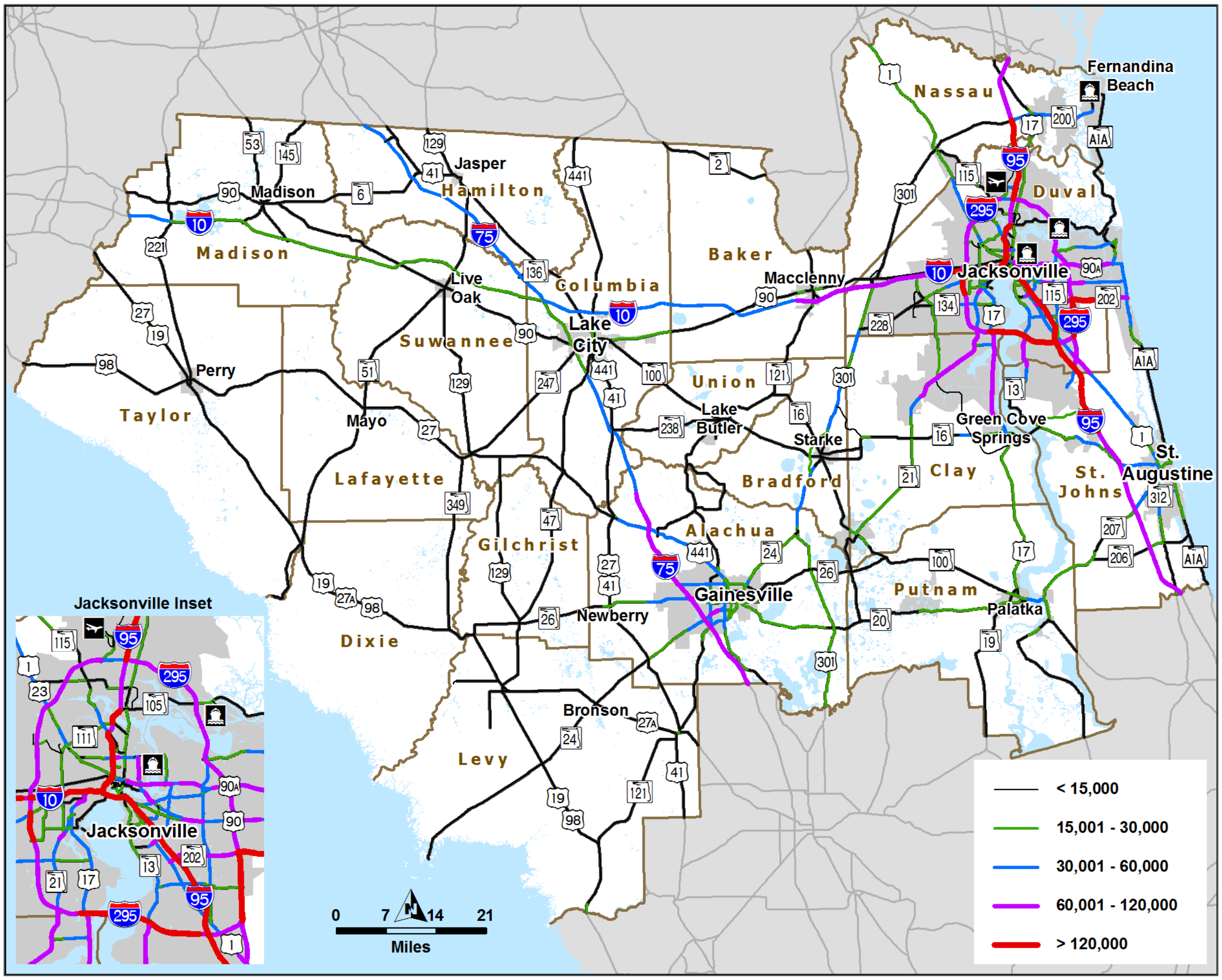
Source: FDOT

Figure 4-14 | Annual Average Daily Truck Traffic, 2015



Source: FDOT

Figure 4-15 | Forecasted Future Total Daily Volumes, 2040



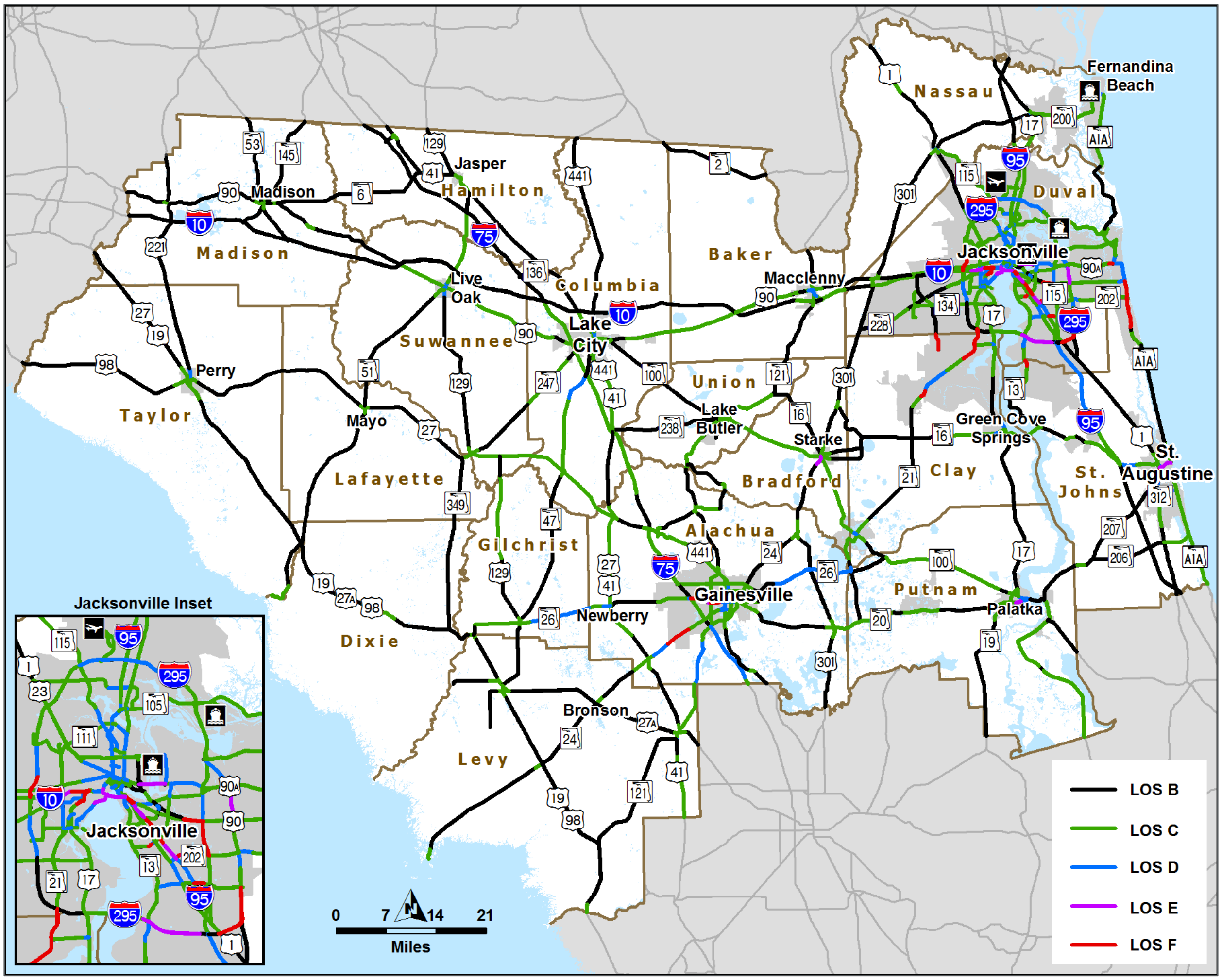
Source: FDOT

Average Daily Highway Level of Service (LOS)

LOS is a qualitative service rating estimated by comparing the level of traffic volumes to the overall capacity of the highway. Calculated through the latest edition of Highway Capacity Manual, the LOS provides a generalized and conceptual planning measure that assesses multimodal service inside the roadway environment. As such, LOS takes into account annual average daily traffic volumes, percentage of truck traffic, roadway grade and curvature, lane width, and other factors. Indicated by a letter grade, A through F, this stratification measures user satisfaction and reflects the quality of service of a roadway. Although it is true that A is best and F is worst, this is strictly from a traveler perspective. LOS A is not necessarily a desirable goal to achieve from an overall transportation or societal perspective. In fact, LOS A in a peak travel hour could be an indicator of an inefficient use of limited funding (FDOT, LOS Handbook, 2015).

As illustrated in ***Figure 4-16***, the majority of Northeast Florida's highway network currently operates at a LOS of B and C while only segments within the urban core experience a LOS of D though F.

Figure 4-16 | Existing Average Daily Level of Service, 2015

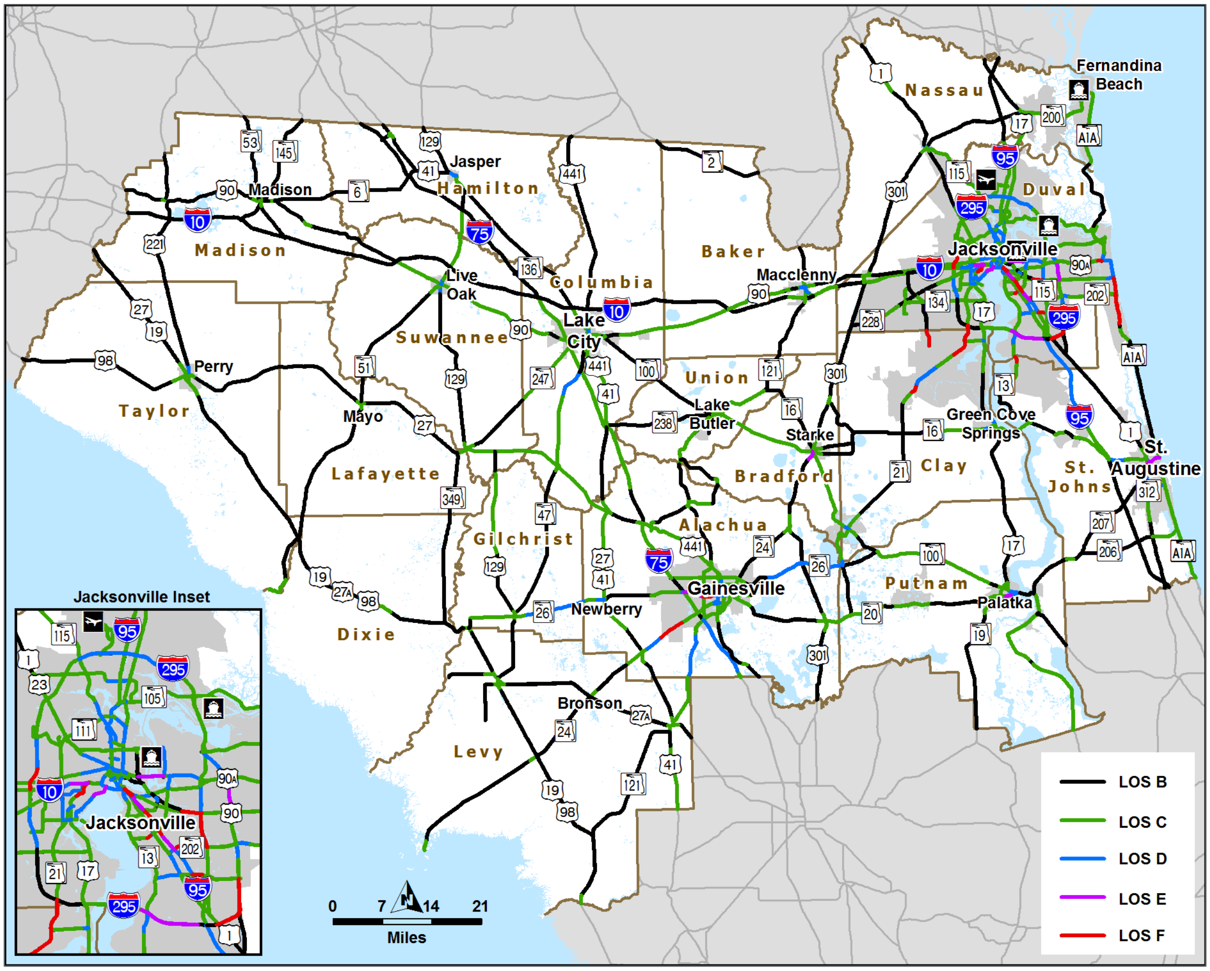


Source: FDOT

Congestion and delay are caused by various and combining factors which cause bottlenecks or "pinch points"- these include travel patterns (commuter peak, seasonal variations, and special events), weather, construction and work zones, incidents, and geometric constraints. Roadway geometry barriers include lane drops, interchange constraints, rail crossings, curves with insufficient turning radii for trucks (usually on two-lane roadways), bridges with gross vehicle weight limits that force trucks to make long detours, bridges with reduced overhead or side clearance, and underpasses.

Similarly ***Figure 4-17*** depicts peak hour level of service conditions. The peak hour Level of Service based on the 2016 counts (AADT) and associated capacity thresholds. For the same AADT, a multilane highway with a high percentage of traffic in one direction during the peak hours may require more lanes than a highway having the same AADT with a lesser percentage.

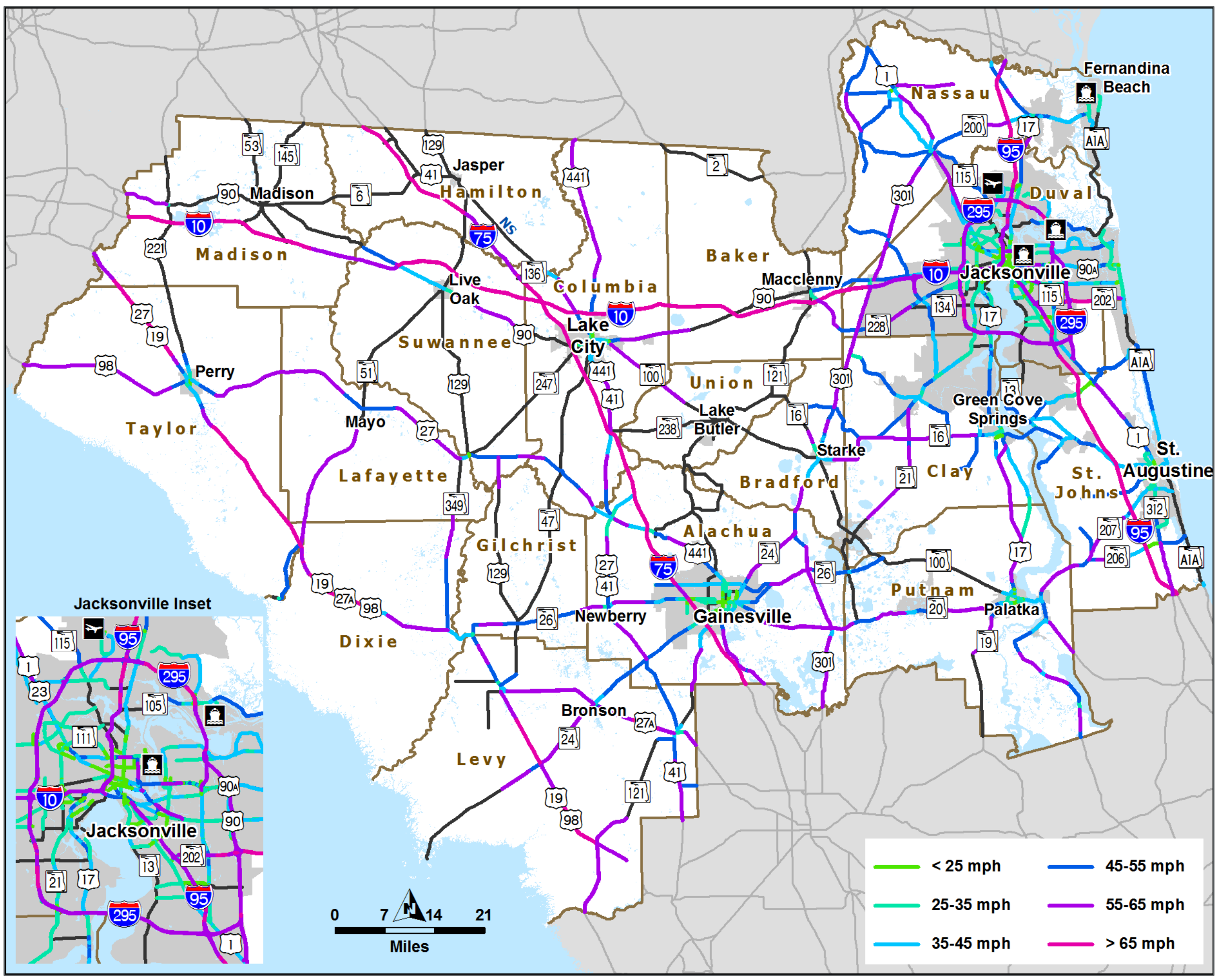
Figure 4-17 | Existing Peak Hour Level of Service, 2016



Source: FDOT

Travel Time Reliability: National Performance Management Research Data Set (NPMRDS)
The NPMRDS is a dataset based on actual, observed data collected from probes, such as cellphones, in-vehicle navigation units, and other devices that travel along the National Highway System (NHS). This data is measured at five-minute intervals though it can be averaged for daily or annual reporting. Because travel time data on the entire NHS is available from actual measurements tied to a date, time, and location on specific roadway segments, measuring the performance of the system, freight movement, and monitoring traffic congestion can be much more accurate, widespread, and detailed. ***Figure 4-18*** illustrates the commercial vehicle travel speed based on the daily aggregation of NPMRDS data; overall travel speeds are consistent with posted speeds although vehicle speeds decrease within more urbanized areas and near systems interchanges. District Two is continually working towards long term comprehensive solutions to address constraints leading to truck bottlenecks in Northeast Florida.

Figure 4-18 | Commercial Vehicle Travel Speed, Daily Average, 2015



Source: USDOT / FHWA – NPMRDS

Truck Commodity Demand

Roadway commodity flow data is used in freight planning to provide insights about the economic and trade environment of a region. This information is used to generate trip estimates in travel demand modeling applications and helps identify industries in a regional economy that are highly dependent on transportation. Truck is the dominant mode for inbound and outbound freight, although rail movements also play a significant role.

Major Commodities Moved by Truck

Understanding performance of the freight transportation system and the challenges that come with increasing demand for freight transportation is important to improving mobility and productivity. In 2015, 62.5 million tons or 66 percent of total freight tonnage was moved in, out, and through the region by truck. Of the truck share, 33 percent was inbound, 39 percent was outbound, and 28 percent was intraregional movement. Based on volume, warehouse goods, forest materials, and broken stone/riprap are the leading truck commodities. These top three commodities accounted for 36.3 percent of total truck tonnage. ***Table 4-9*** further exhibits the major commodities transported by truck by total volume with share and value included.

Table 4-9 | Major Truck Commodities, by Tonnage, 2015

STCC2	Commodity	Tons (Thousands of Tons)	% Tons	Value (Millions of Dollars)	% Value
50 10	Warehouse Goods	10,861	17.37%	13,154	12.49%
24 11	Primary Forest Materials	6,747	10.79%	836	0.79%
14 21	Broken Stone / Riprap	5,113	8.18%	44	0.04%
50 22	Rail Intermodal Drayage (from Ramp)	4,941	7.90%	22,609	21.46%
50 21	Rail Intermodal Drayage (to Ramp)	2,880	4.61%	13,180	12.51%
32 73	Ready-Mix Wet Concrete	2,508	4.01%	172	0.16%
32 71	Concrete Products	1,947	3.11%	271	0.26%
29 51	Asphalt Paving Block / Mix	1,498	2.40%	149	0.14%
37 11	Motor Vehicles	1,418	2.27%	13,050	12.39%
20 86	Soft Drinks / Mineral Water	1,393	2.23%	855	0.81%
	All Others	23,215	37.13%	41,018	38.94%
Total		**62,520**		**105,338**	

Source: IHS Global Insight: Transearch Database

Note: Table 8 above includes only inbound, outbound, and intraregional tonnages, exclude commodities passing through freight traffic

Northeast Florida Ports

Introduction

Seaports are fundamental to positioning Florida as one of the nation's leading states for global trade, expanding imports and exports, creating new trade and logistics jobs, and expanding the value-added services that support global businesses (Florida Ports Council, *2016 Seaport Mission Plan*). Florida has ten container seaports, two of which are located in Northeast Florida.

Seaport Locations

Northeast Florida's two seaports are the Port of Jacksonville and the Port of Fernandina. These are the most westerly seaports on the east coast, which provides a unique opportunity for shippers to lessen the distance of inland transportation.

The Port of Jacksonville consists of over 20 marine terminals including Jacksonville Port Authority (JAXPORT), military and several private terminals. JAXPORT owns and maintains three terminals at the Port of Jacksonville: Talleyrand Marine Terminal (TMT), Blount Island Marine Terminal (BIMT), and Dames Point Marine Terminal (DPMT).

The Port of Fernandina consists of one deep water shipping terminal located on the Amelia River. The Port of Fernandina is operated by Worldwide Terminals Fernandina, under a long-term contract with the Ocean Highway and Port Authority.

Statewide and Regional Context

In 2015, Florida seaports facilitated the flow of over 96 million tons of waterborne commerce. JAXPORT handled over 17.5 million tons and the Port of Fernandina handled over 300,000 tons (USACE, Principal Ports file for 2015). Looking at seaports to the north, JAXPORT handles more tonnage than the Port of Brunswick (3.1 M tons) and less than the Port of Savannah (35.2 M tons) (USACE, Principle Ports file 2015).

While the Southeast Atlantic Coast ports compete for business, they are each unique with different niche markets. The Ports of Canaveral and Palm Beach, the closest neighboring ports to the south, primarily serve central and south Florida, while JAXPORT's hinterland is defined as the Southeast and Midwest United States. To the north, the Port of Brunswick is known for new automobile imports. JAXPORT is the number one auto exporter and one of the top five importers in the United States. The Port of Savannah and JAXPORT are both known for handling containers; the Port of Savannah is the fourth busiest container port in the nation and JAXPORT is the number one container port in Florida, moving over one million containers (TEUs) annually. Imports through North Florida ports are destined for markets throughout the United States. According to the NFTPO's 2012 *North Florida Freight, Logistics and Intermodal Framework Plan,* North Florida is the destination for 54% of the US East Coast imports. New York City is identified as having the second largest share of the market at 14%. Seventy-four percent (74%) of the imports through North Florida ports are from the Caribbean, including Puerto Rico, and South America.

Exports through North Florida ports originate from a wide variety of markets throughout the United States. Northeast Florida is the leading origin of exports and has an 11% market share within the State. Miami and Tampa have the second and third largest share of the market at 4% each. Overall, exports through Northeast Florida ports are dominated by the containerized trade (80%), including miscellaneous general cargo commodities, grocery products and paper products.

Seaport System Demand

In general, Northeast Florida seaports deal mostly with containers though they handle roll-on roll-off (RORO), bulk, break-bulk, and liquid bulk. Based on available commodity data for 2015, Northeast Florida seaports handle 6 percent of total commodity tonnage which has a value share of 32 percent of total commodities pertaining to domestic water movements. In 2015, JAXPORT was ranked the number one container port in Florida and serves as a major auto imported and exporter in the nation while the Port of Fernandina is Florida's largest exporter of steel.

Top Commodities Moving Through the Ports

In 2015, Northeast Florida's ports handled about 5.97 million tons of cargo worth over $5.96 billion. Based on volume, over 61 percent of total seaport commodities are represented by petroleum refining products and miscellaneous coal/petroleum products. ***Table 4-10*** details the major commodities by volume moving inbound and outbound from Northeast Florida's ports in 2015. As previously noted, fuel and energy products are a major component of Northeast Florida's seaport tonnage followed by construction related materials, and motor vehicles.

Table 4-10 | Major Waterborne Commodities, by Tonnage, 2015

STCC2	Commodity	Tons (Thousands of Tons)	% Tons	Value (Millions of Dollars)	% Value
29 11	Petroleum Refining Products	3,672	61.43%	4,267	71.57%
29 91	Misc. Coal / Petroleum Products	972	16.26%	1,149	19.27%
14 41	Gravel / Sand	893	14.94%	6	0.10%
28 12	Potassium / Sodium Compound	230	3.85%	74	1.24%
29 51	Asphalt Paving Blocks / Mix	110	1.84%	11	0.18%
37 11	Motor Vehicles	34	0.57%	310	5.20%
29 12	Liquefied Gases / Coal / Petroleum	16	0.27%	16	0.27%
28 18	Misc. Industrial Organic Chemicals	14	0.24%	18	0.30%
33 12	Primary Iron / Steel Products	6	0.09%	4	0.07%
25 99	Misc. Machinery / Parts	5	0.09%	34	0.57%
	All Others	25	0.42%	73	1.23%
Total		**5,977**		**5,962**	

Source: IHS Global Insight: Transearch Database

Port of Jacksonville (JAXPORT)

Terminal Capacity

JAXPORT's three public marine cargo terminals handle every type of general and project cargo with over 16,000 linear feet of berthing space. The Port also contains a 63,000 square foot passenger cruise terminal with a 1,289 linear foot berth. JAXPORT is supported by a total of 27 cranes (3 post-panamax 100-gauge container cranes, 14 panamax container gantry cranes, 8 rubber tire gantry cranes, and 2 whirely cranes) and has over a million square feet of on-dock warehouse storage, 300,000 square feet of auto processing facilities, 250 acres of open auto storage, and 34 acres of aggregate material storage sites. ***Table 4-11*** below provides an overview of each of JAXPORT's three public marine terminals.

Table 4-11 | JAXPORT Marine Terminal Overview

	BIMT	DPMT	TMT
Location	9 NM from the Atlantic Ocean	10 NM from the Atlantic Ocean	21 NM from the Atlantic Ocean
Terminal Area	754 Acres	585 Acres (TraPac terminal: 158)	173 Acres
Mechanical Handling Equipment	Seven container cranes (five 50-ton,one 45-ton, one 40-ton), One 112-ton gantry whirely crane	Six container cranes (two 50-ton, four 40-ton), Six 40-ton rubber tired gantry cranes	Four container cranes (one 50-ton, two 45-ton, one 40-ton), Two 50-ton rubber tired gantry cranes, One 100-ton multi purpose whirely crane
Rail	On-Dock: CSX	On-Dock: CSX	On-Dock: CSX and NS; Near-Dock: FEC
Major Highway Connections	I-95, I-295, US 17	I-95, I-295, US 17	I-95, I-10, US 1, US17
Uses	Container, Autos, Roll on/Roll off, Breakbulk and General Cargo	Container, Bulk, and Cruise	Container, Roll on/Roll off, Breakbulk, Liquid Bulk and General Cargo
Facilities	240,000 sq. ft. of transit shed; 90,000 sq. ft. container freight station	Intermodal Container Transfer Facility	160,000 sq. ft. warehouse with 2.2 million cu. ft. of cold storage; 553,000 sq. ft. of transit shed
Ocean Service Locations	South America, Caribbean, Asia, Europe, Mediterranean, Africa	South America, Asia, Europe, Mediterranean, Africa, Middle East, Central America	South America, Caribbean, Asia, Europe, Mediterranean, Africa

Source: Jacksonville Port Authority

Hinterland

JAXPORT's hinterland is primarily defined as the Southeast and Midwest United States. With significant rail and highway connections, JAXPORT's reach extends to all 48 contiguous states (USDOT, Study of Imported Goods Destinations). Major tonnage-based trading partners include Columbia, Bahamas, Mexico, Puerto Rico, China, Brazil, Saudi Arabia, and U.A.E.

Port of Fernandina

The Port of Fernandina is owned by the Ocean Highway and Port Authority and is operated by Worldwide Terminals Fernandina, LLC. It consists of one deep water shipping terminal located on the Amelia River. The Port provides terminal service to numerous pulp and paper producers located throughout Florida and the Southeast, and provides steel export services to several steel companies with mills in the Southeast. The Port offers a short deep water entrance channel with no overhead obstructions and a turning basin directly adjacent to the terminal docks (FDOT Seaport Profiles, 2016).

Terminal Capacity

The Port's principal cargoes include exports of Kraft liner board, lumber, steel products, machinery, building and construction material, as well as imports of grains, wood pulp, hardboard and building materials. The containerized commodities moving through the Port include wood pulp, automobile and truck parts, lumber, chemicals, beverages, food stuffs and chilled goods, machinery, consumer goods and building materials (Florida Seaport Master Plan, 2016). Cargo terminals include two (2) berths with 1,200 linear feet of berthing space. ***Table 4-12*** below provides an overview of the Port of Fernandina's marine terminal.

Table 4-12 | Port of Fernandina Marine Terminal Overview

	Port of Fernandina Terminal
Area	21 Acres
Handling Equipment	Two gantry cranes and One heavy lift crane
Rail	On-Dock: First Coast Railroad
Major Highway Connections	From SR 200/A1A to Interstate 95, US 301, US 1, US 23, US 90, and Interstate 10
Uses	Container and Breakbulk
Facilities	200,000 sq. ft. on-port covered storage, 50,000 sq. ft. container freight station, 10 acres paved open storage yard, 5 acres off port open storage, 48 expandable refrigerator plugs
Ocean Service Locations	Ecuador, Dominican Republic, Jamaica, Bermuda, Panama, and Columbia

Source: Ocean Highway and Port Authority / Nassau Terminals, LLC

Hinterland

The Port of Fernandina's hinterland is primarily defined as the Southeast United States including the Gulf States. The Port of Fernandina enjoys excellent CSX rail connections via the First Coast Railroad with major paper and steel mills in the Southeast United States. Its geographical location also allows truckers to reach cities such as Memphis, Charleston, Richmond, Mobile, and all of Florida in a day or less, at competitive prices (Florida Seaport Master Plan, 2016).

Freight Rail System

Introduction

Florida's rail system is comprised of 2,786 miles of mainline track and encompasses two Class I Railroads (CSXT and NS), one Class II Railroad (Florida East Coast Railway), 10 Class III Railroads (Alabama and Gulf Coast Railway, AN Railway, Bay Line Railroad, First Coast Railroad, Florida Central Railroad, Florida Midland Railroad, Florida Northern Railroad, Georgia and Florida Railway, Seminole Gulf Railway, and South Central Florida Express), and one railroad specializing in switching and terminals (Jacksonville Port Terminal Railroad).

In 2013, Florida's railroads carried over 89.2 million tons of freight. The types of commodities moved included intermodal, nonmetallic minerals, chemicals and allied products, food and kindred products, coal and others (http://freightmovesflorida.com/statewide-initiatives/rail/).

Identification of Rail Network and Crossings

FDOT District Two encompasses two Class I Railroads (CSXT and NS), one Class II Railroad (Florida East Coast Railway), three Class III Railroads (First Coast Railroad, Florida Northern Railroad, and Georgia and Florida Railway), and one railroad specializing in switching and terminals (Jacksonville Port Terminal Railroad). The total track mileage and at-grade crossings in Florida and within FDOT District Two are shown in ***Table 4-13***. Detailed information about each of these railroads is contained in the subsections that follow. It is important to note, only at-grade crossing are identified in the tables although Northeast Florida contains 87 grade separated rail crossings, this accounts for only approximately 7 percent of total railroad crossings within the district.

Table 4-13 | Freight Railroad Owners in Northeast Florida, 2015

Railroad	Class	State of Florida		FDOT District Two	
		Route Miles of Track	Number of At-Grade Crossings	Route Miles of Track	Number of At-Grade Crossings
CSX	I	1,644	2,914	585	712
Norfolk Southern (NS)	I	149	176	132	176
Florida East Coast Railway (FEC)	II	351	670	77	51
First Coast Railroad (FCRD)	III	32	28	30	28
Florida Northern Railroad Co., Inc. (FNOR)	III	104	150	52	62
Georgia and Florida Railway (GFRR)	III	222	87	49	87
Jacksonville Port Terminal Railroad (JXPT)	III	2	10	2	10

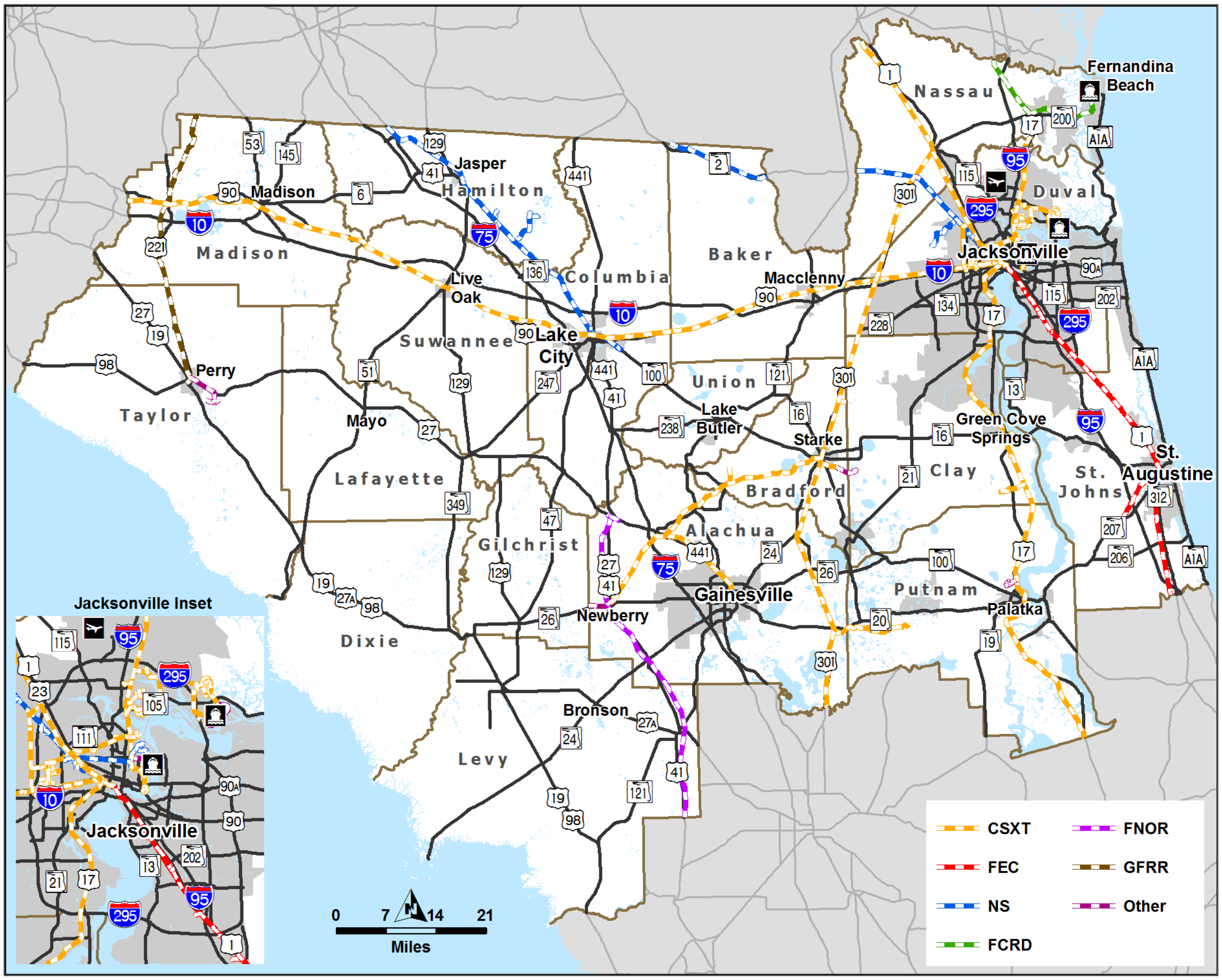
Source: FDOT

Table 4-14 | Freight Railroad Mileage by County in Northeast Florida, 2015

County	Number of Track Miles							Total
	CSX	NS	FECR	FCRD	FNOR	GFR	JXPT	
Alachua	78	-	-	-	34	-	-	**113**
Baker	26	15	-	-	-	-	-	**41**
Bradford	43	-	-	-	-	-	-	**43**
Clay	48	-	-	-	-	-	-	**48**
Columbia	21	17	-	-	-	-	-	**38**
Dixie	-	-	-	-	-	-	-	**-**
Duval	186	43	29	-	-	-	2	**260**
Gilchrist	-	-	-	-	-	-	-	**-**
Hamilton	-	45	-	-	-	-	-	**45**
Lafayette	-	-	-	-	-	-	-	**-**
Levy	-	-	-	-	18	-	-	**18**
Madison	39	-	-	-	-	26	-	**65**
Nassau	45	12	-	30	-	-	-	**87**
Putnam	74	-	-	-	-	-	-	**74**
St. Johns	-	-	48	-	-	-	-	**48**
Suwannee	26	-	-	-	-	-	-	**26**
Taylor	-	-	-	-	-	23	-	**23**
Union	-	-	-	-	-	-	-	**-**
Total	**585**	**132**	**77**	**30**	**52**	**49**	**2**	**930**

Source: FDOT

Figure 4-19 | Northeast Florida Railroad Network, 2015



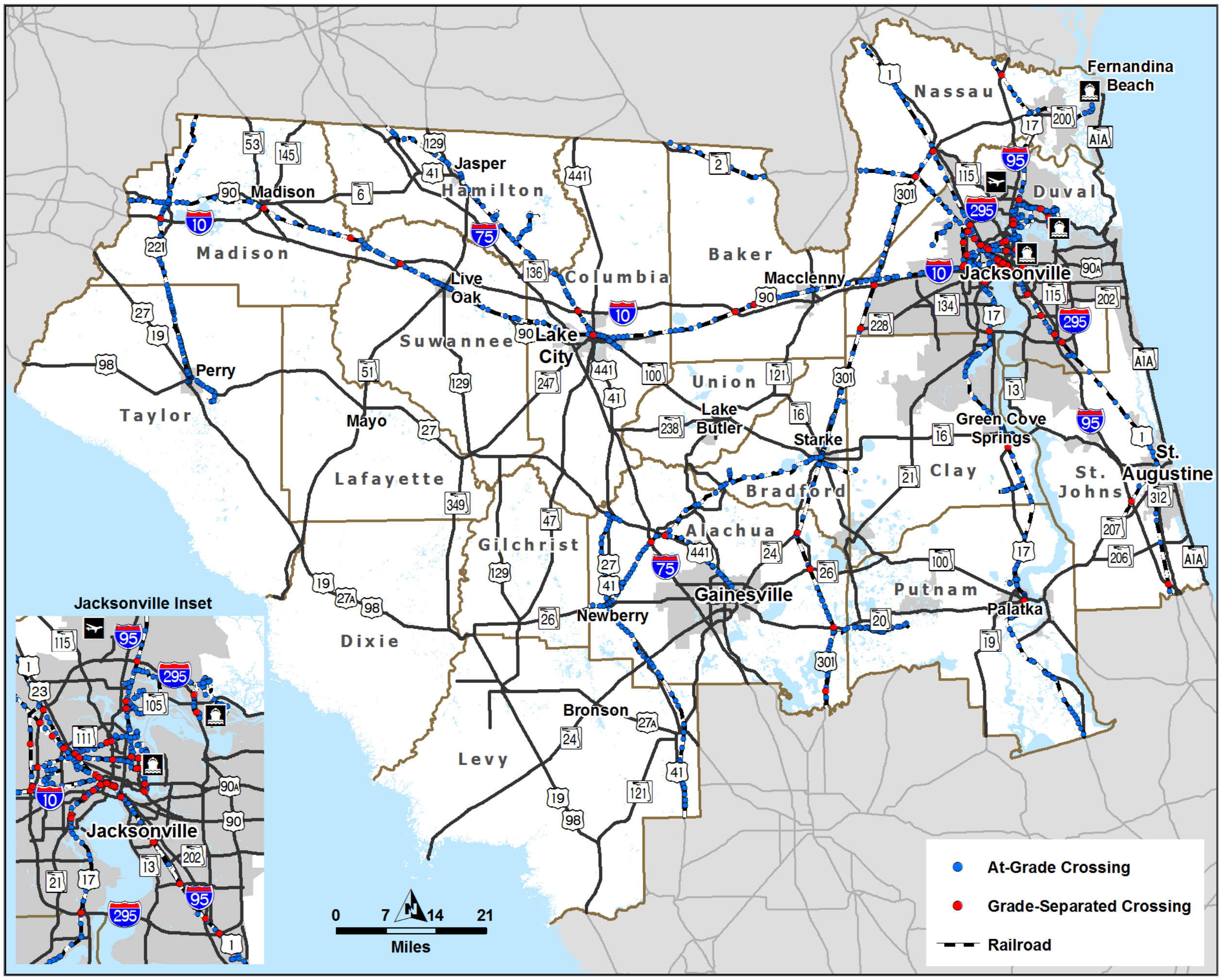
Source: FDOT

Table 4-15 | Railroad Crossings by County in Northeast Florida, 2015

County	Number of At-Grade Crossings							Total
	CSX	NS	FEC	FCRD	FNOR	GFRR	JXPT	
Alachua	101	-	-	-	43	-	-	**151**
Baker	28	9	-	-	-	-	-	**37**
Bradford	51	-	-	-	-	-	-	**51**
Clay	50	-	-	-	-	-	-	**50**
Columbia	21	39	-	-	-	-	-	**60**
Dixie	-	-	-	-	-	-	-	**-**
Duval	282	59	27	-	-	-	10	**378**
Gilchrist	-	-	-	-	-	-	-	**-**
Hamilton	-	60	-	-	-	-	-	**60**
Lafayette	-	-	-	-	-	-	-	**-**
Levy	-	-	-	-	19	-	-	**19**
Madison	29	-	-	-	-	29	-	**58**
Nassau	38	9	-	28	-	-	-	**72**
Putnam	73	-	-	-	-	-	-	**73**
St. Johns	-	-	24	-	-	-	-	**24**
Suwannee	42	-	-	-	-	-	-	**42**
Taylor	-	-	-	-	-	58	-	**58**
Union	-	-	-	-	-	-	-	**-**
Total	**712**	**176**	**51**	**28**	**62**	**87**	**10**	**1,133**

Source: FDOT

Figure 4-20 | Railroad Crossings in Northeast Florida, 2015



Source: FDOT

Freight Rail Demand

While trucks serve the major share of freight demand within Northeast Florida, rail plays a significant role providing long distance intermodal connections. The region's rail facilities served 28 percent of the total commodity volume which holds 32 percent of total value share. For rail, an estimated one-fourth of tonnage is intermodal (in shipping containers), while three-fourths is carload (all other equipment types) though intermodal represents around 60 percent of rail value; this is because intermodal commodities tend to be lower weight and higher value, compared to carload commodities. Goods coming into Northeast Florida from Kentucky, Illinois, Indiana, Ohio, West Virginia, and Michigan utilize the region's rail network and intermodal terminals.

Top Commodities Moved by Rail

In 2015, Northeast Florida's rail network carried 26.9 million tons of cargo valued over $52 billion. Bituminous Coal is largest inbound commodity by volume with over 7 million tons in 2015, though it has a relatively low value, with an estimated value $36.52 per ton. FAK (freight all kinds) shipments are the second largest commodity type volume and the number one rail commodity type by value though it is important to note that this commodity type is actually a pricing mechanism that groups multiple classes of freight into a single class for companies that ship a wide variety of products. Though similar to warehoused goods, FAK creates a broad list of potential sub commodities from beer and beverages to consumer electronics. Fertilizer is the region's single largest rail commodity export with final destinations serving mid-west / bread belt agriculture. ***Table 4-16*** further details the major commodities by volume moving by rail in, out, and within Northeast Florida in 2015.

Table 4-16 | Major Rail Commodities, by Tonnage, 2015

STCC2	Commodity	Tons (Thousands of Tons)	% Tons	Value (Millions of Dollars)	% Value
11 21	Bituminous Coal	7,199	26.71%	263	0.51%
46 11	FAK Shipments	5,253	19.49%	26,596	51.14%
14 21	Broken Stone / Riprap	1,808	6.71%	16	0.03%
28 71	Fertilizers	1,585	5.88%	710	1.36%
37 11	Motor Vehicles	1,410	5.23%	12,979	24.96%
14 71	Crude Chemicals / Fertilizers	1,362	5.05%	120	0.23%
26 21	Paper	789	2.93%	1,559	3.00%
42 21	Empty Semi-Trailers	621	2.31%	0	0.00%
26 31	Fiber / Paper / Pulpboard	509	1.89%	367	0.71%
26 11	Pulp / Pulp Mill Products	490	1.82%	191	0.37%
	All Others	5,926	21.99%	9,202	17.70%
Total		**26,952**		**52,003**	

Source: IHS Global Insight: Transearch & STB Waybill Databases

Overview of Rail Owners and Operators

CSX Transportation (CSXT)

CSXT is a division of CSX Corporation and is headquartered in Jacksonville, Florida. CSXT is a Class I railroad providing rail-based transportation services throughout 23 states, the District of Columbia and the Canadian provinces of Ontario and Quebec. As a rail and intermodal business, the network encompasses 21,000 route miles of track, 65 intermodal terminals, and has access to over 70 ocean, river, and lake port terminals.

In Florida, CSXT owns 1,508 route miles and operates an additional 81 miles owned by the FDOT (South Florida Rail Corridor) and 50 miles owned by the GFRR. CSXT serves most of Florida's major urban areas and the ports of Jacksonville and Tampa. CSXT has six intermodal terminals in Florida with one in Jacksonville. CSXT provides connections to Florida's short line railroads and, in many cases, is the only connection for the short line.

Norfolk Southern (NS)

NS is a Class I railroad operating 20,000 route miles in 22 states and the District of Columbia. NS serves 58 intermodal terminals and has access to 43 ocean, river, and lake port terminals.

In Florida, NS owns 149 routes miles on two main lines terminating at Lake City and Jacksonville, including service to the Port of Jacksonville. Trackage rights agreements allow NS to operate over 53 miles of CSXT's "A Line" between Jacksonville and Palatka. NS also maintains a haulage agreement with FEC from Jacksonville to Miami. NS also connects with JPTX and GFRR in northeast Florida. NS has three terminals in Florida, Simpson (intermodal) Yard in Jacksonville, an auto distribution facility, and a thoroughbred bulk terminal.

Florida East Coast (FEC) Railway

FEC is a Class II regional railroad operating 351 miles of mainline track along the east coast of Florida between Jacksonville and Miami. Headquartered in Jacksonville, FEC maintains the second largest railroad network in Florida after CSXT and provides the only north-south mainline along the Atlantic Coast between West Palm Beach and Jacksonville.

FEC specializes in intermodal transportation services, unlike traditional railroads, serving five intermodal terminals. FEC provides exclusive rail service to the Ports of Palm Beach, Everglades (Fort Lauderdale), Miami, and the Kennedy Space Center. The FEC's principal carload transfer yards are located at Fort Pierce, Cocoa, Pompano, Fort Lauderdale, and Miami, and its intermodal facilities are located at Jacksonville, Fort Lauderdale, Fort Pierce, and Miami. FEC also provides a drayage leg in its portfolio of services to intermodal customers. FEC's chief connection with CSXT and NS occurs at Bowden Yard in Jacksonville. FEC also connects with CSXT at West Palm Beach and with SCXF at Fort Pierce.

First Coast Railroad (FCRD)

FCRD is a Class III railroad in Florida and Georgia, owned by Rail Link, a division of Genesee & Wyoming Inc. (GWI). GWI operates over 63 short lines and terminal railroads. FCRD began operations in April 2005 when it leased 32 miles of track from CSXT. The track extends east from Yulee to Fernandina Beach, serving the Port of Fernandina, and north from Yulee to Seals, Georgia. It interchanges with CSX in Yulee.

Florida Northern Railroad Co., Inc. (FNOR)

FNOR is a Class III railroad serving Alachua, Citrus, Levy, and Marion Counties in North Central Florida. It was formed in 1988 from CSXT's Ocala Subdivision. It is owned by Pinsley Railroad Company, a holding group with five short line railroads. FNOR operates 104 miles of track including 52 miles of track in Northeast Florida between High Springs and Red Level with an interchange at Newberry.

Georgia and Florida Railroad (GFRR)

GFRR is a Class III railroad operating between Adel, Georgia and Foley, Florida. It is one of several short lines owned by OmniTrax. GFRR began operations in 1995 after acquiring track from NS. GFRR operates 222 miles, with approximately 48 miles located in Northeast Florida. The railroad interchanges with CSXT in Foley, Florida and connects to NS and CSXT in Georgia.

Jacksonville Port Terminal Railroad (JXPT)

JXPT consists of 10 miles of rail line in Jacksonville. JXPT is operated by Watco Companies and is their first short line in Florida. JXPT serves as a rail provider to the Jacksonville Port Authority. Commodities being shipped on the JXPT include automobiles, chemicals, farm and food products, intermodal containers, and pulp and paper.

Railroad "Select-Link" Analysis

In many cases, different railroad companies utilize each others facilities in the transportation and interchange of rail commodities. These agreements are called "trackage rights" and are unique to each contract. Within the United States, these agreements are filed and oversaw by the Surface Transportation Board (STB). In the analysis of rail road capacity and utilization, a rail line select link analysis was conducted to better understand the role and significance of each rail line (versus Railroad Company) within Northeast Florida. For this analysis, Transearch and STB Waybill data were aggregated and prepared to summarize rail line: tonnage, value, share, top commodities, and key rail origins and destinations. Data limitations only allowed for select-link analysis on segments of CSX, NS, FEC, FCRD/JXPT, and SCXF (hauling sugar-based products operating on CSX/NS). ***Table 4-17*** displays estimated tonnage, value, and share for

Northeast Florida (FDOT-District Two) and for the State. ***Table 4-18*** identifies rail line top origins and destinations and ***Table 4-19*** identifies top commodities by rail line.

Table 4-17 | Estimated Rail Line Tonnage and Value Comparison

Rail Line	Estimated Tons	Tons % Share		Estimated Value	Value % Share	
		Florida	District Two		Florida	District Two
CSX	54.2 Million	10.7%	56.7%	$44.6 Billion	6.0%	27.0%
NS	7.3 Million	1.5%	7.7%	$15.4 Billion	2.1%	9.3%
FEC	10.5 Million	2.1%	11.0%	$20.8 Billion	2.8%	12.6%
FCRD / JXPT	1.9 Million	0.4%	2.0%	$1.2 Billion	0.2%	0.7%
SCXF (CSX/NS)	557 Thousand	0.1%	0.6%	$296.5 Million	0.1%	<0.1%

Source: IHS Global Insight: Transearch & STB Waybill Databases

Table 4-18 | Top Origins and Destination by Rail Line

Rail Line	Top Rail Origins	Top Rail Destinations
CSX	1) Polk County, FL (27.42%) 2) Evansville, IN (13.16%) 3) Lexington, KY (6.48%) 4) Chicago, IL (4.75%) 5) Atlanta, GA (4.74%)	1) Hillsborough County, FL (20.77%) 2) Polk County, FL (17.54%) 3) Orange County, FL (10.68%) 4) Duval County, FL (8.24%) 5) Putnam County, FL (7.84%)
NS	1) Macon, GA (13.99%) 2) Duval County, FL (13.36%) 3) Atlanta, GA (12.08%) 4) Chicago, IL (9.66%) 5) Miami-Dade County, FL (4.11%)	1) Duval County, FL (28.47%) 2) Miami-Dade County, FL (14.32%) 3) Columbia County, FL (10.35%) 4) Brevard County, FL (8.03%) 5) Chicago, IL (5.95%)
FEC	1) Miami-Dade County, FL (44.25%) 2) Duval County, FL (19.93%) 3) Macon, GA (6.23%) 4) Charlotte, NC (4.39%) 5) St. Lucie County, FL (4.10%)	1) Miami-Dade County, FL (23.62%) 2) Brevard County, FL (18.78%) 3) Duval County, FL (13.33%) 4) Broward County, FL (12.50%) 5) St. Lucie County, FL (7.75%)
FCRD	1) Bay County, FL (24.7%) 2) Jackson County, FL (21.56%) 3) Henry County, AL (20.48%) 4) Tallahassee, FL (9.18%) 5) Birmingham, AL (6.58%)	1) Bay County, FL (75.30%) 2) Savannah, GA (6.96%) 3) San Antonio, TX (2.03%) 4) Chicago, IL (1.71%) 5) Manatee County, FL (1.26%)
SCXF (CSX/NS)	1) Hendry County, FL (72.21%) 2) Palm Beach County, FL (27.79%) 3) None 4) None 5) None	1) Atlanta, GA (15.06%) 2) Kansas City, MO (13.58%) 3) Chicago, IL (9.10%) 4) Philadelphia, PA (7.72%) 5) Albany, NY (6.13%)

Source: IHS Global Insight: Transearch & STB Waybill Databases

Table 4-19 | Top Commodities by Rail Line

Rail Line	Top Commodities
CSX	1) Bituminous Coal 2) Crude Chemicals / Minerals 3) Fertilizers 4) Broken Stone / Riprap 5) Motor Vehicles
NS	1) Broken Stone / Riprap 2) FAK Shipments 3) Empty Semitrailers (for return) 4) Paper 5) Misc. Organic Industrial Chemicals
FEC	1) Broken Stone / Riprap 2) FAK Shipments 3) Empty Semitrailers (for return) 4) Canned Fruits / Vegetables 5) Portland Cement
FCRD	1) Primary Forest Materials 2) Fiber, Paper or Pulp / Pulp Mill Products 3) Broken Stone / Riprap 4) Primary Iron / Steel Products 5) Misc. Organic Industrial Chemicals
SCXF (CSX/NS)	1) Sugar Mill Products / Bi-Products 2) Refined Sugar

Source: IHS Global Insight: Transearch & STB Waybill Databases

Intermodal Rail Terminals

There are eight rail intermodal and rail trans-loading facilities in Northeast Florida including:

- CSX Intermodal Terminal Jacksonville;
- NS Intermodal Terminal Jacksonville;
- FEC Intermodal Terminal Jacksonville;
- CSX Jacksonville Transload Site (Subsidiary to Transflo);
- FNOR Newberry Transload Site;
- FNOR Williston Transload Site;
- FCRD Fernandina Beach Transload Site; and
- NS Jacksonville Thoroughbred Bulk Transfer Site.

The CSX, NS, and FEC intermodal terminals are described in further detail on the following pages.

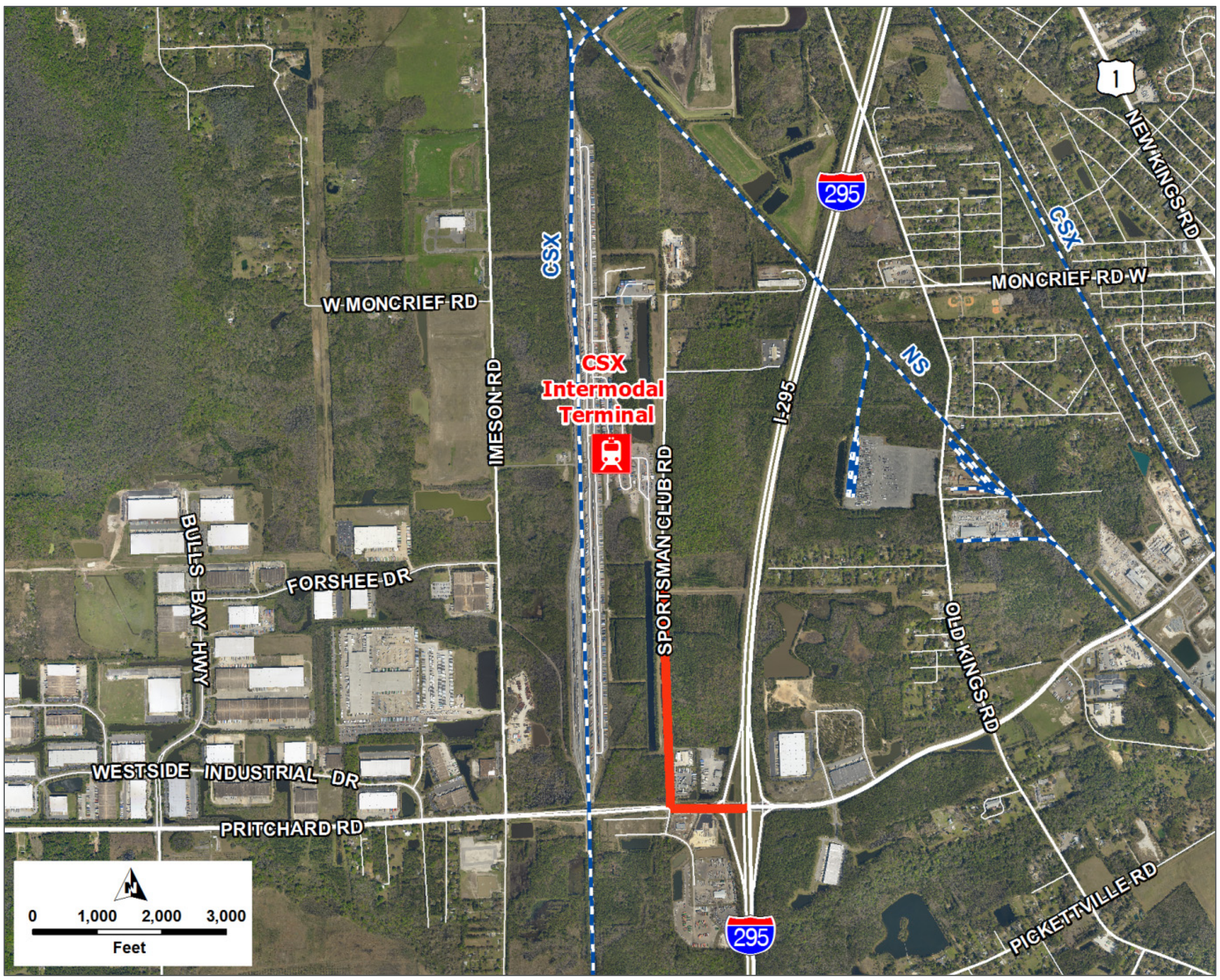
CSX Intermodal Terminal Jacksonville

Address:	5902 Sportsman Club Road, Jacksonville, FL 32219
Hours:	Monday-Sunday, 24 Hours
Capabilities:	TOFC, UMAX, Private Containers, RailPlus

Access

The CSX intermodal terminal is accessed by Sportsman Club Road located off of Pritchard Road near I-295. Sportsman Club Road is a local two-lane road. The intersection of Sportsman Club Road and Pritchard Road is signalized. The 2015 Truck AADT for Sportsman Club Road was 1,849 trips. There are several other industrial uses at the end of this road that may contribute to the Truck AADT.

Figure 4-21 | CSX Intermodal Terminal Jacksonville, Aerial Map



Source: FDOT

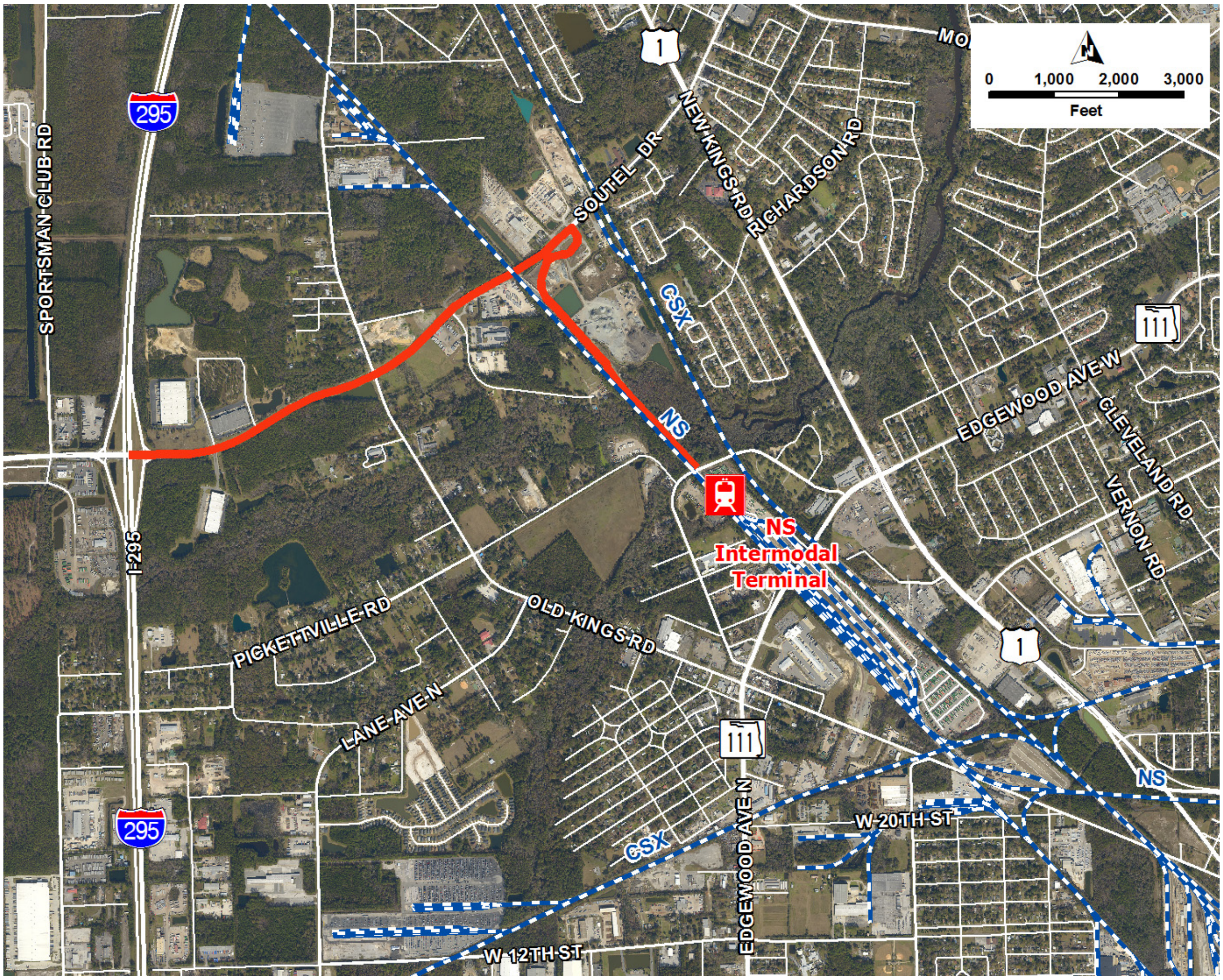
NS Intermodal Terminal Jacksonville

Address:	4267 ½ North Edgewood Drive, Jacksonville, FL 32254
Hours:	Monday-Sunday, 24 Hours
Capabilities:	TOFC, COFC, Stack Car, Bottom and Top Lift, EMP (53'), Express NS

Access

The NS Intermodal Terminal is accessed from Pritchard Road / Soutel Drive and a new access facility, Soutel Access Road.

Figure 4-22 | NS Intermodal Terminal Jacksonville, Aerial Map



Source: FDOT

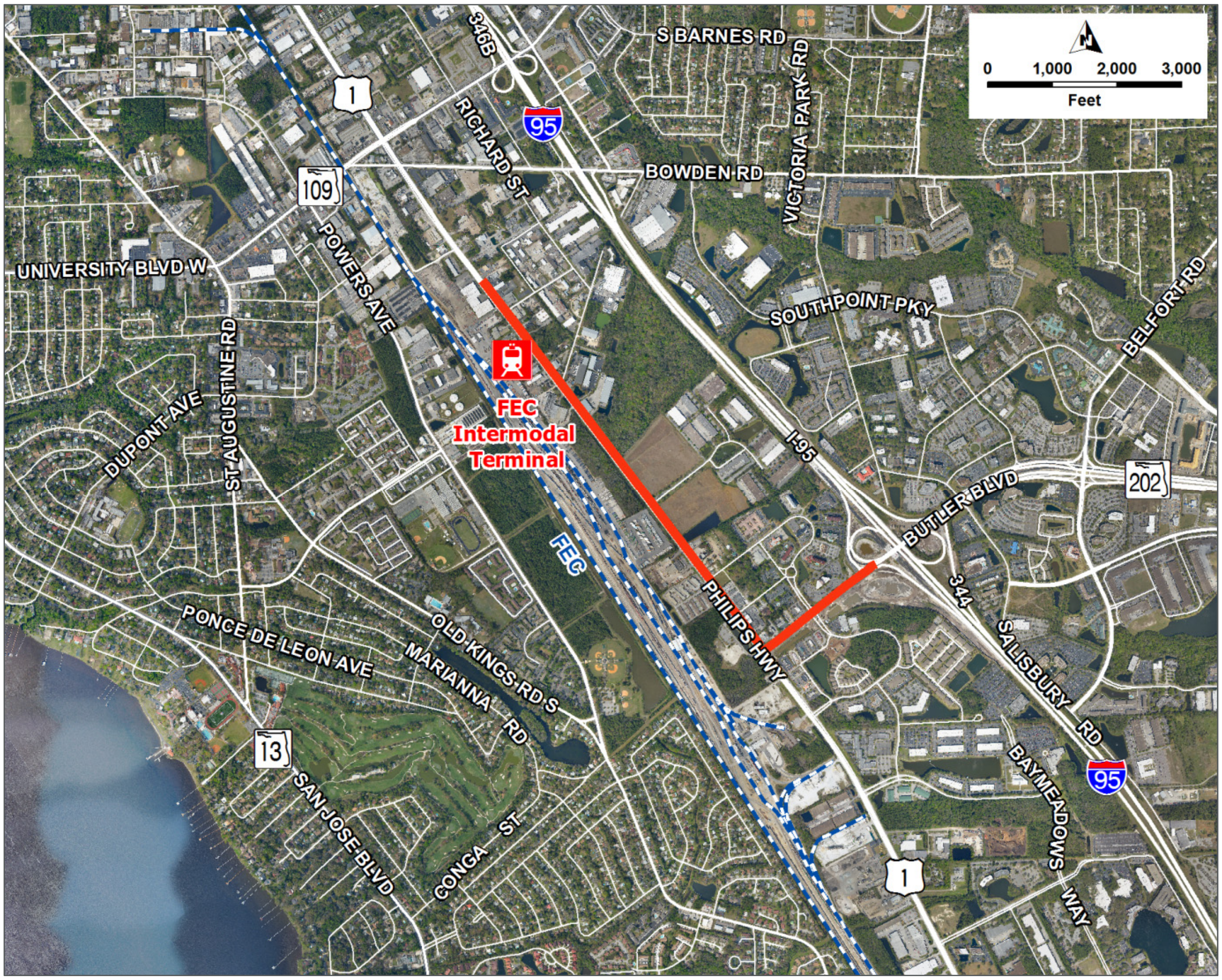
FEC Intermodal Terminal Jacksonville

Address:	6150 Philips Highway, Jacksonville, FL 32216
Hours:	Monday-Sunday, 24 Hours

Access

The FECR intermodal terminal is accessed by Philips Highway (US 1) at two unsignalized locations on either end of the terminal. Philips Highway is a state highway facility. The 2015 Truck AADT for these segments of Philips Highway ranged from 756 to 1,107 trips. There are several other industrial uses along this road as well as through traffic that contribute to the Truck AADT.

Figure 4-23 | FECR Intermodal Terminal Jacksonville, Aerial Map



Source: FDOT

Aviation System

Introduction

Air travel is primarily used for time sensitive cargo (Freight is referred to as cargo in the aviation industry). Air cargo is all about location; a few miles closer to target destinations makes a difference. Thus, air cargo facilities are typically located near large population centers. Northeast Florida is served by three commercial service airports with reported air cargo activity. These facilities provide dedicated air cargo carrier operations and commercial service belly cargo. These commercial service airports include: Jacksonville International Airport (JAX), Gainesville Regional Airport (GNV), and Northeast Florida Regional Airport (UST/SGJ). In addition to these three commercial service airports, there are several General Aviation (GA) airports that serve private and corporate aviation demand within the region. One unique aspect of Northeast Florida's aviation system is the future spaceport operations planned for Cecil Field.

Air Cargo Demand

Air cargo makes up less than 1 percent of total commodity volume share and just over 1 percent of total value share. While this mode carries a relatively small portion of commodity volume share, commodities moved via air are typically light weight, high value, and time sensitive. This mode provides a fast, reliable, and secure goods movement option.

Top Commodities by Air

In 2015, Northeast Florida's air cargo facilities, primarily Jacksonville International Airport, handled 8,000 tons of air cargo valued at $1.7 billion. This equates to an average value of $223,226.00 per air cargo ton. Major air commodities include miscellaneous manufacturing products, machinery, prescription drugs, and FAK shipments. Mail and express traffic also make up a larger portion of Northeast Florida's air cargo. ***Table 4-20*** further details the major domestic air cargo commodities by volume using STCC2 codes.

Table 4-20 | Major Air Cargo Commodities, By Volume, 2015

STCC2	Commodity	Tons (Thousands of Tons)	% Tons	Value (Millions of Dollars)	% Value
39	Misc. Manufacturing	958.3	12.37%	586.2	33.89%
43 11	Mail / Express Traffic	808.0	10.43%	2.1	0.12%
35	Machinery	700.5	9.04%	72.7	4.20%
46 11	FAK Shipments	535.7	6.91%	57.3	3.31%
28 31	Drugs	332.4	4.29%	102.6	5.93%
30	Rubber / Misc. Plastics	123.0	1.59%	3.7	0.21%
24	Lumber / Wood Products	51.6	0.67%	0.2	0.01%
20	Food / Kindred Products	32.8	0.42%	0.2	0.01%
25	Furniture / Fixtures	12.0	0.15%	1.1	0.06%
28	Chemical/ Allied Products	11.8	0.15%	1.0	0.06%
	All Others	4,184	53.99%	902.9	52.19%
Total		**7,750**		**1,730**	

Source: IHS Global Insight: Transearch Database

Airport Profiles

The following subsections provide a more detailed overview of the current air cargo facilities, access, and service levels of each of the three commercial service airports in Northeast Florida.

Jacksonville International Airport

Type	Commercial Service
Address:	2400 Yankee Clipper Dr, Jacksonville, FL 32218
Code:	JAX
Operator:	Jacksonville Aviation Authority (JAA)

Jacksonville International Airport (JAX) is a designated Strategic Intermodal System (SIS) airport. JAX has four air cargo buildings. The airport's air cargo area has more than 200,000 square feet of warehouse space dedicated to air cargo operations and hundreds of acres of on-airport property suitable for air cargo development. A large private industrial park (Trade Port) is approximately one mile south of the airport. This industrial park has 425 acres and eight multi-tenant sites. JAX is also working on developing a 325-acre warehouse and distribution center at the junction of I-95 and I-295 and a 725-acre mixed-use warehouse distribution and office park center between the airport and Trade Port.

Access

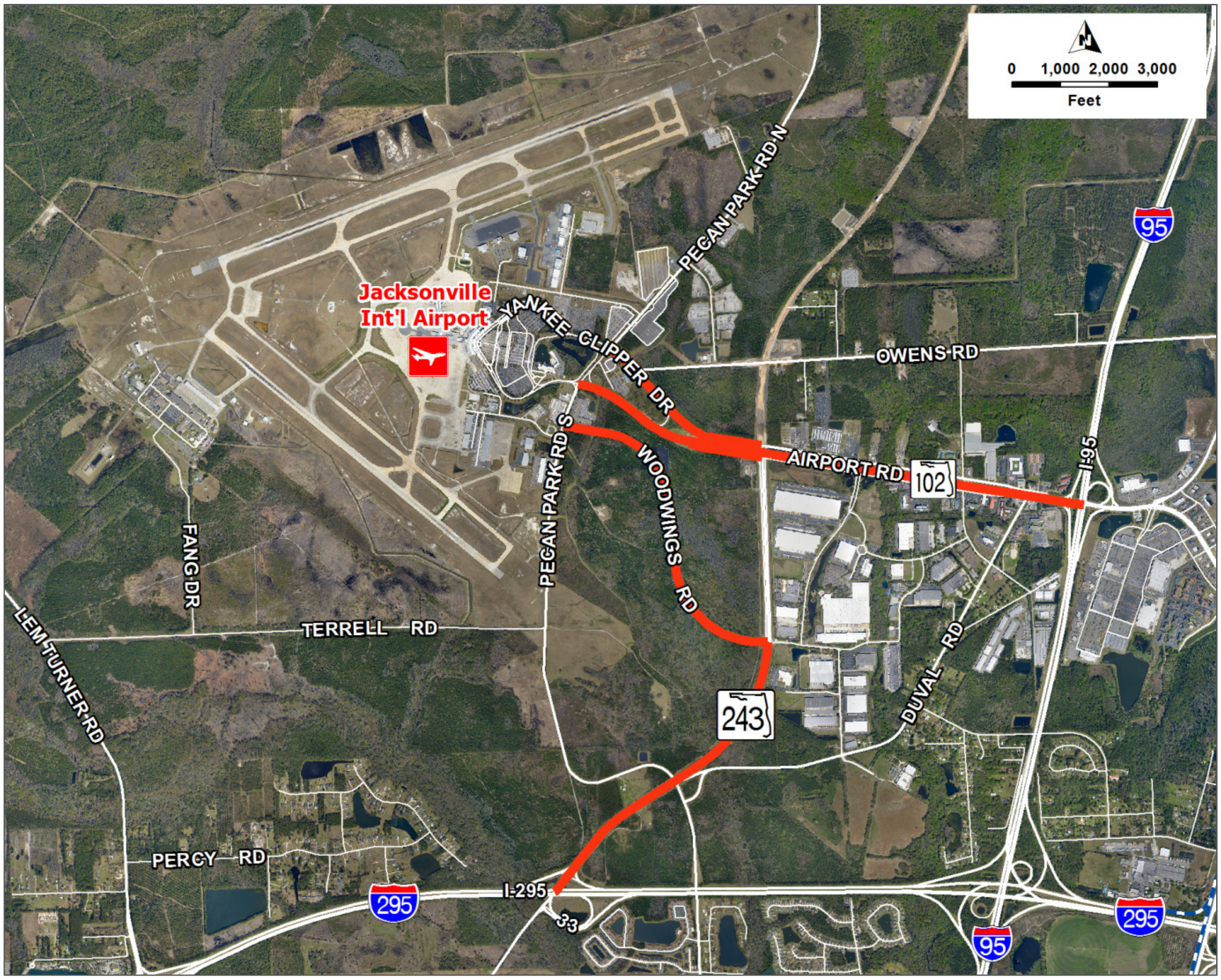
The primary highways providing access to JAX include I-95, I-295, and I-10. FDOT also recently opened a new intermodal access road, International Airport Boulevard, from I-295 to the existing main airport entrance road. This road provides a second direct link with the interstate highway system and will allow the airport to segregate truck traffic going to the air cargo facilities from passenger traffic using the main passenger terminal. International Airport Road has a Truck AADT of 246 trips.

Performance

The JAX Master Plan showed the volume of cargo transported in the belly compartments of passenger aircraft is forecast to increase an average of 2 percent per year during the planning period, from 3 million pounds in 2007 to 4.4 million pounds in 2027. Cargo volume carried by the all-cargo carriers is forecast to increase an average of 3.3 percent per year, from 75 million pounds in 2007 to 143 million pounds in 2027. ***Table 4-21*** details airport operational statistics in recent years for JAX.

Previous planning studies for Cecil Field Airport (VQQ) considered air cargo activity. The Master Plan Update acknowledges that to date regular air cargo activity has not been realized; however, it remains a goal of JAA to support this activity should the opportunity present itself. In the subsection on air cargo trends and forecasts the plan notes that the most likely all-cargo activity would occur to support industrial activities or the Cecil Commerce Center. Additionally, the Cecil Field Spaceport Master Plan notes the opportunity of suborbital point-to-point cargo transport.

Figure 4-24 | Air Cargo Access Routes: Jacksonville International Airport, 2015



Source: FDOT

Table 4-21 | Jacksonville International Airport: Operations Statistics, 2011 - 2015

Statistics	2011	2012	2013	2014	2015
Aircraft Operations	97,801	87,448	90,034	89,597	93,010
Enplanements	2,753,567	2,613,128	2,564,883	2,621,650	2,763,518
Deplanements	2,761,598	2,608,997	2,564,329	2,609,338	2,738,371
Total # Passengers	5,515,165	5,222,125	5,129,212	5,230,988	5,501,889
Air Cargo and Airmail (approx. in pounds)	145,296,000	149,824,000	146,122,982	142,615,679	145,108,001

Source: Jacksonville International Airport

Gainesville Regional Airport (GNV)

Type	Commercial Service
Address:	3880 NE 39th Ave, Gainesville, FL 32609
Code:	GNV
Operator:	Gainesville-Alachua County Regional Airport Authority

Gainesville Regional Airport (GNV) is located in northeast Gainesville off of SR 24. FedEx used to serve GNV but left in 2010. Currently, there is some belly cargo reported by GNV's commercial carriers, Delta and American Airlines.

Access

The primary highway routes leading to the airport from the north and south are I-75, US 441 and US 301. Access from the east and west is via SR 20, SR 26, and SR 232. The airport is access directly from SR 24 and SR 222.

Figure 4-25 | Air Cargo Access Routes: Gainesville Regional Airport, 2015

Source: FDOT

Performance

Gainesville Regional Airport's primary focus is passenger and recreational operations. Although, as a community service, Gainesville Regional is the busiest cargo station in the ASA/Delta Connection system due to high priority of movement of human tissue associated with hospital and biomedical activity. UAC also delivers blood, plasma and related supplies from Gainesville to Atlanta and four stops in Alabama for LifeSouth Community Blood Center 363 days per year. (Source: CFASPP, July 2008).

Table 4-22 details airport operational statistics in recent years for GNV.

Table 4-22 | Gainesville Regional Airport: Operations Statistics, 2011 - 2015

Statistics	2011	2012	2013	2014	2015
Aircraft Operations	16,640	15,917	16,678	14,784	15,138
Enplanements	48,457	51,821	53,257	58,009	57,354
Deplanements	47,0994	50,466	51,748	56,806	55,928
Total # Passengers	95,551	102,287	105,005	113,282	113,091
Air Cargo and Airmail (approx. in pounds)	679	629	1,090	2744	149

Source: Gainesville-Alachua County Regional Airport Authority

Northeast Florida Regional Airport (UST/SGJ)

NFRA	*Type*	Commercial Service
	Address:	4900 US-1, St. Augustine, FL 32095
	Code:	UST / SGJ
	Operator:	St. Augustine-St. Johns County Airport Authority

Northeast Florida Regional Airport (UST) is located in St. Johns County in Northeastern Florida along the Atlantic Coast, approximately 35 miles south of Jacksonville and 65 miles north of Daytona Beach and just a few miles from historic downtown St. Augustine.

Access

The primary highway access to UST from the north and south is US Highway 1, with additional access facilitated by I-95 and SR 16 from the west.

Performance

Northeast Florida Regional Airport recently attained its commercial service airport status in October 2016. Currently, the airport does not offer air cargo services.

Figure 4-26 | Air Cargo Access Routes: Northeast Florida Regional Airport, 2015

Source: FDOT

Freight Corridor Profiles

Individual profiles have been developed based on available facility, mobility, and commodity-based data for the following roadway corridors in Northeast Florida:

- Interstate 95 (Districtwide)
- Interstate 75 (Districtwide)
- Interstate 10 (Districtwide)
- Interstate 295 (Districtwide)
- State Road 26 (Gilchrist County to I-75 in Alachua County)
- US Route 17 (Volusia County Line to SR 207 in East Palatka)
- US Route 1 / 23 (I-295 to Georgia State Line)
- State Road 207 (I-95 to SR 100)
- State Road 100 (Palatka to SR 207 in East Palatka)
- State Road 100 (I-10 in Columbia County to US 301 in Starke)
- State Road 100 (US 301 in Starke to Palatka)
- State Road 100 (US 17 in Putnam County to Flagler County Line)
- State Road 200 / A1A (US 301 in Callahan to I-95 in Nassau County)
- State Road 331 (I-75 in Alachua County to SR 20 in Gainesville)
- US Route 301 (I-10 in Duval County to US 1 in Callahan)
- US Route 301 (Marion County Line to I-10 in Duval County)
- State Road 20 (Gainesville to Palatka)
- US Route17 (Palatka to I-295)
- US Route 19 / 27 (US 98 in Perry to Jefferson County Line)
- US Route 19 / 98 (Citrus County Line to US 27 in Perry)
- US Route 27A (US 19/98 in Chiefland to Marion County Line)

Interstate 95

Districtwide

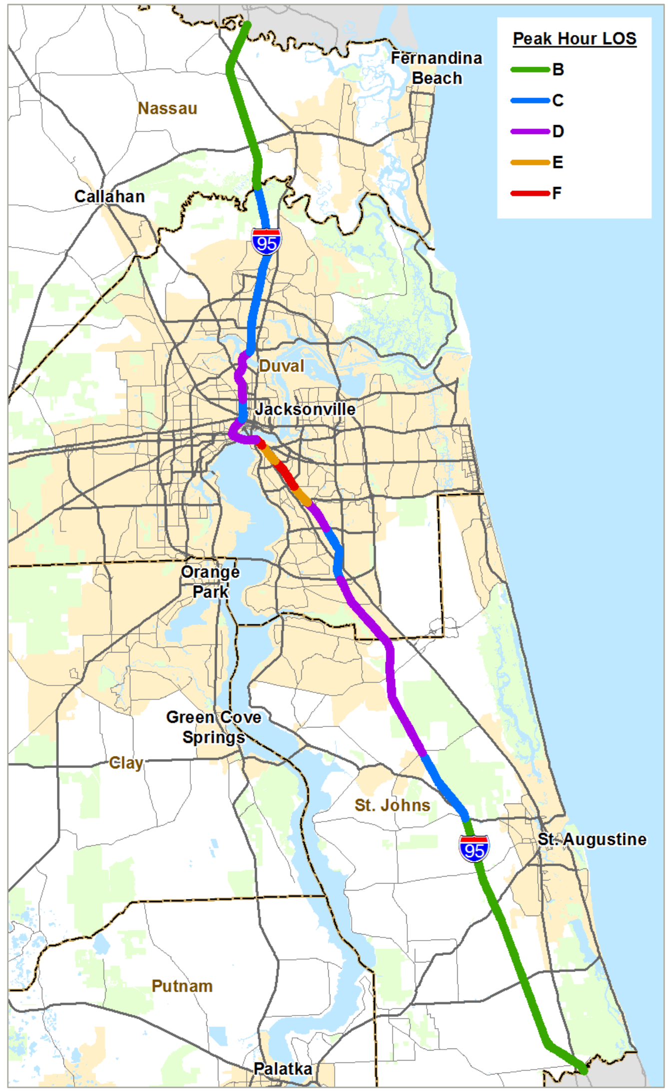
84.8	512.5
Centerline Miles	Lane Miles

Designation

Functional Classification	Principal Arterial - Interstate
Strategic Intermodal System	SIS Corridor
National Freight Network	NMFN Highway Route

2015

8,564
Average Daily Truck Trips



Daily Activity

11.4% Percent of Truck Traffic

75,124 Annual Average Daily Trips

62 MPH Average Speed

Source: Florida Department of Transportation, 2015

19 REST AREAS
Within a 20 Mile Buffer of the Corridor

262
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

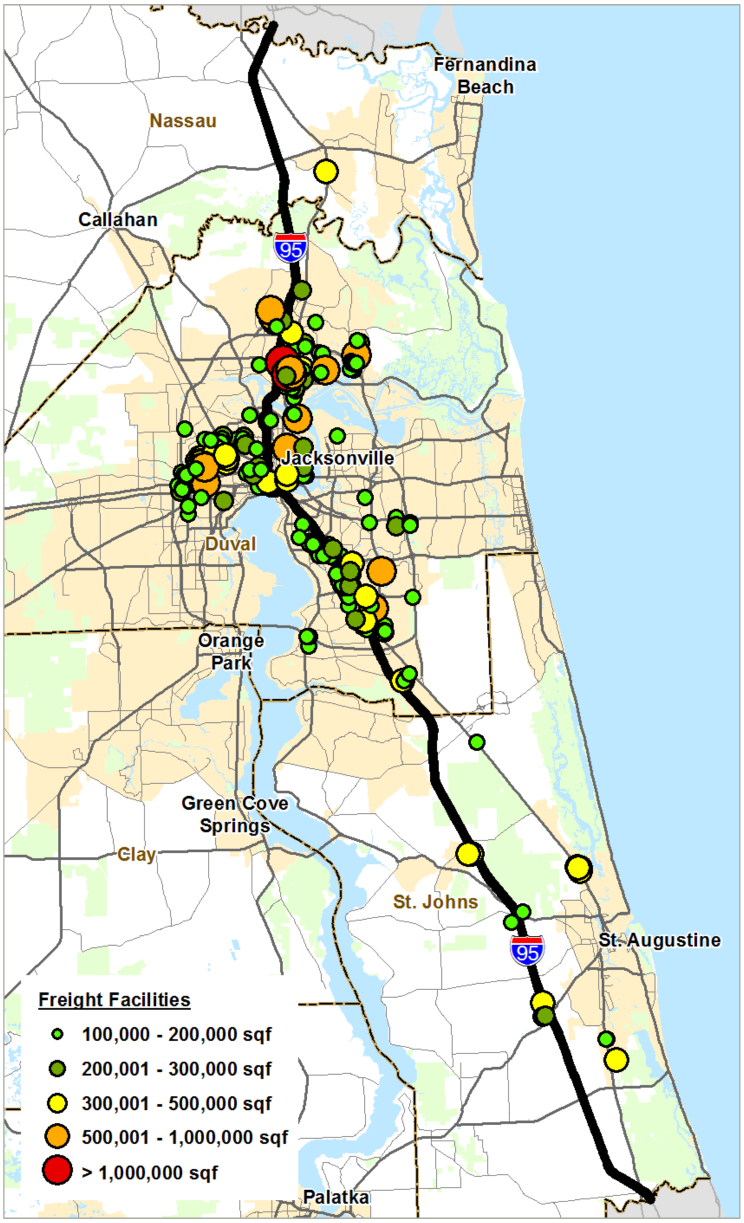
In 2015

68,225,476

Tons of goods traveled
Along the corridor,
valued at

$157.5 Billion

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Warehouse Goods
2	Concrete Products
3	Citrus Fruits
4	Primary Forest Materials
5	Motor Vehicles

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Duval County, FL	18.50%	Savannah, GA	8.47%	Miami-Dade County, FL	5.53%	Charleston, SC	3.56%	Broward County, FL	3.24%
Destinations	Duval County, FL	18.12%	Miami-Dade County, FL	8.94%	New York, NY	5.38%	Savannah, GA	4.48%	Broward County, FL	4.35%

Interstate 75

Districtwide

98	588
Centerline Miles	Lane Miles

Designation

Functional Classification	Principal Arterial - Interstate
Strategic Intermodal System	SIS Corridor
National Freight Network	NMFN Highway Route

10,017
Average Daily Truck Trips
2015

Daily Activity

22.5% Percent of Truck Traffic

44,523 Annual Average Daily Trips

64 MPH Average Speed

Source: Florida Department of Transportation, 2015

31 REST AREAS
Within a 20 Mile Buffer of the Corridor

14
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

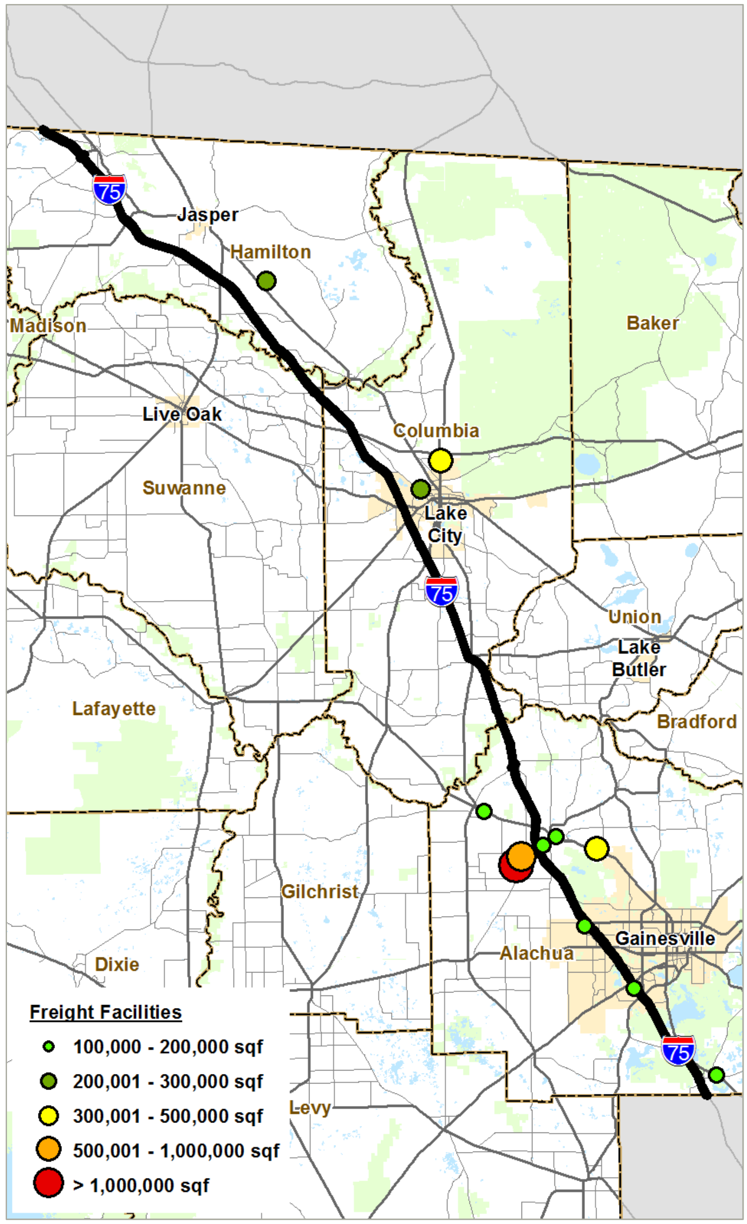
In 2015

76,422,038

Tons of goods traveled
Along the corridor,
valued at

$161.5 Billion

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Warehouse Goods
2	Liquefied Gasses, Coal or Petroleum
3	Citrus Fruits
4	Processed Milk
5	Distilled / Blended Liquors

Source: IHS Global Insight - TRANSEARCH, 2015

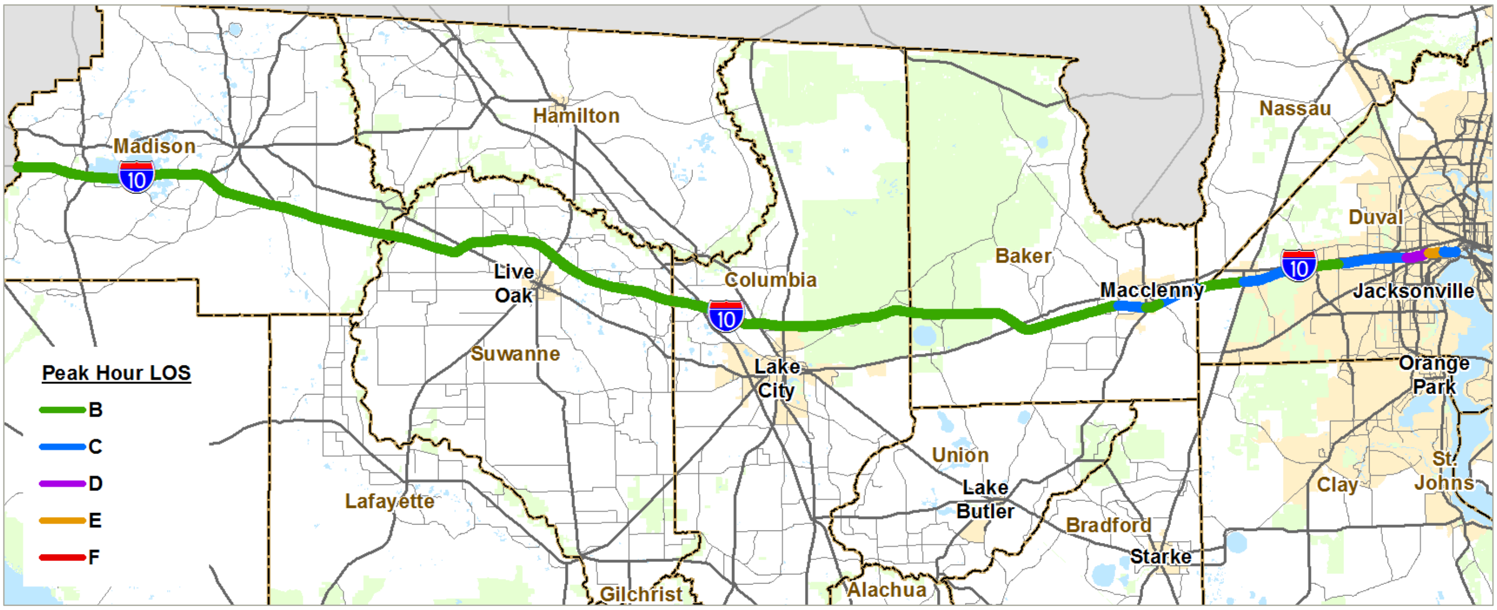
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Miami-Dade County, FL	6.45%	Atlanta, GA	5.69%	Los Angeles, CA	4.08%	Albany, GA	3.69%	Hillsborough County, FL	3.51%
Destinations	Miami-Dade County, FL	16.19%	Broward County, FL	7.81%	Orange County, FL	5.73%	Palm Beach County, FL	4.88%	Hillsborough County, FL	3.62%

INTERSTATE 10

Districtwide

126.5	532.1
CENTERLINE MILES	LANE MILES



DESIGNATION

Functional Classification	Principal Arterial - Interstate
Strategic Intermodal System	SIS Corridor
National Freight Network	NMFN Highway Route

6,473 Average Daily Truck Trips (2015)

DAILY ACTIVITY

23.3% Percent of Truck Traffic

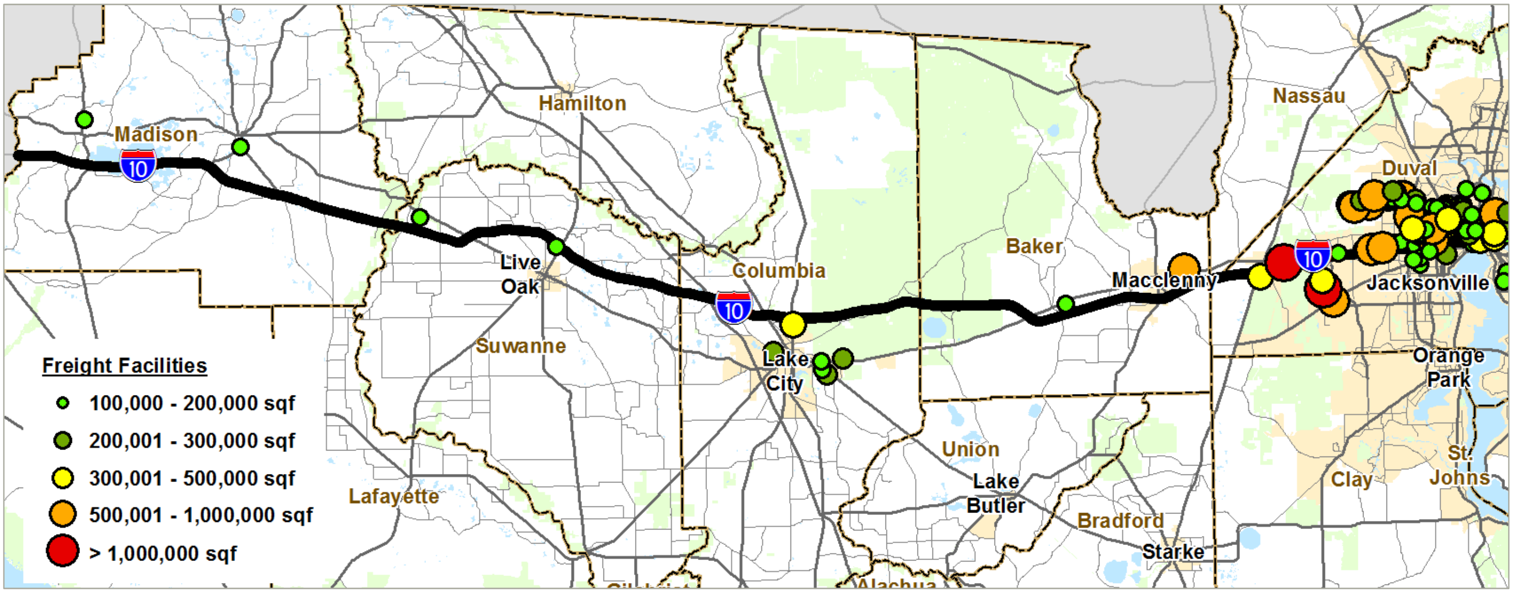
27,782 Annual Average Daily Trips

63 MPH Average Speed

Source: Florida Department of Transportation, 2015

39 REST AREAS
Within a 20 Mile Buffer of the Corridor

173
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Warehouse Goods
2	Liquefied Gasses Coal or Petroleum
3	Concrete Products
4	Citrus Fruits
5	Lumber/Dimension Stock

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

60,751,862

Tons of goods traveled Along the corridor, valued at

$130.2 Billion

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Duval County, FL	8.78%	Los Angeles, CA	5.49%	Houston, TX	4.78%	Miami-Dade	4.27%	Hillsborough County, FL	3.58%
Destinations	Miami-Dade County, FL	11.88%	Duval County, FL	9.40%	Broward County, FL	5.69%	Orange County, FL	3.71%	Palm Beach County, FL	3.39%

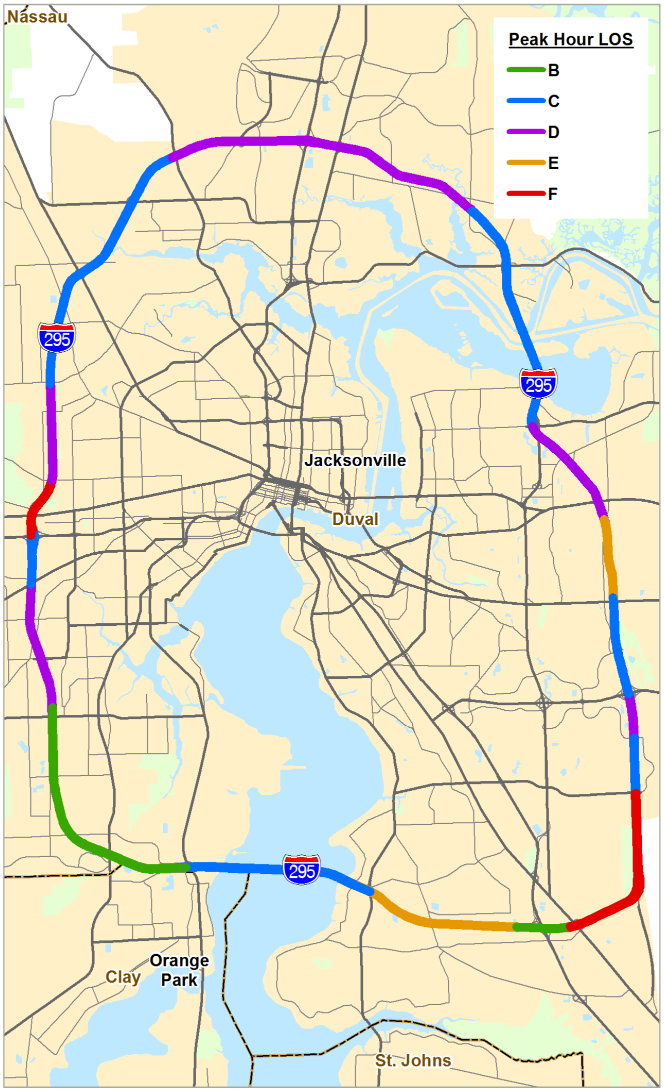
INTERSTATE 295

Districtwide

60.8	312
CENTERLINE MILES	LANE MILES

DESIGNATION

Functional Classification	Principal Arterial - Interstate
Strategic Intermodal System	SIS Corridor
National Freight Network	NMFN Highway Route



8,708
Average Daily Truck Trips
2015

DAILY ACTIVITY

11.4% Percent of Truck Traffic

76,389 Annual Average Daily Trips

62 MPH Average Speed

Source: Florida Department of Transportation, 2015

16 REST AREAS
Within a 20 Mile Buffer of the Corridor

305
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

In 2015

42,582,722

Tons of goods traveled
Along the corridor,
valued at

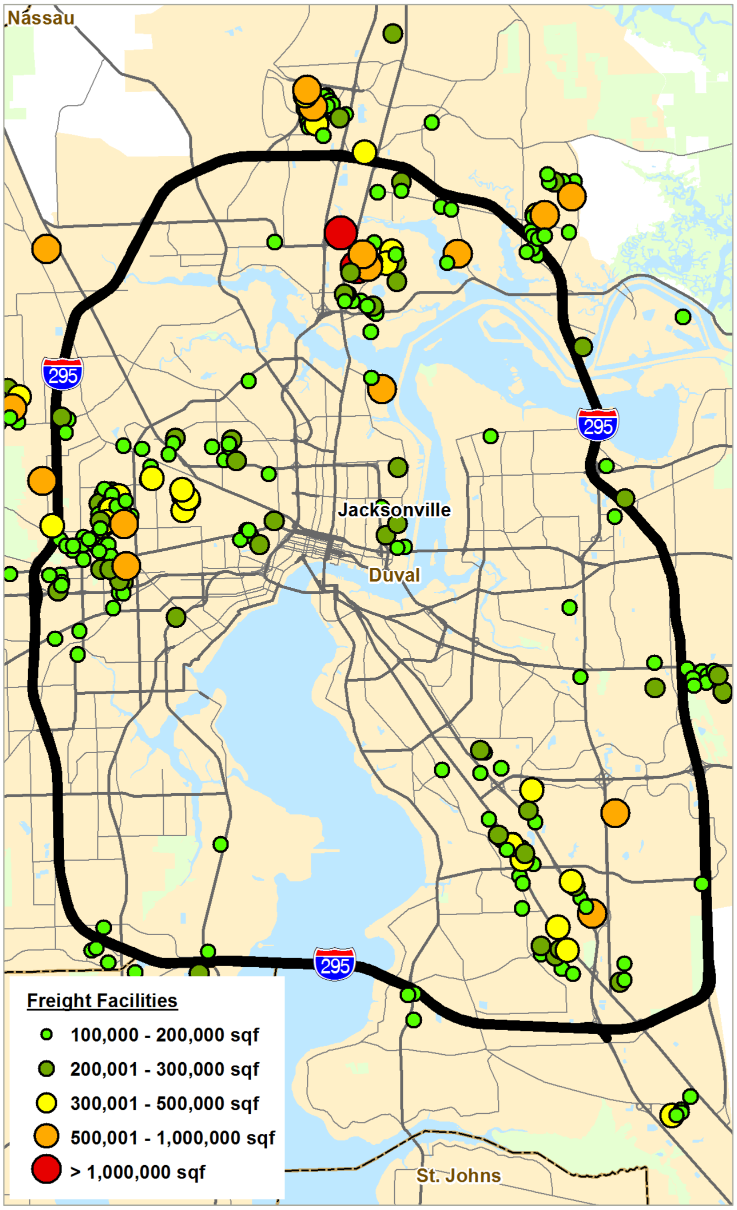
$105.5 Billion

Source: IHS Global Insight - TRANSEARCH, 2015

Top Corridor Commodities

1	Warehouse Goods
2	Concrete Products
3	Citrus Fruits
4	Lumber / Dimension Stock
5	Primary Forest Products

Source: IHS Global Insight - TRANSEARCH, 2015



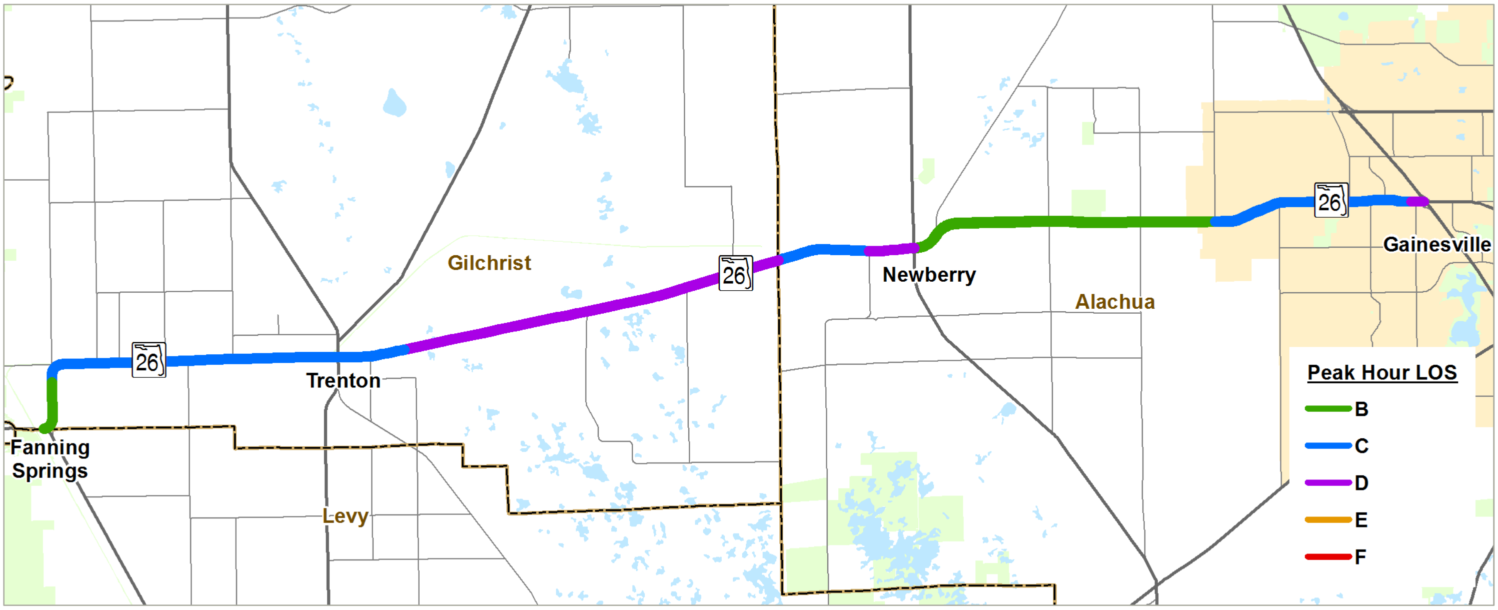
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Savannah, GA	10.48%	Charleston, SC	4.83%	Miami-Dade County, FL	4.61%	Hillsborough County, FL	4.58%	Palm Beach County, FL	4.04%
Destinations	Miami-Dade County, FL	12.72%	New York, NY	8.29%	Broward County, FL	6.05%	Orange County, FL	4.44%	Palm Beach County, FL	4.36%

STATE ROAD 26

Gilchrist County to I-75 in Alachua

32.4	87.1
CENTERLINE MILES	LANE MILES



DESIGNATION

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

618
Average Daily Truck Trips
2015

DAILY ACTIVITY

4.9% Percent of Truck Traffic

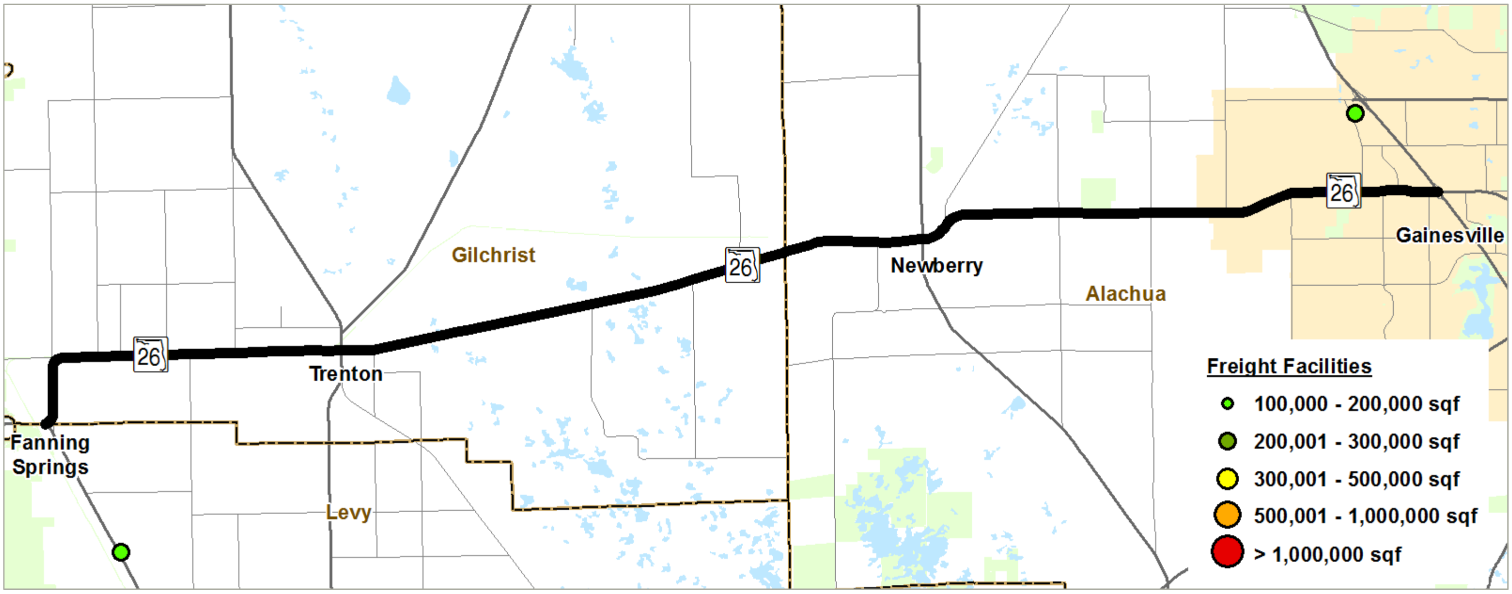
12,624 Annual Average Daily Trips

48 MPH Average Speed

Source: Florida Department of Transportation, 2015

4 **REST AREAS**
Within a 20 Mile Buffer of the Corridor

3
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Primary Forest Materials
2	Broken Stone / Riprap
3	Warehouse Goods
4	Gravel / Sand
5	Ready-Mix Wet Concrete

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

577,293

Tons of goods traveled Along the corridor, valued at

$234.9 Million

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Taylor County, FL	25.14%	Gilchrist County, FL	15.40%	Dixie County, FL	13.77%	Sumter County, FL	8.96%	Miami-Dade County, FL	8.78%
Destinations	Gilchrist County, FL	31.41%	Alachua County, FL	22.38%	Putnam County, FL	12.49%	Dixie County, FL	7.58%	Taylor County, FL	6.58%

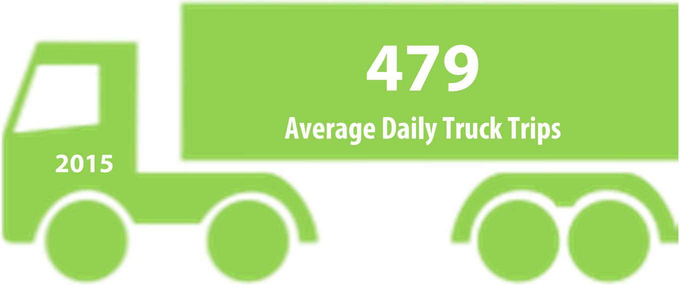
US Route 17

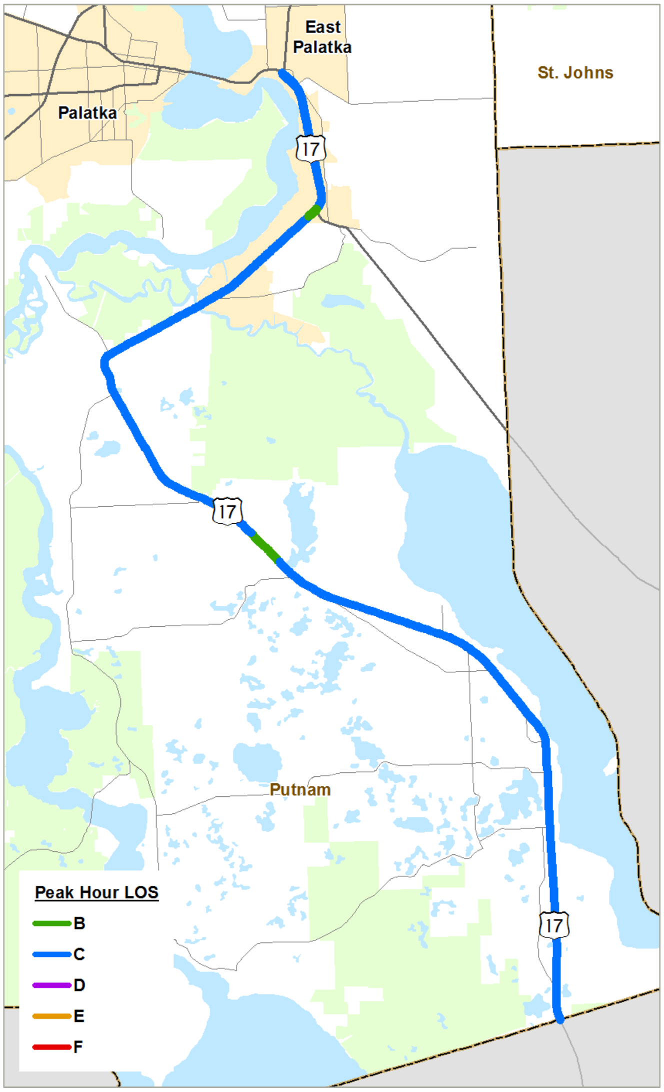
Volusia County Line to SR 207 in East Palatka

26.6	61.5
Centerline Miles	Lane Miles

Designation

Functional Classification	Principal Arterial -Other
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation





Daily Activity

6.2% Percent of Truck Traffic

7,732 Annual Average Daily Trips

51 MPH Average Speed

Source: Florida Department of Transportation, 2015

5 REST AREAS
Within a 20 Mile Buffer of the Corridor

4
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

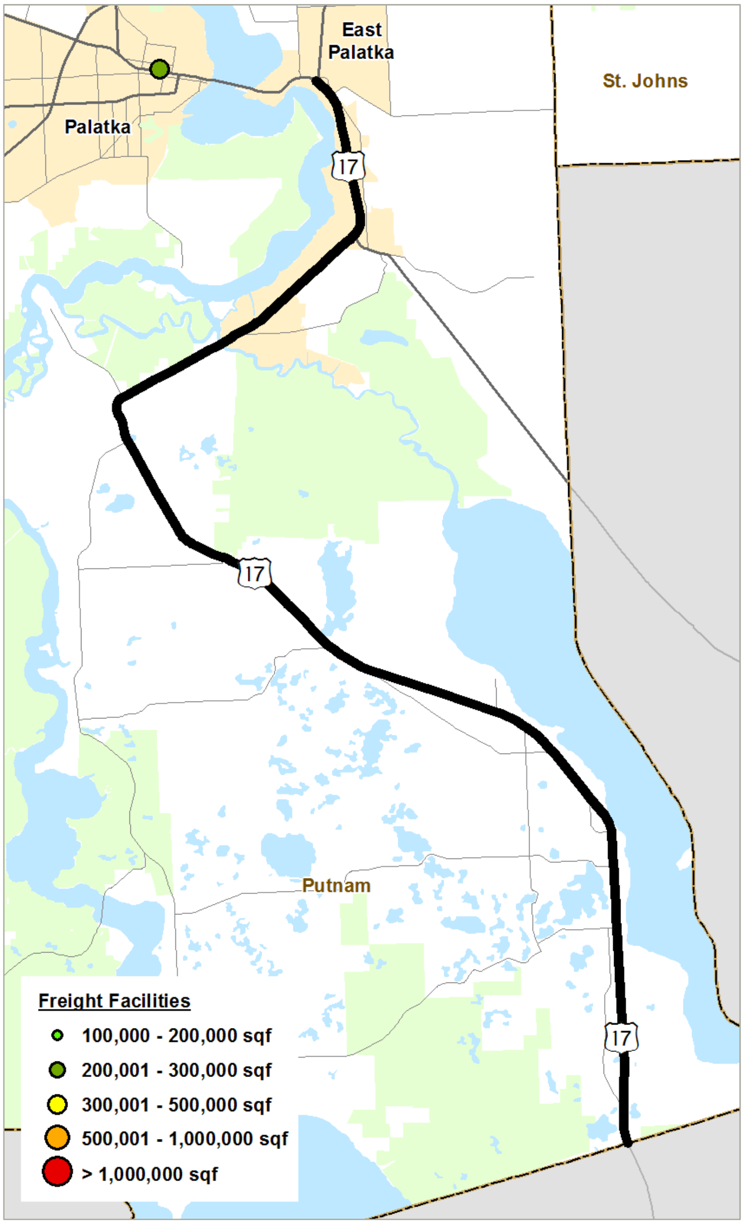
In 2015

179,888

Tons of goods traveled
Along the corridor,
valued at

$110.7 Million

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Broken Stone / Riprap
2	Warehouse Goods
3	Lumber / Dimension Stock
4	Ready-Mix Wet Concrete
5	Misc. Sawmill / Planning Mill

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Alachua County, FL	35.83%	Miami-Dade County, FL	18.62%	Bradford County, FL	16.92%	Union County, FL	7.97%	Seminole County, FL	5.43%
Destinations	Flagler County, FL	42.80%	Bradford County, FL	28.18%	Miami-Dade County, FL	6.00%	Volusia County, FL	5.41%	Seminole County, FL	3.63%

US Route 1/23

I-295 to Georgia State Line

17.8	70.2
Centerline Miles	Lane Miles

Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

2015

2,154
Average Daily Truck Trips

Daily Activity

18.6% Percent of Truck Traffic

11,583 Annual Average Daily Trips

54 MPH Average Speed

Source: Florida Department of Transportation, 2015

8 REST AREAS
Within a 20 Mile Buffer of the Corridor

0
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

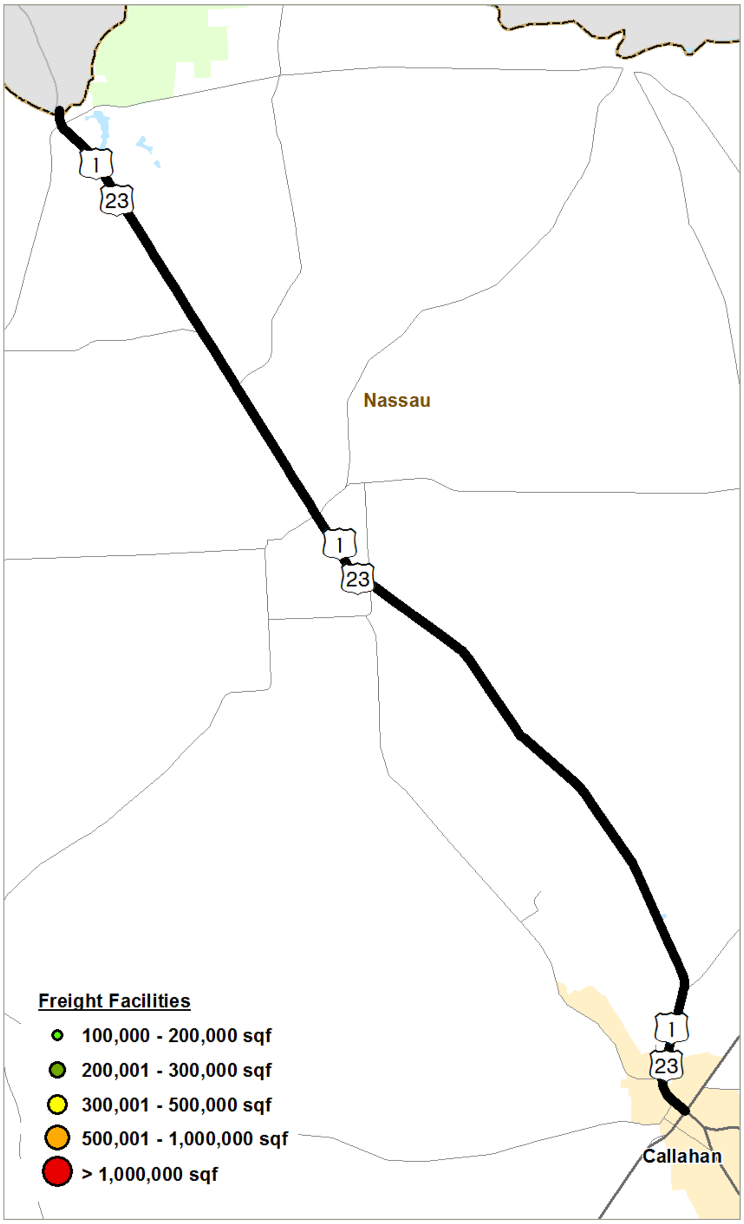
In 2015

2,227,621

Tons of goods traveled
Along the corridor,
valued at

$2.89 Billion

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Primary Forest Materials
2	Misc. Sawmill / Planning Mill
3	Processed Non-Metal Minerals
4	Lumber / Dimension Stock
5	Asphalt Paving Blocks / Mix

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Macon, GA	30.55%	Jacksonville, FL	26.73%	Duval County, FL	14.40%	Nassau County, FL	9.56%	Nassau County, FL	4.79%
Destinations	Jacksonville, FL	21.05%	Macon, GA	11.65%	Duval County, FL	10.78%	Miami-Dade County, FL	7.08%	Nassau County, FL	6.33%

STATE ROAD 207

I-95 to SR 100

19.4	77.5
CENTERLINE MILES	LANE MILES

DESIGNATION

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

2015

829
Average Daily Truck Trips

DAILY ACTIVITY

6.1% Percent of Truck Traffic

13,601 Annual Average Daily Trips

55 MPH Average Speed

Source: Florida Department of Transportation, 2015

9 REST AREAS
Within a 20 Mile Buffer of the Corridor

11
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

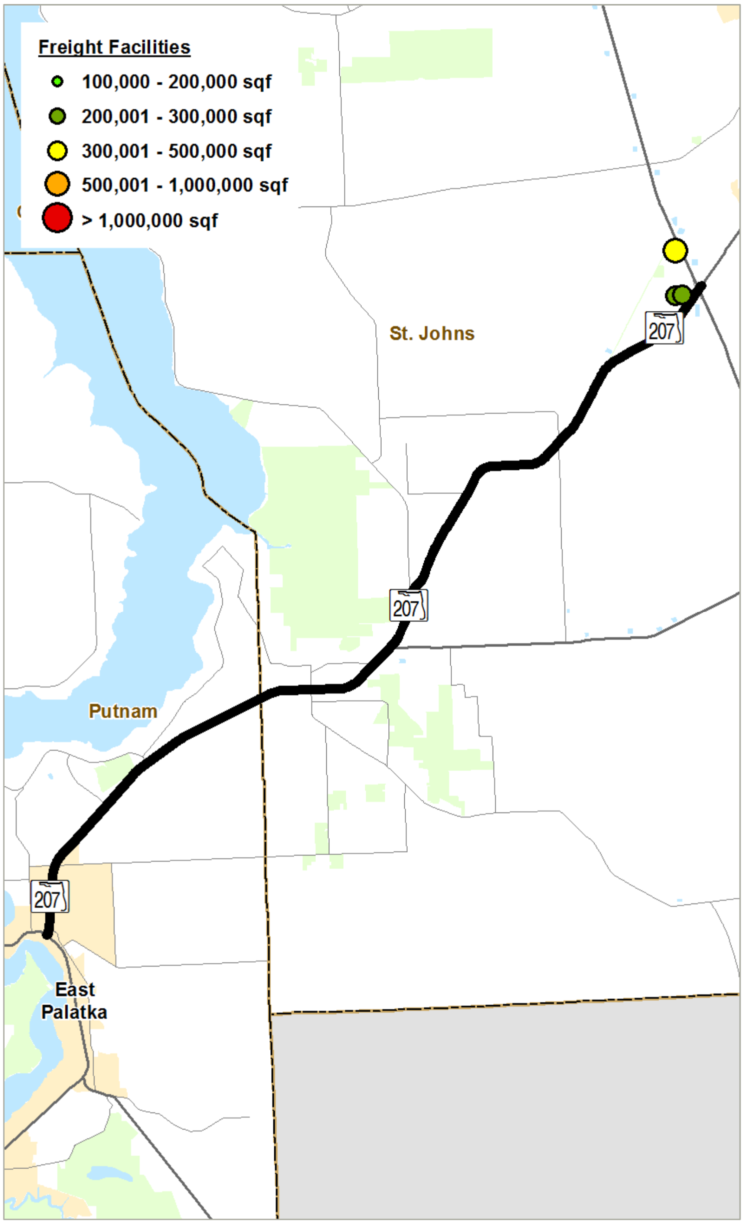
In 2015

454,287

Tons of goods traveled
Along the corridor,
valued at

$264.7 Million

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Ready-Mix Wet Concrete
2	Gravel / Sand
3	Concrete Products
4	Asphalt Paving Blocks / Mix
5	Primary Forest Products

Source: IHS Global Insight - TRANSEARCH, 2015

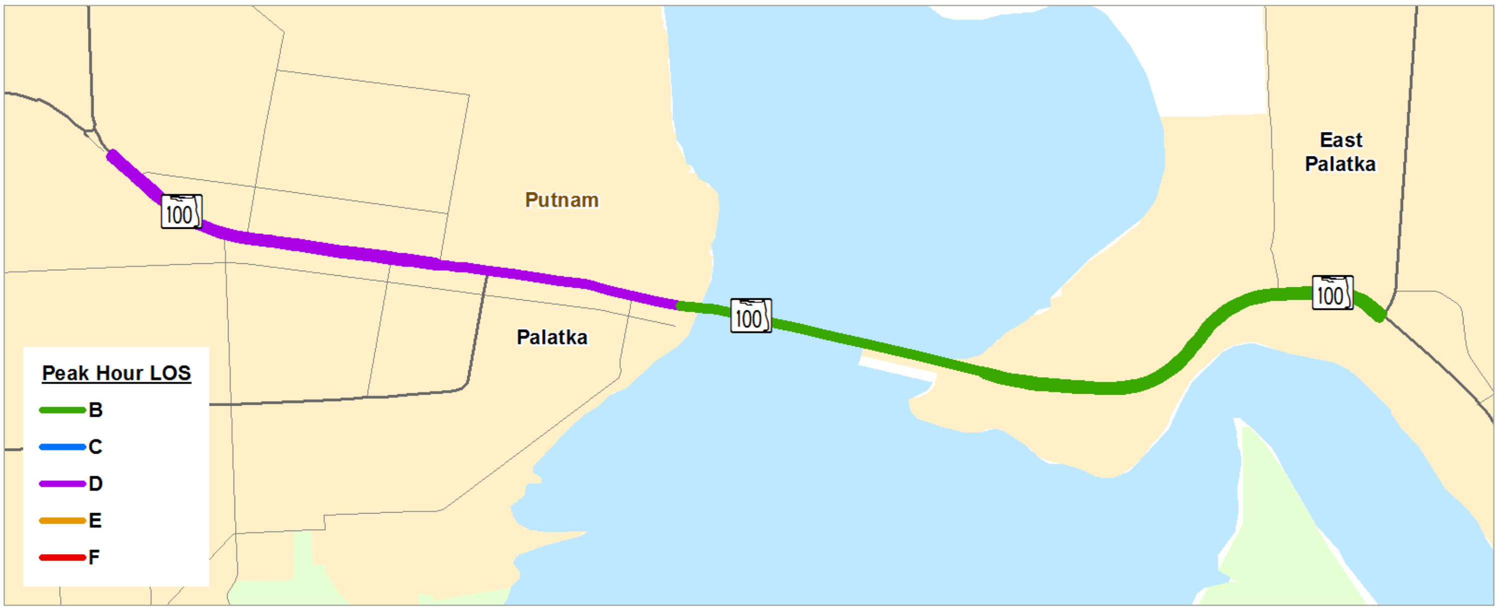
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Putnam County, FL	55.77%	Duval County, FL	24.36%	Marion County, FL	9.17%	St. Johns County, FL	8.22%	Pasco County, FL	1.14%
Destinations	Duval County, FL	35.79%	St. Johns County, FL	31.62%	Putnam County, FL	26.32%	Marion County, FL	5.29%	Pasco County, FL	0.56%

STATE ROAD 100

Palatka to SR 207 in East Palatka

3.8	14.9
CENTERLINE MILES	LANE MILES



DESIGNATION

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

1,697
Average Daily Truck Trips
2015

DAILY ACTIVITY

6.1% Percent of Truck Traffic

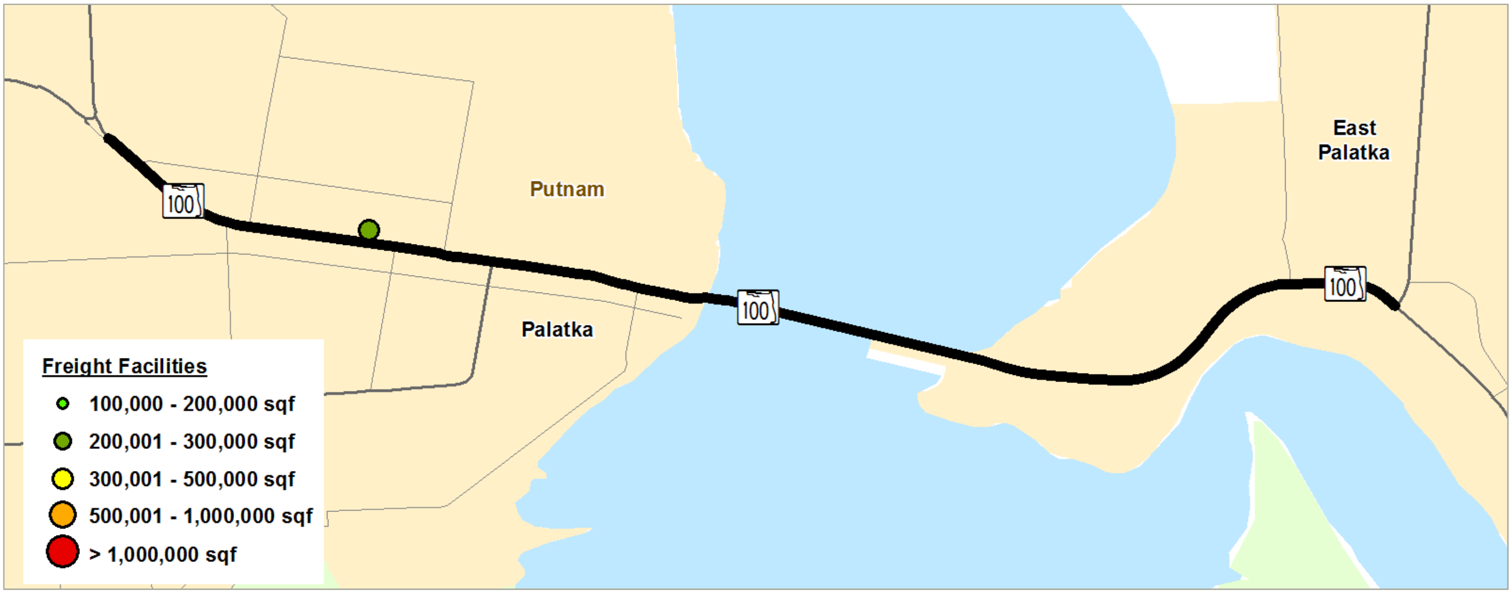
27,831 Annual Average Daily Trips

34 MPH Average Speed

Source: Florida Department of Transportation, 2015

5 REST AREAS
Within a 20 Mile Buffer of the Corridor

5
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Ready-Mix Wet Concrete
2	Broken Stone / Riprap
3	Gravel / Sand
4	Concrete Products
5	Warehouse Goods

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

634,174

Tons of goods traveled Along the corridor, valued at

$375.4 Million

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Putnam County, FL	39.95%	Duval County, FL	17.44%	Alachua County, FL	10.16%	Marion County, FL	6.57%	St. Johns County, FL	5.89%
Destinations	Duval County, FL	25.64%	St. Johns County, FL	22.64%	Putnam County, FL	18.85%	Flagler County, FL	12.14%	Bradford County, FL	7.99%

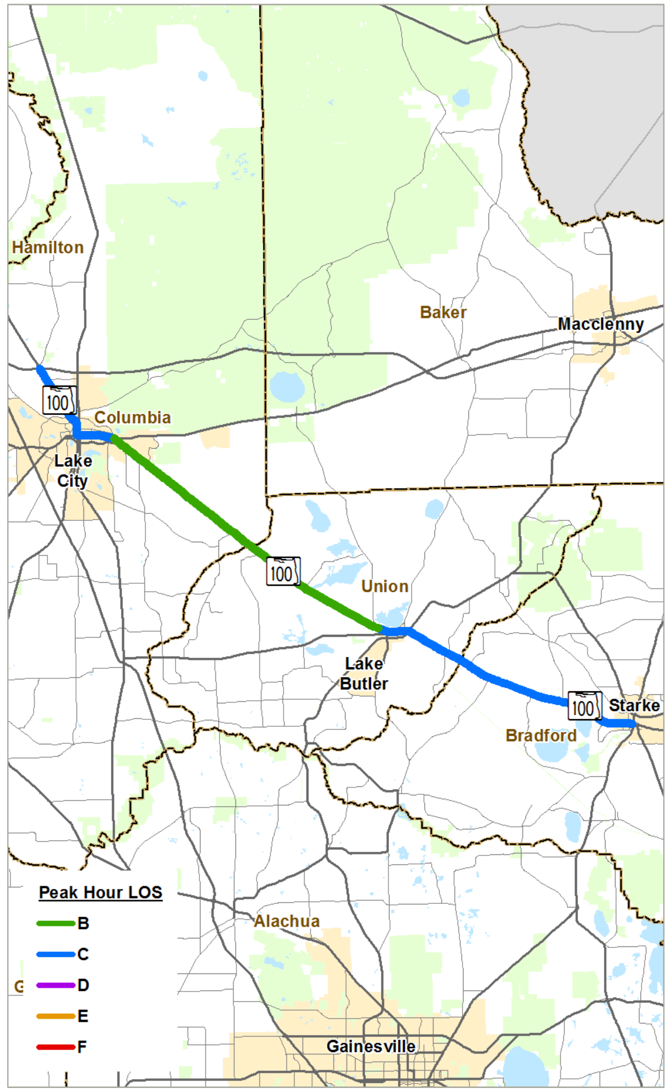
State Road 100

I-10 in Columbia County to US 301 in Starke

41.2	92.2
Centerline Miles	Lane Miles

Designation

Functional Classification	Minor Arterial
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation



695
Average Daily Truck Trips
2015

Daily Activity

13.9% Percent of Truck Traffic

5,002 Annual Average Daily Trips

52 MPH Average Speed

Source: Florida Department of Transportation, 2015

19 REST AREAS
Within a 20 Mile Buffer of the Corridor

7
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

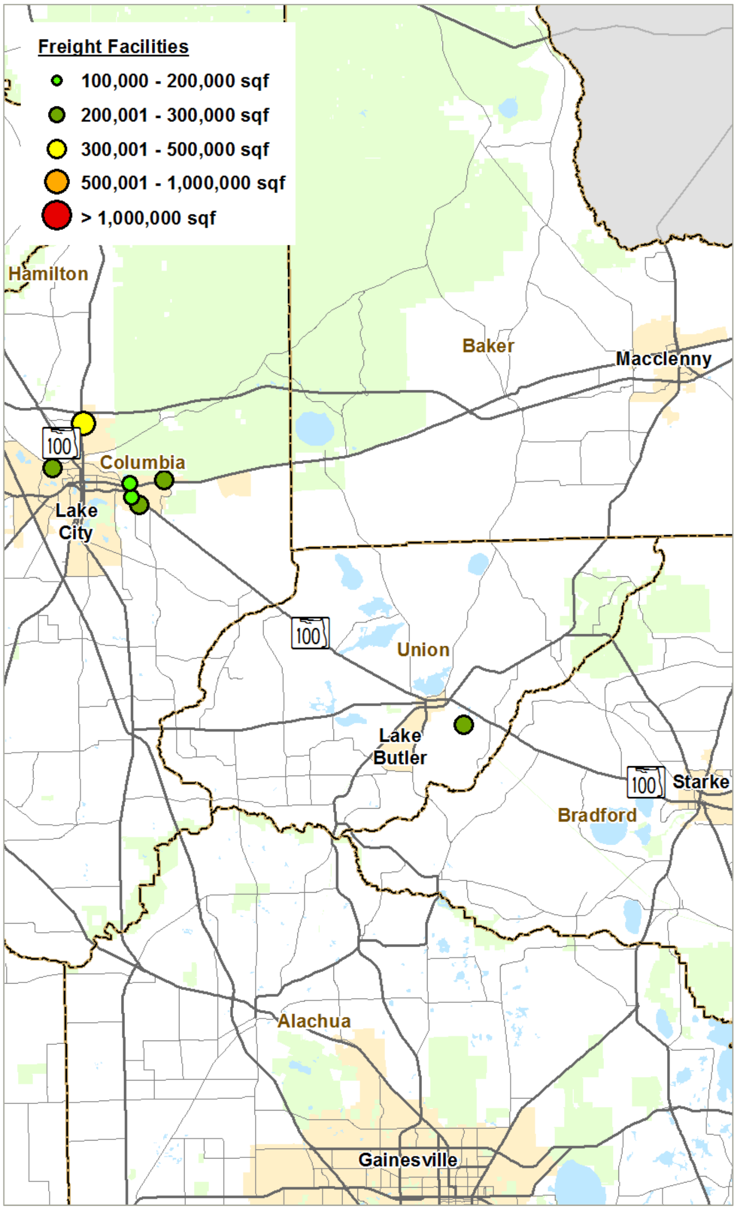
In 2015

2,379,873

Tons of goods traveled
Along the corridor,
valued at

$1.5 Billion

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Broken Stone / Riprap
2	Primary Forest Materials
3	Warehouse Goods
4	Ready-Mix Wet Concrete
5	Paper

Source: IHS Global Insight - TRANSEARCH, 2015

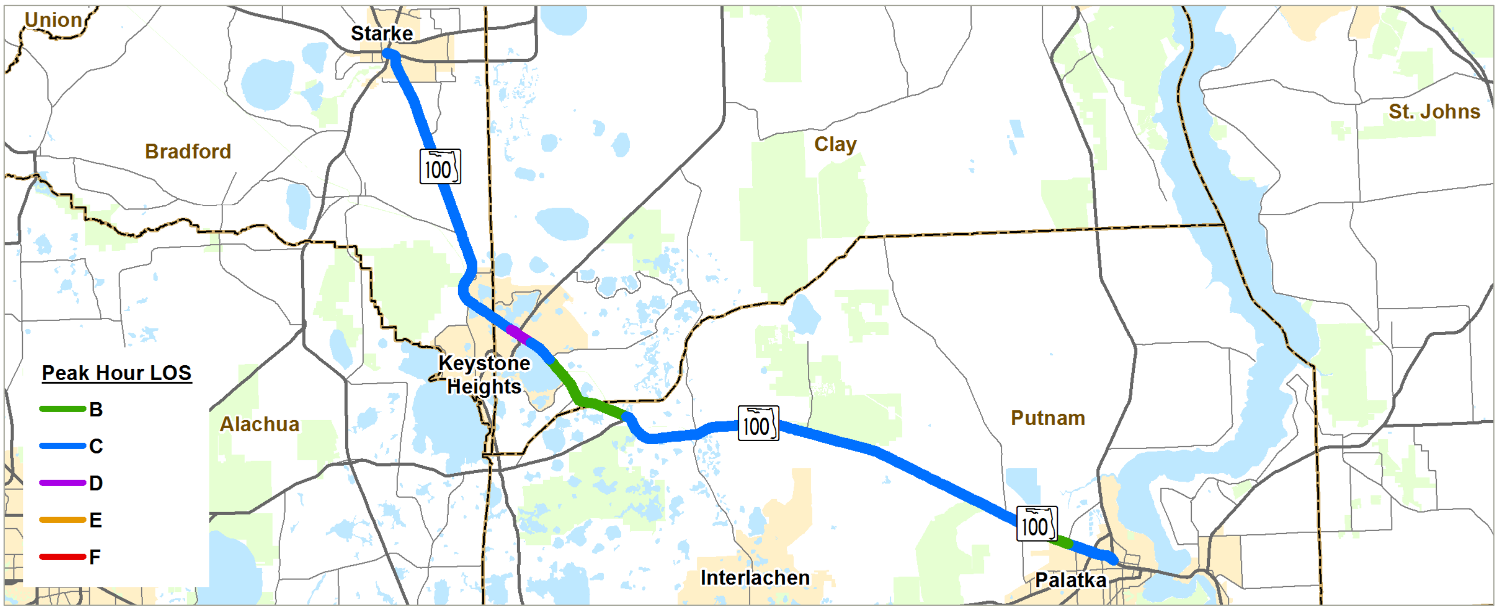
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Columbia County, FL	39.01%	Putnam County, FL	10.21%	Duval County, FL	6.55%	Macon, GA	4.44%	Clay County, FL	4.31%
Destinations	Duval County, FL	29.79%	Putnam County, FL	13.39%	Columbia County, FL	10.62%	Union County, FL	4.88%	Clay County, FL	4.57%

State Road 100

US 301 in Starke to Palatka

38.2	79.2
Centerline Miles	Lane Miles



Designation

Functional Classification	Minor Arterial
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation

776
Average Daily Truck Trips
2015

Daily Activity

10.7% Percent of Truck Traffic

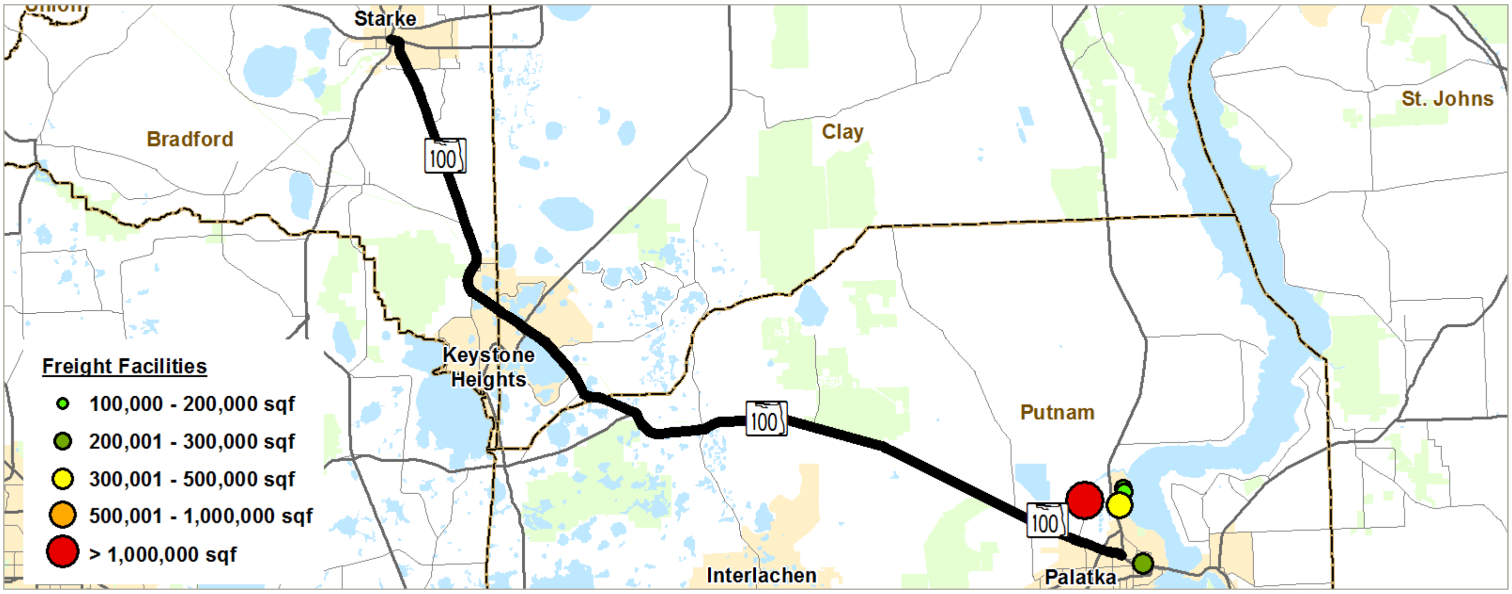
7,259 Annual Average Daily Trips

Unavailable Average Speed

Source: Florida Department of Transportation, 2015

10 REST AREAS
Within a 20 Mile Buffer of the Corridor

5
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Primary Forest Materials
2	Paper
3	Warehouse Goods
4	Processed Non-metal minerals
5	Gypsum Products

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

745,556

Tons of goods traveled Along the corridor, valued at

$597.4 Million

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Putnam County, FL	36.18%	Macon, GA	13.16%	Bradford County, FL	4.99%	Miami-Dade County, FL	4.49%	Suwannee County, FL	4.16%
Destinations	Putnam County, FL	50.64%	Bradford County, FL	7.46%	Mexico City, Mexico	4.46%	Mexico City, Mexico	4.13%	Atlanta, GA	3.68%

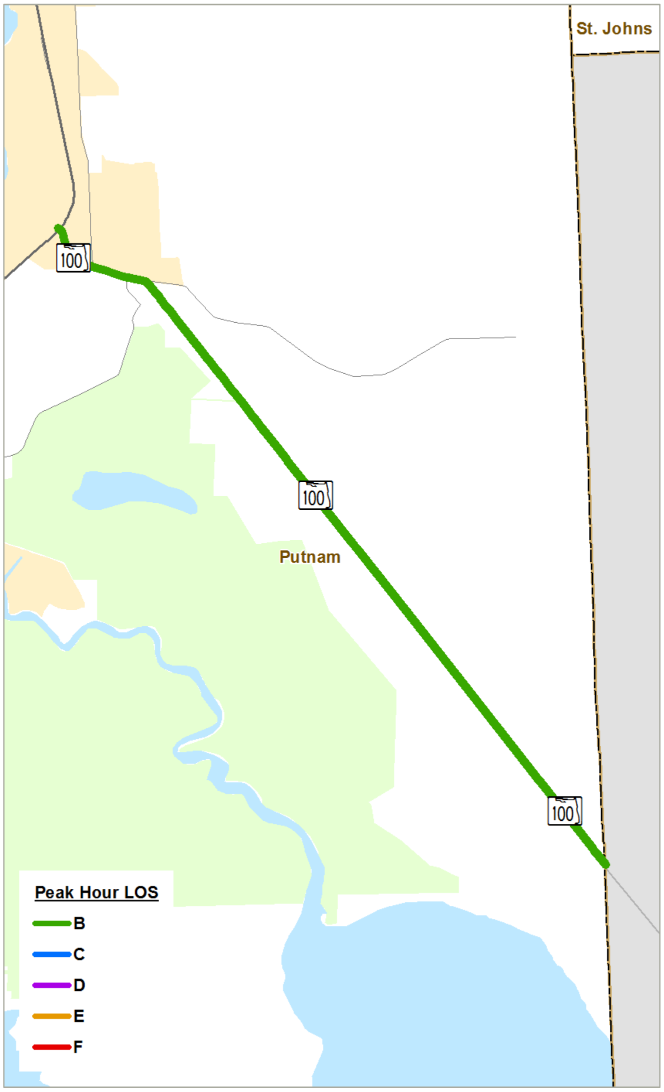
STATE ROAD 100

US 17 in Putnam County to Flagler County Line

6.1	12.2
CENTERLINE MILES	LANE MILES

DESIGNATION

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation



546
Average Daily Truck Trips
2015

DAILY ACTIVITY

13% Percent of Truck Traffic

4,200 Annual Average Daily Trips

58 MPH Average Speed

Source: Florida Department of Transportation, 2015

5 REST AREAS
Within a 20 Mile Buffer of the Corridor

1
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

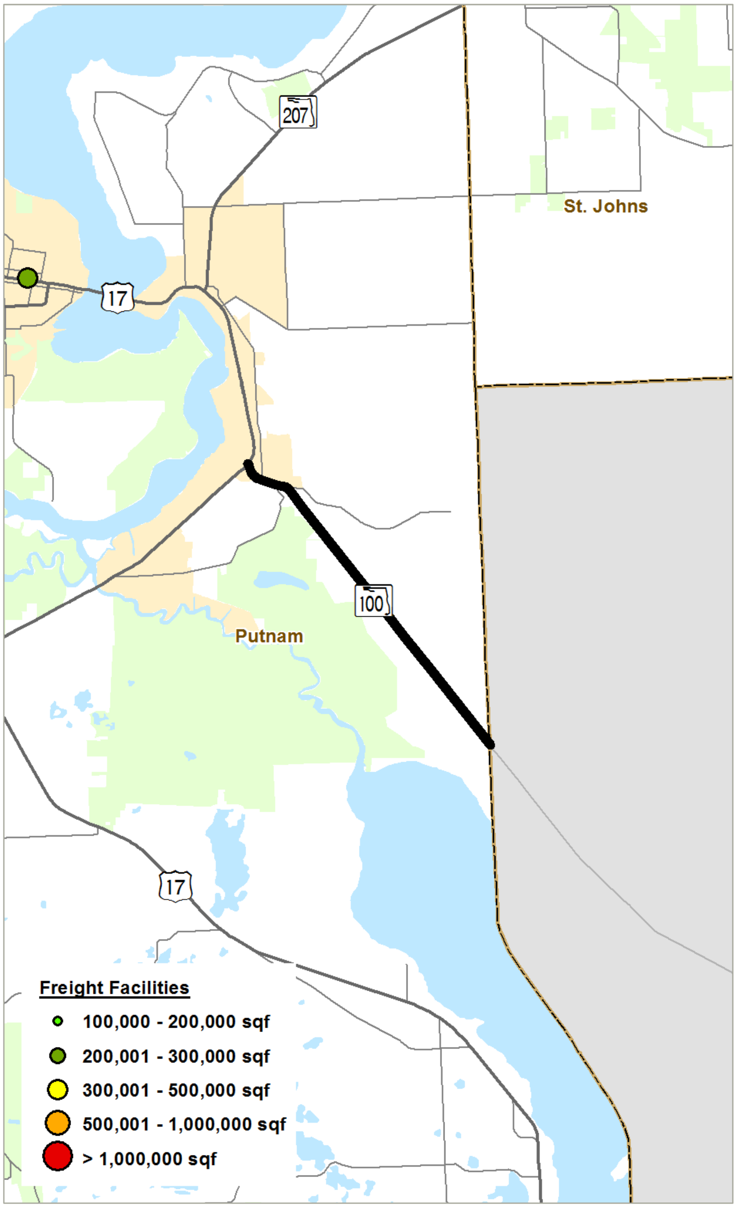
In 2015

478,617

Tons of goods traveled
Along the corridor,
valued at

$388.7 Million

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Warehouse Goods
2	Broken Stone / Riprap
3	Gypsum Products
4	Ready-Mix Wet Concrete
5	Lumber / Dimension Stock

Source: IHS Global Insight - TRANSEARCH, 2015

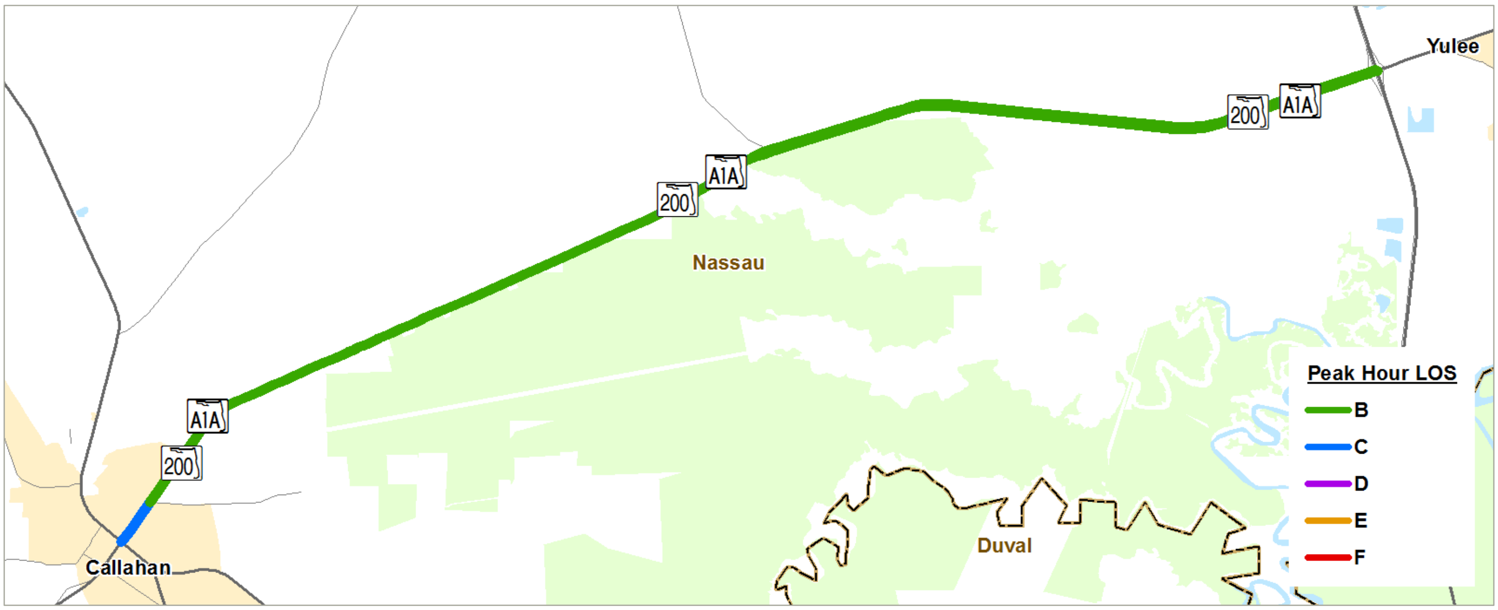
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Putnam County, FL	29.93%	Miami-Dade County, FL	25.19%	Alachua County, FL	13.47%	Bradford County, FL	6.36%	Miami-Dade County, FL	5.59%
Destinations	Putnam County, FL	32.49%	Flagler County, FL	19.42%	Bradford County, FL	10.59%	Volusia County, FL	10.54%	Miami-Dade County, FL	7.17%

State Road 200 / A1A

US 301 in Callahan to I-95 in Nassau County

11.9	47.8
Centerline Miles	Lane Miles



Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

962
Average Daily Truck Trips
2015

Daily Activity

10.2% Percent of Truck Traffic

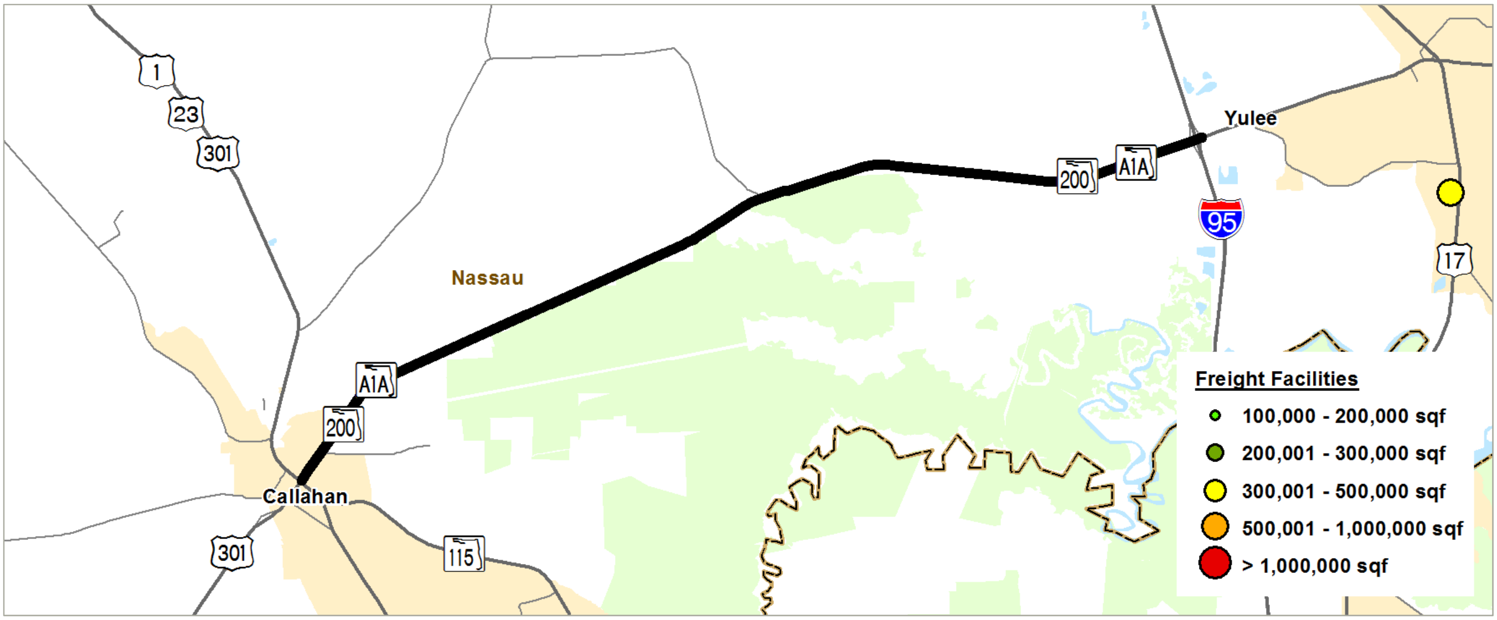
9,433 Annual Average Daily Trips

55 MPH Average Speed

Source: Florida Department of Transportation, 2015

8 **REST AREAS**
Within a 20 Mile Buffer of the Corridor

1
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Primary Forest Materials
2	Misc. Sawmill / Planning Mill
3	Pulp / Pulp Mill Products
4	Treated Wood Products
5	Paper Waste / Scrap

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

353,891

Tons of goods traveled
Along the corridor,
valued at

$81 Million

Source: IHS Global Insight - TRANSEARCH, 2015

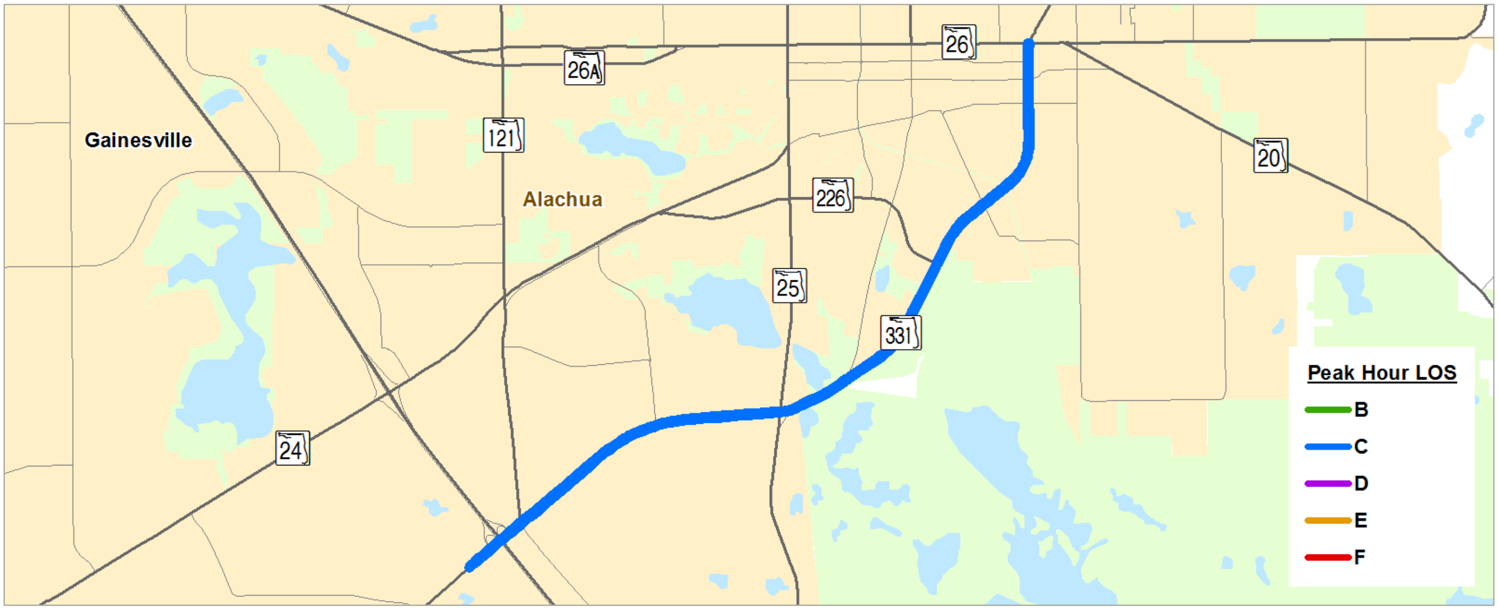
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Nassau County, FL	60.14%	Jacksonville, FL	23.57%	Macon, GA	10.98%	Albany, GA	3.87%	Columbus, GA	0.81%
Destinations	Nassau County, FL	39.85%	Jacksonville, FL	37.92%	Macon, GA	19.48%	Albany, GA	2.33%	Columbus, GA	0.33%

State Road 331

I-75 in Alachua County to SR 20 in Gainesville

5.6	22.3
Centerline Miles	Lane Miles



Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

2015 **1,449** Average Daily Truck Trips

Daily Activity

6.9% Percent of Truck Traffic

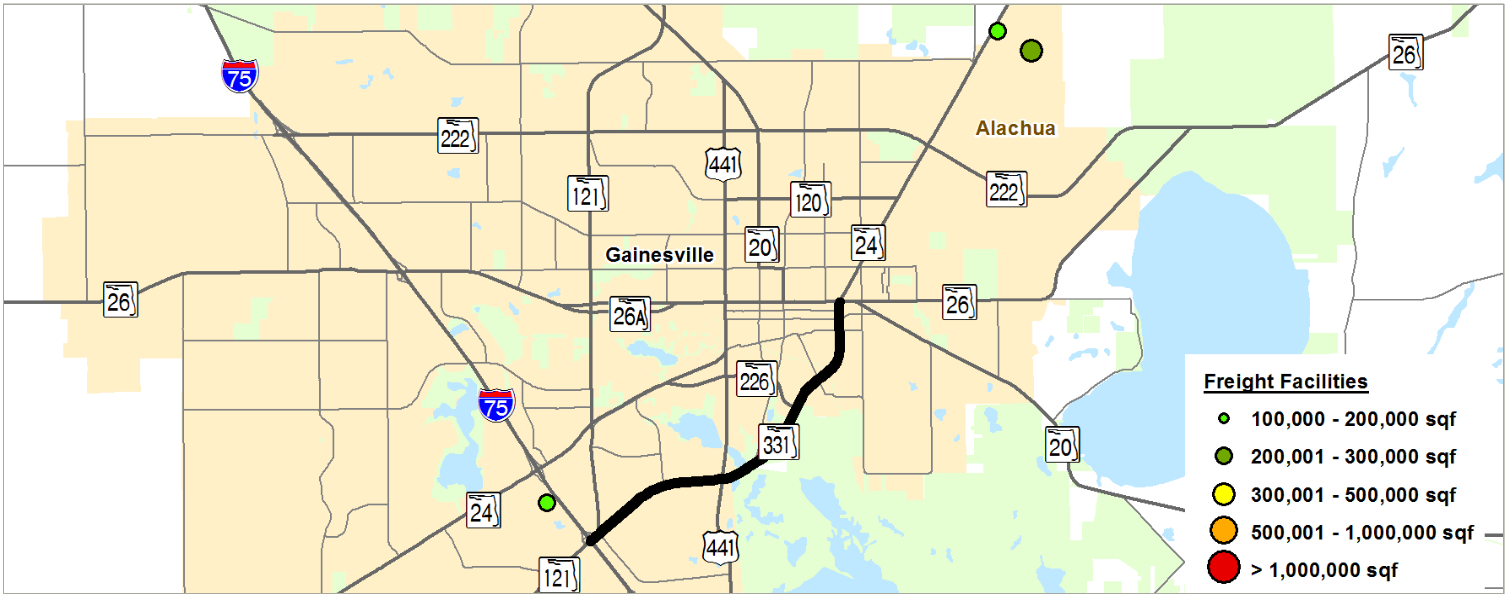
21,006 Annual Average Daily Trips

37 MPH Average Speed

Source: Florida Department of Transportation, 2015

4 **REST AREAS** Within a 20 Mile Buffer of the Corridor

3 Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Primary Forest Materials
2	Broken Stone / Riprap
3	Ready-Mix Wet Concrete
4	Misc. Fresh Vegetables
5	Warehouse Goods

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

498,407

Tons of goods traveled
Along the corridor,
valued at

$197.4 Million

Source: IHS Global Insight - TRANSEARCH, 2015

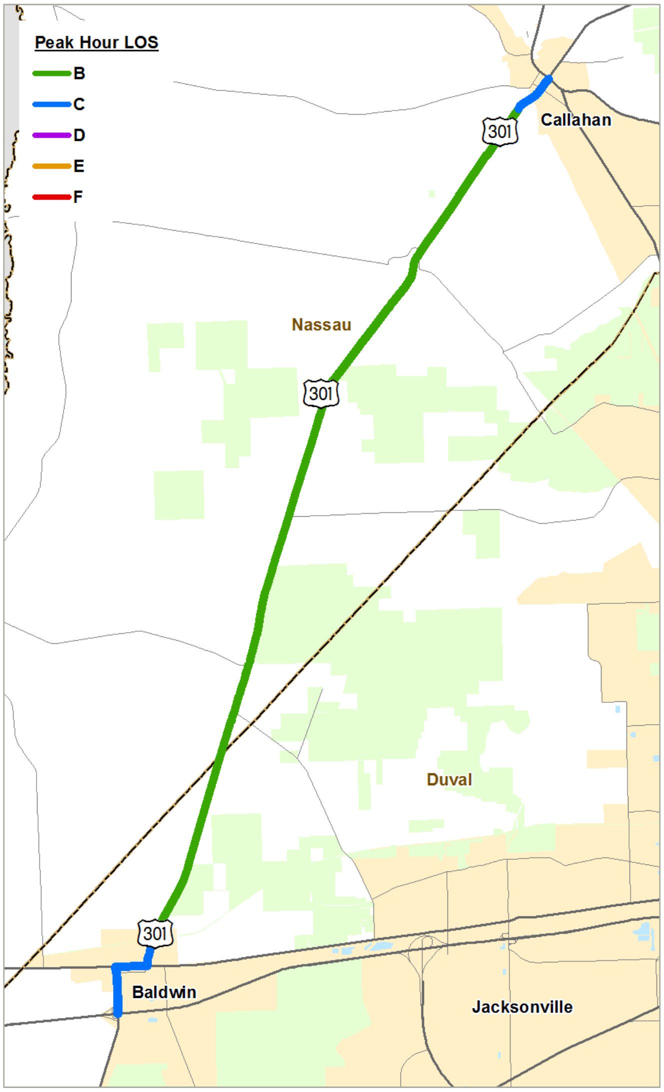
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Levy County, FL	54.45%	Dixie County, FL	13.25%	Clay County, FL	8.55%	Putnam County, FL	4.71%	Duval County, FL	4.15%
Destinations	Putnam County, FL	27.82%	Levy County, FL	16.55%	Duval County, FL	11.78%	Clay County, FL	10.75%	Dixie County, FL	6.23%

US Route 301

I-10 in Duval County to US 1/23 in Callahan

21.8	48.4
Centerline Miles	Lane Miles



Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

1,268
Average Daily Truck Trips
2015

Daily Activity

27.8% Percent of Truck Traffic

4,564 Annual Average Daily Trips

58 MPH Average Speed

Source: Florida Department of Transportation, 2015

15 REST AREAS
Within a 20 Mile Buffer of the Corridor

2
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

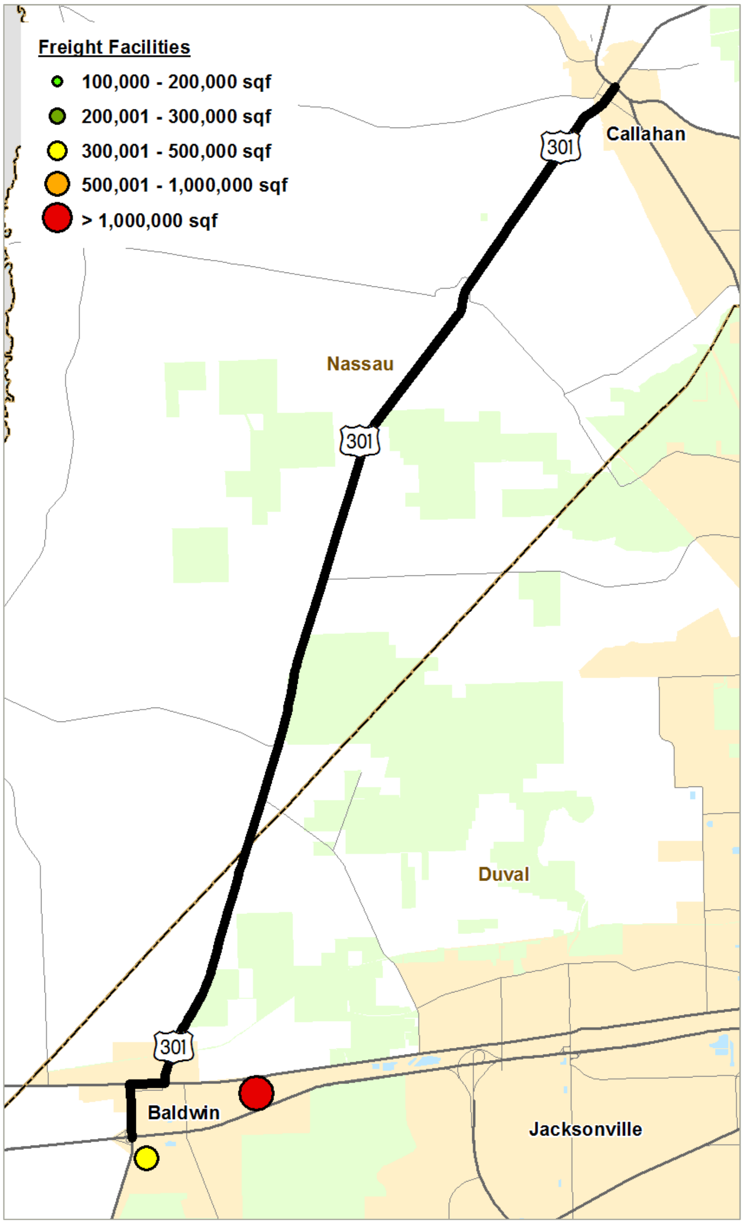
In 2015

292,352

Tons of goods traveled
Along the corridor,
valued at

$488.8 Million

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Lumber / Dimension Stock
2	Grain
3	Primary Forest Materials
4	Portland Cement
5	Misc. Sawmill / Planning Mill

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Macon, GA	24.97%	Jacksonville, FL	22.86%	Savannah, GA	14.54%	Augusta, GA	12.79%	Macon, GA	5.17%
Destinations	Hillsborough County, FL	17.26%	Pinellas County, FL	10.86%	Marion County, FL	8.79%	Jacksonville, FL	8.29%	Macon, GA	7.56%

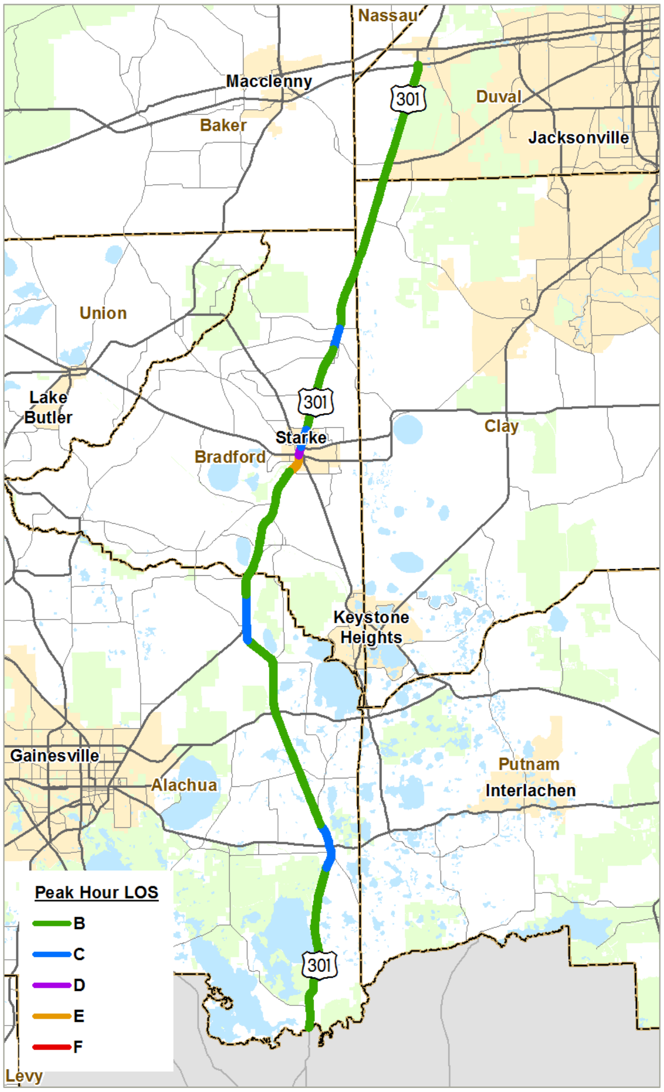
US Route 301

Marion County Line to I-10 in Duval County

62.7	250.8
Centerline Miles	Lane Miles

Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation



2015

3,766
Average Daily Truck Trips

Daily Activity

24.5% Percent of Truck Traffic

15,374 Annual Average Daily Trips

55 MPH Average Speed

Source: Florida Department of Transportation, 2015

17 REST AREAS
Within a 20 Mile Buffer of the Corridor

4
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

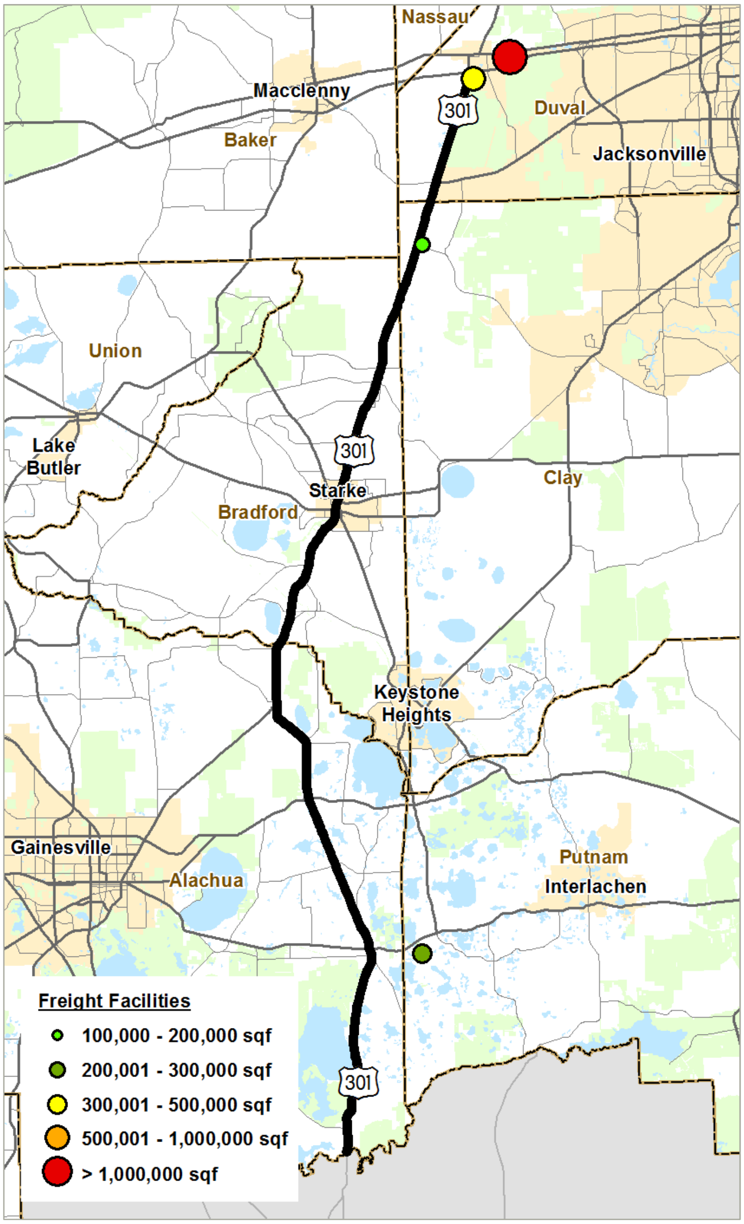
In 2015

16,296,677

Tons of goods traveled Along the corridor, valued at

$31.3 Billion

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Warehouse Goods
2	Concrete Products
3	Misc. Indus Inorganic Chemicals
4	Citrus Fruits
5	Broken Stone / Riprap

Source: IHS Global Insight - TRANSEARCH, 2015

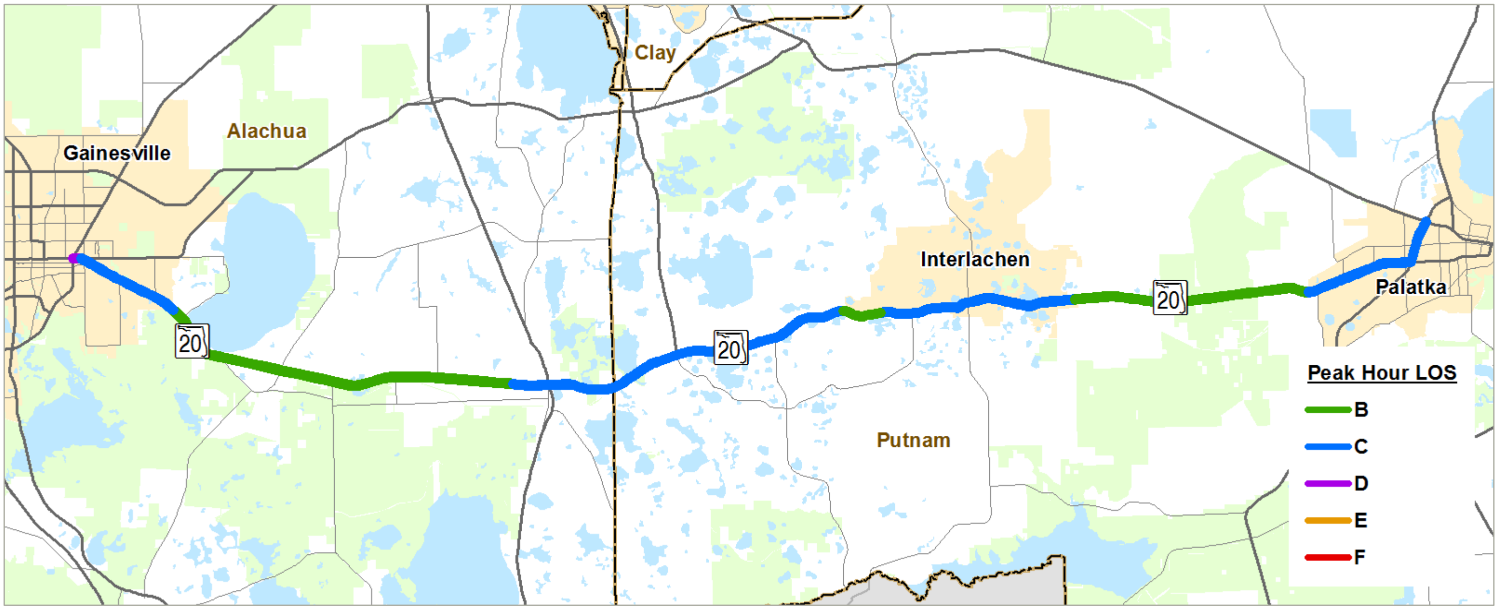
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Hillsborough County, FL	13.66 %	Duval County, FL	13.41%	Savannah, GA	6.38%	Alachua County, FL	5.64%	Marion County, FL	3.92%
Destinations	Hillsborough County, FL	12.24%	Duval County, FL	8.52%	New York, NY	7.90%	Pinellas County, FL	7.69%	Marion County, FL	5.59%

STATE ROAD 20

Gainesville to Palatka

41.8	145.8
CENTERLINE MILES	LANE MILES



DESIGNATION

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	SIS Corridor
National Freight Network	No Designation

2015 **475** Average Daily Truck Trips

DAILY ACTIVITY

4.9% Percent of Truck Traffic

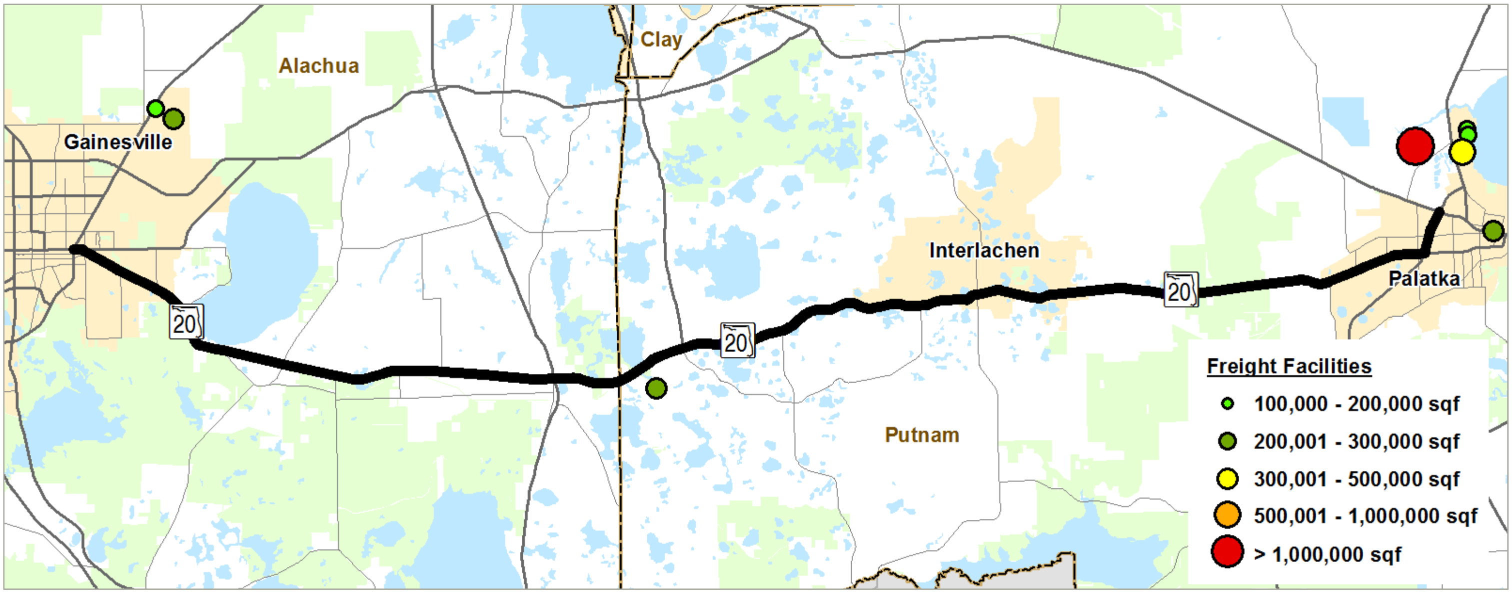
9,694 Annual Average Daily Trips

52 MPH Average Speed

Source: Florida Department of Transportation, 2015

7 REST AREAS Within a 20 Mile Buffer of the Corridor

8 Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Primary Forest Materials
2	Concrete Products
3	Ready-Mix Wet Concrete
4	Gravel / Sand
5	Processed Non-Metal Minerals

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

2,582,287

Tons of goods traveled Along the corridor, valued at

$1.4 Billion

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Putnam County, FL	38.54%	Nassau County, FL	6.92%	Macon, GA	6.91%	Alachua County, FL	4.94%	Duval County, FL	4.28%
Destinations	Putnam County, FL	53.22%	Duval County, FL	6.29%	St. Johns County, FL	5.55%	Clay County, FL	4.62%	Flagler County, FL	2.93%

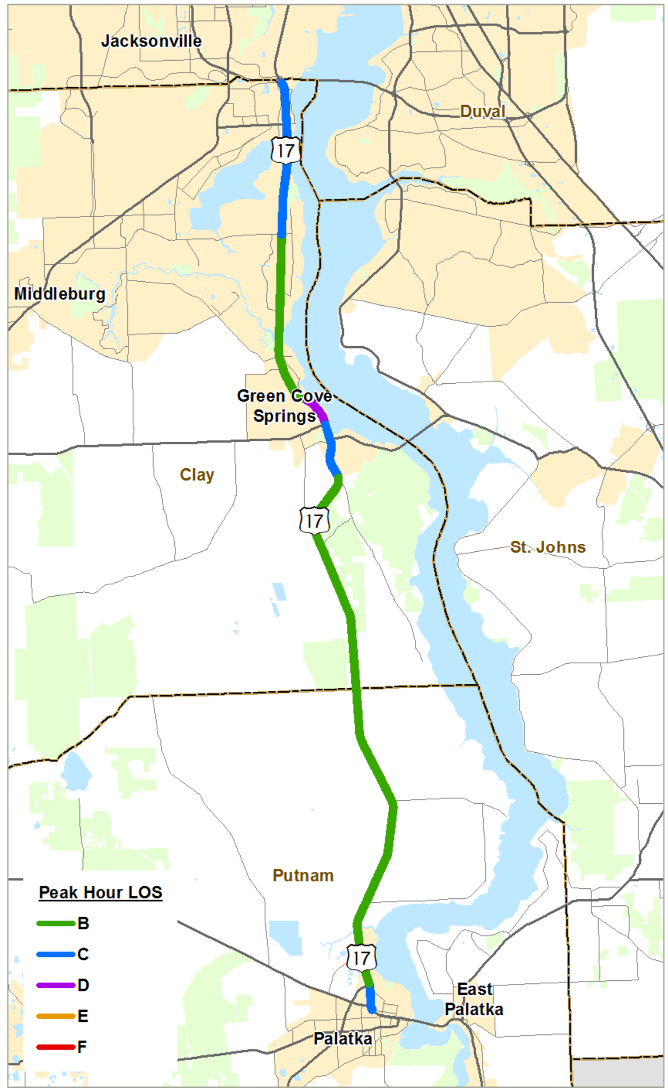
US Route 17

Palatka to I-295

39	175.6
Centerline Miles	Lane Miles

Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation



1,925
Average Daily Truck Trips
2015

Daily Activity

9.6% Percent of Truck Traffic

20,057 Annual Average Daily Trips

52 MPH Average Speed

Source: Florida Department of Transportation, 2015

18 REST AREAS
Within a 20 Mile Buffer of the Corridor

36
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

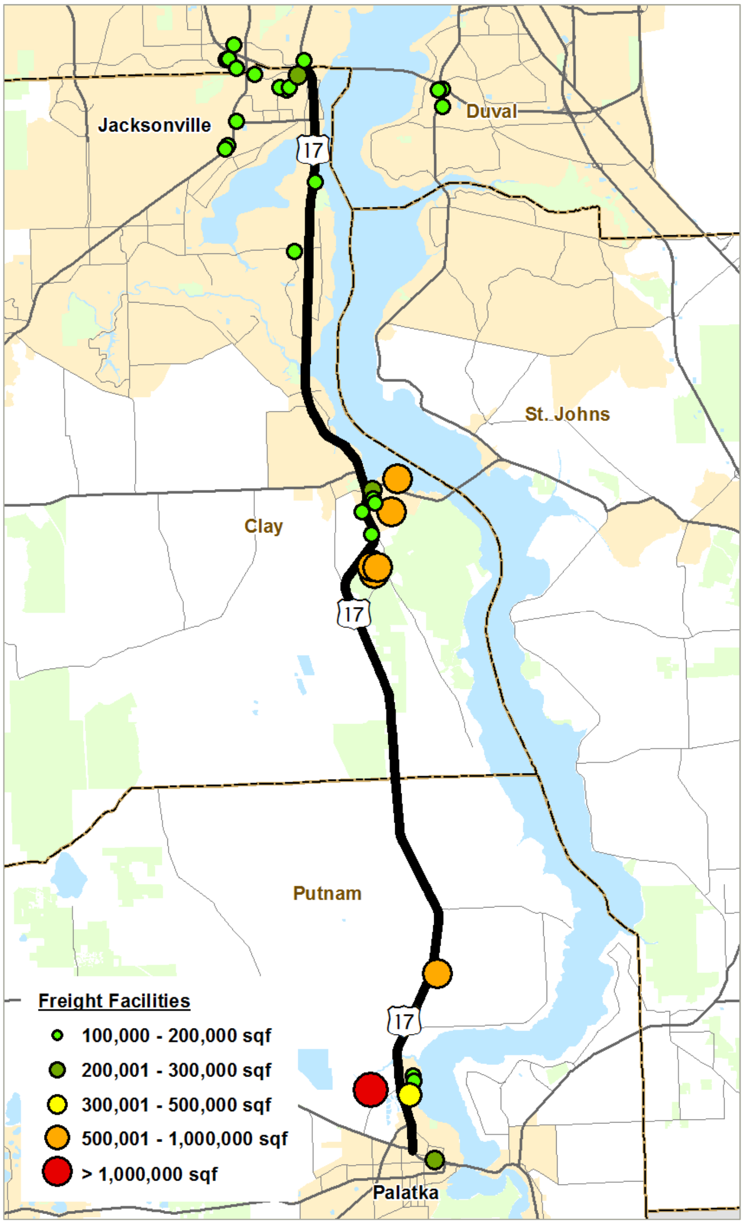
In 2015

1,494,278

Tons of goods traveled
Along the corridor,
valued at

$962.7 Million

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Primary Forest Materials
2	Warehouse Goods
3	Ready-Mix Wet Concrete
4	Concrete Products
5	Processed Non-Metal Minerals

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Putnam County, FL	21.98 %	Clay County, FL	17.13%	Miami-Dade County, FL	12.11%	Nassau County, FL	11.98%	Savannah, GA	5.39%
Destinations	Putnam County, FL	34.86%	Clay County, FL	31.17%	St. Johns County, FL	6.57%	Volusia County, FL	4.28%	Savannah, GA	2.62%

US Route 19/27

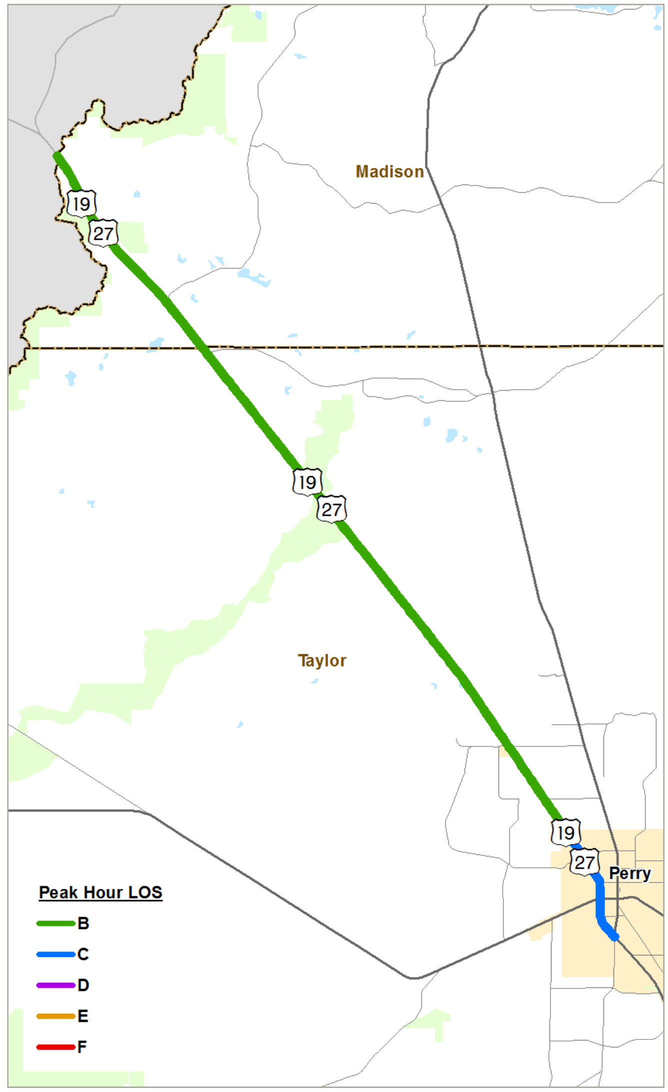
US 98 in Perry to Jefferson County Line

23.2	92.8
Centerline Miles	Lane Miles

Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation

415
Average Daily Truck Trips
2015



Daily Activity

7.4% Percent of Truck Traffic

5,611 Annual Average Daily Trips

60 MPH Average Speed

Source: Florida Department of Transportation, 2015

3 REST AREAS
Within a 20 Mile Buffer of the Corridor

1
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

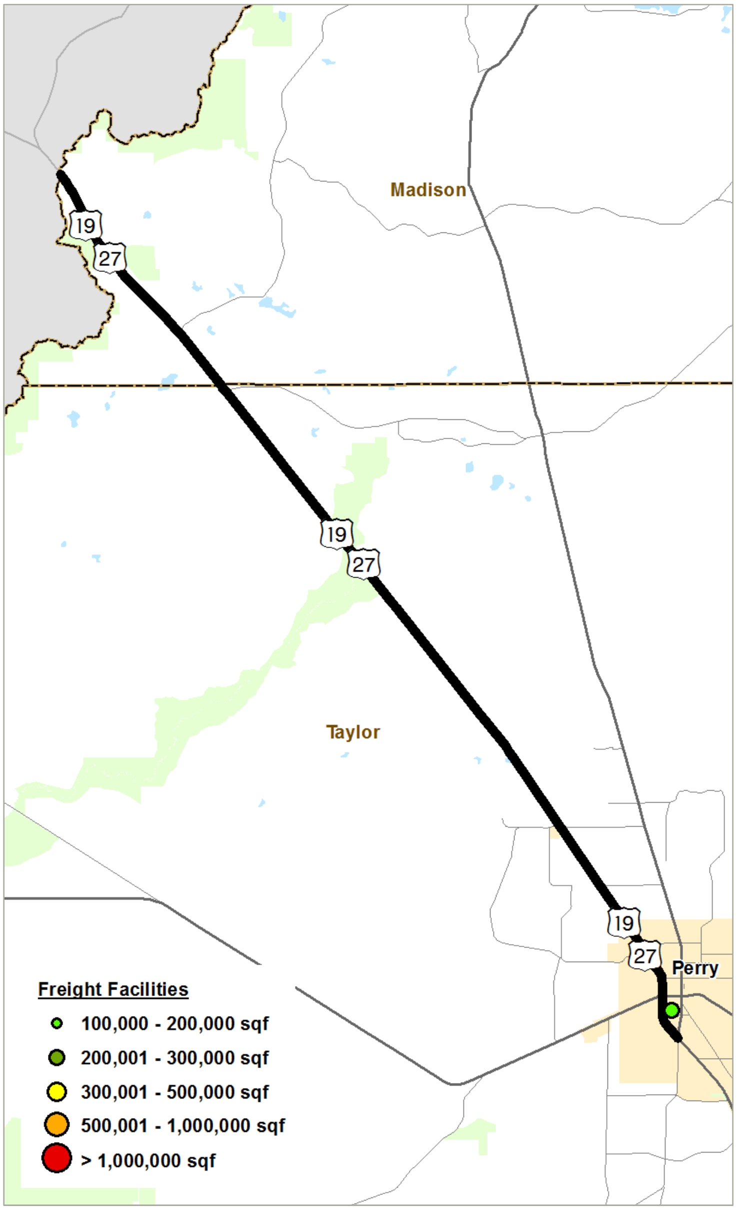
In 2015

7,684,426

Tons of goods traveled
Along the corridor,
valued at

$14.1 Billion

Source: IHS Global Insight - TRANSEARCH, 2015



Top Corridor Commodities

1	Warehouse Goods
2	Primary Forest Materials
3	Broken Stone / Riprap
4	Liquefied Gases, Coal / Petroleum
5	Potassium / Sodium Compound

Source: IHS Global Insight - TRANSEARCH, 2015

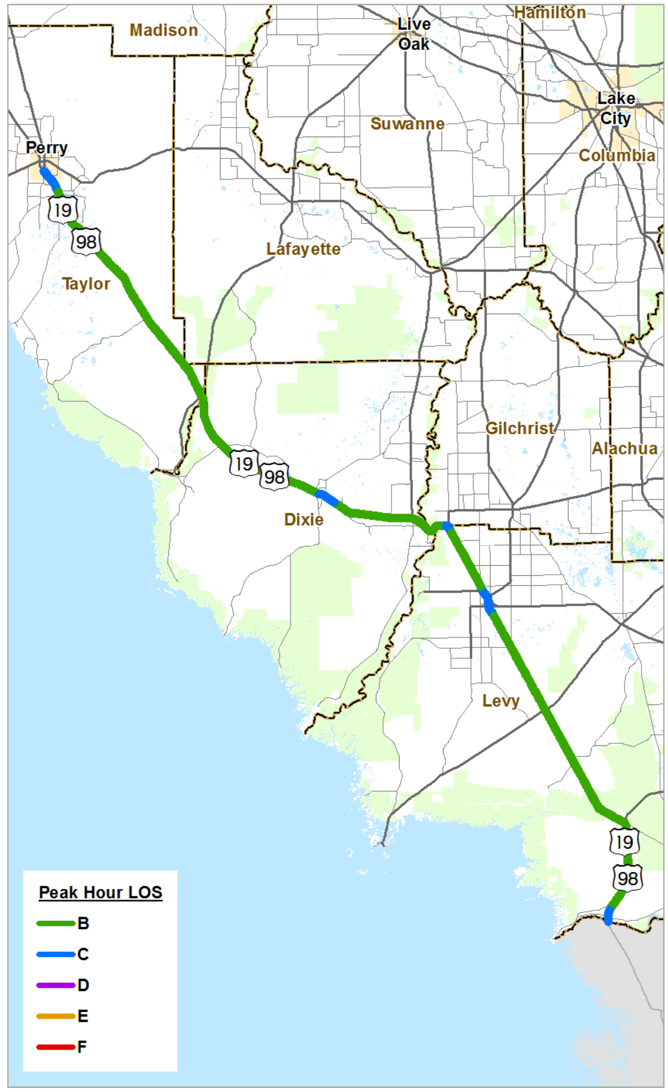
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Hillsborough County, FL	13.48 %	Taylor County, FL	9.81%	Houston, TX	6.79%	Los Angeles, CA	5.12%	Taylor County, FL	4.88%
Destinations	Hillsborough County, FL	30.56%	Pinellas County, FL	20.69%	Leon County, FL	6.85%	Pasco County, FL	4.90%	Taylor County, FL	4.44%

US Route 19/98

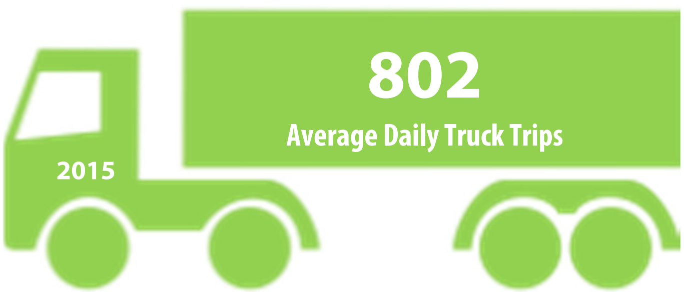
Citrus County Line to US 27 in Perry

102.1	408.1
Centerline Miles	Lane Miles



Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation



Daily Activity

13.4% Percent of Truck Traffic

5,988 Annual Average Daily Trips

59 MPH Average Speed

Source: Florida Department of Transportation, 2015

3 REST AREAS
Within a 20 Mile Buffer of the Corridor

4
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet

In 2015

9,353,305

Tons of goods traveled
Along the corridor,
valued at

$14.9 Billion

Source: IHS Global Insight - TRANSEARCH, 2015

Top Corridor Commodities

1	Warehouse Goods
2	Primary Forest Materials
3	Broken Stone / Riprap
4	Liquefied Gases, Coal / Petroleum
5	Lumber / Dimension Stock

Source: IHS Global Insight - TRANSEARCH, 2015

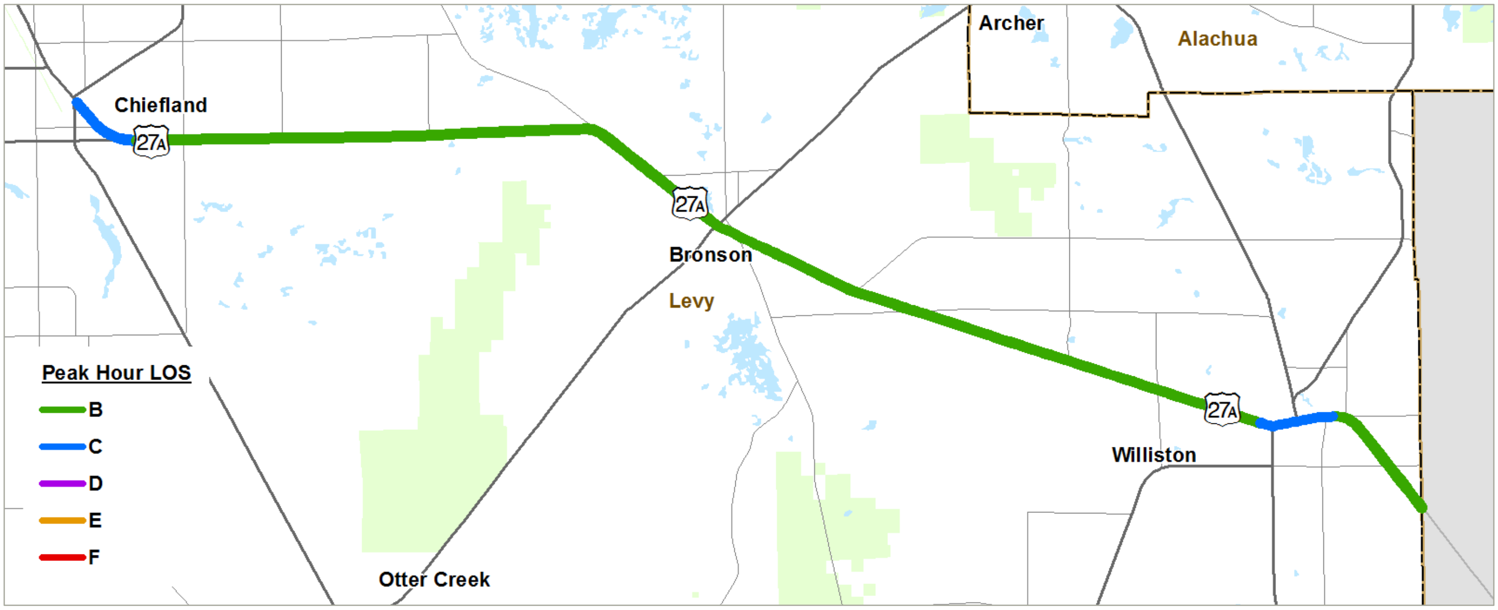
Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Taylor County, FL	13.49 %	Hillsborough County, FL	11.37%	Houston, TX	5.58%	Los Angeles, CA	4.21%	Pasco County, FL	4.19%
Destinations	Hillsborough County, FL	26.01%	Pinellas County, FL	18.01%	Taylor County, FL	6.95%	Leon County, FL	5.63%	Pasco County, FL	4.47%

US Route 27A

US 19/98 in Chiefland to Marion County Line

30.1	120.1
Centerline Miles	Lane Miles



Designation

Functional Classification	Principal Arterial - Other
Strategic Intermodal System	Emerging SIS Corridor
National Freight Network	No Designation

2015

574 Average Daily Truck Trips

Daily Activity

8% Percent of Truck Traffic

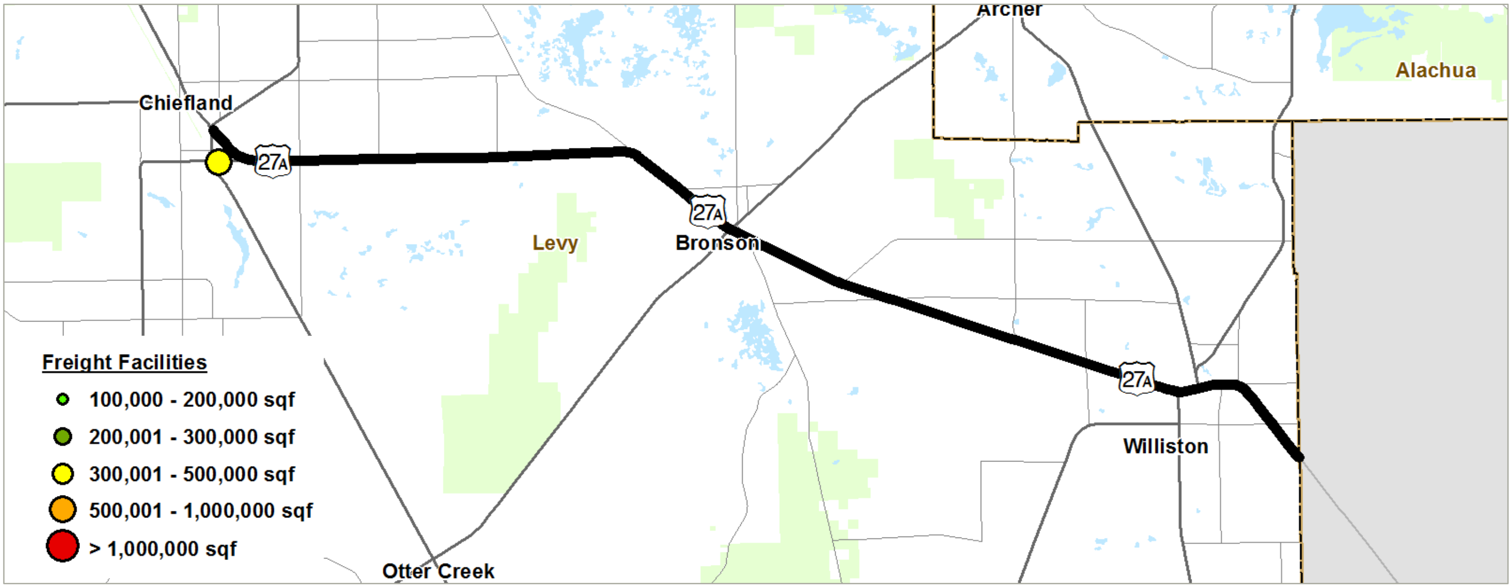
7,182 Annual Average Daily Trips

60 MPH Average Speed

Source: Florida Department of Transportation, 2015

2 REST AREAS
Within a 20 Mile Buffer of the Corridor

1
Freight Activity Centers within 5 miles of the corridor over 100,000 square feet



Top Corridor Commodities

1	Warehouse Goods
2	Liquefied Gasses Coal or Petroleum
3	Primary Forest Materials
4	Potassium / Sodium Compound
5	Broken Stone / Riprap

Source: IHS Global Insight - TRANSEARCH, 2015

In 2015

7,841,168

Tons of goods traveled Along the corridor, valued at

$14.7 Billion

Source: IHS Global Insight - TRANSEARCH, 2015

Connecting Communities: Top Origins & Destinations by Tons

	#1	% Tons	#2	% Tons	#3	% Tons	#4	% Tons	#5	% Tons
Origins	Hillsborough County, FL	13.44%	Houston, TX	6.62%	Levy County, FL	5.08%	Los Angeles, CA	5.00%	Pinellas County, FL	4.94%
Destinations	Hillsborough County, FL	30.81%	Pinellas County, FL	21.36%	Pasco County, FL	5.23%	Levy County, FL	4.03%	Hernando County, FL	2.75%

Section Five:

County Freight and Demographic Profiles

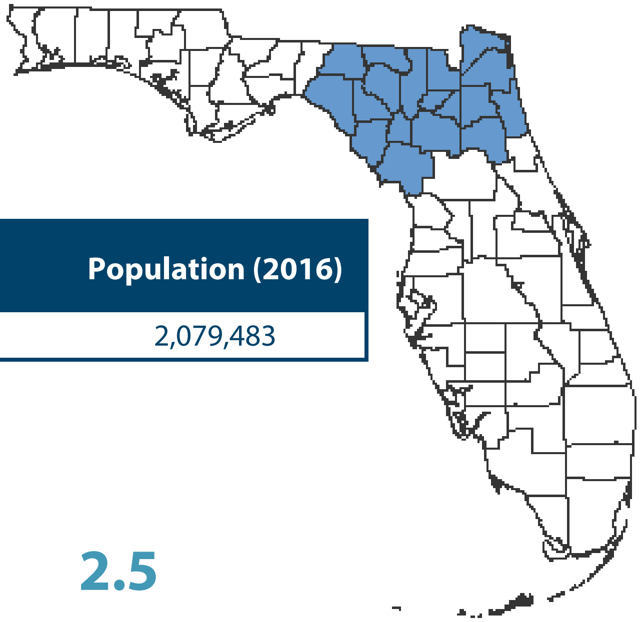
Introduction

Northeast Florida (FDOT District Two) is composed of 18 counties each with its own unique economic and demographic profile. Understanding each county's existing conditions, demographics, major industry sectors, trade information, and transportation infrastructure is important to understand how each county fits into the larger regional and state economy. As illustrated in ***Figure 5-1***, Northeast Florida covers over 12,000 square miles and is located on the state border with Georgia. The region is a major freight gateway with the convergence of intermodal transportation facilities, supportive warehousing and distribution centers, and a highly skilled workforce.

Figure 5-1 | Northeast Florida Counties

This section provides stand-alone profiles for each of the 18 counties located in FDOT District Two as well as a comparable profile for the District as a whole. Beginning with a district-level profile, the following pages include standardized profiles making use of multiple sources of information and data provided by the Florida Department of Transportation, the Florida Department of Economic Opportunity, the Florida Department of Highway Safety and Commercial Vehicles, and available trade and commodity-based data. It is important to note, although the data sources referenced above and throughout the following profiles have been produced and processed from sources believed to be reliable, no warranty, expressed or implied, is made regarding accuracy, adequacy, completeness, reliability or usefulness of any information.

Northeast Florida



Florida Department of Transportation, District Two

Primary District Office	Secondary District Office	Area (Sq. Miles)	Population (2016)
Lake City, FL	Jacksonville, FL	12,000	2,079,483

Demographics

Average Family Size 3.0

Average Household Size 2.5

21.6% population under 18

40.8 median age

14.8% population 65 & over

Income

$42,174 Median Household Income

$33,010 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

1,027,455 Labor Force

981,526 Total Employment

4.59% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Education & Health Services	25.4 %
2. Manufacturing	25.1 %
3. Leisure & Hospitality	17.9 %
4. Construction	17.8 %
5. Natural Resources / Mining	15.9 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

INBOUND: 44.2 M Tons, Valued at $71.1 B

OUTBOUND: 33.8 M Tons, Valued at $58.5 B

WITHIN REGION: 18.5 M Tons, Valued at $34.8 B

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

66%

28%

6%

<1%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Warehouse Goods	10,861,000	$13,154,000,000
2. Bituminous Coal	7,199,000	$263,000,000
3. Broken Stone / Riprap	6,921,000	$60,000,000
4. Primary Forest Materials	6,744,000	$840,000,000
5. FAK Shipments	5,258,000	$26,687,000,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Miami-Dade County	5,843,542
2. Broward County	2,183,380
3. Marion County	1,888,782
4. Orange County	1,882,729
5. Volusia County	1,741,497

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	5,980,099
2. Louisiana	2,574,193
3. Illinois	2,393,825
4. South Carolina	1,925,781
5. Indiana	1,652,601

Northeast Florida

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	**425**
Total Number of Warehouses & Distribution Centers	**6,207**
Estimated Warehouse & Distribution Center Total Area in Square Feet	**213.1** M

Source: Florida Department of Transportation, 2015

36.5% of residents work outside of county

Average Travel Time to Work
26.2 Minutes

64,701
Commercial Driver's Licenses (CDL) Issued

1,455,088
Class E Licenses Issued

Annual Fuel & Diesel Consumption

44,339,800
Average Daily Vehicle Miles Traveled
2015

1,025,274,996 Gallons of Fuel

282,719,042 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	2,566
State Highway Lane Miles	8,273
Number of Bridges	1,381
At-Grade Railroad Crossings	1,133
Railroad Mileage	929

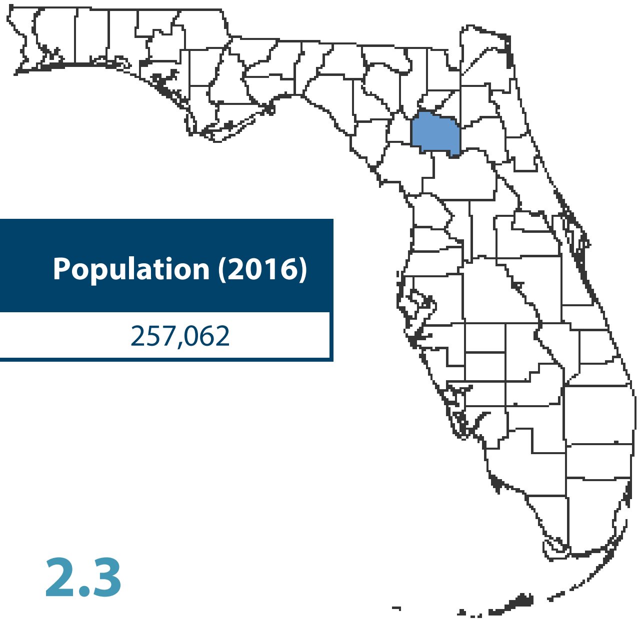
Source: Florida Department of Transportation, 2016

Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-10, I-295, I-95, I-75, US 17, US 19, US 1, US 301, SR 20, SR 26, SR 100, SR 207, First Coast Outer Beltway
Railroads	CSX, Norfolk Southern, FEC, First Coast Railroad
SIS Airports	Jacksonville International, Gainesville Regional
SIS Seaports	Port of Jacksonville (JAXPORT), Port of Fernandina
General Aviation Airports	Suwannee County Airport, Cross City, Perry-Foley, Lake City Municipal, Oak Tree Landing, Keystone, Flying Ten, Hilliard , Fernandina Beach Municipal, Palatka Municipal, George T Lewis, Cecil, Craig, Northeast FL Regional, Herlong Airpark

Source: Florida Department of Transportation, 2016

Alachua County



Florida's 23rd Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Gainesville, FL	Gainesville, FL	969	257,062

Demographics

Average Family Size 2.9

Average Household Size 2.3

17.8% population under 18

31.1 median age

10.8% population 65 & over

Income

$43,073 Median Household Income

$40,199 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

130,927 Labor Force

125,464 Total Employment

4.17% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Government	28.6 %
2. Education & Health Services	18.6%
3. Trade, Transportation & Utilities	15.0 %
4. Leisure & Hospitality	11.5 %
5. Professional & Business Services	9.7 %

Source: Florida Office of Economic and Business Research, 2016

How Much Freight? Tons | Value

INBOUND — 4.5 M Tons; Valued at $3.8 B

OUTBOUND — 3.1 M Tons; Valued at $1.8 B

WITHIN REGION — 211 K Tons; Valued at $16 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How Is Freight Moving? Mode | Tons

88.5%

11.5%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What Is Moving? Top Commodities | Volume

Commodity	Tons	Value
1. Broken Stone/ Riprap	1,853,000	$15,900,000
2. Warehouse Goods	1,483,000	$1,796,300,000
3. Portland Cement	827,000	$70,900,000
4. Bituminous Coals	634,000	$23,200,000
5. Ready Mix Wet Concrete	374,000	$25,700,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who Are We Trading With? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	875,900
2. Marion County	583,000
3. Columbia County	451,300
4. Miami-Dade County	383,200
5. Levy County	127,500

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	632,270
2. Kentucky	344,400
3. West Virginia	306,000
4. South Carolina	144,700
5. Alabama	127,500

Alachua County

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	14
Total Number of Warehouses & Distribution Centers	927
Estimated Warehouse & Distribution Center Total Area in Square Feet	14.2 M

Source: Florida Department of Transportation, 2015

5.9% of residents work outside of county

Average Travel Time to Work
20.6 Minutes

4,469
Commercial Driver's Licenses (CDL) Issued

179,587
Class E Licenses Issued

Annual Fuel & Diesel Consumption

5,513,600
Average Daily Vehicle Miles Traveled
2015

120,742,524 Gallons of Fuel

17,621,542 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	239.4
State Highway Lane Miles	1,040
Number of Bridges	64
At-Grade Railroad Crossings	151
Railroad Mileage	113

Source: Florida Department of Transportation, 2016

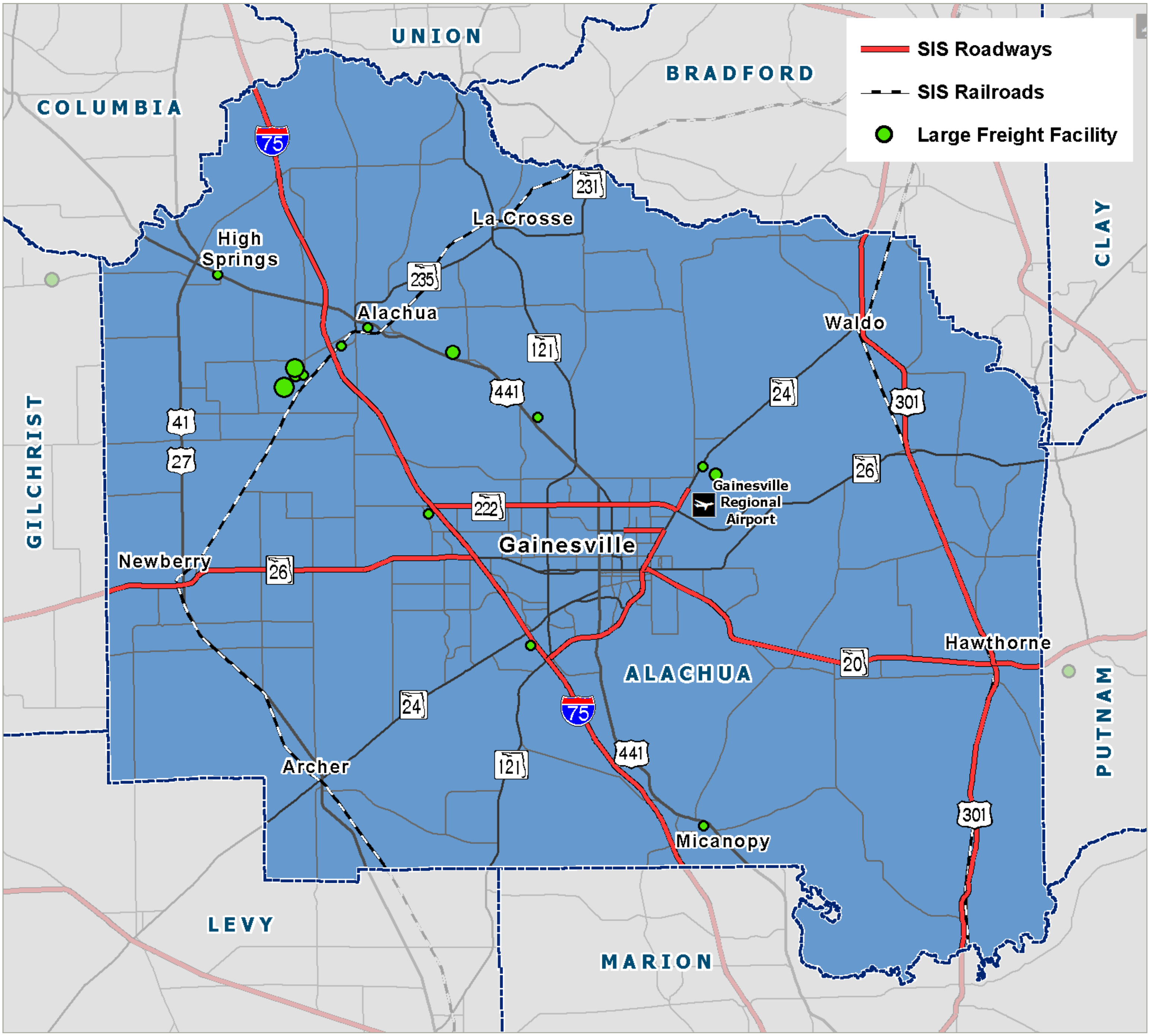
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-75, US 301, SR 26, SR 20
Railroads	CSX, Florida Northern Railroad
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 441, US 27, SR 24, SR 121, SR 231, SR 235
General Aviation Airports	Flying Ten Airport

Source: Florida Department of Transportation, 2016

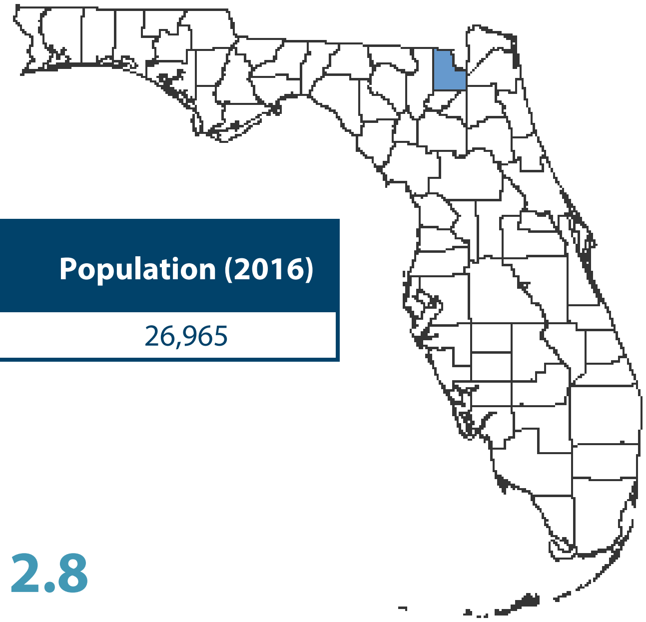
Alachua County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Baker County



Florida's 52nd Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Macclenny, FL	Macclenny, FL	589	26,965

DEMOGRAPHICS

Average Family Size 3.2

Average Household Size 2.8

26.0% population under 18

37 median age

10.9% population 65 & over

INCOME

$47,121 Median Household Income

$28,588 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

EMPLOYMENT

11,694 Labor Force

11,178 Total Employment

4.4% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Government	36.5 %
2. Trade, Transportation & Utilities	32.1%
3. Education & Health Services	11.0 %
4. Leisure & Hospitality	7.3 %
5. Construction	4.5 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

	Tons	Value
INBOUND	238.2 K Tons	Valued at $279.2 M
OUTBOUND	152.1 K Tons	Valued at $87.2 M
WITHIN REGION	300 Tons	Valued at $200 K

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

90.4%

9.6%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Primary Forest Materials	134,980	$16,730,000
2. Warehouse Goods	69,830	$84,580,000
3. Iron & Steel Products	25,810	$39,810,000
4. Plastic & Synthetic Fibers	17,150	$37,140,000
5. Ready Mix Wet Concrete	16,510	$1,130,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Duval County	31,670
2. Putnam County	20,940
3. Miami-Dade County	13,950
4. Nassau County	11,730
5. Taylor County	6,780

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	87,000
2. South Carolina	39,370
3. Louisiana	12,970
4. Kentucky	8,000
5. Wisconsin	6,780

FREIGHT ACTIVITY CENTERS

Number of Warehouses & Distribution Centers Over 100k Square Feet	**2**
Total Number of Warehouses & Distribution Centers	**36**
Estimated Warehouse & Distribution Center Total Area in Square Feet	**1.1** M

Source: Florida Department of Transportation, 2015

53.1% of residents work outside of county

Average Travel Time to Work
29.6 Minutes

1,387
Commercial Driver's Licenses (CDL) Issued

17,140
Class E Licenses Issued

ANNUAL FUEL & DIESEL CONSUMPTION

890,800
Average Daily Vehicle Miles Traveled
2015

15,552,172 Gallons of Fuel

3,042,302 Gallons of Diesel

Source: Florida Department of Transportation, 2015

TRANSPORTATION ASSET INVENTORY

State Highway Centerline Miles	83.9
State Highway Lane Miles	225.9
Number of Bridges	52
At-Grade Railroad Crossings	37
Railroad Mileage	41

Source: Florida Department of Transportation, 2016

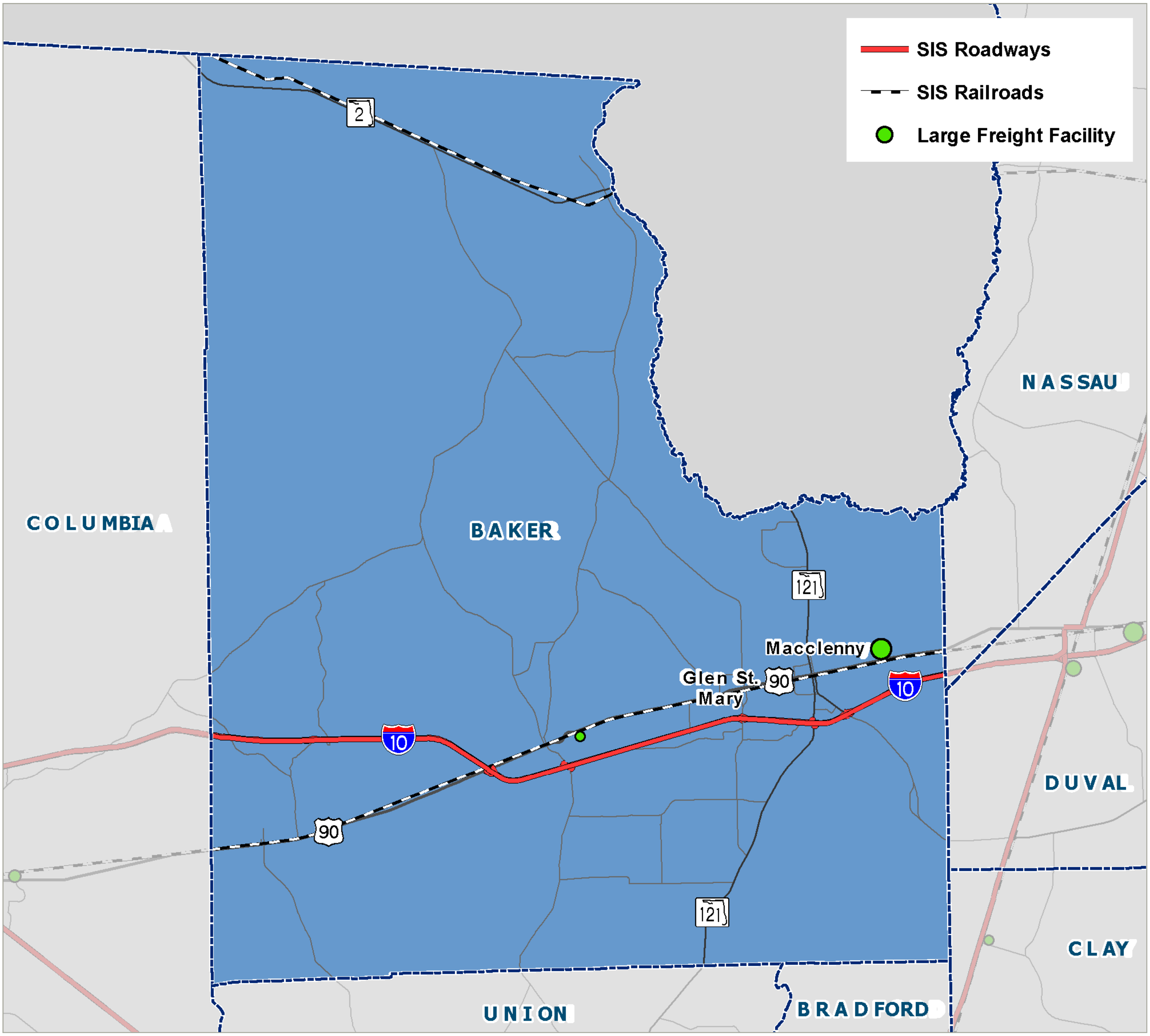
KEY TRANSPORTATION INFRASTRUCTURE

Strategic Intermodal System (SIS) Highways	I-10
Railroads	CSX, Norfolk Southern
SIS Airports	Jacksonville International Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	SR 121, SR 228, SR 2
General Aviation Airports	Lake City Municipal

Source: Florida Department of Transportation, 2016

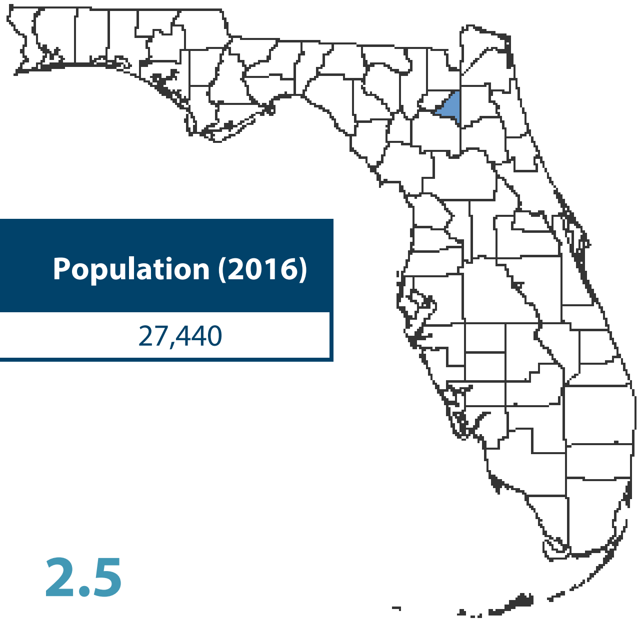
Baker County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Bradford County



Florida's 51st Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Starke, FL	Starke, FL	300	27,440

Demographics

Average Family Size 2.9

Average Household Size 2.5

19.8% population under 18

40.8 median age

14.4% population 65 & over

Income

$41,606 Median Household Income

$28,119 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

10,928 Labor Force

10,482 Total Employment

4.1% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Government	30.8 %
2. Trade, Transportation & Utilities	25.1 %
3. Education & Health Services	13.9 %
4. Leisure & Hospitality	12.0 %
5. Manufacturing	3.9 %

Source: Florida Office of Economic and Business Research, 2016

How much freight? Tons | Value

	Tons	Value
INBOUND	289.2 K Tons	Valued at $378.9 M
OUTBOUND	569.3 K Tons	Valued at $1.2 B
WITHIN REGION	3.4 K Tons	Valued at $900 K

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is freight moving? Mode | Tons

Truck: 69.1%

Rail: 30.9%

Water: 0%

Air: 0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is moving? Top Commodities | Volume

Commodity	Tons	Value
1. Misc. Metal Ores	191,800	$830,800
2. Warehouse Goods	153,300	$185,700,000
3. Lumber / Dimension Stock	75,800	$8,600,000
4. Primary Forest Materials	72,300	$9,000,000
5. Inedible Animal Bi-products	66,000	$43,200,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we trading with? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	47,700
2. Miami-Dade County	44,300
3. Orange County	17,100
4. Hillsborough County	16,410
5. Polk County	32,270

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Mississippi	135,800
2. Georgia	123,600
3. Louisiana	41,000
4. North Carolina	38,800
5. Delaware	32,270

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	0
Total Number of Warehouses & Distribution Centers	53
Estimated Warehouse & Distribution Center Total Area in Square Feet	707.4 K

Source: Florida Department of Transportation, 2015

58.4% of residents work outside of county

Average Travel Time to Work
31.4 Minutes

1,575
Commercial Driver's Licenses (CDL) Issued

16,848
Class E Licenses Issued

Annual Fuel & Diesel Consumption

686,700
Average Daily Vehicle Miles Traveled
2015

13,935,262 Gallons of Fuel

3,081,197 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	69
State Highway Lane Miles	178.6
Number of Bridges	33
At-Grade Railroad Crossings	51
Railroad Mileage	43

Source: Florida Department of Transportation, 2016

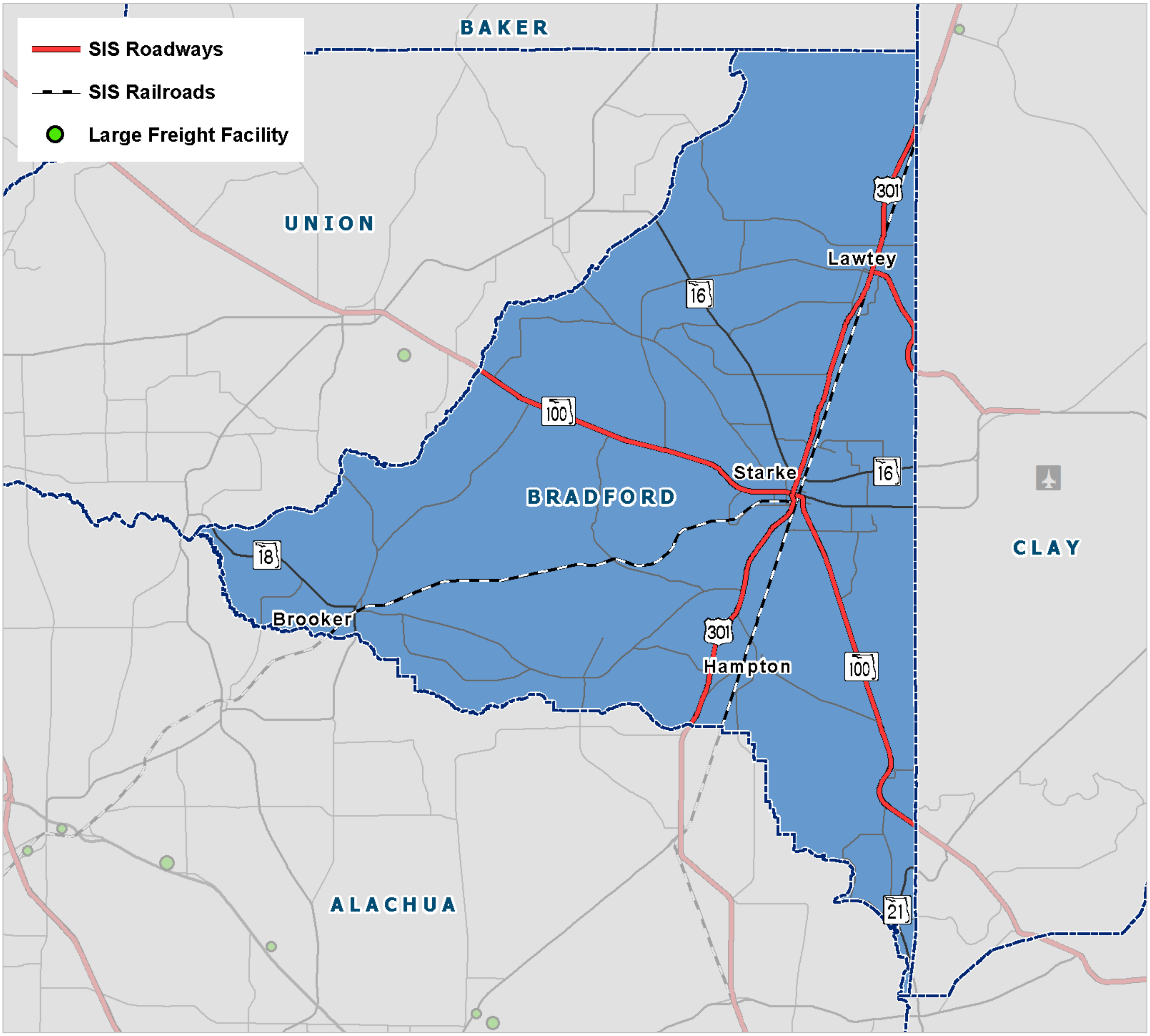
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	US 301, SR 100
Railroads	CSX
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	SR 16, SR 18, SR 230
General Aviation Airports	Keystone Airpark

Source: Florida Department of Transportation, 2016

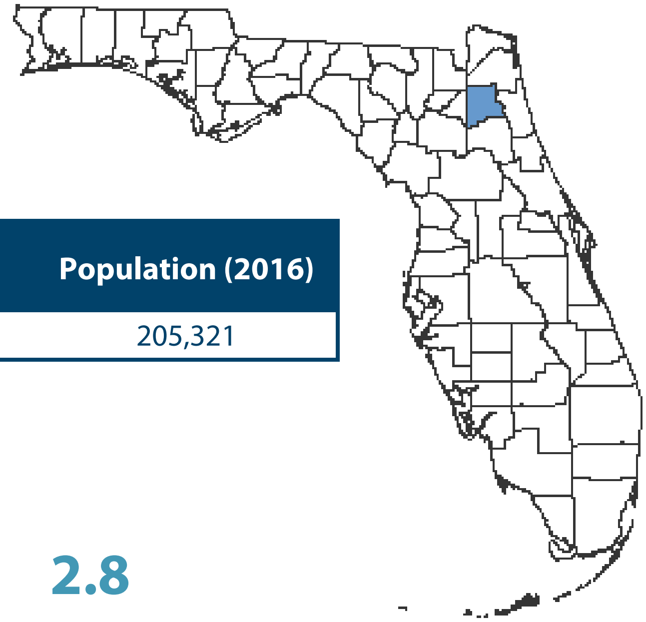
Bradford County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Clay County



Florida's 25th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Green Cove Springs, FL	Orange Park, FL	644	205,321

Demographics

Average Family Size 3.1

Average Household Size 2.8

26.3% population under 18

38.5 median age

11.7% population 65 & over

Income

$58,290 Median Household Income

$39,090 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

102,731 Labor Force

98,395 Total Employment

4.2% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Trade, Transportation & Utilities	20.5 %
2. Education & Health Services	18.3 %
3. Leisure & Hospitality	15.0 %
4. Government	14.7 %
5. Professional & Business Services	12.1 %

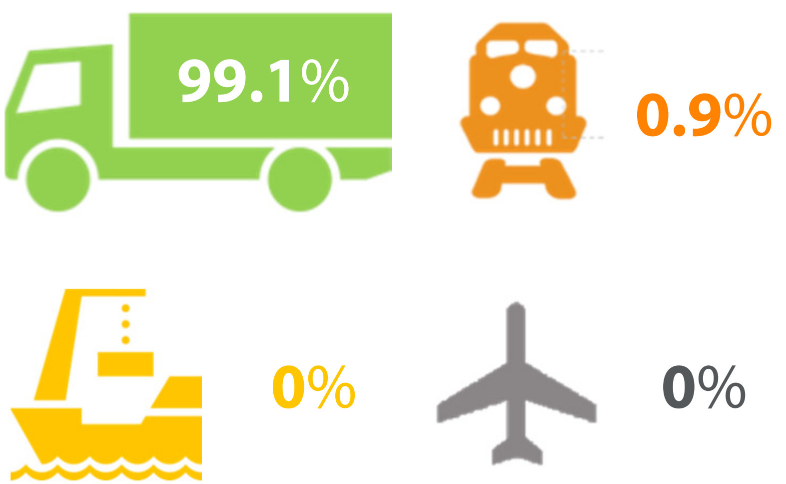
Source: Florida Office of Economic and Business Research, 2016

How much freight? Tons | Value

	Tons	Value
INBOUND	1.8 M Tons	Valued at $1.9 B
OUTBOUND	1.4 M Tons	Valued at $483 M
WITHIN REGION	32.5 K Tons	Valued at $4 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is freight moving? Mode | Tons



Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is moving? Top Commodities | Volume

Commodity	Tons	Value
1. Primary Forest Materials	565,500	$70,100,000
2. Warehouse Goods	515,500	$624,300,000
3. Ready Mix Wet Concrete	413,600	$28,400,000
4. Concrete Products	342,000	$47,600,000
5. Gravel / Sand	198,500	$1,500,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we trading with? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	573,500
2. Miami-Dade County	190,000
3. Putnam County	166,800
4. Volusia County	110,000
5. Marion County	33,700

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	462,340
2. South Carolina	61,380
3. North Carolina	47,550
4. Tennessee	40,080
5. New York	33,700

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	25
Total Number of Warehouses & Distribution Centers	213
Estimated Warehouse & Distribution Center Total Area in Square Feet	10.6 M

Source: Florida Department of Transportation, 2015

56.4% of residents work outside of county

Average Travel Time to Work
32.4 Minutes

6,463
Commercial Driver's Licenses (CDL) Issued

151,729
Class E Licenses Issued

Annual Fuel & Diesel Consumption

1,952,700
Average Daily Vehicle Miles Traveled
2015

80,655,511 Gallons of Fuel

9,324,359 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	109.9
State Highway Lane Miles	369
Number of Bridges	53
At-Grade Railroad Crossings	50
Railroad Mileage	48

Source: Florida Department of Transportation, 2016

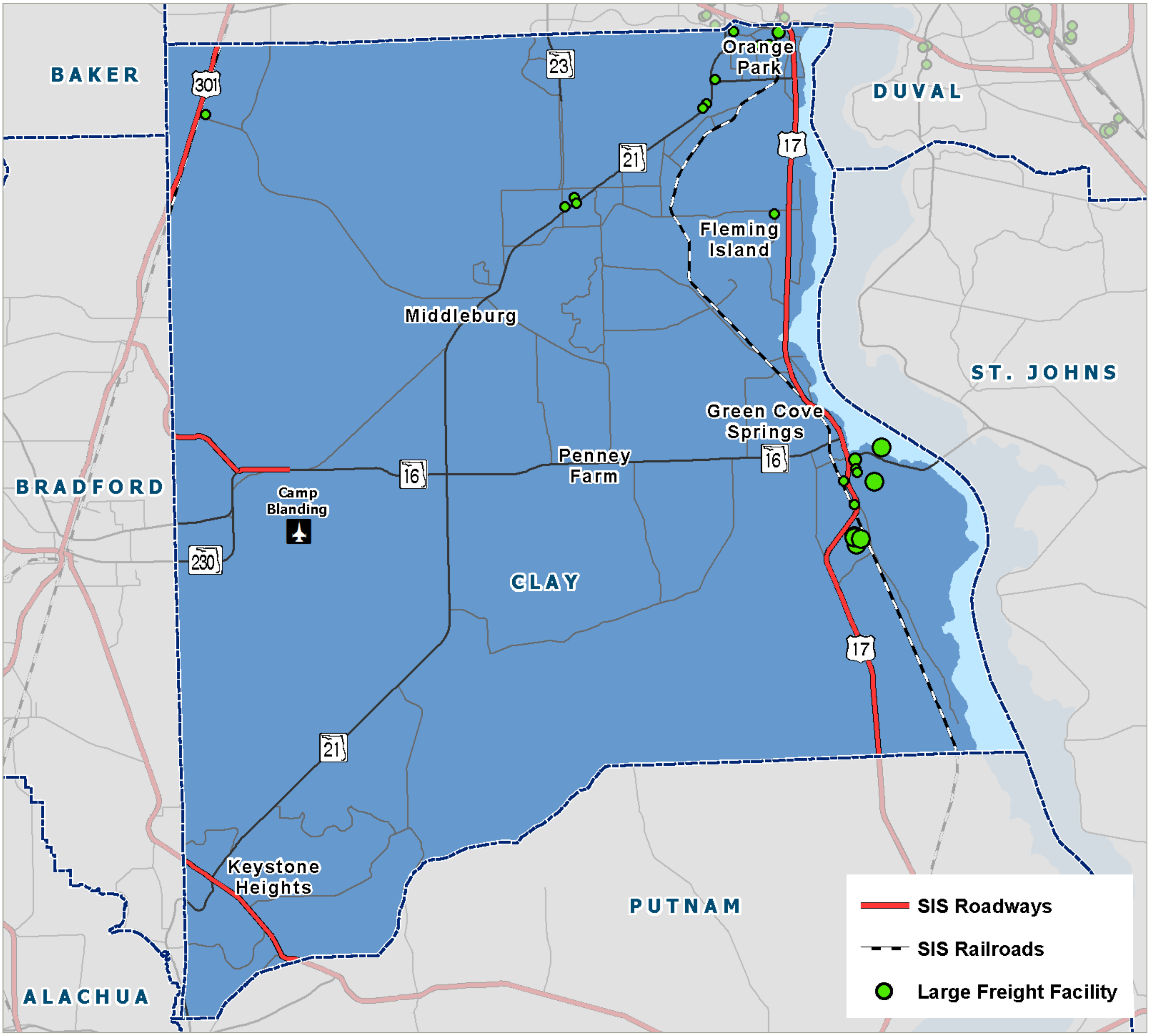
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-295, US 17, SR 100, First Coast Outer Beltway
Railroads	CSX
SIS Airports	Jacksonville International Airport, Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	SR 16, SR 21, SR 224, SR 230
General Aviation Airports	Keystone Airpark

Source: Florida Department of Transportation, 2016

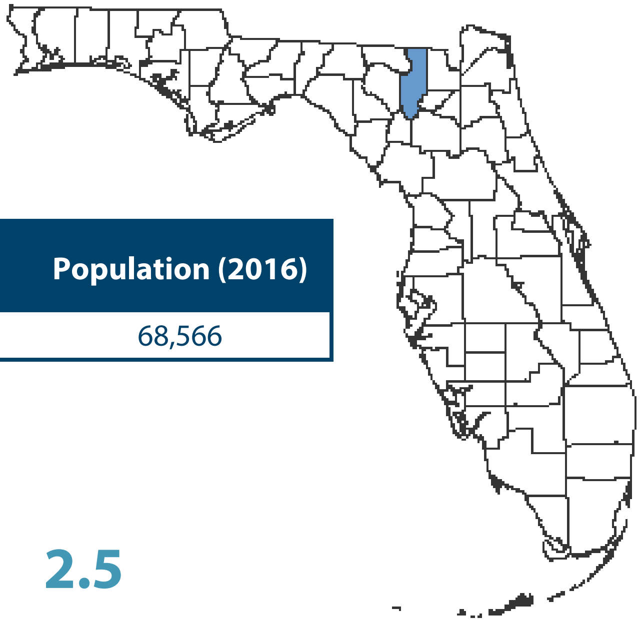
Clay County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Columbia County



Florida's 40th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Lake City, FL	Lake City, FL	801	68,566

Demographics

Average Family Size 3.0

Average Household Size 2.5

22.5% population under 18

40.7 median age

15.4% population 65 & over

Income

$42,926 Median Household Income

$32,366 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

29,167 Labor Force

27,749 Total Employment

4.8% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Government	23.3 %
2. Trade, Transportation & Utilities	20.1 %
3. Education & Health Services	14.5 %
4. Professional & Business Services	13 %
5. Leisure & Hospitality	11.3 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

INBOUND — 2.4 M Tons, Valued at $1.34 B

OUTBOUND — 2.1 M Tons, Valued at $715.7 M

WITHIN REGION — 51 K Tons, Valued at $900 K

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

66.2%

33.8%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Broken Stone / Riprap	1,776,500	$15,300,000
2. Warehouse Goods	441,500	$534,700,000
3. Fertilizers	293,700	$131,500,000
4. Ready Mix Wet Concrete	235,000	$16,100,000
5. Crude Chemical / Fertilizer Minerals	219,400	$19,300,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Duval County	841,750
2. Alachua County	451,330
3. Miami-Dade County	104,570
4. Suwannee County	94,740
5. Lafayette County	81,680

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	726,750
2. Illinois	470,990
3. Alabama	182,000
4. Indiana	151,610
5. Louisiana	81,680

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	**6**
Total Number of Warehouses & Distribution Centers	**170**
Estimated Warehouse & Distribution Center Total Area in Square Feet	**4.1** M

Source: Florida Department of Transportation, 2015

24.3% of residents work outside of county

Average Travel Time to Work
24.2 Minutes

3,207
Commercial Driver's Licenses (CDL) Issued

44,263
Class E Licenses Issued

Annual Fuel & Diesel Consumption

2,554,300
Average Daily Vehicle Miles Traveled
2015

46,529,892 Gallons of Fuel

14,732,724 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	203.9
State Highway Lane Miles	624.8
Number of Bridges	69
At-Grade Railroad Crossings	60
Railroad Mileage	38

Source: Florida Department of Transportation, 2016

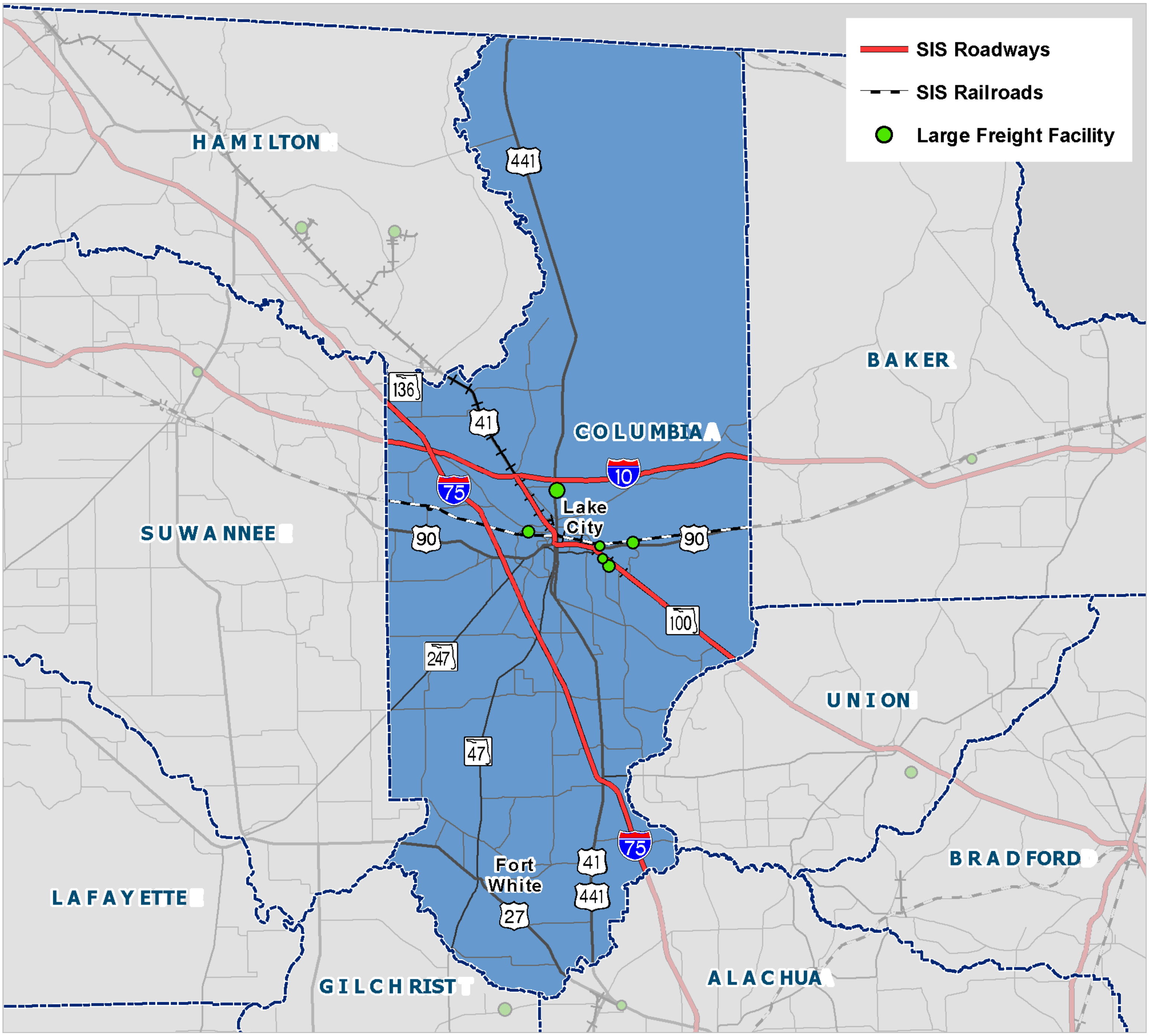
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-10, I-75, SR 100
Railroads	CSX, Norfolk Southern
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 441, US 90, SR 47, SR 247
General Aviation Airports	Lake City Municipal

Source: Florida Department of Transportation, 2016

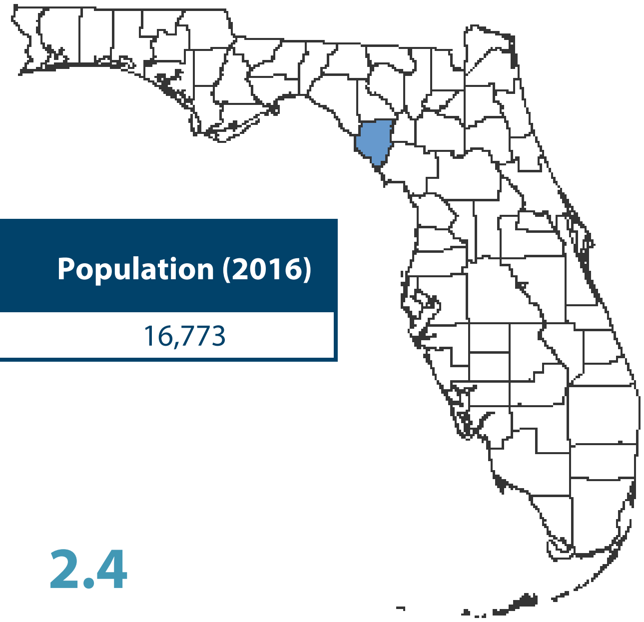
COLUMBIA COUNTY

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Dixie County



Florida's 58th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Cross City, FL	Cross City, FL	864	16,773

Demographics

Average Family Size 2.9

Average Household Size 2.4

19.1% population under 18

46.9 median age

19.3% population 65 & over

Income

$36,292 Median Household Income

$25,400 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

5,564 Labor Force

5,260 Total Employment

5.5% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Government	38.7 %
2. Trade, Transportation & Utilities	18.4 %
3. Manufacturing	15.4 %
4. Leisure & Hospitality	6.5 %
5. Education & Health Services	5.8 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

	Tons	Value
INBOUND	464.4 K Tons	Valued at $153.6 M
OUTBOUND	530.7 M Tons	Valued at $145.3 M
WITHIN REGION	10.80 K Tons	Valued at $1.4 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

Truck: 100%

Rail: 0%

Water: 0%

Air: 0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Primary Forest Materials	631,500	$78,290,000
2. Lumber / Dimension Stock	136,500	$15,180,000
3. Misc. Sawmill / Planing Mill	84,500	$49,740,000
4. Warehouse Goods	29,600	$35,800,000
5. Dairy Farm Products	17,900	$19,000,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Taylor County	123,380
2. Sumter County	56,070
3. Putnam County	55,150
4. Nassau County	50,320
5. Miami-Dade County	5,380

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	175,970
2. Alabama	14,630
3. Texas	9,050
4. South Carolina	7,000
5. Louisiana	5,380

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	1
Total Number of Warehouses & Distribution Centers	25
Estimated Warehouse & Distribution Center Total Area in Square Feet	357.5 K

Source: Florida Department of Transportation, 2015

26.6% of residents work outside of county

Average Travel Time to Work
25.9 Minutes

891
Commercial Driver's Licenses (CDL) Issued

9,859
Class E Licenses Issued

Annual Fuel & Diesel Consumption

272,400
Average Daily Vehicle Miles Traveled
2015

6,275,066 Gallons of Fuel

3,846,529 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	46.3
State Highway Lane Miles	151
Number of Bridges	40
At-Grade Railroad Crossings	0
Railroad Mileage	0

Source: Florida Department of Transportation, 2016

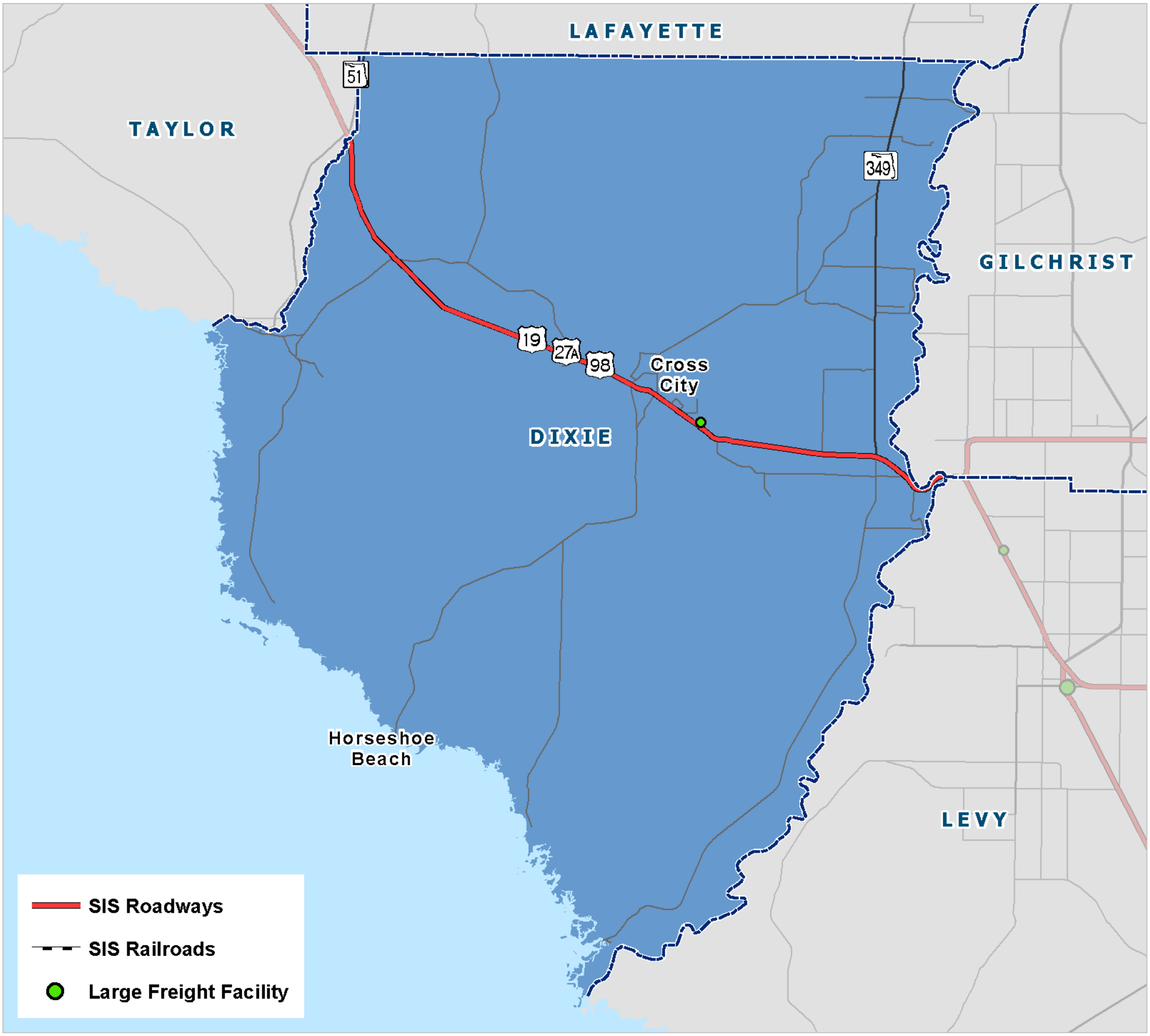
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	US 19
Railroads	No direct rail access within Dixie County
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	SR 51, SR 349
General Aviation Airports	Cross City Airport

Source: Florida Department of Transportation, 2016

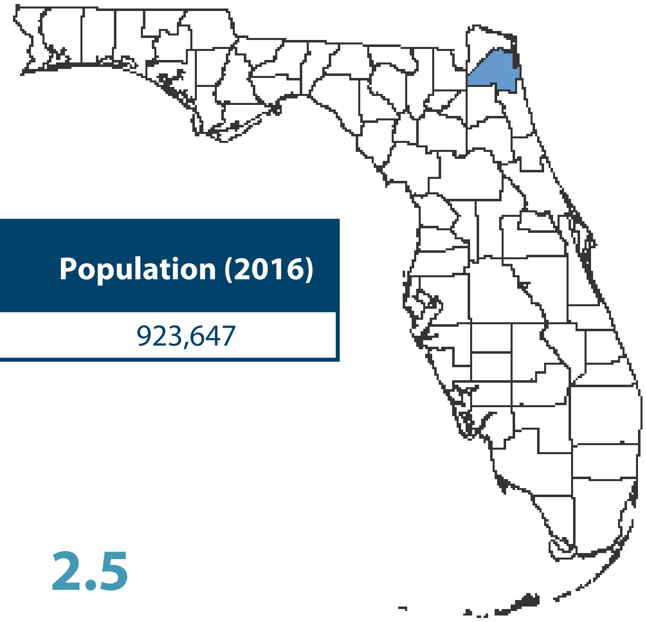
Dixie County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Duval County



Florida's 7th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Jacksonville, FL	Jacksonville, FL	918	923,647

Demographics

Average Family Size 3.0

Average Household Size 2.5

23.5% population under 18

36.4 median age

11.1% population 65 & over

Income

$47,690 Median Household Income

$41,339 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

480,702 Labor Force

458,216 Total Employment

4.7% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Trade, Transportation & Utilities	20.7 %
2. Professional & Business Services	16.3 %
3. Education & Health Services	15.4 %
4. Leisure & Hospitality	11.2 %
5. Financial Activities	10.8 %

Source: Florida Office of Economic and Business Research, 2016

How much freight? Tons | Value

INBOUND	27.4 M Tons	Valued at $56.4 K
OUTBOUND	18.2 M Tons	Valued at $48.9 M
WITHIN REGION	8.2 M Tons	Valued at $30.7 B

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is freight moving? Mode | Tons

61.1%

29.8%

9.1%

0.01%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is moving? Top Commodities | Volume

Commodity	Tons	Value
1. Warehouse Goods	6,559,000	$7,944,000,000
2. FAK Shipments	5,255,000	$26,666,000,000
3. Rail Intermodal Drayage (from dock)	4,939,000	$22,601,000,000
4. Petroleum Refining Products	3,985,000	$46,470,000
5. Rail Intermodal Drayage (to dock)	2,880,000	$13,179,000,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we trading with? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Miami-Dade County	4,256,200
2. Broward County	1,756,430
3. Volusia County	1,298,680
4. Orange County	1,017,520
5. Hillsborough County	1,652,600

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	5,980,100
2. Louisiana	2,574,200
3. Illinois	2,393,830
4. South Carolina	1,925,790
5. Indiana	1,652,600

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	**331**
Total Number of Warehouses & Distribution Centers	**3,229**
Estimated Warehouse & Distribution Center Total Area in Square Feet	**130.9** M

Source: Florida Department of Transportation, 2015

6.1% of residents work outside of county

Average Travel Time to Work
24 Minutes

27,497
Commercial Driver's Licenses (CDL) Issued

641,747
Class E Licenses Issued

Annual Fuel & Diesel Consumption

19,376,100
Average Daily Vehicle Miles Traveled
2015

464,338,951 Gallons of Fuel

110,373,697 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	480.3
State Highway Lane Miles	2,048.4
Number of Bridges	634
At-Grade Railroad Crossings	378
Railroad Mileage	260

Source: Florida Department of Transportation, 2016

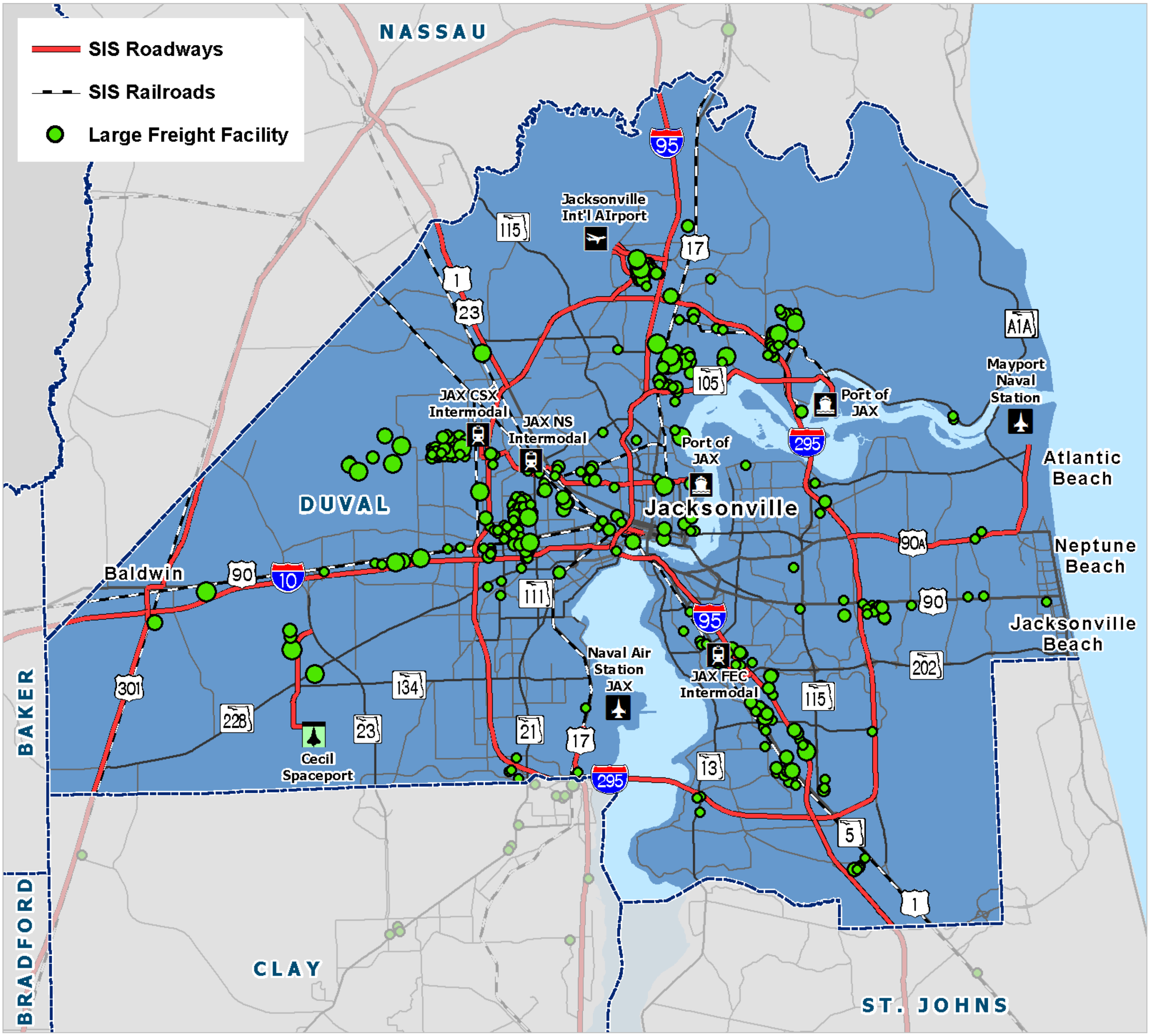
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-10, I-95, I-295, US 1, US 301
Railroads	CSX, FEC, Norfolk Southern
SIS Airports	Jacksonville International Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 17, US 90, SR A1A, SR 10, SR 21, SR 115, SR 202, SR 228
General Aviation Airports	Cecil Airport, Craig Airport, Herlong Airport

Source: Florida Department of Transportation, 2016

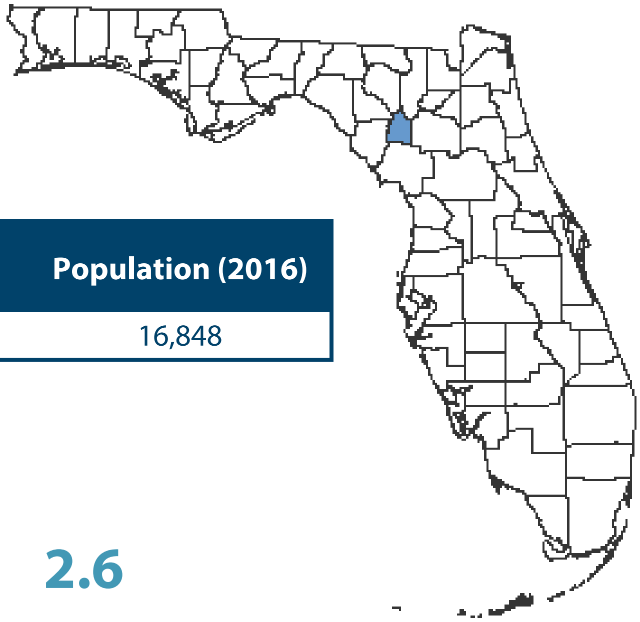
Duval County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Gilchrist County



Florida's 57th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Trenton, FL	Trenton, FL	356	16,848

Demographics

Average Family Size 3.0

Average Household Size 2.6

21.4% population under 18

43 median age

16.9% population 65 & over

Income

$40,623 Median Household Income

$31,356 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

6,658 Labor Force

6,316 Total Employment

5.1% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Government	33.7 %
2. Education & Health Services	17.9 %
3. Natural Resources/Mining	13.1 %
4. Trade, Transportation & Utilities	11.2%
5. Leisure & Hospitality	6.4 %

Source: Florida Office of Economic and Business Research, 2016

How Much Freight? Tons | Value

	Tons	Value
INBOUND	443.5 K Tons	Valued at $398.4 M
OUTBOUND	432 K Tons	Valued at $308.5 M
WITHIN REGION	1 K Tons	Valued at $200 K

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is Freight Moving? Mode | Tons

- Truck: 100%
- Rail: 0%
- Water: 0%
- Air: <1%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is Moving? Top Commodities | Volume

Commodity	Tons	Value
1. Soft Drinks / Mineral Water	189,400	$116,250,000
2. Warehouse Goods	126,300	$153,020,000
3. Ready Mix Wet Concrete	118,800,000	$8,150,000
4. Gravel / Sand	58,700	$440,000
5. Dairy Farm Products	56,700	$60,310,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we Trading With? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	115,190
2. Sumter County	65,100
3. Miami-Dade County	55,470
4. Bay County	39,660
5. Pinellas County	12,020

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	139,570
2. Alabama	30,620
3. South Carolina	19,650
4. California	12,680
5. Oklahoma	12,020

Gilchrist County

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	1
Total Number of Warehouses & Distribution Centers	27
Estimated Warehouse & Distribution Center Total Area in Square Feet	573.7 K

Source: Florida Department of Transportation, 2015

61.2% of residents work outside of county

Average Travel Time to Work
29.5 Minutes

831
Commercial Driver's Licenses (CDL) Issued

10,642
Class E Licenses Issued

Annual Fuel & Diesel Consumption

293,900
Average Daily Vehicle Miles Traveled
2015

7,208,990 Gallons of Fuel

1,079,737 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	60.2
State Highway Lane Miles	121.7
Number of Bridges	5
At-Grade Railroad Crossings	0
Railroad Mileage	0

Source: Florida Department of Transportation, 2016

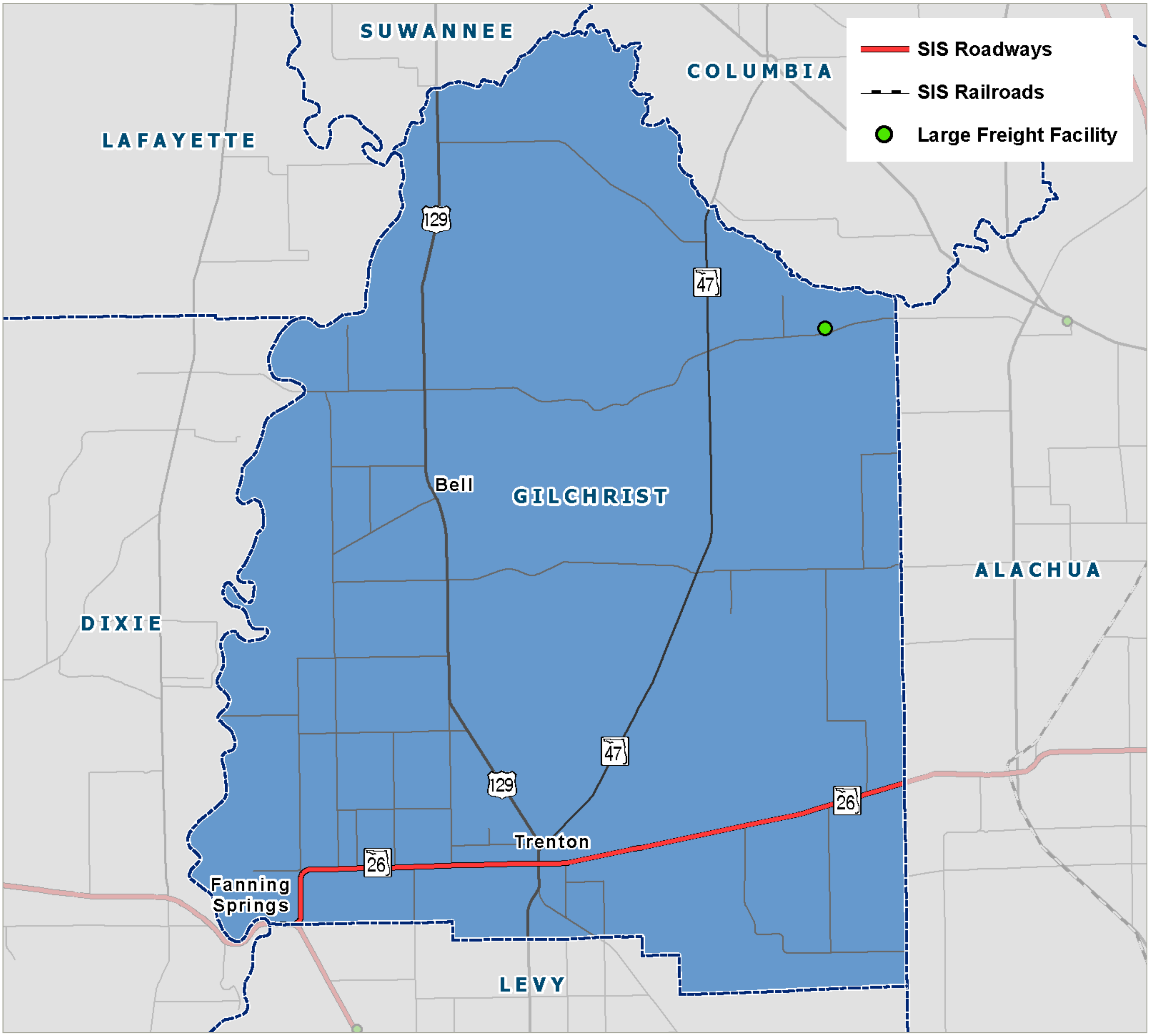
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	US 19, SR 26
Railroads	No direct rail access within Gilchrist County
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 129, SR 49, SR 47
General Aviation Airports	Oak Tree Landing Airport

Source: Florida Department of Transportation, 2016

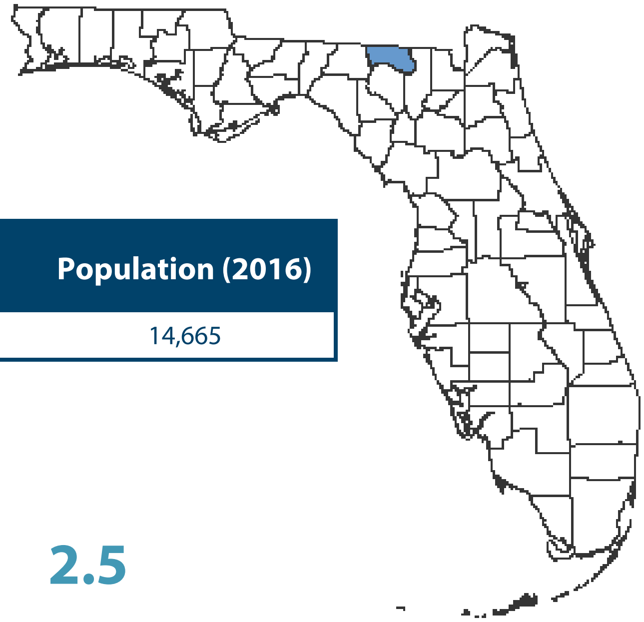
GILCHRIST COUNTY

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Hamilton County



Florida's 61st Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Jasper, FL	Jasper, FL	519	14,665

Demographics

Average Family Size 3.0

Average Household Size 2.5

19.7% population under 18

40 median age

13.1% population 65 & over

Income

$35,048 Median Household Income

$24,824 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

6,939 Labor Force

6,702 Total Employment

3.4% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Government	36.2 %
2. Trade, Transportation & Utilities	15.9 %
3. Natural Resources/Mining	10.5 %
4. Education & Health Services	6.6 %
5. Leisure & Hospitality	3.9 %

Source: Florida Office of Economic and Business Research, 2016

How much freight? Tons | Value

INBOUND	1.2 M Tons	Valued at $2.3 B
OUTBOUND	2.4 M Tons	Valued at $3.1 B
WITHIN REGION	488 M Tons	Valued at $59 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is freight moving? Mode | Tons

35.8%

64.2%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is moving? Top Commodities | Volume

Commodity	Tons	Value
1. Crude Chemical / Fertilizer Minerals	1,935,000	$170,000,000
2. Fertilizer	1,350,000	$605,000,000
3. Motor Vehicle	458,000	$4,218,000,000
4. Warehouse Good	93,000	$112,000,000
5. Primary Forest Material	59,000	$7,000,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we trading with? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	98,710
2. Hillsborough County	40,700
3. Miami-Dade County	39,240
4. Orange County	28,760
5. Pinellas County	145,520

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Illinois	1,119,050
2. Georgia	249,650
3. Indiana	183,360
4. Louisiana	176,400
5. South Carolina	145,520

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	2
Total Number of Warehouses & Distribution Centers	58
Estimated Warehouse & Distribution Center Total Area in Square Feet	1.3 M

Source: Florida Department of Transportation, 2015

32.1% of residents work outside of county

Average Travel Time to Work
22.4 Minutes

781
Commercial Driver's Licenses (CDL) Issued

7,967
Class E Licenses Issued

Annual Fuel & Diesel Consumption

1,094,000
Average Daily Vehicle Miles Traveled
2015

15,201,095 Gallons of Fuel

43,650,924 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	90.6
State Highway Lane Miles	297
Number of Bridges	39
At-Grade Railroad Crossings	60
Railroad Mileage	45

Source: Florida Department of Transportation, 2016

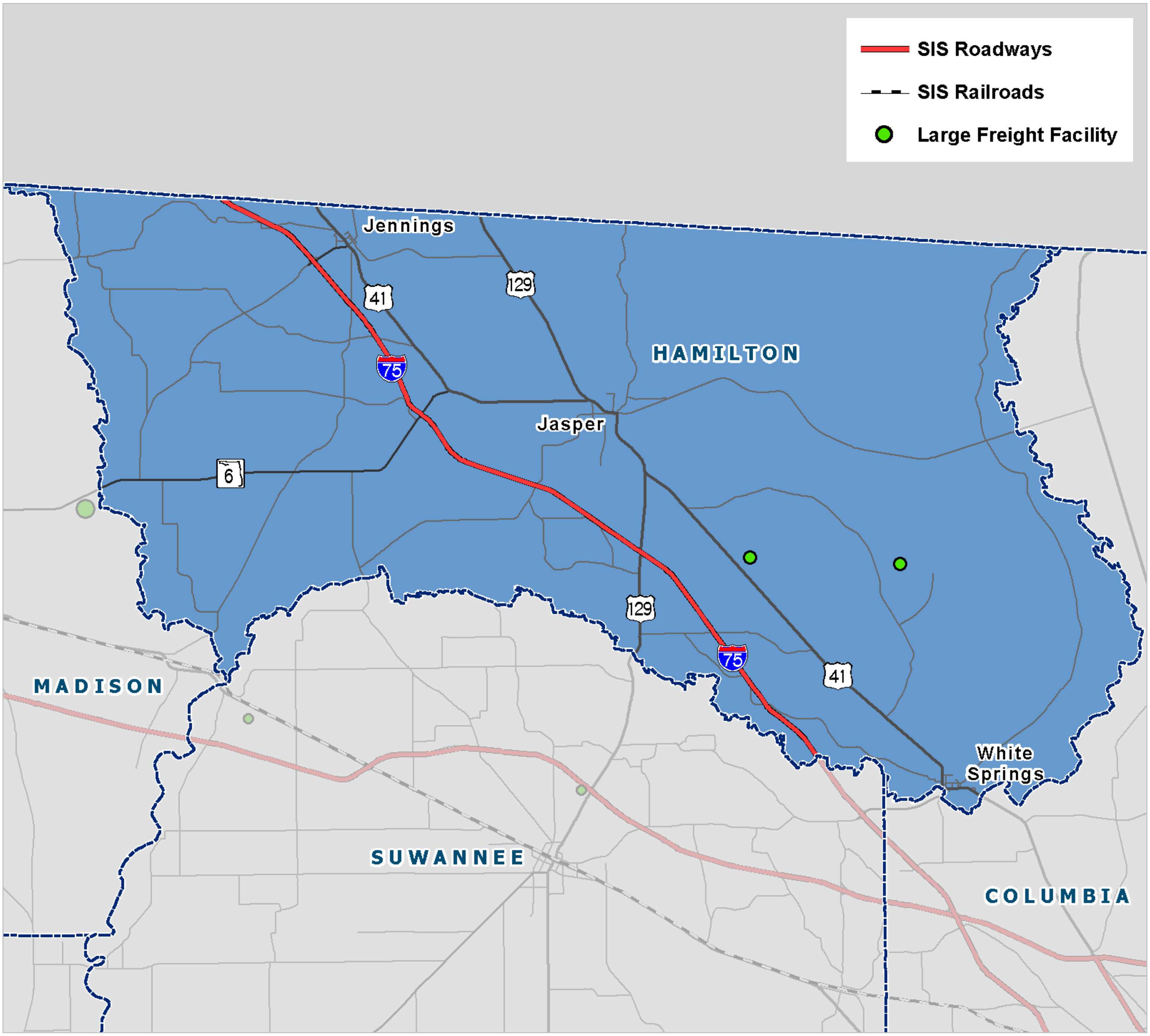
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-75
Railroads	Norfolk Southern
SIS Airports	Jacksonville International Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 41, US 129, SR 6, SR 25, SR 136, SR 143
General Aviation Airports	Lake City Municipal

Source: Florida Department of Transportation, 2016

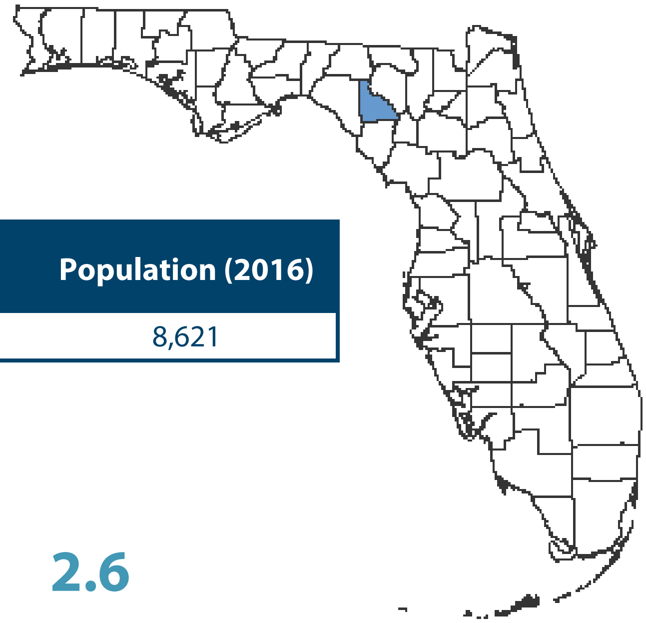
Hamilton County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Lafayette County



Florida's 67th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Mayo, FL	Mayo, FL	548	8,621

Demographics

Average Family Size 3.1

Average Household Size 2.6

20.1% population under 18

37.1 median age

12.2% population 65 & over

Income

$35,864 Median Household Income

$23,012 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

3,151 Labor Force

3,030 Total Employment

3.8% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Government	42.9 %
2. Natural Resources/Mining	15.9 %
3. Trade, Transportation & Utilities	14.3 %
4. Education & Health Services	8.7 %
5. Leisure & Hospitality	3.6 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

INBOUND	88.1 M Tons	Valued at $76.1 M
OUTBOUND	696.6 K Tons	Valued at $519.5 M
WITHIN REGION	200 Tons	Valued at $200 K

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

100%

0%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Broken Stone / Riprap	259,600	$2,200,000
2. Dairy Farm Products	186,100	$197,900,000
3. Misc. Forest Products	93,400,000	$88,400,000
4. Live Poultry	77,800,000	$159,500,000
5. Poultry Eggs	38,700	$35,700,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Duval County	115,000
2. Columbia County	81,970
3. Clay County	62,020
4. Polk County	42,220
5. Hillsborough County	14,140

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	116,840
2. Alabama	33,460
3. California	29,820
4. South Carolina	16,800
5. Texas	14,140

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	0
Total Number of Warehouses & Distribution Centers	13
Estimated Warehouse & Distribution Center Total Area in Square Feet	81.1 K

Source: Florida Department of Transportation, 2015

41.2% of residents work outside of county

Average Travel Time to Work
22.8 Minutes

429
Commercial Driver's Licenses (CDL) Issued

4,078
Class E Licenses Issued

Annual Fuel & Diesel Consumption

153,300
Average Daily Vehicle Miles Traveled
2015

2,125,713 Gallons of Fuel

1,430,882 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	62.2
State Highway Lane Miles	124.4
Number of Bridges	11
At-Grade Railroad Crossings	0
Railroad Mileage	0

Source: Florida Department of Transportation, 2016

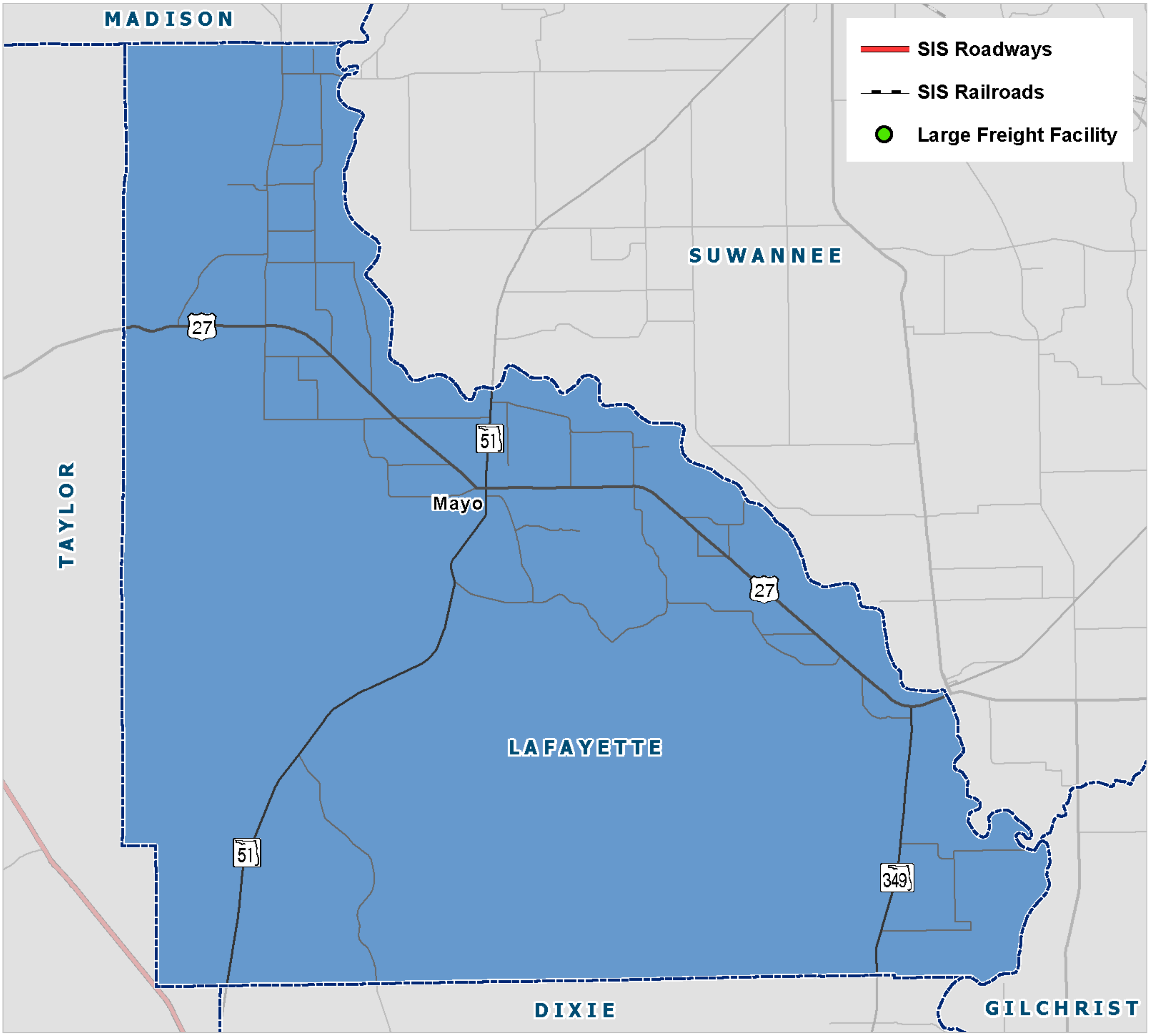
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	US 19
Railroads	No direct rail access within Lafayette County
SIS Airports	Tallahassee Regional Airport, Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 27, SR 51, SR 349
General Aviation Airports	Suwannee County Airport, Cross City Airport, Perry-Foley Airport

Source: Florida Department of Transportation, 2016

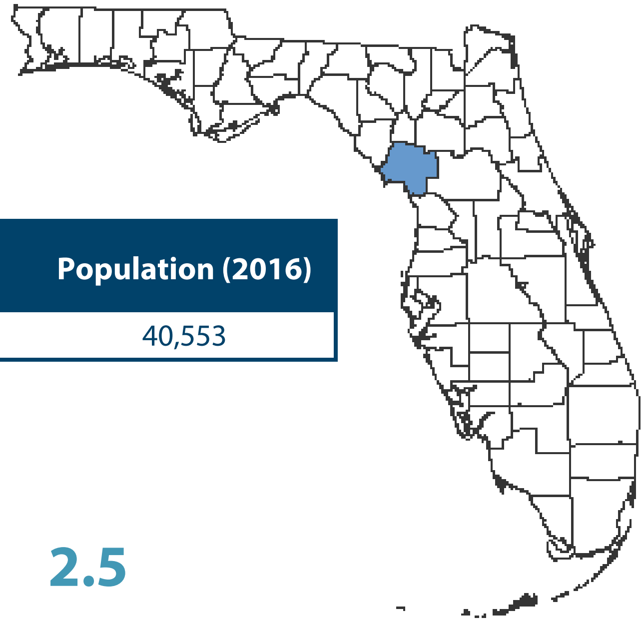
Lafayette County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Levy County



Florida's 46th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Bronson, FL	Williston, FL	1,412	40,553

Demographics

Average Family Size 2.9

Average Household Size 2.5

21.1% population under 18

46.2 median age

19.4% population 65 & over

Income

$35,782 Median Household Income

$32,457 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

16,660 Labor Force

15,806 Total Employment

5.1% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Trade, Transportation & Utilities	22.1 %
2. Government	21.9 %
3. Construction	11.0 %
4. Leisure & Hospitality	9.7 %
5. Natural Resources/Mining	9.0%

Source: Florida Office of Economic and Business Research, 2016

How Much Freight? Tons | Value

INBOUND	548.6 K Tons	Valued at $379.6 M
OUTBOUND	1.1 M Tons	Valued at $319.2 M
WITHIN REGION	57.6 K Tons	Valued at $1.4 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is Freight Moving? Mode | Tons

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is Moving? Top Commodities | Volume

Commodity	Tons	Value
1. Broken Stone / Riprap	754,100	$6,490,000
2. Primary Forest Products	454,300	$56,320,000
3. Warehouse Goods	94,200	$114,110,000
4. Misc. Fresh Vegetables	62,000	$82,610,000
5. Distilled / Blended Liquors	46,800	$55,020,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are We Trading With? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Alachua County	339,920
2. Marion County	237,510
3. Taylor County	106,930
4. Duval County	79,440
5. Putnam County	11,280

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	105,270
2. Iowa	17,970
3. Alabama	12,780
4. Nebraska	11,670
5. South Carolina	11,280

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	0
Total Number of Warehouses & Distribution Centers	161
Estimated Warehouse & Distribution Center Total Area in Square Feet	1.2 M

Source: Florida Department of Transportation, 2015

50.6% of residents work outside of county

Average Travel Time to Work
30.1 Minutes

2,238
Commercial Driver's Licenses (CDL) Issued

28,782
Class E Licenses Issued

Annual Fuel & Diesel Consumption

793,500
Average Daily Vehicle Miles Traveled
2015

19,285,747 Gallons of Fuel

4,834,358 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	182.4
State Highway Lane Miles	515.1
Number of Bridges	44
At-Grade Railroad Crossings	19
Railroad Mileage	18

Source: Florida Department of Transportation, 2016

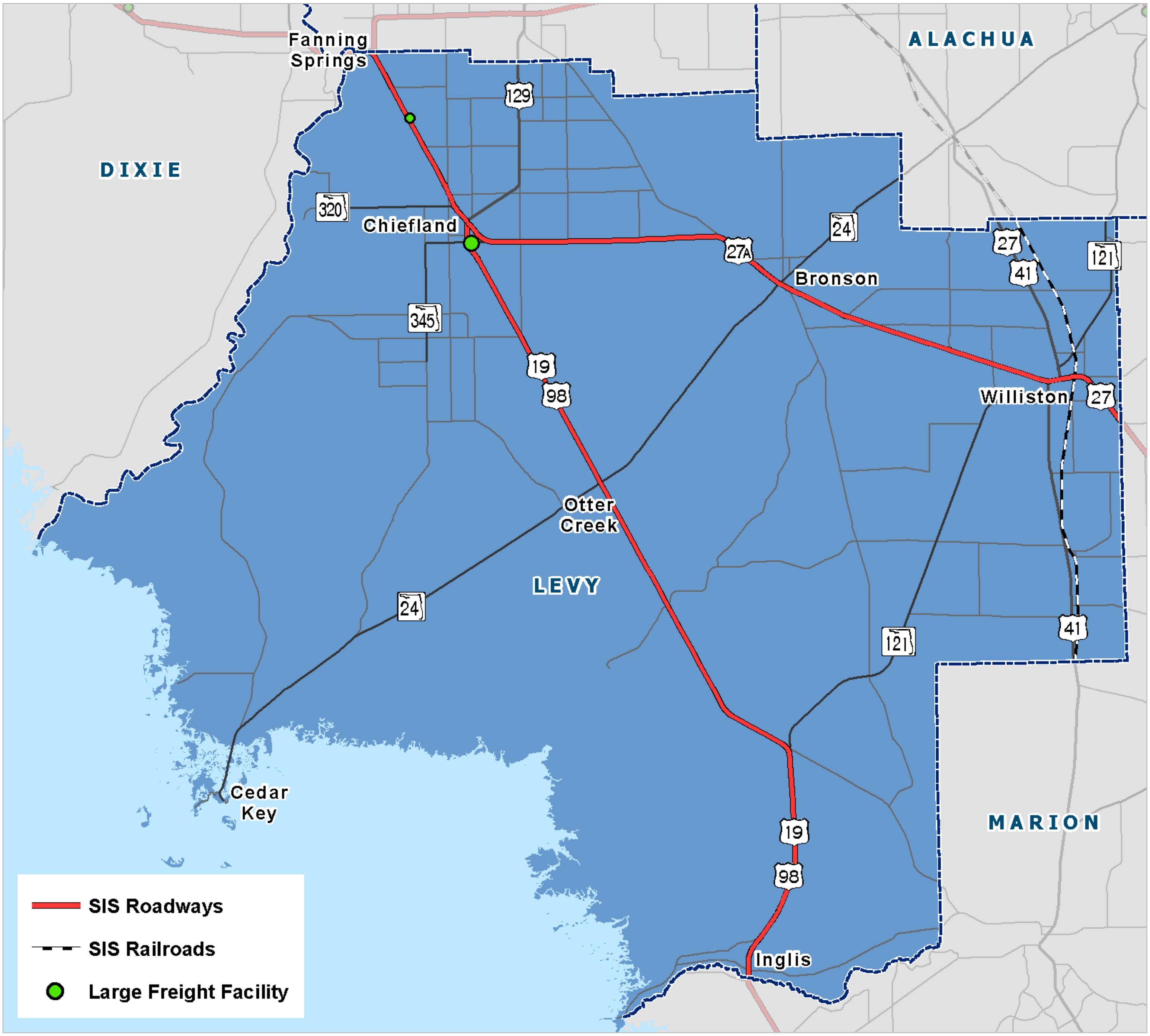
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	US 19, US 27
Railroads	Florida Northern
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 129, US 41, SR 121, SR 24, SR 320
General Aviation Airports	George T. Lewis Airport

Source: Florida Department of Transportation, 2016

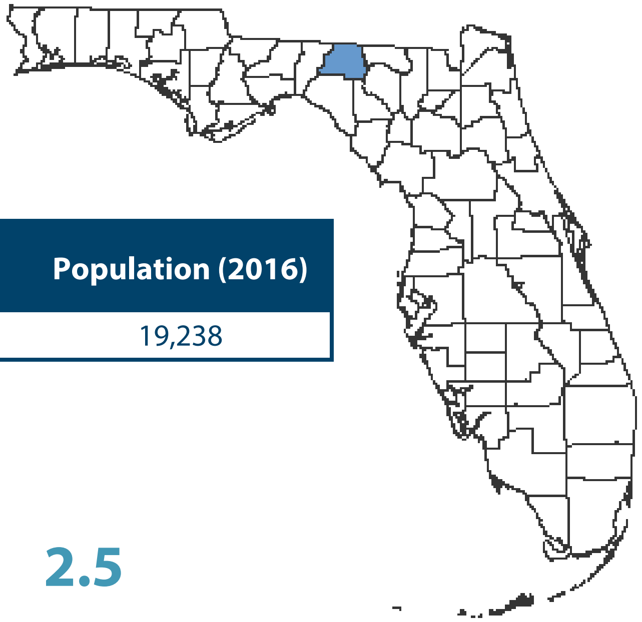
Levy County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Madison County



Florida's 56th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Madison, FL	Madison, FL	716	19,238

Demographics

Average Family Size 3.0

Average Household Size 2.5

21.8% population under 18

41.3 median age

15.8% population 65 & over

Income

$32,164 Median Household Income

$29,757 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

7,391 Labor Force

7,017 Total Employment

5.1% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Government	31.9 %
2. Trade, Transportation & Utilities	19.3 %
3. Education & Health Services	15.4 %
4. Manufacturing	10.5 %
5. Leisure & Hospitality	7.8 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

INBOUND 387.2 K Tons, Valued at $261.1 M

OUTBOUND 581.4 K Tons, Valued at $330.6 M

WITHIN REGION 1.7 K Tons, Valued at $300 K

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

Truck: 89.3%

Rail: 10.7%

Water: 0%

Air: 0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Primary Forest Materials	278,800	$34,560,000
2. Soft Drinks / Mineral Water	231,200	$141,860,000
3. Broken Stone / Riprap	93,200	$800,000
4. Warehouse Goods	53,600	$64,900,000
5. Misc. Forest Products	27,300	$25,850,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Taylor County	45,360
2. Okaloosa County	36,460
3. Duval County	27,910
4. Bay County	27,410
5. Escambia County	12,290

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	391,910
2. Alabama	81,240
3. Kansas	14,670
4. South Carolina	12,780
5. Pennsylvania	12,290

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	3
Total Number of Warehouses & Distribution Centers	53
Estimated Warehouse & Distribution Center Total Area in Square Feet	1.4 M

Source: Florida Department of Transportation, 2015

30.4% of residents work outside of county

Average Travel Time to Work
27.7 Minutes

1,018 Commercial Driver's Licenses (CDL) Issued

10,881 Class E Licenses Issued

Annual Fuel & Diesel Consumption

2015
1,067,800 Average Daily Vehicle Miles Traveled

12,204,238 Gallons of Fuel

17,235,347 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	138.5
State Highway Lane Miles	360.7
Number of Bridges	42
At-Grade Railroad Crossings	58
Railroad Mileage	65

Source: Florida Department of Transportation, 2016

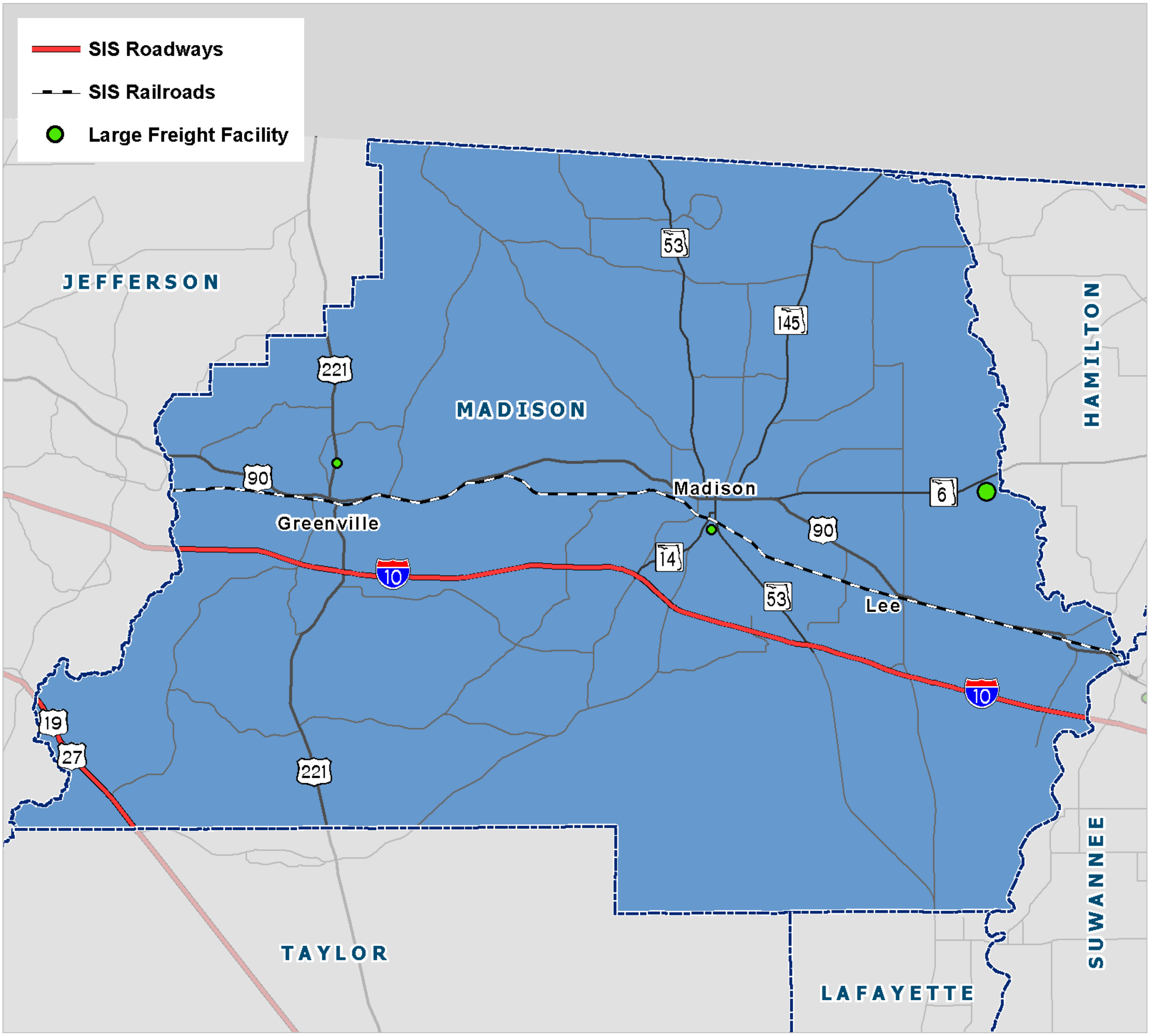
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-10, US 27, US 19
Railroads	CSX, Georgia Florida Railroad
SIS Airports	Tallahassee Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 90, SR 6, SR 14, SR 53, SR 145
General Aviation Airports	Suwannee County Airport, Perry-Foley Airport

Source: Florida Department of Transportation, 2016

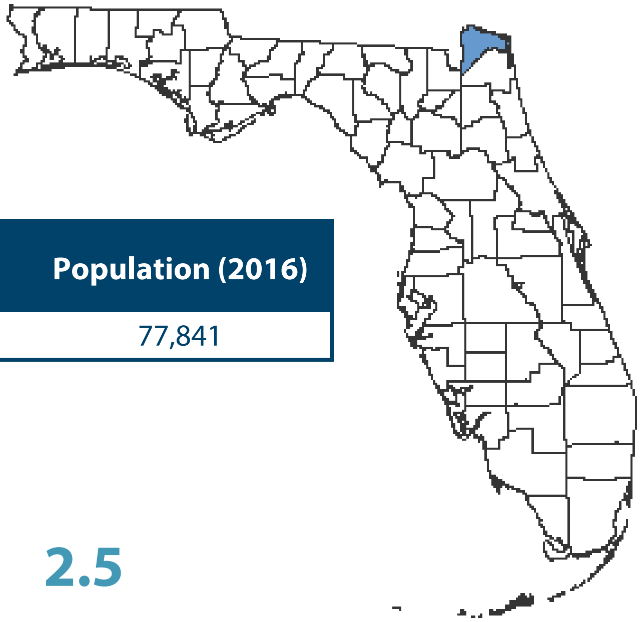
Madison County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Nassau County



Florida's 37th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Fernandina Beach, FL	Fernandina Beach, FL	726	77,841

Demographics

Average Family Size 2.9

Average Household Size 2.5

21.7% population under 18

44.7 median age

16.2% population 65 & over

Income

$54,116 Median Household Income

$49,675 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

37,962 Labor Force

36,319 Total Employment

4.3% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Leisure & Hospitality	23.6 %
2. Trade, Transportation & Utilities	19.5 %
3. Government	16.2 %
4. Education & Health Services	11.1 %
5. Professional & Business Services	10.0 %

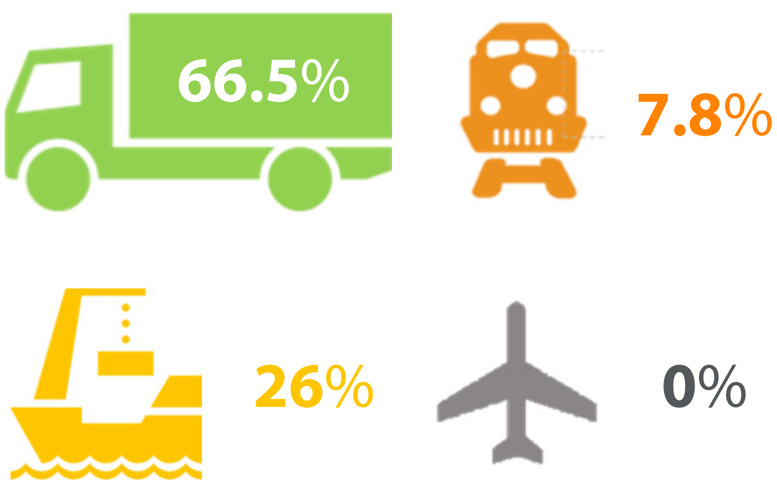
Source: Florida Office of Economic and Business Research, 2016

How much freight? Tons | Value

	Tons	Value
INBOUND	2.4 M Tons	Valued at $2.6 B
OUTBOUND	2.2 M Tons	Valued at $744 M
WITHIN REGION	181 K Tons	Valued at $40 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is freight moving? Mode | Tons



Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is moving? Top Commodities | Volume

Commodity	Tons	Value
1. Primary Forest Materials	1,962,000	$243,000,000
2. Petroleum Refining Products	1,105,000	$1,339,000,000
3. Fiber, Paper, or Pulpboard	256,000	$184,000,000
4. Pulp or Pulp Mill Products	253,000	$99,000,000
5. Warehouse Goods	240,000	$291,000,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we trading with? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	372,420
2. Putnam County	200,980
3. Miami-Dade County	125,270
4. Clay County	78,510
5. Alachua County	112,770

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	1,267,590
2. Louisiana	534,880
3. Texas	333,430
4. South Carolina	293,050
5. Mississippi	112,770

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	7
Total Number of Warehouses & Distribution Centers	119
Estimated Warehouse & Distribution Center Total Area in Square Feet	4.9 M

Source: Florida Department of Transportation, 2015

41.5% of residents work outside of county

Average Travel Time to Work
29 Minutes

3,470
Commercial Driver's Licenses (CDL) Issued

61,751
Class E Licenses Issued

Annual Fuel & Diesel Consumption

1,832,100
Average Daily Vehicle Miles Traveled
2015

37,437,855 Gallons of Fuel

7,702,141 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	111.5
State Highway Lane Miles	401.1
Number of Bridges	76
At-Grade Railroad Crossings	72
Railroad Mileage	87

Source: Florida Department of Transportation, 2016

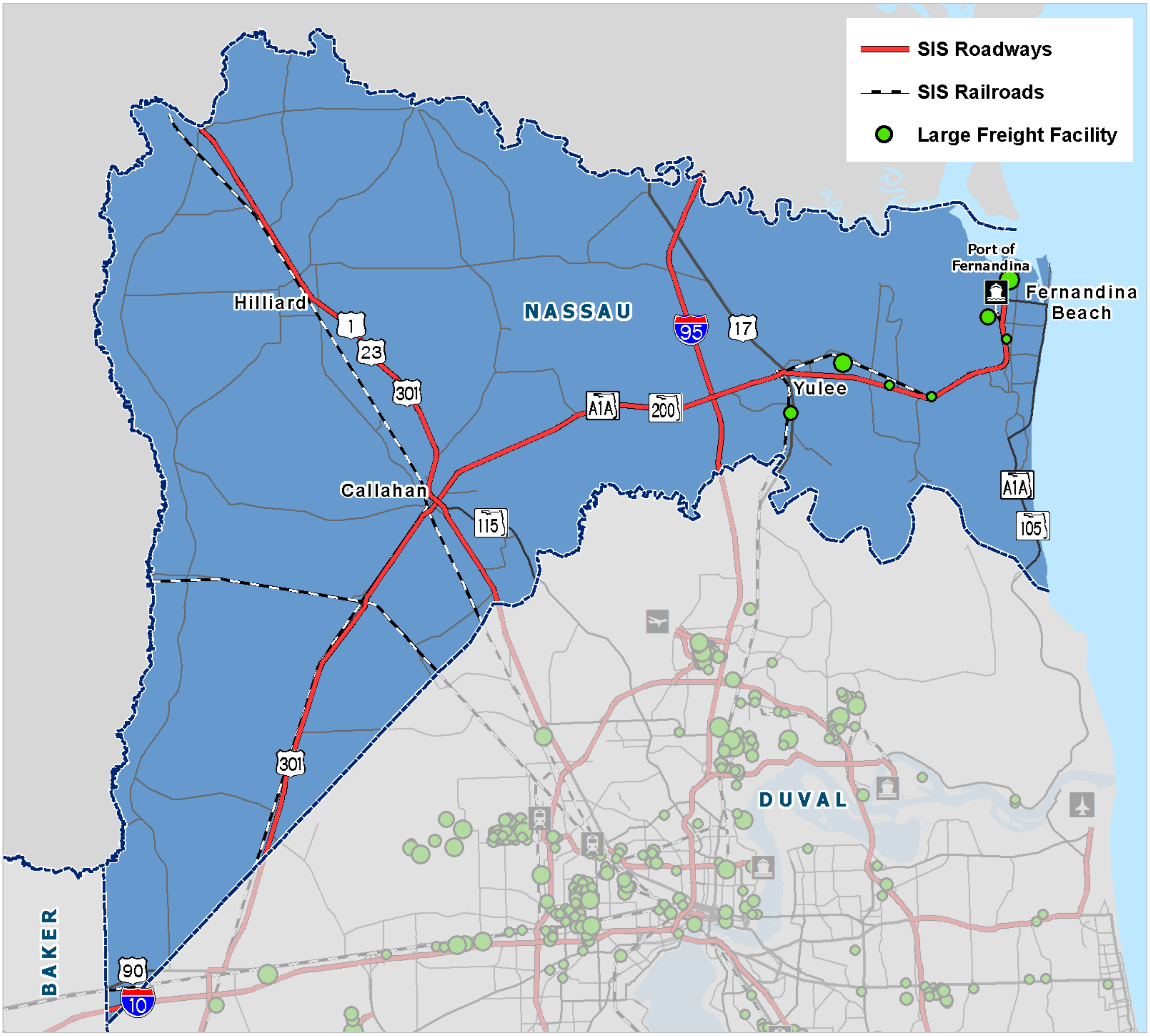
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-95, I-10, US 301, US 1, SR 200
Railroads	CSX, Norfolk Southern, First Coast Railroad
SIS Airports	Jacksonville International Airport
SIS Seaports	Port of Fernandina
Non-SIS State Highways	US 17, SR A1A, SR 115
General Aviation Airports	Hilliard Airpark, Fernandina Beach Municipal Airport

Source: Florida Department of Transportation, 2016

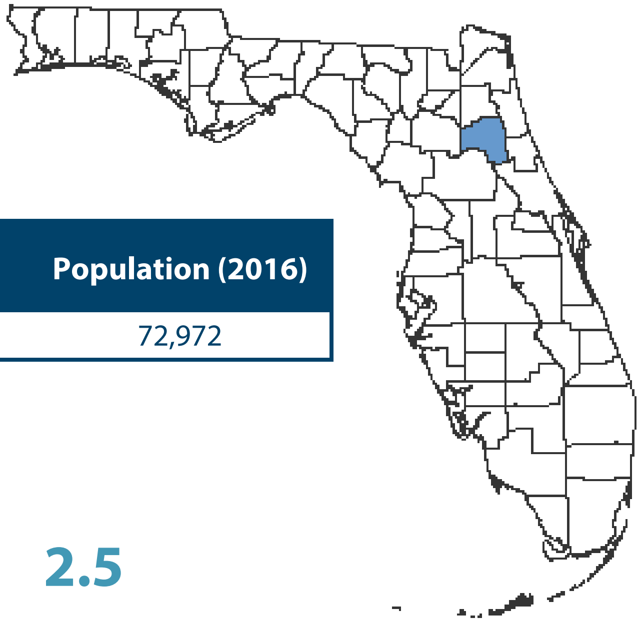
Nassau County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Putnam County



Florida's 39th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Palatka, FL	Palatka, FL	827	72,972

DEMOGRAPHICS

Average Family Size 2.9

Average Household Size 2.5

22.6% population under 18

44.2 median age

18.9% population 65 & over

INCOME

$31,715 Median Household Income

$28,501 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

EMPLOYMENT

29,499 Labor Force

27,837 Total Employment

5.6% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Government	23.4 %
2. Trade, Transportation & Utilities	21.1 %
3. Education & Health Services	15.4 %
4. Manufacturing	9.6 %
5. Leisure & Hospitality	9.1 %

Source: Florida Office of Economic and Business Research, 2016

How Much Freight? Tons | Value

INBOUND	**6.1** M Tons	Valued at **$1.3** B
OUTBOUND	**1.6** M Tons	Valued at $**741.2** M
WITHIN REGION	**43** K Tons	Valued at $**3.2** M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is Freight Moving? Mode | Tons

43.9%

55.7%

0.4%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is Moving? Top Commodities | Volume

Commodity	Tons	Value
1. Bituminous Coal	4,164,000	$152,200,000
2. Primary Forest Materials	809,000	$100,300,000
3. Ready Mix Wet Concrete	430,000	$29,500,000
4. Gravel / Sand	371,000	$2,800,000
5. Warehouse Goods	263,000	$318,600,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are We Trading With? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	283,580
2. Orange County	227,340
3. Marion County	217,670
4. Nassau County	200,980
5. Clay County	67,280

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Kentucky	2,729,500
2. Illinois	1,197,300
3. Georgia	531,270
4. West Virginia	257,020
5. South Carolina	67,280

Putnam County

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	**7**
Total Number of Warehouses & Distribution Centers	**146**
Estimated Warehouse & Distribution Center Total Area in Square Feet	**6.8** M

Source: Florida Department of Transportation, 2015

30.3% of residents work outside of county

Average Travel Time to Work
27.3 Minutes

2,552
Commercial Driver's Licenses (CDL) Issued

46,566
Class E Licenses Issued

Annual Fuel & Diesel Consumption

1,147,900
Average Daily Vehicle Miles Traveled
2015

31,895,253 Gallons of Fuel

6,964,771 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	140.7
State Highway Lane Miles	377.2
Number of Bridges	28
At-Grade Railroad Crossings	73
Railroad Mileage	74

Source: Florida Department of Transportation, 2016

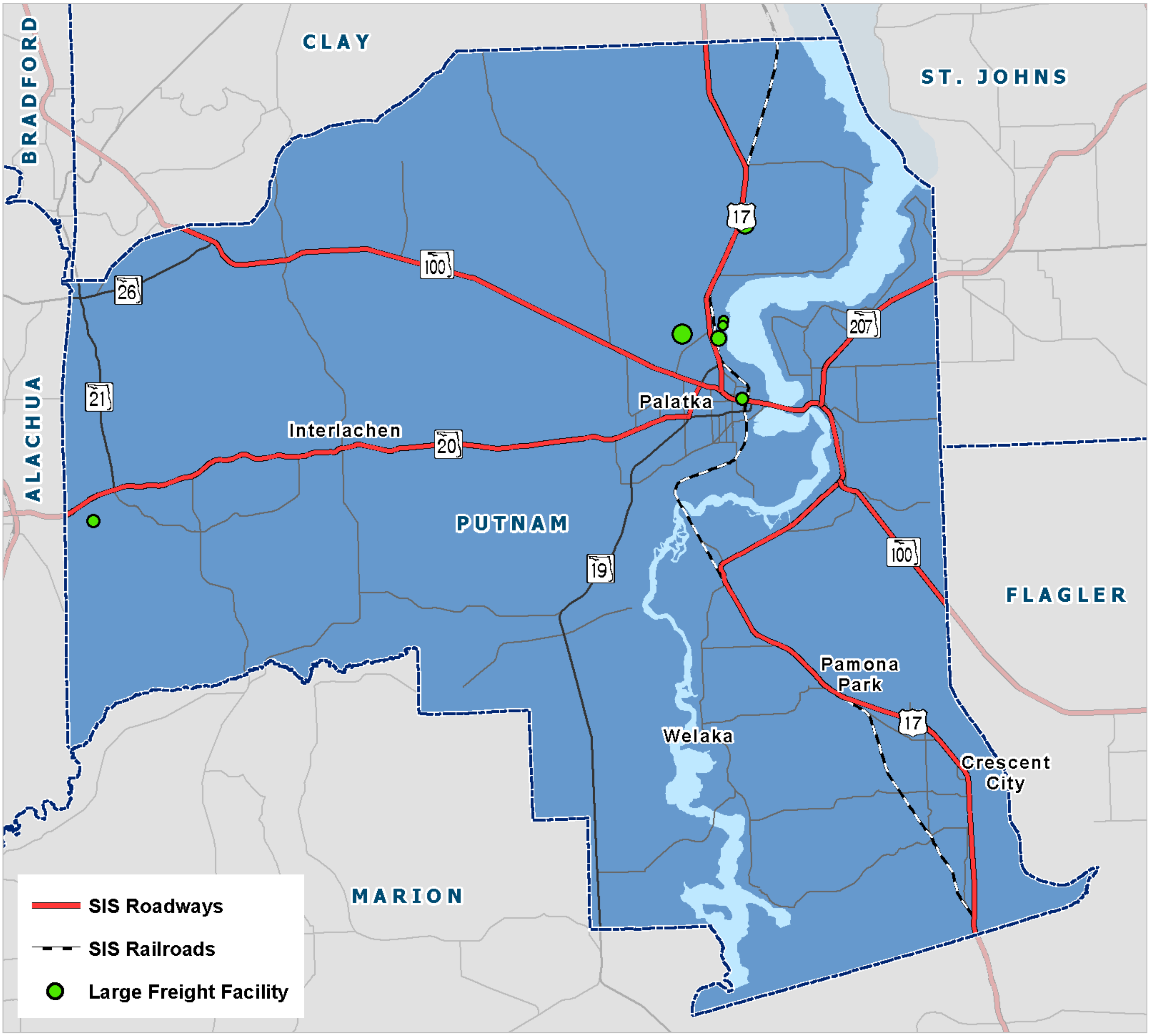
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	US 17, SR 20, SR 100, SR 207
Railroads	CSX
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	SR 19, SR 21, SR 26
General Aviation Airports	Palatka Municipal - Lt. Kay Larkin Field

Source: Florida Department of Transportation, 2016

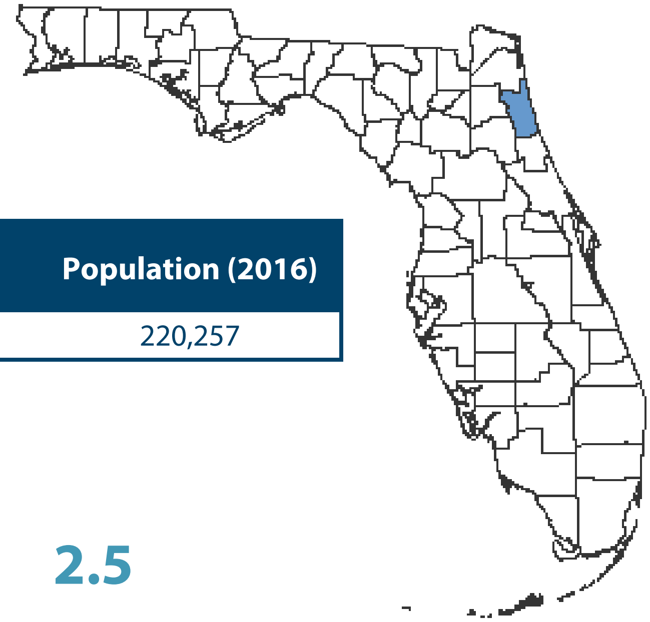
Putnam County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

St. Johns County



Florida's 24th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
St. Augustine, FL	St. Augustine, FL	821	220,257

Demographics

Average Family Size 2.9

Average Household Size 2.5

23.1% population under 18

42.8 median age

15.7% population 65 & over

Income

$66,194 Median Household Income

$60,441 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

116,517 Labor Force

112,333 Total Employment

3.6% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Leisure & Hospitality	20.6 %
2. Trade, Transportation & Utilities	19.4 %
3. Education & Health Services	16.0 %
4. Government	14.0 %
5. Professional & Business Services	9.6 %

Source: Florida Office of Economic and Business Research, 2016

How much freight? Tons | Value

	Tons	Value
INBOUND	1.8 M Tons	Valued at $2.2 B
OUTBOUND	741.4 K Tons	Valued at $397 M
WITHIN REGION	19.3 K Tons	Valued at $3 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is freight moving? Mode | Tons

95.7%

4.3%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is moving? Top Commodities | Volume

Commodity	Tons	Value
1. Warehouse Goods	691,700	$837,800,000
2. Broken Stone / Riprap	304,800	$2,600,000
3. Ready Mix Wet Concrete	285,100,000	$19,500,000
4. Gravel / Sand	139,900	$1,000,000
5. Primary Forest Materials	133,500	$16,500,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we trading with? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Duval County	506,220
2. Miami-Dade County	237,700
3. Putnam County	99,670
4. Volusia County	81,030
5. Marion County	48,980

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	264,890
2. South Carolina	72,110
3. California	59,110
4. Ohio	51,200
5. Alabama	48,980

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	**22**
Total Number of Warehouses & Distribution Centers	**827**
Estimated Warehouse & Distribution Center Total Area in Square Feet	**20.1** M

Source: Florida Department of Transportation, 2015

43% of residents work outside of county

Average Travel Time to Work
25.9 Minutes

3,852
Commercial Driver's Licenses (CDL) Issued

175,292
Class E Licenses Issued

Annual Fuel & Diesel Consumption

4,818,600
Average Daily Vehicle Miles Traveled
2015

113,801,032 Gallons of Fuel

20,369,443 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	185.8
State Highway Lane Miles	671.7
Number of Bridges	84
At-Grade Railroad Crossings	24
Railroad Mileage	48

Source: Florida Department of Transportation, 2016

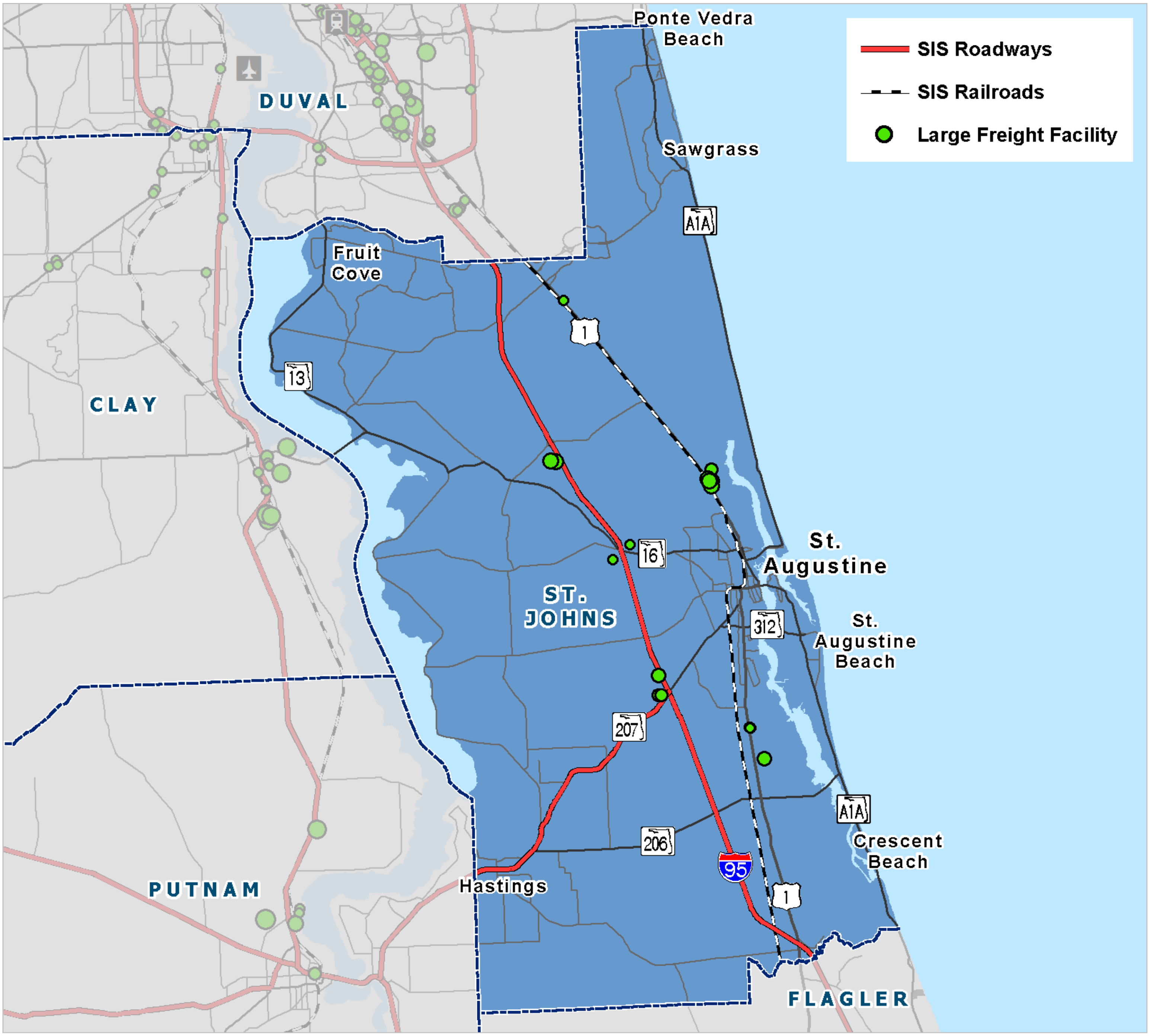
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-95, SR 207
Railroads	FEC
SIS Airports	Jacksonville International Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 1, SR A1A, SR 16
General Aviation Airports	Northeast Florida Regional Airport

Source: Florida Department of Transportation, 2016

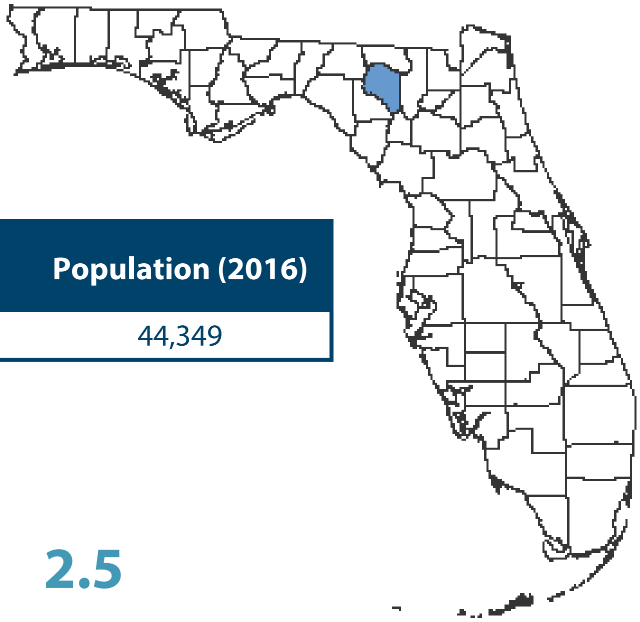
St. Johns County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Suwannee County



Florida's 44th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Live Oak, FL	Live Oak, FL	692	44,349

DEMOGRAPHICS

Average Family Size 2.9

Average Household Size 2.5

22.7% population under 18

41.9 median age

18.9% population 65 & over

INCOME

$36,289 Median Household Income

$30,449 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

EMPLOYMENT

17,890 Labor Force

16,998 Total Employment

4.9% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Government	21.8 %
2. Trade, Transportation & Utilities	20.5 %
3. Manufacturing	16.8 %
4. Education & Health Services	12.6 %
5. Leisure & Hospitality	8.0 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

	Tons	Value
INBOUND	1.7 M Tons	Valued at $958 M
OUTBOUND	1.9 M Tons	Valued at $1.5 B
WITHIN REGION	23 K Tons	Valued at $17 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

92.8%

7.2%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Broken Stone / Riprap	1,018,200	$8,800,000
2. Primary Forest Materials	405,300	$50,200,000
3. Portland Cement	271,600	$23,300,000
4. Grain	266,100	$37,900,000
5. Live Poultry	248,100	$508,200,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Taylor County	792,270
2. Duval County	304,920
3. Miami-Dade County	101,780
4. Columbia County	94,740
5. Orange County	63,900

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	693,310
2. Alabama	131,290
3. Indiana	117,320
4. South Carolina	70,680
5. Michigan	63,900

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	2
Total Number of Warehouses & Distribution Centers	72
Estimated Warehouse & Distribution Center Total Area in Square Feet	13.8 M

Source: Florida Department of Transportation, 2015

34.8% of residents work outside of county

Average Travel Time to Work
26 Minutes

2,572
Commercial Driver's Licenses (CDL) Issued

26,593
Class E Licenses Issued

Annual Fuel & Diesel Consumption

1,248,800
Average Daily Vehicle Miles Traveled
2015

22,462,602 Gallons of Fuel

7,702,687 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	128.8
State Highway Lane Miles	332.4
Number of Bridges	35
At-Grade Railroad Crossings	42
Railroad Mileage	26

Source: Florida Department of Transportation, 2016

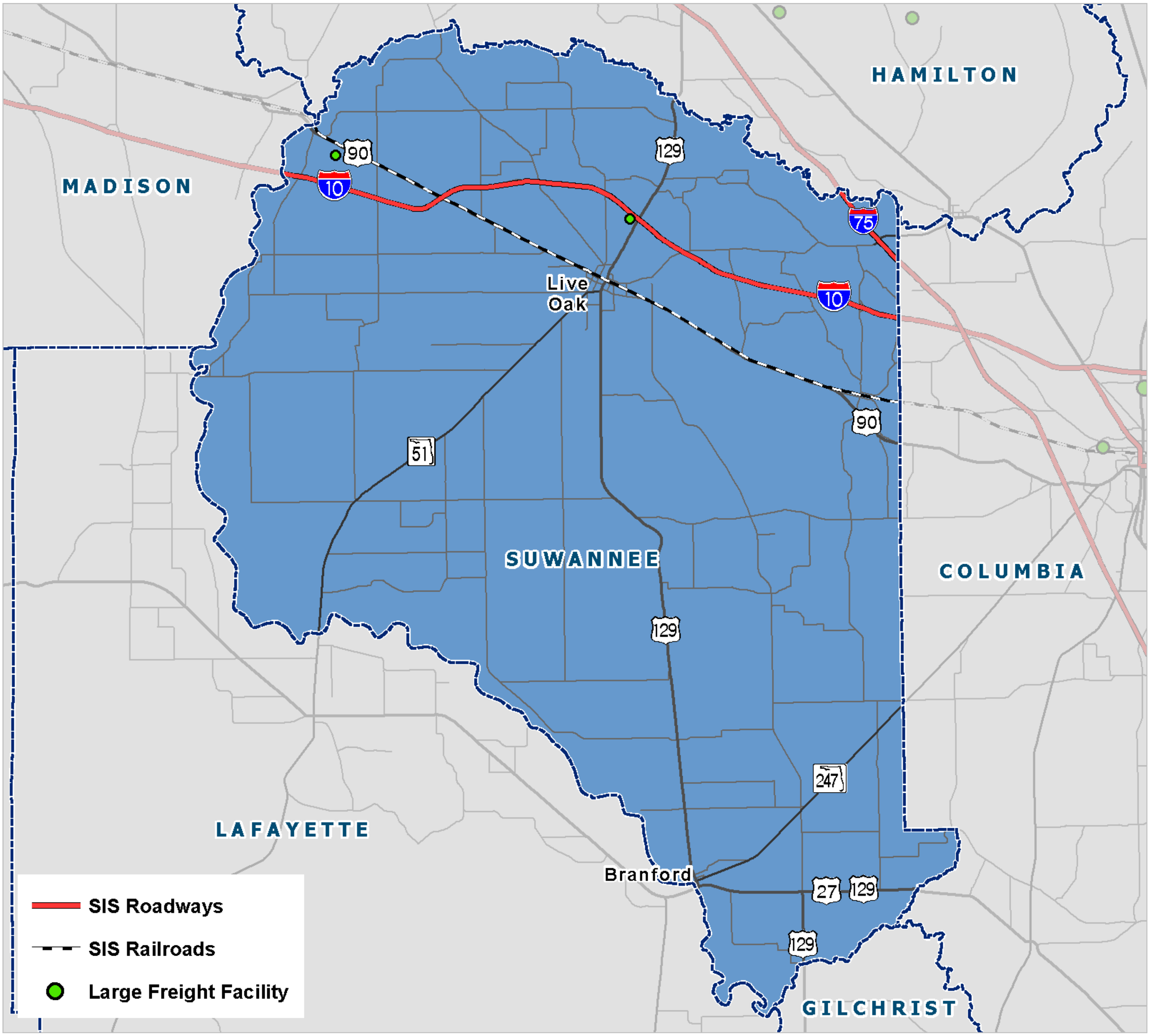
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	I-10, I-75
Railroads	CSX
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 27, US 129, SR 51, SR 247
General Aviation Airports	Suwannee County Airport

Source: Florida Department of Transportation, 2016

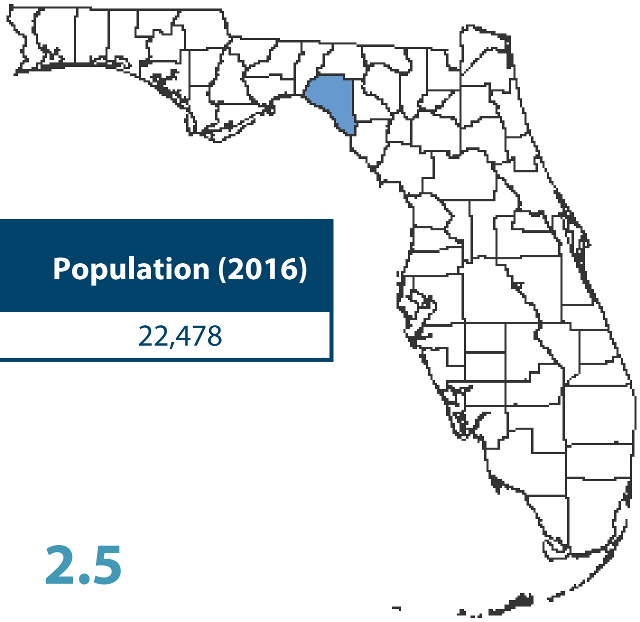
SUWANNEE COUNTY

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Taylor County



Florida's 54th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Perry, FL	Perry, FL	1,232	22,478

Demographics

Average Family Size 2.9

Average Household Size 2.5

19.7% population under 18

42.6 median age

15.6% population 65 & over

Income

$36,181 Median Household Income

$30,354 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

8,457 Labor Force

8,004 Total Employment

5.4% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

KEY INDUSTRY SECTORS % OF EMPLOYMENT

Industry Sector	Percent of Workforce
1. Manufacturing	23.8 %
2. Government	23.4 %
3. Trade, Transportation & Utilities	17.6 %
4. Education & Health Services	10.8 %
5. Leisure & Hospitality	7.4 %

Source: Florida Office of Economic and Business Research, 2016

HOW MUCH FREIGHT? TONS | VALUE

	Tons	Value
INBOUND	1.2 M Tons	Valued at 728.9 M
OUTBOUND	3.6 M Tons	Valued at $970.2 M
WITHIN REGION	225 K Tons	Valued at $27.6 M

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

HOW IS FREIGHT MOVING? MODE | TONS

91.7%

8.3%

0%

0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHAT IS MOVING? TOP COMMODITIES | VOLUME

Commodity	Tons	Value
1. Primary Forest Materials	2,087,000	$258,800,000
2. Broken Stone / Riprap	1,371,000	$11,800,000
3. Pulp or Pulp Mill Products	841,000	$327,200,000
4. Misc. Sawmill or Planing Mill	110,000	$64,800,000
5. Misc. Industrial Inorganic Chemicals	106,000	$217,400,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

WHO ARE WE TRADING WITH? TOP TRADING PARTNERS | VOLUME

Florida Trading Partners	Tons
1. Suwannee County	792,270
2. Leon County	410,640
3. Alachua County	151,010
4. Liberty County	141,950
5. Dixie County	26,330

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	1,634,560
2. Alabama	104,620
3. Louisiana	47,760
4. Mississippi	42,370
5. Wisconsin	26,330

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	1
Total Number of Warehouses & Distribution Centers	64
Estimated Warehouse & Distribution Center Total Area in Square Feet	657.4 K

Source: Florida Department of Transportation, 2015

11.6% of residents work outside of county

Average Travel Time to Work

20.5 Minutes

788
Commercial Driver's Licenses (CDL) Issued

13,990
Class E Licenses Issued

Annual Fuel & Diesel Consumption

2015

414,900
Average Daily Vehicle Miles Traveled

11,682,991 Gallons of Fuel

6,776,708 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	110.4
State Highway Lane Miles	318.3
Number of Bridges	51
At-Grade Railroad Crossings	58
Railroad Mileage	23

Source: Florida Department of Transportation, 2016

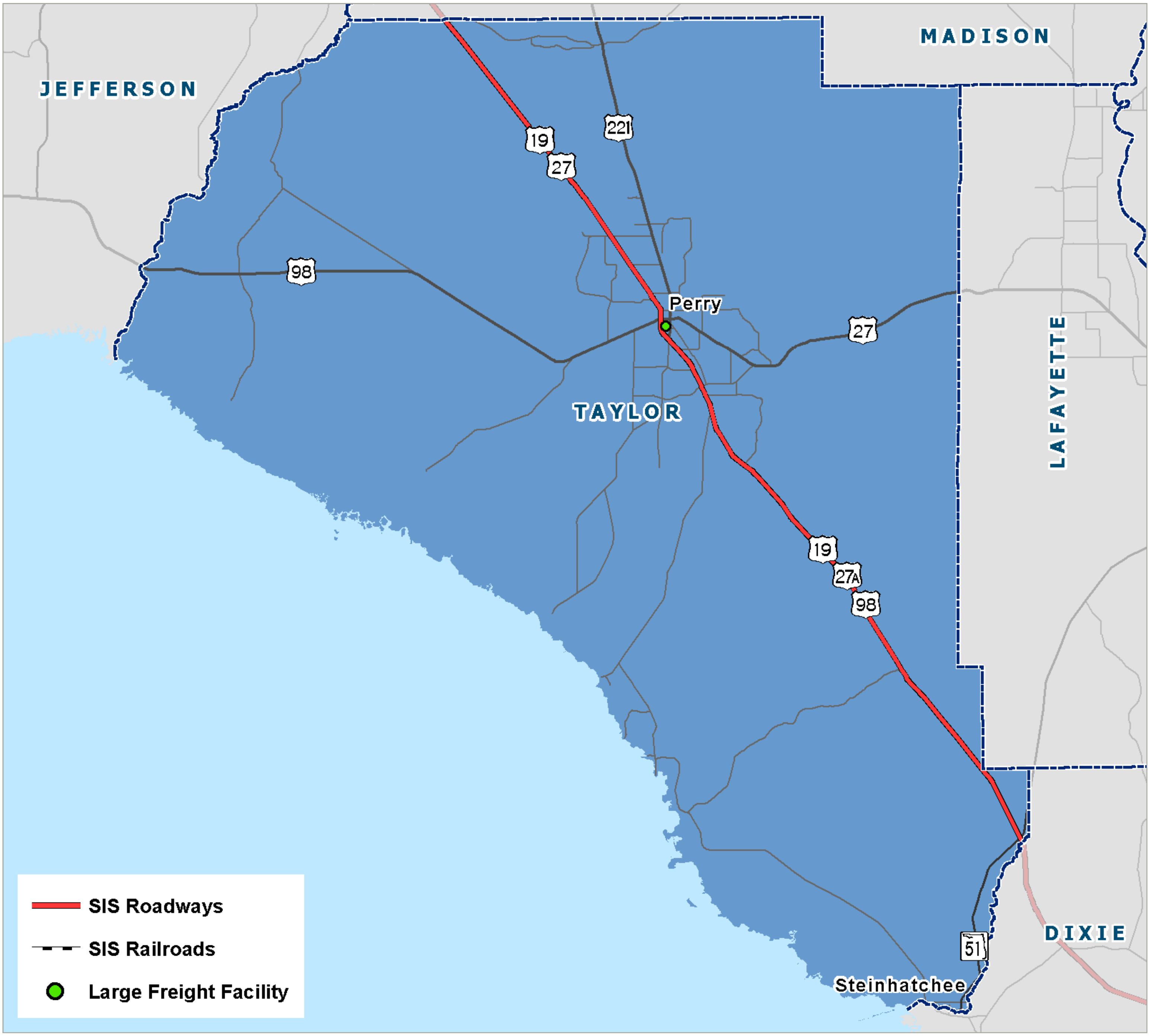
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	US 19
Railroads	Georgia and Florida Railway
SIS Airports	Tallahassee Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	US 98, US 27, US 221, SR 51
General Aviation Airports	Perry-Foley Airport

Source: Florida Department of Transportation, 2016

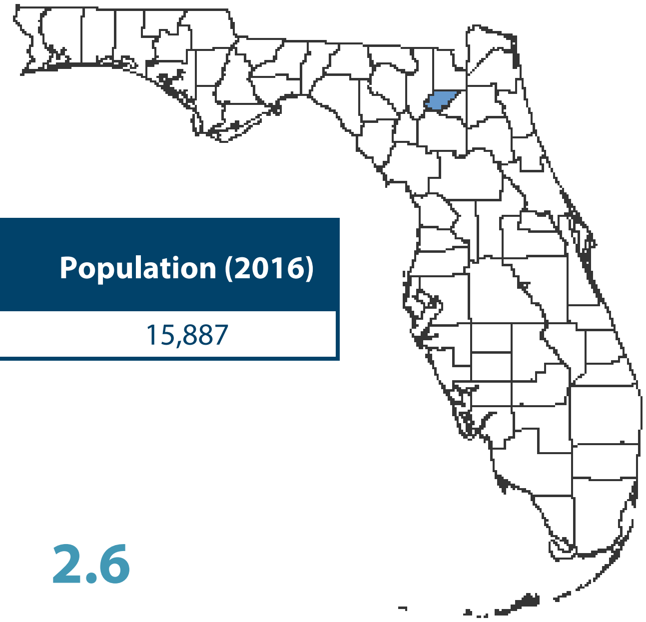
TAYLOR COUNTY

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Union County



Florida's 60th Most Populous County

County Seat	Largest City (By Population)	Area (Sq. Miles)	Population (2016)
Lake Butler, FL	Lake Butler, FL	250	15,887

Demographics

Average Family Size 3.1

Average Household Size 2.6

19.4% population under 18

40 median age

10% population 65 & over

Income

$39,163 Median Household Income

$18,255 Income Per Capita

Source: Florida Office of Economic and Business Research, 2016

Employment

4,618 Labor Force

4,420 Total Employment

4.29% Unemployment Rate

Source: Florida Department of Economic Opportunity, 2016

Key Industry Sectors % of Employment

Industry Sector	Percent of Workforce
1. Trade, Transportation & Utilities	16.4 %
2. Education & Health Services	7.1 %
3. Manufacturing	4.9 %
4. Construction	4.5 %
5. Leisure & Hospitality	2.3 %

Source: Florida Office of Economic and Business Research, 2016

How much freight? Tons | Value

INBOUND	302.2 M Tons	Valued at $133.4 K
OUTBOUND	272.8 M Tons	Valued at $85.3 M
WITHIN REGION	1.6 K Tons	Valued at $210 K

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

How is freight moving? Mode | Tons

Truck: 100%

Rail: 0%

Water: 0%

Air: 0%

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

What is moving? Top Commodities | Volume

Commodity	Tons	Value
1. Primary Forest Materials	307, 400	$38,110,000
2. Lumber / Dimension Stock	92,700	$10,340,000
3. Misc. Sawmill / Planing Mill	62,500	$36,800,000
4. Warehouse Goods	24,400	$29,570,000
5. Poultry Eggs	22,200	$20,560,000

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Who are we trading with? Top Trading Partners | Volume

Florida Trading Partners	Tons
1. Taylor County	64,620
2. Nassau County	36,830
3. Miami-Dade County	26,880
4. Sumter County	24,220
5. Duval County	4,880

Source: IHS Global Insights—TRANSEARCH & Waybill Data, 2015

Out-of-State Trading Partners	Tons
1. Georgia	56,440
2. Alabama	9,820
3. South Carolina	6,980
4. North Carolina	5,210
5. Texas	4,880

Freight Activity Centers

Number of Warehouses & Distribution Centers Over 100k Square Feet	1
Total Number of Warehouses & Distribution Centers	14
Estimated Warehouse & Distribution Center Total Area in Square Feet	344.8 K

Source: Florida Department of Transportation, 2015

50.3% of residents work outside of county

Average Travel Time to Work

23 Minutes

681
Commercial Driver's Licenses (CDL) Issued

7,383
Class E Licenses Issued

Annual Fuel & Diesel Consumption

228,400
Average Daily Vehicle Miles Traveled

2015

3,937,102 Gallons of Fuel

2,949,694 Gallons of Diesel

Source: Florida Department of Transportation, 2015

Transportation Asset Inventory

State Highway Centerline Miles	57.6
State Highway Lane Miles	115.2
Number of Bridges	21
At-Grade Railroad Crossings	0
Railroad Mileage	0

Source: Florida Department of Transportation, 2016

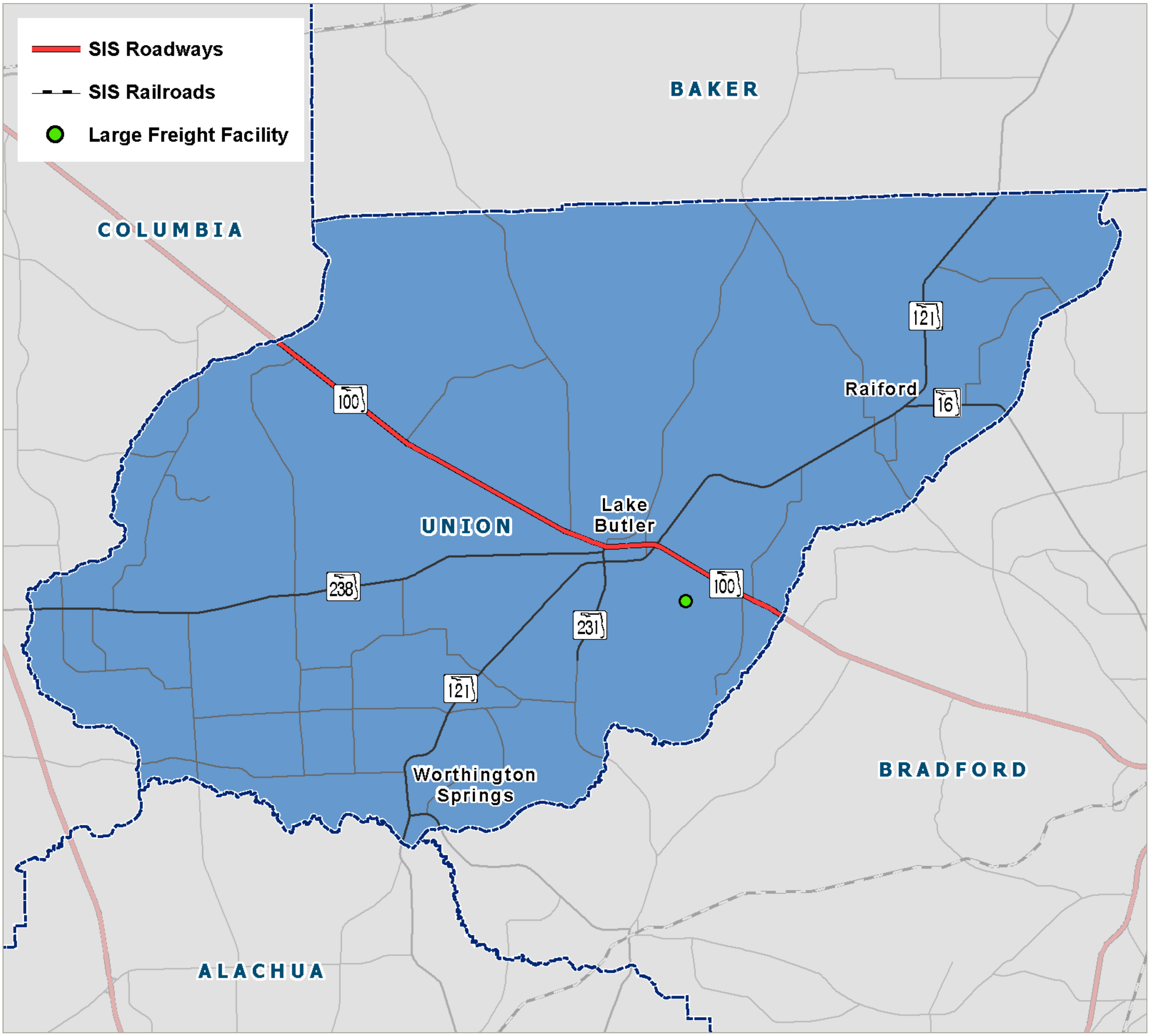
Key Transportation Infrastructure

Strategic Intermodal System (SIS) Highways	SR 100
Railroads	No direct rail access within Union County
SIS Airports	Gainesville Regional Airport
SIS Seaports	Port of Jacksonville (JAXPORT)
Non-SIS State Highways	SR 16, SR 18, SR 121, SR 231, SR 23
General Aviation Airports	Lake County Municipal

Source: Florida Department of Transportation, 2016

Union County

Freight Facilities and Infrastructure Map



Source: Florida Department of Transportation, 2015

Section Six:

First-Mile / Last-Mile Connections

Introduction

Intermodal connections provide critical links between freight nodes and their users. Virtually all major freight facilities (seaports, airports, and rail intermodal terminals) lie along major roadway or transportation arteries and the interstate highway system. The issue is ensuring that connections to those arteries and interstates can accommodate efficient truck operations and significant truck volumes. In addition, more direct connections and operational solutions may be required to alleviate future traffic and mitigate freight impacts.

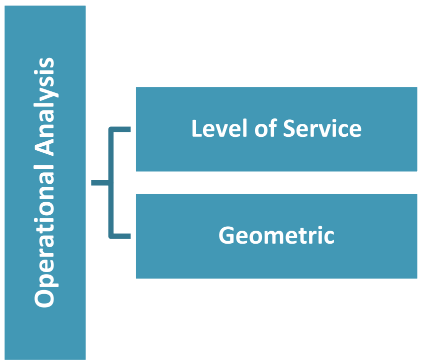
Based on the feedback received from stakeholders, it is evident that first-mile/last-mile operational issues are of critical concern. A key part of the study effort has been to identify existing and near-term needs that have significant impact on freight movements. These types of bottlenecks often include inefficient intermodal connectors and arterials serving historical and newly developed industrial and commercial areas. Focusing on these types of bottlenecks often leads to significant improvements to freight mobility and reductions in community impacts at relatively low cost. Additionally, improving throughput on these facilities can also lead to reduced pressure on other local and regional roadways.

Findings from this First-Mile/Last Mile Connections Operational Analysis will be incorporated into *Section Seven: Freight Needs Assessment*.

Methodology

Based on Northeast Florida's existing intermodal hubs and major freight activity centers, critical first and last mile freight connections were identified in coordination with FDOT, listed in ***Table 6-1*** and depicted in ***Figure 6-1***. These segments will undergo an existing conditions analysis and an initial operational evaluation: level of service, safety, stakeholder input, and geometric review. In addition to the preliminary analysis, surrounding land use impacts and freight context were incorporated into the preliminary analysis to better understand and identify capacity, operational, and safety needs.

Findings from the initial analysis phase will subsequently be pared down to identify the top 13 intersections for detailed operational analysis. Intersection level traffic operational analyses will be conducted using *Synchro* and measurements of existing geometric conditions in order to identify improvement needs. Geometric conditions such as turn radius, queue length, and storage were reviewed and associated improvement needs identified. Safety improvements identified include FHWA proven intersection countermeasures.



Traffic Analysis

Existing year 2017 intersection AM and PM traffic operational analyses were performed for 13 intersections along the freight corridors using the Synchro software. The existing year AM and PM peak-hour traffic volumes were provided by FDOT and used in the traffic operational analysis. The existing signal timings obtained from the respective signal maintaining agencies were also used in the analysis. The intersections overall as well as individual movement delay and level of service (LOS) were reviewed to identify the intersection turn lane requirements. The intersection turning movement traffic queue lengths were compared with the available intersection turn lane lengths. Adjacent median opening distances from the intersection were also considered in making the needed intersection improvements. The intersection improvements were recommended based on the traffic operational and the safety aspects of the intersections.

The crash analysis looked at intersection/roadway segment crash rate comparison to the district average rate. The analysis utilized a confidence rating. The confidence rating is a percentage that expresses the degree of statistical certainty that the actual crash rate for the intersection is above the average rate to which it was compared (generally the District average rate); a confidence of 50% or less indicates no certainty. To ensure confidence, the study queried all intersections and roadway segments with a confidence rating greater than or equal to 95%. Having rates above the average District crash rate does not indicate whether a safety issue exists rather the comparison simply helps to identify where further analysis might be beneficial.

Geometric Analysis

The existing intersection geometry was analyzed to identify the geometric deficiencies for left- and right-turning movements at each intersection. Existing conditions were determined by tracing and measuring the turning paths using MicroStation and FDOT aerial imagery. The Florida Intersection Design Guide (FIDG), 2014 Edition, was used to determine the design vehicle left-turn control radius and right-turn return radius required. The FIDG identifies the mandatory design requirements and provides guidelines for roadway designers to ensure safety and access for all users, minimize delay, and provide adequate vehicle maneuverability.

The following is a summary of the criteria used for this analysis:

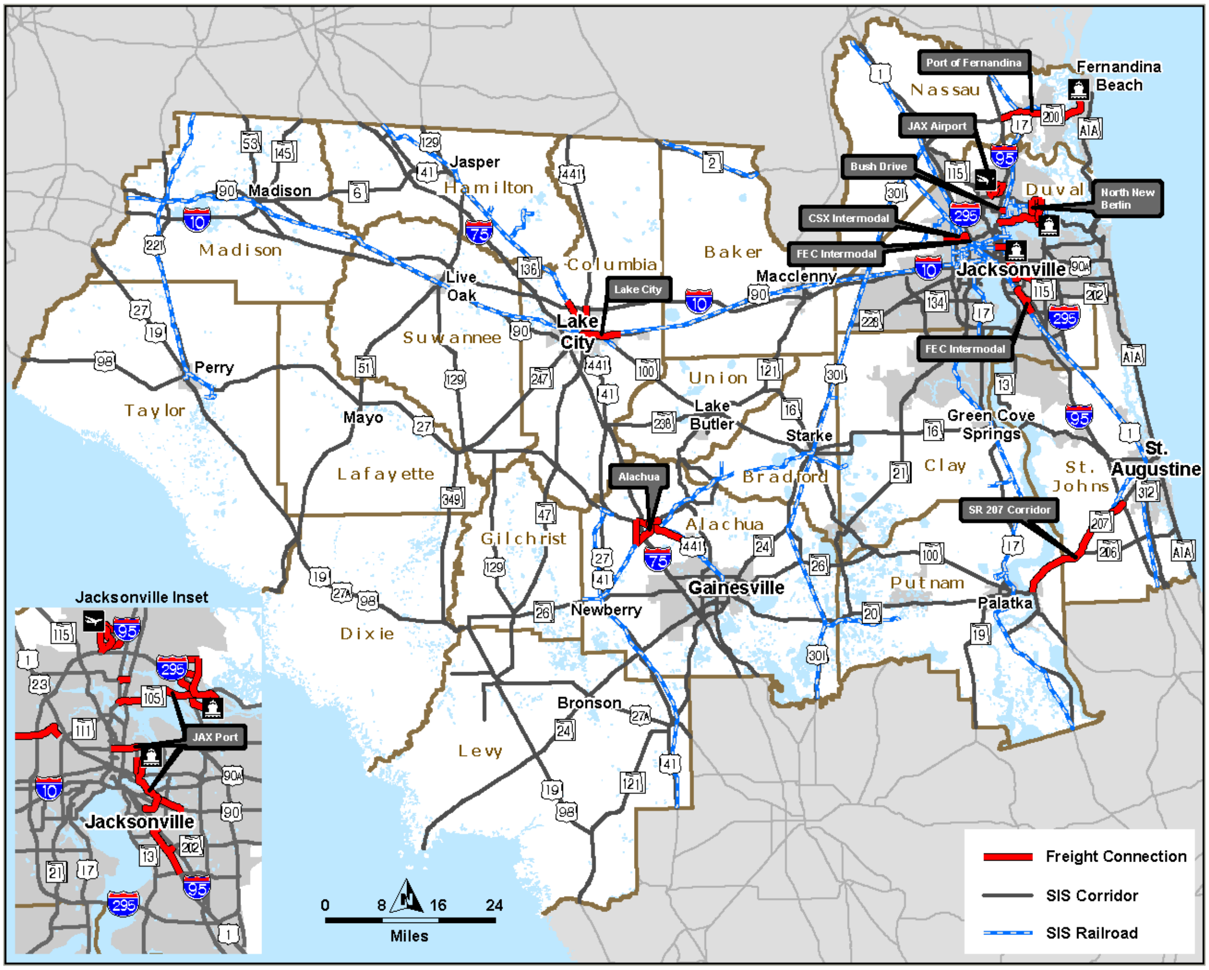
- WB-62FL design vehicle (FIDG Section 3.4);
- Minimum left-turn control radius of 75’ (FIDG Table 3-13); and
- Right turn edge of travel way radius requirements determined using the angle of turn for a WB-62FL found in FIDG Table 3-7.

Sub-standard turning movements are identified and emphasized in red text within the summary tables and detailed in the narrative. The results of this analysis are detailed in the following sections.

Table 6-1 | Freight Connection Segments and Extent

Area	Connections	Limits
City of Alachua I-75 Area	US 441	West of I-75 to CR 237
	US 441	East of I-75 to CR 235A
	CR 235	US 441 to NW CR 239
	CR 235	US 441 to CR 235A
	CR 235A / NW 173rd St.	US 441 to CR 235
Lake City I-10 Area	US 41	NW Oosterhoudt Ln. to US 90
	US 441	NE Frasier Ln. to US 90
Lake City I-75 Area	US 90	Craig Ave. to CR 235B
Port of Fernandina	SR 200	I-95 to Port Entrance
Jacksonville Int'l Airport	Airport Rd / SR 102	I-95 to Pecan Park Rd.
	Int'l Airport Blvd.	I-295 to Woodwings Rd.
	Woodwings Rd.	Int'l Airport Blvd to Airport Rd.
	Duval Rd.	Int'l Airport Blvd to Airport Rd.
	Pecan Park Rd.	Int'l Airport Blvd to Dixie Clipper Ct.
JAXPORT Marine Terminals	MLK Jr. Pkwy.	I-95 to Matthews Pkwy.
	Heckscher Dr.	I-95 to Dave Rawis Blvd.
	New Berlin Rd.	Heckscher Rd. to Terminal Entrance
FEC Intermodal Terminal (Bowden Yard) Area	SR 109/University Blvd.	I-95 to US 1 / Phillips Hwy.
	US 1 / Phillips Hwy.	SR 109 / University Blvd to SR 152/ Baymeadows Rd.
	SR 202 / JT Butler Blvd.	I-95 to US 1 / Phillips Hwy.
SR 228 / Talleyrand Connector	SR 228	Emerson St. to US 90
	SR 228A / SR 126	SR 228 to I-95
Norfolk Southern Intermodal Terminal (Simpson Yard)	Pritchard Rd./ Soutel Dr.	I-295 to New Kings Rd.
Jacksonville CSX Intermodal Terminal	Pritchard Rd.	I-295 to Bulls Bay Hwy.
North New Berlin Area	New Berlin Rd.	Heckscher Rd. to Port Jacksonville Pkwy.
	Alta Dr.	Heckscher Rd. to Port Jacksonville Pkwy.
	Port Jacksonville Pkwy.	New Berlin Rd. to Alta Dr.
	Faye Rd.	New Berlin Rd. to Alta Dr.
	Heckscher Dr.	New Berlin Rd. to Alta Dr.
SR 104/Busch Drive Area	SR 104 / Busch Dr.	I-95 to US 17 / SR 5
SR 207 Area	SR 207	US 17 / SR 100 to I-95

Figure 6-1 | Overview of Regional Freight Connections



City of Alachua (I-75)

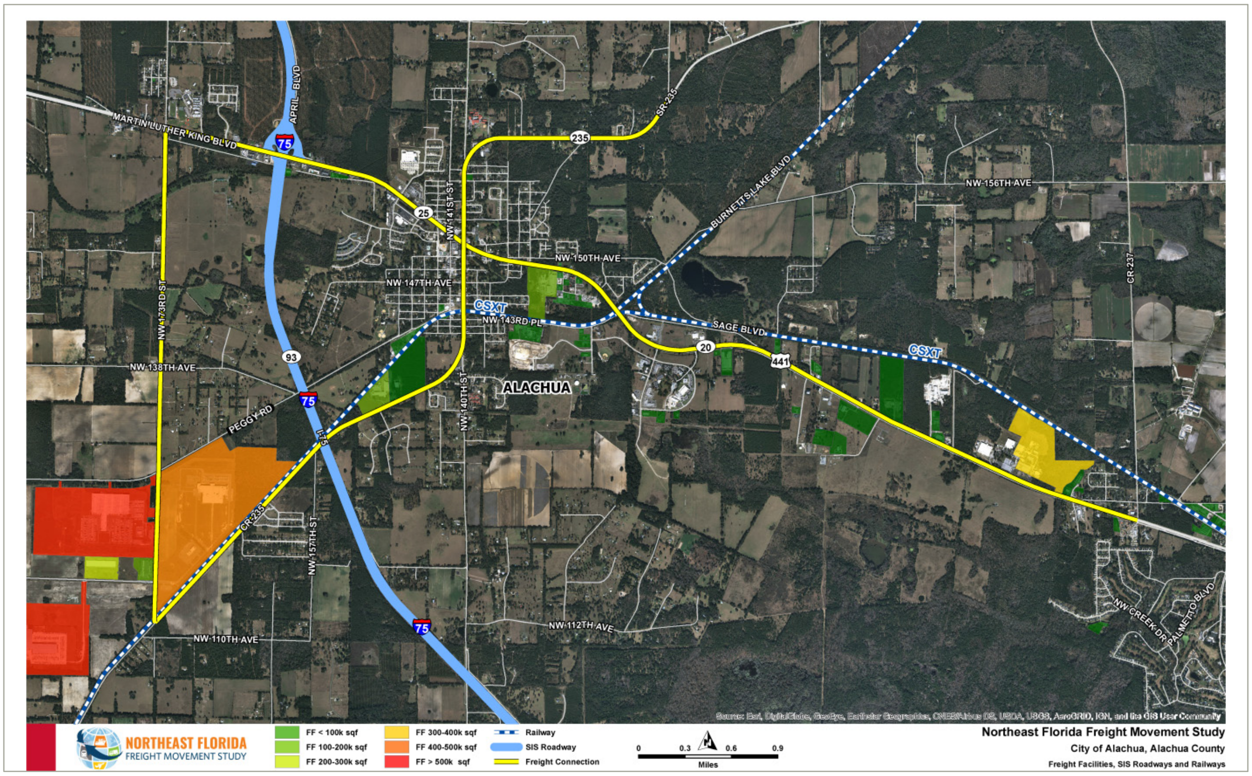
Context

The City of Alachua is northwest of Gainesville and has a population of nearly 9,000 based on the 2010 US Census. The land use around the city is predominantly agricultural with a few notable freight facilities in the area. US 441, County Road 235 and County Road 235A (NW 173rd St) serve the majority of the traffic in the area. As depicted in ***Figure 6-2***, there are multiple large distribution centers along these freight connections. Three of the largest distribution centers in the area are operated by Dollar General, Walmart, and Sysco.

Freight Connections

US 441 (W of I-75 to CR 237)
US 441 (E of I-75 to CR 235A)
CR 235 (US 441 to NW CR 239)
CR 235 (US 441 to CR 235A)
CR 235A/NW 173rd St. (US 441S to CR 235)

Figure 6-2 | City of Alachua (I-75) Freight Facilities



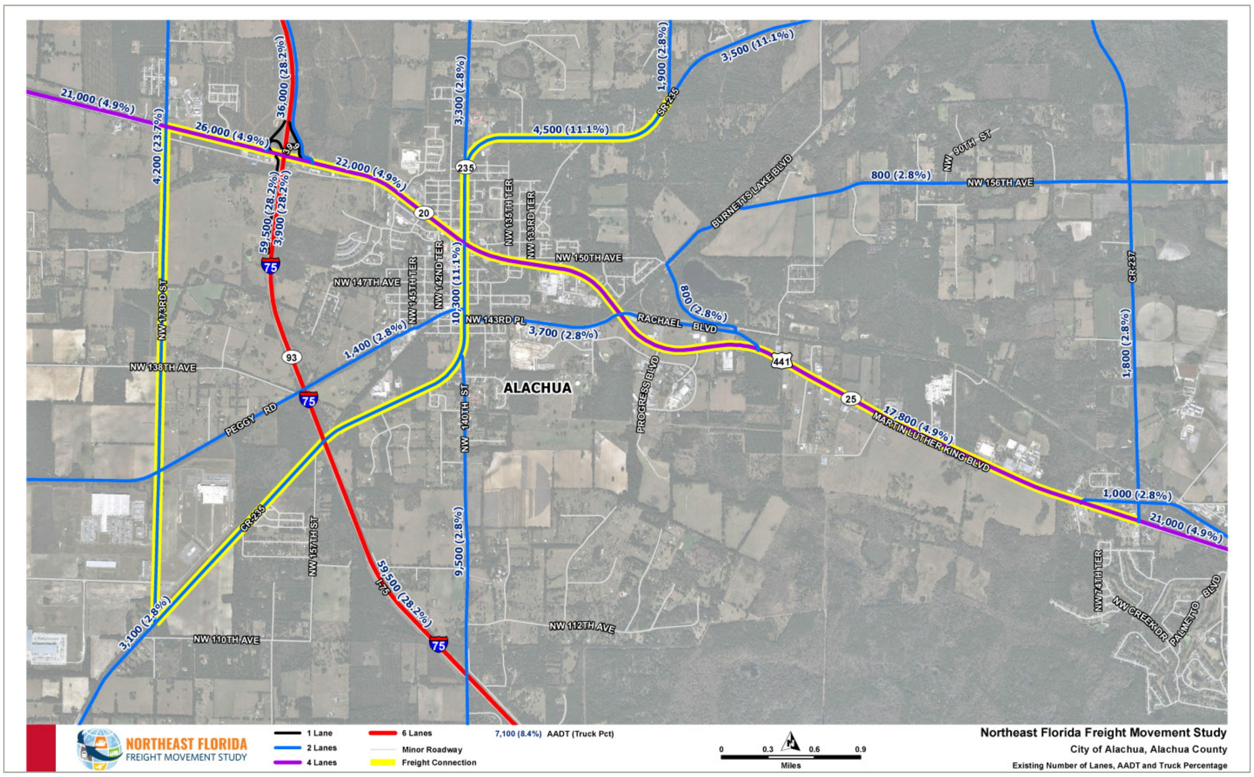
The Dollar General Warehouse and Distribution Center is estimated at over 996,000 square feet. Similarly, the nearby Walmart Warehouse and Distribution Center is over 1.1 million square feet. The Sysco Distribution Center is estimated at 460,000 square feet. These facilities have over 100 truck bays each and are located along CR 235A which provides connectivity to I-75. Due to the size and scale of these operations, both facilities are responsible for generating the high truck percentages along these routes.

US 441 serves a cluster of other smaller truck depots, warehouses and manufacturers located east of the city center including Sandvik Mining and the sailboat manufacturer Marlow Hunter. Based on available data, there is also a moderate sized facility zoned for light manufacturing use with a floor area between 300,000 and 400,000 square feet that is currently vacant. While smaller in scale to the major distribution centers, the clustering of these companies within the area has the potential to generate considerable daily commercial vehicle traffic.

Existing Conditions

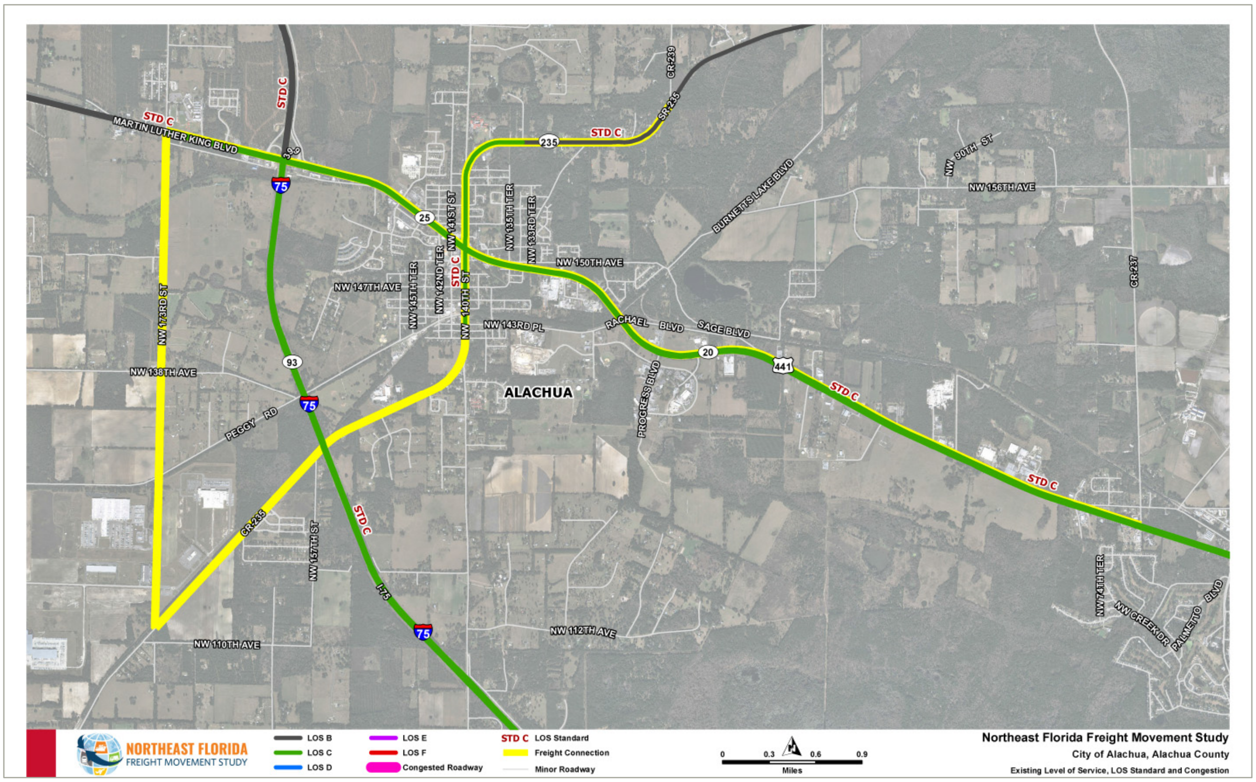
As depicted in ***Figure 6-3***, US 441 is a four-lane divided roadway for the extent of the study limits and passes through the City of Alachua. The existing AADT on US 441 varies from 18,800 to 26,000 along the segment as shown in the map series. The other two segments are CR 235 and CR 235A, both are two-lane undivided roadways. The AADT volumes on CR 235 vary from 3,100 to 4,500 with a truck percentage of 11.1%. AADT volumes on CR 235A vary from 3,100 to 4,200 with the highest truck percentage in the area of 23.7%. This high truck percentage is due to the proximity of large warehouses that are off CR 235A.

Figure 6-3 | City of Alachua (I-75) Traffic Characteristics



The posted speed limit along US 441 ranges from 45 mph to 65 mph. The posted speed limits along CR 235 range from 30 mph to 55 mph. As depicted in ***Figure 6-4***, US 441 operates at LOS C throughout the study limits for existing traffic conditions while CR 235 operates at LOS C or better for existing traffic conditions. The projected LOS for the future year (2040) traffic condition continues to operate at LOS C or better for both the roadways except for the segment of US 441 between CR 235A and the I-75 interchange. This segment operates at a future condition LOS of E and is also projected to be a congested roadway.

Figure 6-4 | City of Alachua (I-75) Existing Daily Level of Service



The US 441 roadway segments in the vicinity of CR 235A, I-75 interchange and CR 235 are identified as segment(s) with statistically higher than average crash rates. The intersections along US 441 at CR 235A and the I-75 Ramps are identified as intersections with statistically higher than average crash rates.

Traffic Analysis

Table 6-2 summarizes the intersection(s) analyzed as part of the first-mile/last-mile operational analysis. Based on a review of the 2017 average daily LOS, the intersection of CR 235 and CR 225A operates at LOS B in both the AM and PM peak periods.

Table 6-2 | City of Alachua (I-75) Intersection Summary

Main Road	Intersecting Road	Traffic Control	2017 LOS AM / PM
CR 235	CR 235A	Stop Sign	B / B

Geometric Summary

Intersection geometry was also reviewed using aerial imagery in MicroStation by measuring the existing radii's for left- and right-turn movements and comparing to the standards listed in FIDG for a WB-62FL. ***Figure 6-5*** provides an aerial overview of the intersection. ***Table 6-3*** through ***Table 6-5*** summarizes the geometric findings and deficiencies.

Figure 6-5 | City of Alachua (I-75) Aerial: CR 235 at SR 235A

As noted in ***Table 6-3***, based on the FIDG standards, the left-turn '2' movement (CR 235A WB to CR 235 NB) was identified as sub-standard due to existing control radius.

Table 6-3 | City of Alachua (I-75) Geometric Summary: Left-Turn Movements

Left Turn 1 Description	Existing Control Radius (ft)[1]	Left Turn 2 Description	Existing Control Radius (ft)[1]
CR 235 EB to CR 235A NB	75	CR 235A WB to CR 235 NB	40

Note: [1]Florida Intersection Design Guide (2014) Table 3-13 requires a minimum control radius of 75 feet for an occasional WB-62FL turn.

Table 6-4 | City of Alachua (I-75) Geometric Summary: Right-Turn Movement (1)

Right Turn 1 Description	Angle of Turn	Return Radius Required (ft)^2	Existing Return Radius (ft)
CR 235 EB to CR 235A NB	135	85	120

As noted in ***Table 6-5***, based on the FIDG standards, the right-turn '2' movement (CR 235A SB to CR 235 EB) was identified as sub-standard due to existing return radius.

Table 6-5 | City of Alachua (I-75) Geometric Summary: Right-Turn Movement (2)

Right Turn 2 Description	Angle of Turn	Return Radius Required (ft)^2	Existing Return Radius (ft)
CR 235A SB to CR 235 EB	45	250	**40**

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

Preliminary Findings

- The west-to-northbound left-turn and southbound-to-eastbound right-turn are sub-standard and deficient due to angle of intersection. The railroad crossing would likely need to be modified to address the issue.

Ongoing FDOT Efforts

Construction is Imminent / Underway:

- US 441: Resurface from Northwest 167th Boulevard to the Columbia County line.

Recently Completed Projects (2015 – 2017):

- Interstate 75: Constructed new southbound ramp at the interchange with US 441 in Alachua. Included the replacement of eight high mast lighting poles and the construction of a park and ride lot in the southwest quadrant of the interchange and improvements to the I-75 southbound off ramp to US 441.
- Interstate 75: Resurfacing from north of US 441 in Alachua to the Columbia County line (9 miles).
- Interstate 75: Resurfacing from south of SR 222/Northwest 39th Avenue to north of US 441 (11 miles). Also, adding lanes onto northbound NW 39th Avenue ramp.
- Interstate 75: Intelligent Transportation System (ITS) installation between SR 24/Archer Road and the Georgia state line.
- US 441: Resurfaced from Northwest Sixth Street to County Road 2054 overpass in Alachua (10.7 miles).

Lake City (I-10)

Context

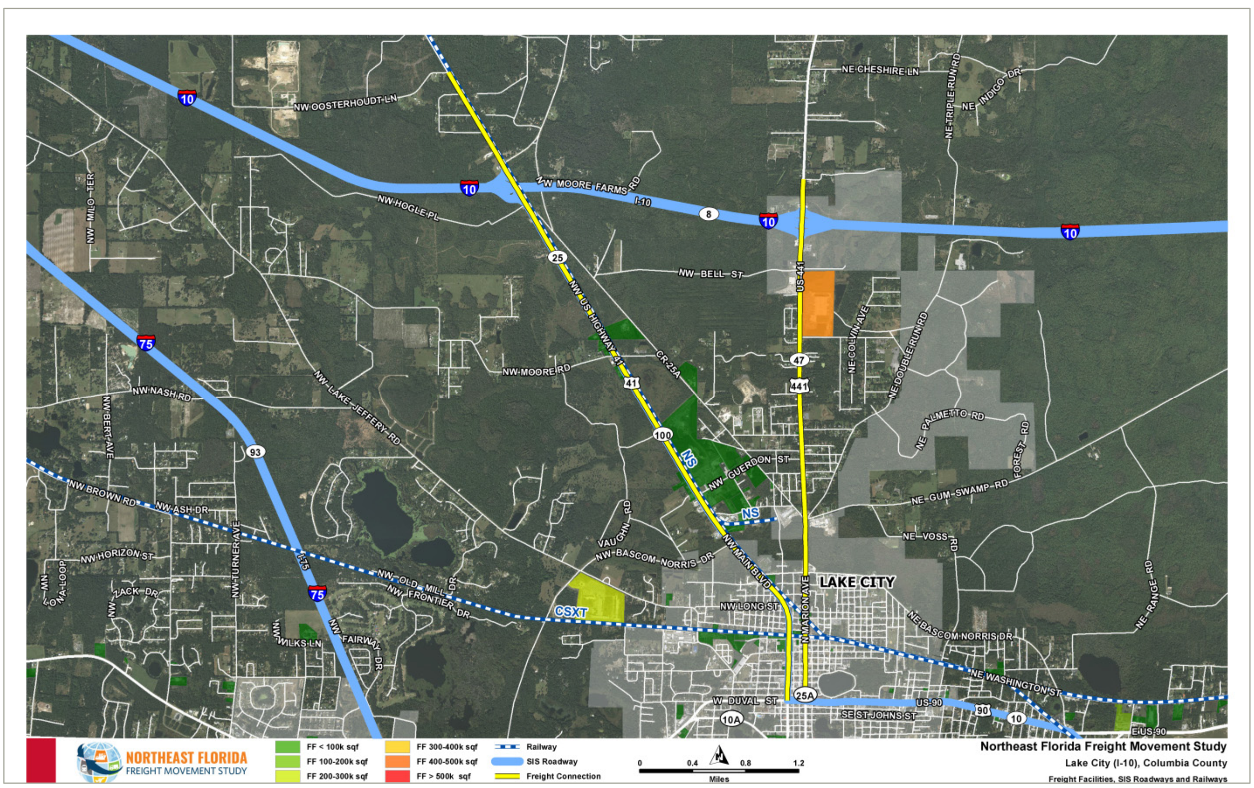
Freight Connections

US 41 (NW Oosterhoudt Lane to US 90)
US 441 (NE Frasier Lane to US 90)

Lake City is located in Columbia County nestled between I-10 and I-75 with a population of nearly 12,000 as of the 2010 US Census. US 41 and US 441 are the critical arteries connecting I-10 to the city center. These arteries also connect to US 90 to the south which is a partial SIS roadway. The land use around the Columbia County is mixed with agricultural being the dominant land use. The Osceola National Forest also makes up a large part of the land area to the northeast.

As depicted in ***Figure 6-6***, there is a large Target warehouse and distribution center south of I-10 which is one of the major generators of truck traffic in the area. The distribution center consists of two buildings totaling over 425,000 square feet with over 80 truck bays. Other large freight intensive facilities in the area include New Millennium Building Systems, a 282,711 square foot heavy manufacturing facility; and on US 41 is the Corbitt manufacturing company which primarily operates in sawmills and planing mills within the lumber and wood products industry.

Figure 6-6 | City of Lake City (I-10) Freight Facilities

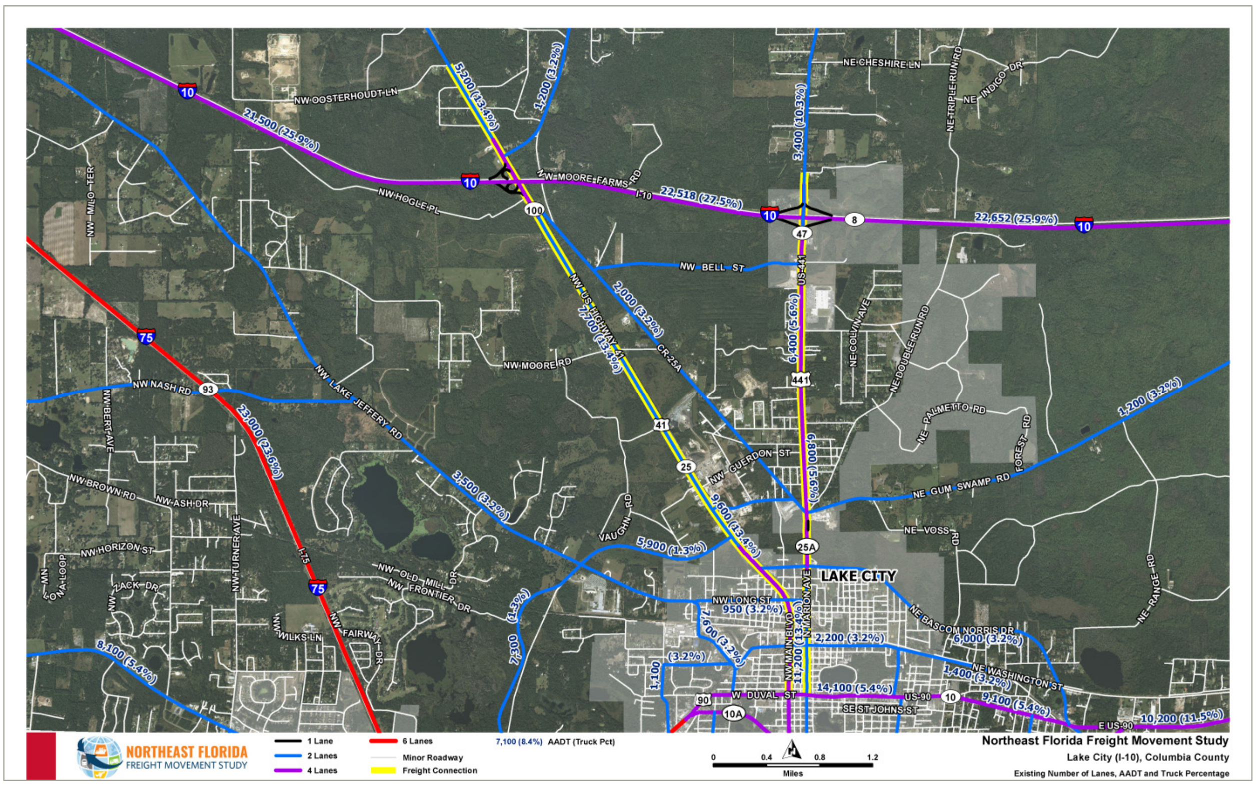


Also nearby is the Anderson Columbia Company, a heavy civil contractor company which generates certain heavy vehicle traffic but not necessarily freight traffic. The two roadways are the main thoroughfares that are used to access I-10 and are used by residents, visitors, and commercial vehicles.

Existing Conditions

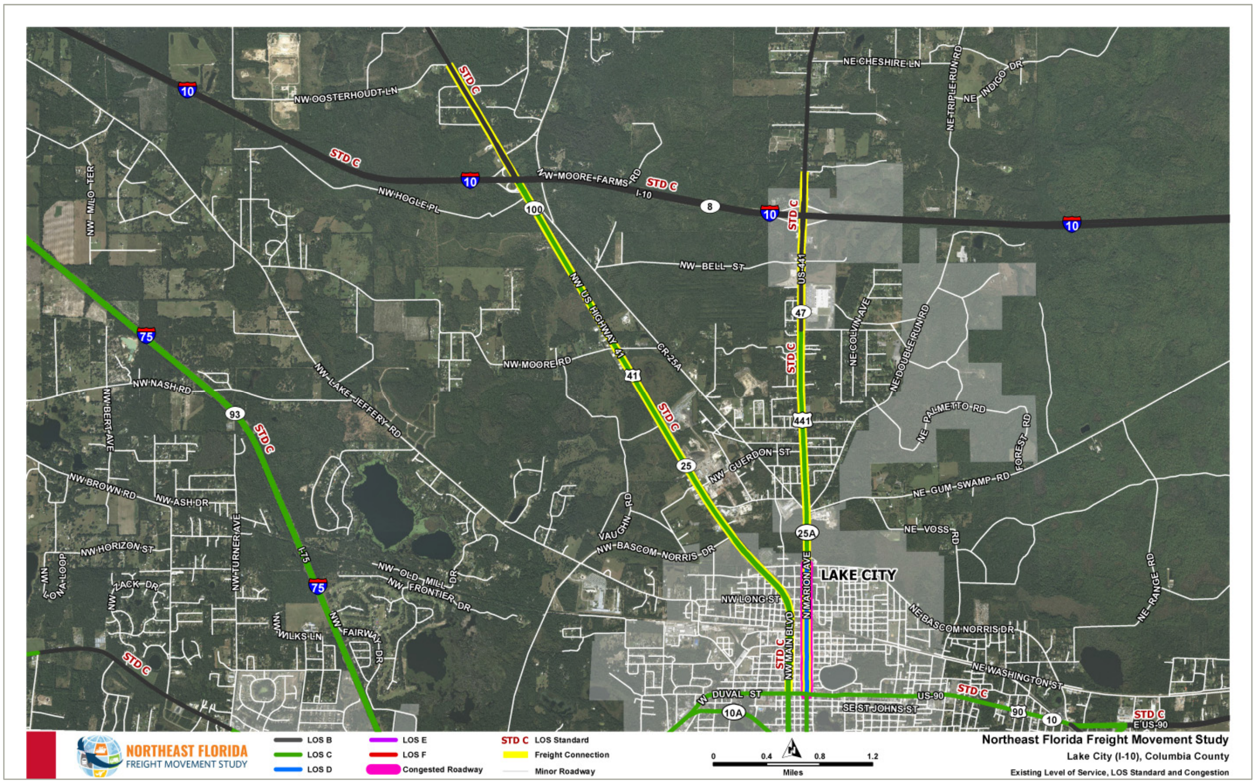
US 41 and US 441 are used as freight connections between I-10 and the City of Lake City. US 41 is a two-lane roadway excluding the segment near the I-10 interchange and near the city center where it is a four-lane roadway. As depicted in ***Figure 6-7***, US 441 is a four-lane roadway, except at the vicinity of the I-10 interchange and around the Lake City center where it transitions into a two-lane section. Existing AADT volumes along US 41 vary from 5,200 to 11,200, while the AADT on US 41 varies between 6,400 and 6,800. The daily truck traffic percentage is 13.4% for US 41, and 5.6% for US 441.

Figure 6-7 | City of Lake City (I-10) Traffic Characteristics



The posted speed limit varies between 45 mph and 60 mph along the US 41 freight connections. The US 441 posted speed limit varies between 35 mph and 45 mph within the freight connection limits. As depicted in ***Figure 6-8***, US 41 operates at LOS C for the existing year traffic condition and is projected to continue operating at LOS C for the future year (2040) traffic condition. The US 441 roadway segment from US 90 to NE Bascom Norris Drive operates at LOS D for the existing traffic condition, and is projected to continue operating at LOS D for the future year (2040) traffic conditions. The remaining part of the US 441 north of Bascom Norris Drive operates at LOS C or better for existing and future traffic conditions.

Figure 6-8 | City of Lake City (I-10) Existing Daily Level of Service



The US 41 and US 441 roadway segments at the vicinity of US 90 and US 41 near the I-10 ramps are identified as segments with statistically higher than average crash rates. The intersections along US 41 are identified as US 90 and NW Madison Street while along US 441 the intersections of US 90, NE Madison Street, NW Hamilton Street, NE Washington Street, and NE Bascom Norris Street are identified as intersections with statistically higher than average crash rates.

Traffic Analysis

Table 6-6 summarizes the intersection(s) analyzed as part of the first-mile/last-mile operational analysis. Based on a review of the 2017 average daily LOS, the intersection of US 41 and I-10 eastbound ramps operates at LOS B in the AM and PM peak periods while US 41 at the I-10 westbound ramps operates at LOS B in the AM and LOS C in the PM peak period. At US 441 and I-10 eastbound ramps operates at LOS B in the AM and PM peak periods while the westbound ramps operate at LOS A in the AM period and LOS B in the PM peak period.

Table 6-6 | City of Lake City (I-10) Intersection Summary

Main Road	Intersecting Road	Traffic Control	2017 LOS AM / PM
US 41	I-10 EB Ramps	Stop Sign	B / B
US 41	I-10 WB Ramps	Stop Sign	B / C
US 441	I-10 EB Ramps	Stop Sign	B / B
US 441	I-10 WB Ramps	Stop Sign	A / B

Preliminary Findings:

- Extend the southbound US 41 two through lanes at the I-10 interchange beyond NW Falling Creek Road (north of I-10) and NW Valdosta Road (south of I-10) with full US 41 left-turn lanes at NW Falling Creek Road and NW Valdosta Road intersections.

Geometric Summary

Intersection geometry was also reviewed using aerial imagery in MicroStation by measuring the existing radii's for left- and right-turn movements and comparing to the standards listed in FIDG for a WB-62FL. ***Figure 6-9*** and ***Figure 6-10*** provide an aerial overview of the interchanges. ***Table 6-7*** through ***Table 6-9*** summarizes the geometric findings.

Figure 6-9 | City of Lake City (I-10) Aerial: US 41 at I-10

Figure 6-10 | City of Lake City (I-10) Aerial: US 441 at I-10

As noted in ***Table 6-7***, based on the FIDG standards, the left-turn ‘1’ movement (I-10 EB to US 41 NB) and left-turn ‘2’ movement (US 42 NB to I-10 WB) were identified as sub-standard due to existing control radius.

Table 6-7 | City of Lake City (I-10) Geometric Summary: Left Turn Movements

Left Turn 1 Description	Existing Control Radius (ft)[1]	Left Turn 2 Description	Existing Control Radius (ft)[1]
I-10 EB to US 41 NB	**55**	US 41 NB to I-10 EB	75
I-10 WB to US 41 NB	110	US 41 NB to I-10 WB	**55**
I-10 EB to US 441 NB	95	US 441 SB to I-10 EB	85
I-10 WB to US 441 SB	90	US 441 NB to I-10 WB	90

Note: [1]Florida Intersection Design Guide (2014) Table 3-13 requires a minimum control radius of 75 feet for an occasional WB-62FL turn.

Table 6-8 | City of Lake City (I-10) Geometric Summary: Right-Turn Movement (1)

Right Turn 1 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
I-10 EB to US 41 SB	120	105	300
I-10 WB to US 41 SB	90	125	150
I-10 EB to US 441 SB	105	115	225
I-10 WB to US 441 NB	105	115	250

Table 6-9 | City of Lake City (I-10) Geometric Summary: Right-Turn Movement (2)

Right Turn 2 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
US 41 SB to I-10 EB	90	125	226
US 41 SB to I-10 WB	105	115	220
US 441 NB to I-10 EB	105	115	225
US 441 SB to I-10 WB	105	115	245

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

Preliminary Findings:

- US 41 at I-10 EB Ramps: Deficient EB to NB left turn can be fixed by pulling the separator nose back north;
- US 41 at I-10 WB Ramps: Deficient NB to WB left turn can be fixed by pulling the separator nose back north; and
- US 441 at I-10 EB and WB Ramps: No turn deficiencies. Yield/merge on the on-ramps appears to be the issue (may need to widen ramps to allow for running distance prior to merge).

Ongoing FDOT Efforts

Construction is Imminent/Underway:

- Interstate 10: Installation of Intelligent Transportation System (ITS) between just west of Interstate 95 in Duval County to US 90 in Leon County. This is a 153-mile project that began in late 2016. The project is expected to be completed Winter 2019.
- US 441: Safety project near Johnson Street in Lake City will include school zone and signage improvements.

Projects in Five-Year Work Program:

- Interstate 10: Add high mast lighting to interchange at US 41 (Exit 301).
- Interstate 10: Add high mast lighting to interchange at US 441(Exit 303).

Recently Completed Projects (2015-2017):

- Interstate 10: Drainage improvements from west of US 41 to County Road 250 overpass, including raising the National Forest Road 236 overpass (6 miles).

Lake City (I-75)

Context

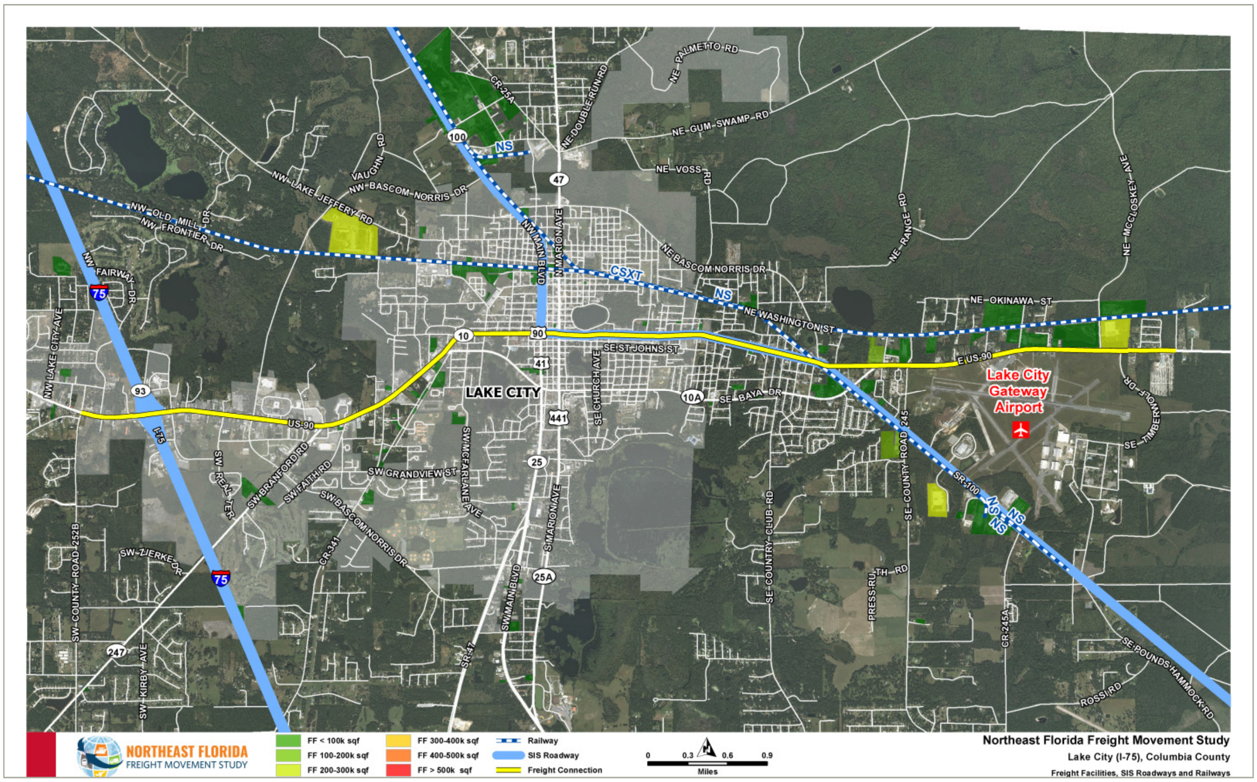
Freight Connection

US 90 (Craig Ave. to CR 235B)

The connection under study in this area is along US 90 in the City of Lake City. The City has a population of 12,000 and is largest city in Columbia County. The land use around the study area is mixed with mostly residential, agricultural and commercial. US 90 is a critical roadway for the city, providing east-west access and connectivity for residents, visitors, and commercial vehicles.

As depicted in ***Figure 6-11***, there are a number of small to medium freight facilities along the corridor that are likely to generate heavy vehicle and truck traffic.

Figure 6-11 | Lake City (I-75) Area Freight Facilities



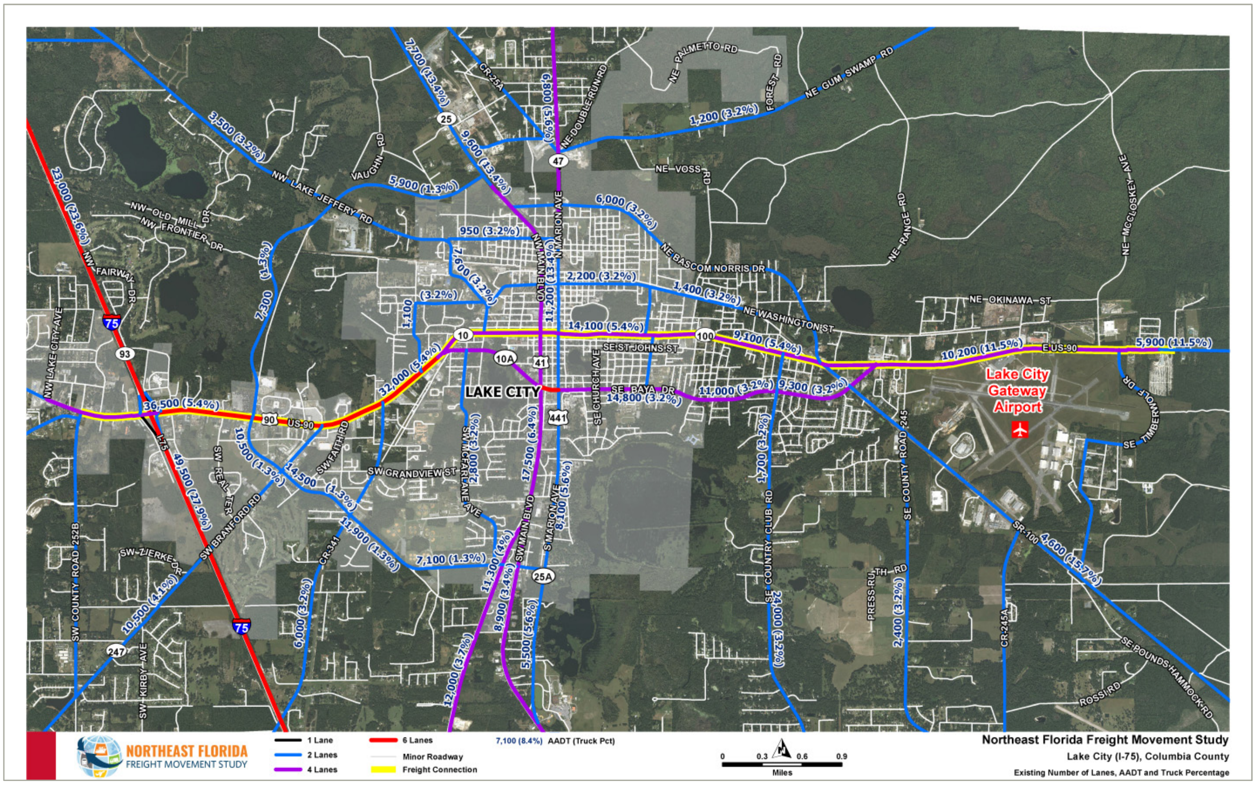
One example is the United States Cold Storage facility located towards the end of the study area; this facility is over 293,000 square feet and has over 40 truck bays. This facility along with other nearby smaller warehouse and manufacturing facilities adjacent to US 90 use the roadway to connect to I-75, US 441 or I-10. This connection is also adjacent to the Lake City Gateway Airport and the Lake City Airport Industrial Park on Highway 100. There is a group of small to medium freight facilities around the area that are in close proximity to US 90. TIMCO Aviation Services is an aviation industrial facility that modifies and repairs large aircraft.

Another notable development is the future North Florida Mega Industrial Park. This planned 2,622 acre industrial park will be located on US 90, east of Lake City Municipal Airport. Based on information found on the development's website, www.northfloridamegaindustrialpark.com, sites from a single acre to 410 acres are available in the park, which has met the exacting requirements of a McCallum Sweeney Certified Shovel-Ready park. A 500-acre tract within the North Florida Mega Industrial Park has been designated by the Governor by executive order as a Rural Area of Opportunity, with the state providing special economic development considerations to companies developing within the area.

Existing Conditions

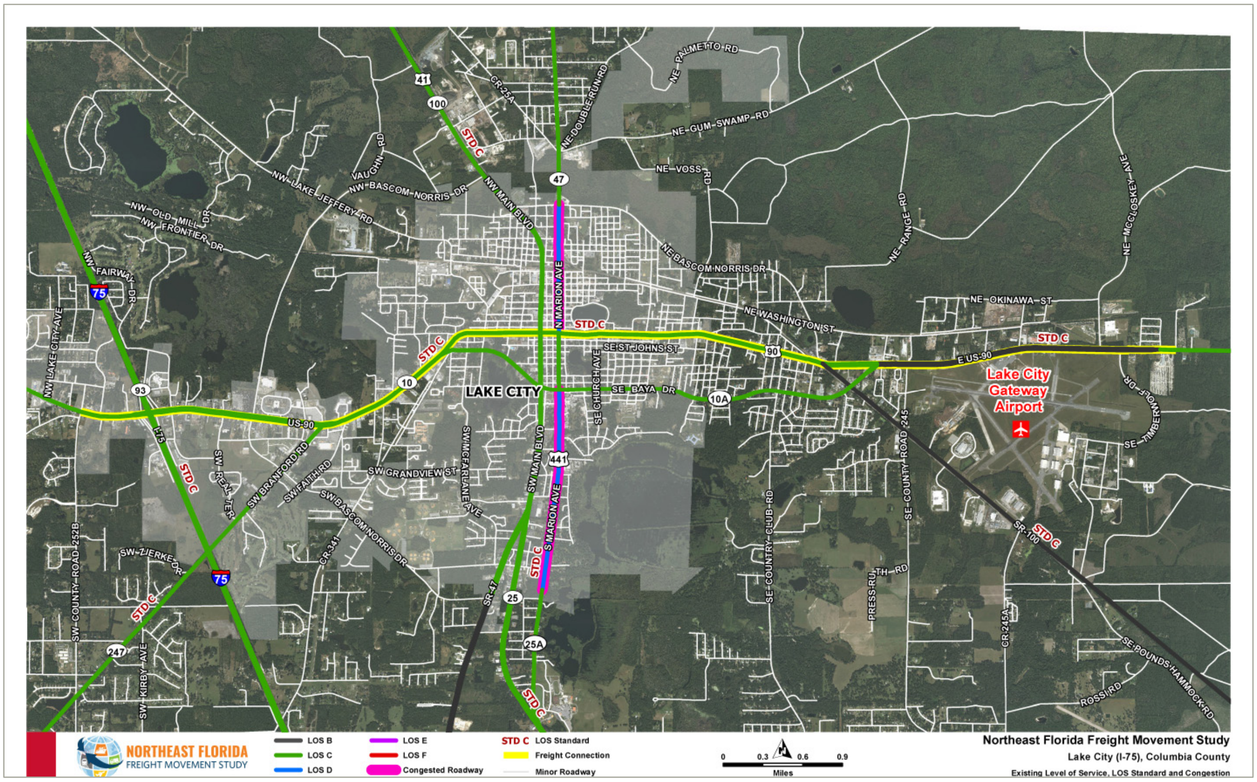
The US 90 corridor provides freight and commuter connections between I-75 and the Lake City area. US 90 is a six-lane roadway between I-75 and SR 10A/SW Baya Drive and transitions to a four-lane roadway between SR 10A and SE Timberwolf Drive. As depicted in ***Figure 6-12***, the existing AADT volumes on US 90 vary from 32,000 to 36,500 between I-75 and SR 10A while the segment between SR 10A and SE Timberwolf Drive has AADT volumes ranging from 9,100 to 14,100. The US 90 daily truck traffic percentage is between 5.4% and 11.5%.

Figure 6-12 | Lake City (I-75) Area Traffic Characteristics



The posted speed limit varies between 45 mph and 55 mph along the freight connection. As depicted in ***Figure 6-13***, US 90 operates at LOS C for the existing year traffic condition and also projected to operate at LOS C for the future year (2040) traffic condition.

Figure 6-13 | Lake City (I-75) Area Existing Daily Level of Service



The US 90 signalized intersections including SW Florida Gateway Drive, I-75 interchange ramp terminals, Commerce Drive, NW Brookside Court, SW Real Terrace, Bascon Norris Drive, Lake City Mall, SR 247, Faith Road, SW Baya Drive, Highway 100 and SE Baya Drive are identified as intersections with statistically higher than average crash rates along the US 90 freight connection. The segment of US 90 from the I-75 interchange to SW Branford Road along with the segment around the downtown area are identified as segment with statistically higher than average crash rates..

Ongoing FDOT Efforts

Construction is Imminent/Underway:

- US 441: Resurface from the Alachua County line to Interstate 75
- Interstate 75: Intelligent Transportation System (ITS) installation between SR 24/Archer Road to the Georgia state line.

Recently Completed Projects (2015-2017):

- Interstate 75: Resurfacing from US 90 to north of I-10 (8.3 miles).
- Interstate 75: Operational improvements at the US 90 interchange (adding southbound left turn lanes on the exit ramp).
- US 90 West: Adding two lanes from Brown Road to west of Lake City Avenue (1.3 miles).

Port of Fernandina

Context

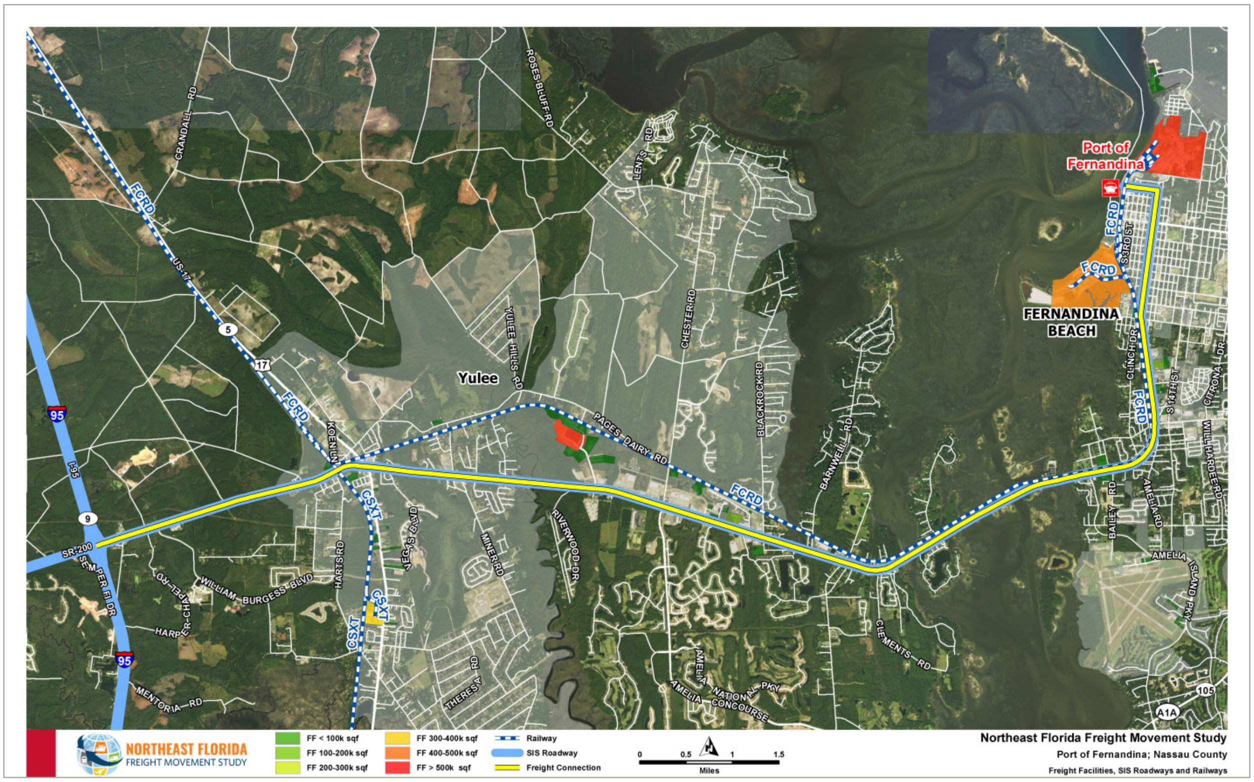
Freight Connection

SR 200 (I-95 to Port Entrance)

The Port of Fernandina provides terminal service to over ten pulp and paper producers located throughout Florida and the Southeast. In addition, the Port has expanded in providing steel export services to several steel mills in the Southeast. The Port of Fernandina is owned by the Ocean Highway and Port Authority and is operated by Worldwide Terminals Fernandina. It consists of one deep water shipping terminal located on the Amelia River.

SR 200/A1A is the freight connection that provides access to the port. As depicted in ***Figure 6-14***, two large manufacturers Rayonier and WestRock are also located in close proximity to the Port and generate additional heavy vehicle traffic. The majority of the road traffic associated with the Port consists of 18-wheeled vehicles carrying timber, bulk or containers.

Figure 6-14 | Port of Fernandina Area Freight Facilities



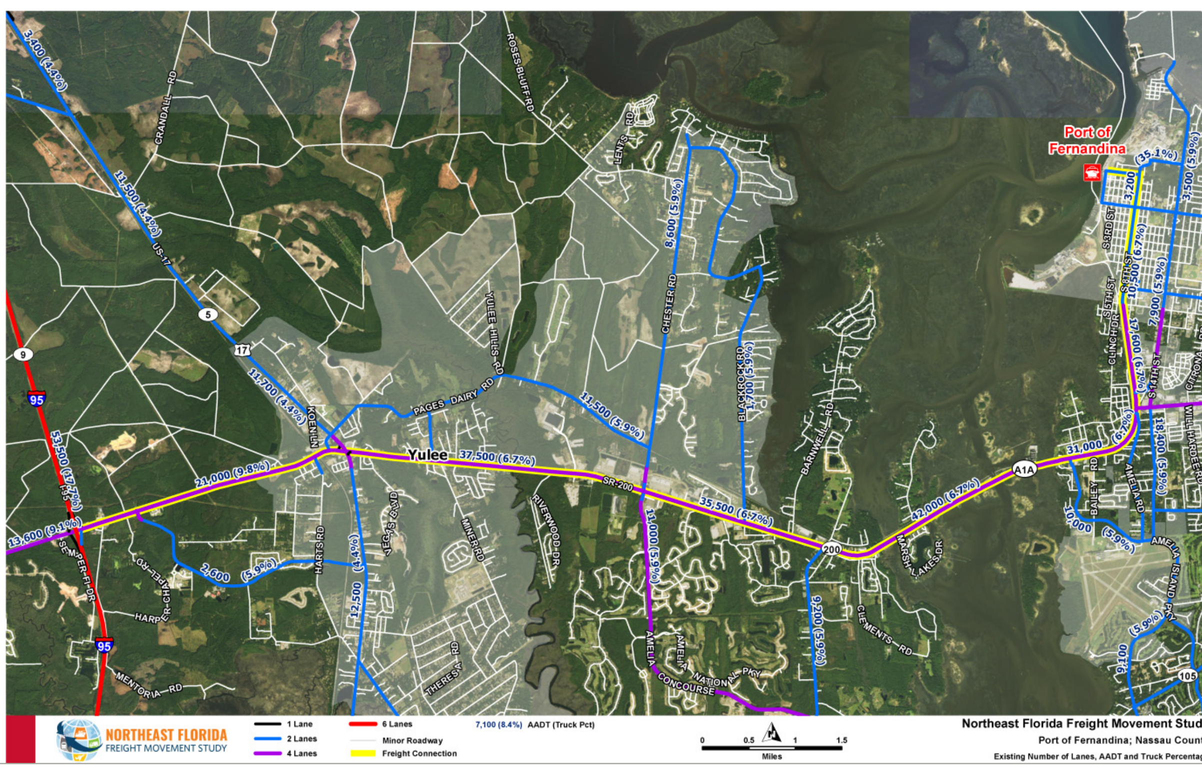
The Port's principal cargoes include exports of Kraft liner board, lumber, steel products, machinery, building and construction material, as well as imports of grains, wood pulp, hardboard and building materials. The containerized commodities moving through the Port include wood pulp, automobile and truck parts, lumber, chemicals, beverages, food stuffs and chilled goods, machinery, consumer goods and building materials (Florida Seaport Master Plan, 2016). Cargo terminals include two (2) berths with 1,200 linear feet of berthing space.

Existing land use adjacent to the freight connection is diverse with large tracts of agricultural and undeveloped lands while existing concentrations of commercial and residential land use are along the connection. As such, SR 200 is also the main traffic corridor used by residents, visitors, and other commercial vehicles serving Nassau County, Amelia Island, and City of Fernandina Beach.

Existing Conditions

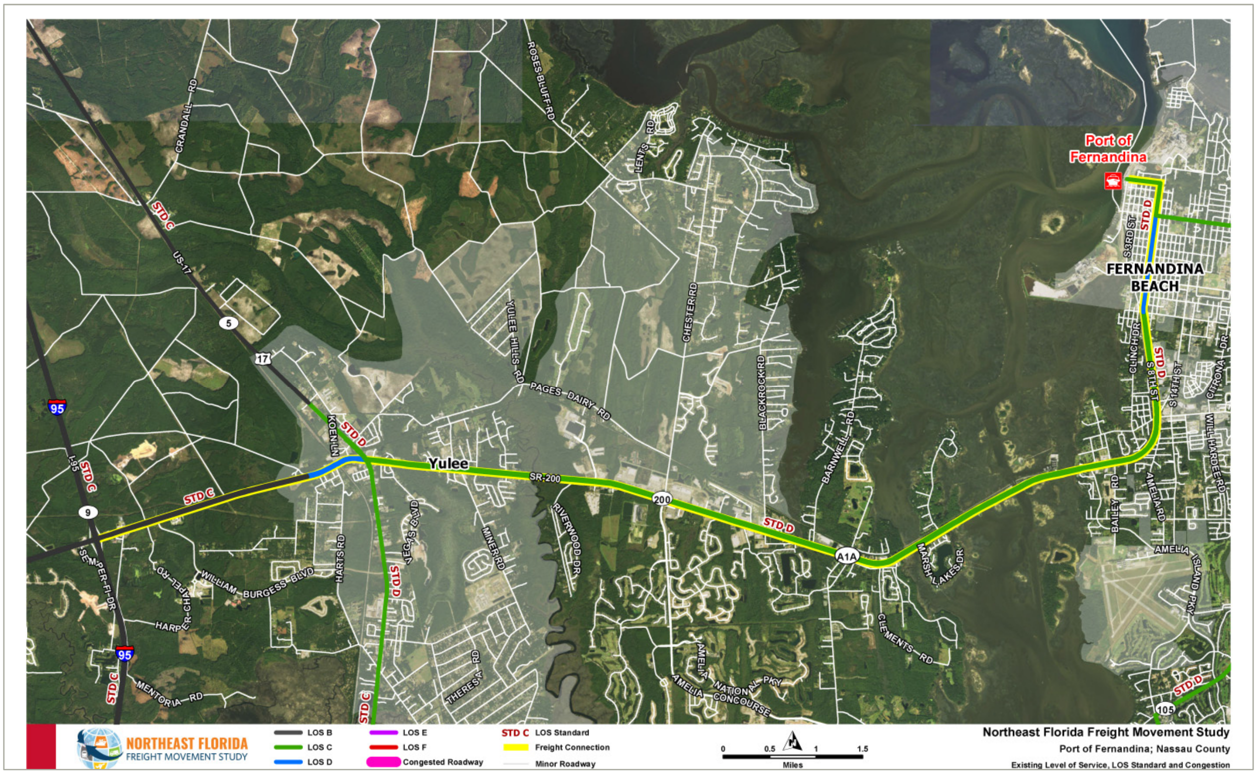
SR 200 is a four-lane divided roadway from I-95 to Lime Street and a two-lane undivided roadway (8th Street) from Lime Street to the Port. As depicted in ***Figure 6-15***, the existing AADT volumes vary between 17,600 and 42,000 for the four-lane roadway segment and 10,500 for the two-lane roadway segment as shown on the map. The daily truck traffic percentage is 6.7% along the connection.

Figure 6-15 | Port of Fernandina Area Traffic Characteristics



The posted speed limit varies between 35 mph and 55 mph along the SR 200 freight connection as shown on the map. As depicted in ***Figure 6-16***, the SR 200 four-lane roadway segment operates at LOS C or better for the existing year traffic condition, except for the SR 200 segment at the vicinity of US 17 intersection which operates at LOS D. SR 200 is also projected to operate at LOS C for the future year (2040) traffic conditions. The two lane 8th Street roadway segment operates at LOS D for the existing traffic condition and projected to operate at failing LOS F for the future year (2040) traffic condition.

Figure 6-16 | Port of Fernandina Area Existing Daily Level of Service



The SR 200 roadway segments at the vicinity of I-95 interchange, US 17, Miner Road, Christian Way, Chester Road, Blackrock Road and Barnwell Road are identified as segments with statistically higher than average crash rates. The SR 200 signalized intersections of I-95 ramp terminals, US 17, Miner Road, Chester Road and Center Street are noted as statistically higher than the average along the freight connection.

Ongoing FDOT Efforts

FDOT is undertaking construction of a three-phase project of improvements to SR-200 from I-95 to CR-107/O'Neil-Scott Road in Yulee, (Nassau County), a distance of approximately 8.5 miles. The improvements include widening SR-A1A/200 from a 4 lane roadway to a 6 lane roadway with raised medians, curb and gutter, sidewalks, bicycle lanes and storm water ponds. It also includes a new Diverging Diamond Interchange (DDI) on SR-A1A/200 at I-95.

Construction is Imminent / Underway:

- State Road A1A: Adding lanes from west of Interstate-95 to west of Still Quarters Road, including a reconfiguration of the interchange under Interstate-95 into a Diverging Diamond (2.2 miles).
- State Road A1A: Adding lanes from west of Rubin Davis Lane to east of O'Neil Scott Road (County Road 107) and replacing the Lofton Creek Bridge (5 miles).

Projects in Five-Year Work Program:

- State Road A1A: Resurface from the Amelia River Thomas J. Shave, Jr. Bridge to Centre Street.

Recently Completed Projects (2015-2017):

- State Road A1A: Adding two lanes from west of Still Quarters Road to west of Rubin Davis Lane (1.5 miles).

Jacksonville International Airport

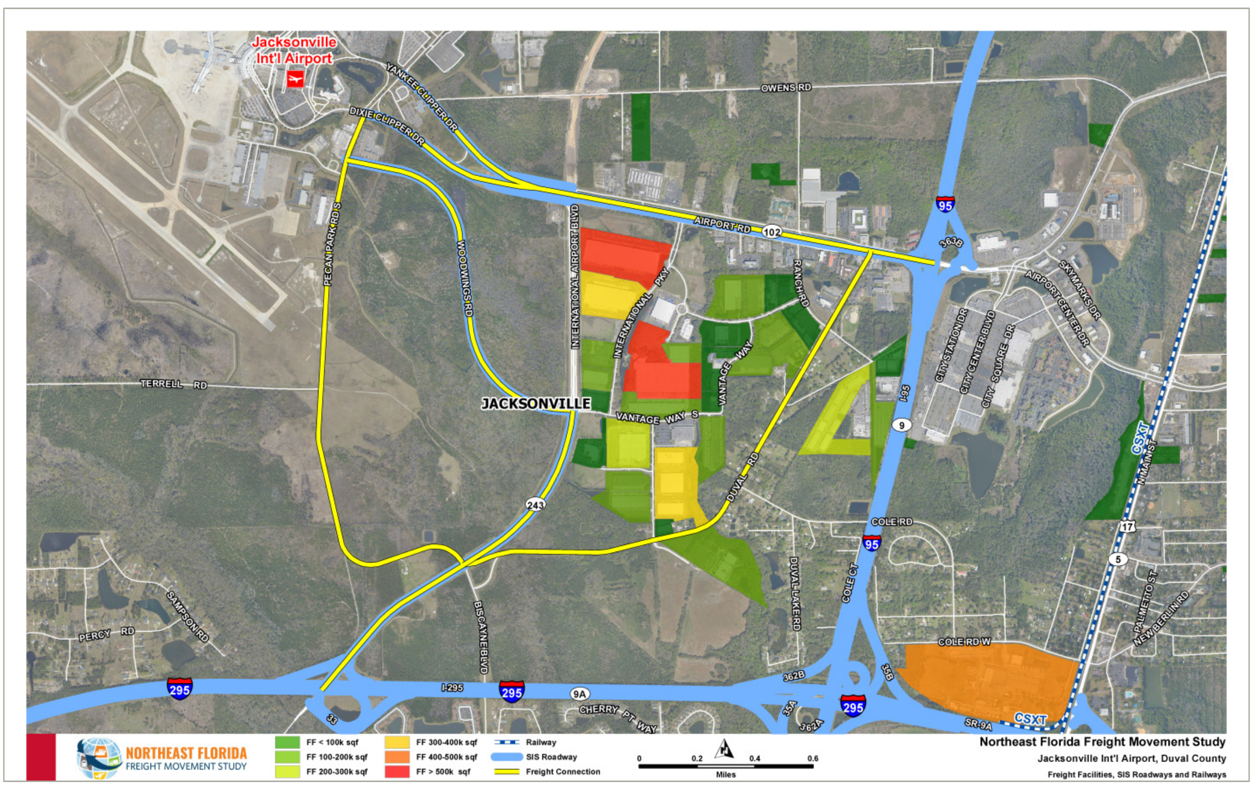
Context

Freight Connections

Airport Rd. / SR 102 (I-95 to Pecan Park Rd)
International Airport Blvd (I-295 to Woodwings Rd)
Woodwings Rd (Int'l Airport Blvd to Pecan Park Rd)
Duval Rd (Int'l Airport Blvd to Airport Rd)
Pecan Park Rd (Int'l Airport Blvd to Dixie Clipper Dr)

Jacksonville International Airport (JAX) is a designated Strategic Intermodal System (SIS) airport. JAX has four air cargo buildings. The airport's air cargo area has more than 200,000 square feet of warehouse space dedicated to air cargo operations and hundreds of acres of on-airport property suitable for air cargo development. FedEx and UPS utilize JAX. A large private industrial park (Trade Port) is approximately one mile south of the airport. This industrial park has 425 acres and eight multi-tenant sites. Land use on International Airport Boulevard is designated for commercial use and primarily occupied by hotel and off-site airport parking sites (wallypark & usapark). Land use on Duval Road is mixed with residential and non-residential uses with adjacent clusters of commercial and warehouse/distribution uses. As depicted in ***Figure 6-17***, multiple warehouse and distribution centers are located southeast of the airport property with major tenants including Mercedes-Benz USA and Coach Distribution Center.

Figure 6-17 | Jacksonville International Airport Area Freight Facilities

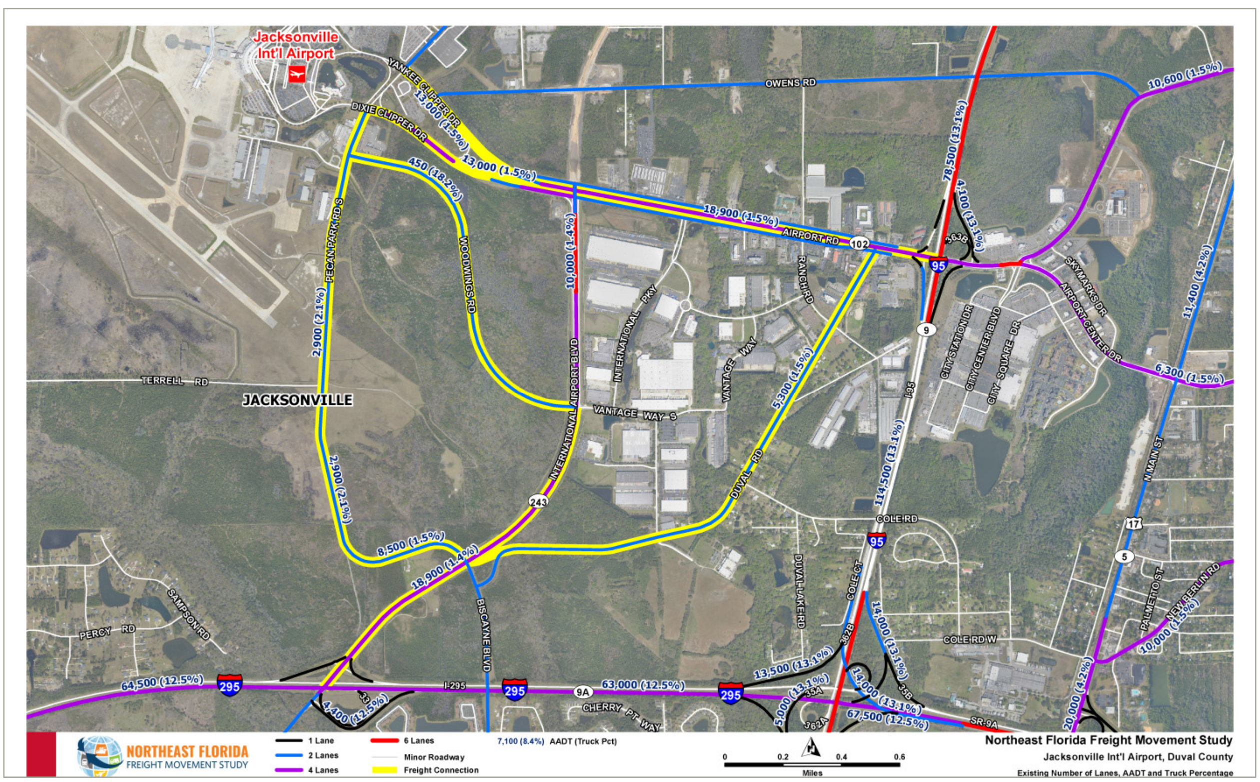


The primary highways providing access to JAX include I-95, I-295, and I-10. FDOT also recently opened a new intermodal access road, International Airport Boulevard, from I-295 to the existing main airport entrance road. This road provides a second direct link with the interstate highway system and will allow the airport to isolate truck traffic going to the air cargo facilities from passenger traffic using the main passenger terminal. Jacksonville International Airport is located close to the cross roads of major interstate highways (I-10, I-95 and I-75) and three of the nation's commercial trade railroads (CSX, Norfolk Southern and FEC). The two Strategic Intermodal System (SIS) facilities provide access to Jacksonville International Airport: SR 102/ Airport Road and SR 243/International Airport Road. SR 102/Airport Road provides a freight connection from I-95 and SR 243/International Airport Road provides a freight connection from I-295. In addition, Pecan Park Road, Woodwings Road and Duval Road provide freight connections and for freight traffic circulation.

Existing Conditions

SR 102/Airport Road and SR 243/International Airport Blvd are four-lane roadway facilities and Pecan Park Road, Woodwings Road and Duval Road are two-lane roadways. As depicted in ***Figure 6-18***, the existing highest AADT volumes are 18,900 for both SR 102/Airport Road and SR 243/International Airport Road.

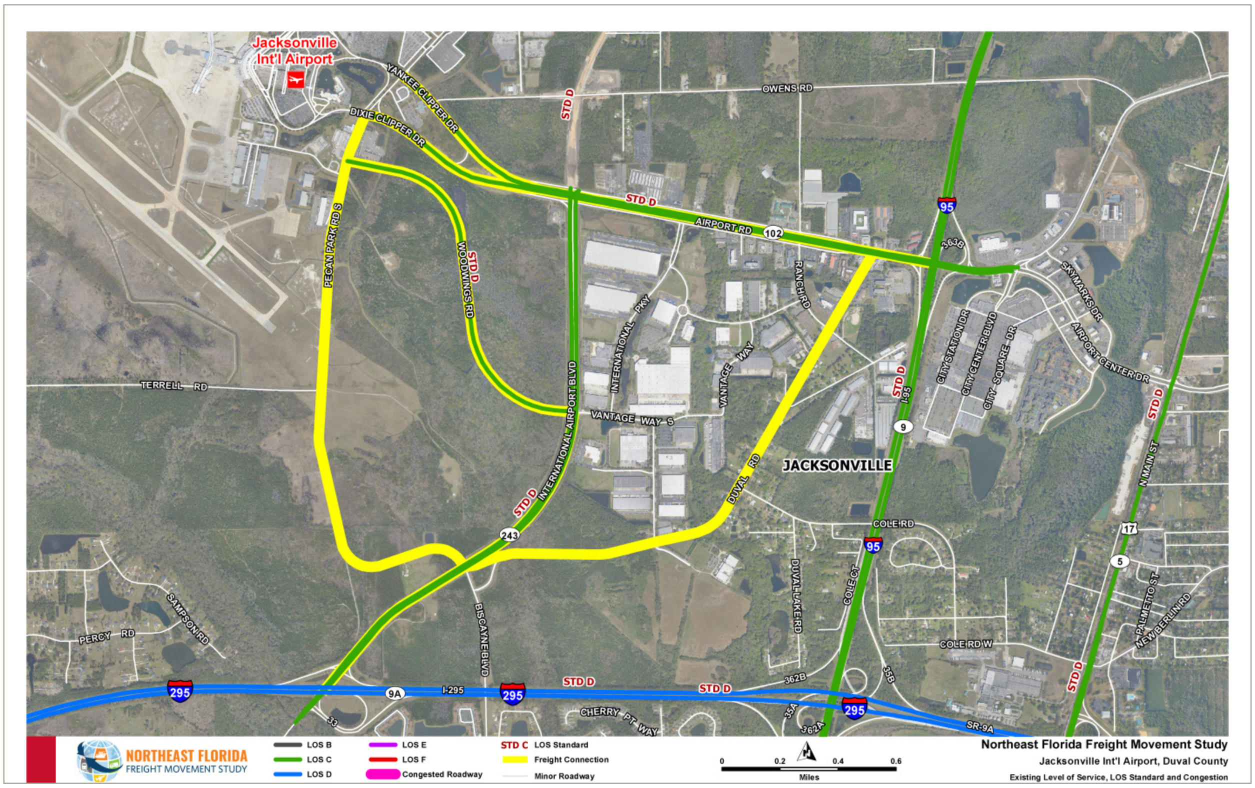
Figure 6-18 | Jacksonville International Airport Area Traffic Characteristics



The daily truck traffic percentage is an estimated 1.5% along these roadways. The posted speed limit varies between 45 mph and 55 mph along the SR 102/Airport Road freight connection and varies between 35 mph and 45 mph for the SR 243/International Airport Road freight connection.

As depicted in ***Figure 6-19***, the SR 102/Airport Road and SR 243/International Airport Road operate at LOS C for the existing year and are also projected to operate at LOS C for the future year (2040) traffic conditions. The two lane 8th Street roadway segment operates at LOS D for the existing traffic condition and is projected to operate at failing LOS F for the future year (2040) traffic condition.

Figure 6-19 | Jacksonville International Airport Area Existing Daily Level of Service



The SR 102/Airport Road roadway segments in the vicinity of I-95 interchange and Duval Road are identified as segments with statistically higher than average crash rates. The SR 102/Airport Road signalized intersections of I-95 ramp terminals and Duval Road are identified as intersections with statistically higher than average crash rates. The SR 243/International Airport Road intersections at I-295 ramp terminals are also recognized as statistically higher than the average rate.

Ongoing FDOT Efforts

Construction is Imminent / Underway:

- I-95 at I-295 North Interchange Reconfiguration: The project will include a collector distributor system, which will allow motorists traveling along I-295, whether exiting or passing through, to maneuver through the interchange with fewer lane shifts. Auxiliary lanes and minor ramp improvements will be added to I-95 and the SR 102/Airport Road interchange. The Cole Road Bridge over I-95 will also be replaced. I-295 North and US 17 will also see construction work including bridge replacement/construction, ramp reconstruction and road work along US 17.
- Interstate 95: Add Intelligent Transportation System (ITS) network from SR 102/Airport Road to the Georgia State line (17 miles).
- SR 243/Pecan Park Road: Adding extra lane in both directions, sidewalk, drainage, pier protection and ramp widening from I-95 to Lexington Park Boulevard

Projects in Five-Year Work Program:

- Interstate 95: Rehabilitate concrete pavement at SR 102/Airport Road access to Jacksonville International Airport

Recently Completed Projects:

- JIA North Access Road: New road from Airport Road to Pecan Park Road (2.5 miles).
- SR 102/Airport Road: Resurface from I-95 to SR 243/International Airport Rd.

JAXPORT

Context

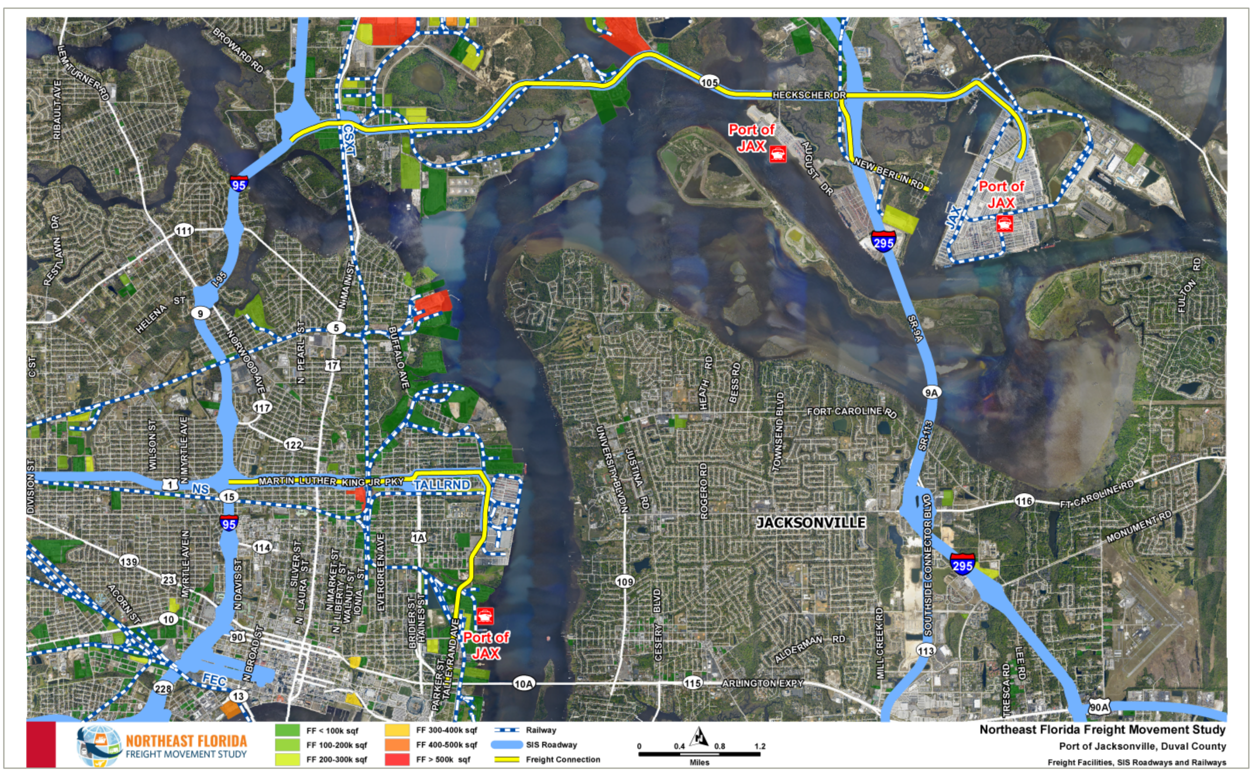
The Jacksonville Port Authority (JAXPORT) is an independent agency which owns, maintains, markets, and operates a cruise terminal and three cargo terminals at the Port of Jacksonville: Talleyrand Marine Terminal (TMT), Blount Island Marine Terminal (BIMT), and Dames Point Marine Terminal (DPMT). JAXPORT handles automobiles, forest products, dry bulk cargoes, perishable cargoes, cruise passengers and containers. More than 60 million consumers are located within a one-day truck drive of all three JAXPORT marine terminals.

Freight Connections

MLK Jr. Pkwy (I-95 to Matthews Pkwy)
Heckscher Dr (I-95 to Dave Rawis Blvd)
New Berlin Rd (Heckscher Rd to Terminal Entrance)

More than 100 trucking and drayage firms operate in and around the port using the city's highway system based on I-95, I-10 and I-75. Major freight facilities and warehouse/distribution centers are depicted in ***Figure 6-20***.

Figure 6-20 | JAXPORT Area Freight Facilities

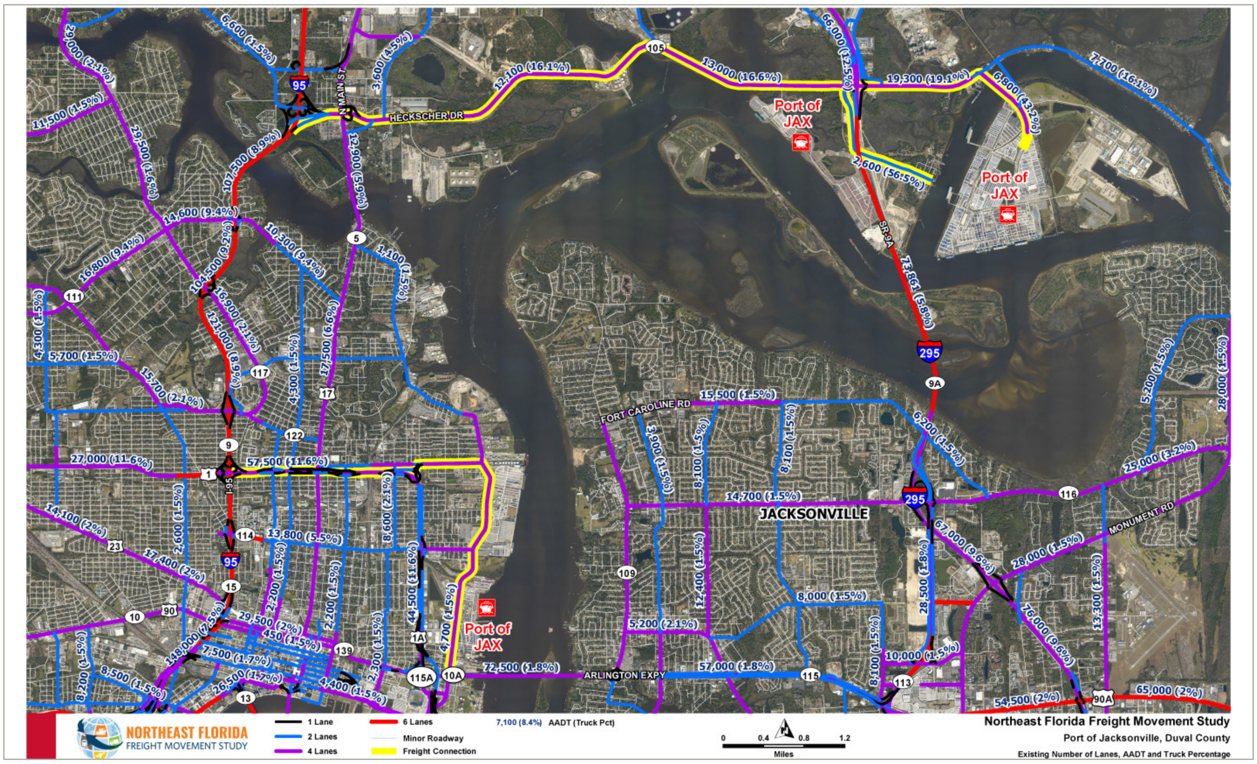


SR 105/Heckscher Drive, New Berlin Road, US1/Martin Luther King Jr. Parkway and Talleyrand Avenue are major roadways connecting the port terminals with the interstate highway network. SR 105/Heckscher Drive provides freight connection between I-95 and JAXPORT Dames Point and Blount Island Marine terminals. US 1/Martin Luther King Jr. Parkway provides freight connection between I-95 and JAXPORT Talleyrand Marine Terminal.

Existing Conditions

SR 105/Heckscher Drive and US 1/Martin Luther King Jr. Parkway are four-lane roadways and New Berlin Road is a two-lane roadway, as depicted in ***Figure 6-21***. The highest existing AADT volume observed for SR 105/Heckscher Drive is 13,000, 2,600 for New Berlin Road, and 6,800 for Dave Rawls Boulevard; and 57,500 AADT for US 1/Martin Luther King Jr. Parkway. The daily truck traffic percentage is an estimated 16% for SR 105/Heckscher Drive, 56.5% for New Berlin Road, and 43.2% for Dave Rawls Boulevard; and an estimated 11.6% for US 1/Martin Luther King Jr. Parkway.

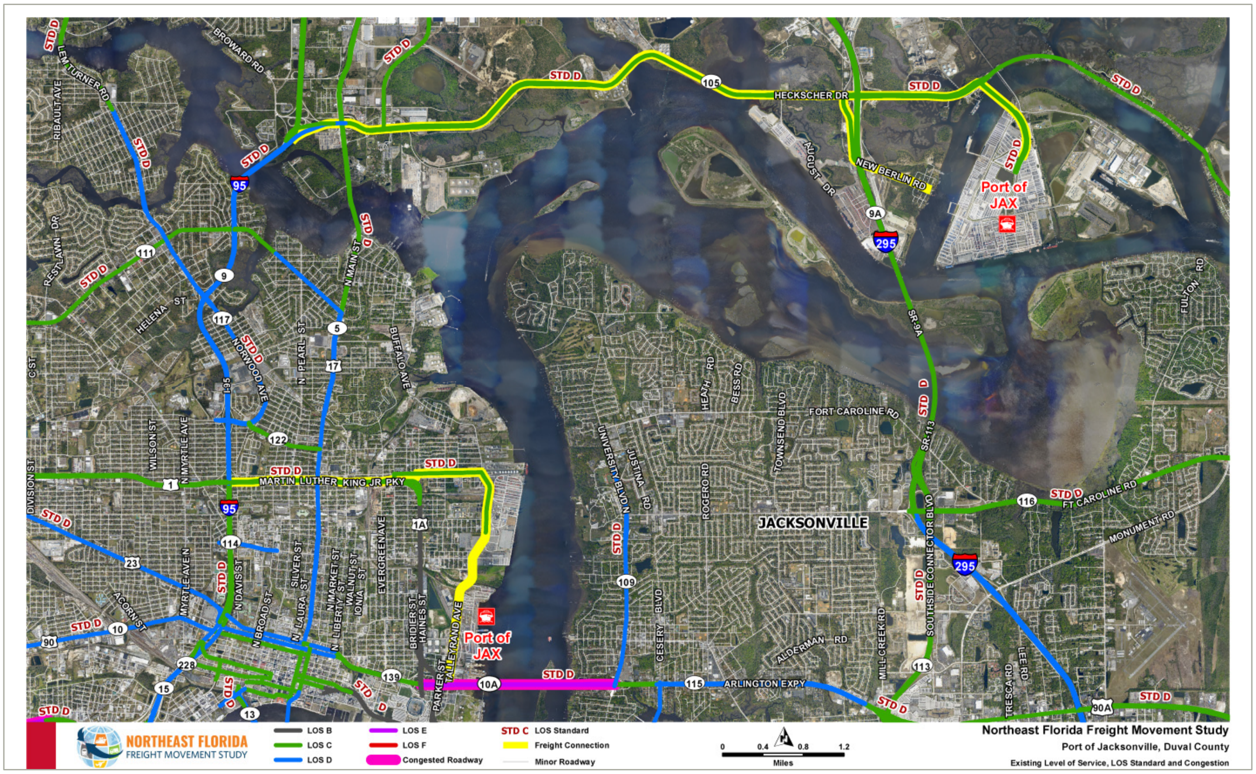
Figure 6-21 | JAXPORT Area Traffic Characteristics



The posted speed limit varies between 35 mph and 45 mph along the SR 105/Heckscher Drive freight connection and varies between 30 mph and 35 mph for the US1/Martin Luther King Jr. Parkway connection.

As depicted in ***Figure 6-22***, all the JAXPORT freight connections: SR 105/Heckscher Drive, US 1 /Martin Luther King Jr. Parkway and New Berlin Road operate at LOS C or better for the existing year traffic conditions and are also projected to operate at LOS C or better for the future year (2040) traffic conditions.

Figure 6-22 | JAXPORT Area Existing Daily Level of Service



The SR 105/Heckscher Drive signalized intersections of New Berlin Road, I-295 interchange ramp terminals are identified as intersections with statistically higher than average crash rates.

Ongoing FDOT Efforts

Construction is Imminent/Underway:

- I-95/I-295 North Interchange Reconfiguration: The project will include a collector distributor system, which will allow motorists traveling along I-295, whether exiting or passing through, to maneuver through the interchange with fewer lane shifts. Auxiliary lanes and minor ramp improvements will be added to I-95 and the SR 102/Airport Road interchange. The Cole Road Bridge over I-95 will also be replaced. I-295 North and US 17 will also see construction work including bridge replacement/construction, ramp reconstruction and road work along US 17.

Projects in Five-Year Work Program:

- SR 105/Heckscher Drive: Resurfacing from Busch Drive to Fuel Farm.

Recently Completed Projects:

- SR 105/Heckscher Drive: Resurfacing from Blount Island Boulevard to the St. Johns River Ferry landing entrance.

- US1/Martin Luther King, Jr. Parkway at 21st Street Interchange: The interchange allows for easier access to JAXPORT's Talleyrand terminal and improves safety along the US1 /MLK Jr. Parkway. Traffic leaving the port is able to travel to US 1/MLK Jr. Parkway from 21st Street. The interchange includes five new bridges including two over the Jacksonville Port Terminal Railroad (JXPT), one over Phoenix Avenue and two bridges on US 1/MLK Jr. Parkway over the ramp that connects to 21st Street. The new interchange was built with stronger concrete pavement and bridges to reduce future maintenance needs. The project also involved drainage improvements to the area including six new ponds to collect storm water.

- I-295 at SR 105/Heckscher Drive Interchange Reconstruction: The project included widening New Berlin Road south of SR 105/Heckscher Drive, constructing new southbound ramps from I-295 with direct access to the TraPac Cargo Container Terminal, constructing a new ramp from New Berlin Road at the existing TraPac Cargo Container Terminal and new Intermodal Container Transfer Facility to northbound I-295, adding new retention ponds, expanding existing ponds for drainage and installing new signs and new high-mast lights. These improvements will help maintain access on SR 105/Heckscher Drive and New Berlin Road while accommodating a significant increase in commercial truck traffic.

SR 228 / Talleyrand Connector

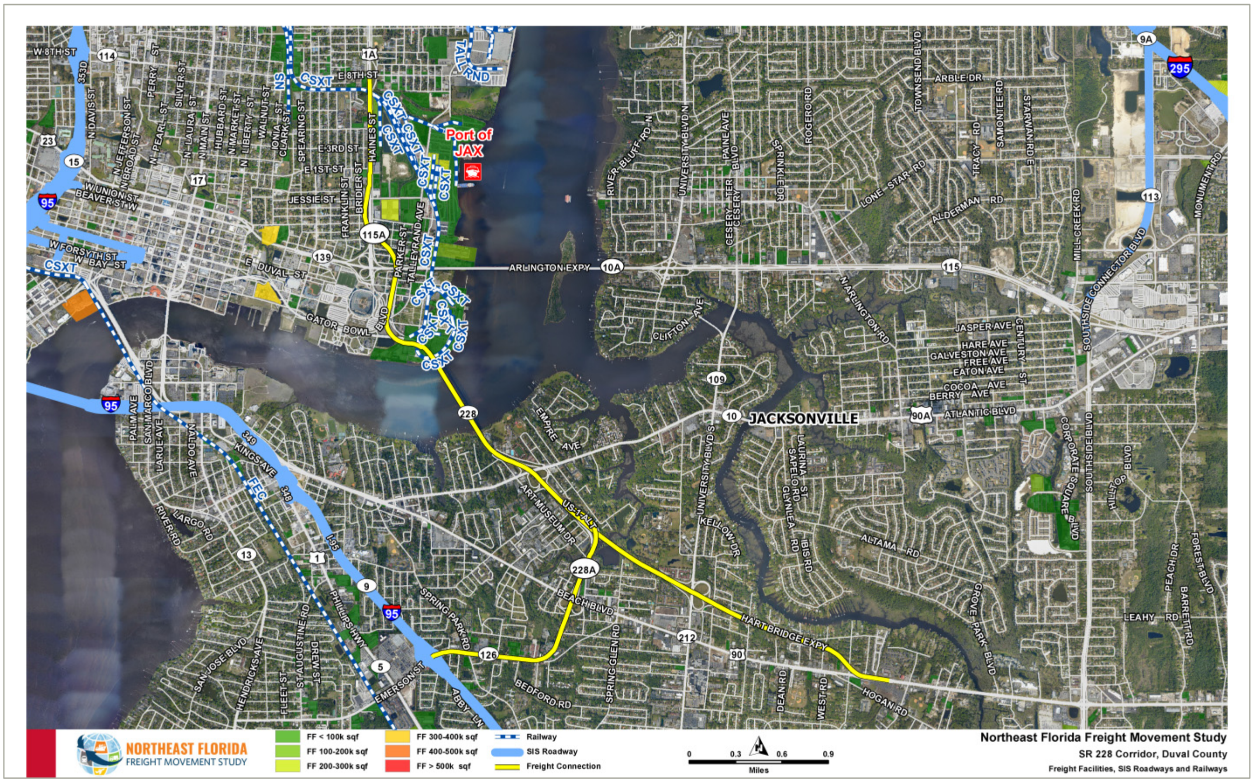
Context

SR 228 provides access to and from nearby JAXPORT's Talleyrand Marine Terminal to I-95 and to US 90. Talleyrand Marine Terminal handles containerized and break bulk cargoes, automobiles and liquid bulk commodities. Onsite, a 553,000 square foot warehouse provides dry storage space for a variety of cargoes. Given the limited-access design of SR 228, the freight movement context for this connection is mobility versus facility access. The freight connection provides a direct link to I-95 and to I-295 via US 90 as depicted in ***Figure 6-23***.

Freight Connections

SR 228 (Emerson Street to US 90)
SR 228A/ SR126 (SR 228 to I-95)

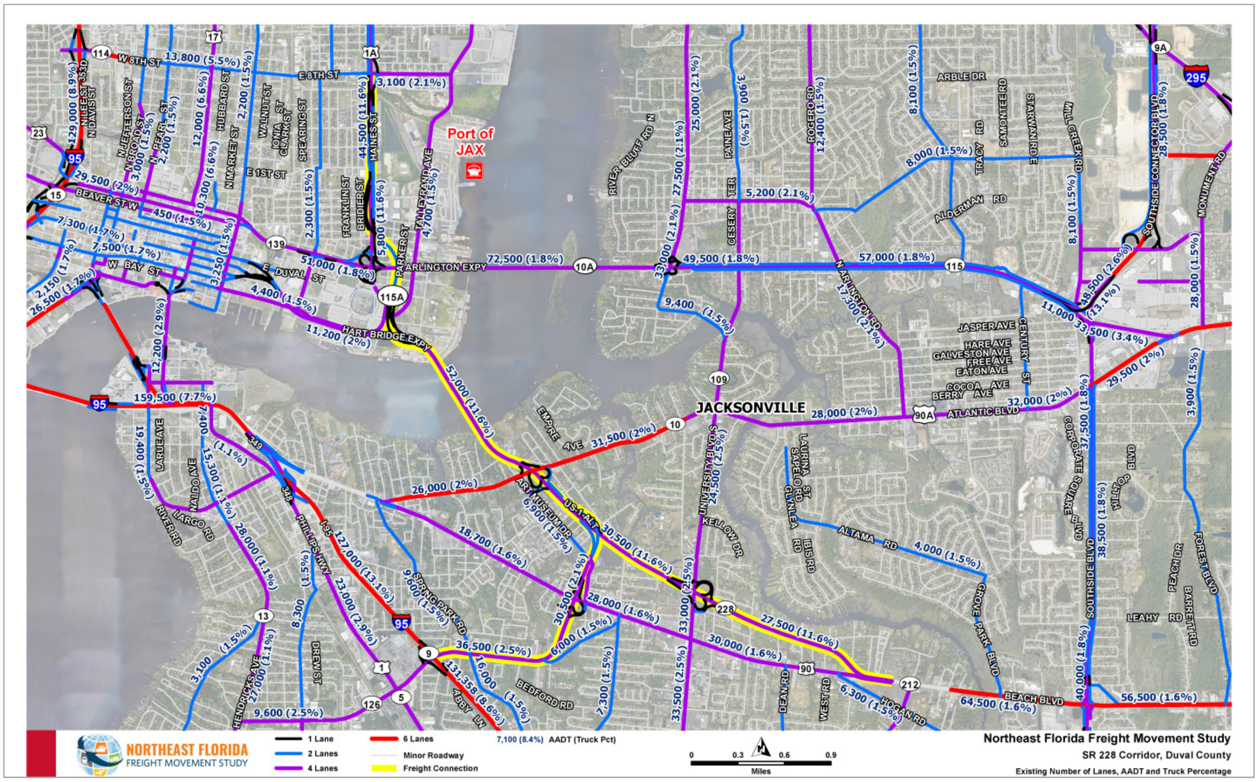
Figure 6-23 | SR 228 / Talleyrand Connector Freight Facilities



Existing Traffic Conditions

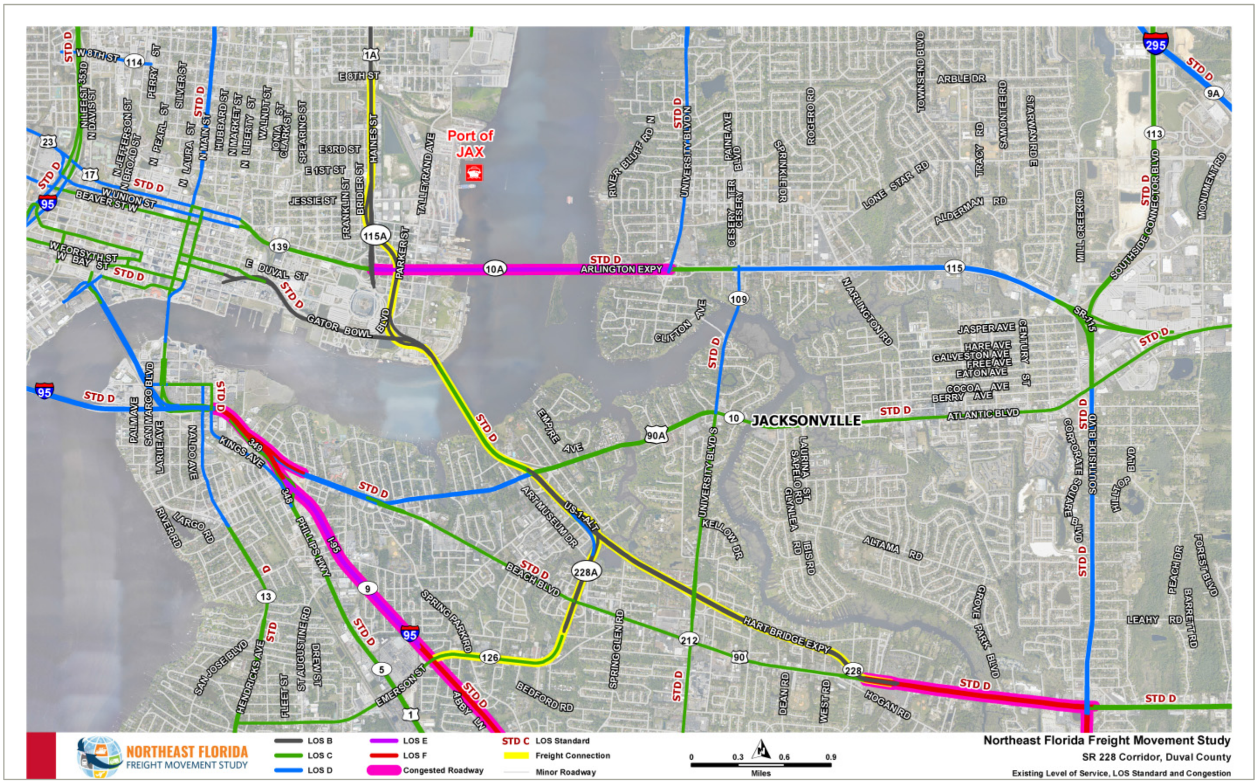
As depicted in ***Figure 6-24***, SR 228 is a four-lane roadway. The SR 228 existing AADT volumes vary between 27,500 and 52,000 along the freight connection. The daily truck traffic percentage is 11.6%. The SR 228 posted speed limit varies between 40 mph and 55 mph.

Figure 6-24 | SR 228 / Talleyrand Connector Traffic Characteristics



As depicted in ***Figure 6-25***, the SR 228 freight connection operates at LOS C or better for the existing year and is projected to operate at LOS D or worse for the future year (2040) traffic conditions. The Emersion Street signalized intersections of I-95 ramp terminals and Spring Park Road are identified as intersections with statistically higher than average crash rates.

Figure 6-25 | SR 228 / Talleyrand Connector Existing Daily Level of Service



Traffic Analysis

Table 6-10 summarizes the intersection(s) analyzed as part of the first-mile/last-mile operational analysis. Based on a review of the 2017 average daily LOS, the intersection of Emerson Street at Spring Park Road operates at LOS C in the AM peak and LOS D in the PM Peak.

Table 6-10 | SR 228 / Talleyrand Connector Intersection Summary

Main Road	Intersecting Road	Traffic Control	2017 LOS AM / PM
Emerson St	Spring Park Rd	Signal	C / D

Preliminary Findings

- Extend the eastbound Emerson Street left-turn lane at the Spring Park Road intersection by removing the left-turn lane (prohibit left-turn movement) from Emerson Street to Abby Lane (west of Spring Park Road intersection).

Geometric Summary

Intersection geometry was also reviewed using aerial imagery in MicroStation by measuring the existing radii's for left- and right-turn movements and comparing to the standards listed in FIDG for a WB-62FL. ***Figure 6-26*** provides an aerial overview of the intersection. ***Table 6-11*** through ***Table 6-15*** summarizes the geometric findings.

Figure 6-26 | SR 228 / Talleyrand Connector Aerial: Emerson Street at Spring Park Road

As noted in ***Table 6-11***, based on the FIDG standards, the left-turn '1,2,3,4' movements (Emerson Street EB to Spring Park Road NB; Spring Park Road SB to Emerson Street EB; Emerson Street WB to Spring Park Road SB; and Spring Park Road NB to Emerson Street WB) were identified as sub-standard due to existing control radius.

Table 6-11 | SR 228/Talleyrand Connector Geometric Summary: Left-Turn Movements

Left Turn 1 Description	Existing Control Radius (ft)[1]	Left Turn 2 Description	Existing Control Radius (ft)[1]	Left Turn 3 Description	Existing Control Radius (ft)[1]	Left Turn 4 Description	Existing Control Radius (ft)[1]
Emerson St EB to Spring Park Rd NB	40	Spring Park Rd SB to Emerson St EB	65	Emerson Rd WB to Spring Park Rd SB	45	Spring Park Rd NB to Emerson St WB	50

Note: [1]Florida Intersection Design Guide (2014) Table 3-13 requires a minimum control radius of 75 feet for an occasional WB-62FL turn.

As noted in ***Table 6-12***, based on the FIDG standards, right-turn '1' movement (Emerson Street WB to Spring Park Road NB) was identified as sub-standard due to existing return radius.

Table 6-12 | SR 228 / Talleyrand Connector Geometric Summary: Right-Turn Movement (1)

Right Turn 1 Description	Angle of Turn	Return Radius Required (ft)^{2}	Existing Return Radius (ft)
Emerson St WB to Spring Park Rd NB	110	115	**50**

As noted in ***Table 6-13***, based on the FIDG standards, right-turn '2' movement (Spring Park Road SB to Emerson Street WB) was identified as sub-standard due to existing return radius.

Table 6-13 | SR 228 / Talleyrand Connector Geometric Summary: Right-Turn Movement (2)

Right Turn 2 Description	Angle of Turn	Return Radius Required (ft)^{2}	Existing Return Radius (ft)
Spring Park Rd SB to Emerson St WB*	70	145	**30**

As noted in ***Table 6-14***, based on the FIDG standards, right-turn '3' movement (Emerson Street EB to Spring Park Road SB) was identified as sub-standard due to existing return radius.

Table 6-14 | SR 228 / Talleyrand Connector Geometric Summary: Right-Turn Movement (3)

Right Turn 3 Description	Angle of Turn	Return Radius Required (ft)^{2}	Existing Return Radius (ft)
Emerson St EB to Spring Park Rd SB	115	105	**30**

As noted in ***Table 6-15***, based on the FIDG standards, right-turn '4' movement (Spring Park Road NB to Emerson Street EB) was identified as sub-standard due to existing return radius.

Table 6-15 | SR 228 / Talleyrand Connector Geometric Summary: Right-Turn Movement (4)

Right Turn 4 Description	Angle of Turn	Return Radius Required (ft)^{2}	Existing Return Radius (ft)
Spring Park Rd NB to Emerson St EB*	65	200	**35**

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

* Denotes deficient right turns onto a roadway with two receiving lanes. In these cases, the truck can make the turn but would need to utilize both receiving lanes to do so.

Preliminary Findings

- Emerson Street at Spring Park Road: All turns movements are insufficient; intersection angle is 66 degrees which is the origin of the geometric deficiency.

Ongoing FDOT Efforts

Construction is Imminent/Underway:

- Emerson Street: Resurfacing from SR13/Hendricks Avenue to US1/Phillips Highway
- Hart Expressway at US 90/Beach Boulevard: Bridge painting and drainage improvements

Projects in Five-Year Work Program:

- I-95 at SR 126/Emerson Street Interchange Project: Included as part of larger I-95 Express Lanes Project from. SR202/Butler Blvd to Atlantic Blvd
- SR 109/University Boulevard: Drainage improvements from Spring Park Road to Barnes Road

Recently Completed Projects:

- Hart Bridge: Bridge rehabilitation work on the Hart Bridge over the St. Johns River.
- SR 228 at Hart Expressway: Intersection improvements at the eastbound off-ramp to eastbound Atlantic Boulevard
- US 1/Martin Luther King, Jr. Parkway at 21st Street Interchange: The interchange allows for easier access to JAXPORT's Talleyrand terminal and improves safety along the US1/MLK Jr. Parkway. Traffic leaving the port is able to travel to US 1/MLK Jr. Parkway from 21st Street. The interchange includes five new bridges including two over the Jacksonville Port Terminal Railroad (JXPT), one over Phoenix Avenue and two bridges on US 1/MLK Jr. Parkway over the ramp that connects to 21st Street. The new interchange was built with stronger concrete pavement and bridges to reduce future maintenance needs. The project also involved drainage improvements to the area including six new ponds to collect storm water.

FEC Intermodal Terminal (Bowden Yard) Area

Context

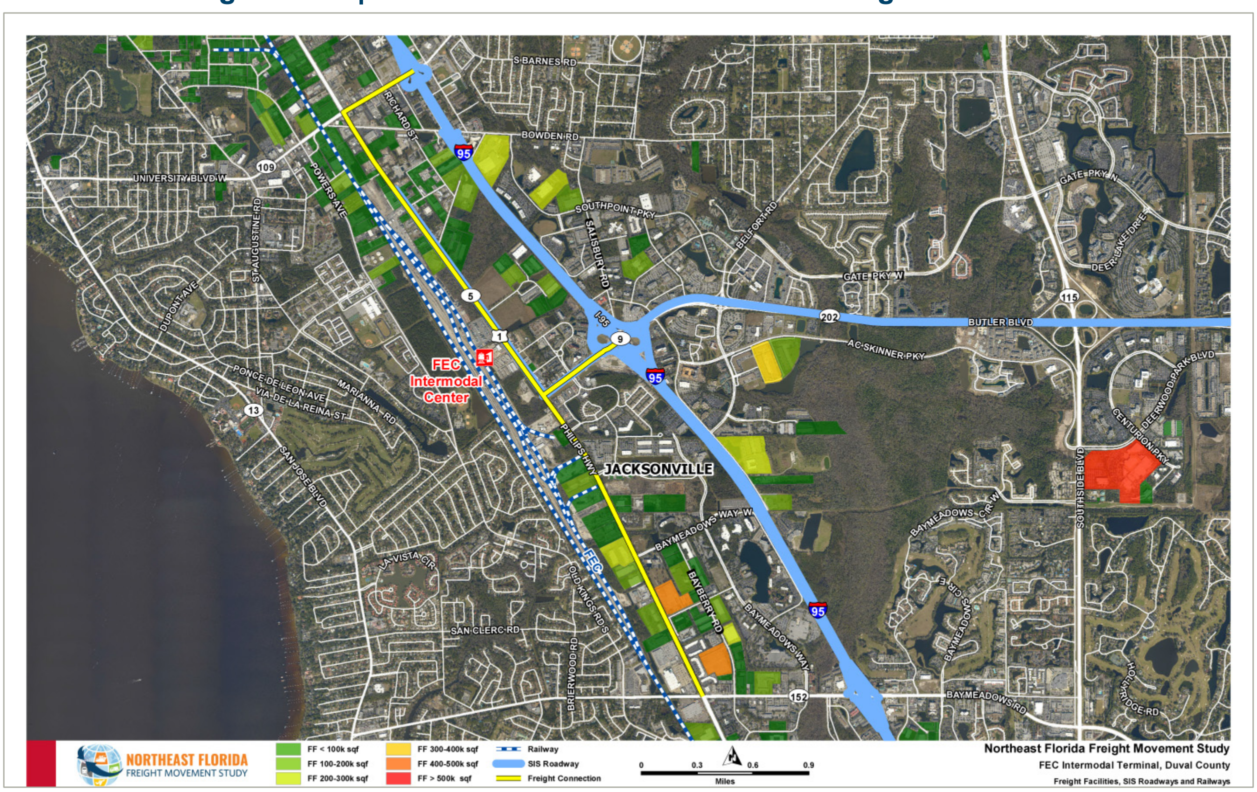
Freight Connections

SR 109/University Blvd. (I-95 to US1/Phillips Hwy.)
US1/Phillips Hwy (SR 109/University Blvd to SR 152 / Baymeadows Rd.)
SR 202/Butler Blvd (I-95 to US1/Phillips Hwy.)

Florida East Coast Railway (FEC) is a Class II regional railroad operating 351 miles of mainline track along the east coast of Florida between Jacksonville and Miami. Headquartered in Jacksonville, FEC maintains the second largest railroad network in Florida after CSXT and provides the only north-south mainline along the Atlantic Coast between West Palm Beach and Jacksonville.

The FEC Intermodal Terminal is located at 6150 US 1/Philips Highway in Jacksonville, Florida; and is nationally designated as a Primary Highway Freight System Intermodal Connector. The Terminal is accessed by two unsignalized locations on either end of the terminal. Philips Highway is a state highway facility and designated as US 1/Phillips Highway. As depicted in ***Figure 6-27***, south of the FEC intermodal terminal, there is over a mile stretch of warehouse and distribution center concentration on US1/Phillips Highway from SR 202/Butler Boulevard to SR 152/Baymeadows Road.

Figure 6-27 | FECR Intermodal Terminal Area Freight Facilities

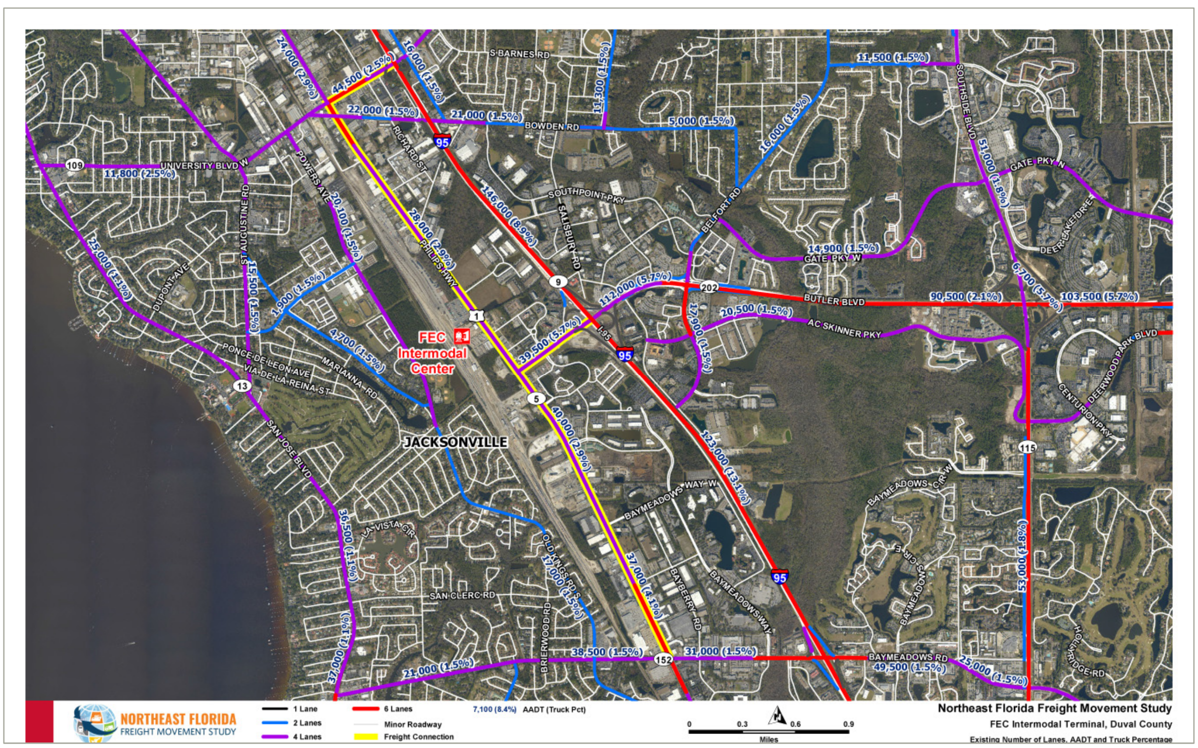


FEC provides exclusive rail service to the Ports of Palm Beach, Everglades (Fort Lauderdale), Miami, and the Kennedy Space Center. The FEC's primary carload transfer yards are located at Fort Pierce, Cocoa, Pompano, Fort Lauderdale, and Miami, and its intermodal facilities are located at Jacksonville, Fort Lauderdale, Fort Pierce, and Miami. FEC also provides a drayage leg in its portfolio of services to intermodal customers. FEC's chief connection with CSXT and NS occurs at Bowden Yard in Jacksonville.

Existing Conditions

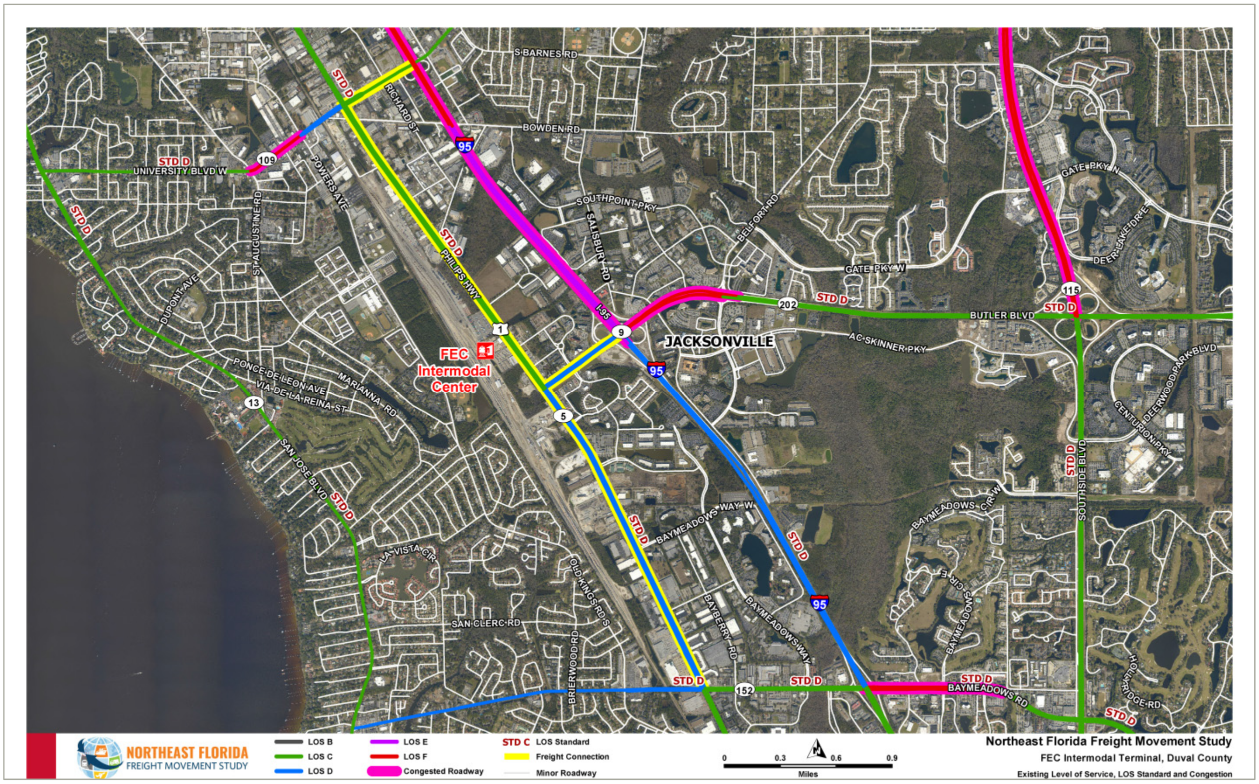
In general, freight connections SR 109/University Boulevard, US 1/Philips Highway and SR 202/Butler Boulevard are four-lane roadway facilities. As depicted in ***Figure 6-28***, the existing AADT volumes is 44,500 for SR 109/University Boulevard, 40,000 for US 1/Philips Highway and 39,500 for SR 202/Butler Boulevard. The daily truck traffic percentage is 2.5% for SR 109/ University Boulevard, 4.1% for US 1/Philips Highway, and 5.7% for SR 202/Butler Boulevard. The posted speed limit for all three freight connections is 45 mph.

Figure 6-28 | FECR Intermodal Terminal Area Traffic Characteristics



As depicted in ***Figure 6-29***, SR 109/University Boulevard operates at LOS C for the existing traffic condition and is projected to operate at a LOS C for the future year (2040) traffic condition. US 1/Philips Highway and SR 202/Butler Boulevard operate at LOS D for the existing traffic conditions but are projected to operate at LOS C with the planned widening from four lanes to six lanes.

Figure 6-29 | FECR Intermodal Terminal Area Existing Daily Level of Service



Significant portions of the SR109/University Boulevard, US 1/Philips Highway and SR 202/ Butler Boulevard freight connections roadway segments and almost all the signalized intersections are marked as high crash intensity intersections and are identified as segments and intersections with statistically higher than average crash rates.

Traffic Analysis

Table 6-16 summarizes the intersection(s) analyzed as part of the first-mile/last-mile operational analysis. Based on a review of the 2017 average daily LOS, the intersection of SR 152/ Baymeadows Road and Bayberry Road operates at LOS A in the AM peak and LOS C in the PM peak period. US 1/Phillips at Bay Center Road operates at LOS B in the AM peak and LOS C in the PM peak period while US 1/Phillips Highway at Cypress Plaza Drive operates at LOS C in a the AM Peak and LOS D in the PM peak period.

Table 6-16 | FECR Intermodal Terminal Area Intersection Summary

Main Road	Intersecting Road	Traffic Control	2017 LOS AM / PM
SR 152/Baymeadows Rd	Bayberry Road	Signal	A / C
US 1/Phillips Hwy	Bay Center Road	Signal	B / C
US 1/Phillips Hwy	Cypress Plaza Drive	Signal	C / D

Preliminary Findings

- US 1/Phillips Highway at Cypress Plaza Drive: Re-alignment of Cypress Plaza Drive eastbound and westbound approaches with the provision of westbound through lane.

Geometric Summary

Intersection geometry was also reviewed using aerial imagery in MicroStation by measuring the existing radii's for left- and right-turn movements and comparing to the standards listed in FIDG for a WB-62FL. ***Figures 6-30***, ***6-31***, and ***6-32*** provide an aerial overview of the intersections. ***Table 6-17*** through ***Table 6-22*** summarizes the geometric findings.

Figure 6-30 | FECR Intermodal Terminal Aerial: SR 152 at Bayberry Road

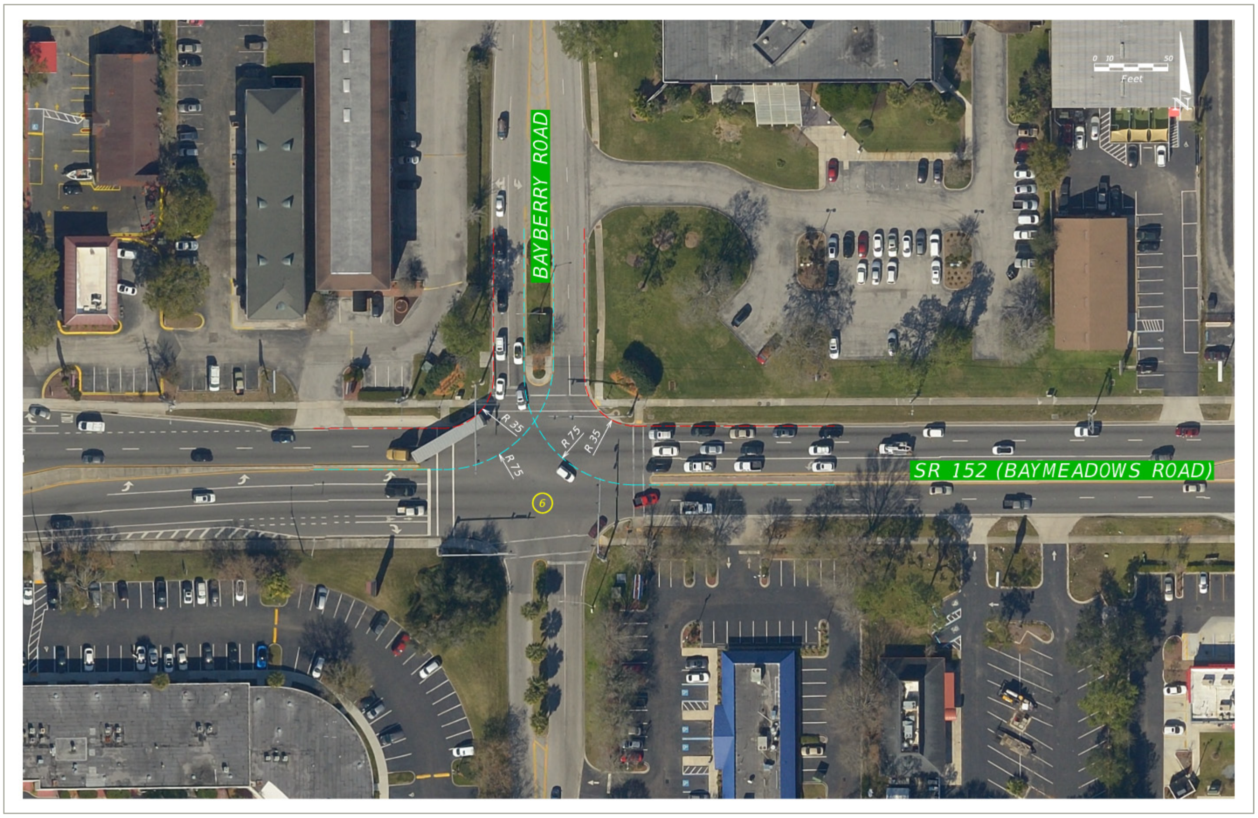


Figure 6-31 | FECR Intermodal Terminal Aerial: US 1 at Bay Center Road

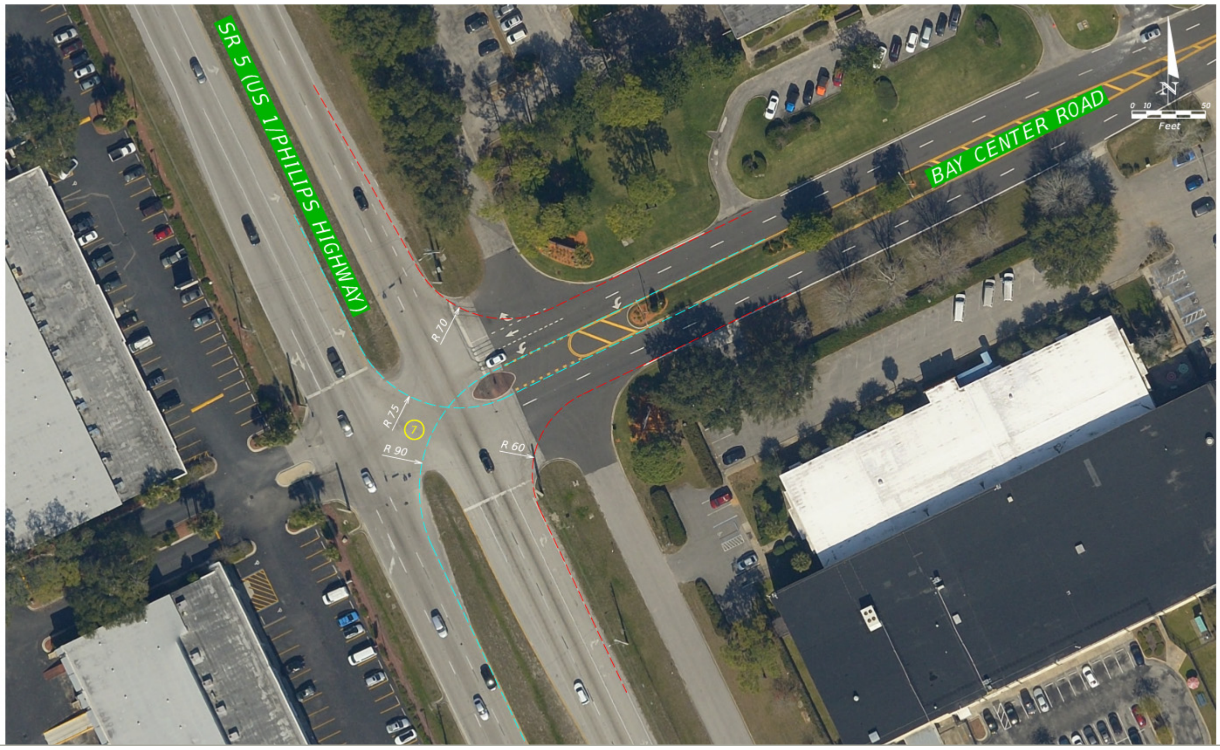


Figure 6-32 | FECR Intermodal Terminal Aerial: US 1 at Cypress Plaza Drive

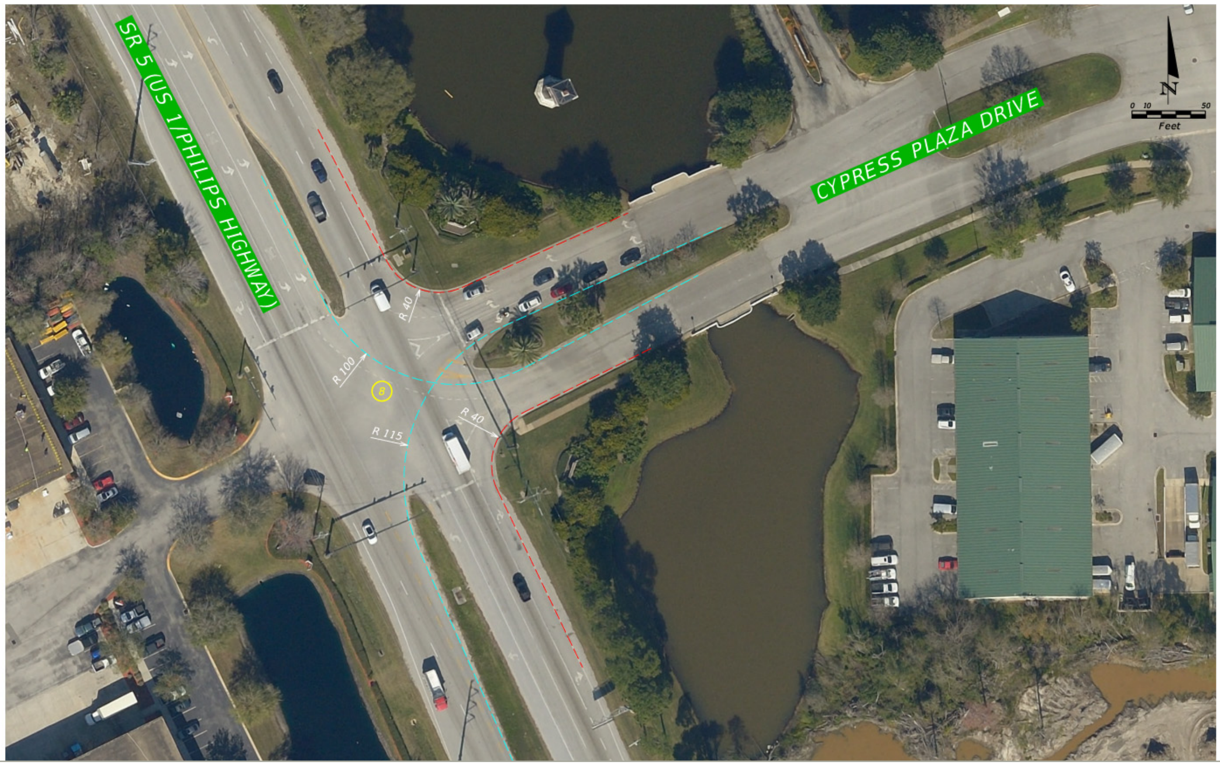


Table 6-17 | FECR Intermodal Terminal Geometric Summary: Left-Turn Movements 1 & 2

Left Turn 1 Description	Existing Control Radius (ft)[1]	Left Turn 2 Description	Existing Control Radius (ft)[1]
SR 152 EB to Bayberry Rd NB	75	Bayberry Rd SB to SR 152 EB	75
US 1 SB to Bay Center Rd EB	75	Bay Center Rd WB to US 1 SB	90
US 1 SB to Cypress Plaza Dr EB	100	Cypress Plaza Dr WB to US 1 SB	120
SR 152 EB to Bayberry Rd NB	75	Bayberry Rd SB to SR 152 EB	75

As noted in ***Table 6-18***, based on the FIDG standards, left-turn '1' movement (SR 152 WB to Bayberry Road SB) was identified as sub-standard due to existing control radius.

Table 6-18 | FECR Intermodal Terminal Geometric Summary: Left-Turn Movements 3 & 4

Left Turn 3 Description	Existing Control Radius (ft)[1]	Left Turn 4 Description	Existing Control Radius (ft)[1]
SR 152 WB to Bayberry Rd SB	**65**	Bayberry Rd NB to SR 152 WB	75
SR 152 WB to Bayberry Rd SB	65	Bayberry Rd NB to SR 152 WB	75

Note: [1]Florida Intersection Design Guide (2014) Table 3-13 requires a minimum control radius of 75 feet for an occasional WB-62FL turn.

As noted in ***Table 6-19***, based on the FIDG standards, right-turn '1' movements (SR 152 WB to Bayberry Road NB; US 1 NB to Bay Center Road EB; and US 1 NB to Cypress Plaza Drive EB) were identified as sub-standard due to existing return radius.

Table 6-19 | FECR Intermodal Terminal Geometric Summary: Right-Turn Movement (1)

Right Turn 1 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
SR 152 WB to Bayberry Rd NB*	90	125	**35**
US 1 NB to Bay Center Rd EB*	90	125	**60**
US 1 NB to Cypress Plaza Dr EB*	90	125	**40**

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

*Denotes deficient right turns onto a roadway with two receiving lanes. In these cases, the truck can make the turn but would need to utilize both receiving lanes to do so.

As noted in ***Table 6-20***, based on the FIDG standards, right-turn ‘2’ movements (Bayberry Road SB to SR 152 WB; Bay Center WB to US 1 NB; and Cypress Plaza Drive WB to US 1 NB) were identified as sub-standard due to existing return radius.

Table 6-20 | FECR Intermodal Terminal Geometric Summary: Right-Turn Movement (2)

Right Turn 2 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
Bayberry Rd SB to SR 152 WB*	90	125	**35**
Bay Center Rd WB to US 1 NB*	90	125	**70**
Cypress Plaza Dr WB to US 1 NB*	90	125	**40**

As noted in ***Table 6-21***, based on the FIDG standards, right-turn ‘3’ movement (SR 152 EB to Bayberry Road SB) was identified as sub-standard due to existing return radius.

Table 6-21 | FECR Intermodal Terminal Geometric Summary: Right-Turn Movement (3)

Right Turn 3 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
SR 152 EB to Bayberry Road SB*	90	125	**30**

As noted in ***Table 6-22***, based on the FIDG standards, right-turn ‘4’ movement (Bayberry Road NS to SR 152 EB) was identified as sub-standard due to existing return radius

Table 6-22 | FECR Intermodal Terminal Geometric Summary: Right-Turn Movement (4)

Right Turn 4 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
Bayberry Road NB to SR 152 EB*	90	125	**125 / 30**

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

* Denotes deficient right turns onto a roadway with two receiving lanes. In these cases, the truck can make the turn but would need to utilize both receiving lanes to do so.

Preliminary Findings

- SR 152/Baymeadows Road at Bayberry Road: The returns can be flattened to improve the right-turning movements; however, the mast arm signals and inlets in all four quadrants would be impacted;
- US /Phillips Hwy at Bay Center Road: The returns can be flattened to improve the right-turning movements; however, the mast arm signal in the NE quadrant would be impacted; and
- US 1/Phillips Hwy at Cypress Plaza Drive: The right turn from Cypress Plaza to US 1 NB is a double right but the truck would need both lanes to make the maneuver. If the return was flattened, the mast arm signal in the corner would be impacted.

Ongoing FDOT Efforts:

Construction is Imminent / Underway:

- SR 152/Baymeadows Road: Intersection improvements including adding right and left turn lanes at four intersections, traffic signal upgrades and countdown pedestrian timers, from Prominence Parkway to Southside Boulevard (1.6 miles).
- SR 126/Emerson Street: Resurfacing from SR 13/Hendricks Avenue to US 1/Philips Highway.

Projects in Five-Year Work Program:

- I-95/Emerson Street Interchange Project: Included as part of larger I-95 Express Lanes Project from. SR 202/Butler to Atlantic Blvd.

Recently Completed Projects:

- Interstate 95 at SR 202/Butler Boulevard: Interchange improvements and flyover.
- SR 126/Emerson Street: Resurfaced, improved drainage and curb and gutters, upgraded pedestrian signals, repaired sidewalks and replaced JEA water main on the north side of Emerson Street, from Spring Park Road to the Hart Expressway.

Norfolk Southern Intermodal Terminal - Simpson Yard

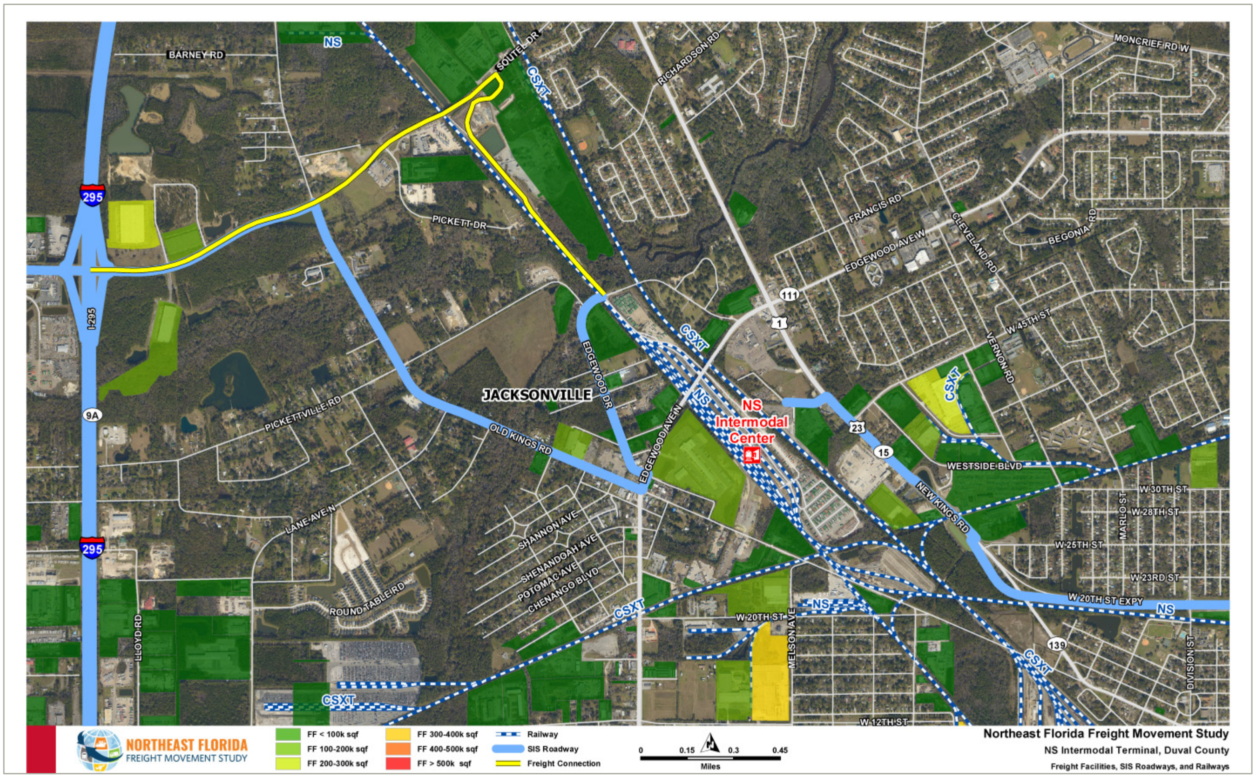
Context

Freight Connections

Pritchard Rd / Soutel Rd (I-295 to New Kings Rd)

Norfolk Southern (NS) is a Class I railroad operating 20,000 route miles in 22 states and the District of Columbia. NS serves 58 intermodal terminals and has access to 43 ocean, river, and lake port terminals. In Florida, NS owns 149 routes miles on two main lines terminating at Lake City and Jacksonville, including service to the Port of Jacksonville. Trackage rights agreements allow NS to operate over 53 miles of CSXT's "A Line" between Jacksonville and Palatka. NS also maintains a haulage agreement with FEC from Jacksonville to Miami. The Jacksonville Intermodal Terminal has the following cargo handling capabilities: TOFC / COFC / Stack Car, Bottom and Top Lift, an EMP (53'). NS also connects with Jacksonville Port Terminal Railroad (JXPT). Existing land use adjacent to the freight connection is primarily undeveloped and industrial uses while there are large clusters of residential land use southwest of the connection. As depicted in ***Figure 6-33***, multiple freight facilities are located adjacent to the freight connection including Southeastern Freight Lines Jacksonville depot which is also located on Edgewood Drive.

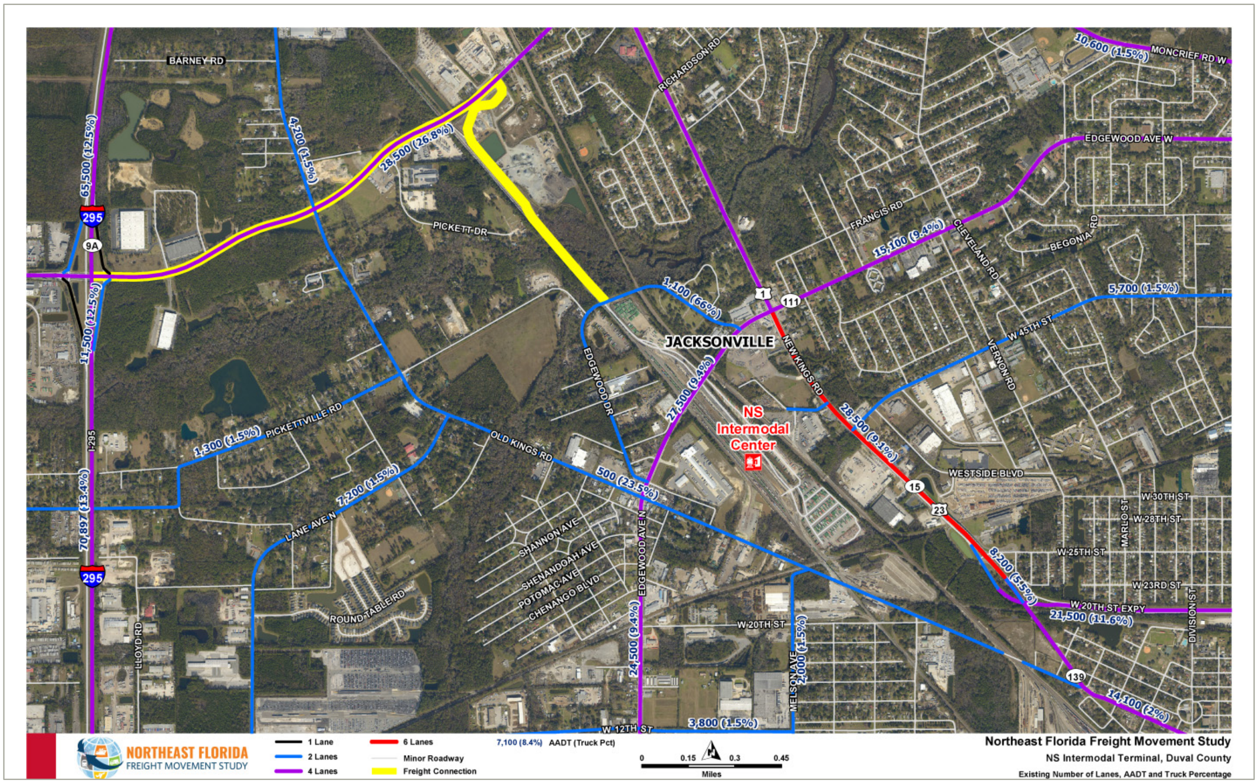
Figure 6-33 | NS Intermodal Terminal Area Freight Facilities



Existing Conditions

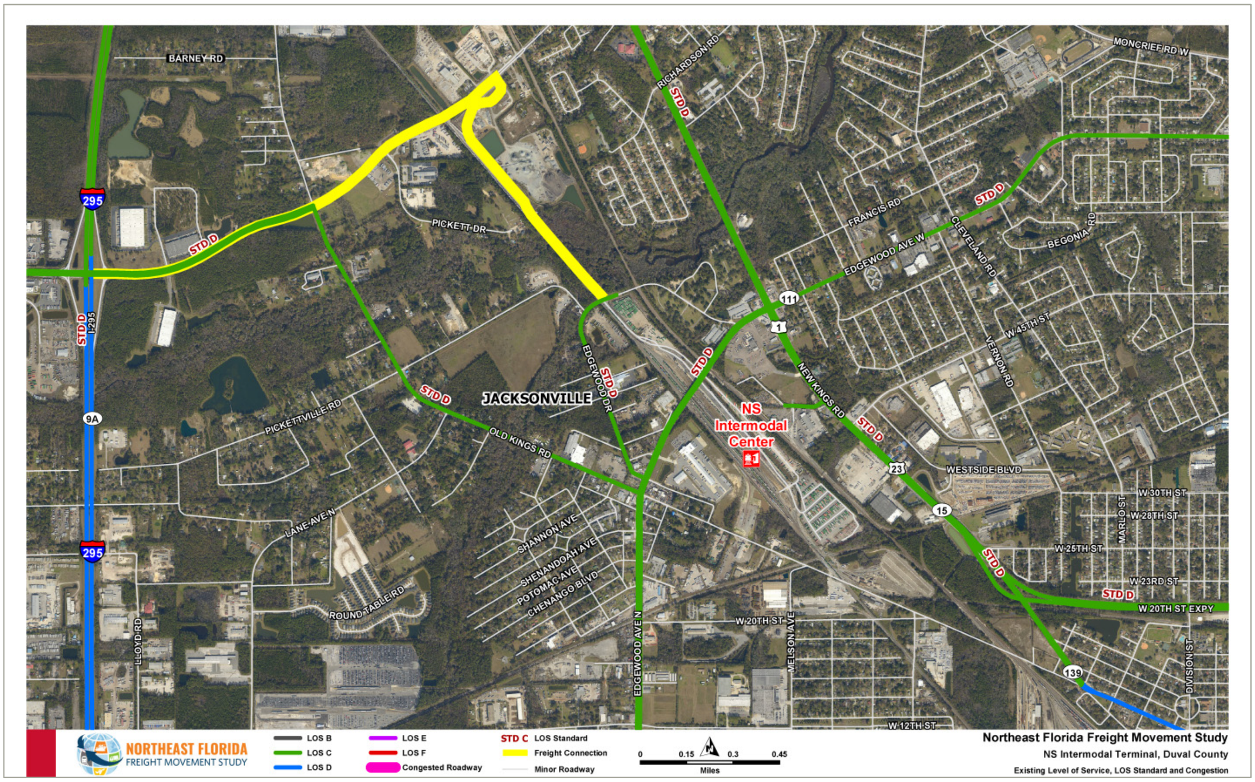
The NS Intermodal Terminal is located at 5970 Soutel Drive, Jacksonville, FL 32219 in Jacksonville, Florida. The intermodal terminal is accessed from Pritchard Road/Soutel Drive and a new access facility, Soutel Access Road. As depicted in ***Figure 6-34***, Pritchard Road is a four-lane divided roadway. The posted speed limit along the Pritchard Road/Soutel Drive is 35 mph.

Figure 6-34 | NS Intermodal Terminal Area Traffic Characteristics



Pritchard Road/Soutel Drive operates at LOS C for the existing year traffic conditions as depicted in ***Figure 6-35***. Pritchard Road/Soutel Drive is projected to operate at LOS C for the future year (2040) traffic conditions.

Figure 6-35 | NS Intermodal Terminal Area Existing Daily Level of Service



The Pritchard Road and I-295 interchange ramp is identified as an intersection with statistically higher than average crash rates.

Ongoing FDOT Efforts

Projects in Five-Year Work Program:

- US 1/ New Kings Road: Resurface from Edgewood Avenue to Trout River Boulevard.

Recently Completed Projects:

- I-295 at Pritchard Road Interchange Improvement The project included the reconstruction and widening of Pritchard Road and the I-295 ramps.
- SR 111/Edgewood Avenue: Resurfacing from Old Kings Road to US 1/New Kings Road.

Jacksonville CSX Intermodal Terminal

Context

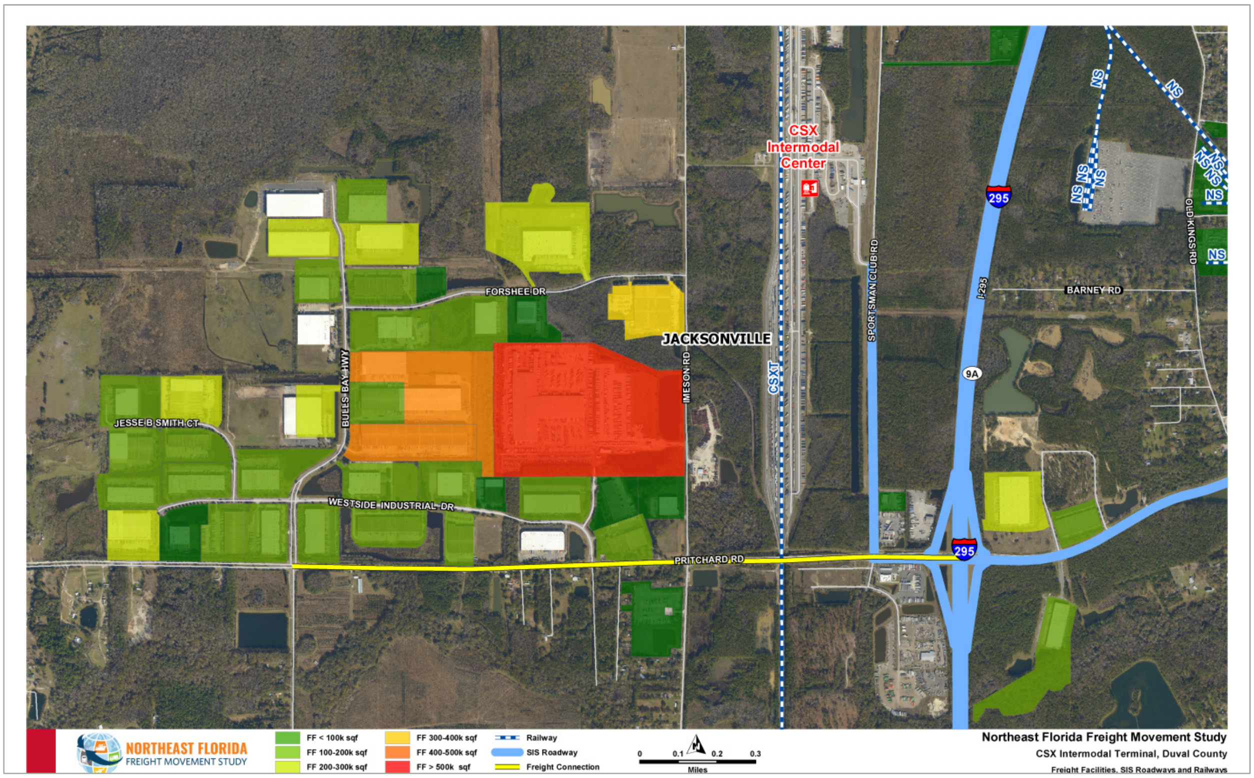
Freight Connections

Pritchard Rd (I-295 to Bulls Bay Hwy)

CSXT is a division of CSX Corporation and is headquartered in Jacksonville, Florida. CSXT is a Class I railroad providing rail-based transportation services throughout 23 states, the District of Columbia and the Canadian provinces of Ontario and Quebec. As a rail and intermodal business, the network encompasses 21,000 route miles of track, 65 intermodal terminals, and has access to over 70 ocean, river, and lake port terminals. The Jacksonville Intermodal Terminal has the following cargo handling capabilities: TOFC, UMAX, Private Containers and RailPlus.

The CSX Intermodal Terminal is located at 5902 Sportsman Club Road in Jacksonville, Florida. The intermodal terminal is accessed by Sportsman Club Road located off of Pritchard Road near I-295. Sportsman Club Road is a local two-lane road. The intersection of Sportsman Club Road and Pritchard Road is signalized. ***Figure 6-36*** depicts nearby major freight facilities including large scale warehouse and distribution center locations.

Figure 6-36 | CSX Intermodal Terminal Area Freight Facilities

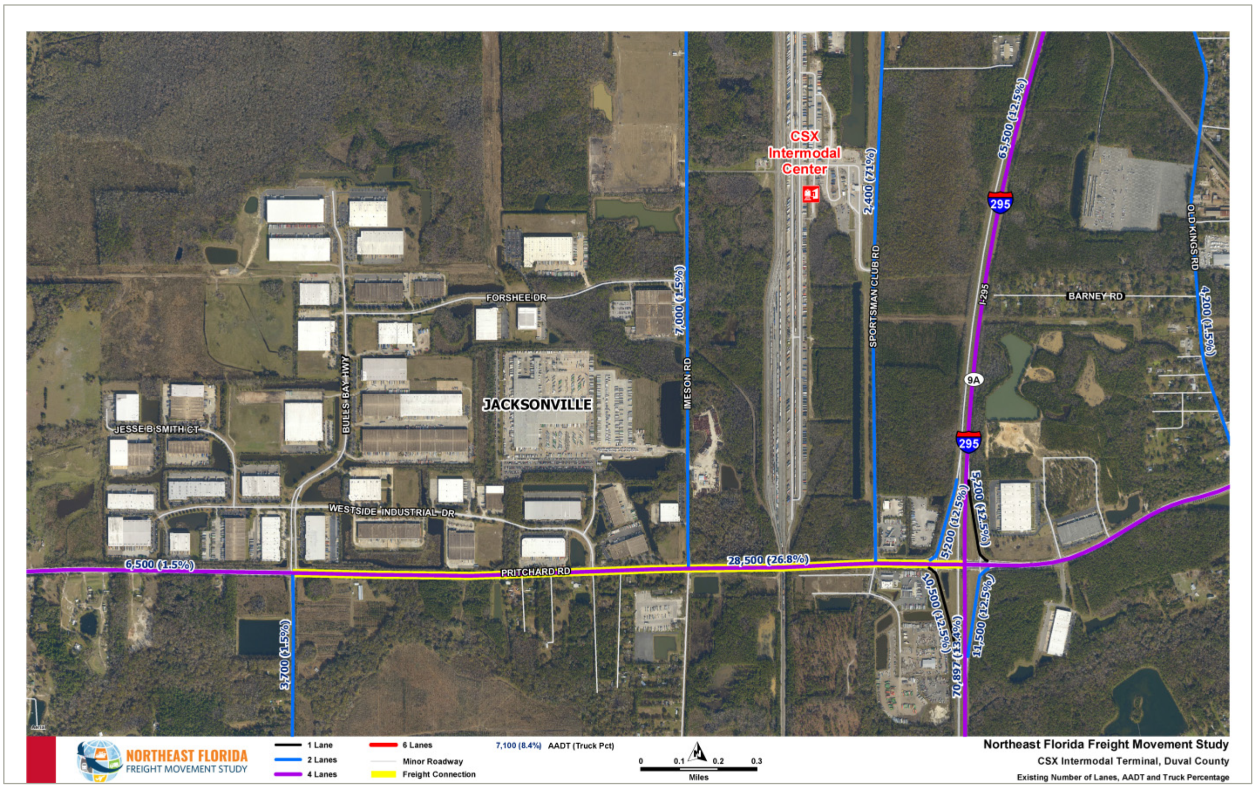


West of the Intermodal Terminal lies a cluster of warehouse and distribution centers with over two million square feet of warehouse space, ranging in individual size from less than 100,000 square feet to over 500,000 square feet.

Existing Conditions

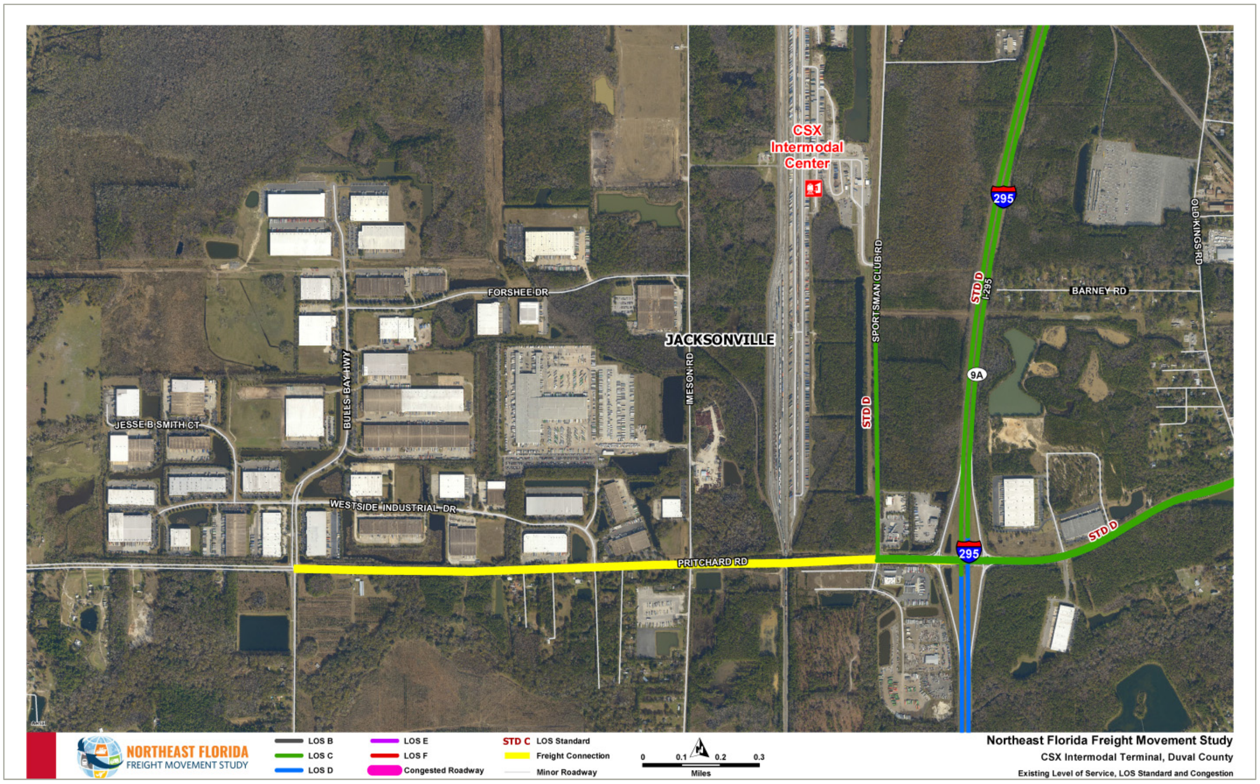
Pritchard Road provides freight connection between I-295 and the CSX Intermodal Terminal. As depicted in ***Figure 6-37***, Pritchard Road is a four-lane roadway. The posted speed limit along Pritchard Road is 35 mph. The daily truck traffic percentage is 26.8% for Pritchard Road.

Figure 6-37 | CSX Intermodal Terminal Area Traffic Characteristics



As depicted in ***Figure 6-38***, Pritchard Road and Sportsman Club Road operates at LOS C for the existing year traffic conditions and is projected to operate at LOS D for the future year (2040) traffic conditions.

Figure 6-38 | CSX Intermodal Terminal Area Existing Daily Level of Service



The Pritchard Road and I-295 interchange ramp terminal signalized intersections are identified as intersections with statistically higher than average crash rates.

Traffic Analysis

Table 6-23 summarizes the intersection(s) analyzed as part of the first-mile/last-mile operational analysis. Based on a review of the 2017 average daily LOS, the intersection of Pritchard Road and Sportsman Club Road operates at LOS C in both the AM and PM peak periods.

Table 6-23 | CSX Intermodal Terminal Area Intersection Summary

Main Road	Intersecting Road	Traffic Control	2017 LOS AM / PM
Pritchard Rd	Sportsman Club Rd	Signal	C / C

Preliminary Findings

- Pritchard Road at Sportsman Club Road: Southbound left-turn lane needs to be extended to accommodate larger vehicles and additional turning movements.

Ongoing FDOT Efforts:

Recently Completed Projects:

- I-295 at Pritchard Road Interchange Improvement: The project included the reconstruction and widening of Pritchard Road and the I-295 ramps.

Geometric Summary

Intersection geometry was also reviewed using aerial imagery in MicroStation by measuring the existing radii's for left- and right-turn movements and comparing to the standards listed in FIDG for a WB-62FL. ***Figure 6-39*** provides an aerial overview of the intersection. ***Table 6-24*** through ***Table 6-28*** summarize the geometric findings.

Figure 6-39 | CSX-I Terminal Aerial: Pritchard Road at Sportsman Club Road

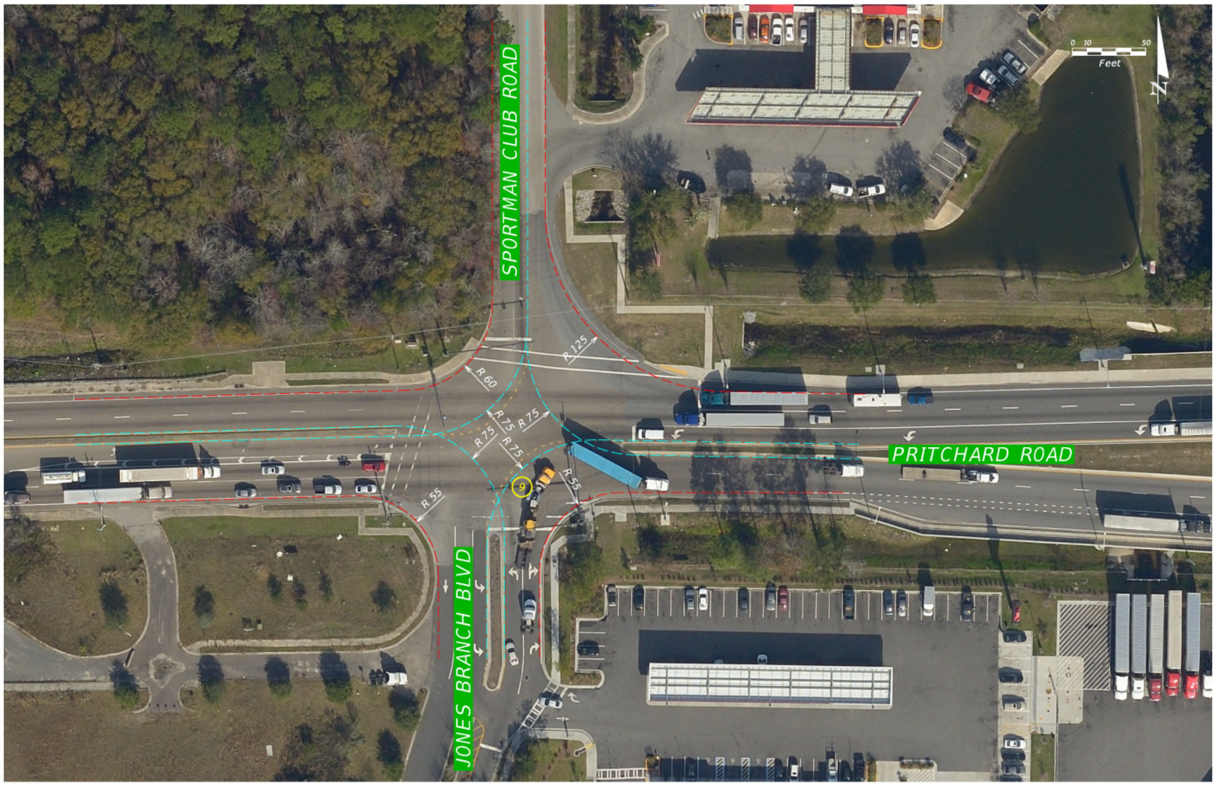


Table 6-24 | CSX Intermodal Terminal Geometric Summary: Left-Turn Movements

Left Turn 1 Description	Existing Control Radius (ft)[1]	Left Turn 2 Description	Existing Control Radius (ft)[1]	Left Turn 3 Description	Existing Control Radius (ft)[1]	Left Turn 4 Description	Existing Control Radius (ft)[1]
Pritchard Rd EB to Sportsman Club Rd NB	75	Sportsman Club Rd SB to Pritchard Rd EB	75	Jones Branch Blvd NB to Pritchard Rd WB	75	Pritchard Rd WB to Jones Branch Blvd SB	75

Note: [1]Florida Intersection Design Guide (2014) Table 3-13 requires a minimum control radius of 75 feet for an occasional WB-62FL turn.

Table 6-25 | CSX Intermodal Terminal Geometric Summary: Right-Turn Movement (1)

Right Turn 1 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
Pritchard Rd WB to Sportsman Club Rd NB	90	125	125

As noted in ***Table 6-26***, based on the FIDG standards, right-turn ‘2’ movement (Sportsman Club Road SB to Pritchard Road WB) was identified as sub-standard due to existing return radius.

Table 6-26 | CSX Intermodal Terminal Geometric Summary: Right-Turn Movement (2)

Right Turn 2 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
Sportsman Club Rd SB to Pritchard Rd WB*	90	125	**60**

As noted in ***Table 6-27***, based on the FIDG standards, right-turn ‘3’ movement (Jones Branch Boulevard NB to Pritchard Road EB) was identified as sub-standard due to existing return radius.

Table 6-27 | CSX Intermodal Terminal Geometric Summary: Right-Turn Movement (3)

Right Turn 3 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
Jones Branch Blvd NB to Pritchard Rd EB*	90	125	**55**

As noted in ***Table 6-28***, based on the FIDG standards, right-turn ‘4’ movement (Jones Branch Road EB to Jones Branch Road SB) was identified as sub-standard due to existing return radius.

Table 6-28 | CSX Intermodal Terminal Geometric Summary: Right-Turn Movement (4)

Right Turn 4 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
Pritchard Rd EB to Jones Branch Rd SB*	90	125	**55**

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.
* Denotes deficient right turns onto a roadway with two receiving lanes. In these cases, the truck can make the turn but would need to utilize both receiving lanes to do so.

Preliminary Findings

- Pritchard Road at Sportsman Club Road: The returns can be flattened to improve the three substandard right-turning movements; however, the mast arm signals in these quadrants would be impacted.

North New Berlin Area

Context

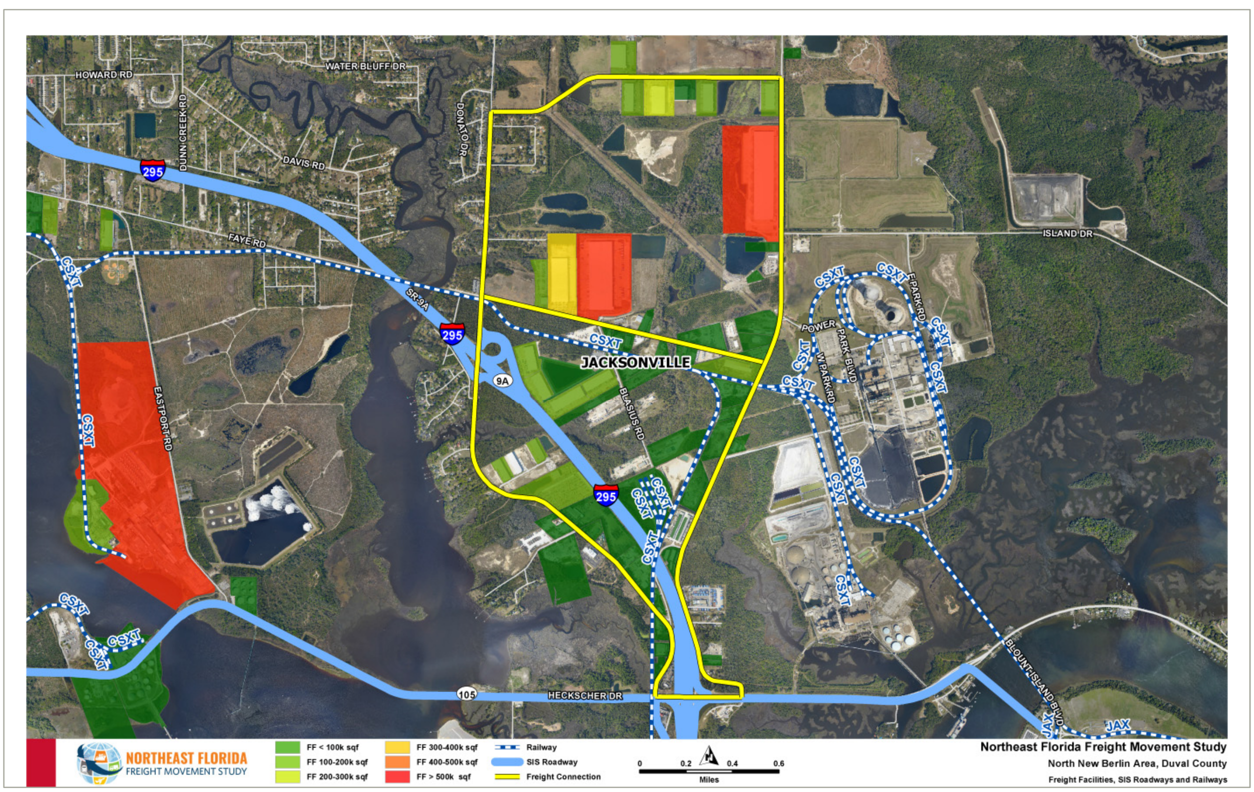
Northwest of JAXPORT's Blount Island Marine Terminal, lays a cluster of warehouses, distribution centers, and the St. Johns Power Park. For purposes of this analysis, this area will be referred to as the North New Berlin Area. Access is provided to these freight intensive facilities by a local roadway network with direct connections to I-295 and SR 105/Heckscher Road. Existing land use in the area is predominately warehouse/distribution and other industrial uses including use for mining and substrate activities. Northwest of the freight intensive area are large tracts of residential land use developed as single-family homes. This mix of land use shares Alta Drive for access to and from I-295.

Freight Connections

New Berlin Rd (Heckscher Rd to Port Jacksonville Pkwy)
Alta Dr (Heckscher Rd to Port Jacksonville Pkwy)
Port Jacksonville Pkwy (New Berlin Rd to Alta Dr)
Faye Rd (New Berlin Rd to Alta Dr)
SR 105/Heckscher Rd (New Berlin Rd to Alta Dr)

As depicted in ***Figure 6-40***, major nearby warehouse site occupants include Crowley Logistics, APR Energy, Shoreside Logistics, CHEP, WestRock, Marathon Petroleum, Buckeye Terminal Wire and Mesh Sales, W&O Supply, Spectrum Logistics, Southeastern Paper Group, Survitec Group, and Atrium Windows and Doors.

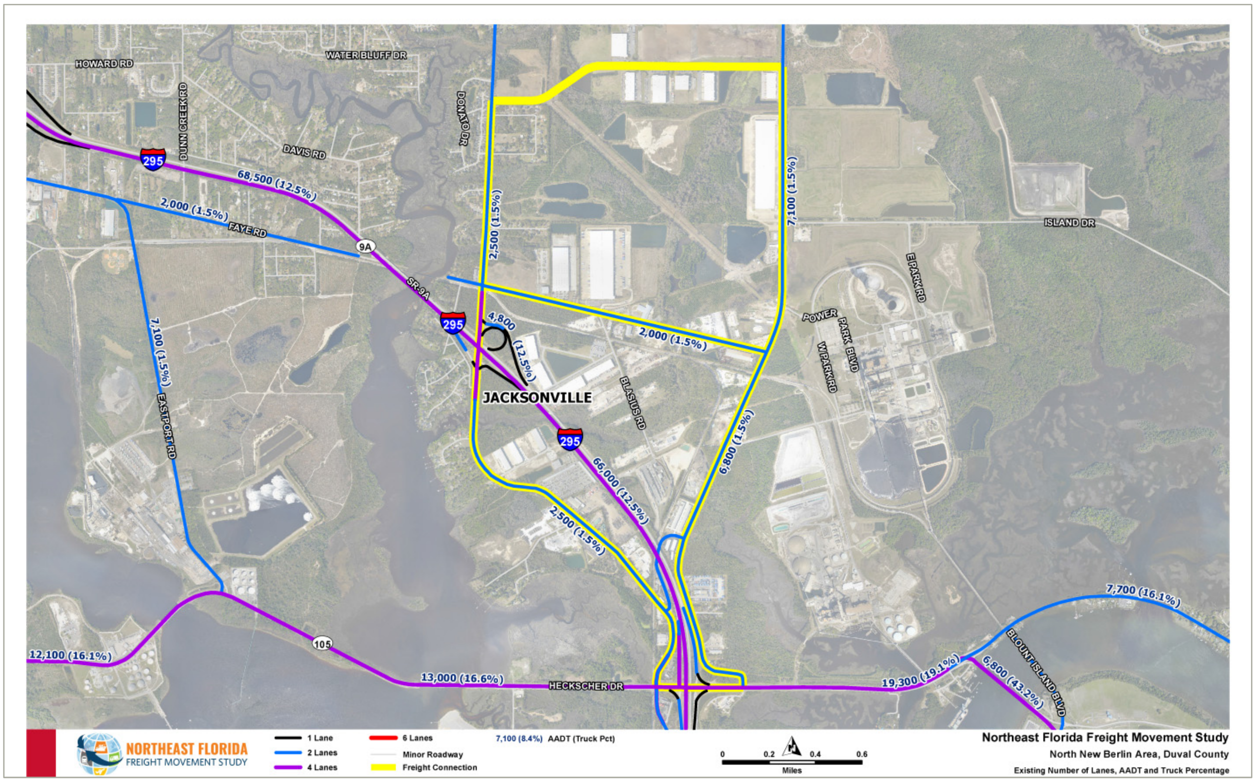
Figure 6-40 | North New Berlin Area Freight Facilities



Existing Conditions

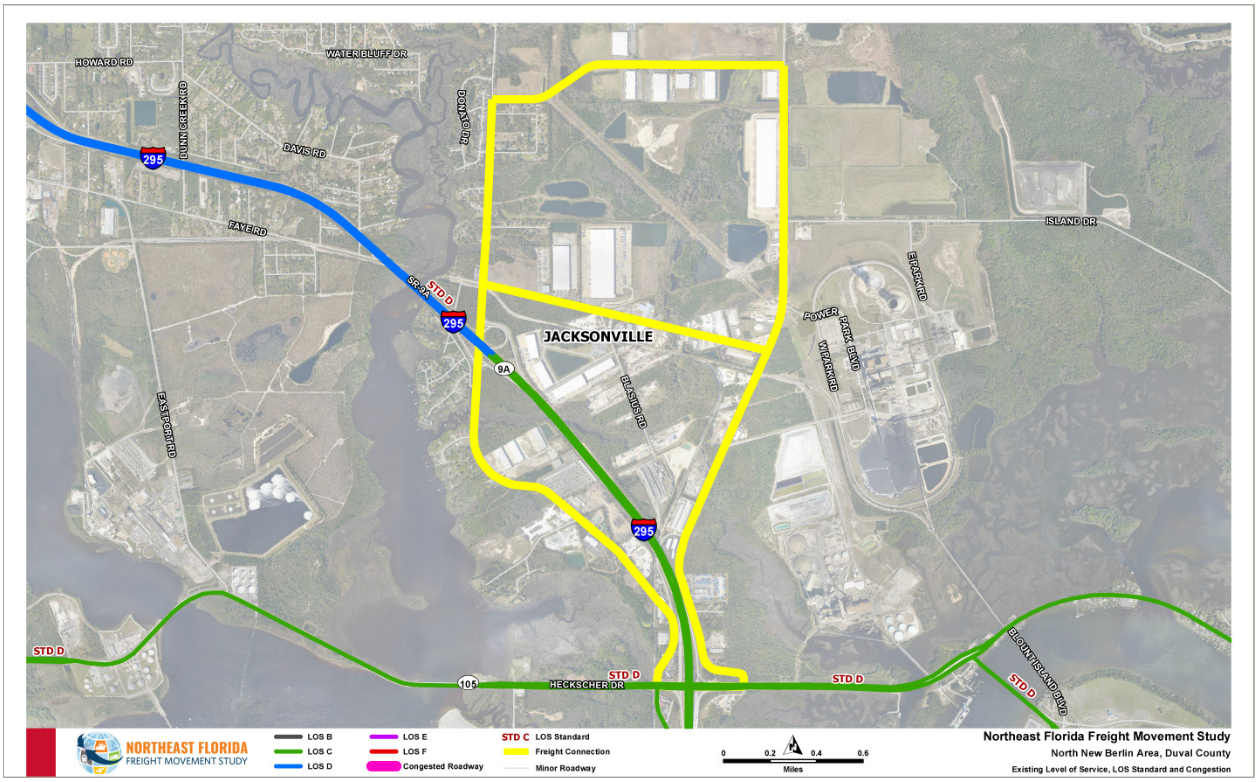
New Berlin Road, Alta Drive and Faye Road provide freight connections between I-295 and the North New Berlin Area. As depicted in ***Figure 6-41***, New Berlin Road, Alta Drive and Faye Road are two-lane roadways. The posted speed limit along the New Berlin Road varies between 40 mph and 45 mph, and Faye Road speed limit is 40 mph. The daily truck traffic percentage is observed as 1.5% for the North New Berlin Area freight connections.

Figure 6-41 | North New Berlin Area Traffic Characteristics



As depicted in ***Figure 6-42***, existing daily level of service information is not available New Berlin Road (SR 105/Heckscher Drive to Port Jacksonville Parkway), Alta Drive (SR 105/Heckscher Drive to Port Jacksonville Parkway), Port Jacksonville Parkway (New Berlin Road to Alta Drive), Faye Road (New Berlin Road to Alta Drive), or SR 105/Heckscher Drive (New Berlin Road to Alta Drive).

Figure 6-42 | North New Berlin Area Existing Daily Level of Service



Traffic Analysis

Table 6-29 summarizes the intersection(s) analyzed as part of the first-mile/last-mile operational analysis. Based on a review of the 2017 average daily LOS, the intersection of New Berlin Road at Faye Road operates at LOS A in both the AM and PM peak periods.

Table 6-29 | North New Berlin Area Intersection Summary

Main Road	Intersecting Road	Traffic Control	2017 LOS AM / PM
New Berlin Rd	Faye Rd	Signal	A / A

Geometric Summary

Intersection geometry was also reviewed using aerial imagery in MicroStation by measuring the existing radii's for left- and right-turn movements and comparing to the standards listed in FIDG for a WB-62FL. ***Figure 6-43*** provides an aerial overview of the intersection. ***Table 6-30*** through ***Table 6-32*** summarizes the geometric findings.

Figure 6-43 | North New Berlin Aerial: New Berlin Road at Faye Road

As noted in ***Table 6-30***, based on the FIDG standards, left-turn '1' movement (New Berlin Road NB to Faye Road WB) was identified as sub-standard due to existing control radius.

Table 6-30 | North New Berlin Area Geometric Summary: Left-Turn Movements

Left Turn 1 Description	Existing Control Radius (ft)[1]	Left Turn 2 Description	Existing Control Radius (ft)[1]
New Berlin Road NB to Faye Road WB	**50**	Faye Road EB to New Berlin Road NB	75

Note: [1]Florida Intersection Design Guide (2014) Table 3-13 requires a minimum control radius of 75 feet for an occasional WB-62FL turn.

As noted in ***Table 6-31***, based on the FIDG standards, right-turn '1' movement (New Berlin Road SB to Faye Road WB) was identified as sub-standard due to existing return radius.

Table 6-31 | North New Berlin Area Geometric Summary: Right-Turn Movement (1)

Right Turn 1 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
New Berlin Road SB to Faye Road WB	105	115	**80**

Table 6-32 | North New Berlin Area Geometric Summary: Right-Turn Movement (2)

Right Turn 2 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
Faye Road EB to New Berlin Road SB	75	145	150

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

Preliminary Findings

- New Berlin Road at Faye Road: northbound-to-westbound left turn can be improved by moving the stop bar back west on Faye Road. Right turns can be improved by flattening curves (widening may require additional right of way).

Ongoing FDOT Efforts:

Construction is Imminent/Underway:

- I-95 at I-295 North Interchange Reconfiguration: The project will include a collector distributor system, which will allow motorists traveling along I-295, whether exiting or passing through, to maneuver through the interchange with fewer lane shifts. Auxiliary lanes and minor ramp improvements will be added to I-95 and the Airport Road interchange. The Cole Road Bridge over I-95 will also be replaced. I-295 North and US 17 will also see construction work including bridge replacement/construction, ramp reconstruction and road work along US 17.

Projects in Five-Year Work Program:

- SR 105/Heckscher Drive: Resurfacing from Busch Drive to Fuel Farm

Recently Completed Projects:

- SR 105/Heckscher Drive: Resurfacing from Blount Island Boulevard to the St. Johns River Ferry landing entrance.
- I-295 at SR 105/Heckscher Drive Interchange Reconstruction: The project included widening New Berlin Road south of SR 105/Heckscher Drive, constructing new southbound ramps from I-295 with direct access to the TraPac Cargo Container Terminal, constructing a new ramp from New Berlin Road at the existing TraPac Cargo Container Terminal and new Intermodal Container Transfer Facility to northbound I-295, adding new retention ponds, expanding existing ponds for drainage and installing new signs and new high-mast lights. These improvements will help maintain access on SR 105/Heckscher Drive and New Berlin Road while accommodating a significant increase in commercial truck traffic.

Other Stakeholder Efforts:

JTA Mobility Works

- Alta Drive from I-295 to Burkit Lane Project: The scope of the Alta Drive roadway improvements will include the widening of the existing roadway to a six-lane, divided roadway from the I-295 exit to Faye Road, a four-lane divided roadway to Ashgrove Road and a five-lane roadway to Burkit Lane. The project will also feature bike lanes, sidewalks and a closed drainage system.
- The bridge over Dunn Creek will be restriped to match the adjacent roadway sections. There will be a new or upgraded signal installed at Faye Road and Port Jacksonville Parkway.

In August 2017, the JTA Board awarded England, Thims & Miller the contract to provide design and professional services. The final design and right-of-way acquisitions will be completed first quarter of 2019. Construction will be awarded June 2019 and construction is expected to be completed by March 2021.

SR 104 / Busch Drive Area

Context

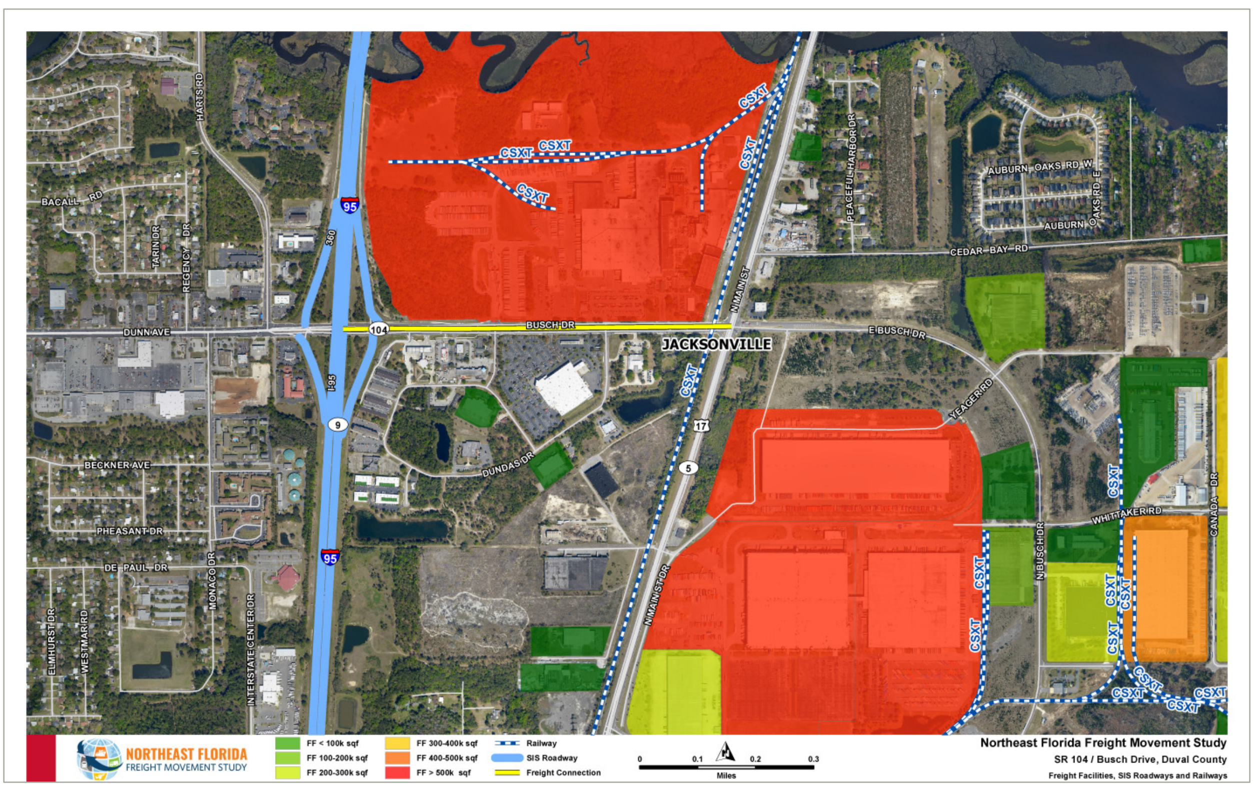
Freight Connection

SR 104/ Busch Dr (I-95 to US 17/ SR 5)

SR 104/Busch Drive between I-95 and US 17 provides access to nearby industrial, commercial, and warehouse/distribution properties while also providing connectivity to adjacent and surrounding residential developments. Within the SR 104/Busch Drive area, there are multiple companies and land uses that require high levels of truck activity. The largest site and area namesake is the Anheuser-Busch Bottling plant and distribution center. The site has an estimated building area of over 1.1 million square feet of usable space and contains over 70 bays for freight distribution. The Anheuser-Busch site also has rail access provided by CSX.

As depicted in ***Figure 6-44***, southeast of Anheuser-Busch lies another large cluster of freight intensive land uses. This area is includes the Samsonite Luggage, Imeson, and the GE Company distribution centers.

Figure 6-44 | SR 104/Busch Drive Area Freight Facilities

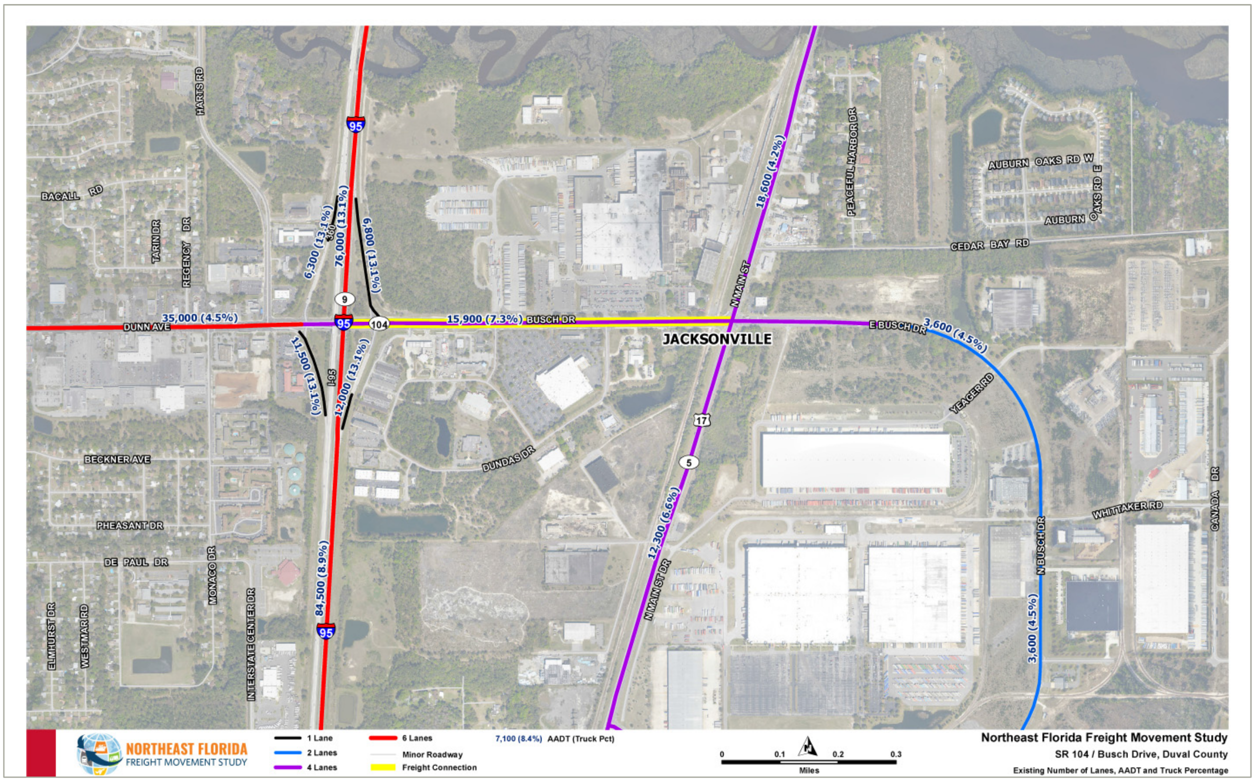


Adjacent to the distribution centers is an industrial park which houses Kaman Aerospace, Malnove (a light manufacturing company), Trend Offset Printing, Start Industries, and other multi-tenant properties. While smaller in scale to the major distribution centers, the clustering of these multiple companies within the industrial park area generates notable daily freight volumes.

Existing Conditions

SR 104/Busch Drive freight connection is a four-lane roadway between I-95 and US 17. As depicted in ***Figure 6-45***, the existing AADT is 15,900. The daily truck traffic percentage is 7.3%. The posted speed limit is 35 mph.

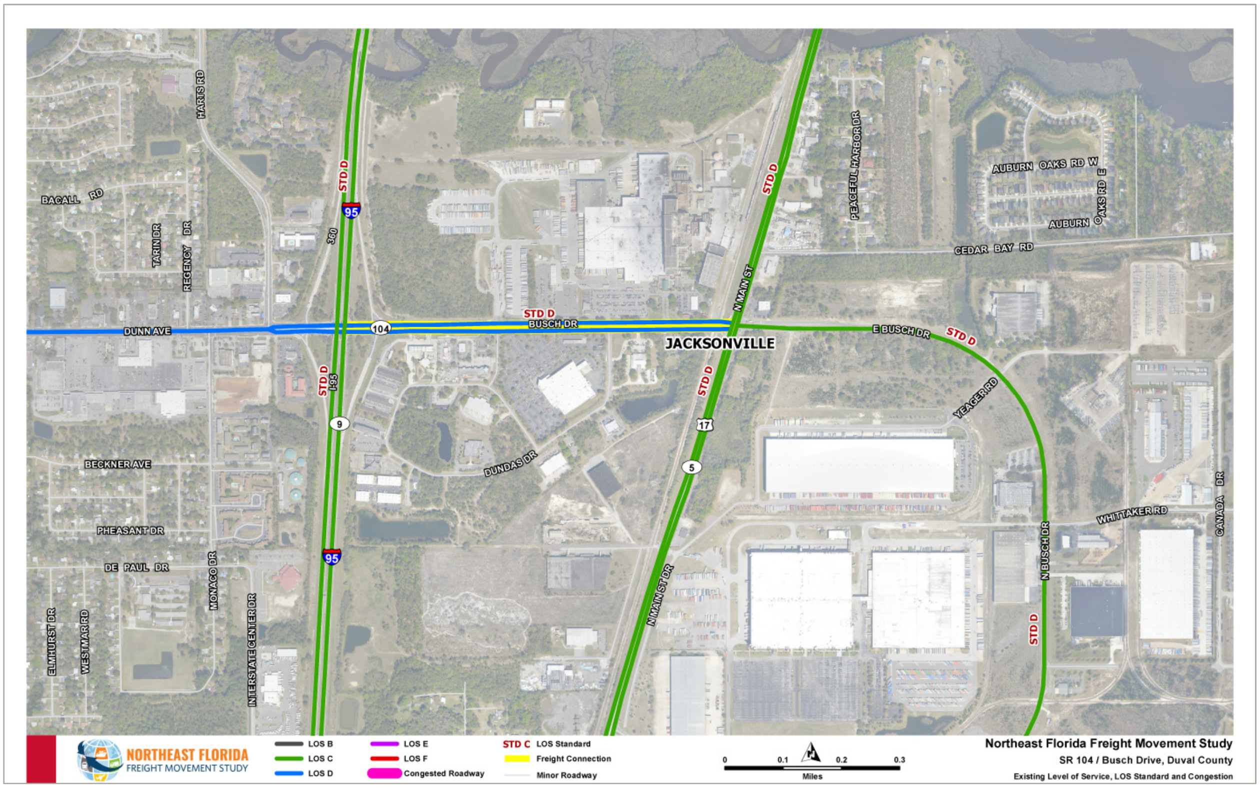
Figure 6-45 | SR 104/Busch Drive Area Traffic Characteristics



As depicted in ***Figure 6-46***, the SR 104/Busch Drive operates at LOS D for the existing year and also projected to operate at LOS D for the future year (2040) traffic conditions.

The SR 104/Busch Drive roadway segments at the vicinity of I-95 interchange and US 17 are identified as segments with statistically higher than average crash rates. The SR 104/Busch Drive signalized intersections of I-95 ramp terminals and US 17 are identified as intersections with statistically higher than average crash rates.

Figure 6-46 | SR 104/Busch Drive Area Existing Daily Level of Service



Ongoing FDOT Efforts

Projects in Five-Year Work Program:

- SR 105/Heckscher Drive: Resurfacing from SR 104/Busch Drive to Fuel Farm

Recently Completed Projects:

- SR 104/Dunn Avenue: Updated traffic signals, ITS installation, and curb and gutter and sidewalk repairs from Biscayne Boulevard to U.S. 17/Main Street.

SR 207 Area

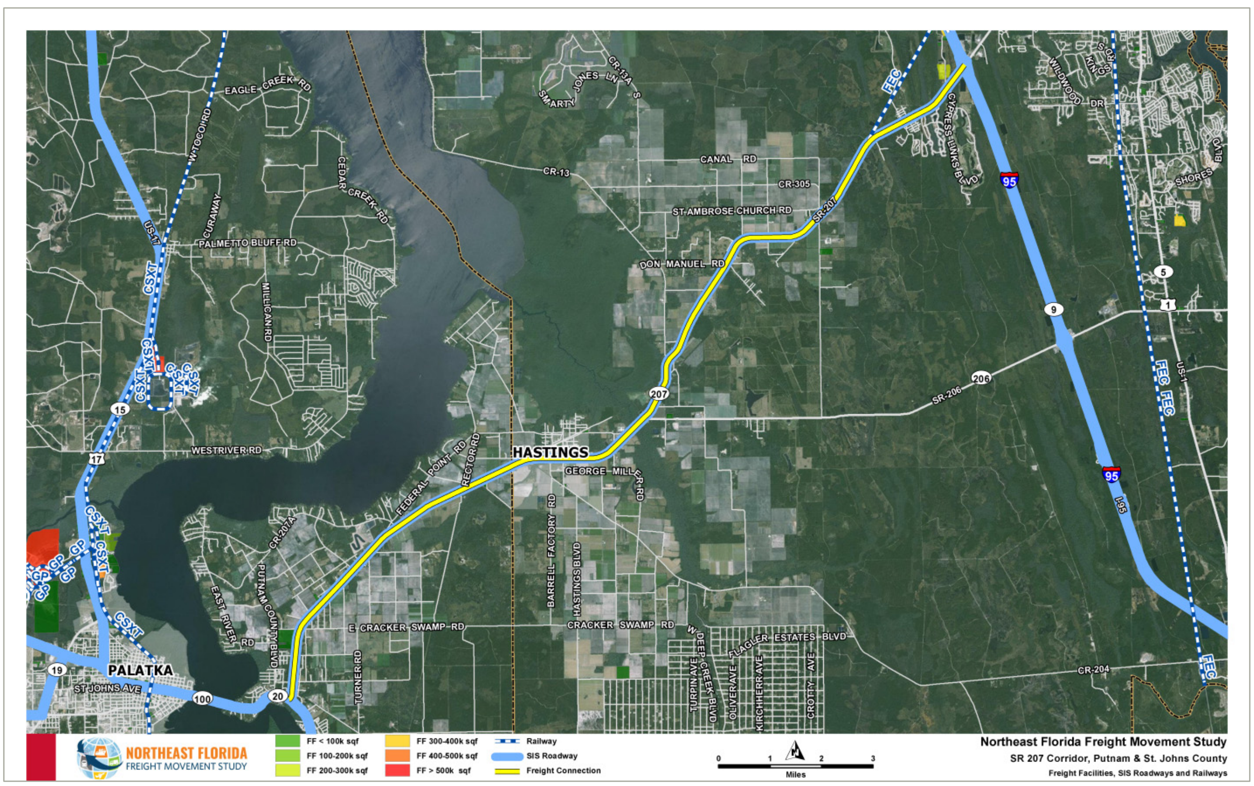
Context

Freight Connection
SR 207 (US 17/SR 100 to I-95)

State Road 207 (SR 207) is a four-lane state highway facility in Putnam and St. Johns Counties, extending from US 17 in East Palatka in the southwest heading through Hastings before intersecting SR 206 in Crescent Beach, CR 13 in Spuds, and CR 305 in Elkton. SR 207 continues northeast, connecting with I-95 then continues to US 1 in St. Augustine.

The Palatka area is home to the Seminole Electric power plant, the Georgia Pacific paper mill, VERITAS Steel and other multitenant industrial and light manufacturing facilities. SR 207 goes through mainly farming/agricultural areas although there are clusters of residential land use along the corridor. As depicted in ***Figure 6-47***, closer to the I-95 / SR 207 Interchange in St. Johns County lies a small cluster of warehouse and distribution centers operated by HH Gregg, KeHE Distributors, Conagra Brands, and Ryder.

Figure 6-47 | SR 207 Area Freight Facilities

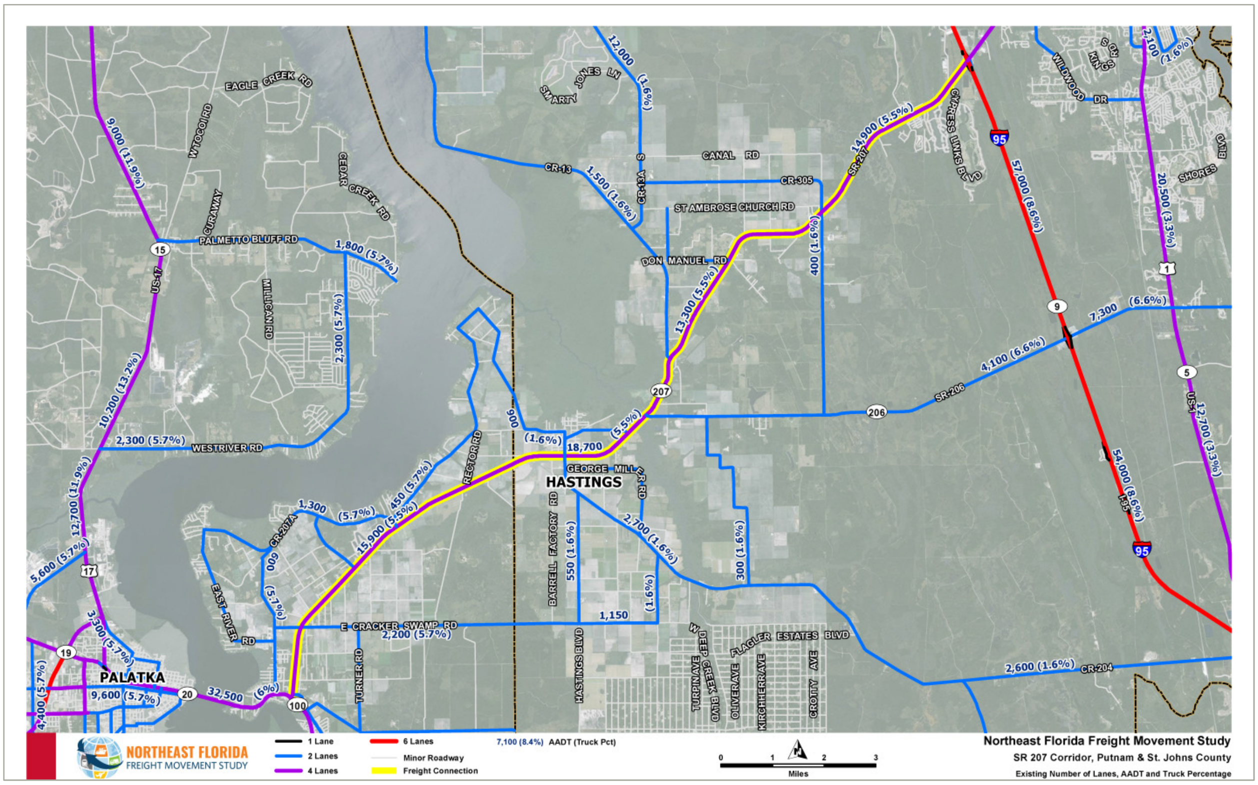


Both KeHE and Conagra facilities are food-based warehouse and distribution centers. KeHE distributes natural and organic, specialty, and fresh food products to natural food stores, chain grocery stores, and independent retailers. Conagra brands include frozen, refrigerated, and non-refrigerated products including but are not limited to Rotel, Hunts, Marie Calendars, Orville Redenbacher's, Reddi Wip, PAM, Hebrew National, and Peter Pan.

Existing Traffic Conditions

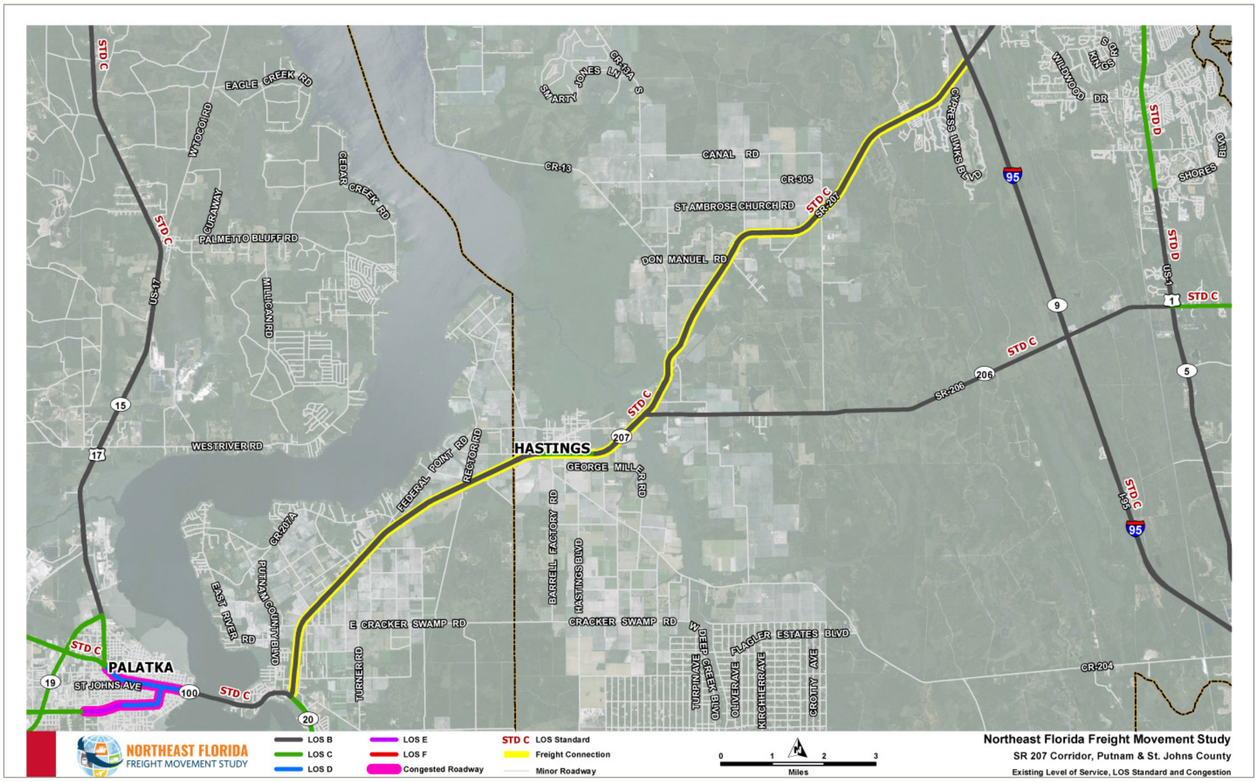
SR 207 is a four-lane roadway connecting Palatka, Hastings and rural/agricultural areas of Putnam and St. Johns Counties to I-95 and to the interstate system. As depicted in ***Figure 6-48***, SR 207 existing AADT volumes vary between 13,300 and 18,700 along the freight connection. The daily truck traffic percentage is 5.5%. The SR 207 posted speed limit varies between 45 mph and 55 mph.

Figure 6-48 | SR 207 Area Traffic Characteristics



As depicted in ***Figure 6-49***, The SR 207 freight connection operates at LOS B for the existing year and is also projected to operate at LOS B for the future year (2040) traffic conditions. The SR 207 roadway segments in the vicinity of US 17, SR 206 and I-95 interchange ramp are identified as segments with statistically higher than average crash rates. The SR 207 signalized intersections at US 17, SR 206 and I-95 ramp terminals are identified as intersections with statistically higher than average crash rates.

Figure 6-49 | SR 207 Area Existing Daily Level of Service



Traffic Analysis

Table 6-33 summarizes the intersection(s) analyzed as part of the first-mile/last-mile operational analysis. Based on a review of the 2017 average daily LOS, the intersection of SR 207 at the I-95 southbound ramps operate at LOS C in both the AM and PM peak periods while the northbound ramps operate at LOS A in both the AM and PM peak periods.

Table 6-33 | SR 207 Area Intersection Summary

Main Road	Intersecting Road	Traffic Control	2017 LOS AM / PM
SR 207	I-95 SB Ramps	Signal	C / C
SR 207	I-95 NB Ramps	Signal	A / A

Geometric Summary

Intersection geometry was also reviewed using aerial imagery in MicroStation by measuring the existing radii's for left- and right-turn movements and comparing to the standards listed in FIDG for a WB-62FL. ***Figure 6-50*** provides an aerial overview of the intersection. ***Table 6-34*** through ***Table 6-36*** summarizes the geometric findings.

Figure 6-50 | SR 207 Area Aerial: SR 207 at I-95 NB and SB Ramps

Table 6-34 | SR 207 Area Geometric Summary: Left-Turn Movements

Left Turn 1 Description	Existing Control Radius (ft)[1]	Left Turn 2 Description	Existing Control Radius (ft)[1]
I-95 SB to SR 207 EB	75	SR 207 WB to I-95 SB	75
I-95 NB to SR 207 WB	75	SR 207 EB to I-95 NB	75

Note: [1]Florida Intersection Design Guide (2014) Table 3-13 requires a minimum control radius of 75 feet for an occasional WB-62FL turn.

Table 6-35 | SR 207 Area Geometric Summary: Right-Turn Movement (1)

Right Turn 1 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
I-95 SB to SR 207 WB	135	85	200
I-95 NB to SR 207 EB	135	85	200

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

As noted in ***Table 6-36***, based on the FIDG standards, right-turn ‘2’ movement (SR 207 WB to I-95 NB) was identified as sub-standard due to existing return radius.

Table 6-36 | SR 207 Area Geometric Summary: Right-Turn Movement (2)

Right Turn 2 Description	Angle of Turn	Return Radius Required (ft)[2]	Existing Return Radius (ft)
SR 207 EB to I-95 SB	75	145	150
SR 207 WB to I-95 NB	75	145	**140**

Note: [2] Florida Intersection Design Guide (2014) Table 3-7 for a WB-62FL and angle of turn was used to determine the return radius required for each case. In cases where tapers are used, the taper was drawn and the simple curve radius was drawn off of the taper and compared to the "simple curve with radius" column of the table.

Preliminary Findings

- No turn deficiencies. Yield/merge on the on-ramps seems to be the issue (may need to widen ramps to allow for running distance prior to merge).

Summary of Findings

Table 6-37 summarizes the preliminary LOS and geometric findings identified in the operational analysis:

Table 6-37 | Summary of Findings

Freight Connector	Main Road	Intersecting Road	Type	Recommendation / Comment
Alachua Area	CR 235	CR 235A	Geometric	The westbound to northbound left-turn and southbound to eastbound right-turn are sub-standard and deficient due to angle of intersection. The railroad crossing would likely need to be modified to address the issue.
Lake City (I-10) Area	US 41	I-10 EB Ramps	LOS	Extend the southbound US 41 two through lanes at the I-10 interchange beyond NW Falling Creek Road (north of I-10) and NW Valdosta Road (south of I-10) with full US 41 left-turn lanes at NW Falling Creek Road and NW Valdosta Road intersections.
Lake City (I-10) Area	US 41	I-10 EB Ramps	Geometric	Deficient EB to NB left turn can be fixed by pulling the separator nose back north.
Lake City (I-10) Area	US 41	I-10 WB Ramps	Geometric	Deficient NB to WB left turn can be fixed by pulling the separator nose back north.
Lake City (I-10) Area	US 441	I-10 EB & WB Ramps	Geometric	No turn deficiencies. Yield/merge on the on-ramps appears to be the issue (may need to widen ramps to allow for running distance prior to merge).
FEC Intermodal Terminal Area	US 1	Cypress Plaza Dr	LOS	Re-alignment of Cypress Plaza Drive eastbound and westbound approaches with the provision of westbound through lane.
FEC Intermodal Terminal Area	SR 152	Bayberry Rd	Geometric	The returns can be flattened to improve the right turning movements; however, the mast arm signals and inlets in all 4 quadrants would be impacted.
FEC Intermodal Terminal Area	US 1	Bay Center Rd	Geometric	The returns can be flattened to improve the right turning movements; however, the mast arm signal in the NE quadrant would be impacted.
FEC Intermodal Terminal Area	US 1	Cypress Plaza Dr	Geometric	The right turn from Cypress Plaza to US 1 NB is a double right but the truck would need both lanes to make the maneuver. If the return was flattened, the mast arm signal in the corner would be impacted.

Table 6-37 | Summary of Findings, Continued

Freight Connector	Main Road	Intersecting Road	Type	Recommendation / Comment
CSX Intermodal Terminal Area	Pritchard Rd	Sportsman Club Rd	LOS	Southbound left-turn lane needs to be extended to accommodate larger vehicles and additional turning movements.
CSX Intermodal Terminal Area	Pritchard Rd	Sportsman Club Rd	Geometric	The returns can be flattened to improve the three substandard right turning movements; however, the mast arm signals in these quadrants would be impacted.
North New Berlin Area	New Berlin Rd	Faye Rd	Geometric	Northbound to Westbound left turn can be improved by moving the stop bar back west on Faye Road. Right turns can be improved by flattening curves (widening may require additional right of way).
SR 207 Area	SR 207 WB	I-95 NB Ramps	Geometric	No turn deficiencies. Yield/merge on the on-ramps seems to be the issue (may need to widen ramps to allow for running distance prior to merge).
SR 228 / Talleyrand Connector	Emerson St	Spring Park Rd	LOS	Extend the eastbound Emerson St left-turn lane at the Spring Park Rd intersection by removing the left-turn lane (prohibit left-turn movement) from Emerson St to Abby Ln (west of Spring Park Rd intersection).
SR 228 / Talleyrand Connector	Emerson St	Spring Park Rd	Geometric	All turns movements are insufficient; intersection angle is 66 degrees which is the origin of the geometric deficiency.

Section Seven:

Freight Needs Assessment

Introduction

Identifying needs and implementing solutions to accommodate increasing demand for freight and goods movement in Northeast Florida is critical to the region's economic vitality and quality of life. Maintaining the competitive edge in terms of its freight transportation system requires the region to fully integrate freight movement considerations into its transportation planning and development process. The ultimate goal of this Study is not to identify projects that simply add additional capacity, but rather identify a combination of solutions that maximize the mobility and reliability of the region's intermodal freight transportation system.

A key part of the Study effort has been to identify existing and near term needs that have significant impact on freight movement. These types of impediments often include inefficient intermodal connectors and arterials serving historical and newly developed industrial and commercial areas. Focusing on these types of challenges often leads to significant improvements to freight mobility and reductions in community impacts at relatively low costs. Additionally, improving throughput on these facilities can also lead to reduced pressure on other local and regional roadways.

Approach

A core objective of the Study is to identify system needs and opportunities while creating a justifiable list of priority projects which improve freight mobility while enhancing safety, the environment, and overall quality of life. A critical step in the process is identifying the root causes of congestion and delay as it is not always simply too much volume. The research conducted and documented as part of this needs assessment and in previous technical memorandums for this effort revealed root causes of congestion, existing and projected.

The purpose of the Needs Assessment is to document findings from existing conditions, freight system demands, and assess freight transportation deficiencies in three core categories:

> ***Physical*** relates to asset conditions, system capacity, and infrastructure constraints on existing freight supportive facilities;
>
> ***Operational*** relates to how the transportation system is being optimized; and
>
> ***Institutional*** relates to the governmental policy, regulatory factors or other environmental factors affecting goods movement.

Findings from this task will lay the foundation for developing alternative solutions and next steps, which will be documented in *Technical Memorandum 12: Implementation*.

Data Collection

This Needs Assessment utilizes multiple data sources to detail and identify the existing conditions and deficiencies of Northeast Florida's regional transportation system as outlined in *Section Two: Data Dictionary* and illustrated in *Section Four: Regional Freight Infrastructure*, and *Section Three: Commodity Flow Analysis*.

Partner and Stakeholder Engagement

An extensive outreach initiative targeting public-sector planning and private-sector freight stakeholders was conducted during 2016 and 2017. Stakeholders included local and regional transportation planners, freight shippers, carriers, terminal and facility operators, logistics service providers, developers, and receivers. An outreach effort aimed at commercial vehicle operators and drivers was the deployment of a web-based smart device accessible interactive map, which provided drivers and other industry stakeholders the opportunity to identify bottlenecks, operational issues, and potential solutions.

Similarly, 40 one-on-one interviews were conducted with industry stakeholders and public agencies. The purpose of these interviews was to collect both qualitative and quantitative data regarding freight demand (current and future), operations, bottlenecks, recommendations, and the regional competitive position.

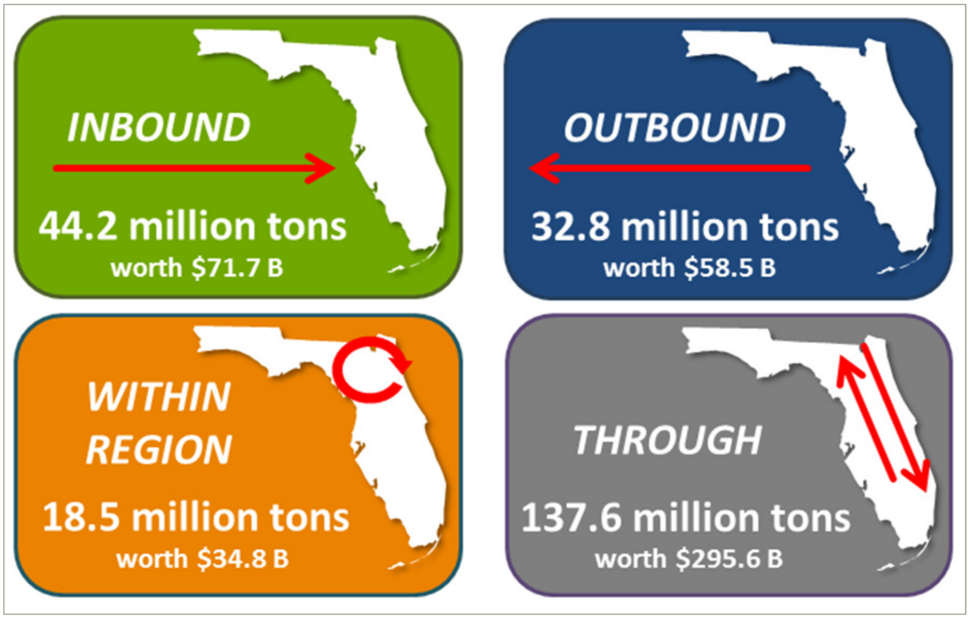
Summary of Regional Freight Movement

This section provides a high level overview and summary of major commodities and the intermodal freight transportation system utilized to mobilize and distribute goods. Information summarized within this section is found in detail in *Section Three: Commodity Flow Analysis* and *Section Four: Regional Freight Infrastructure*.

Commodity Flow Overview

Every freight trip can be classified into four types of directional movements: inbound, outbound, within (intraregional), or through trips. Goods movement is a derived demand or demand driven meaning that freight volumes grow as population, income, and employment rise. Based on available commodity information, in 2015, over ***233.1 million*** tons of goods traveled in, out, within, and through Northeast Florida valued at ***$460.6 billion***. Approximately 44 million tons (19 percent) traveled inbound, 32 million tons (14 percent) traveled outbound, and 18.5 million tons (8 percent) traveled from within the region. Through freight accounted for 137 million tons or about 59 percent of the total. ***Figure 7-1*** illustrates the proportion of regional tonnage and value by direction.

Figure 7-1 | Regional Commodity Movement by Tonnage and Value, 2015

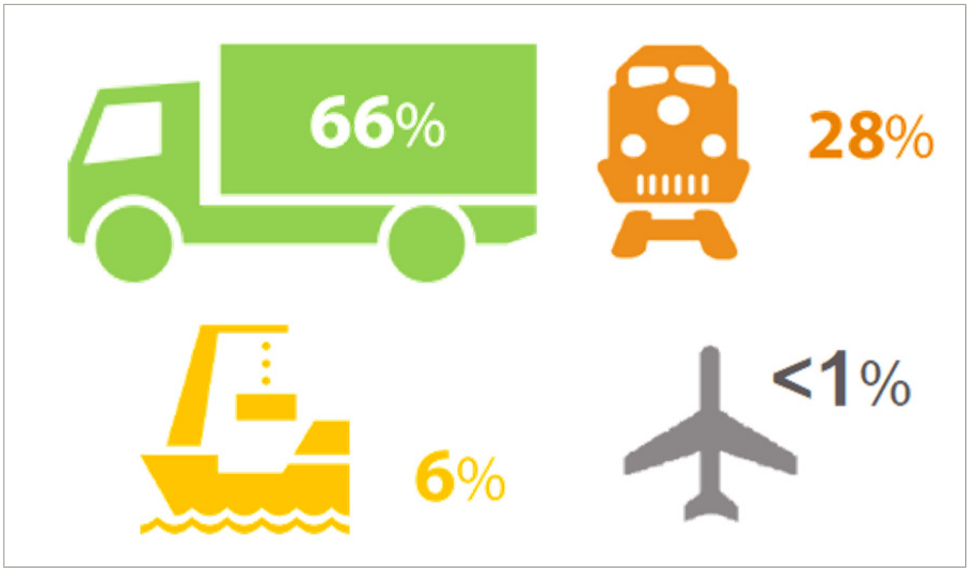


Source: IHS Global Insight - Transearch Database / Waybill, 2015

Northeast Florida contains an extensive network of highway, rail, port, and airport infrastructure; and regional freight movement relies on each of these to different extents, and for different purposes. It is very important to understand the modal dependence on freight as it has significant bearing on the overall system impacts. Within the study area, freight movement is dominated by truck movements with 66 percent of total tonnage modal share which accounts for 64 percent of total commodity value. Some of the causes for this volume majority relate to commodity type, the use of truck for drayage between other intermodal movements, and ultimately the need to move goods the first and last mile. Rail served 28 percent of total tonnage and 32 percent of total value. Waterborne freight through Northeast Florida's ports accounted for 6 percent of total volume and almost 4 percent of value. Air cargo accounts for less than 1 percent of total volume and total commodity value. ***Figure 7-2*** illustrates the modal summary by tonnage.

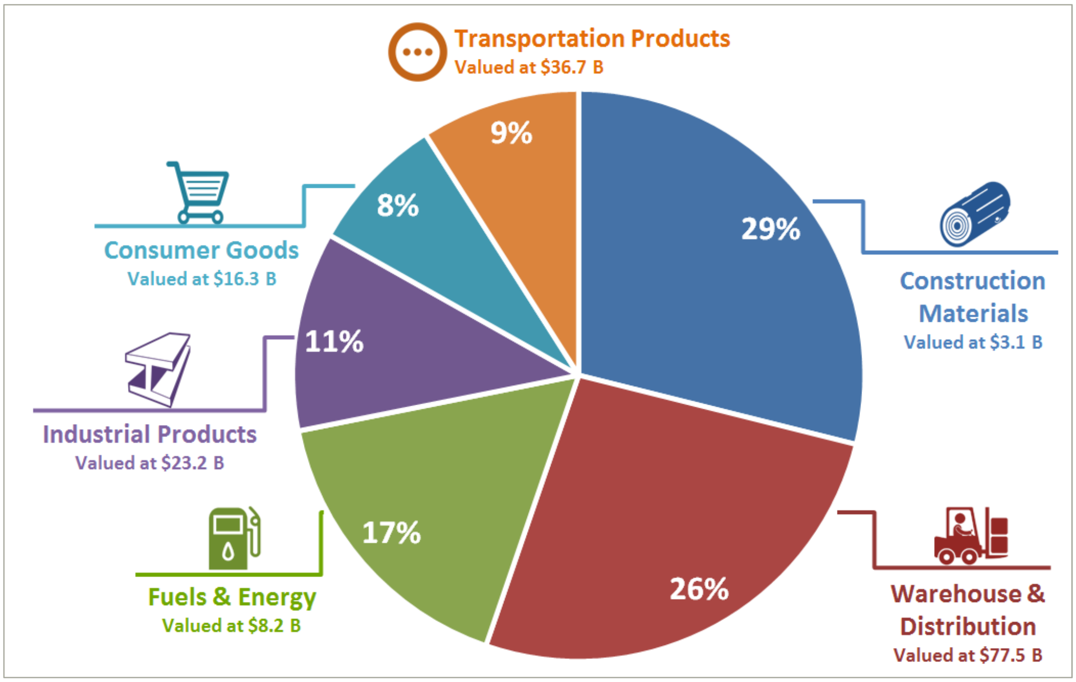
Using combined commodity groupings, the leading commodity tonnage groups are warehoused goods and construction materials, followed by fuels and energy, industrial products, agricultural and forest products, and consumer goods. The leading value group, by a wide margin, is warehoused goods, representing nearly half the value of Northeast Florida freight movement. ***Figure 7-3*** graphically depicts the top commodity groups for inbound, outbound, and within Northeast Florida.

Figure 7-2 | Regional Commodity Movement by Mode, 2015



Source: IHS Global Insight - Transearch Database / Waybill, 2015

Figure 7-3 | Top Grouped Commodities by Tonnage, 2015

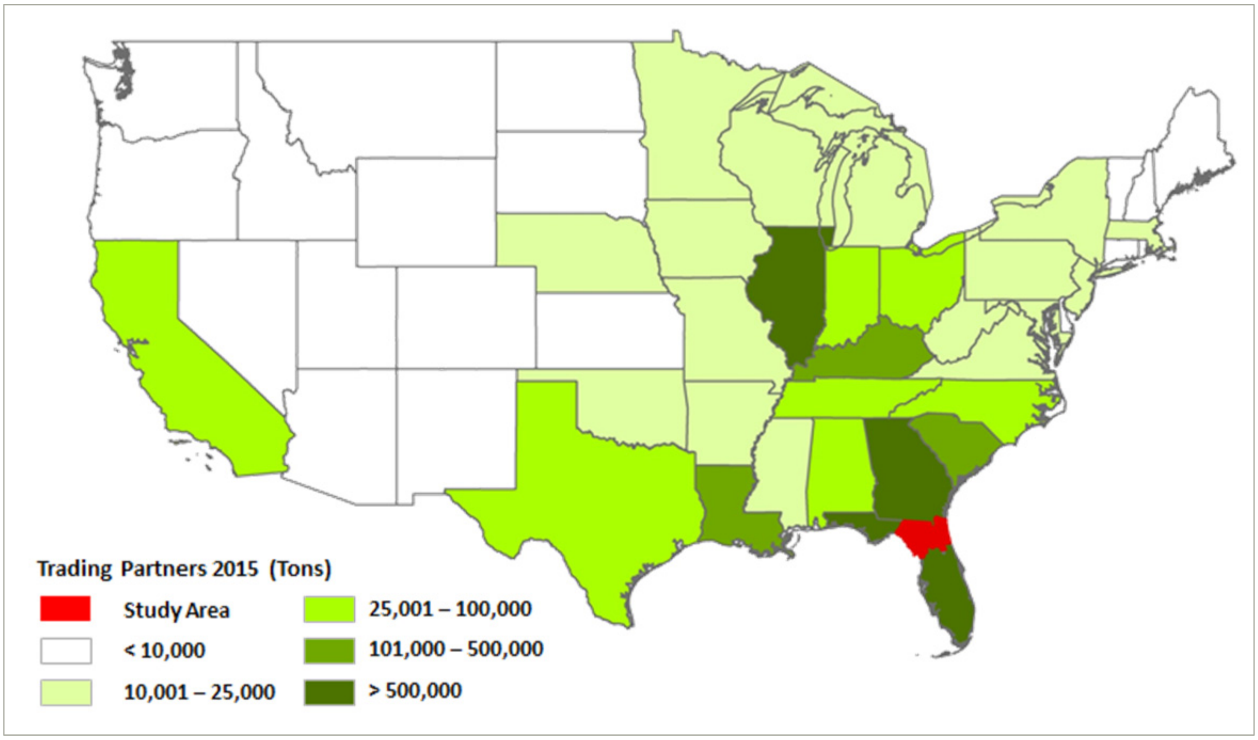


Source: IHS Global Insight - Transearch Database / Waybill, 2015

Understanding the origins and destinations of Northeast Florida's top commodities and who the region is trading with provides insight into modal choice, length of haul, and overall market penetration as well as providing prospective on how Northeast Florida fits into the larger southeast regional, national, and global economies.

For generated traffic, Duval County is responsible for about half of District Two's tonnage and 85 percent of its value. For received traffic, Duval County is responsible for 57 percent of tonnage and 82 percent of value. This is due largely to the high concentration of transportation and logistics facilities in Duval County, along with its large population of consumers and industries. Northeast Florida's leading trade partners include the remainder of Florida, the remainder of the U.S., and Canada and Mexico. For freight moving outbound from Northeast Florida, the leading destination states for tonnage and value are: remainder of Florida; Georgia; Illinois (in part due to rail traffic interchanged between eastern and western railroads); South Carolina; and Alabama. For freight moving inbound to Northeast Florida, the leading origin states are: remainder of Florida, Georgia, Kentucky, Illinois and Louisiana for tonnage; and remainder of Florida, Georgia, Louisiana, Illinois, Ohio, South Carolina and Michigan for value. ***Figure 7-4*** below illustrates top US trading partners by volume.

Figure 7-4 | Top Trading Partners by Tonnage, 2015

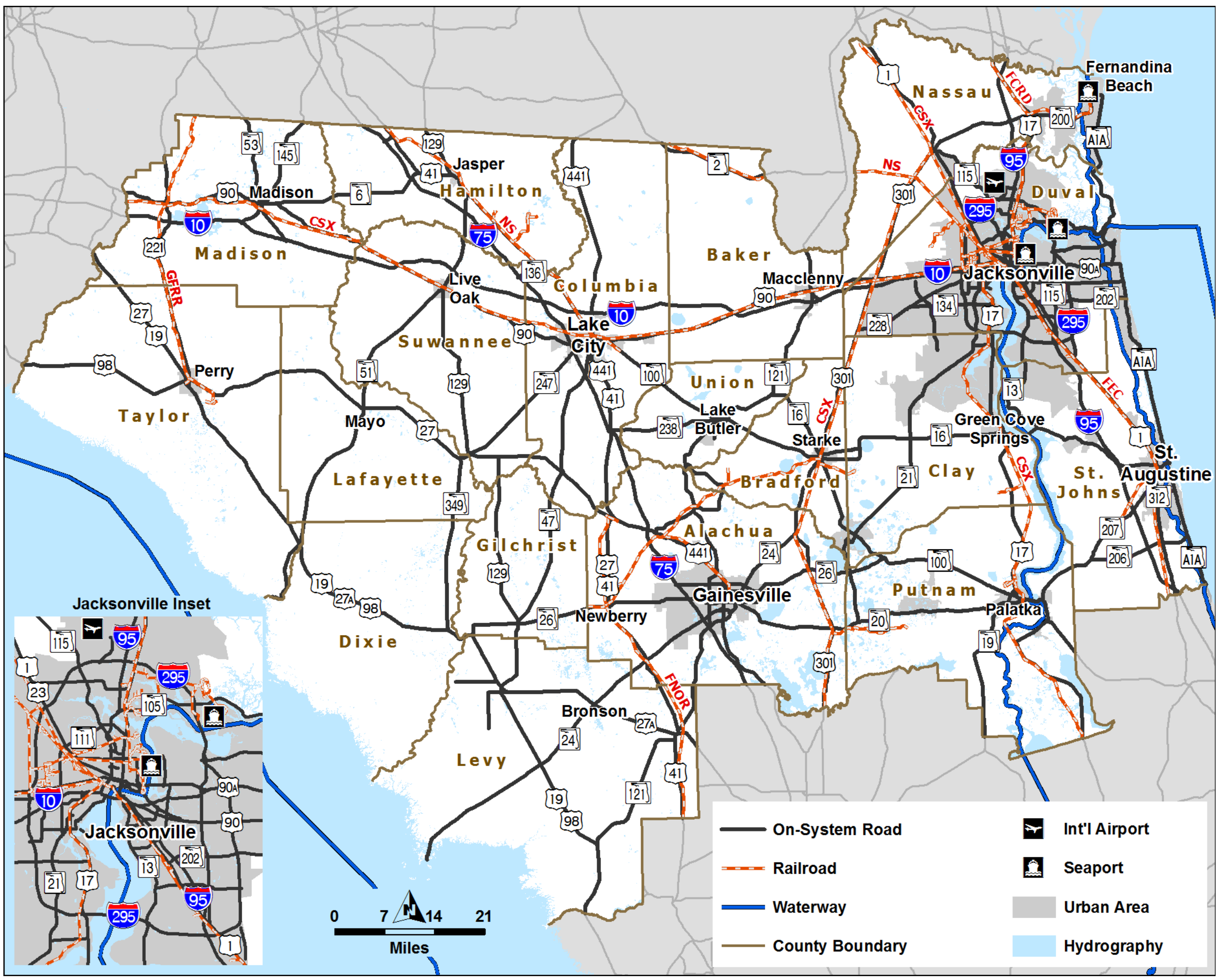


Source: IHS Global Insight - Transearch Database / Waybill, 2015

Modal Overview

Northeast Florida has access to four primary modes for freight movement: trucks, trains, ships, and airplanes. Similar to passenger mobility, each of these freight transportation modes utilizes existing public and private-sector infrastructure and support facilities including the regional roadway network, the railroad network, seaports, and airports. Each of these modal networks and support facilities come together to form a regional freight transportation system that supports the safe and reliable movement of freight and goods. Each mode plays a vital role in connecting Northeast Florida's businesses and consumers to the global marketplace. Through the inventory and analysis of each component of the regional freight transportation system, deficiencies, needs, and opportunities can be identified and then resolved through the most appropriate method available. ***Figure 7-5*** displays the regional multimodal freight transportation system serving Northeast Florida and FDOT District Two while the following sections provide a high-level overview about each mode and component of the regional freight system.

Figure 7-5 | Northeast Florida Regional Freight Transportation System, 2015



Source: Florida Geographic Data Library

Highway

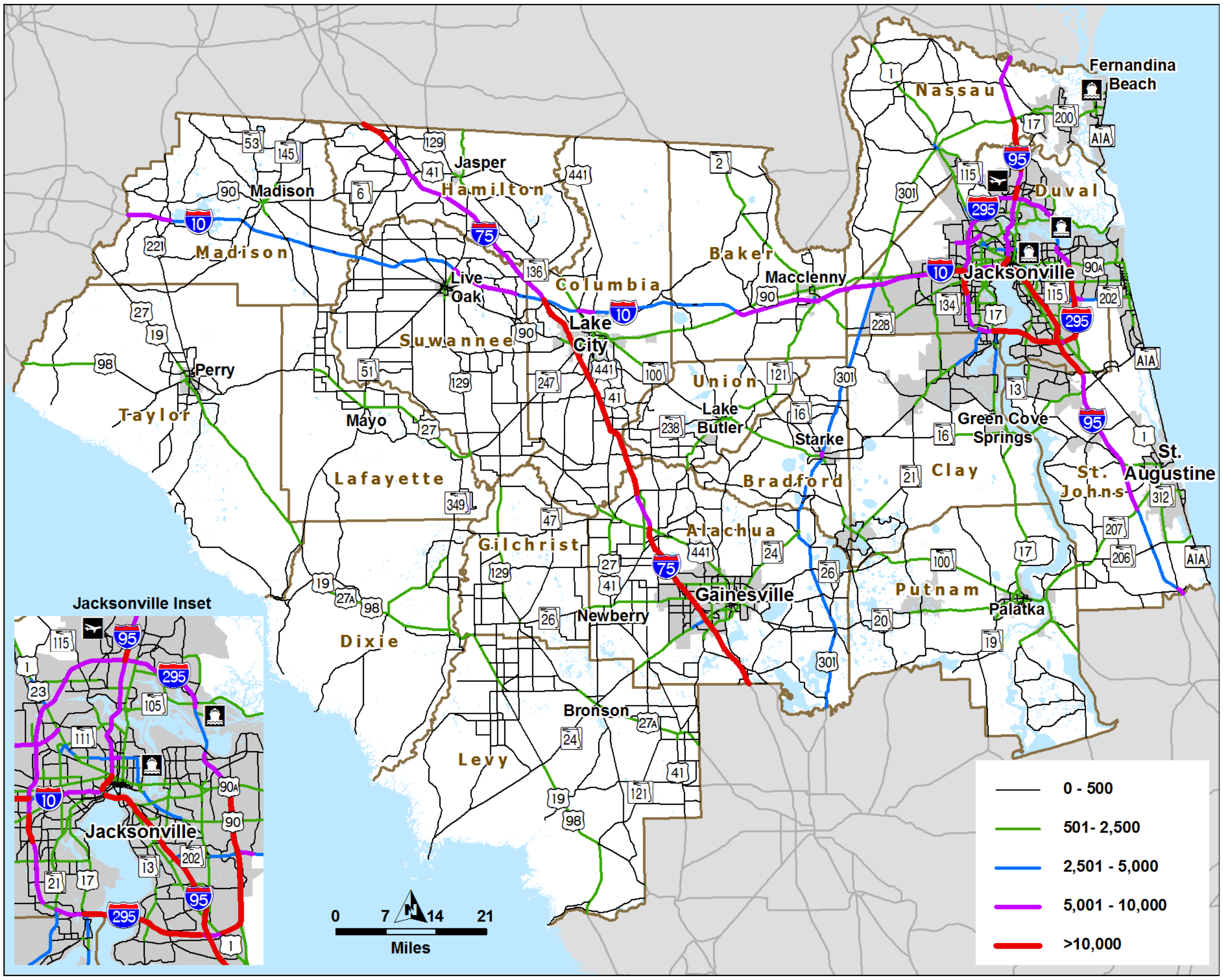
Trucks serve as the primary freight mode in Northeast Florida. This is the case in many metropolitan areas since trucks are generally the most flexible and responsive of the freight modes. Freight users employ trucks for all types of movements and distances: short, medium, and long-haul trips. Trucks are also utilized for drayage movements between intermodal terminals (seaports, rail terminals, and other warehouse/ distribution centers) and to provide the "last mile" connections. Trucks rely on Northeast Florida's interstate system, state and U.S. highways, and local roadways. Freight trucks/commercial vehicles utilize the entire roadway system, whether it is providing access to residential areas for mail and parcel delivery or local warehousing and distribution functions.

Highway Demand

In 2015, a majority of all freight, 66 percent or more than 62.5 million tons, that moved across the region was hauled by truck (Transearch, 2015), highlighting the importance of highway facilities to the region's economy and the quality of life for its residents. Of the truck share, 33 percent was inbound, 39 percent was outbound, and 28 percent were intraregional movements. For trucking, most of the tonnage and value is in truckloads (full truck shipments) and "PVT" (private fleet trucking). "LTL" (less-than truckload shipments, involving the consolidation of small loads to fill trailers) and "NEC" (not elsewhere classified) shipments represent only a small share of trucking tonnage and value. Construction materials, consumer goods, agricultural and forest products, and commodity waste are very truck-focused commodity groups. In addition, Transportation and Logistics commodity types are primarily truck movements but there is also a very significant rail component, and one of the leading truck movements is actually rail intermodal drayage. Freight moving inbound and outbound from Northeast Florida to the remainder of Florida is primarily hauled by truck and major trading partners include Georgia, South Carolina, Alabama, North Carolina, and Texas.

The Northeast Florida region is served by more than 6,753 centerline miles of roadways, of which approximately 420 miles are interstates or other toll expressways and 1,403 miles are principal arterials, including limited access facilities. Commercial vehicles hauling goods share these roadways with commuters and visitors traveling to and through the region. The roadway system experiences traffic volumes (including trucks) in excess of 98 million vehicle miles per day (FDOT, 2015). ***Figure 7-6*** illustrates the annual average daily truck traffic volume range on the major corridors in Northeast Florida. The data indicates that the highest volumes of truck traffic occur on roadways that already experience a high level of overall traffic, with the highest truck volumes on I-95, I-10, I-75, and I-295; and notable volumes on US 301 and US 19.

Figure 7-6 | Annual Average Daily Truck Traffic, 2015

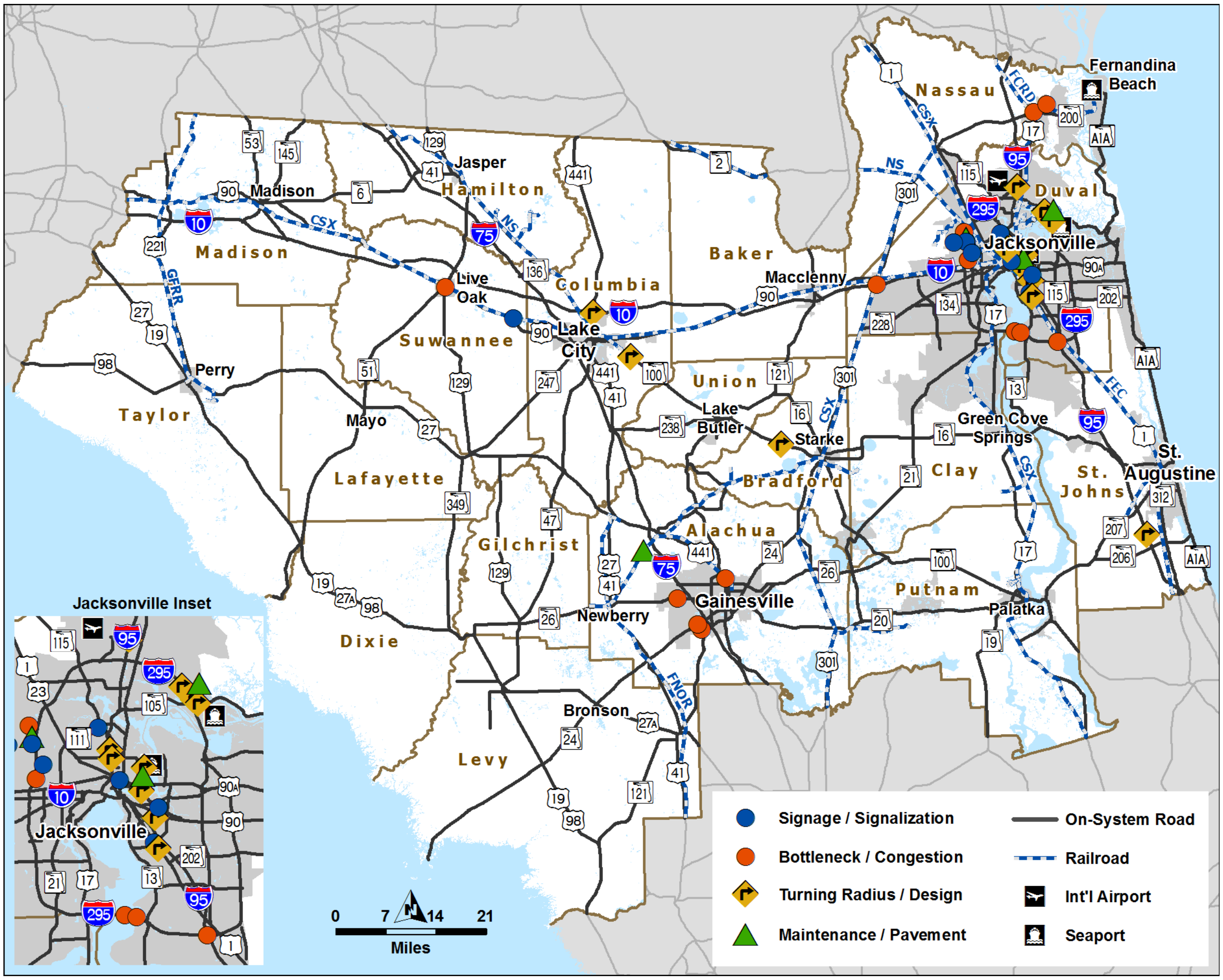


Source: FDOT Roadway Characteristics Inventory

Highway Outlook

As indicated in the findings of our stakeholder and industry outreach, as a whole, the trucking community reports good operating conditions on the region's major highway facilities; however, some areas of recurring congestion and operational constraints or bottlenecks were reported, including signal timing and signage concerns, pavement issues on local roads, insufficient turning radii, and turning lane and exit queue lengths. A number of freight corridors were commonly recognized by industry stakeholders in regards to recurring congestion including: I-75, I-95, I-295, I-10, and US 301. Industry participants also identified construction projects as a major cause of congestion and recommended increased communication with the freight industry to improve detour routing. ***Figure 7-7*** depicts the location specific comments provided on the Study's interactive map portal. Input was considered during the intersection operational analysis conducted in *Section Six: First-Mile/Last-Mile Connections.*

Figure 7-7 | Stakeholder Engagement, Interactive Comment Map Findings, 2016

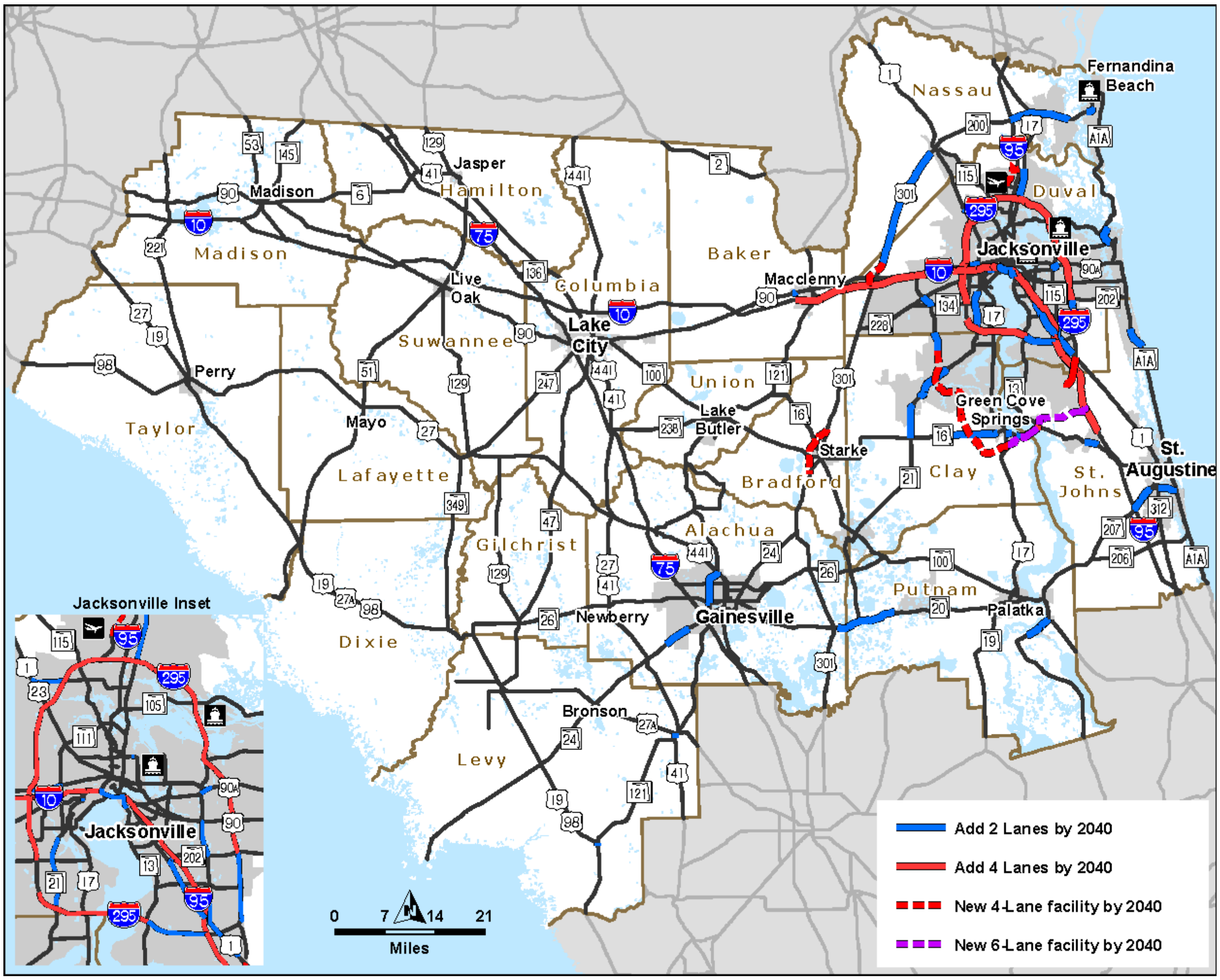


Source: Interactive Comment Map (fdotd2crossdock.com, January 2016)

Roadway facilities, even within the same highway classification group (interstates, state roads, local roads) can vary significantly in attributes such as capacity and condition. The level of truck activity impacts both the capacity and condition of highway facilities. The more lanes a roadway has, the greater its capacity to serve higher traffic volumes and safely accommodate the shared usage of both automobile and commercial vehicle traffic. Shared usage can be more of an issue when there are fewer lanes due to differing vehicle operating requirements such as deceleration, acceleration and merging. Interstates and toll roads have the greatest capacity within the region, with the highest lane capacities provided within the urbanized area. It is worth mentioning, however, that outreach with the logging industry revealed that log trucks typically only use state roads because they can obtain a Divisible Load Permit to carry 88,000 pounds as opposed to the 80,000 pound restriction on interstate highways.

Planned improvements to the existing roadway network in Northeast Florida are identified in the region's Metropolitan Planning Organization's (MPOs) long range transportation plans, FDOT's 5-Year Work Program and Strategic Intermodal System's plans. From 2015 to 2040, an estimated 285 centerline miles consisting of over 912 lane miles will be added to the highway network. ***Figure 7-8*** illustrates the planned capacity roadway improvements from 2015 to 2040.

Figure 7-8 | Roadway Capacity Improvements 2015 to 2040



Source: FDOT Level of Service Report

Regarding bridge conditions in District Two, Florida's bridge inventory, ranks among the best in the nation. FDOT's primary bridge target is to have 90 percent of its bridges achieving a National Bridge Inventory (NBI) rating of 6 or higher. Based on the NBI rating system, a rating score of 6 or 7; means that a bridge is in good condition. At present, 95 percent of all FDOT-maintained bridges meet standards, exceeding FDOT's target of 90 percent, meaning the vast majority of Florida bridges do not show any evidence of structural deterioration nor are they limited by weight restrictions (FDOT Bridge Information).

Rail

Northeast Florida is served by two Class I Railroads (CSXT and NS), one Class II Railroad (Florida East Coast Railway), three Class III Railroads (First Coast Railroad, Florida Northern Railroad, and Georgia and Florida Railway), and one railroad specializing in switching and terminals (JXPT).

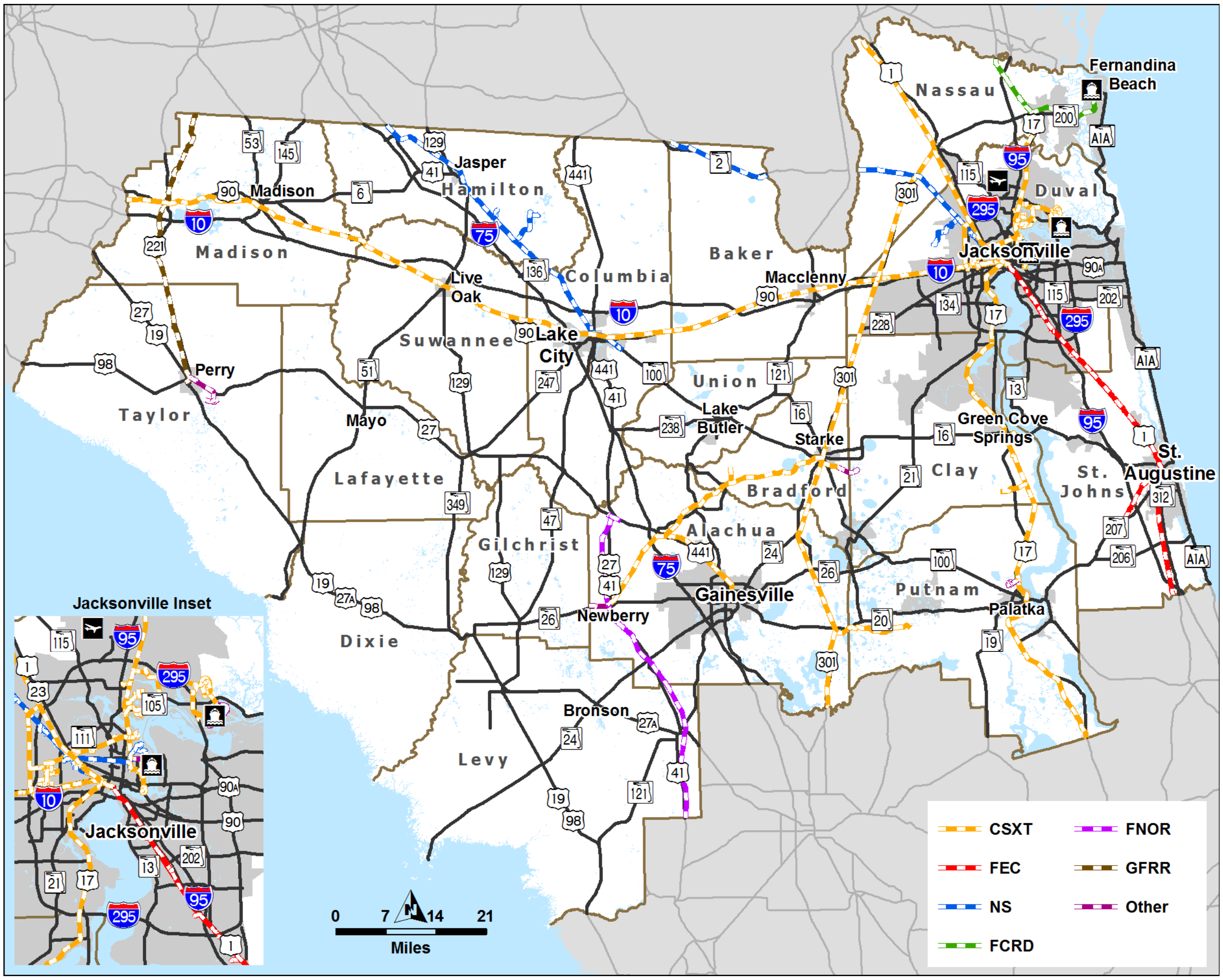
In combination, Northeast Florida's rail network is made up of 927 route miles of track with 1,113 rail at-grade crossings and 87 grade-separated rail crossings. ***Figure 7-9*** depicts the region's rail network by track ownership. Northeast Florida's rail network is supported by eight (8) rail intermodal and rail trans-loading facilities including the CSX Intermodal Terminal Jacksonville, NS Intermodal Terminal Jacksonville, FEC Intermodal Terminal Jacksonville, CSX Jacksonville Transload Site, FNOR Newberry Transload Site, FNOR Williston Transload Site, FCR Fernandina Beach Transload Site, and the NS Jacksonville Thoroughbred Bulk Transfer Site.

Rail Demand

While trucks serve the major share of freight demand within Northeast Florida, rail plays a significant role providing long distance intermodal connections. The region's rail facilities served 28 percent of the total commodity volume which holds 32 percent of total value share. For rail, an estimated one-fourth of tonnage is intermodal (in shipping containers), while three-fourths is carload (all other equipment types) though intermodal represents around 60 percent of rail value; this is because intermodal commodities tend to be lower weight and higher value, compared to carload commodities. Goods coming into Northeast Florida from Kentucky, Illinois, Indiana, Ohio, West Virginia, and Michigan utilize the region's rail network and intermodal terminals.

In 2015, Northeast Florida's rail network carried 26.9 million tons of cargo valued over $52 billion. Bituminous Coal is the largest inbound commodity by volume with over 7 million tons in 2015 though it has a relatively low value, with an estimated value of $36.52 per ton. FAK (freight all kinds) shipments are the second largest commodity type volume and the number one rail commodity type by value though it is important to note that this commodity type is actually a pricing mechanism that groups multiple classes of freight into a single class for companies that ship a wide variety of products. Fertilizer is the region's single largest rail commodity export with final destinations serving mid-west / bread belt agriculture.

Figure 7-9 | Northeast Florida Railroad Network, 2015



Source: Florida Geographic Data Library

Rail Outlook

Northeast Florida has a robust and extensive freight rail and terminal network serving both urban population centers and rural communities. With rail being a mostly limited access network, very few railroad infrastructure specific challenges were identified while several freight industry participants expressed concerns relating to intermodal connectivity. Feedback and concerns focused on highway congestion and its impact to freight rail and rail terminal operations and overall goods movement reliability. Other rail challenges related to community impacts and quality of life – at-grade crossing impacts and environmental concerns with light and noise pollution.

Seaports

Northeast Florida is served by two deep water seaports. The Port of Jacksonville consists of over 20 marine terminals including Jacksonville Port Authority (JAXPORT), military and several private terminals. JAXPORT owns, maintains, and operates three terminals at the Port of Jacksonville: Talleyrand Marine Terminal (TMT), Blount Island Marine Terminal (BIMT), and Dames Point Marine Terminal (DPMT). The Port of Fernandina consists of one deep water shipping terminal located on the Amelia River. The Port of Fernandina is operated by Worldwide Terminals Fernandina, LLC, under a long term contract with the Ocean Highway and Port Authority. These are the most westerly seaports on the east coast which provides a unique opportunity for shippers to lessen the distance of inland transportation. In 2015, JAXPORT was ranked the number one container port in Florida and serves as a top auto importer and exporter in the nation while the Port of Fernandina is Florida's largest exporter of steel. ***Table 7-1*** on the following page provides an overview of Northeast Florida's ports and marine terminals.

Seaport Demand

Northeast Florida's seaports handle primarily containerized cargo but also handle large quantities of import automobiles via roll-on roll-off (RORO) ships and various bulk commodities. In 2015, Northeast Florida's port handled about 5.97 million tons of cargo worth over $5.96 billion. Based on volume, over 61 percent of total seaport commodities are represented by petroleum refining products and miscellaneous coal/petroleum products. Northeast Florida seaports handle 6 percent of the region's total commodity tonnage which has a value share of 32 percent of total commodities pertaining to domestic water movements.

For statewide and regional context, as reported in the United States Army Corps of Engineers Principle Ports file, in 2016 for all lines of cargo, Florida seaports facilitated the flow of over 98 million short tons of waterborne commerce. JAXPORT handled over 18.5 million tons, the third highest tonnage in Florida after the Ports of Tampa (35.3 million tons) and Port Everglades (24.2 million tons). Looking at seaports to the north, JAXPORT handles more tonnage than the Port of Brunswick (2.4 million tons) and less than the Port of Savannah (36.4 million tons).

Table 7-1 | Northeast Florida Ports - Marine Terminal Overview

	Port of Jacksonville (JAXPORT)			Port of Fernandina Terminal
	BIMT	DPMT	TMT	
Terminal Area	754 Acres	585 Acres (TraPac:158)	173 Acres	21 Acres
Rail	On-Dock: CSX	On-Dock: CSX	On-Dock: CSX & NS; Near-Dock: FEC	On-Dock: CSX & First Coast RR
Major Highway Connections	I-95, I-295, US 17	I-95, I-295, US 17	I-95, I-10, US 1, US17	From SR 200/A1A to I-95, US301, US1, US 23, US 90, and I-10
Uses	Container, Autos, Roll on/Roll off, Breakbulk & General Cargo	Container, Bulk, and Cruise	Container, Roll on/Roll off, Breakbulk, Liquid Bulk & General Cargo	Container & Breakbulk
Facilities	240,000 sq. ft. of transit shed; 90,000 sq. ft. container freight station	Intermodal Container Transfer Facility	160,000 sq. ft. warehouse with 2.2 million cu. ft. of cold storage; 553,000 sq. ft. of transit shed	200,000 sq. ft. on-port storage and 50,000 sq. ft. container freight station
Handling Equipment	7 container cranes (five 50-ton,one 45-ton, one 40-ton), One 112-ton gantry whirely crane	6 container cranes (two 50-ton, four 40-ton), Six 40-ton rubber tired gantry cranes	4 container cranes (one 50-ton, two 45-ton, one 40-ton), Two 50-ton rubber tired gantry cranes, One 100-ton multi purpose whirely crane	Two gantry cranes and One heavy lift crane
Ocean Service Locations	South America, Caribbean, Asia, Europe, Mediterranean, Africa	South America, Asia, Europe, Mediterranean, Africa, Middle East, Central America	South America, Caribbean, Asia, Europe, Mediterranean, Africa	Serving Latin America, the Caribbean, Bermuda, and Northern Europe

Seaport Outlook

Both ports are actively working to grow and diversify cargo operations. JAXPORT is in the process of dredging to increase port channel depth. Channel deepening to at least 47 feet is essential to keep JAXPORT competitive. Without a deeper channel, Northeast Florida will be at a competitive disadvantage in both retaining existing customers and attracting new ones, construction is expected to begin in February 2018.

Additional seaport connectivity challenges exist off port property and similar to concerns from railroad industry stakeholders, feedback focused on highway congestion and its impact to seaport operations and overall goods movement reliability. This will be further emphasized as the port continues to expand its capacity to meet the needs of larger vessels and commodity growth.

Air Cargo

Air travel is primarily used for time sensitive cargo (freight is referred to as cargo in the aviation industry). Air cargo is all about location; a few miles closer to target destinations makes a difference. Thus, air cargo facilities are typically located near large population centers. Northeast Florida is served by three commercial service airports with reported air cargo activity. Three facilities provide dedicated air cargo carrier operations and commercial service belly cargo.

These commercial service airports include: Jacksonville International Airport (JIA), Gainesville Regional Airport (GNV), and Northeast Florida Regional Airport (UST/SGJ). In addition to these three commercial service airports, there are several General Aviation (GA) airports that serve private and corporate aviation demand within the region. One unique aspect of Northeast Florida's aviation system is the future spaceport operations planned for Cecil Field. The facility includes dedicated orbital and sub-orbital launch corridors, Class D airspace, a 12,550' by 200' primary runway, and 150 acres dedicated solely for spaceport development. Cecil Spaceport will serve the demand of operators of horizontal reusable launch vehicles (RLV) capable of delivering people, goods, and/or small satellites into a suborbital or orbital trajectory.

Air Cargo Demand

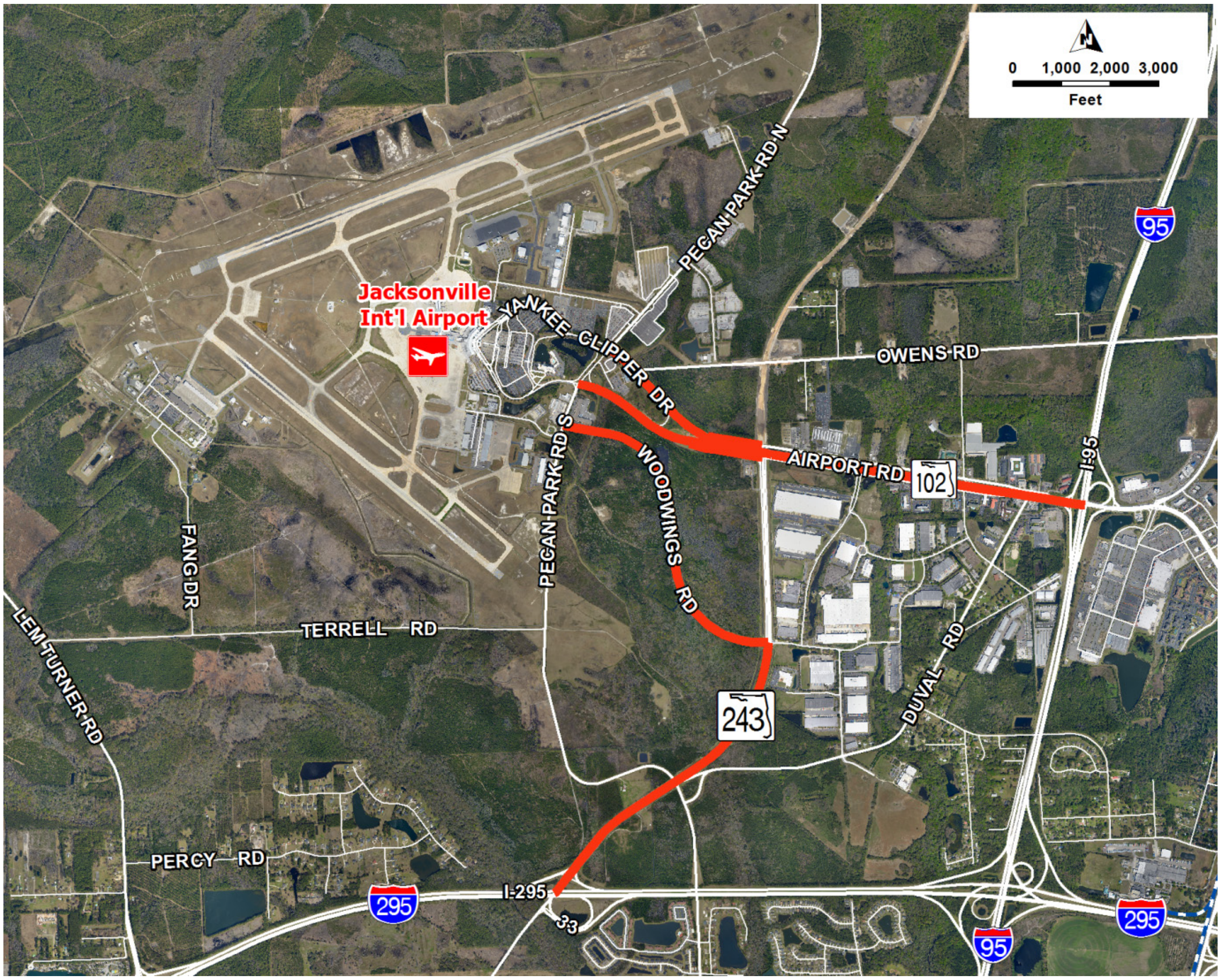
Air cargo makes up less than 1 percent of the total commodity volume share and just over 1 percent of total value share. While this mode carries a relatively small portion of commodity volume share, commodities moved via air are typically light weight, high value, and time sensitive. This mode provides a fast, reliable, and secure goods movement option. In 2015, Northeast Florida's air cargo facilities, primarily Jacksonville International Airport, handled 8,000 tons of air cargo valued at $1.7 billion. This equates to an average value of $223,226.00 per air cargo ton. Major air commodities include miscellaneous manufacturing products, machinery, prescription drugs, and FAK shipments. Mail and express traffic also make up a large portion of Northeast Florida's air cargo.

Air Cargo Outlook

Air cargo demand in the region is adequately met by current infrastructure capacity. The JIA Master Plan shows the volume of cargo, including freight and mail, handled at JIA will continue to increase over the planning period. The volume of cargo transported in the belly compartments of passenger aircraft is forecast to increase an average of 2.0 percent per year during the planning period, from 3.0 million pounds in 2007 to 4.4 million pounds in 2027. Cargo volume carried by the all-cargo carriers is forecast to increase an average of 3.3 percent per year, from 75 million pounds in 2007 to 143 million pounds in 2027. JIA accommodates several cargo tenants and freight forwarders including United Parcel Service (UPS), Federal Express (FedEx), ABX Air, and Mountain Cargo.

Some freight shippers serving the airports reported congestion and issues once drivers leave the immediate airport area. The intersection of Airport Road and Duval Road was identified as a safety concern, noting multiple turning movements. High growth areas were also identified in North Jacksonville and the Cecil area while air cargo stakeholders reported concerns with competing River City marketplace traffic and discussed the potential impacts and additional congestion generated by the Amazon.com distribution center. ***Figure 7-10*** depicts the air cargo access routes for Jacksonville International Airport.

Figure 7-10 | Jacksonville International Airport – Air Cargo Access Routes



Source: FDOT

Regional Freight Corridors

The highway network and roadway corridors are key elements in Northeast Florida's intermodal freight transportation system. The highway network provides mobility for long and short haul shipments, while also providing essential intermodal access and connectivity between other modal terminals (marine, sea, air, rail, and pipeline). The identification and establishment of regionally significant freight corridors allows for focused planning and targeted investment based on system performance and contribution to freight and goods movement. This enables planning for improved freight mobility and optimal utilization of limited public funding opportunities.

Critical Urban and Rural Corridors

As explored in *Section One: Plans and Policies Review*, the FAST Act requires FHWA in coordination with state DOTs to establish the National Highway Freight Network (NHFN) as a component of the National Multimodal Freight Network. As defined in the FAST Act Section 1116 Implementation Guidance, the NHFN is to include the following elements:

The ***Primary Highway Freight System (PHFS)*** is a network of highways identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data. Nationwide, the PHFS consists of 41,518 centerline miles, including 37,436 centerline miles of Interstate and 4,082 centerline miles of non-Interstate roads. Within Northeast Florida (District Two), the PHFS includes I-95, I-75, I-10, and segments of I-295 which consists of 360 designated miles.

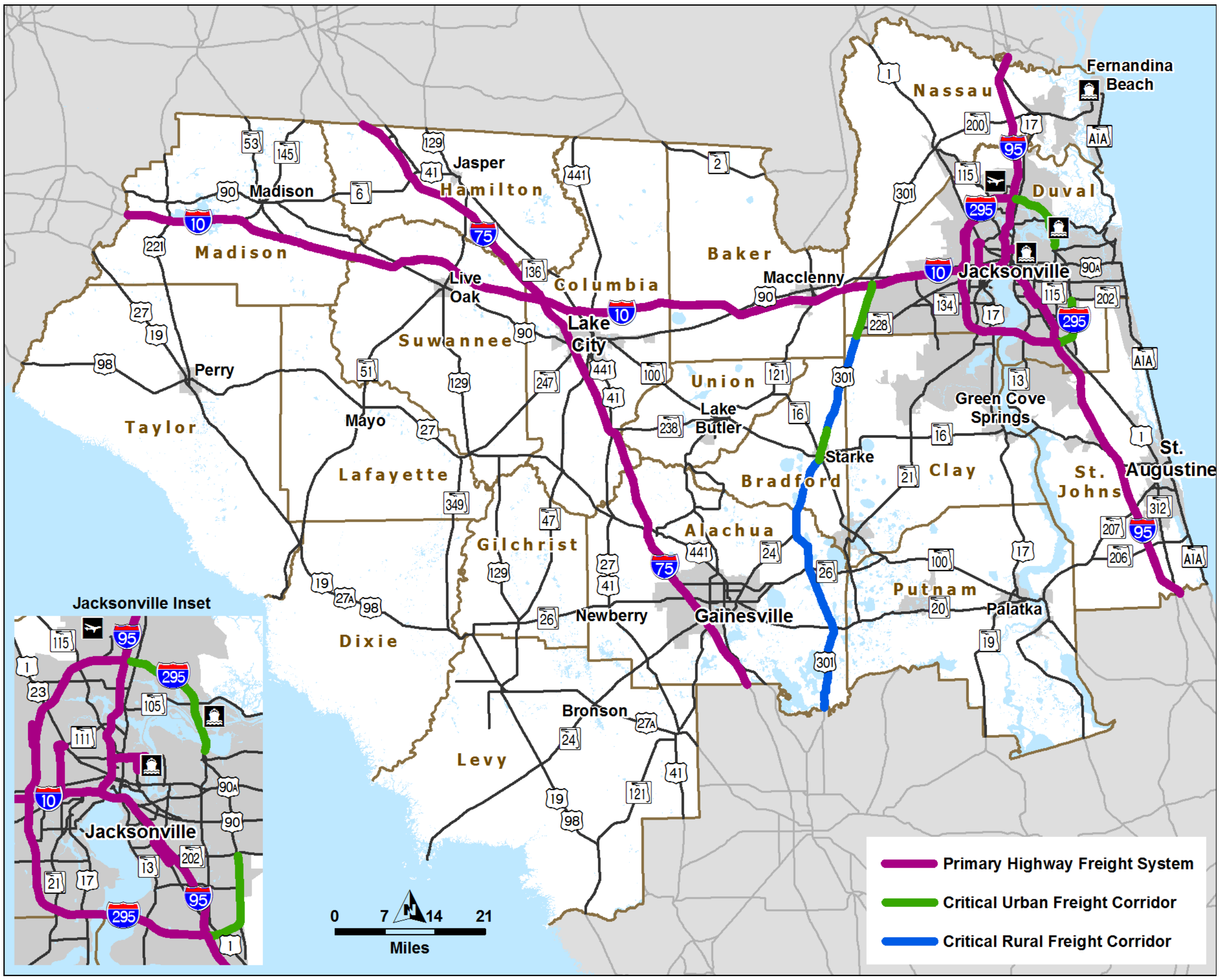
Critical Rural Freight Corridors (CRFCs) are public roads not in an urbanized area which provide access and connection to the PHFS and the interstate with other ports, public transportation facilities, or other intermodal freight facilities. These public roads serve first and last mile connectivity and provide immediate links between such freight generators as manufacturers, distribution points, rail intermodal and port facilities.

FHWA has encouraged states, when making CRFC designations, to consider first or last mile connector routes from high-volume freight corridors to key rural freight facilities, including manufacturing centers, agricultural processing centers, farms, intermodal, and military facilities. The CRFC maximum mileage limit for state designation in Florida is 320 miles. Within Northeast Florida (District Two), 49 miles of US 301 are designated as CRFCs throughout Alachua County and along southern and northern segments in Bradford County, while the portion of US 301 traveling through the Starke area is designated as a Critical Urban Freight Corridor.

Critical Urban Freight Corridors (CUFCs) are public roads in urbanized areas which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities. The CUFC maximum mileage limit for state designation in Florida is 160 miles. Within Northeast Florida, 29.5 miles are designated as CUFCs including US 301 (NE 193rd St to S Walnut St) in Starke, US 301 (I-10 to Duval/Clay County Line) and segments of I-295 (I-95 to Heckscher Dr and SR 202 to I-95) in Jacksonville.

The designation of CRFCs and CUFCs increases the State's NHFN, allowing expanded use of NHFP formula funds and FASTLANE Grant Program funds for eligible projects that support national goals identified in 23 U.S.C. 167(b) and 23 U.S.C. 117(a)(2). ***Figure 7-11*** displays the National Highway Freight Network hierarchy within Northeast Florida.

Figure 7-11 | National Highway Freight Network

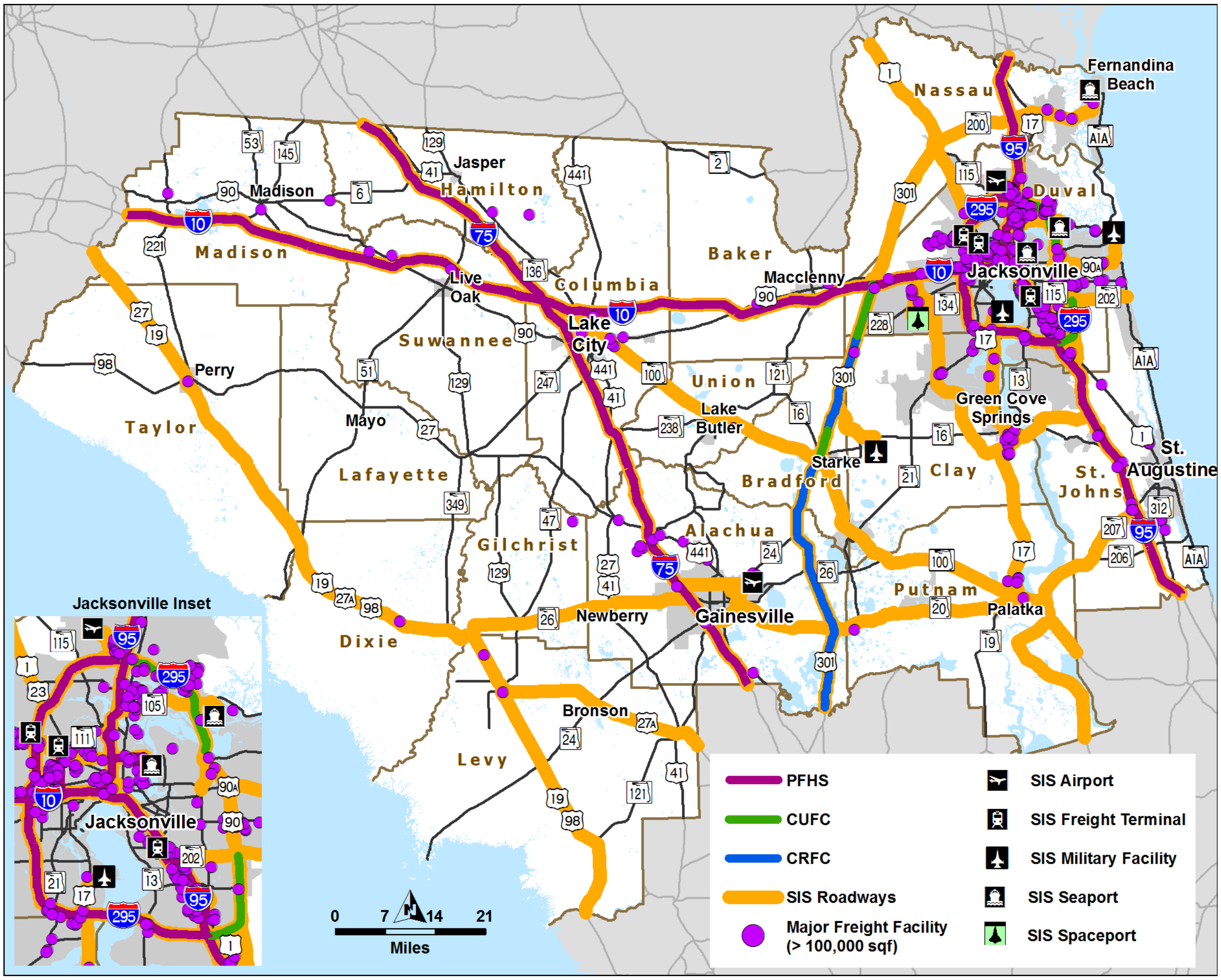


Source: FHWA National Highway Freight Network

Connecting Intermodal Hubs

One of the primary roles of the roadway network and critical freight corridors is to provide access and connectivity to the region's intermodal facilities including airports, rail terminals, seaports, and supportive warehousing and distribution centers. Each of these modal nodes requires an interconnecting network of roadways to support commodity movement and overall commerce. The freight system and supply chain are highly dependent on the trucking industry and roadway network for intermodal drayage, regional and local distribution, and delivery. ***Figure 7-12*** illustrates the location and proximity of the region's intermodal hubs and major warehouse and distribution centers to the region's primary and critical freight highway network. Reliable connectivity to and from these intermodal hubs is important for both the movement of people and goods. Stakeholder survey findings identified "first and last mile challenges" as a top industry concern. Issues range from facility design to recurring operational challenges at and approaching intermodal terminals.

Figure 7-12 | Northeast Florida Intermodal Facilities and Highway Network



Source: FHWA National Highway Freight Network and FDOT Freight Facilities Database

Based on Florida's Strategic Intermodal System designation process, each designated SIS Hub has established connector roads that provide access from the facility to the greater highway network. The function of the highway connectors is to provide safe, secure, efficient, reliable, and direct access between hubs and corridors. Freight modal nodes and intermodal facilities are major freight generators and attract a substantial amount of commercial vehicle traffic. Existing freight movement and trade activity at and around these intermodal facilities creates areas of congestion and concerns over community impacts. Future commodity growth and the operational response from intermodal facilities will continue to grow and place strain on intermodal connector roads and the greater highway network they link. Due to the importance of these first and last mile connections, a comprehensive operational analysis was conducted and the findings are summarized later in the Needs Assessment section.

Future Freight Demand

Freight demand is influenced by numerous factors, many of which are subject to change and fluctuation over relatively short periods of time. Factors such as economic structure, supply chains, transportation infrastructure, public policy and regulation influence existing and future freight demand. Freight is demand driven and a means to an end; as such, freight demand is directly related to the amount and type of economic activity occurring in and around Northeast Florida. The amount and type of goods production and consumption in an area and the relationship between producers, consumers, and intermediate suppliers impact the volume and distribution of freight flows.

The Transearch commodity database includes forecasts to the year 2040, based on the *IHS Global Insight* international econometric model. There is only one forecast scenario, and its exact conditions and assumptions are not known, but it is useful to consider as a potential baseline scenario depicting possible future growth.

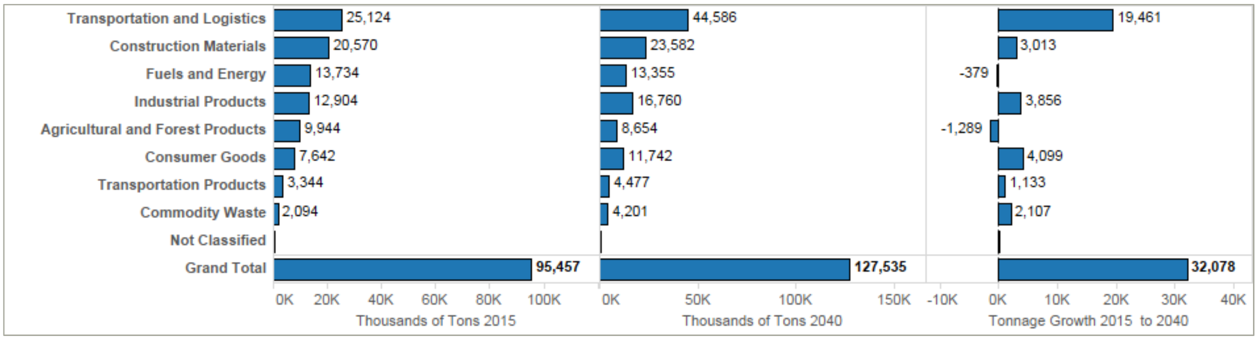
Forecast Summary

According to Transearch, Northeast Florida's commodity tonnage (excluding pass through) will grow from 95.5 million tons in 2015 to 127.5 tons in 2040. This represents a compound annual growth rate of 1.2 percent per year. If pass through movements are included, the region's commodity tonnage will rise by an additional 233 thousand tons in 2015 to 344.6 thousand tons in 2040, reflecting a compound annual growth rate of 1.8 percent.

The most significant finding is that Transportation and Logistics tonnage is forecast to grow significantly, overtaking construction materials as Northeast Florida's leading tonnage-based commodity group. Excluding pass through traffic, Transportation and Logistics currently represents 26 percent of Northeast Florida's tonnage; in 2040 it will represent 35 percent of the region; and of the 32 million tons Northeast Florida will add between 2015 and 2040, 61 percent will be in Transportation and Logistics. Consumer Goods and Industrial Products will also see strong growth, representing increasing shares of District Two tonnage; Commodity Waste, and

Transportation Products will see moderate growth; and Construction Materials and Fuel and Energy Products and Agricultural and Forest Products will be essentially flat. ***Figure 7-13*** depicts the tonnage growth by commodity group, excluding pass through movements.

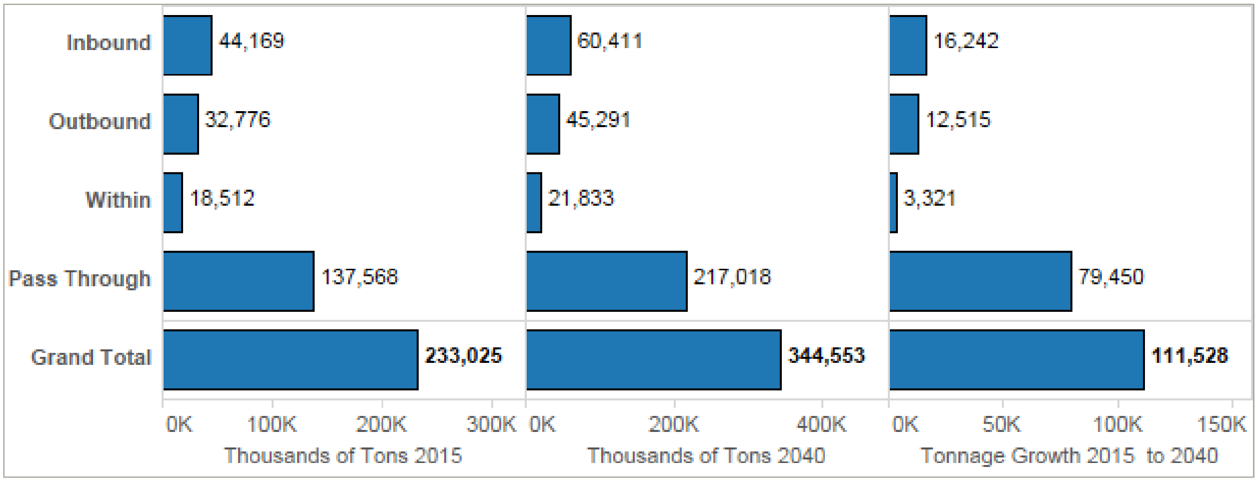
Figure 7-13 | Future Commodity Forecast: Tonnage Growth by Commodity Group



Source: IHS Global Insight – Transearch Database, 2015

Looking next at tonnage by direction of trade, including pass through traffic, the most significant finding is the strong projected growth in Pass Through traffic. Pass Through is currently at 138 million tons, and another 79 million tons will be added between 2015 and 2040. Inbound and Outbound tonnage will grow moderately in absolute terms, while internal tonnage will grow modestly.

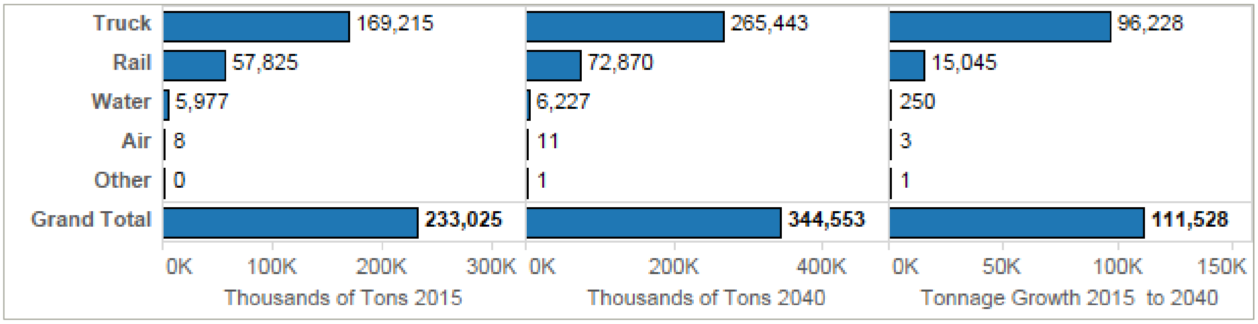
Figure 7-14 | Future Commodity Forecast: Tonnage Growth by Trade Direction



Source: IHS Global Insight – Transearch Database, 2015

Finally, looking at tonnage by mode, the most significant finding is the strong projected growth in truck tonnage, fueled by increases in Transportation and Logistics commodities (which favor truck) and Pass Through traffic (of which the majority is truck). Truck tonnage (including pass through) will increase from 165 million tons in 2015 to 265 million tons in 2040; its modal share will increase from 72 percent to 86 percent. Rail will see absolute growth, largely from its handling of Transportation and Logistics commodities, but its modal share will drop due to increased trucking; and air and water tonnage is projected to be flat. Remember again that Transearch is reporting domestic movements and the domestic legs of international moves, so the flat projections for air and water do not reflect on the potential for international trade growth.

Figure 7-15 | Future Commodity Forecast: Tonnage Growth by Mode



Source: IHS Global Insight – Transearch Database, 2015

These forecasts should be interpreted as one possible future. There are econometric reasons to believe this future is plausible, but it could be very different. Probably the most important variable is public policy - If District Two and the State of Florida invest in infrastructure and technologies that support particular modes, routes, or growth industries, these numbers would change.

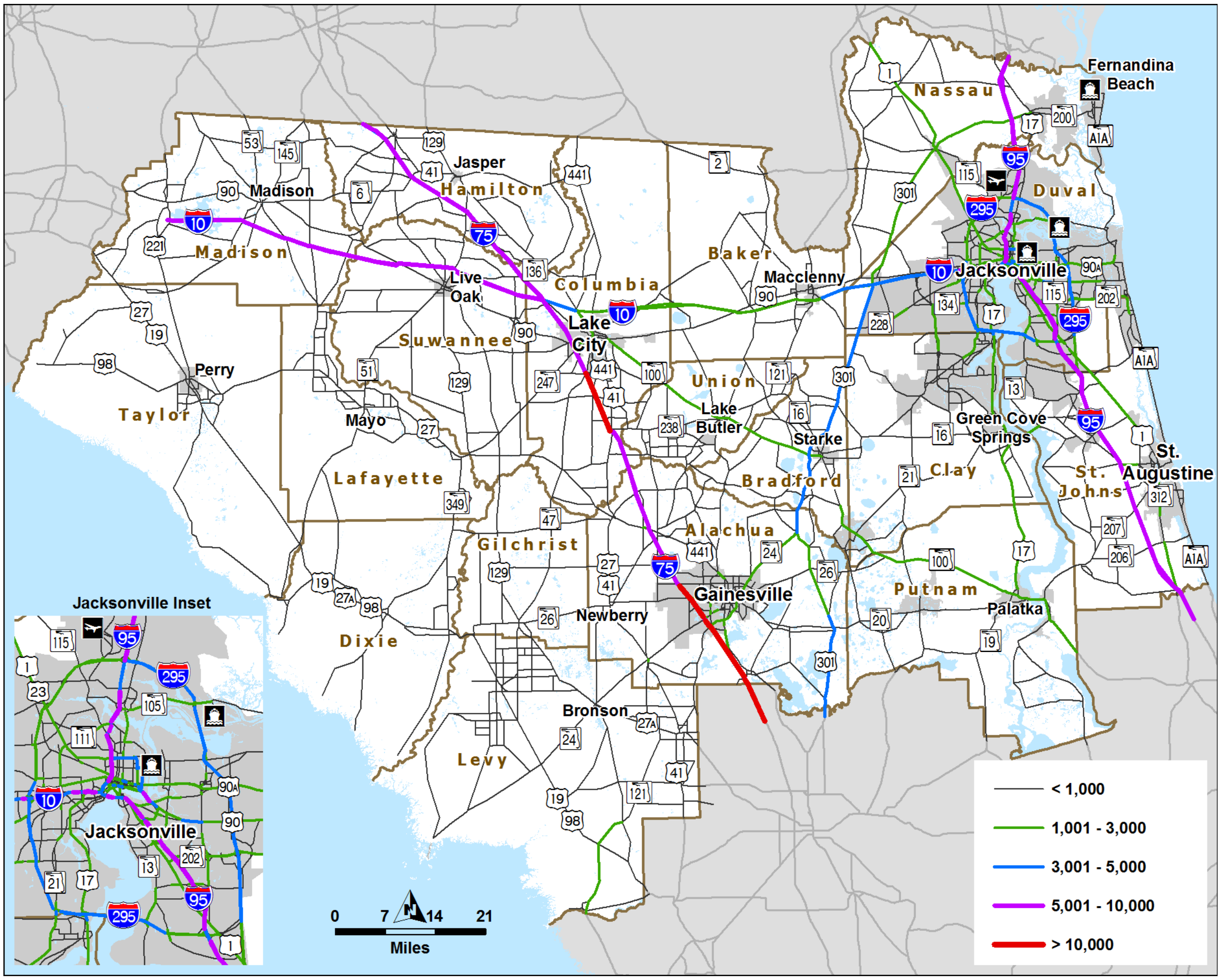
Future Traffic

Freight and goods movement in Northeast Florida is projected to remain dependent on trucking and the regional highway network to serve future goods movement demand. Transportation planners and engineers must consider the needs and impacts of all network users from truck traffic to daily commuters and visitors passing through. With forecasted population and employment growth, freight demand is forecasted to grow to serve societal needs. These factors and constraints contribute to the overall system demand of the shared highway network.

The Florida Statewide Model (FLSWM) forecasts truck trip generation, distribution, and network assignment for the year 2040. The results of the model freight flows were screened and organized to evaluate corridors projected to carry the greatest volumes of heavy truck traffic. The model produced highway network truck volumes for light trucks and heavy trucks. It is noted that the 2040 highway network used in the FLSWM is a “planned” network that reflects programmed and planned highway capacity improvements identified by FDOT and its planning partners. Within Northeast Florida, truck volumes are expected to increase; and the National Highway System and Florida’s Strategic Intermodal System (SIS) are planned to serve future freight movement.

Districtwide, I-95 is forecasted to carry over 12,000 daily truck trips (bi-directional) which will account for 11.9 percent of future daily volume. Similarly, districtwide I-75 is forecasted to carry over 15,500 daily truck trips which will account for 38.2 percent of future daily volume. The segment of I-75 transecting the Gainesville area is expected to carry over 18,800 daily truck trips (34.9 percent forecasted daily volume) and the segment of I-75 south of the Lake City area will carry 18,100 daily truck trips accounting for 42.5 percent of future daily volumes. As the major east-west limited-access highway corridor, I-10 will continue to experience significant volumes of freight traffic. I-10's major interchanges at I-75, SR 100, US 301, I-295, and I-95 allows for east-west and north-south freight distribution. ***Figure 7-16*** depicts future average annual daily truck trips (AADTT). Data represented in this figure reflects post-process data-smoothing and categorization to emphasis corridors carrying significant volumes of freight traffic.

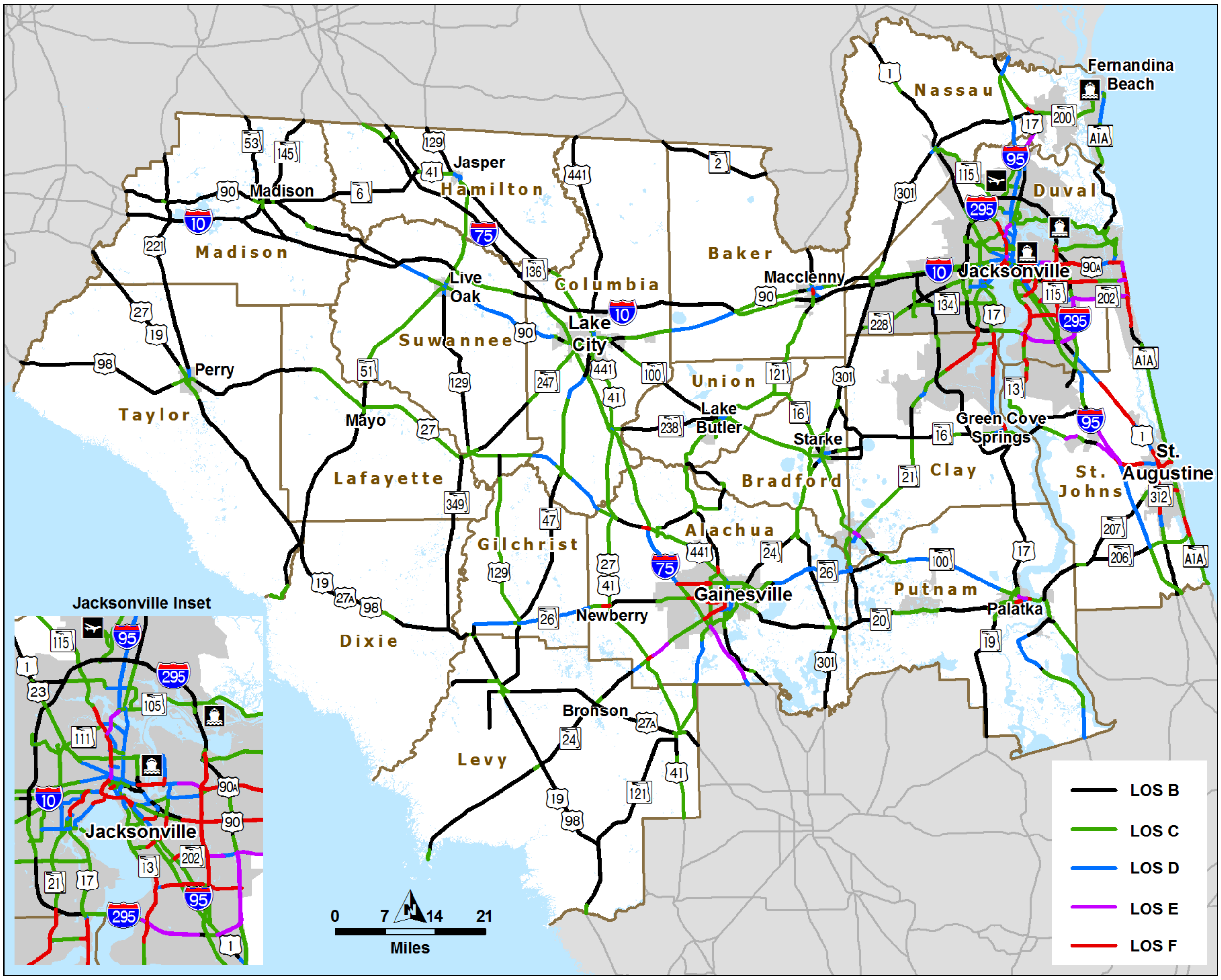
Figure 7-16 | Forecasted 2040 Average Annual Daily Truck Trips (AADTT)



Source: Florida Statewide Model (FLSWM)

Future Level of Service (FLOS) accounts for future travel demand and planned roadway improvements; this provides a lens to view future constraints beyond planned 2040 long-term capacity investments. This qualitative approach focuses on system performance at varying operating conditions. ***Figure 7-17*** illustrates the future daily average level of service (LOS). LOS takes into account annual average daily traffic volumes, percentage of truck traffic, roadway grade and curvature, lane width, and other factors. Indicated by a letter grade, A through F, this stratification measures user satisfaction and reflects the quality of service of a roadway.

Figure 7-17 | Forecasted 2040 Annual Average Daily Level of Service



Source: FDOT Level of Service Report

Findings from this and other travel demand analyses indicate that the highways that currently carry the greatest volumes of trucks and commodity tonnage are expected to experience the greatest number of trucks in the future. This includes: I-10, I-95, I-295, US 301, and other segments of the region's Strategic Intermodal System and State Highway network. These corridors are most critical to existing and future goods movement.

Needs Assessment

Current and future freight mobility needs were identified based on data, technical analysis and stakeholder input presented in previous technical memorandums. The needs presented here are focused on those of regional concern and on the regional freight system identified in *Section Four: Regional Freight* and, in general, represents systemic needs. Systemic needs can be defined as universal or general mobility issues that are broader in nature and may reflect infrastructure, operational, institutional deficiencies or inefficiencies. Often, but not always, addressing systemic needs requires significant investment in terms of infrastructure and investment and/or innovative solutions.

The systemic needs for current and future freight mobility in the Northeast Florida region have been organized around three areas including:

- System Capacity
- Land Use
- Community Impacts

System Capacity

Congestion and resulting capacity deficiencies were identified as a significant concern on the major interstates and freight routes. The ultimate goal of this Study is not to identify projects that simply add additional capacity, but rather identify a combination of solutions that maximize the reliability or throughput of the region's intermodal freight transportation system. The first step is to understand what is causing congestion, since it is not always simply too much volume. The research conducted and documented as part of this needs assessment and in previous memos for this effort revealed three root causes of congestion - existing and projected.

First, there are physical infrastructure constraints on existing freight-significant roadways. These range from the need for new capacity addition to operational improvements, including infrastructure management, industry business practices and institutional bottlenecks. Second, the region is expecting continued growth with new patterns emerging that could impact freight travel patterns currently and especially in the future. Third, to date the region's congestion issues have by and large been addressed through single mode solutions. These three root causes of congestion impact freight travel throughout the region giving rise to system needs on critical components of the region's freight network.

Considering Existing Needs and Priorities

As an element of the needs assessment, previous plans and studies were reviewed with the purpose of identifying and cataloging prior needs and agency priorities. The intent of this exercise is to cross reference and validate existing needs based on new data, an updated analysis, and stakeholder input. The following subsection provides detail of Northeast Florida's prior needs and freight priorities.

Florida Freight Mobility and Trade Plan (FMTP)

In 2012, FDOT adopted the Investment Element of FMTP. As part of the investment planning process, FDOT and its planning partners were asked to submit projects for consideration into the FMTP's Investment Element. ***Table 7-2*** lists the 44 projects and roadway segments identified in the Investment Element of the Florida Freight Mobility and Trade Plan.

In the years following the adoption of the FMTP, District Two has continued to follow-through and implement the needed improvements identified in the FMTP Investment Element. The table below provides the project development status for each of the 44 improvements identified.

Table 7-2 | Florida Freight Mobility and Trade Plan (FMTP), Investment Element Needs

Roadway / Project	Limits	Project Status (Sept 2017)
A1A	I-95 to W. of Still Quarters Rd	Under Construction, Est. Completion Summer 2020 (FM#210711-2)
A1A	W. of Still Quarters Rd to W. of Rubin Ln	Project Complete (FM#210712-3)
A1A	W. of Rubin Road to E. of CR107	Under Construction , Est. Completion Summer 2019 (FM#210712-4)
I-10	@ SR 200 / US 301	Under Construction , Est. Completion Summer 2019 (FM#428865-1)
I-95	S of Old St. Augustine Interchange to N of Old St. Augustin Interchange	Construction Complete (FM#432656-1)
A1A	@ US 17/ CR 107	Under Construction, Est. Completion Summer 2019 (FM#210712-4)
First Coast Outer Beltway	I-95 to SR 15	ROW Acquisition, Est. Completion 2020; Design/Permitting, Est. Completion 2020 (FM#422938-7/8)
First Coast Outer Beltway	SR 15 to US 21	Construction Scheduled, Est. Begin Summer 2019
I-10	@ SR 10 (US 90) AND SR 23	Under Construction, Est. Completion Summer 2019 (FM#209659-3)
I-10	Baker CL to Duval CL	Design 2025 (FM#213470-2)
I-10	Nassau/Duval CL to US 301 (Managed Lanes)	PD&E 2025 (FM#213001-5)
I-10	Nassau CL to US 301	Design 2020 (FM#213272-5)
I-10	US 301 to SR 23	PD&E (FM#213272-3)
I-10	W of CR 125 to W of SR 121	PD&E 2025 (FM#213001-2)
I-10	W of SR 121 to Nassau CL	PD7E 2023 (FM#213001-5)
I-295	Buckman Bridge to I-95 Managed Lanes	Under Construction, Est. Completion Spring 2018 (FM#209301-3)
I-295	Dames Point Bridge to N. of Pulaski (Managed Lanes)	ROW 2018 (FM#209658-4)
I-295	SR 113 to SR 202 (Managed Lanes)	PD&E Underway; PE 2019; ROW 2022 (FM#209301-4)
I-295	SR 202/JTB to SR9B (Managed Lanes)	Under Construction, Est. Completion Summer 2019 (FM#209301-3)

Table 7-2 | Florida Freight Mobility and Trade Plan (FMTP), Investment Element Needs, Continued

Roadway / Project	Limits	Project Status (Sept 2017)
I-295	I-10 to S. of US 1	PD&E 2022 (FM#424682-1)
I-295	N of Trout River to I-95	PD&E 2022 (FM#424682-1)
I-295	S of SR 134 to I-10	PD&E 2022 (FM#424682-1)
I-295	S of US1 to N of Trout River	PD&E 2022 (FM#424682-1)
I-295	Southside Connector to SR 202/JTB	PD&E 2019 (FM#209301-4)
I-295	SR 13 to W of US 17	PD&E 2023 (FM#213345-9)
I-295	@ US 17 / Wells Rd	Construction Scheduled, Est. Begin Summer 2022 (FM#435575-1)
I-75	@ SR 121 / Williston Rd (Add lanes to Exit Ramps)	Candidate Project, ROW 2019-21; CST 2021 (FM#423071-3)
I-95	@ North I-95 Interchange	Under Construction, Est. Completion Winter 2020 (FM#213323-1)
I-95	SR 102 Off Ramp to NB I-95 On Ramp	Under Construction, Est. Completion Winter 2020 (FM#213323-1)
I-95	St Johns CL to I-295	PD&E (FM#424026-1)
I-95	@ SR 102 / Airport Rd	Construction Scheduled, Est. Begin 2018
I-95	@ SR 202 / JTB	No Project Listing (Duval County)
I-95	@ US 1 / SR 15	Construction Scheduled, Est. Begin 2023 (FM#433899-2)
SR 20	Alachua CL to SW 56th Ave	Under Construction, Est. Completion Winter 2019 (FM#207818-2)
SR 20	SW 56th Ave to CR 315	Construction Scheduled, Est. Begin Summer 2019 (FM#210024-5)
SR 26	US 19 to W of Trenton	Candidate Project, PE 2023; ROW 2025 (FM#209790-3)
SR 26	CR 337 to CR 26A-Newberry Bypass	PE 2020; ROW 2022-24; CST Not Funded (FM#207850-2)
SR 26	W of Trenton to E of Trenton	Candidate Project, PE 2022; ROW 2024 (FM#209790-4)
SR 26	Trenton to CR 337	No Project Listing (Gilchrist County)
US 301	S of Baldwin to N of Baldwin Bypass	Under Construction, Est. Completion Spring 2020 (FM#209537-4)
I-10	Baker CL to Duval CL (6 Lanes)	Design 2025 (FM#213470-2)
I-10	W of CR 125 to W of SR 121 (Managed Lanes)	PD&E 2025 (FM#213001-5)
I-95	International Golf Pkwy to Duval CL	PD&E (FM#424026-1)

Source: FMTP, Investment Element, District Two, 2014; Project Status as of September 2017.

SIS 2045 Multimodal Unfunded Needs Plan

In 2017, the Florida Department of Transportation developed the 2045 SIS Multimodal Unfunded Needs Plan. The 2045 Unfunded Needs Plan identified over $106.9 billion in unfunded aviation, highway, rail, seaport, spaceport, and transit statewide. Needs were identified using FDOT's statewide modal plans, transportation corridor plans, regional plans and visions, MPO and Expressway Authority plans, and other planning partner documents. In most cases, the Plan organized needs based on FDOT districts and by modal categories. Funding for projects in this plan is not expected to be available during the 25 to 30 year timeframe of the SIS Funding Strategy (Ten Year Plan and Cost Feasible Plan).

Table 7-3 through ***Table 7-6*** summarize the140 unfunded SIS needs that were identified in District Two. The identified needs have an estimated cost of $9.6 billion; including $24 million for aviation (2 percent of statewide aviation needs), $7.4 billion for highway (12 percent of statewide highway needs), $139.7 million for rail (1 percent of statewide rail needs), $1.9 billion for seaports (28 percent of statewide seaport needs), $36.8 million for spaceports (4 percent of statewide spaceport needs), and $111.4 million for transit (1 percent of statewide transit needs).

Table 7-3 | SIS Multimodal Unfunded Needs Plan: Roadway

Project	Limits	Description	Priority Term
I-95	SR 15 / US 17 to SR 122 (Golfair Ave)	Widen to 8 Lanes	2025
I-95	SR 122 (Golfair Ave) to SR 115 (Lem Turner Rd)	Widen to 8 Lanes	2025
SR 100	SR 21 to E. City Limits (Lakeview Dr)	Widen to 6 Lanes	2025
SR 100	NW City Limits (1800' NW of SR 21) to SR 21	Widen to 6 Lanes	2025
SR 100	E City Limit (NE 8th Ave) to SR 231	Widen to 4 Lanes	2025
SR A1A / SR 200 / 8th St	Lime St to Centre St / Atlantic Ave	Widen to 4 Lanes	2025
SR 26 / Newberry Rd	CR-337 / SW 266th St to SR 45	Widen to 4 Lanes	2025
US 17	SR 16 West to N City Limit (.09 miles N of Governor St)	Widen to 6 Lanes	2025
US 17	CR 220 to Creighton Rd	Widen to 6 Lanes	2025
US 17	Creighton Rd to Elbow Rd	Widen to 8 Lanes	2025
US 17	Elbow Rd to SR 224 (Kingsley Ave)	Widen to 8 Lanes	2025
US 17	SR 224 (Kingsley Ave) to Wells Rd	Widen to 8 Lanes	2025
US 17	N 1st St to SR 20	Widen to 12 Lanes	2025
US 17	SR 20 to SR 100	Widen to 10 Lanes	2025
I-95	North of Fuller Warren Bridge to SR 104 / Dunn Ave	Managed Lanes	2025
I-295	Southside Connector / SR 113 to JTB / SR 202	Managed Lanes	2025

Table 7-3 | SIS Multimodal Unfunded Roadway Needs, Continued

Project	Limits	Description	Priority Term
I-75	US 441 (Alachua) to Alachua / Columbia County Line	Managed Lanes	2025
First Coast Expressway / SR 23	S of US 17 to N of SR 16	New Facility	2025
First Coast Expressway / SR 23	N of SR 16 to N of SR 21	New Facility	2025
US 301	at Crawford Diamond	Interchange Improvement	2025
First Coast Expressway / SR 23	at Shands Bridge	Bridge Improvement	2025
US 301 / SR 200	City of Waldo to Alachua / Bradford County Line	Widen to 6 Lanes	2035
SR 100	Clay County Line to Starke	Widen to 4 Lanes	2035
US 301 / SR 200	Alachua / Bradford County Line to CR 227 (Starke bypass south interchange)	Widen to 6 Lanes	2035
US 301 / SR 200	Marion County Line to Waldo	Widen to 6 Lanes	2035
I-75	Marion / Alachua County Line to Williston Rd	Widen to 8 Lanes	2035
SR 222 / 39th Ave.	W of I-75 Ramps to NW 83rd St	Widen to 6 Lanes	2035
SR 26 / Newberry Rd	NW 76th Blvd to I-75	Widen to 8 Lanes	2035
US 17	SR 20 to SR 100	Widen to 12 Lanes	2035
US 17	S of Crescent City to N of Crescent City	Widen to 4 Lanes	2035
US 17	N of Crescent City to S of Pomona Park	Widen to 4 Lanes	2035
US 17	S of Pomona Park to N of Pomona Park	Widen to 4 Lanes	2035
I-75	SR 121 (Williston Rd) to SR 222 (NW 39th Ave)	Managed Lanes	2035
I-75	SR 222 (NW 39th Ave) to US 441 (Alachua)	Managed Lanes	2035
I-75	Alachua / Columbia County Line to I-10	Managed Lanes	2035
I-75	I-10 to Columbia / Suwannee County Line	Managed Lanes	2035
I-75	Suwannee / Hamilton County Line to Georgia State Line	Managed Lanes	2035
I-295	W of US 17 (Collins / Blanding CDs) to S of SR 134 / 103rd St.	Managed Lanes	2035
I-295	W of US 17 to S of SR 134 / 103rd St.	Managed Lanes	2035
First Coast Expressway / SR 23	I-95 to SR 13	New Facility	2035
US 301 / SR 200	at SR 24 (Waldo)	Interchange Improvement	2035
I-75	at SR 26 / Newberry Rd	Interchange Improvement	2035
I-75	at SR 24 / Archer Rd	Interchange Improvement	2035

Table 7-3 |SIS Multimodal Unfunded Roadway Needs, Continued

Project	Limits	Description	Priority Term
I-10	at SR 121	Interchange Improvement	2035
I-295	at US 17 / Wells Rd	Interchange Improvement	2035
SR 26	at SE 70th Ave	Add Turn Lanes	2035
SR 26	at SE 25th Ave	Add Turn Lanes	2035
SR 26	at CR 307 (SW 30th Ave)	Add Turn Lanes	2035
SR 26	at SW 298th / SE 90th Ave	Add Turn Lanes	2035
US 17	Volusia County Line to S of Crescent City	Widen to 4 Lanes	2045
I-95	Flagler / St. Johns County Line to SR 206	Widen to 8 Lanes	2045
US 301 / SR 200	Bradford / Clay County Line to Clay / Duval County Line	Widen to 6 Lanes	2045
US 301 / SR 200	CR 233 (Starke Bypass North Interchange) to Bradford / Clay County Line	Widen to 6 Lanes	2045
US 301 / SR 200	Clay / Duval County Line to I-10	Widen to 6 Lanes	2045
Forsyth St	Lee St to Cleveland St	Widen to 4 Lanes	2045
Pritchard Rd	Pritchard Rd to I-295	Widen to 6 Lanes	2045
I-95	SR 115 (Lem Turner Rd) to SR 111 (Edgewood Ave)	Widen to 8 Lanes	2045
I-95	SR 111 (Edgewood Ave) to SR 105 (Heckscher Dr)	Widen to 8 Lanes	2045
I-95	SR 102 (Airport Rd) to Pecan Park Rd	Widen to 8 Lanes	2045
I-95	Pecan Park Rd to Nassau County Line	Widen to 8 Lanes	2045
I-95	Duval County Line to SR A1A / SR 200	Widen to 8 Lanes	2045
I-95	US 17 / SR 5 to Georgia State Line	Widen to 8 Lanes	2045
I-95	CR-210 to Duval County Line	Widen to 12 Lanes	2045
SR 100	E. City Limit (NE 8th Ave) to SR 231	Widen to 6 Lanes	2045
SR 222 / 39th Ave	NW 83rd St to NW 43 St	Widen to 6 Lanes	2045
SR 222 / 39th Ave	NW 43 St to SR 121 / NW 34 St	Widen to 6 Lanes	2045
SR 222 / 39th Ave	SR 121 / NW 34 St to US 441 / NW 13 St	Widen to 6 Lanes	2045
US 17	SR 16 East to SR 16 West	Widen to 6 Lanes	2045
US 17	SR 16 West to N City Limit (.09 miles N of Governor St)	Widen to 8 Lanes	2045
US 17	CR-220 to Creighton Rd	Widen to 10 Lanes	2045
US 17	Creighton Rd to Elbow Rd	Widen to10 Lanes	2045
US 17	Elbow Rd to SR 224 (Kingsley Ave)	Widen to10 Lanes	2045
US 17	SR 224 (Kingsley Ave) to Wells Rd.	Widen to 10 Lanes	2045
US 17	Wells Rd to Duval County Line	Widen to 10 Lanes	2045

Table 7-3 |SIS Multimodal Unfunded Roadway Needs, Continued

Project	Limits	Description	Priority Term
US 17	N 1st St to SR 20	Widen to 4 Lanes	2045
US 41	Guerdon St to I-10	Widen to 4 Lanes	2045
SR 100	Bradford County Line to Putnam County Line	Widen to 4 Lanes	2045
SR 100	SR 26 to CR 216	Widen to 4 Lanes	2045
US 17	I-295 to Birmingham Gate	Add Aux Lane	2045
US 19	Taylor-Madison County line to Jefferson County Line	Widen to 6 Lanes	2045
US 19	Perry to Madison County Line	Widen to 6 Lanes	2045
I-10	Madison / Suwannee County Line to Suwannee / Columbia County Line	Managed Lanes	2045
I-10	Columbia / Baker County Line to CR 125	Managed Lanes	2045
I-10	I-75 to Columbia / Baker County Line	Managed Lanes	2045
I-10	Suwannee / Columbia County Line to I-75	Managed Lanes	2045
I-10	Jefferson / Madison County Line to Madison / Suwannee County Line	Managed Lanes	2045
I-95	SR 206 to CR 13A / International Golf Parkway	Managed Lanes	2045
I-95	I-10 to SR 139 / US 23 (Kings Rd)	Managed Lanes	2045
I-75	Columbia / Suwannee County Line to Suwannee / Hamilton County Line	Managed Lanes	2045
I-10	SR 23 to I-295	Managed Lanes	2045
I-295	SR 9B to I-95 South Interchange	Managed Lanes	2045
I-295	SR 13 to SR 21	Managed Lanes	2045
I-10	at I-75	Interchange Modification	2045
I-10	at I-295	Interchange Modification	2045
I-95	at University & Bowden	Interchange Modification	2045
I-95	at Emerson	Interchange Modification	2045
I-95	at US 1 and SR 206	Interchange Modification	2045
I-10	at US 301	Interchange Modification	2045
I-295	at Collins Rd	Interchange Modification	2045
SR 200 / SR A1A	at Yulee	Bridge Improvement	2045

Source: FDOT 2045 SIS Multimodal Unfunded Needs Plan

Table 7-4 | SIS Multimodal Unfunded Needs Plan: Seaport

Project	Limits	Description	Priority Term
JAXPORT	at Talleyrand and Blount Island Marine Terminals	New Cranes	2025
JAXPORT	at Blount Island / Dames Point Terminals	Rail and Berth Improvements	2025
JAXPORT	at Talleyrand Marine Terminal	Intermodal Rail	2025
JAXPORT	at Dames Point Marine Terminal	Berth Improvements	2025
Port of Fernandina	at Port of Fernandina	Berth Improvements	2025
JAXPORT	at Blount Island Marine Terminal	Facility Upgrades	2025
JAXPORT	at Talleyrand Marine Terminal	Berth Improvements	2025
JAXPORT	at Dames Point Marine Terminal	Facility Upgrades	2025
JAXPORT	at Blount Island Marine Terminal	Berth Upgrades	2025
JAXPORT	at Talleyrand Marine Terminal	Facility Upgrades	2025
Port of Fernandina	at Port of Fernandina	Intermodal Rail	2025
JAXPORT	at Talleyrand and Blount Island Marine	New Cranes	2035
JAXPORT	at Blount Island Marine Terminal	Facility Upgrades	2035
JAXPORT	at Dames Point Marine Terminal	Facility Upgrades	2035
JAXPORT	at Talleyrand Marine Terminal	Terminal Upgrades	2035
JAXPORT	at Dames Point Marine Terminal	Facility Upgrades	2045
JAXPORT	at Blount Island / Dames Point Marine Terminals	Intermodal Rail	2045
Port of Fernandina	at Port of Fernandina	Berth Improvements	2045
JAXPORT	at Blount Island Marine Terminal	Berth Upgrades	2045
JAXPORT	at Talleyrand Marine Terminal	Facility Upgrades	2045
JAXPORT	for Talleyrand and Blount Island Marine Terminals	New Cranes	2045
JAXPORT	at Talleyrand Marine Terminal	Berth Upgrades	2045
JAXPORT	at Dames Point Marine Terminal	Berth Upgrades	2045
JAXPORT	at Talleyrand Marine Terminal	Intermodal Rail	2045
JAXPORT	at Blount Island Marine Terminal	Seaport Improvements	2045

Source: FDOT 2045 SIS Multimodal Unfunded Needs Plan

Table 7-5 | SIS Multimodal Unfunded Needs Plan: Air and Spaceport

Project	Limits	Description	Priority Term
JAX Airside Connections	at JIA	Apron	2025
Cecil Spaceport	at Cecil Spaceport	Apron	2025
Cecil Spaceport	at Cecil Spaceport (HLF)	Hanger	2025
Cecil Spaceport	at Cecil Spaceport (HLF)	Taxi	2025
Cecil Spaceport	at Cecil Spaceport (HLF)	Hanger	2025

Source: FDOT 2045 SIS Multimodal Unfunded Needs Plan

Table 7-6 | SIS Multimodal Unfunded Needs Plan: Rail

Project	Limits	Description	Priority Term
JAXPORT	at Talleyrand	Track Addition	2025
CSX-T	at SE 144th St / Mullins Grade (Starke) Crossing	Rail Grade Separation	2035
CSX-T	at CR-28 / Wells Rd (Orange Park)	Rail Grade Separation	2035

Source: FDOT 2045 SIS Multimodal Unfunded Needs Plan

North Florida TPO: Region-wide and Freight Related Needs and Priorities

North Florida TPO's adopted 2040 Long Range Transportation Plan, *Path Forward 2040*, identifies a comprehensive list of needs and cost feasible project priorities. In partnership with their local government and modal operating partners, the North Florida TPO (NFTPO) collaboratively identified and ranked project needs based on community input and planning objectives. Given the type and scale of the projects listed in ***Table 7-7*** through ***Table 7-10***, the majority of these projects and system improvements would be funded with traditional state and federal sources available to the TPO including formula based STP-Urban, Strategic Intermodal System (SIS) funding, and other federal, state, and local sources.

Table 7-7 | NFTPO: Region-Wide Priorities

Project	Limits	Description
First Coast Expressway	I-10 to I-95	New 6 Lane Expressway
SR 200/SR A1A	I-95 to Amelia River Bridge	Widen to 6 Lanes
SR 313	SR 207 to SR 16 SR 16 to US 1 Dixie Highway	New 6 Lane road New 4 Lane road
Chester Road	SR 200/SR A1A to Green Pines Road	Widen to 4 Lanes w/ bike lane and sidewalks
SR 243 JIA North Access Road	SR 102 Airport Road to Pecan Park Road	Widen to 4 Lanes

Table 7-7 | NFTPO: Region-Wide Priorities, Continued

Project	Limits	Description
Cheswick Oak Extension	Oakleaf Plantation Parkway to Savannah Glen Boulevard	New 4 Lane Road
SR 200/SR A1A	I-95 to Amelia River Bridge	Intersection Improvements
US 17	@ Collins Road	New Interchange
US 1	@ CR 210	Modify interchange
US 17	Governor Street to Haven Avenue	Context sensitive solutions
US 17 Main Street	New Berlin Road to Pecan Park Road	Widen to 4 Lanes
SR A1A	Mickler Road to Palm Valley Road	Widen to 4 Lanes
US 17	Nassau/Duval County Line to Harts Road	Intersection Improvements
SR 115 Arlington Expressway	SR 109 University Boulevard to SR 10 Atlantic Boulevard	Widen to 6 Lanes
SR 16	CR 218 to CR 15A Oakridge Avenue	Widen to 4 Lanes
SR 115	@ SR 152 Baymeadows Road	Underpass
SR 21 Blanding Boulevard	SR 16 to CR 215 Blanding Boulevard	Widen to 4 Lanes
CR 2209	CR 210 to International Golf Parkway	New 6 Lane road
US 90 Beaver Street	Cahoon Road to McDuff Avenue	Widen to 4 Lanes
National Cemetery Road	Lannie Road to Arnold Road	New 2 Lane road

Source: NFTPO, List of Priority Projects, Adopted 9/8/2016

Table 7-8 | NFTPO: Freight Priorities

Project	Limits	Description	2040 LRTP Funding Band
Harbor Deeping	@ JAXPORT	Dredging	2019-2020
CSX-T	@ US 301/Crawford Road	Roadway Grade Separation	2019-2020
FEC Railway	@ Jacksonville Bridge	Capacity Upgrade	2019-2020
Norfolk Southern	@ Norfolk Southern Rail Yard	Roadway Grade Improvements	2019-2020
Port of Fernandina	@ Port of Fernandina	Access Improvements	2019-2020
CSX-T	@ SR 224 Kingsley Avenue	Roadway Grade Separation	2021-2025
CSX-T	@ Wells Road	Roadway Grade Separation	2021-2025
CSX-T	@ US 301/SR 200 Baldwin	Roadway Grade Separation	2021-2025
FEC Railway	@ Bowden Intermodal Yard	Capacity Upgrade	2021-2025
CSX-T	Beaver Street Interlocking	Capacity Upgrade	2026-2030
CSX-T	@ SR 104 Busch Drive	Roadway Grade Separation	2026-2030
CSX-T	@ SR 200/SR A1A Yulee	Roadway Grade Separation	2026-2030
North Rail Corridor	Phase 1	New Construction	2031-2040
North Rail Corridor	Phase 2	New Construction	2031-2040

Source: NFTPO, List of Priority Projects, Adopted 9/8/2016

Table 7-9 | NFTPO: SIS Priorities

Project	Limits	Description
I-10	@ CR 217 (Yellow Water Road)	Bridge
I-95	Duval/St. Johns County Line to I-295	Add 4 Express Lanes
I-95	International Golf Parkway to St. Johns/ Duval County Line	Add 4 Express Lanes
I-295	@ US 17/Wells Road	Modify Interchange
SR 9B	US 1 Philips Highway to I-295	Managed Lanes
I-295	SR 202 J. Turner Butler Boulevard to Southside Connector	Add 4 Express Lanes
I-10	US 301 to SR 23 Cecil Commerce Parkway	Add 4 Express Lanes
I-95	@US 1/SR 15/Martin Luther King Boulevard	Modify Interchange
I-295	S of SR 134/103rd Street (Collins/Blanding CD) to I-10	Add 4 Express Lanes
I-295	SR 13 San Jose Boulevard to West of US 17 (Collins/ Blanding CD) Roosevelt Boulevard (Buckman Bridge)	Add 4 Express Lanes
I-295	I-95 North Interchange to Dames Point Bridge/SR 105 Heckscher Drive	Add 4 Express Lanes
I-95	SR 202 J. T. Butler Boulevard to Atlantic Boulevard	Add 4 Express Lanes
I-10	Nassau County Line to US 301	Add 4 Express Lanes
I-10	Baker County Line to Duval County Line	Add 4 Express Lanes
I-295	I-10 to South of US 1	Add 4 Express Lanes
I-295	N of Trout River Bridge to I-95 N	Add 4 Express Lanes
I-295	W of US 17 Roosevelt Boulevard (Collins/Blanding CD) to S of SR134 103rd Street (Collins/Blanding CD)	Add 4 Express Lanes
I-10	@ I-295	Modify Interchange
I-10	I-295 to I-95	Add 4 Express Lanes

Source: NFTPO, List of Priority Projects, Adopted 9/8/2016

Table 7-10 | NFTPO: Seaport Priorities

Port	Project
JAXPORT	Blount Island Marine Terminal Wharf Reconstruction
JAXPORT	Dames Point Rail Extension
JAXPORT	Tallyrand Marine Terminal Wharf Reconstruction
Port of Fernandina	Pier Rehabilitation
Port of Fernandina	Grain Bin or Silo

Source: NFTPO, List of Priority Projects, Adopted 9/8/2016

Gainesville Metropolitan Transportation Planning Organization: 2040 LRTP

Gainesville MTPO's adopted 2040 Long Range Transportation Plan identifies needs and cost feasible project priorities to be funded with local, state, and federal funding sources. ***Table 7-11*** identifies these specific projects and the forecast year for funding implementation.

Table 7-11 | Gainesville MTPO: 2040 LRTP Cost Feasible Roadway Projects

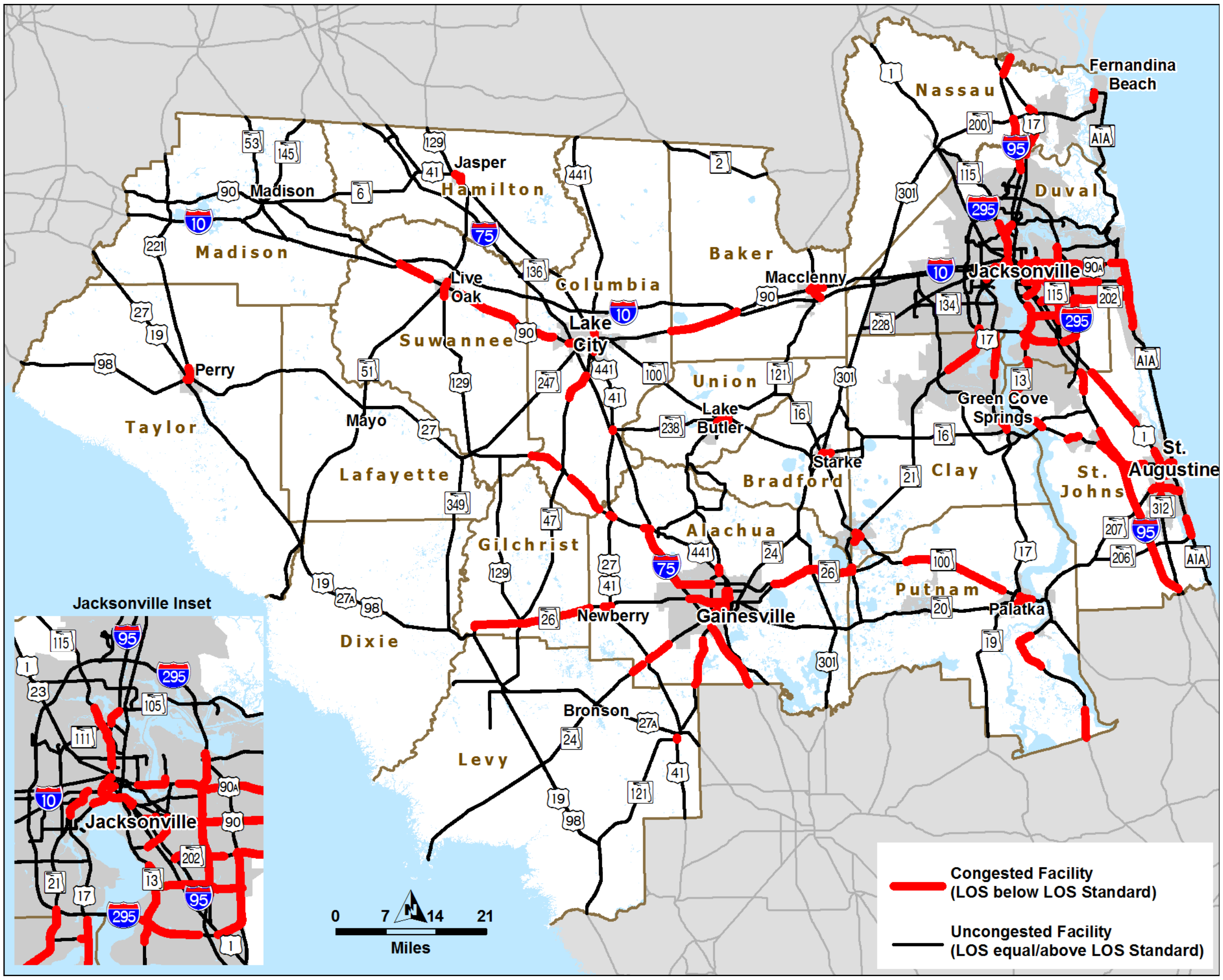
Project	Limits	Description	2040 LRTP Funding Band
I-75	@ SR 121	Interchange Modification	2025
NW 83rd Street	NW 39th Ave to Springhills Blvd	2 Lane Extension	2040
NW 91st Street	Terminus to Springhills Blvd	2 Lane Extension	2040
NW 98th Street	NW 39th Ave to Springhills Blvd	2 Lane Extension	2040
Radio Road Extension	SW 34th Ave to Hull Rd	2 Lane Extension	2040
Springhills Blvd	NW 122nd St to NW 83rd St	New 2 Lane Road	2040
Springhills Connector	Springhills Blvd to Millhopper Rd	New 2 Lane Road	2040
SR 121	SW 2nd Ave to US 441	Complete Street with Protected Bike Lanes	2040
SR 24	Tower Road to SW 122nd St	Widen to 4 Lanes	2040
SW 23rd Terrance Extension	Archer Rd to Hull Rd	2 Lane Extension	2040
SW 62nd Blvd	Butler Plaza to SW 20th Ave	4 Lane Extension	2040
SW 62nd Blvd	SW 20th Ave to Newberry Rd	Widen to 4 Lanes	2040

Source: Gainesville MTPO, 2040 LRTP, Technical Report 7

Capacity Needs beyond Existing Plans and Projects

FDOT District Two's Level of Service (LOS) Report provides analysis consistent with the adopted FDOT LOS Standards for all the State Road and Strategic Intermodal System facilities, and the locally adopted LOS for the Counties and Municipalities within District Two. The report provides current and projected volumes and the estimated LOS from 2015 through 2040 in 5-year increment. ***Figure 7-18*** pinpoints future congestion hotspots by analyzing the future roadway volume and capacity. The roadway segments identified are forecasted to experience a future level of service below the District's LOS standard, listed in ***Table 7-12***. This approach focuses on utilization of capacity and physical constraints. This evaluation accounts for future travel patterns and facility demands while incorporating planned transportation improvements to ultimately identify system needs beyond cost feasible investments.

Figure 7-18 | Future Congested Facilities



Source: FDOT Level of Service Report

Table 7-12 | Future Congested Facilities

Facility	Limits	Future LOS
I-295	Gate Parkway to SR 152 / Baymeadows Rd	E
I-295	I-95 to Old St Augustine Road	E
I-295	Old St Augustine Road to SR 13 / San Jose Blvd	E
I-295	SR 152 / Baymeadows Rd to SR 9B	E
I-295	SR 202 / JTB to Gate Parkway	E
I-295	SR 9B to US 1	E
I-75	CR 234 to SR 121	E
I-75	Marion Co. Line to CR 234	D
I-75	SR 222 to US 441	D
I-95	Atlantic Blvd to Downtown Exit (SR 5)	E
I-95	CR 210 to Duval Co. Line	D
I-95	Downtown Exit (SR 5) to I-10 "Fuller Warren Bridge	E
I-95	Duval Co. Line to SR 200/A1A	D
I-95	I-10 to US 23 / Kings Rd	E
I-95	Pecan Park Rd to Nassau Co. Line	D
I-95	SR 111 / Edgewood Ave to SR 105 / Heckscher Dr	E
I-95	SR 114 / 8th St to SR 15 / 20th St	E
I-95	SR 122 / Golfair Ave to SR 115 / Lem Turner Rd	F
I-95	SR 16 to International Golf Pkwy	E
I-95	SR 206 to SR 207	D
I-95	SR 207 to SR 16	D
I-95	US 1 to SR 206	D
I-95	US 17 to Georgia State Line	D
I-95	US 17 to SR 122 / Golfair Ave	F
SR 100	CR 309C to Urban Boundary of Palatka	D
SR 100	CR 315 to CR 309C	D
SR 100	SR 21 to E. City Limit (Lakeview Dr)	E
SR 100	E. City Limit (NE 8th Ave) to SR 231	D
SR 100	NW City Limit (1800' NW. of SR 21) to SR 21	E
SR 109	I-95 to SR 212 / Beach Blvd	F
SR 109	Powers Ave to Philips Ave	F
SR 109	SR 10A / Arlington Expy to Arlington Rd	F
SR 109	St Augustine Road to Powers Ave	F
SR 10A	Southside Blvd to Arlington Rd	E
SR 10A	University Blvd to Haines St Expy	F
SR 113	Arlington Expy to SR 9A	F
SR 115	I-95 to SR 111 / Edgewood Ave	F
SR 115	SR 111 \ Edgewood Ave W to Soutel Dr	F
SR 115	Baymeadows Rd to SR 202 / JTB	F
SR 115	Belle River Blvd to Baymeadows Rd	F
SR 115	SR 202 / JTB to SR 212 / Beach Blvd	F
SR 121	US 90 to N. City Limit (Margarett St)	D
SR 121	US 441 to NW 73rd Place	F
SR 121	Lowder St to SR 10 / US 90	F
SR 121	SR 231 to SE. City Limit (SW 8th Ave)	D
SR 121	SW. City Limit (SW 12 Ave) to SR 231	D
SR 121	Levy Co. Line to SW 85th Ave (MPO Boundary)	D
SR 13	Greenbriar Road to Roberts Rd	F

Table 7-12 | Future Congested Facilities, Continued

Future LOS	Future LOS	Future LOS
SR 13	Racetrack Rd. to Duval Co. Line	F
SR 13	Roberts Rd to CR 13B / Fruit Cove Rd S	F
SR 13	SR 16 (West) - Shands Bridge to CR 16A/CR 210	D
SR 13	I-295 to SR 116 / Sunbeam Rd	F
SR 13	Loretto Rd to I-295	F
SR 13	SR 116 / Sunbeam Rd to SR 152 / Baymeadows Rd	F
SR 13	SR 152 / Baymeadows Rd to St. Augustine Rd	F
SR 152	Craven Road to US 1 / Philips Hwy	F
SR 152	I-95 to Old Baymeadows Rd	F
SR 152	SR 115 (Southside Blvd) to SR 9A	F
SR 152	US 1 / Philips Hwy to I-95	F
SR 16	North Mall Entrance to I-95	F
SR 16	S Francis Rd to North Mall Entrance	E
SR 16	SR 16 (East)/SR 13 to CR 16A	E
SR 16	Four Mile Rd. to Woodlawn Rd	F
SR 16	I-95 to Four Mile Rd.	F
SR 16	US 301 to E. City Limit (Faxon Ln)	D
SR 16	John St to Bertha St	F
SR 20	Moseley Ave to US 17 / SR 15 / Reid St	D
SR 20	Palm Ave to Moseley Ave	F
SR 20	NW 8 Avenue to SR 120 / NW 23 Ave.	F
SR 202	Belfort Rd to Southside Blvd	E
SR 202	I-95 to Belfort Rd	F
SR 202	Kernan Blvd to Hodges Blvd	E
SR 202	San Pablo Rd to A1A	E
SR 202	Southside Blvd to Gate Pkwy	E
SR 202	SR 9A to Kernan Blvd	E
SR 207	Holmes Blvd to SR 312	F
SR 21	SR 26 to Clay Co. Line	D
SR 21	Clay Co. Line to I-295	F
SR 21	College Dr to Suzanne Ave	F
SR 21	Old Jennings Rd to College Dr	F
SR 21	SR 224 / Kingsley Ave. to Duval Co. Line	F
SR 21	Suzanne Ave to SR 224/Kingsley Ave	F
SR 21	S. City Limit (Pointview Rd) to SR 100	D
SR 21	SR 100 to N. City Limit (Citrus Ave)	D
SR 221	SR 211 to I-95	F
SR 222	NW 43 Street to SR 121 / NW 34 Street	F
SR 222	NW 83th St to NW 43 Street	F
SR 222	W. of I-75 Ramps to NW 83th St	F
SR 224	Doctors Lake Drive to US 17	F
SR 228	Leila St to Water St / Broad St	F
SR 228	SE City Limit (Wolfe Dr) to US 90	D
SR 228	W M Barber Rd to SE City Limit of Macclenny	D
SR 238	SR 231 to SR 100	D
SR 24	I-75 to NW 34th St	F
SR 24	Levy Co. Line to S. City Limit of Archer	D
SR 24	NE. City Limit of Archer to SW 122nd St (Urb Bnd)	E
SR 24	NW 34th St to SR 226 / SW 16th Ave	F
SR 24	SR 226 / SW 16th Ave to US 441 / W 13th Street	F

Table 7-12 | Future Congested Facilities, Continued

Future LOS	Future LOS	Future LOS
SR 24	US 27 to NE. City Limit (154th St)	F
SR 26	Alachua Co. Line to SR 21	D
SR 26	E. City Limit of Trenton to Alachua Co. Line	D
SR 26	N. City Limit of Fanning Springs to W. City Limit of Trenton	D
SR 26	Old SR 26 W to old SR 26 E	D
SR 26	SR 121 / NW 34 St to Gale Lemerand Dr	F
SR 26	US 301 to Putnam Co. Line	D
SR 26	SR 222 to US 301	D
SR 26	CR 337 / SW 266th St to SR 45	F
SR 26	I-75 to NW 8th Ave	F
SR 26	NW 76th Blvd to I-75	F
SR 26	NW 8th Ave to SR 26A	F
SR 26	SR 49 to E. City Limit (SE 7th Ct)	D
SR 26	Gale Lemerand Dr to US 441 / W 13th St	F
SR 26A	SR 121 / W 34th St to SR 26A / SW 21st Ter	F
SR 26A	SR 26A / 2nd Ave to SR 26 / University Ave	F
SR 312	SR 207 to US 1	F
SR 312	US 1 to SR A1A	F
SR 47	CR 240 to I-75	D
SR 5A	May Street to SR 16	F
SR 5A	Orange Street to May Street	F
SR A1A	CR 210 / Corona Rd to Solana Rd	F
SR A1A	CR 210 / Palm Valley Rd to CR 210 / Corona Rd	F
SR A1A	Solana Rd to Duval Co. Line	F
SR A1A	SR 206 to Owens Ave	F
SR A1A	St Johns Co. Line to 34th Ave	F
SR A1A	Bridge of Lions to State Hwy A1A	F
SR A1A	Harbor Dr to Coastal Hwy	F
SR A1A	San Marco Ave to Harbor Dr	F
SR A1A	Lime St to Centre St / Atlantic Ave	F
US 1	Castillo Dr to SR 16	F
US 1	CR 210 / Palm Valley Road to Duval Co. Line	D
US 1	King Street to Castillo Dr	F
US 1	San Marco Ave to N. City limit of St. Augustine	F
US 1	SR 16 to San Marco Ave	F
US 1	SR 207 to King Street	F
US 1	SR 312 to SR 207	F
US 1	Stokes Landing Road to CR 210 / Palm Valley Rd	F
US 1	Wildwood Dr to Lewis Point Rd	F
US 129	S. City Limits (Lavonia St) to SR 51	D
US 129	SR 51 to SR US 90	D
US 129	SR 51 to Palm St NE	D
US 17	CR-220 to Creighton Road	F
US 17	Creighton Road to Elbow Rd	F
US 17	Duval Co. Line to Urban Boundary (2700' S. of Harts Rd)	E
US 17	Elbow Rd to SR 224 / Kingsley Ave	F
US 17	N 1st Street to SR 20	F
US 17	N. City Limit of Pomona Park to W of Dunns Creek Bridge	D
US 17	Pages Dairy Road to Hamilton St	F
US 17	SR 20 to SR 100	E

Table 7-12 | Future Congested Facilities, Continued

Future LOS	Future LOS	Future LOS
US 17	SR 200/AIA to Pages Dairy Road	F
US 17	SR 224 / Kingsley Ave to Wells Rd	F
US 17	SR-16 to N. City Limit (.09 m N of Governor St)	F
US 17	Volusia Co. Line to S. City Limit of Crescent City (Junction Rd)	D
US 17	Yellow Bluff Rd to Nassau Co. Line	E
US 17	Edgewood Ave to McDuff Avenue	E
US 17	McDuff Ave S to I-10	F
US 17	Park St to Edgewood Ave	F
US 1A	I-95 to Emerson St Expy	F
US 221	SR 20 to N. City Limit (900' S. of CR 202)	D
US 27	Alachua Co. Line to SE City limit of Ft White	D
US 27	Centerville Ave to Suwannee Co. Line	D
US 27	NW 9th Street to SR 45	D
US 27	US 19 to SR 55	D
US 301	SR 100 to SR 16	D
US 301	SW City Limit (SE 146th St) to SR 100	D
US 41	SR 121 to S. City Limit Of Williston	D
US 41	CR 6 (Midtown turn of US 41) to SR 6	D
US 41	S City Limit of Jasper (13 St) to CR 6 (Midtown turn of US 41)	D
US 41	NB I-75 ramps to SR 238	D
US 441	I-75 to NW 173 Street	E
US 441	SR 26 / University Ave to SR 120 / N 23 Ave.	F
US 441	SR 10A / Baya Ave to US 90 / Duval St	D
US 441	Urban Boundary (800' S. of Malone St) to SR 10A / Baya Ave.	D
US 441	US 90 / Duval St to CR 100A	D
US 441	SR 24 / Archer Road to SR 26 / University Ave	F
US 90	Columbia Co. Line to I-10	D
US 90	CR 252 to I-75	D
US 90	CR 49 to Columbia Co. Line	D
US 90	I-10 to Urban Boundary of Live Oak	D
US 90	Lowder St to SR-121	D
US 90	SR 121 to SR 228	D
US 90	SR 228 to E. City Limit (3000' E of Dugger St)	D
US 90	Suwannee Co. Line to Birley Rd	D
US 90	Shores Rd to I-95	F
US 90	Kernan Blvd to Hodges Blvd	F
US 90	Penman Rd to 3rd Street	E
US 90	Southside Blvd to SR 9A	F
US 90	SR 228 to Southside Blvd	F
US 90	SR 9A to Kernan Blvd	F
US 90A	Girvin Rd to San Pablo Rd	F
US 90A	Monument Rd to SR 9A	F
US 90A	Ramp to A1A to W A1A Junction	F
US 90A	SR 9A to St. Johns Bluff Rd	F
US 90A	St Johns Bluff Rd to Girvin Rd	F
US 90A	W A1A Junction to Third St (E A1A Junction)	F
US 90A	SR 212 / Beach Blvd to Atlantic Blvd	F
US 90A	19th St to 34th St	F
US 90A	Beach Blvd to 19th St	F
US 90A	Seagate Ave to Beach Blvd	F
US 90A	SR 10 / Atlantic Blvd to Seagate Ave	E

Source: FDOT Level of Service Report

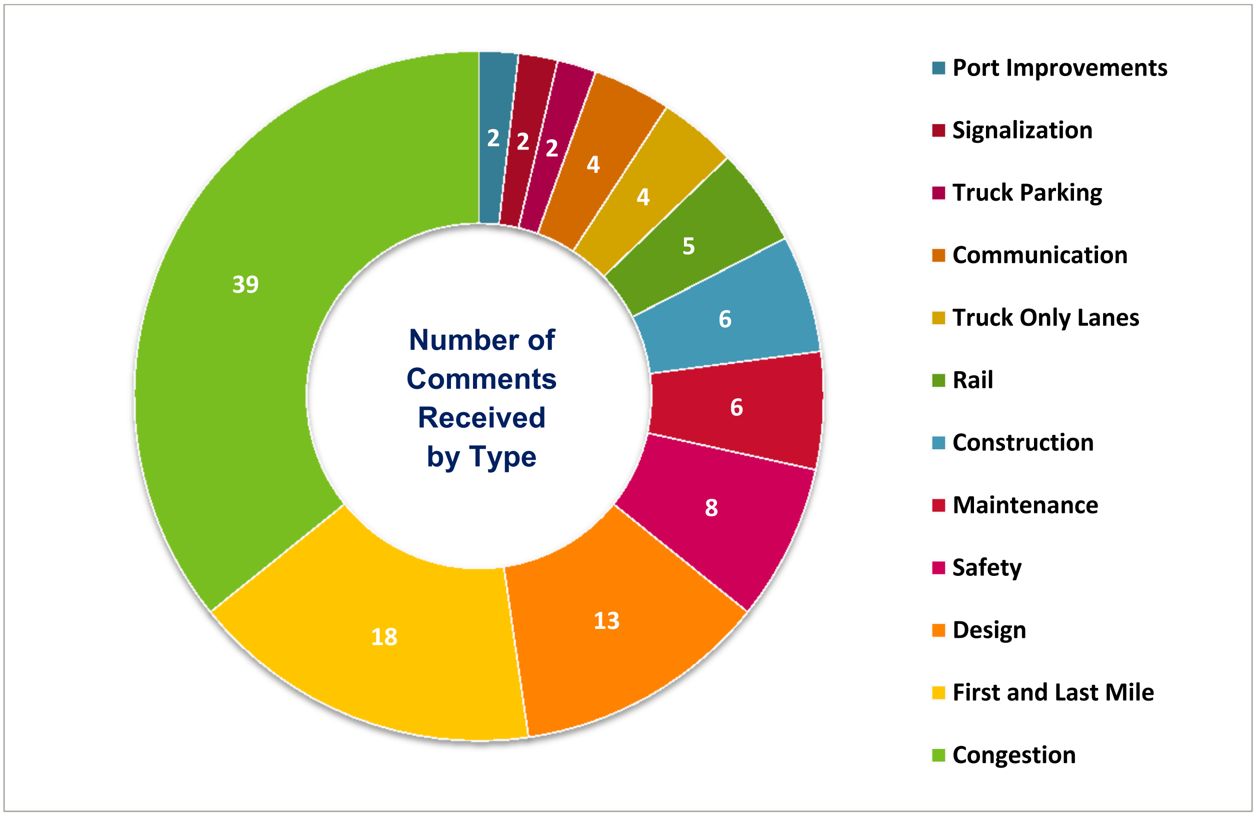
Freight Industry Stakeholder Input

Understanding freight stakeholder's challenges helps identify the types and locations of projects which are most beneficial to stakeholders. *Technical Memorandum 2: Stakeholder Coordination* documents the full engagement process and feedback received while the following subsections summarize key findings and feedback.

Industry Survey Findings

A total of 109 freight improvement related comments were received, which includes multiple comments by the same stakeholders. ***Figure 7-19*** shows the comment categories and the number of comments per category. Congestion was the most common issue followed by first and last mile issues and design (turning radius, ramp length, etc.).

Figure 7-19 | Freight Industry Stakeholder Feedback Comment Categories



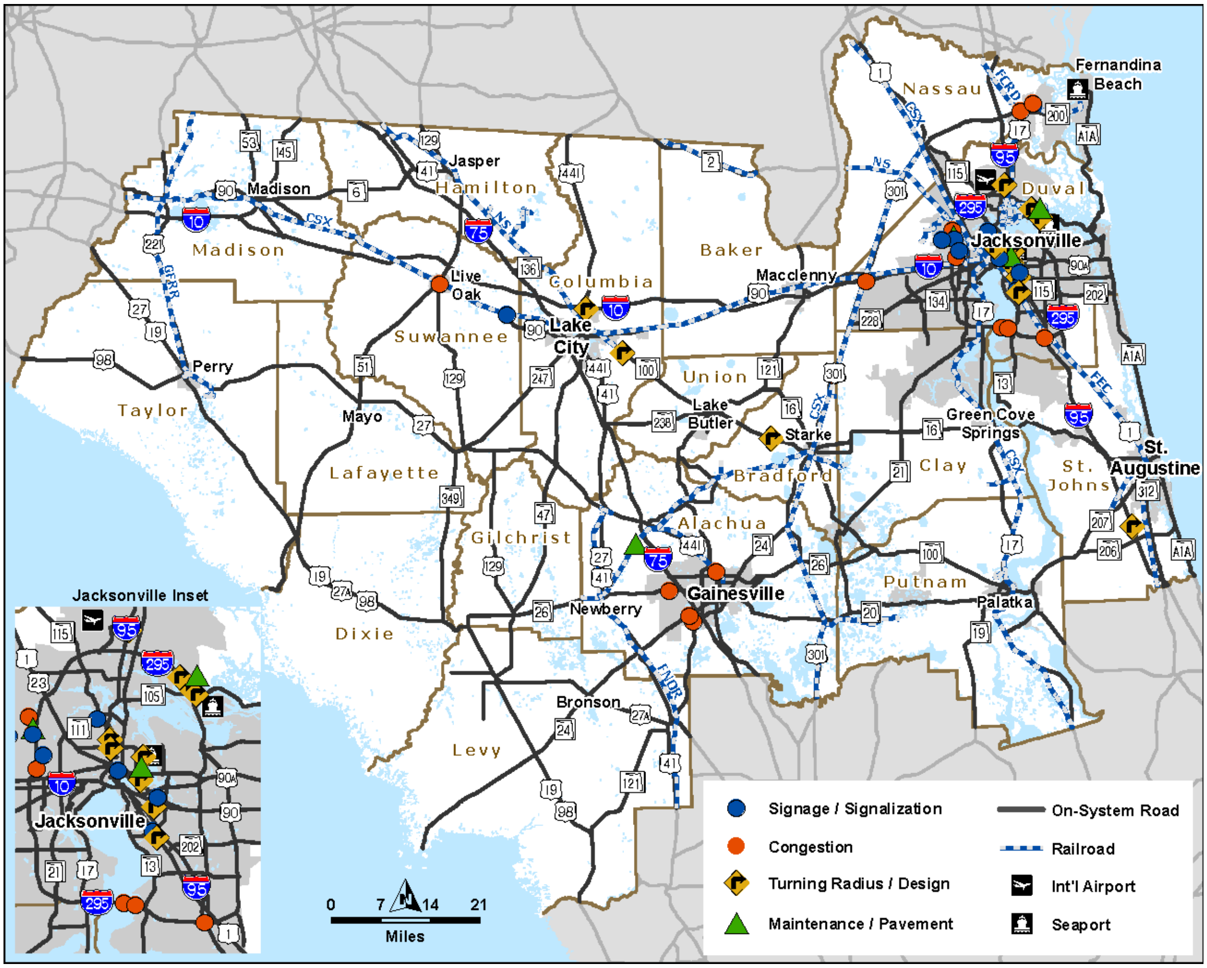
Source: Stakeholder Meetings, Surveys, and Comment Map Findings

Interactive Map Feedback

Comments with a specific location were mapped according to the four comment categories (Crossing/Signalization, Maintenance/Pavement Condition, Turning Radius/Design, and Bottleneck/Congestion) from the interactive website map. ***Figure 7-20*** displays the locations and generalized feedback received from industry input. Recurring congestion were identified by stakeholders as a global and location specific issue while signalization and operational issues on first and last mile connectors were also frequently noted.

In some cases, stakeholder feedback pertained to facilities outside the jurisdiction of FDOT, in those instances; additional coordination will be required with local transportation planning officials to validate input and follow through with the most appropriate solution.

Figure 7-20 | Freight Industry Stakeholder Map Findings



Source: Stakeholder Meetings, Surveys, and Comment Map Findings

Intermodal Hub Connections

A key part of the study effort has been to identify existing and near-term needs that have significant impact on freight movements. These types of needs often include congested or inefficient intermodal connectors and arterials serving historical and newly developed industrial and commercial areas. Focusing on these types of traffic impediments often leads to significant improvements to freight mobility and reductions in community impacts at relatively low cost. Additionally, improving throughput on these facilities reduces pressure on other nearby local and regional roadways which yields benefits to all system users.

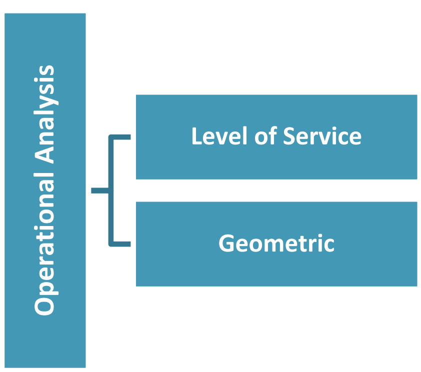
Intermodal facilities provide critical connections between freight nodes and their users. Based on the feedback received from stakeholders, it is evident that first-mile/ last-mile operational issues are of critical concern. To better understand these challenges, an operational analysis to identify immediate first-mile/ last-mile issues and potential solutions was conducted and documented in *Section Six: First-Mile/Last-Mile Connections.*

Virtually all of these facilities lie along major arteries and the interstate system. The objective is to ensure the connections to those arteries and interstates can accommodate efficient truck operations and significant truck volumes while balancing local land use context.

Approach

Based on Northeast Florida's existing intermodal hubs and major freight activity centers, critical first-mile/ last-mile freight connections were identified in coordination with FDOT. These segments underwent an existing conditions analysis and an initial operational evaluation: level of service, safety, and geometric review. In addition to the preliminary analysis, surrounding land use impacts and freight context were also incorporated into the preliminary analysis to better understand and identify capacity, operational, and safety needs.

Findings from the initial analysis were subsequently pared down to identify the top 13 intersections for detailed operational analysis. Intersection level traffic operational analyses were conducted using *Synchro* and measurements of existing geometric conditions in order to identify improvement needs. Geometric conditions such as turn radius, queue length, and storage were reviewed and associated improvement needs identified. Safety improvements identified include FHWA proven intersection countermeasures.



Summary of Operational Analysis

7 Freight Connections Studied

13 *Intersections Analyzed*

15 *Preliminary Operational Findings Identified*

Key Findings

Based on the methodology and study approach, ***Table 7-13*** summarizes the LOS and geometric findings identified throughout *Section Six: First-Mile/Last Mile Connections.*

Table 7-13 | Summary of First-Mile/Last Mile Preliminary Findings

Freight Connection	Location	Type	Preliminary Findings
Alachua Area	CR 235 at CR 235A	Geometric	The westbound to northbound left-turn and southbound to eastbound right-turn are sub-standard and deficient due to angle of intersection. The railroad crossing would likely need to be modified to address the issue.
Lake City (I-10) Area	US 41 at I-10 EB Ramps	LOS	Extend the southbound US 41 two through lanes at the I-10 interchange beyond NW Falling Creek Road (north of I-10) and NW Valdosta Road (south of I-10) with full US 41 left-turn lanes at NW Falling Creek Road and NW Valdosta Road intersections.
	US 41 at I-10 EB Ramps	Geometric	Deficient EB to NB left turn can be fixed by pulling the separator nose back north.
	US 41 at WB Ramps	Geometric	Deficient NB to WB left turn can be fixed by pulling the separator nose back north.
	US 441 at I-10 EB and WB Ramps	Geometric	No turn deficiencies. Yield/merge on the on-ramps appears to be the issue (may need to widen ramps to allow for running distance prior to merge).
FEC Intermodal Terminal Area	US 1 at Cypress Plaza Dr	LOS	Re-alignment of Cypress Plaza Drive eastbound and westbound approaches with the provision of westbound through lane.
	SR 152 at Bayberry Rd	Geometric	The returns can be flattened to improve the right turning movements; however, the mast arm signals and inlets in all 4 quadrants would be impacted.
	US 1 at Bay Center Rd	Geometric	The returns can be flattened to improve the right turning movements; however, the mast arm signal in the NE quadrant would be impacted.
	US 1 at Cypress Plaza Dr	Geometric	The right turn from Cypress Plaza to US 1 NB is a double right but the semi-truck/commercial vehicle would need both lanes to make the maneuver. If the return was flattened, the mast arm signal in the corner would be impacted.

Table 7-13 | Summary of First-Mile/Last Mile Preliminary Findings, Continued

Freight Connection	Location	Type	Preliminary Findings
CSX Intermodal Terminal Area	Pritchard Rd at Sportsman Club Rd	LOS	Southbound left-turn lane needs to be extended to accommodate larger vehicles and additional turning movements.
	Pritchard Rd at Sportsman Club Rd	Geometric	The returns can be flattened to improve the three substandard right turning movements; however, the mast arm signals in these quadrants would be impacted.
North New Berlin Area	New Berlin Rd at Faye Rd	Geometric	Northbound to Westbound left turn can be improved by moving the stop bar back west on Faye Road. Right turns can be improved by flattening curves (widening may require additional right of way).
SR 207 / Talleyrand Area	SR 207 WB at I-95 NB Ramps	Geometric	No turn deficiencies. Yield/merge on the on-ramps seems to be the issue (may need to widen ramps to allow for running distance prior to merge).
JAXPORT (SR 228) Area	Emerson St at Spring Park Rd	LOS	Extend the eastbound Emerson St left-turn lane at the Spring Park Rd intersection by removing the left-turn lane (prohibit left-turn movement) from Emerson St to Abby Ln (west of Spring Park Rd intersection).
	Emerson St at Spring Park Rd	Geometric	All turns movements are insufficient; intersection angle is 66 degrees which is the origin of the geometric deficiency.

Source: Section Six: First-Mile/Last-Mile Connections

Interstate Highway and Interchanges

Recurring congestion along the interstate highway system significantly impacts reliable freight movement. These issues are not unique to Northeast Florida; congestion and travel time "un-reliability" are State and National concerns. While these limited access facilities are isolated from local traffic and utilize controlled traffic flow separation, the interstate highway system is still subject to environmental and user factors. Safety incidents, time of day travel demand (peak period congestion), and development patterns affect the utilization of the interstates while special events and work zones also cause non-recurring, though notable, impacts.

Comparing Northeast Florida's Interstate Highway Facilities

Northeast Florida is transected by four Interstate Highways: I-10, I-75, I-95, and I-295. Each of these facilities is designated as a SIS Corridor and has been identified on the National Primary Highway Freight Network (PHFN). As an element of Section Six: Regional Freight Infrastructure, highway corridor profiles were developed to provide a comprehensive overview of each facility's characteristics and overall performance. The information found in ***Table 7-14*** through ***Table 7-16*** compares and contrasts the characteristics and performance of Northeast Florida's Interstate Highway System.

Table 7-14 | Northeast Florida Interstate Comparison: Mobility Data, 2015

	Centerline Miles	Lane Miles	Daily VMT	2015 AADT *(weighted by length)*	2015 Truck Percent	2040 AADT *(weighted by length)*	Percent Growth *(2015 to 2040)*
10	126.5	532.1	3,530,300	27,782	23%	40,136	45%
75	98	588	4,365,010	44,523	22%	56,985	28%
95	85	512	6,952,053	75,124	11%	115,602	54%
295	61	312	4,649,359	76,389	11%	107,272	40%

Source: FDOT Roadway Characteristics Inventory and District Two LOS Report

Table 7-15 | Northeast Florida Interstate Comparison: Safety Data, 2011-2016

	Total 2011 - 2016			Commercial Vehicle 2011 - 2016		
	Crashes	Injuries	Fatalities	Crashes	Injuries	Fatalities
Interstate 10	5,907	3,018	66	688	237	12
Interstate 75	4,910	2,749	81	784	452	26
Interstate 95	13,189	6,605	100	1,177	572	23
Interstate 295	12,403	6,068	84	545	237	14

Source: Signal Four Crash Database, 2011-2016

Table 7-16 | Northeast Florida Interstate Comparison: Commodity Data, 2015

	Total Tons	Total Value	Top Three Commodities	Top Three Origins	Top Three Destinations
Interstate 10	60,751,862	$130 Billion	1) Warehoused Goods, 2) Liquefied Gas/Coal/Petroleum, 3) Concrete Products	1) Duval County, FL 2) Los Angeles, CA 3) Houston, TX	1) Miami-Dade, FL 2) Duval County, FL 3) Broward County, FL
Interstate 75	76,422,038	$161.5 Billion	1) Warehoused Goods, 2) Liquefied Gas/Coal/Petroleum, 3) Citrus Fruits	1) Miami-Dade, FL 2) Atlanta, GA 3) Los Angeles, CA	1) Miami-Dade, FL 2) Broward County, FL 3) Orange County, FL
Interstate 95	68,225,476	$157.5 Billion	1) Warehoused Goods, 2) Concrete Products, 3) Citrus Fruits	1) Duval County, FL 2) Savannah, GA 3) Miami-Dade, FL	1) Duval County, FL 2) Miami-Dade, FL 3) New York, NY
Interstate 295	42,582,722	$105.5 Billion	1) Warehoused Goods, 2) Concrete Products, 3) Citrus Fruits	1) Savannah, GA 2) Charleston, SC 3) Miami-Dade, FL	1) Miami-Dade, FL 2) New York, NY 3) Broward County, FL

Source: IHS Global Insight: Transearch, 2015
Note: Top Commodities, Origins, and Destinations based on total commodity volume/tonnage.

At-Grade Rail Crossings

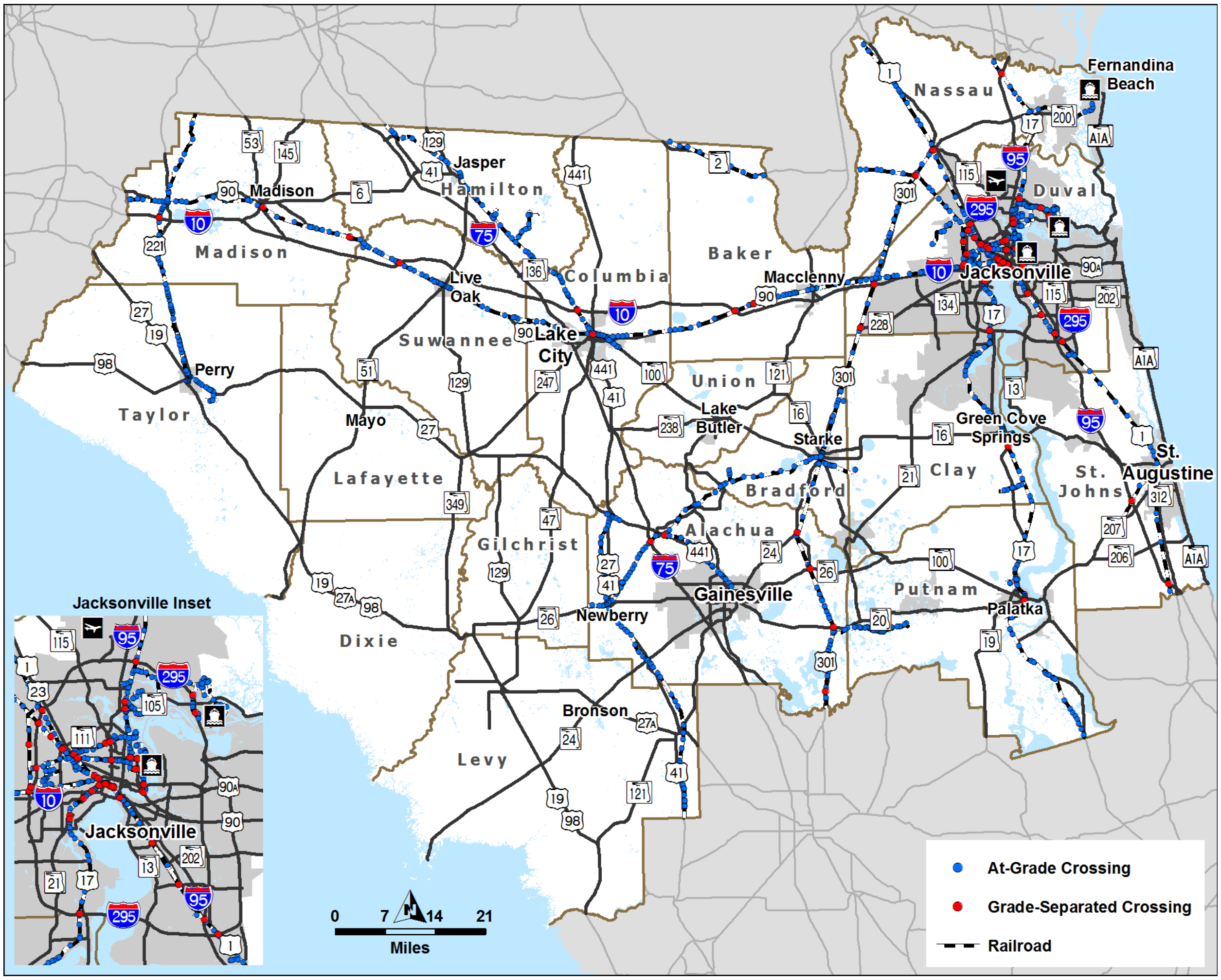
At-grade rail crossings are a concern for local communities throughout Northeast Florida but especially in the more urbanized areas. These crossings not only impact freight and passenger mobility but they also create safety and environmental concerns. With rail freight projected to increase overall in the region, the delays and safety issues arising as a result of at-grade crossings will also continue to grow. ***Table 7-17*** identifies the total number of at-grade rail crossings within Northeast Florida by County and Railroad Owner while ***Figure 7-21*** on the following page depicts rail crossing locations throughout the region. It is important to note that only at-grade crossing are identified in the table below even though Northeast Florida contains 87 grade-separated rail crossings, which accounts for approximately 7 percent of total railroad crossings within the region.

Table 7-17 | Railroad Crossings by County in Northeast Florida, 2015

County	Number of At-Grade Crossings							Total
	CSX	NS	FEC	FCRD	FNOR	GFRR	TTR	
Alachua	101	-	-	-	43	-	-	**151**
Baker	28	9	-	-	-	-	-	**37**
Bradford	51	-	-	-	-	-	-	**51**
Clay	50	-	-	-	-	-	-	**50**
Columbia	21	39	-	-	-	-	-	**60**
Dixie	-	-	-	-	-	-	-	**-**
Duval	282	59	27	-	-	-	10	**378**
Gilchrist	-	-	-	-	-	-	-	**-**
Hamilton	-	60	-	-	-	-	-	**60**
Lafayette	-	-	-	-	-	-	-	**-**
Levy	-	-	-	-	19	-	-	**19**
Madison	29	-	-	-	-	29	-	**58**
Nassau	38	9	-	28	-	-	-	**72**
Putnam	73	-	-	-	-	-	-	**73**
St. Johns	-	-	24	-	-	-	-	**24**
Suwannee	42	-	-	-	-	-	-	**42**
Taylor	-	-	-	-	-	58	-	**58**
Union	-	-	-	-	-	-	-	**-**
Total	**712**	**176**	**51**	**28**	**62**	**87**	**10**	**1,133**

Source: FDOT Rail Highway Crossing Inventory

Figure 7-21 | Railroad Crossings in Northeast Florida, 2015



Source: FDOT Rail Highway Crossing Inventory

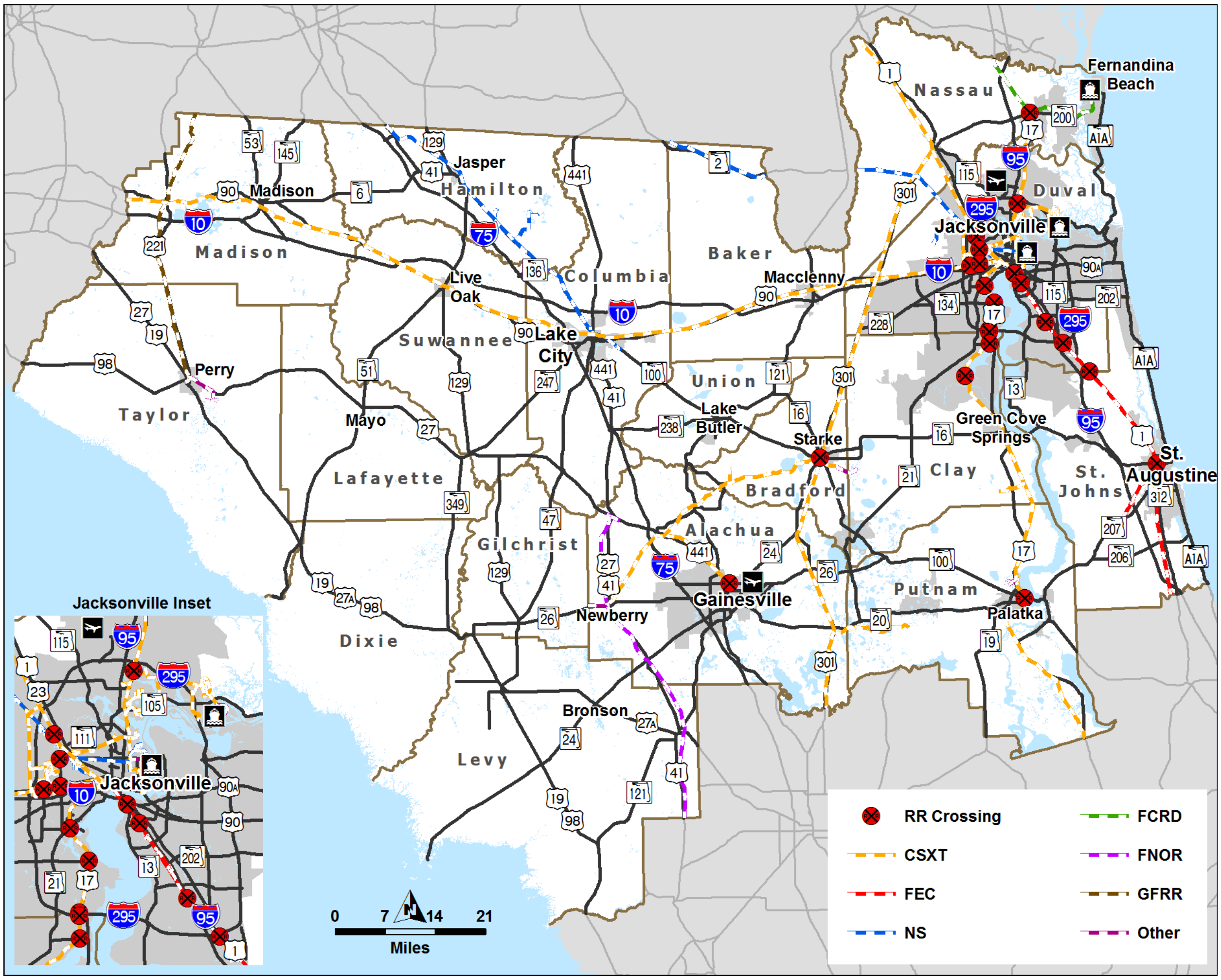
Table 7-18 displays the top 20 at-grade rail crossings in terms of annual average daily traffic (AADT). The majority of the top 20 high volume at-grade rail crossings are located within Duval County. Many of the roadway-rail crossings are located on the State Highway System. ***Figure 7-22*** illustrates the locations of these top locations throughout Northeast Florida.

Table 7-18 | Top Railroad Crossings by AADT in Northeast Florida, 2015

ID #	Roadway Crossing	2015 AADT	County	Railroad
627460M	US-301 / S WALNUT ST	31,000	Bradford	CSX
620917F	CR-220	29,000	Clay	CSX
621188U	SOUTEL DR	27,000	Duval	CSX
271844H	SR-16	26,000	St. Johns	FEC
621275X	SR-111 / EDGEWOOD AVE	25,500	Duval	CSX
620903X	SR-224 / KINGSLEY AVE	25,000	Clay	CSX
627036T	SR-222 / NW 39TH AVE	25,000	Alachua	CSX
620901J	WELLS RD	24,000	Clay	CSX
620968R	US-17 / REID ST	24,000	Putnam	CSX
621248B	SR-111 / N EDGEWOOD AVE	22,500	Duval	CSX
620822X	SR-A1A / SR-200	20,300	Nassau	CSX
620891F	SR-134 / TIMUQUANA RD	20,000	Duval	CSX
271824W	CR-116 / SUNBEAM RD	19,500	Duval	FEC
620858F	US-17 / SR-5 / N MAIN ST	19,100	Duval	CSX
271816E	ATLANTIC BLVD	19,000	Duval	FEC
271831G	RACE TRACK RD	19,000	Duval	FEC
271829F	GREENLAND RD	18,500	Duval	FEC
621223F	SR-128 / SAN JUAN AVE	18,300	Duval	CSX
620619F	SR-103 / LANE AVE	17,800	Duval	CSX
271819A	SR-126 / EMERSON ST	17,600	Duval	FEC
620899K	COLLINS RD	17,600	Duval	CSX

Source: FDOT Rail Highway Crossing Inventory and FDOT Roadway Characteristics Inventory

Figure 7-22 | Top Railroad Crossings by AADT in Northeast Florida, 2015



Source: Florida Geographic Data Library

Community Impacts

Goods movement is vital to supporting the region's economy and quality of life. However, growth in goods movement activities (from manufacturing to commercial vehicle traffic) also gives rise to negative community impacts. In addition to safety and air quality concerns, freight activities can cause excessive noise and vibration along significant freight movement corridors. As population continues to grow and expand throughout the region, so will commercial centers, leading to more widespread dispersion of freight-intensive impacts such as increased commercial vehicle traffic.

Safety issues are probably the most visible impact associated with freight activities, largely related to increasing commercial vehicle traffic and the risk of potential or perceived incidents. The freight industry is also associated globally with pollution, especially emissions of criteria pollutants, air toxics, and greenhouse gases; and is a particularly significant source of nitrogen oxides and particulate matter due to the prevalence of diesel engines. This includes emissions from both mobile sources, such as semi-trucks, and stationary sources such as rail yards. Newer equipment and advanced technologies are tools to reduce community impacts associated with freight movement.

Congestion

Congestion is a major issue in many metropolitan regions. The extent of the effects congestion can have are not limited to delays and the economic cost of fuel and time wasted; traffic congestion can have a number of effects on drivers, the environment, and health. A high concentration of idling engines produces a large volume of air pollutants and increases the exposure of these pollutants to the occupants of vehicles and residents in surrounding areas.

Congestion issues are generally concentrated on the region's highway system which primarily affects the movement of goods by truck. The majority of Northeast Florida's highway network currently operates at LOS B and C while only segments within the urban core experience LOS D though F during peak hours. Congestion is caused by a compilation of factors and conditions, including passenger vehicles, freight vehicles, roadway design, weather, and crashes. The movement of freight does contribute to congestion; this is partially because the highways that comprise the most significant freight routes also are major commuter corridors. Some of these corridors (such as I-95, I-75 and I-295) experience more than 10,000 trucks daily.

Safety

Safety is equally important to the private freight industry and to the traveling public. Primary safety concerns related to freight movement include the risk increasing factors of crashes, the movement of hazardous materials, and security concerns. In addition, the clearance time of commercial vehicle involved crashes is likely to be longer, leading to increased delay for all system users

Air Quality
Emissions from the movement of all vehicles can have impacts on public health, property, and the natural environment. From a public health standpoint, there are six common air pollutants defined as “criteria pollutants” by the U.S. Environmental Protection Agency (EPA) and the Clean Air Act (CAA): 1) Ozone (O_3); 2) $PM_{2.5}$ and PM_{10}; 3) Carbon Monoxide (CO); 4) NO_x; 5) Sulfur Dioxide (SO_2); and 6) Lead (Pb). Emissions generated from freight and automobile movement also lead to the formation of O^3 (Ozone). Ozone is formed when emissions of NOx chemically react with volatile organic compounds (VOC) under conditions of heat and light (i.e., sunshine). Ozone is linked to a variety of public health impacts, including chest pain, coughing, throat irritation, and congestion. Long-term exposure can worsen existing afflictions like asthma or bronchitis, or even lead to permanently scarred lung tissue.

Land Use

Given the desire for industrial, warehouse, and distribution activities and associated economic opportunities to continue to grow in the Northeast Florida region it is important for municipalities, counties, and the region to plan for these activities to appropriately balance community impacts. Moreover, it is important for those who shape urban design through municipal and regional policies and plans to provide guidance for accommodating these activities. When structured appropriately, such guidance can help reduce the sprawl of freight activities by developing goods and trade related distribution facilities within existing transportation corridors and areas. This can also help ensure a balance between the movement of people and the movement of goods across key corridors in the region and create an environment that enhances economic competitiveness and sustainability. Given the significance of logistics and distribution in the Northeast Florida economy, it is vital that logistics and distribution companies continue to be attracted to the region and be able to operate efficiently in the future.

Inter-Regional Approach to Freight Planning

The freight mobility, safety, and operational assessment revealed many needs across a wide range of issues and potential solutions. While there is variety among the types of needs, ranging from new capacity to improved operations to integrated land-use, there is one core theme – the need for a regional approach to freight mobility and all the planning factors that impact the intermodal freight transportation system.

Because of the interstate and intra-regional nature of freight movement, bottlenecks or inefficiencies in one local community can have impacts on freight mobility throughout the 18-county region. Ensuring reliable freight mobility throughout the region requires addressing the needs and issues at a regional scale and implementing them at the local level. Given the role of MPOs, TPOs and the District as regional planning and implementation bodies, they have access to resources to assist local government partners in developing and implementing local plans. It is through these resources that regional planning agencies can influence and promote planning to accommodate and enhance freight mobility while providing an environment for reliable and efficient operations.

Section Eight:

Decision Making Process

Introduction

This section describes the key inputs and processes utilized in forming recommendations and strategies for the Northeast Florida Freight Movement Study. To establish support for the Study's recommendations through the creation of a transparent policy, program and project identification process, it is vital to outline the decision-making method that led to the recommendations. Multiple factors and resources come into account when strategizing and making decisions regarding how to identify and implement freight improvements in Northeast Florida.

Outreach, coordination, analysis, and various programs are all employed to identify solutions, strategies, and improvements considered essential for the continued efficient movement of freight in, out, and through the Region. While described in detail in previous sections, a holistic approach was undertaken including a thorough stakeholder engagement process, the review of existing plans and policies, and a comprehensive freight transportation system analysis. These activities ensured public and private industry planning consistency and alignment with new federal and state transportation initiatives.

Stakeholder Engagement and Input

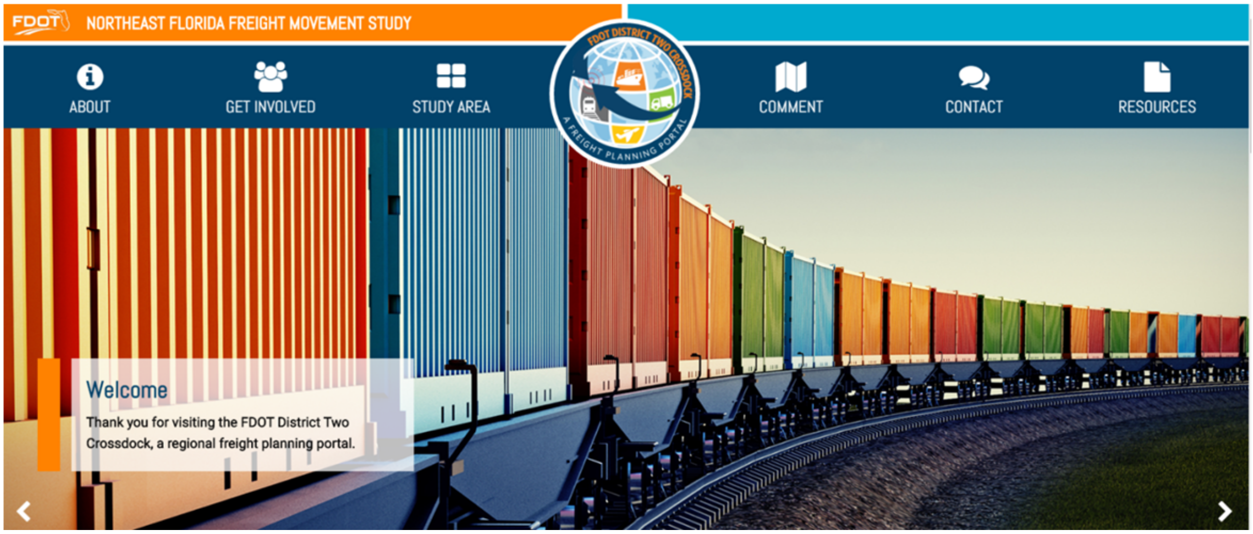
Utilizing input from freight stakeholders and the general public is crucial for the development of strong plans and implementation of successful strategies. FDOT understands the need for coordination between the public and private sectors to address challenges and recognize opportunities in the freight transportation system. It was crucial to engage people who use the freight network every day, on all levels and all modes. The success of the Study depends on responding to real challenges and opportunities, as well as recommendations that are supported by private and public sector interests.

Stakeholders played a critical role in identifying issues, proposing solutions and supporting freight infrastructure improvements and policies. FDOT's stakeholder engagement process created and coordinated opportunities for direct dialogue between local, regional, state, and private-industry stakeholders. The Study offered multiple opportunities for all stakeholders to provide input about freight transportation issues, needs, challenges, opportunities and potential strategies for implementation. FDOT employed a multi-faceted outreach process to engage stakeholders from diverse modes and geographies throughout the Northeast Florida region.

Understanding freight stakeholder's challenges helps identify the types and locations of projects which are most beneficial to stakeholders. *Technical Memorandum 2: Stakeholder Coordination* documents the full engagement process and feedback received, while the following subsections summarize key findings and feedback.

Study Website

A Study website was created to serve as an online information center providing study related information and related resources, opportunities to participate, and as a means of providing feedback. The website was designed for use beyond the current study to provide a mechanism for making the Study a living resource and implementing follow-up actions. The website, www.fdotd2crossdock.com, also provided direct access to the online survey and interactive web map discussed later in this section. The website was created to be compatible across most common systems (mobile, personal computer, Apple, Android, etc.), including mobile-friendly single long-page design and the ability to adjust dynamically and automatically to any device.



Forums

FDOT District Two held its inaugural Northeast Florida Freight Movement Forums on January 25, 2017 at the FDOT District Two District Office in Lake City and on January 31, 2017 at the FDOT District Two Urban Office in Jacksonville. The forums lasted three and a half hours and had identical agendas. The only difference was that the Major Projects Update piece focused on the respective location of the meeting. The purpose of hosting two meetings was to give stakeholders located throughout the district two convenient location choices. At the Lake City Forum there were a total of 50 attendees with 15 from the freight and logistics industry. The other 35 attendees were speakers, consultants, and FDOT employees. At the Jacksonville Forum there were a total of 57 attendees with 28 from the freight and logistics industry.

In order to provide benefit to industry and draw more stakeholders to the forums, multiple speakers were invited to present including the Florida Highway Patrol and Commercial Vehicle Enforcement, the FDOT Motor Carrier Size and Weight Program, the Office of Agricultural Law Enforcement, the Florida Highway Patrol Cargo Theft Task Force, and the Florida Trucking Association. During break times, an interactive comment map was pulled up on the screens and attendees were encouraged to provide general infrastructure and location-based feedback.

Stakeholder Online Surveys

Stakeholders were identified through the Florida Trucking Association membership list for FDOT District Two and through industry knowledge and relationships. With such a large group of interested stakeholders, it was not feasible to meet with each one individually. Thus, an online survey was also developed and deployed to reach and receive feedback from all interested parties. The online survey was sent directly to nearly 200 stakeholders and was forwarded on by several partners to their contacts, including the North Florida Logistics Advisory Group, reaching a total of over 300 stakeholders.

Survey questions were focused around industry partnership opportunities, existing and foreseeable infrastructure-related challenges, and ultimately how FDOT and District Two staff could be of assistance in addressing and solving the challenges being faced. A total of 26 surveys were collected. Of these, seven were only partially completed and three were duplicative from stakeholders who also participated in an individual meeting.

Individual Stakeholder Meetings

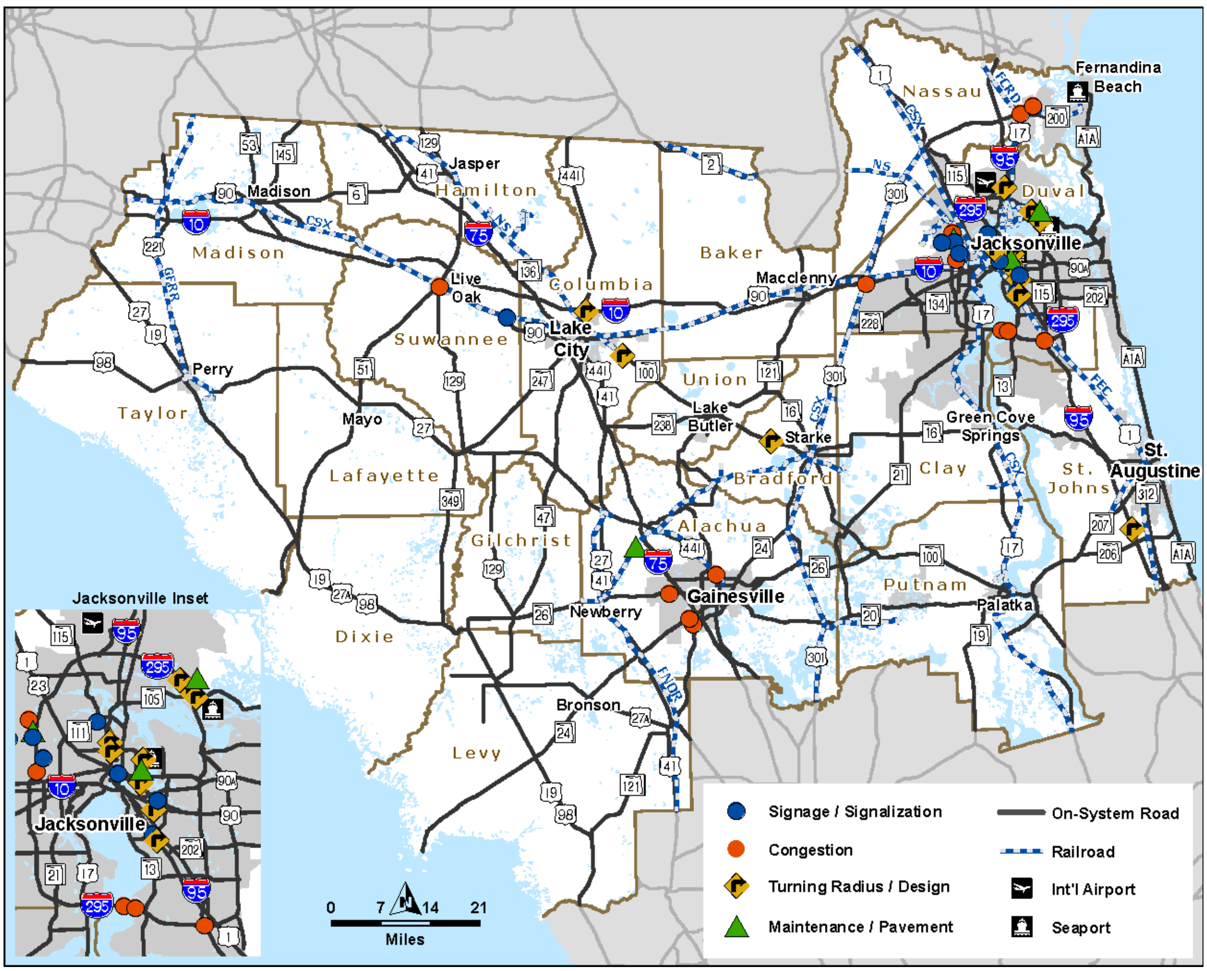
In addition to the large group forums, the FDOT District Two Freight Coordinator, along with a consultant team member, conducted 26 one-on-one meetings with representatives from the freight industry, trade associations, and from state, county and local agencies, as well as law enforcement and State regulatory agencies. A detailed list of these stakeholders can be found *in Technical Memorandum 2: Stakeholder Coordination, Appendix A*. The purpose of the one-on-one meetings was to gain a comprehensive understanding of the desired objectives of each stakeholder, their challenges and opportunities, synergies for partnership, and how the Study could bring value to them.

To guide discussion and to serve as a checklist of information needed, an interview questionnaire was created. In preparation for each meeting, the study team also developed a summary sheet for each stakeholder based on available plans, maps, and websites. The purpose of the summary sheet was to provide a basic and preliminary understanding of the stakeholder's needs. It also summarized initial survey responses and study findings. In some cases, the interview questionnaire was adapted based on the preparatory stakeholder research to better focus the discussion and eliminate unnecessary or irrelevant topics.

Interactive Web-Based Comment Map

As a method of identifying location-specific infrastructure challenges and reaching out to daily freight system users, an interactive web-based comment map was developed and incorporated as an element of the Study's website. The map application allowed users to pinpoint areas of concern, specify the type of issue (signalization, congestion, infrastructure conditions, access concerns, and design-related issues), and to provide additional details about the operational challenge. Recurring congestion was identified by stakeholders as a regional and location-specific issue while signalization and operational issues on first and last mile connectors were also frequently noted. ***Figure 8-1*** displays the input received from the interactive web-based comment map. In some cases, stakeholder feedback pertained to facilities outside of the jurisdiction of FDOT; in those instances, additional coordination will be required with local transportation planning officials to validate input and follow through with the most appropriate solution.

Figure 8-1 | Interactive Web-Based Comment Map Findings

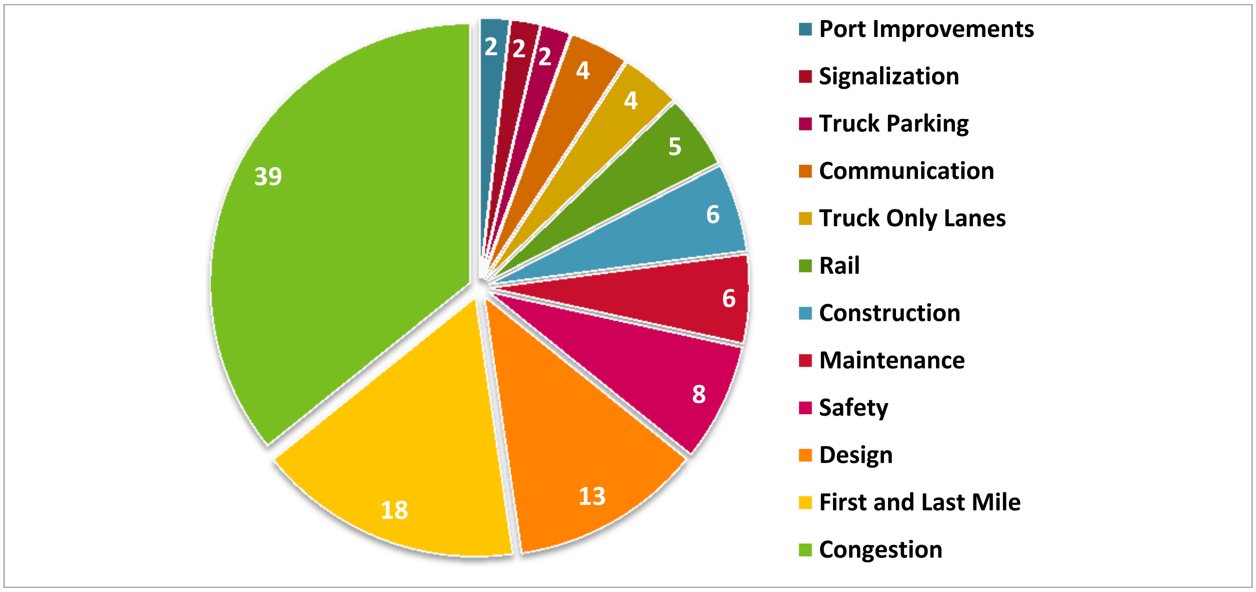


Source: Stakeholder Meetings, Surveys, and Comment Map Findings

Summary of Stakeholder Feedback

A total of 109 freight improvement related comments were received, which includes multiple comments by the same stakeholders. ***Figure 8-2*** shows the comment categories and the number of comments per category. Congestion was the most common issue followed by first and last mile issues and design challenges (turning radius, ramp length, etc.), and safety concerns.

Figure 8-2 | Summary of Freight Industry Stakeholder Feedback



Source: Stakeholder Meetings, Surveys, and Comment Map Findings

Trade Lanes

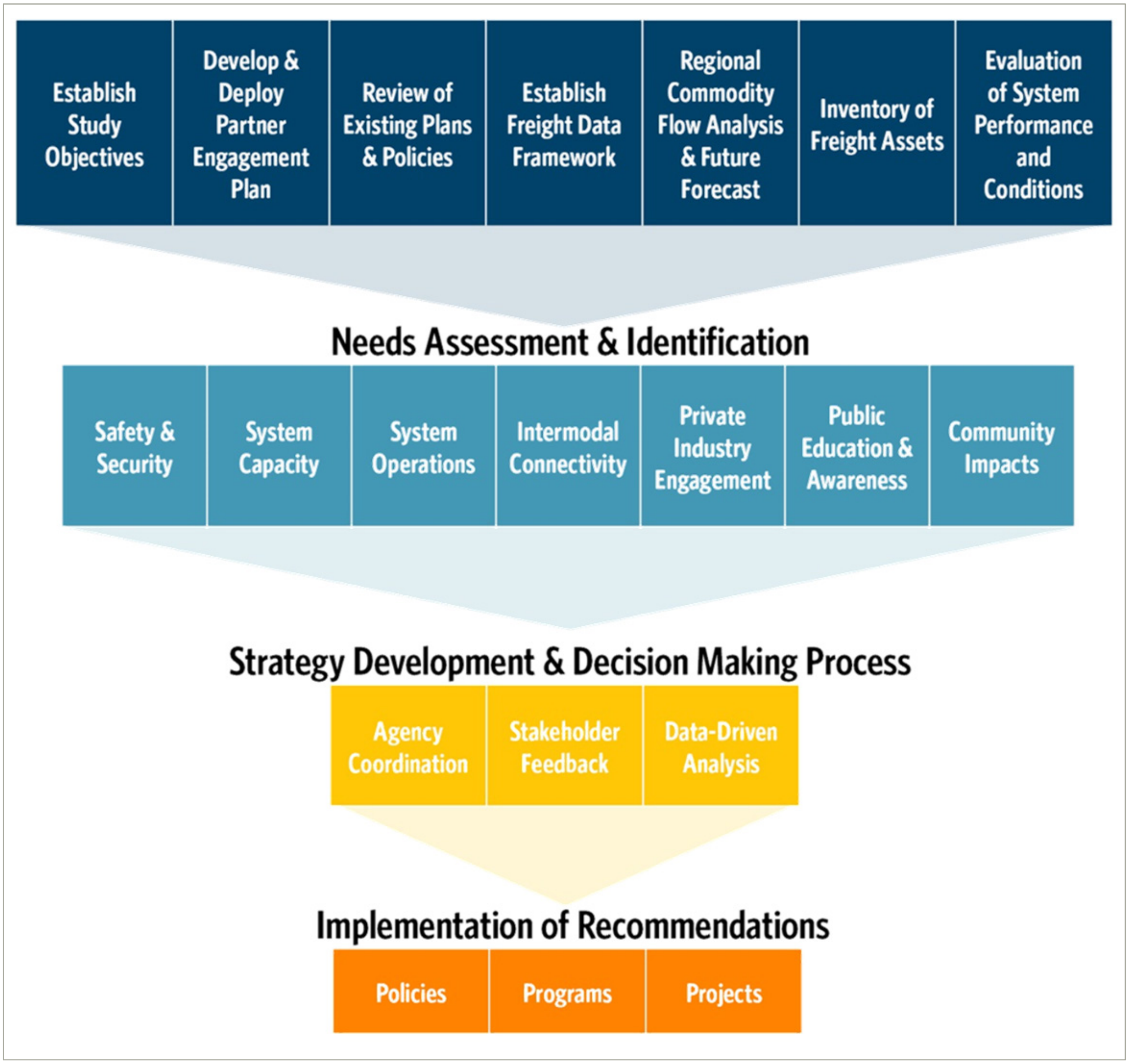
Stakeholders were asked what trade lanes they use to help paint a picture of freight movement in FDOT District Two and supplement the data analysis in other technical memoranda produced for the Northeast Florida Freight Movement Study. Of the 26 interviews, 10 private companies identified their frequently used trade lanes, and the Florida Trucking Association and Florida Forestry Association (FFA) listed facilities that are commonly used by their members. Economic and planning agencies did not respond to this question and a few stakeholders did not have the information readily available. Of note, the FFA stated that log trucks typically use only state roads because they can obtain a permit to carry 88,000 pounds as opposed to the 80,000 pound restriction on interstates. The common trade lanes within FDOT District Two used by the stakeholders are noted below.

- I-10
- I-75
- I-95
- I-295
- US 17
- US 19
- US 27
- US 40
- US 41
- US 98
- US 129
- US 221
- US 301
- US 441
- SR 2
- SR 6
- SR 16
- SR 19
- SR 26
- SR 100
- SR 121
- SR 200
- SR 326

Identification and Recommendation Process

FDOT District Two can improve the productivity and reliability of the movement of freight in and through Northeast Florida through the identification and implementation of freight improvement policies, programs, and projects. The identification, strategy development and recommendation process documented freight needs based on various inputs and guidelines, including the objectives of the Study and the identification of the Florida Strategic Intermodal System and the National Highway Freight Network, as illustrated in ***Figure 8-3***.

Figure 8-3 | Development and Selection Process



Stakeholder engagement occurred throughout the Northeast Florida Freight Movement Study development process and provided freight industry users with an opportunity to identify needs and recommendations for improvement. To provide specific strategies for achieving a particular policy, the recommendations are broken down into policies and associated programs and projects. Each of these recommendations is detailed in *Section Nine: Implementation Guide.*

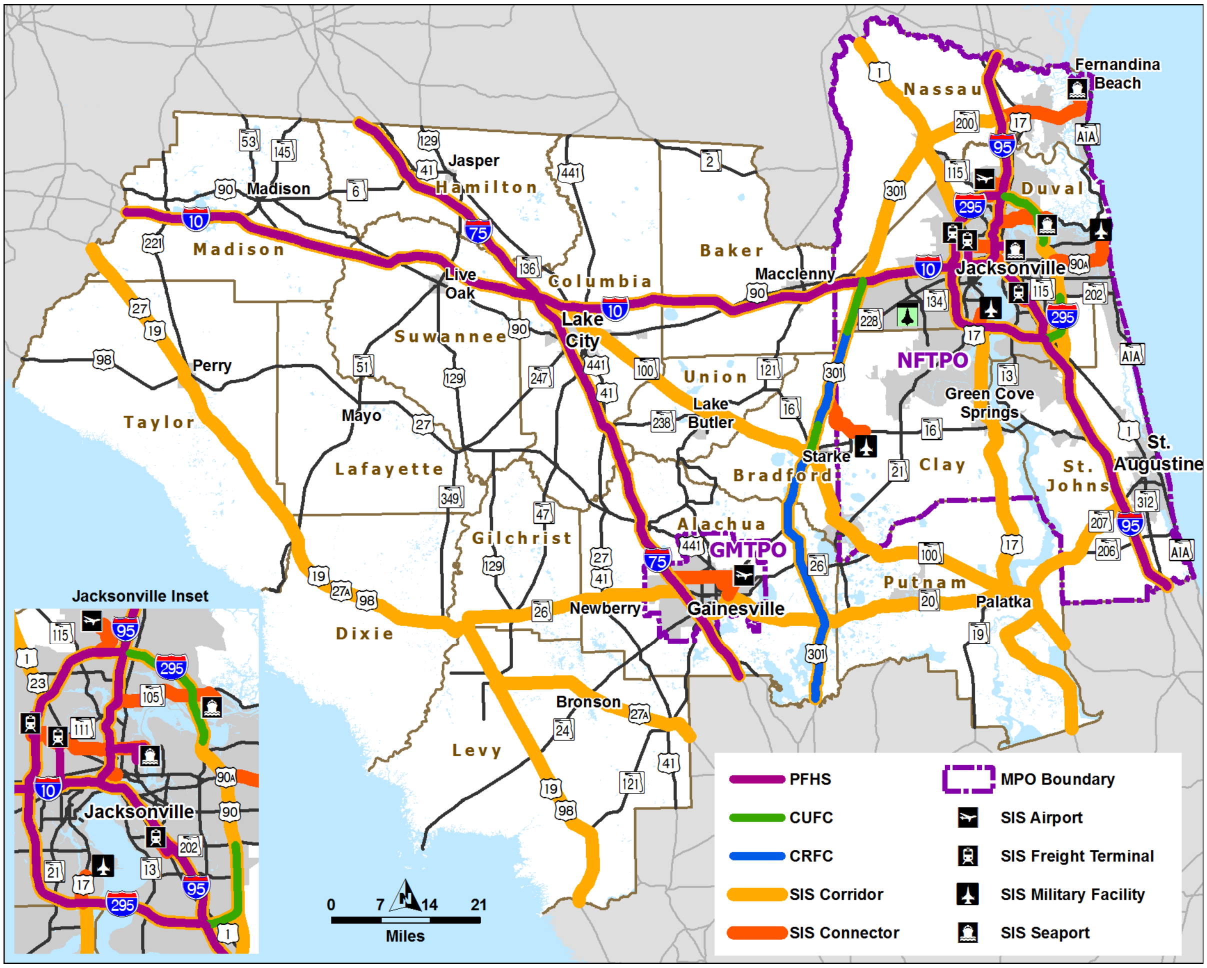
Importance of Freight Networks for Needs Identification

The relationship between state and nationally designated freight networks and the implementation of freight-focused projects is important to note. For purposes of this Study, two previously established networks were used as the basis for identifying and evaluating recommendations. At a state level, Florida's Strategic Intermodal System (SIS) is a network of high-priority transportation facilities most significant for intraregional, interstate, and international travel with the focus of enhancing Florida's transportation mobility and economic competitiveness. Pertaining to the highway network, the system itself is composed of four sub-categories: SIS Corridors, SIS Connectors, Military Access Facilities, and Strategic Growth. Within Northeast Florida, SIS Corridors include approximately 910 miles of roadway while SIS Connectors, which serve first and last mile connections, include approximately 77.5 miles of roadways.

Among other new provisions in the FAST Act, FHWA was required to designate the National Highway Freight Network (NHFN). The NHFN is composed of four sub-categories of roadways as defined in the FAST Act Section 1116 Implementation Guidance: Primary Highway Freight System (PHFS), other interstate routes not on the PHFS, Critical Urban Freight Corridors (CUFC), and Critical Rural Freight Corridors (CRFC). Each of these sub-categories was designated by FDOT in coordination with FHWA.

By designating these critical corridors, states can strategically direct resources toward improved system performance and efficient movement of freight on the NHFN. The designation of CRFCs and CUFCs also increases the state's NHFN, allowing expanded use of NHFP formula funds and federal Grant Program funds for eligible projects that support national goals identified in 23 U.S.C. 167(b) and 23 U.S.C. 117(a)(2). Within Northeast Florida, 360 miles are designated as PHFS, 49 miles are designated as CRFC, and 29.5 miles are designated as CUFC. ***Figure 8-4*** depicts both state and nationally designated freight focused networks.

Figure 8-4 | State and Nationally Significant Freight Highway Networks



Source: FDOT / FHWA

Identifying Improvement Opportunities

The following process was used in the identification of freight improvements in Northeast Florida, and is evidence of consideration of operational strategies and innovative technologies that improve the safety and efficiency of freight movement.

As required by the FAST Act, locations with freight mobility issues were identified for each of the freight transportation modes. This process included analysis and input from public and private stakeholders throughout the region who are familiar with the networks and operations of freight movement. The following section will outline the unique processes utilized for needs identification and evaluation for each freight transportation mode. More in-depth explanations and findings are described in *Section Four: Regional Freight Infrastructure* and *Section Seven: Needs Assessment*.

Highway Improvement Identification

The Northeast Florida region is served by more than 6,753 centerline miles of roadways, of which approximately 420 miles are interstates or other toll expressways and 1,403 miles are principal arterials, including limited access facilities. Trucks hauling goods share these roadways with commuters and visitors traveling to and through the region. The District's roadway system experiences traffic volumes (including trucks) in excess of 98 million vehicle miles per day (FDOT, 2015). Feedback from stakeholder and industry outreach: as a whole, the trucking community reports good operating conditions on the region's major highway facilities; however, some areas of recurring congestion and operational constraints were reported.

Identification of highway freight needs focused primarily on the NHFN, SIS, and other critical first and last mile connections, as these facilities have been recognized as carrying most of the freight movements throughout the state. Freight-related highway needs were identified by evaluating the conditions and performance of Northeast Florida's transportation system and through the stakeholder engagement process.

Freight Connection "First Mile-Last Mile" Needs

Based on the feedback received from stakeholders, it is evident that first-mile/last-mile operational issues are of critical concern. A key part of the study effort has been to identify existing and near-term needs that have significant impact on freight movements. These types of operational constraints often include inefficient intermodal connectors and arterials serving historical and newly developed industrial and commercial areas. Focusing on these types of constraints often leads to significant improvements to freight mobility and reductions in community impacts at relatively low cost. Additionally, improving throughput on these facilities can also lead to reduced pressure on other local and regional roadways.

Intermodal connections provide critical links between freight nodes and their users. Virtually all major freight facilities (seaports, the airports, and the rail intermodal terminals) lie along major arteries and the interstate highway system. The issue is ensuring that connections to those arteries and interstates can accommodate efficient truck operations and significant truck volumes. In addition, more direct connections and operational solutions may be required to alleviate future traffic and mitigate freight impacts.

Based on Northeast Florida's existing intermodal hubs and major freight activity centers, critical first and last mile freight connections were identified in coordination with FDOT. These segments underwent an existing conditions analysis and an initial operational evaluation: level of service, safety, stakeholder input, and geometric review.

Findings from the initial analysis phase were paired down to identify the top 13 intersections for detailed operational analysis. An intersection-level traffic operational analysis was conducted using Synchro and measurements of existing geometric conditions in order to identify improvement needs. Geometric conditions such as turn radius, queue length, and storage were reviewed and associated improvement needs identified. The detailed approach and findings from this analysis are described in *Section Six: First-Mile / Last-Mile Connections.*

Highway Needs beyond Planned and Programed Improvements

As a means of identifying capacity needs outside of long range 2040 cost feasible investments, the highway network was evaluated to pinpoint future congestion hotspots by analyzing future roadway volumes and future capacity based on planned improvements. This evaluation accounted for future travel patterns and facility demands while incorporating planned transportation improvements to ultimately identify system needs beyond cost feasible investments. Based on the District's level of service (LOS) standards, over 200 segments of Northeast Florida's highway network encompassing approximately 368 centerline miles were identified as performing below the established level of service standard, including critical portions of I-95, I-75, I-295, SR 100, US 27, US 301, and US 441. *Section Seven: Needs Assessment* - provides detail in the assessment and specific findings.

Strategic Intermodal Systems Unfunded Needs

Needs were also identified using FDOT's statewide modal plans, transportation corridor plans, regional plans and visions, MPO and Expressway Authority plans, and other planning partner documents. Within District Two,140 unfunded needs were identified estimated at $9.6 billion; including $24 million for aviation (2 percent of statewide aviation needs), $7.4 billion for highway (12 percent of statewide highway needs), $139.7 million for rail (1 percent of statewide rail needs), $1.9 billion for seaports (28 percent of statewide seaport needs), $36.8 million for spaceports (4 percent of statewide spaceport needs), and $111.4 million for transit (1 percent of statewide transit needs).

Aligning Needs with Existing Planned and Programmed Projects

FDOT and its MPO partners maintain project lists and databases (Work Program and Transportation Improvement Program) to track the development of transportation projects. Needs identified through this study were compared to the projects in this database to highlight and pinpoint current FDOT projects that may address the identified needs. This comparison also identified needs for which there were not any projects currently planned.

Projects already under development by FDOT can be implemented within a shorter timeframe than new projects. Many early project development phases, such as right-of-way acquisition or environmental assessment, may have already been initiated or completed for these projects. Selecting these projects allows FDOT to review them based on Freight Study recommended policies and programs. FDOT can then ensure that the projects meet the Freight Study's recommendations for improvements to Northeast Florida's highway freight network.

Intermodal Hub Method

The project identification and recommendation process for other modes including rail, seaport, and airports differed from that developed for highway projects because the infrastructure for these modes is planned and funded differently then the highway program. Project identification relied on extensive stakeholder input, publicly available transportation plans and documents and analysis completed as part of the Freight Study. Information and findings from the 2045 SIS Unfunded Needs Plan played a critical role in identifying intermodal hub (rail, seaport, and aviation) needs, project significance, and improvement timing. Input was solicited directly from private freight infrastructure owners and operators, such as Class I railroads and ports, to pinpoint infrastructure projects.

Although not specifically evaluated during the freight project identification process, economic competitiveness was intertwined throughout the study process. Maintaining a safe, reliable and efficient highway freight network that connects freight gateways and freight generators to employment centers and consumers boosts the economic competitiveness of the region and the state. Strategic enhancements, such as improving connections to rail yards, ports, cargo airports and freight routes, will continue to uphold Northeast Florida as key logistics hub for the State of Florida.

Other Planning Documents

To ensure planning consistency, a number of transportation and modal plans were reviewed and incorporated to identify any applicable programs and projects. These planning documents are summarized in *Section One: Plans and Policy Review*. Reviewed plans included but were not limited to:

- Florida's Freight Mobility and Trade Plan
- Florida Transportation Plan
- Florida's Strategic Intermodal System (SIS) Planning Documents
- Florida Seaport and Waterways System Plan
- Florida Rail System Plan
- Florida Aviation Systems Plan
- Florida Motor Carrier System Plan
- Florida Ports Council: 2016 Seaport Mission Plan
- Florida's Future Corridors
- North Florida TPO: Long Range Transportation Plan
- North Florida TPO: Freight, Logistics and Intermodal Framework Plan
- North Florida TPO: List of Priority Projects
- North Florida TPO: North Area/JIA Corridor Rail Feasibility Study
- Port of Fernandina: Truck Circulation Study
- Port of Fernandina: Master Plan
- Gainesville MTPO: Long Range Transportation Plan
- Gainesville MTPO: List of Priority Projects
- JAXPORT: Strategic Master Plan
- Jacksonville International Airport: Master Plan
- Cecil Field Airport: Master Plan and Development Strategy
- Cecil Spaceport: Master Plan
- Gainesville Regional Airport Master Plan

Funding Freight Projects

Northeast Florida's transportation system is funded by multiple revenue sources and financing mechanisms including federal, state, local, and bonding options. The following section provides an overview of the available sources and opportunities for funding freight projects.

Defining Critical and Strategic Networks

The highway network and roadway corridors are key elements in Northeast Florida's intermodal freight transportation system. The highway network provides mobility for long- and short-haul shipments while also providing essential intermodal access and connectivity between other modal terminals (marine, sea, air, rail, and pipeline). The identification and establishment of regionally significant freight corridors allows for focused planning and targeted investment based on system performance and contribution to freight and goods movement. This enables planning for improved freight mobility and optimal utilization of limited public funding.

Florida's Strategic Intermodal System (SIS)

In 2003, the Florida Legislature and Governor established the Strategic Intermodal System (SIS) to enhance Florida's transportation mobility and economic competitiveness. The SIS is a statewide network of high-priority transportation facilities, including the state's largest and most significant airports, spaceports, deep water seaports, freight rail terminals, passenger rail corridors, waterways, and highways. These facilities represent the state's primary means of moving people and freight between Florida's diverse regions, as well as between Florida and other states and nations.

The FDOT Systems Planning Office produces a document set known as the SIS Funding Strategy, which includes three inter-related sequential documents that identify potential SIS capacity improvement projects in various stages of development. The combined document set illustrates projects that are funded (Year 1), programmed for proposed funding (Years 2 through 5), planned to be funded (Years 6 through 10), and considered financially feasible based on projected State revenues (Years 11 through 25).

National Highway Freight Network (NHFN)

The Fixing America's Surface Transportation, FAST Act, requires the FHWA to establish a National Highway Freight Network (NHFN) to strategically direct Federal resources and policies toward improved performance of the NHFN. This network is the focus of funding under the National Highway Freight Program (NHFP). The NHFN consists of the following subsystems:

Primary Highway Freight System (PHFS)

The PHFS is a network of highways identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data. Within Northeast Florida (District Two), the PHFS includes I-95, I-75, I-10, and segments of I-295 which consists of 360 designated miles.

Critical Rural Freight Corridors (CRFC)

CRFCs are public roads not in an urbanized area which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities. These public roads serve first and last mile connectivity and provide immediate links between such freight generators as manufacturers, distribution points, rail intermodal and port facilities and a distribution pathway. Within Northeast Florida (District Two), 49 miles of

US 301 are designated as CRFCs throughout Alachua County and along southern and northern segments in Bradford County, while the portion of US 301 traveling through the Starke area is designated as a Critical Urban Freight Corridor.

Critical Urban Freight Corridors (CUFC)

CUFCs are public roads in urbanized areas which provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal freight facilities. Within Northeast Florida, 29.5 miles are designated as CUFCs including US 301 in near Starke and segments of I-295 in Jacksonville.

Major Sources for Investment

There are various sources for funding and financing options for freight infrastructure, some of which are constrained by mode, type of route or improvement or specific responsibility of an agency. State and federal grant/loan opportunities for freight-related projects each have their own unique requirements. This section focuses on statewide funding and financing programs and sources; however, federal funding for statewide transportation infrastructure is also crucial. Federal and state transportation funding is allocated through a coordinated process with MPOs and local governments to address eligible regional and local transportation needs.

Federal Transportation Funding and Financing

Federal funds are an important component of Northeast Florida's transportation funding portfolio. These funds are governed by federal reauthorization legislation. The current federal reauthorization legislation is the FAST Act. The FAST Act has a number of different funding, grant, and financing programs that support the growth and maintenance of the transportation system. It is important to note, each funding program has established eligibility requirements. New provisions within the FAST Act have increased the emphasis on addressing freight mobility issues and have provided funding to support of these directives. The majority of federal funding for freight-related improvements is administered through the U.S. Department of Transportation Federal Highway Administration (FHWA) in coordination with FDOT.

The primary federal sources of transportation funding are excise taxes on motor and aviation fuels. Other federal revenue sources include excise taxes on tires, heavy truck and trailer sales, heavy vehicle use taxes, and an air passenger ticket tax. Financing and funding programs available through the federal government are described below. Also included is program information regarding applicable transportation modes that may be funded with federal resources. All of these programs are administered by the U.S. Department of Transportation (USDOT). The programs identified below are utilized by FDOT to support freight focused transportation needs.

The dedicated revenue sources for transportation at the federal level are similar to those in Florida. More than half of transportation user fee revenues are derived from federal motor fuel taxes and are used to fund the federal Highway Trust Fund (HTF). The federal motor fuel tax has experienced a loss of purchasing power - 33 percent since 1993 when the federal motor fuel tax was last increased. Since 2008, transportation user fee revenues deposited into the HTF have been insufficient to cover authorized federal transportation program funding levels. As a result, Congress has regularly transferred funds from the federal General Fund to the HTF to bridge the gap between spending and revenues.

Surface Transportation Program (STP)

The STP focuses investment on the highway network. Project eligibility criteria under this federal funding program emphasize the preservation and improvement of the condition and performance on “federal-aid” highway, bridge and tunnel projects. Funds can also be utilized on any public road, pedestrian and bicycle infrastructure, and on transit capital projects, including terminal construction. As a basis threshold, projects designated as local or rural minor collectors are not eligible to be funded under the STP.

Highway Safety Improvement Program (HSIP)

The HSIP can be used for investment on eligible highways, local roads, and rail projects. Project eligibility criteria under this federal funding program emphasize that projects must be highway or local road safety improvement projects. Projects can include any strategy, activity or improvement on a public road that are consistent with the state’s data driven strategic highway safety plan. Projects must correct or improve an identified hazardous road location or feature or addresses a highway safety problem.

Congestion Mitigation and Air Quality Improvement (CMAQ) Program

The CMAQ Program is a federal funding program eligible to region’s designated as air quality non-attainment areas based on national ambient air quality standards. Funding can be spent on highway, rail, port, and intermodal facility improvements although CMAQ funded projects must contribute with effective evidence to the attainment and/or maintenance of national air quality standards.

Airport Improvement Program (AIP)

The AIP focuses investments on aviation safety, capacity, security, and environmental issues at public-use airports identified in the National Integrated Airport Systems Plan. Projects eligible to be funded under the AIP include airfield capacity improvement and repair projects while in some instances terminal, hanger, and non-aviation development projects have been made eligible for federal funding. Operational improvements are not eligible nor are projects considered “revenue generating” improvements.

Needs-Based Rail Crossing Program

Federal Rail-Highway Crossing/Protective Devices (RHP) and Federal Rail-Highway Crossing/Hazard Elimination (RHH) are statewide funds which are programmed by the Safety Office using FHWA approved methods. Projects are prioritized by the Safety Index Model using average daily traffic, train speed and train count.

FAST Act Discretionary Grant Program

The FAST Act established the Fostering Advancements in Shipping and Transportation for the Long-term Advancement of National Efficiencies (FASTLANE) discretionary grant program to provide financial assistance, grants or credit assistance, to nationally and regionally significant freight and highway projects that align with the program goals. In June of 2017, the USDOT announced the replacement of the FASTLANE grant program with an updated discretionary grant program, Infrastructure for Rebuilding America (INFRA).

INFRA advances a pre-existing grant program established in the FAST Act of 2015 and utilizes updated criteria to evaluate projects to align them with national and regional economic vitality goals and to leverage additional non-federal funding. The new program will increase the impact of projects by leveraging capital and allowing innovation in the project delivery and permitting processes, including public-private partnerships. USDOT will continue to make awards under the INFRA program to both large and small projects. The eligible costs, project types, cost share, project sizes and other requirements defined by the statute have not changed. The program still focuses on projects that generate national or regional economic, mobility, and safety benefits. **Table 8-1** below provides a side-by-side comparison of the merit criteria used in FASTLANE and INFRA.

Table 8-1 | FASTLANE and INFRA Grant Program Comparison

FASTLANE	INFRA
Merit Criteria: • Economic Outcomes • Mobility Outcomes • Safety Outcomes • Community & Environmental Outcomes *Other Review Criteria:* • Cost Share • Partnership & Innovation *Additional Considerations:* • Geographic Diversity Among Recipients • Project Readiness	**Merit Criteria:** • National & Regional Economic Vitality • Potential for Innovation ○ Innovation ○ Environmental Review & Permitting ○ Project Delivery Approach • Leveraging of Federal Funds • Performance & Accountability *Additional Considerations:* • Geographic Diversity Among Recipients • Project Readiness

Source: USDOT

State Transportation Funding

As outlined and detailed in FDOT's Primer on Florida's Transportation Tax Sources, state funding for transportation projects is similar in structure to the Federal Highway Trust Fund. Highway and off-highway fuel taxes constitute the oldest continuous sources of dedicated transportation revenues in the state. In addition to fuel and diesel consumption-related sources, the state also collects and allocates revenues from motor vehicle license fees, initial registration fees, incremental title fees, and a surcharge applied to daily rental cars. Revenues from these sources are entered into the State Transportation Trust Fund to later be allocated to the state funding programs summarized below.

District Dedicated Revenue (DDR)

DDR are State revenues which are collected pursuant to Section 206.608 FS, are allocated directly to the districts, and to the maximum extent feasible, to the county where the proceeds were collected, without being reduced by any other requirements. This DDR, statutorily known as the State Comprehensive Enhanced Transportation Systems Tax (SCETS), in addition to highway uses, may also be used for district public transportation projects to meet the required statewide minimum distribution of 15 percent of state funds for public transportation. These funds are eligible for use for all modes and phases though are primarily used for projects on the State Highway System, including resurfacing projects.

State Primary Highway and PTO Funds (DS)

DS funds are used for resurfacing and for new construction projects. All phases are eligible under this fund type for highway, aviation, transit, rail, and intermodal projects. It is important to note 100 percent of this state funding category is comprised of need-based distribution and the remainder is distributed by statutory formula.

State Bridge Replacement (BRP)

BRP funds are allocated statewide and managed by the Statewide Programs Manager in the Office of Work Program and Budget. Projects are programmed based on statewide Section 7-4 bridge replacement priorities. The State Maintenance Office uses district data in the Bridge Management System Bridge Work Plan to develop statewide bridge replacement priorities.

State Bridge Repair and Rehabilitation (BRRP)

BRRP funds are first distributed to the districts based on painting (tons of steel), fenders and number of movables. Afterward, the remainder is distributed based on the condition of the deck inventory. Large or unusual costs will be presented to the Executive Board for approval to fund.

Reimbursable Bridge Repair Program (RBRP)

RBRP funds are used to repair impact damage from marine and vehicular traffic. These funds are partially reimbursed by insurance companies. Funds are allocated to the districts by the State Maintenance Office after notification of accident damage and cost of repairs. All projects are coordinated by the State Maintenance Office.

Strategic Intermodal System (SIS)

SIS funds are administered by the FDOT Systems Planning Office which produced a document set known as the SIS Funding Strategy. The SIS Funding Strategy includes three interrelated and sequential documents that identify potential SIS capacity improvement projects in various stages of development. The First Five Year Plan illustrates projects funded by the Florida Legislature in FDOT’s work program.

In addition to SIS capital funding, FDOT initiated the Freight Connector Operational Quick Fix program. The program focus is to resolve issues on roadways connecting a freight transportation hub and an intraregional highway corridor. Candidate projects must be located on public roadways and outside of the freight hub property boundary; must be "low cost" projects which immediately improve traffic operations; and must enhance safety, mobility and efficiency of freight movements. Example project types include: ITS improvements; design and detailed studies; bridge repair or improvements; railroad crossing improvements; lighting, signage, and pavement markings; resurfacing and shoulder work; turn lanes and intersection improvements; and traffic signals and safety improvement projects.

Transportation Regional Incentive Program (TRIP)

TRIP was created as part of major Growth Management legislation enacted during the 2005 Legislative Session (SB 360). The purpose of the program is to encourage regional planning by providing state matching funds for improvements to regionally significant transportation facilities identified and prioritized by regional partners. TRIP is funded as specified in 201.15 F.S. and the State Transportation Trust Fund. TRIP funds are distributed to the FDOT districts based on a statutory formula of equal parts population and fuel tax collections. TRIP funds are to be used to match local or regional funds up to 50 percent of the total project costs for public transportation projects.

Projects funded though TRIP must serve national, statewide or regional functions; be identified by the capital improvement element of the local government application; be included in the MPO LRTP, TIP, and STIP; be consistent with the Strategic Intermodal System (SIS); be in compliance with local government comprehensive plans; and meet the matching funds requirement. As provided in state law, FDOT can give priority to candidate projects which provide connectivity to the SIS, support economic development and goods movement in rural areas, and improve connectivity to military installations and the Strategic Highway and Rail Corridor Networks.

Section Nine:

Implementation Guide

Introduction

Northeast Florida's regional freight transportation system is made up of robust networks of highways, railroads, deep water seaports, airports, and intermodal freight terminals. The area is home to various freight and logistics focused industries and serves as a strategic freight hub for the state. The 12,000 square mile region is home to more than 1.9 million residents and contains an estimated 2,556 centerline miles of roadways, 2 deep water seaports, 7 freight railroads, 3 commercial service airports, and an emerging spaceport at Cecil Field. Through these freight facilities over 233 million tons of goods traveled in, out, within, and through Northeast Florida in 2015, which was valued at $460.6 billion.

As discussed in the Needs Assessment, identifying issues and implementing solutions to accommodate increasing demand for freight and goods movement in Northeast Florida is critical to the region's economic vitality, quality of life, and continued competitive edge. With system deficiencies identified, stakeholder input heard, and planned investment accounted; potential solutions and improvement strategies can be recommended and organized for implementation.

Numerous challenges to Northeast Florida's freight transportation system were identified over the course of the Study. Issues identified include recurring congestion, safety concerns, system capacity constraints, infrastructure management and operational issues, rural and multimodal connectivity needs, and funding limitations. Recognizing the diverse range of issues, the recommendations presented in this Freight Study are multimodal, multifaceted and provide a comprehensive and continuing approach.

Planning Elements

Freight transportation improvements were identified based on information from adopted State and metropolitan transportation plans, freight transportation system conditions analyses, a needs assessment, and stakeholder input. The recommendations highlight the importance of continued investment, coordination, maintenance, system management and operations, and innovation. The Northeast Florida Freight Movement Study provides three multimodal and broad-based strategies to ensure FDOT District Two has the tools in place to reduce transit times, improve reliability, and reduce the cost of freight transportation. These strategies are necessary to address the magnitude and complexity of freight transportation challenges confronting the region, State, and Nation; which differ greatly from the movement of passengers.

Policies: General recommendations to assist in advancing freight planning integration into the regional and local transportation planning process.

Programs: Initiatives that could be carried out to accomplish policy goals and objectives.

Projects: Specific infrastructure projects that support policy objectives and improve freight movement in Northeast Florida, focused on designated freight corridors.

These three recommendation types are not mutually exclusive. Rather, the attainment of one strategy will in many cases depend on the successful accomplishment of another. This highlights the importance of a continuous, highly-coordinated and orchestrated implementation of all freight mobility improvement recommendations.

Policy Recommendations

The following policy recommendations address freight transportation challenges affecting Northeast Florida. The main intention of the policy recommendations is to provide an overall framework for freight transportation investment decision-making. The policies provide the basis for aligning investment with national and state objectives to enhance economic competitiveness and improve freight mobility. The adoption and implementation of these policies will ensure the continued efficient and safe movement of people and goods. The policies are also consistent with the multi-institutional and multimodal nature of freight transportation in Florida. Additionally, the policies guide programs and projects and will assist in the implementation of the Freight Study recommendations.

Freight Planning and Capacity Building Activities

A comprehensive approach to goods movement requires a regional approach to planning, public awareness of the challenges and benefits of freight movement, and a planning process that institutionalizes freight needs. The District will continue to support and expand freight planning and capacity building activities. This can be accomplished through the support and expansion of technical capacity by integrating the needs of the entire intermodal freight transportation system in the planning, project selection, and implementation process. The limited exposure of governmental planning staff regarding freight planning fundamentals is both a challenge and an opportunity for the region. FDOT will continue its district level “freight boot camp” and expand its reach to offer learning opportunities to local governments, MPOs and TPOs with the goal of instilling freight planning fundamentals.

The District will also continue to develop and administer a comprehensive and multimodal freight planning program, focused both on developing strategies, policies and methodologies to improve the freight transportation system and on improved means of linking transportation investments to the region’s and state’s economic development goals. To help the region’s businesses compete in the global marketplace, public sector agencies responsible for transportation planning must foster integrated modal systems by supplying infrastructure that can support responsive, reliable transportation options for people and goods. Pertaining to local government agencies, there is an opportunity to build consistency across jurisdictional lines relating to land use and freight network preservation. An additional component of long-term freight planning, capacity building, and institutionalization is the continued coordination and engagement with the freight industry, local and regional partners, and neighboring FDOT districts. The District will continue to annually host a Northeast Florida Freight Forum for the freight industry.

A Systems-Based Approach to Multimodal Connectivity

The District will continue its efforts to implement a comprehensive, system-wide freight planning program which invests in strategies and solutions that link the various modes of freight transportation. This can be accomplished by addressing freight mobility challenges confronting the region through a holistic and targeted approach, reflecting the diverse private and public sector roles in improving freight movement. With an improved understanding of regional commodity movements and network impacts, the District in coordination with its regional planning partners could promote public education and outreach emphasizing the close relationship between supply chain operation costs and the cost of living. In partnership with the freight industry the District will look to implement a periodic review of freight performance measures to develop effective counter measures to increase reliability and efficiency; and to prevent degradation of freight mobility.

The District will also invest in strategies that link the different modes of freight movements to ensure the development of a system with adequate and available access points that facilitates the use of alternative modes beyond trucking to alleviate capacity concerns on highways. This can be accomplished by prioritizing the improvement of intermodal connectivity between railroads and seaports, airports and highways to relieve congestion at key freight gateways and major freight generators and attracters. Emphasis should be made on project identification and evaluation criteria in the FDOT and MPO planning process that supports, preserves, protects, and prioritizes funding of first and last mile connections in locations with regional and statewide significance, including both urban and rural connectors. This can be accomplished by developing a demand-based approach performing supply chain and transportation network analysis to effectively identify and prioritize investment opportunities for an optimized freight network that lowers transportation costs for businesses and promotes business growth in District Two. Rural connectivity is also critical to Northeast Florida's economic development and vitality. The District will continue investment to strengthen the rural transportation system to support the dynamic and diverse industries in these areas and to facilitate the existing and future transport of critical raw materials.

Consideration of Freight in Design Guidelines and Implementation

As FDOT continues to implement the Statewide Complete Streets Policy, the District will review and modify design guidelines on freight corridors to facilitate the efficient movement of people and goods. This can be accomplished by continuing the "freight" review of projects and engaged participation in multimodal corridor studies; and evaluating design standards with respect to commercial vehicle movement on portions of the region's freight network to include the review factors such as typical section and intersection approach configurations, right-turn treatments, median nose treatments, pavement bulb-outs and U-turn locations, access management, truck parking for deliveries, traffic control devices, and signal phasing. Designers must consider the needs of all road users to select the best combination of elements that provides safe paths for all modes and best fulfills the road's purpose within the broader transportation system. The identification of roadway project context includes consideration of existing and planned land use and goods movement functionality, local environmental resources, and other project scoping elements; all of which help to guide the design approach and intent. It is also important to note, alternatives would require specific analysis and public involvement to evaluate options and to better understand user and community preferences.

A Safe, Secure, and Resilient Freight Transportation System

Commercial vehicle safety is vital to reliable freight distribution and community quality of life. This issue is of top importance to transportation planners as it is to the freight industry. Freight carriers strive to operate most efficiently with the highest safety standards in place. Reducing the number of crashes, injuries, and fatalities is very important to both private and public sector stakeholders. The District will continue to identify and implement strategies that will improve safety and reduce crash rates, fatalities and injuries associated with freight vehicle movement on the region's transportation network. This can be accomplished by prioritizing funding to eliminate safety hot spots and by identifying potential crash remediation strategies. The District will also ensure that safety, security, and resiliency factors are incorporated into all transportation infrastructure designs, including the designation of alternative routes in the event of natural or man-made disasters. The District will also explore opportunities to maximize the use of existing truck parking locations such as weigh-in-motion (WIM) stations while also exploring new or expanded truck rest areas in partnership with local agencies and the private sector. To accomplish this, a thorough understanding of the trucking industry's perspective and decision making process is essential to ensure site selection is tailored to meet user needs and parking demand.

Also pertaining to this policy recommendation is the continued investment in innovative asset management strategies that facilitate the freight network's state-of-good repair, maintenance, management and operational improvements. Extending the useful life of bridge and pavement conditions can be facilitated by developing optimal asset management programs to protect existing infrastructure investments and maximizing the capacity of the existing freight transportation assets. A focused preservation strategy, the elimination of maintenance issues and the identification of constraints that lead to increased congestion can reduce travel times and reduce the cost of doing business which impacts industry productivity and, ultimately, regional competitiveness.

The use and implementation of innovative and technology-based techniques and solutions also supports a safe, secure, and resilient freight transportation system. It is recommended that the District continue to expand its partnerships with public and private industry stakeholders to foster and implement proven freight-oriented technology solutions such as the Truck Parking Availability System (TPAS) and the Freight Advanced Traveler Information System (FRATIS). This recommendation has near and long-term opportunities. In the near term, the expansion and dissemination of the existing regional traffic management system can improve alternative route identification and emergency management responsiveness during weather, construction, and incident related events.

Intermodal Systems Require Intermodal Solutions

The District will continue to work cooperatively with private sector rail industry partners and other stakeholders to identify strategies that expand rail capacity and operational reliability while mitigating community impact to accommodate existing and future projected rail based commodity growth. This can be accomplished with a multifaceted approach of education, partnership, and investment. Through the findings of this Study and that of previous work, the District in coordination with regional planning partners can highlight the importance of the rail industry to Northeast Florida's economy and the rail industry's role in moving large masses of goods efficiently. A comprehensive multi-modal evaluation should be taken into account to address the impacts modal investments or investment policies have on existing highway infrastructure. Mitigating and solving community impacts is an important element of this strategy; as such, reducing the number of at-grade rail / highway crossings can reduce congestion and improve safety which collectively improves quality of life for the traveling public. Implementation of these efforts will require a cross-sectorial approach to funding and financing these rail capacity and connectivity improvements.

Northeast Florida's deep water seaport system plays a critical role in the region's economy and freight transportation system. The District will continue to work collaboratively with the region's seaports and other key maritime stakeholders to advance and strengthen waterborne freight movement including the support of on- and off-port access improvements and channel deepening projects to remove barriers for continued growth. This can be accomplished through the support of public-private partnership opportunities that expand port capacity, operational challenges, and intermodal transfers. As similarly noted relating to rail, highlighting the importance and relationship of Northeast Florida's seaport and maritime industry to the state's economy as well as the significance of critical national and international freight gateways can help align investment with regional and state economic development goals.

While only transporting an estimated one percent of the total commodity volume within Northeast Florida, air cargo facilities play an essential role in the regional freight transportation system. As such, the District will continue the integration of air cargo access needs into the regional transportation planning process. This can be accomplished by supporting public-private partnerships and through continued coordination with local, regional, and statewide agencies to identify landside airport access improvements that optimize and enhance air cargo movement between modes, specifically truck access and connectivity.

Summary of Policy Recommendations

This section summarizes key policy recommendations and outlines the policy intent. Through the review of other regional and statewide plans, policies were developed consistent with the multimodal and multi-jurisdictional nature of freight movement. These policy recommendations are used as the basis for the program and project recommendations, outlined in the subsequent sections.

Program Recommendations

The program recommendations support the policies outlined in the previous section and also address the freight transportation challenges identified in this Study. These challenges include system capacity constraints, system operations, safety issues, rural connectivity, congestion, institutional coordination, education, public awareness and funding. The recommendations include several initiatives requiring public and private sector coordination and partnership to effectively address identified freight transportation challenges to enhance freight mobility and support the region's and state's economic development goals and objectives.

Formalization of District Freight Program

For the successful long-term implementation of freight and goods movement improvement strategies, an on-going and highly coordinated program must be in place. The formalization process began in 2014 with the hiring of District Freight Coordinators which have assisted FDOT in establishing freight planning programs and resources at the regional and local level in partnership with local government partners, MPOs, FDOT Central Office, and the District Office. Like many other regions across Florida and the United States, the comprehensive examination of regional freight needs and system deficiencies has been conducted. Following these efforts, to move from study to implementation, a formal freight program is the key to action.

While program elements vary based on regional needs and economic goals - continued agency and industry interaction and the consideration of freight issues in all aspects of transportation planning and design are essential components. Given the scale and scope of these needs, a multifaceted program is required, including but not limited to the elements outlined below.

Public Agency and Private Industry Engagement

The District will continue to build partnerships between public and private sector stakeholders. While a state-level freight advisory committee is highly recommended and encouraged under the FAST Act, and recently the State of Florida made its official appointments in the establishment of the statewide group; the District will continue efforts to build partnerships with private sector stakeholders by conducting one-on-one outreach visits and develop a customer relationship management strategy and program that creates value for stakeholders and improves private sector engagement and participation.

Pertaining to public agencies, the District will continue engagement efforts with MPO/TPO planning partners and local government planning, engineering, and growth management departments. In addition, the District will continue to host regional freight forums as a means of continuing momentum and fostering stakeholder relationships. Freight forums are a valuable tool in ensuring freight transportation needs are addressed while also promoting partnership and a shared regional vision.

Freight Focused Transportation Planning Training and Public Awareness

The District will continue to implement its "Freight Boot Camp" to provide freight training and education to county, local municipalities, other transportation and land use planning agency staff. This training would be a means of broadening their understanding of the freight and logistics industries to facilitate the improved incorporation of freight considerations in the regional planning, programming, implementation, and decision making process. Staff responsible for managing and overseeing regional plans and studies should have a working knowledge of freight transportation needs and requirements. This can be accomplished by conducting and/or sponsoring freight planning training sessions and workshops. This training could include providing access to and notification of national resources available through programs such as the Transportation Research Board's Cooperative Research Programs (NCHRP, NCRRP, and NCFRP), FHWA Freight Office research and SHRP; resources available from FDOT; courses and workshops available through NHI, I-95 Freight Academy and FDOT's freight academy; and freight specific conferences and events.

While freight movement is a major and highly visible industry within Northeast Florida, the District will develop an awareness and education program to inform the public and other stakeholders of the economic benefits of freight. Through the use of traditional and innovative formats, educational materials will be disseminated to raise public awareness regarding the economic and financial impacts of trucking, rail, ports, warehousing and distribution centers and other freight related activities to the region's and state's economy and quality of life. In accomplishing this effort, the District will develop a quarterly newsletter which will be distributed to public and private sector stakeholders. The District will also establish an internal freight speaker series for FDOT project development and design staff. This will allow planners and engineers to hear what infrastructure challenges semi-truck drivers, terminal operators and others in the freight movement industry face on a daily basis. In addition, the District will work to partner with the local American Planning Association (APA) chapter and host interactive Freight Roadway Design Consideration (FRDC) events. These events will highlight and provide insights to local governments officials on how they can improve freight accessibility, foster economic development, and support livability.

Conduct Freight-Focused Corridor Study Participation and Project Reviews

To ensure freight movement considerations are reviewed and incorporated into all aspects of the planning and project development process, the District will continue the "freight" review of projects and engaged participation in multimodal corridor studies. Through the Electronic Review Comments (ERC) system the District Freight Coordinator can participate in the plans review and project submittal process with a focus on commercial vehicle implications and operational characteristics. The review and comment process would be subject to the unique project type and development phase. In many cases, commercial vehicle considerations (truck percentage and turning radii) are already a part of the process though reviewing and confirming that the latest data available is being utilized is important as design and construction are contingent on these factors. Other aspects to be incorporated into the review process could include: Is the project on a designated freight route or network and are there nearby distribution centers and freight facilities that would be affected by the project? This participation would provide additional context and serve as a means of integrating freight planning into the comprehensive regional planning process. This program could be expanded to also include multimodal scoping as part of project development activities (PD&E and corridor/subarea studies). Screening questions can be developed to help inform decisions relating to how to best accommodate freight mobility into design projects.

Explore Freight Focused Roadway Design Considerations

Adapt FDOT District Seven's Freight Roadway Design Considerations (FRDC) document to be a resource for transportation planners and design engineers to consider and incorporate truck friendly design solutions in a variety of planning and design activities. The document would identify considerations for selecting appropriate design strategies relative to the function of District Two's Freight Network, the multimodal aspects of certain corridors, and the various land use contexts throughout North Florida. The FRDC document supplements the FDOT Plans Preparation Manual and supports and expands upon modal planning and design concepts in other applicable FDOT manuals.

Development of Freight Data Clearinghouse and Visualization Process

The District will partner with the State to develop a regional freight data collection, analytics, and visualization program. Such a program could provide a continuous process for understanding regional freight movement and advance freight performance measures to eliminate freight bottlenecks by addressing congestion, improving safety hotspots, and overall mobility for all transportation users.

Initiate Freight-User Communications Program

Input from trucking industry representatives has indicated an opportunity to improve day-to-day communications between FDOT and commercial vehicle operators. This can be accomplished through a multifaceted approach addressing delays caused by traffic incidents and planned closures using the existing regional traffic management centers (RTMCs). The District will continue its freight-user communications program which encourages the sharing of information between RTMC staff and dispatchers for major regional freight carriers and shippers and focuses on all freight significant roadways. Through these lines of communication, information on incidents, construction delays and congestion can be disseminated to dispatchers who could then relay the relevant content to commercial vehicle drivers based on their pre-planned routing.

The District will continue to promote existing resources to freight stakeholders like the NFLroads.com website and Florida 511. Furthering this idea, the District will establish a partnership to create and maintain single point of access or "Northeast Florida Freight Movement Information Exchange" website for all websites etc. containing information that may impact freight movement in Northeast Florida. In addition, with the ongoing preliminary design and future implementation of Florida's Truck Parking Availability System (TPAS), the District will work to ensure the successful implementation, expansion, and future operation of TPAS.

Development of Performance Based Process for Identifying and Funding Freight Investments

Perhaps one of the greatest challenges facing the region is funding the necessary freight system improvements. This can be accomplished through targeted investment that is based on sound data-driven decision making. The region's decision-making framework needs to combine regional and statewide goals and objectives while accounting for national initiatives and designated corridors. Given that substantial benefits from freight transportation improvements will positively impact areas outside of Northeast Florida and private industry, a funding program based on these benefits must be incorporated. An initial element in establishing a performance based process will be establishing a framework for identifying and quantifying these multifaceted benefits and outcomes. The process must be clearly defined, robust in data, and replicable while ensuring the process and framework are not resource restrictive.

Project Recommendations

This section presents recommendations that resulted from the project identification process outlined in *Section Seven: Needs Assessment*. The project recommendations were a coordinated effort with information from FDOT, Northeast Florida industry stakeholders, MPOs, freight transportation system conditions, performance analysis, and existing documents and initiatives.

The project recommendations reflect the scale and complexity of supply chains operating within Northeast Florida. They help the region focus on short- and mid-term strategies, as well as plan for the longer term strategic freight transportation investments needed to address future freight movements and to enhance Northeast Florida's economic competitiveness. The project recommendations are organized into four modal categories: highway, rail, air/space, and seaport.

The FDOT mission is to provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities. While this Study addresses multimodal freight needs, it is largely oriented to highway-related project opportunities that can be addressed through traditional federal and state transportation funding. This funding is largely limited by federal and state laws and regulations to transportation infrastructure investment on the federal and state highway systems.

Highway Projects

The highway freight network is the dominant infrastructure for freight movement in Northeast Florida via truck, accounting for over 66 percent of total freight tonnage moved in Northeast Florida in 2015. The highway recommendations are comprised of two types of projects:

Current Projects: Includes those in FDOT's Work Program and MPO/TPO project lists. This did not include projects currently under construction. These projects are outlined in MPO/TPO Long Range Transportation Plans and FDOT's 5-Year Work Program.

Additional Needs: The focus of this section includes projects where a transportation need was identified but there is no current planned project addressing that need.

In most cases, highway improvement projects increase roadway capacity and also provide operational improvements. Examples of highway capacity projects include the construction of new facilities and the addition of new lanes to existing roadways. These types of projects allow for increased traffic volumes benefiting both commercial vehicles and the motoring public.

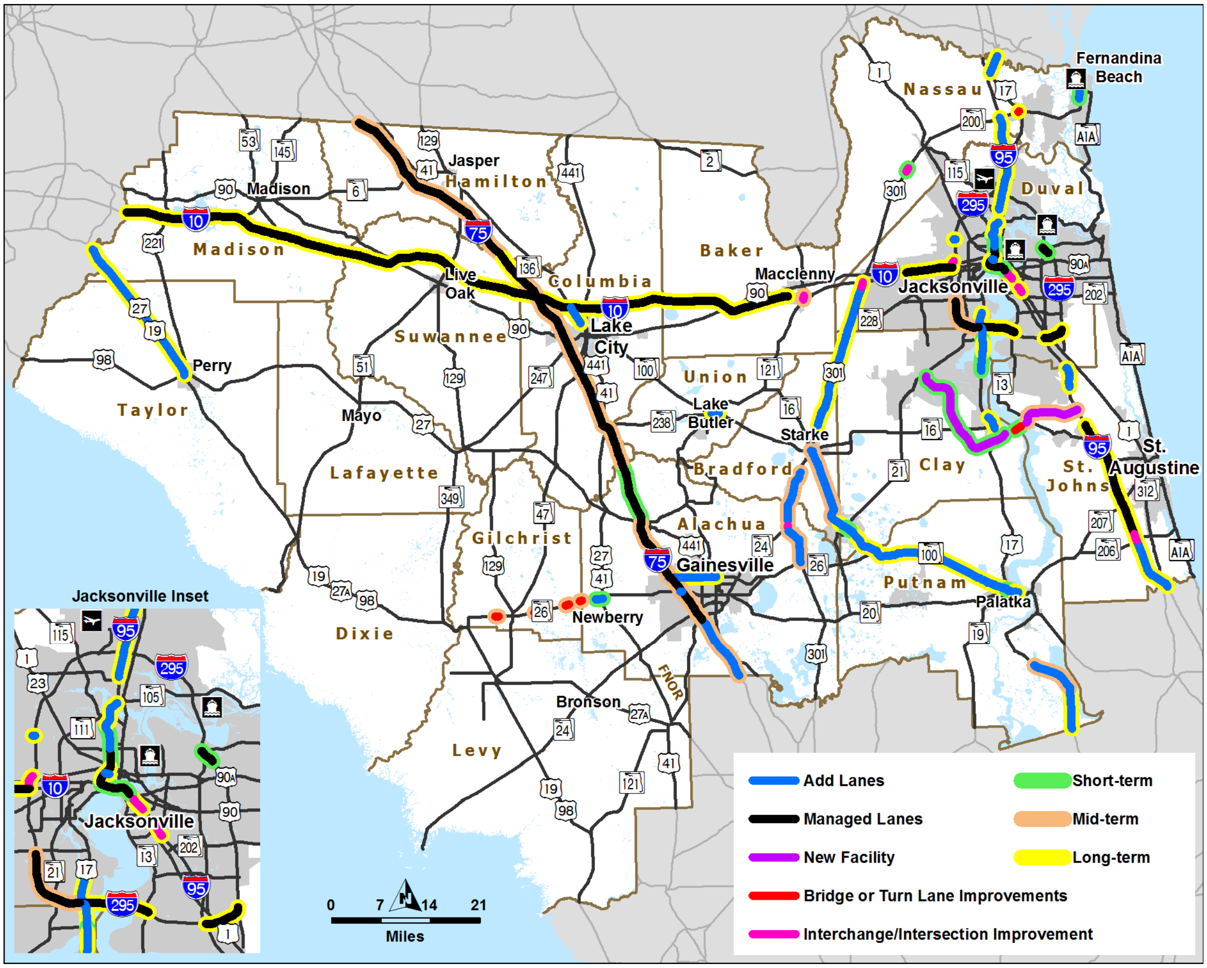
Non-capacity or operational projects consist of other improvements which may not necessarily add capacity but will improve overall mobility and safety. Examples of non-capacity/operational projects include signalization improvements, addition of shoulders and medians, realignment of roadways and enhanced Intelligent Transportation Systems (ITS).

Unfunded Highway Needs

Highway needs on the Strategic Intermodal System (SIS) were identified using FDOT's statewide modal plans, transportation corridor plans, regional plans and visions, MPO/TPO plans, and other planning partner documents. As detailed in *Section Seven: Needs Assessment* - within District Two 100 unfunded highway needs were identified with an estimated cost of $7.38 billion. These unfunded needs are categorized into three groups, short-term (2025), mid-term (2035), and long-term (2045). Unfunded needs refer to projects which are not currently funded in local, regional or state plans.

Figure 9-1 depicts the unfunded highway needs by improvement type and priority term while ***Table 9-1*** through ***Table 9-3*** summarizes the unfunded needs: corridor, limits, description of improvement, and estimated cost of implementation.

Figure 9-1 | Unfunded Highway Needs



Source: FDOT

Table 9-1 | Short-term (2025) Unfunded Highway Needs

Project	Limits	Description	Estimated Cost
I-95	SR 15 / US 17 to SR 122 (Golfair Ave)	Widen to 8 Lanes	$14,553,000
I-95	SR 122 (Golfair Ave) to SR 115 (Lem Turner Rd)	Widen to 8 Lanes	$31,290,000
SR 100	SR 21 to E. City Limits (Lakeview Dr)	Widen to 6 Lanes	$8,416,000
SR 100	NW City Limits (1800' NW of SR 21) to SR 21	Widen to 6 Lanes	$3,800,000
SR 100	E City Limit (NE 8th Ave) to SR 231	Widen to 4 Lanes	$10,359,000
SR A1A / SR 200 / 8th St	Lime St to Centre St / Atlantic Ave	Widen to 4 Lanes	$17,084,000
SR 26 / Newberry Rd	CR-337 / SW 266th St to SR 45	Widen to 4 Lanes	$5,855,000
US 17	SR 16 West to N City Limit (.09 miles N of Governor St)	Widen to 6 Lanes	$21,284,000
US 17	CR 220 to Creighton Rd	Widen to 6 Lanes	$50,304,000
US 17	Creighton Rd to Elbow Rd	Widen to 8 Lanes	$21,870,000
US 17	Elbow Rd to SR 224 (Kingsley Ave)	Widen to 8 Lanes	$7,837,000
US 17	SR 224 (Kingsley Ave) to Wells Rd	Widen to 8 Lanes	$24,605,000
US 17	N 1st St to SR 20	Widen to 12 Lanes	$10,024,000
US 17	SR 20 to SR 100	Widen to 10 Lanes	$13,499,000
I-95	North of Fuller Warren Bridge to SR 104 / Dunn Ave	Managed Lanes	$361,171,000
I-295	Southside Connector / SR 113 to JTB / SR 202	Managed Lanes	$249,005,000
I-75	US 441 (Alachua) to Alachua / Columbia County Line	Managed Lanes	$89,559,000
First Coast Expressway / SR 23	S of US 17 to N of SR 16	New Facility	$187,824,000
First Coast Expressway / SR 23	N of SR 16 to N of SR 21	New Facility	$282,440,000
US 301	at Crawford Diamond	Interchange Improvement	$32,800,000
First Coast Expressway / SR 23	at Shands Bridge	Bridge Improvement	$281,658,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Table 9-2 | Mid-term (2035) Unfunded Highway Needs

Project	Limits	Description	Estimated Cost
US 301 / SR 200	City of Waldo to Alachua / Bradford County Line	Widen to 6 Lanes	$32,299,000
SR 100	Clay County Line to Starke	Widen to 4 Lanes	$47,040,000
US 301 / SR 200	Alachua / Bradford County Line to CR 227 (Starke bypass south interchange)	Widen to 6 Lanes	$25,430,000
US 301 / SR 200	Marion County Line to Waldo	Widen to 6 Lanes	$159,109,000
I-75	Marion / Alachua County Line to Williston Rd	Widen to 8 Lanes	$97,049,000
SR 222 / 39th Ave.	W of I-75 Ramps to NW 83rd St	Widen to 6 Lanes	$19,993,000
SR 26 / Newberry Rd	NW 76th Blvd to I-75	Widen to 8 Lanes	$2,031,000
US 17	SR 20 to SR 100	Widen to 12 Lanes	$21,799,000
US 17	S of Crescent City to N of Crescent City	Widen to 4 Lanes	$16,110,000
US 17	N of Crescent City to S of Pomona Park	Widen to 4 Lanes	$28,719,000
US 17	S of Pomona Park to N of Pomona Park	Widen to 4 Lanes	$24,516,000
I-75	SR 121 (Williston Rd) to SR 222 (NW 39th Ave)	Managed Lanes	$130,100,000
I-75	SR 222 (NW 39th Ave) to US 441 (Alachua)	Managed Lanes	$90,267,000
I-75	Alachua / Columbia County Line to I-10	Managed Lanes	$267,311,000
I-75	I-10 to Columbia / Suwannee County Line	Managed Lanes	$35,936,000
I-75	Suwannee / Hamilton County Line to Georgia State Line	Managed Lanes	$286,721,000
I-295	W of US 17 (Collins / Blanding CDs) to S of SR 134 / 103rd St.	Managed Lanes	$98,420,000
I-295	W of US 17 to S of SR 134 / 103rd St.	Managed Lanes	$98,420,000
First Coast Expressway / SR 23	I-95 to SR 13	New Facility	$193,380,000
US 301 / SR 200	at SR 24 (Waldo)	Interchange Improvement	$35,100,000
I-75	at SR 26 / Newberry Rd	Interchange Improvement	$6,207,000
I-75	at SR 24 / Archer Rd	Interchange Improvement	$30,250,000
I-10	at SR 121	Interchange Improvement	$35,005,000
I-295	at US 17 / Wells Rd	Interchange Improvement	$24,937,000
SR 26	at SE 70th Ave	Add Turn Lanes	$259,000
SR 26	at SE 25th Ave	Add Turn Lanes	$971,000
SR 26	at CR 307 (SW 30th Ave)	Add Turn Lanes	$709,000
SR 26	at SW 298th / SE 90th Ave	Add Turn Lanes	$779,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Table 9-3 | Long-term (2045) Unfunded Highway Needs

Project	Limits	Description	Estimated Cost
US 17	Volusia County Line to S of Crescent City	Widen to 4 Lanes	$25,146,000
I-95	Flagler / St. Johns County Line to SR 206	Widen to 8 Lanes	$80,822,000
US 301 / SR 200	Bradford / Clay County Line to Clay / Duval County Line	Widen to 6 Lanes	$28,052,000
US 301 / SR 200	CR 233 (Starke Bypass North Interchange) to Bradford / Clay County Line	Widen to 6 Lanes	$52,407,000
US 301 / SR 200	Clay / Duval County Line to I-10	Widen to 6 Lanes	$46,018,000
Forsyth St	Lee St to Cleveland St	Widen to 4 Lanes	$6,088,000
Pritchard Rd	Pritchard Rd to I-295	Widen to 6 Lanes	$3,715,000
I-95	SR 115 (Lem Turner Rd) to SR 111 (Edgewood Ave)	Widen to 8 Lanes	$18,677,000
I-95	SR 111 (Edgewood Ave) to SR 105 (Heckscher Dr)	Widen to 8 Lanes	$26,923,000
I-95	SR 102 (Airport Rd) to Pecan Park Rd	Widen to 8 Lanes	$105,804,000
I-95	Pecan Park Rd to Nassau County Line	Widen to 8 Lanes	$70,302,000
I-95	Duval County Line to SR A1A / SR 200	Widen to 8 Lanes	$30,222,000
I-95	US 17 / SR 5 to Georgia State Line	Widen to 8 Lanes	$25,494,000
I-95	CR-210 to Duval County Line	Widen to 12 Lanes	$18,094,000
SR 100	E. City Limit (NE 8th Ave) to SR 231	Widen to 6 Lanes	$9,638,000
SR 222 / 39th Ave	NW 83rd St to NW 43 St	Widen to 6 Lanes	$42,062,000
SR 222 / 39th Ave	NW 43 St to SR 121 / NW 34 St	Widen to 6 Lanes	$16,724,000
SR 222 / 39th Ave	SR 121 / NW 34 St to US 441 / NW 13 St	Widen to 6 Lanes	$33,953,000
US 17	SR 16 East to SR 16 West	Widen to 6 Lanes	$8,551,000
US 17	SR 16 West to N City Limit (.09 miles N of Governor St)	Widen to 8 Lanes	$22,964,000
US 17	CR-220 to Creighton Rd	Widen to 10 Lanes	$50,304,000
US 17	Creighton Rd to Elbow Rd	Widen to10 Lanes	$21,870,000
US 17	Elbow Rd to SR 224 (Kingsley Ave)	Widen to10 Lanes	$7,837,000
US 17	SR 224 (Kingsley Ave) to Wells Rd.	Widen to 10 Lanes	$24,605,000
US 17	Wells Rd to Duval County Line	Widen to 10 Lanes	$6,652,000
US 17	N 1st St to SR 20	Widen to 4 Lanes	$10,024,000
US 41	Guerdon St to I-10	Widen to 4 Lanes	$18,771,000
SR 100	Bradford County Line to Putnam County Line	Widen to 4 Lanes	$37,152,000
SR 100	SR 26 to CR 216	Widen to 4 Lanes	$115,963,000
US 17	I-295 to Birmingham Gate	Add Aux Lane	$6,184,000
US 19	Taylor-Madison County line to Jefferson County Line	Widen to 6 Lanes	$18,000,000
US 19	Perry to Madison County Line	Widen to 6 Lanes	$50,000,000

Table 9-3 | Long-term (2045) Unfunded Highway Needs, Continued

Project	Limits	Description	Estimated Cost
I-10	Madison / Suwannee County Line to Suwannee / Columbia County Line	Managed Lanes	$228,869,000
I-10	Columbia / Baker County Line to CR 125	Managed Lanes	$629,011,000
I-10	I-75 to Columbia / Baker County Line	Managed Lanes	$166,049,000
I-10	Suwannee / Columbia County Line to I-75	Managed Lanes	$21,541,000
I-10	Jefferson / Madison County Line to Madison / Suwannee County Line	Managed Lanes	$295,836,000
I-95	SR 206 to CR 13A / International Golf Parkway	Managed Lanes	$657,918,000
I-95	I-10 to SR 139 / US 23 (Kings Rd)	Managed Lanes	$25,340,000
I-75	Columbia / Suwannee County Line to Suwannee / Hamilton County Line	Managed Lanes	$36,197,000
I-10	SR 23 to I-295	Managed Lanes	$259,586,000
I-295	SR 9B to I-95 South Interchange	Managed Lanes	$62,057,000
I-295	SR 13 to SR 21	Managed Lanes	$46,324,000
I-10	at I-75	Interchange Modification	$84,030,000
I-10	at I-295	Interchange Modification	$129,633,000
I-95	at University & Bowden	Interchange Modification	$45,384,000
I-95	at Emerson	Interchange Modification	$25,467,000
I-95	at US 1 and SR 206	Interchange Modification	$13,180,000
I-10	at US 301	Interchange Modification	$13,129,000
I-295	at Collins Rd	Interchange Modification	$8,800,000
SR 200 / SR A1A	at Yulee	Bridge Improvement	$68,050,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Operational Improvements and Quick-Fix Opportunities

Operational solutions represent an essential component of a regional freight movement improvement strategy. Intermodal facilities provide critical connections between freight nodes and their users. Based on the feedback received from stakeholders, it is evident that first-mile/ last-mile operational issues are of critical concern; and pubic and private industry stakeholders acknowledged operational improvements as an immediate opportunity for addressing regional and local challenges. To better understand these challenges, an operational analysis to identify immediate first-mile/ last-mile issues and potential solutions was conducted and documented in *Section Six: First-Mile/Last-Mile Connections* and summarized in *Section Seven: Freight Needs Assessment*.

Advance Identified First-Mile/Last-Mile Connection Findings

In many cases, operational improvements can be implemented at a relatively lower cost than traditional capacity projects with expedited project delivery times. These types of improvements aim to optimize existing transportation infrastructure by addressing deficiencies in safety, efficiency, and reliability. The preliminary findings require additional study and concept development to address the operational deficiencies identified in the analysis. ***Table 9-4*** lists the intersections identified for further screening to identify available right-of-way and physical constraints, explore potential innovative intersection control solutions, and ultimately develop project concepts and cost estimates for improvement solutions. In advancing these improvements, the District will explore partnership opportunities, grant and financing options and other funding and implementation alternatives while also evaluating the regional impacts and benefits of the proposed improvements.

Table 9-4 | Operational Analysis Findings: Locations for Detailed Analysis

Freight Connector	Main Road	Intersecting Road	Deficiency Finding
Alachua Area	CR 235	CR 235A	Geometric
Lake City (I-10) Area	US 41	I-10 EB Ramps	LOS
Lake City (I-10) Area	US 41	I-10 EB Ramps	Geometric
Lake City (I-10) Area	US 41	I-10 WB Ramps	Geometric
Lake City (I-10) Area	US 441	I-10 EB & WB Ramps	Geometric
FEC Intermodal Terminal Area	US 1	Cypress Plaza Drive	LOS
FEC Intermodal Terminal Area	SR 152	Bayberry Road	Geometric
FEC Intermodal Terminal Area	US 1	Bay Center Road	Geometric
FEC Intermodal Terminal Area	US 1	Cypress Plaza Drive	Geometric
CSX Intermodal Terminal Area	Pritchard Rd	Sportsman Club Road	LOS
CSX Intermodal Terminal Area	Pritchard Rd	Sportsman Club Road	Geometric
North New Berlin Area	New Berlin Rd	Faye Road	Geometric
SR 207 Area	SR 207 WB	I-95 NB Ramps	Geometric
JAXPORT SR 228 Area	Emerson St	Spring Park Road	LOS
JAXPORT SR 228 Area	Emerson St	Spring Park Road	Geometric

Source: Technical Memorandum 9: First-Mile/Last Mile Connections, Table 37: Summary of Findings.

Conduct District Wide Truck Parking Study

According to Florida's Trucking Association, truck parking is a capacity, geographic and even a political issue in the State of Florida. Inadequate truck parking is continuously noted as a top concern among commercial vehicle drivers and carriers nationwide. In fact, it is ranked on the top ten issues affecting the trucking industry based on the American Transportation Research Institute (ATRI) annual industry survey. Federal law requires commercial vehicle drivers to stop and rest for 10 hours after driving 11 hours within a 14-hour shift. When commercial vehicle drivers reach their driving limits and the truck stops are full, drivers often resort to parking on roadside shoulders, in vacant strip malls or in large parking lots. With changes in federal regulations relating to the Electronic Logging Devices (ELDs), early research has identified potential issues which will impact truck parking due to the use of ELD systems including an increased demand for commercial vehicle drivers and vehicles, and an increased need for truck parking along freight routes due to a greater number of vehicles. This issue is further compounded by forecasted future growth in trucked goods.

The District will conduct a detailed districtwide truck parking study to support the ongoing maintenance and expansion of public truck parking facilities in Northeast Florida. A focused truck parking study would provide a comprehensive understanding of existing facilities (including reserve and underutilized state properties adjacent to major freight corridors), the existing unmet need and demand, how the industry functions and shares information, and the regulations and policies in place impacting truck parking facilities. In conducting the analysis, the following factors should be evaluated in District Two:

- Usability and adequacy of existing truck parking facilities;
- Hours of Service (HOS) regulations and Electronic Logging Devices (ELDs) regulations impact demand at truck parking locations;
- Time-of-day impacts on truck parking;
- Distance between parking locations and tangible impact on public safety;
- Local codes and zoning ordinances that may regulate where trucks can operate and times of operation; and
- Safety, quality of life, and efficient operations of existing and future truck parking facilities.

Findings could then be used to help identify the need for additional truck parking, forecast the future needs of truck parking, and identify specific opportunities and priorities, and as well as immediate next steps.

Intermodal Infrastructure

The efficient movement of freight and goods highly depends upon well maintained and reliable transportation infrastructure. The freight industry and overall economy depends on the highway network and trucks, railroads, ships, and airplanes to bring goods to the marketplace and support the regional economy.

Unfunded Seaport Needs

Seaports are fundamental to positioning Florida as one of the nation's leading states for global trade, expanding imports and exports, creating new trade and logistics jobs, and expanding the value-added services that support global businesses (Florida Ports Council, 2016 Seaport Mission Plan). Northeast Florida is served by two deep water seaports: The Port of Jacksonville (JAXPORT) and The Port of Fernandina. Both ports are actively working to grow and diversify cargo operations. JAXPORT is in the process of dredging to increase port channel depth.

While major investments are taking place on port property, additional needs have been identified to expand terminal capacities to meet the future cargo needs and the demands of larger vessels. This section focuses on the identified unfunded seaport needs. Within District Two, 25 unfunded seaport needs costing $1.27 billion have been identified. These projects include facility and berth improvements, the installation of new cranes, dredging and harbor deepening, and rail connectivity. Unfunded needs refer to projects which are not currently funded in local, regional or state plans. ***Table 9-5*** through ***Table 9-9*** summarizes the unfunded seaport needs noting the description of the improvement and estimated cost of implementation for JAXPORT and the Port of Fernandina.

Table 9-5 | Short-term (2025) Unfunded JAXPORT Needs

Project	Limits	Description	Estimated Cost
JAXPORT	at Talleyrand and Blount Island Marine Terminals	New Cranes	$30,000,000
JAXPORT	at Blount Island and Dames Point Terminals	Rail and Berth Improvements	$250,000,000
JAXPORT	at Talleyrand Marine Terminal	Intermodal Rail	$10,000,000
JAXPORT	at Dames Point Marine Terminal	Berth Improvements	$30,000,000
JAXPORT	at Blount Island Marine Terminal	Facility Upgrades	$75,000,000
JAXPORT	at Talleyrand Marine Terminal	Berth Improvements	$25,000,000
JAXPORT	at Dames Point Marine Terminal	Facility Upgrades	$30,000,000
JAXPORT	at Blount Island Marine Terminal	Berth Upgrades	$40,000,000
JAXPORT	at Talleyrand Marine Terminal	Facility Upgrades	$20,000,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Table 9-6 | Short-term (2025) Unfunded Port of Fernandina Needs

Project	Limits	Description	Estimated Cost
Port of Fernandina	at Port of Fernandina	Berth Improvements	$800,000
Port of Fernandina	at Port of Fernandina	Intermodal Rail	$600,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Table 9-7 | Mid-term (2035) Unfunded JAXPORT Needs

Project	Limits	Description	Estimated Cost
JAXPORT	at Talleyrand and Blount Island Marine	New Cranes	$40,000,000
JAXPORT	at Blount Island Marine Terminal	Facility Upgrades	$75,000,000
JAXPORT	at Dames Point Marine Terminal	Facility Upgrades	$35,000,000
JAXPORT	at Talleyrand Marine Terminal	Terminal Upgrades	$20,000,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Table 9-8 | Long-term (2045) Unfunded JAXPORT Needs

Project	Limits	Description	Estimated Cost
JAXPORT	at Dames Point Marine Terminal	Facility Upgrades	$90,000,000
JAXPORT	at Blount Island / Dames Point Marine Terminals	Intermodal Rail	$30,000,000
JAXPORT	at Blount Island Marine Terminal	Berth Upgrades	$150,000,000
JAXPORT	at Talleyrand Marine Terminal	Facility Upgrades	$30,000,000
JAXPORT	for Talleyrand and Blount Island Marine Terminals	New Cranes	$80,000,000
JAXPORT	at Talleyrand Marine Terminal	Berth Upgrades	$40,000,000
JAXPORT	at Dames Point Marine Terminal	Berth Upgrades	$50,000,000
JAXPORT	at Talleyrand Marine Terminal	Intermodal Rail	$20,000,000
JAXPORT	at Blount Island Marine Terminal	Seaport Improvements	$90,000,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Table 9-9 | Long-term (2045) Unfunded Port of Fernandina Needs

Project	Limits	Description	Estimated Cost
Port of Fernandina	at Port of Fernandina	Berth Improvements	$10,000,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Unfunded Freight Rail Needs

Northeast Florida is served by two Class I Railroads (CSXT and NS), one Class II Railroad (Florida East Coast Railway), three Class III Railroads (First Coast Railroad, Florida Northern Railroad, and Georgia and Florida Railway), and one railroad specializing in switching and terminals (Talleyrand). While trucks serve the major share of freight demand within Northeast Florida, rail plays a significant role by providing long distance intermodal connections. An estimated one-fourth of the tonnage is intermodal (in shipping containers), while three-fourths is carload (all other equipment types). As outlined in the previous subsection, some intermodal rail improvements have been categorized as unfunded seaport needs given their scale and impact to seaport operations.

Within District Two, three unfunded freight railroad specific needs costing $75.6 million have been identified. Unfunded needs refer to projects which are not currently funded in local, regional or state plans. ***Table 9-10*** summarizes the unfunded rail needs noting the description of the improvement and estimated cost of implementation. It is important to note, while the proposed intercity passenger service is not a direct freight rail improvement, the introduction of passenger service on the FEC rail line could cause adverse impacts to future freight rail operations due to shared use and potential operational restrictions. It is recommended that this mid-term need be explored in more detail to determine freight movement impacts.

Table 9-10 | Short and Mid-term (2025 & 2035) Unfunded Freight Rail Needs

Project	Limits	Description	Estimated Cost
JAXPORT (2025)	at Talleyrand	Track Addition	$2,100,000
CSX-T (2035)	at SE 144th St / Mullins Grade (Starke) Crossing	Rail Grade Separation	$21,000,000
CSX-T (2035)	at CR-28 / Wells Rd (Orange Park)	Rail Grade Separation	$52,500,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Unfunded Air and Spaceport Needs

Within Northeast Florida, Air cargo makes up less than 1 percent of total commodity volume share and just over 1 percent of total value share. While this mode carries a relatively small portion of commodity volume share, commodities moved via air are typically light weight, high value, and time sensitive. This mode provides a fast, reliable, and secure goods movement option. Air cargo demand in the region is adequately met by current infrastructure capacity. The Jacksonville International Airport (JIA) Master Plan shows the volume of cargo, including freight and mail, handled at JIA will continue to increase over the planning period. The volume of cargo transported in the belly compartments of passenger aircraft is forecast to increase an average of 2 percent per year during the planning period, from 3.0 million pounds in 2007 to 4.4 million pounds in 2027.

Northeast Florida is served by three commercial service airports with reported air cargo activity. These facilities provide dedicated air cargo carrier operations and commercial service belly cargo. Northeast Florida is also home to the Cecil Spaceport. Within District Two, one unfunded airport and four unfunded spaceport needs costing $60.8 million have been identified. ***Table 9-11*** summarizes the unfunded air and spaceport needs noting the description of improvement and estimated cost of implementation.

Table 9-11 | Short-Term (2025) Unfunded Air and Spaceport Needs

Project	Limits	Description	Estimated Cost
JAX Airside Connections	at JIA	Apron	$24,015,000
Cecil Spaceport	at Cecil Spaceport	Apron	$18,400,000
Cecil Spaceport	at Cecil Spaceport (HLF)	Hanger	$2,000,000
Cecil Spaceport	at Cecil Spaceport (HLF)	Taxi	$3,112,000
Cecil Spaceport	at Cecil Spaceport (HLF)	Hanger	$13,288,000

Source: FDOT 2045 SIS Unfunded Needs Plan

Next Steps

The Northeast Florida Freight Movement Study was the first districtwide comprehensive review and analysis of freight infrastructure and operational issues in FDOT District Two. The Study identified freight transportation challenges and outlined opportunities for improvement. The Study highlights the importance of freight to the economy and quality of life in Northeast Florida; and as such, freight and logistics considerations need to be taken into account in all aspects of regional transportation and land use planning to ensure future safe and efficient movement of freight. The policies, programs, and projects summarized throughout this section provide a framework for addressing freight needs in Northeast Florida; in addition to these recommendations, a number of common themes were recognized for continued and future freight planning efforts, including:

- The District must take a balanced approach to freight transportation system enhancement by fostering innovative strategies and technology solutions.
- The District must assist in leveraging public and private sector investment to improve the capacity, reliability, and efficiency of Northeast Florida's freight system.
- The District must focus not only on maintaining and improving existing facilities, but also developing future freight corridors both highway and rail.
- The District must work collaboratively with local government to address first and last mile connection challenges including safety and travel time reliability issues.
- The District must foster a multi-jurisdictional and cross-sectorial approach to plan and prepare for freight needs.

It is important to note, not all the recommendations described in this section fall under the role and responsibility of the FDOT. Execution of many of the recommendations is the responsibility of other agencies, including Metropolitan Planning Organizations (MPOs), local governments, and private-sector entities such as railroads. A strong partnership and collaborative approach among all planning partners and industry stakeholders is necessary to effectively and successfully implement the Study recommendations.

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