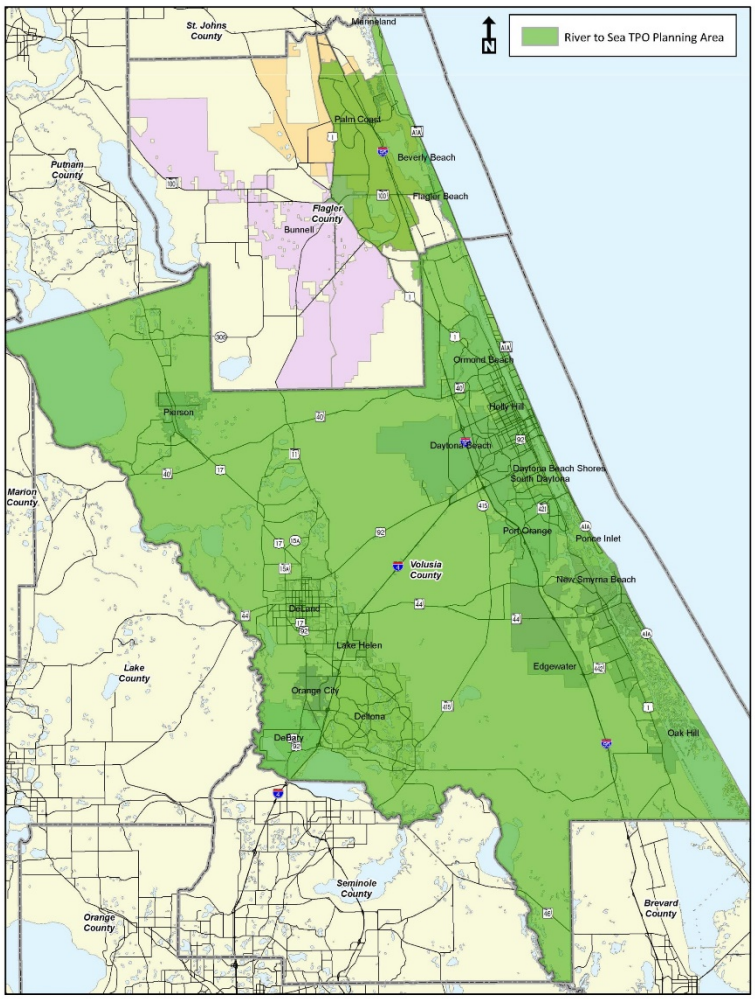
TECHNICAL APPENDIX G

CONNECT 2045 FREIGHT SUMMARY

Freight Summary for the River to Sea TPO 2045 Long Range Transportation Plan



CONNECT2045
YOUR COMMUNITY TRANSPORTATION PLAN

Contents

1 Purpose of Document

This Freight Summary consists of data and information prepared by FDOT District 5, in consultation with the River to Sea TPO, to support development of Connect 2045. This summary includes various statewide and TPO-specific freight data and information that was considered in development of the plan. Applicable state and federal requirements and guidance shaped development of this summary.

2 Introduction

There is growing recognition of the importance of freight movement at the national, state and regional level. Most notably, the need to place an increased focus on the nation's freight system is evident in the inclusion of freight provisions and requirements in the last two federal transportation bills. In 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) developed a national freight policy to improve the condition and performance of the national freight network. This included the designation of a national freight network and the development of a national freight strategic plan. These goals and objectives were further reinforced with the implementation of the Fixing America's Surface Transportation (FAST) Act, implemented in 2015. A key provision contained in the FAST Act is the requirement that State Departments of Transportation (DOTs), such as Florida DOT (FDOT), develop a state freight plan to comprehensively address the State's short- and long-term freight issues and needs. Development of state freight plans is required to be eligible to receive funding under the National Highway Freight Program (23 U.S.C 167).

In 2013 and 2014, FDOT developed the first Freight Mobility and Trade Plan (FMTP) designed to set the stage for freight planning in Florida, raise awareness, and energize the freight community. In 2020, FDOT updated the FMTP. This new document built upon the foundation set by the previous FMTP by using tactical and strategic approaches to implement immediate opportunities while also positioning Florida for future possibilities. One key recommendation from both FMTP efforts was the recommendation that freight issues and needs shall be given emphasis in all appropriate transportation plans, including the long-range transportation plans (LRTPs) required from Florida Metropolitan Planning Organizations (MPOs) and Transportation Planning Organizations (TPOs).

As such, FHWA Florida Division outlined LRTP freight element expectations in a letter to FDOT dated January 10, 2018 -

Florida's MPOs have been proactive in assessing and incorporating their freight needs. Freight shippers and providers of freight transportation services have been required to be incorporated into the stakeholder outreach that the MPO uses throughout the planning process and the LRTP to address the projected demand of goods transportation on the network. Changes to the planning requirements now also encourage the consultation of agencies and officials planning for freight movements. With the National Highway Freight Program a core funding category of federal funds, having a solid basis for incorporating freight needs and projecting the freight demands will be key to the LRTP's success for meeting its regional vision for the goods movement throughout the area. Additionally, the planning regulations now require the goals, objectives performance measures and

targets of the State Freight Plan to be integrated into the LRTPs either directly or by reference. While freight is one of the planning factors, it deserves special emphasis, and will need to play a more prominent role in future LRTPs. The MPOs need to show a concerted effort to incorporate freight stakeholders and strategies into the next LRTP {23 CFR 450.306(b)(4), (b)(6); 23 CFR 450.316(a); 23 CFR 450.324 (b), (f)(1), (f)(5)}.

3 Connect 2045 Goals Support the Florida Freight Mobility and Trade Plan

The 2020 FMTP developed a series of 10 freight-related objectives to guide development of the plan's recommendations to ultimately support the continued success of goods movement in Florida.

The FMTP objectives were developed by examining goals and objectives from USDOT, the Florida Transportation Plan (FTP), FDOT Modal Plans, partner agency plans, as well as by incorporating feedback provided by the Florida Freight Advisory Committee (FLFAC). This crosswalk ensured that the FMTP objectives reflect Florida's collective freight vision and set the stage for collaborative implementation of the FMTP recommendations.

Similarly, the River to Sea TPO's approved 2045 Long Range Transportation Plan's goals outline the region's vision for the future – while supporting the FTP goals and FAST Act requirements. Many of these goals specifically address freight-related issues. For example, under Goal 2: Support Economic Development, the 2040 LRTP defines Objective 2.2 – Freight Movement as "Identify and support safe and efficient truck routes and other facilities that improve freight and goods movement."

Many of the other 2045 LRTP goals support freight in a broader sense. Freight stakeholders and freight system users will benefit from a balanced, connected, and efficient transportation system, will be buoyed by support for economic development, and will benefit from improved safety and security. Freight stakeholders were able to provide input through participation in development of the LRTP.

Connect 2045 Goals

- Goal 1: Develop & maintain a balanced & efficient multimodal transportation system
- Goal 2: Support the economic development and growth of the TPO area and region
- Goal 3: Enhance and expand transportation connectivity and choice for all users
- Goal 4: Eliminate or reduce crash-related fatalities and serious injuries (safety) and improve security throughout the transportation network
- Goal 5: Promote livability by providing, protecting and enhancing social, cultural, physical and natural environmental places
- Goal 6: Promote equity, transparency, and opportunities for the public to be involved with their transportation system

The relationship between FTP goals, FMTP objectives and Connect 2045 goals is shown in Table 1.

Table 3. Relationship of Connect 2045 Goals to 2020 FMTP Objectives and FTP Goals

FTP Goal	FMTP Objective	TPO 2045 LRTP Goals					
		Efficient Multimodal System	Economic Development	Connectivity & Choices	Safety & Security	Create Quality Places	Equity and Participation
Safety and Security	Leverage multisource data and technology to improve freight system safety and security				✓		
Infrastructure	Create a more resilient multimodal freight system.	✓	✓	✓		✓	
	Ensure the Florida freight system is in a State of Good Repair	✓		✓	✓		
Mobility	Drive innovation to reduce congestion, bottlenecks and improve travel time reliability	✓	✓	✓	✓	✓	
Transportation Choices	Remove institutional, policy and funding bottlenecks to improve operational efficiencies and reduce costs in supply chains	✓	✓	✓			✓
	Improve last mile connectivity for all freight modes	✓	✓	✓			
Economy	Continue to forge partnerships between the public and private sectors to improve trade and logistics	✓	✓	✓			✓
	Capitalize on emerging freight trends to promote economic development		✓			✓	
Communities	Increase freight-related regional and local transportation planning and land use coordination	✓	✓	✓		✓	✓
Environment	Promote and support the shift to alternatively fueled freight vehicles	✓			✓	✓	✓

4 Outreach

In accordance with 23 CFR 450.306, 316, and 324, which describe the basic requirements of the scope of the metropolitan transportation planning process, including development of an LRTP and public participation plan, the River to Sea TPO will continue to engage with local and regional freight stakeholders throughout the development of the Connect 2045 LRTP. Freight coordination is called out as a specific strategy of the Connect 2045 Public Involvement Plan. To help accomplish this, a list of the largest freight-related businesses within the River to Sea TPO planning area is included in Appendix A: Top 50 Freight Employers. It is critical that input from freight system users be incorporated into the planning process to identify issues, improve the decision-making process, and increase transparency of the planning process.

In addition to the public outreach activities described below, much of the FMTP development was guided by the Florida Freight Advisory Committee (FLFAC). The FLFAC is tasked with advising the State on freight-related issues, serving as a forum for discussion regarding freight transportation issues, promoting the sharing of information between the public and private sectors, and communicating and coordinating regional priorities with other organizations. Public participation at meetings of the FLFAC is open and encouraged.

Representatives from the Florida Metropolitan Planning Organization Advisory Council (MPOAC) also served as part of the advisory committee for the FMTP. The MPOAC strives to serve as a leader in state transportation issues and seeks to improve transportation planning by engaging and equipping its members with the necessary education and resources to improve their effectiveness.

4.1 Connect 2045 Outreach

As part of the Connect 2045 planning process, the TPO engaged the freight community, including extensive coordination with the FDOT Freight Coordinator and organizations that represent freight industry companies. Input during the plan noted that it is critical for the area's transportation network to support companies like Trader Joe's, Amazon, US Foods, Boston Whaler and other commercial and manufacturing operations that demonstrate an increased demand for freight activity.

Team Volusia, which serves as a voice for business and freight interests, was particularly helpful in providing input into the planning process. A direct stakeholder outreach meeting was conducted with the organization during development of the Cost Feasible Plan. Key points of input included:

- Support for the TPO's continuing effort to plan for projects that support freight movement
- Concurrence with Connect 2045's identified project needs and support for the proposed 2045 plan of cost feasible projects
- The continuing need for transportation to adequately serve existing, new and proposed distribution and manufacturing facilities
- The importance of planning for reliable transportation in hubs such as I-95/International Speedway Blvd (US 92)/Daytona Beach International Airport and I-4/Howland Blvd
- Support for potential expansions like the proposed I-95/Farmton Interchange that align with planned growth in distribution and/or manufacturing
- Potential future growth was also mentioned such as high-end manufacturing and aerospace associated with the airport and a distribution center adjoining Daytona International Speedway

4.2 FMTP Regional Freight Forums

Regional Freight Forums were held as part of the FMTP 2020 update between May 20 and June 12, 2019. Within the River to Sea TPO, a forum was held at the FDOT Office in DeLand on May 28, 2019. For all of the Regional Freight Forums, notice of the meeting dates, times, and subject matter was advertised through multiple avenues well in advance of the meetings. The meetings were open to all members of the public including all freight stakeholders.

At each meeting, FDOT FMO Office staff presented an overview of the importance of freight to Florida and the local region, the purpose of the FMTP, and preliminary thoughts on goals, objectives, trends, and general issues for freight. Participants were engaged in breakout groups to answer key questions such as:

- What are the most critical freight challenges/issues you encounter?
- What are the most important needs in your region?
- What opportunities do you see with freight?

- What new and developing technologies should Florida support to enhance freight mobility?
- How can we leverage collaboration to improve freight mobility?

4.2.1 Statewide Findings

Common themes among all FDOT districts included:

- Congestion and bottlenecks due to the growing number of vehicles on the road and unpredictability in travel times.
- Limited or no truck parking in some parts of the state. This problem is exacerbated by strict federal regulations on hours of service.
- Lack of land use compatibility between local developments and freight industry needs.

4.2.2 District 5 Findings

FDOT District 5 includes the River to Sea TPO area (Volusia County and parts of Flagler County) as well as the extents of Brevard, Flagler, Lake, Marion, Orange, Osceola, Seminole, and Sumter Counties. Comments and discussion items explored during the District 5 Regional Freight Forum were grouped under the categories of Challenges/Issues, Needs, Opportunities, and Collaboration. A summary of the key takeaways most relevant to River to Sea TPO is provided below:

Challenges/Issues

- Truck parking is the number one issue in the district. Volusia County is especially affected by these issues, with many drivers parking in undesignated locations when they hit the limits of their hours of service.
- Land use compatibility with recent freight-related developments has been a challenge for all agencies. Land use changes should be communicated with FDOT and other regional partners to ensure all relevant partners can plan accordingly. New developments within Volusia County are generating more freight and also putting a greater strain on the transportation network.
- Shippers and truck drivers struggle with municipal freight restrictions. Positive routing (i.e., designated truck routes) rather than restrictive routing would help.

Needs

- With growing demand for moving freight and people and aging infrastructure, transportation funding remains a struggle. District 5 partners should work together to be more competitive for discretionary and formula-based funding.
- Oversize loads, particularly for the space industry, present a unique challenge for the District.

Opportunities

- District 5 partners should work to attract more manufacturing businesses to help counter the issues of Florida's consumer state status and high proportion of empty truck backhaul.
- The rapid rise of e-commerce is bringing new freight transportation planning challenges for local and state agencies to address.
- There is an opportunity to more effectively tell the "story of freight" so the general population better understands the needs and issues of goods movement.
- Autonomous/connected vehicles and truck platooning offer many potential benefits, including more efficient operations and a lesser need for human labor, but there is still much uncertainty regarding when, where, and how these technologies will be deployed.
- Planning for and building electric vehicle charging stations will help future-proof a projected long-term shift to electric fleets.

Collaboration

- FDOT District Freight Coordinator will continue to stay engaged and informed of all freight activities within the District. Local communities and agencies should consider designating a freight industry ambassador.
- Engaging with the private freight sector will be critical to understand their unique issues and needs. Communities should look to other agencies and regional partners to see how the freight community can be engaged in the most productive way possible.

5 Systems and Assets

Multiple freight assets are located within the River to Sea TPO boundary including highways, airports, and railroads. This section provides an overview of the key freight systems and a brief assessment of their overall condition.

5.1 Designated Freight Networks and Facilities

Florida's transportation system includes two designated freight networks at the federal and state level as well as a number of multimodal facilities throughout the state. The following is a summary of the National Highway Freight Network (NHFN), the Interim National Multimodal Network (NMFN), and the Strategic Intermodal System (SIS).

Freight mobility was one of the factors in Connect 2045's technical criteria scoring, giving increased points to corridors that are designated as freight routes. Strategic Intermodal System (SIS) projects identified in the Cost Feasible Plan are among the most critical needs that address efficient and safe movement of freight. Connect 2045 is consistent with the Central Florida Regional Freight Mobility Study.

5.1.1 National Highway Freight Network (NHFN)

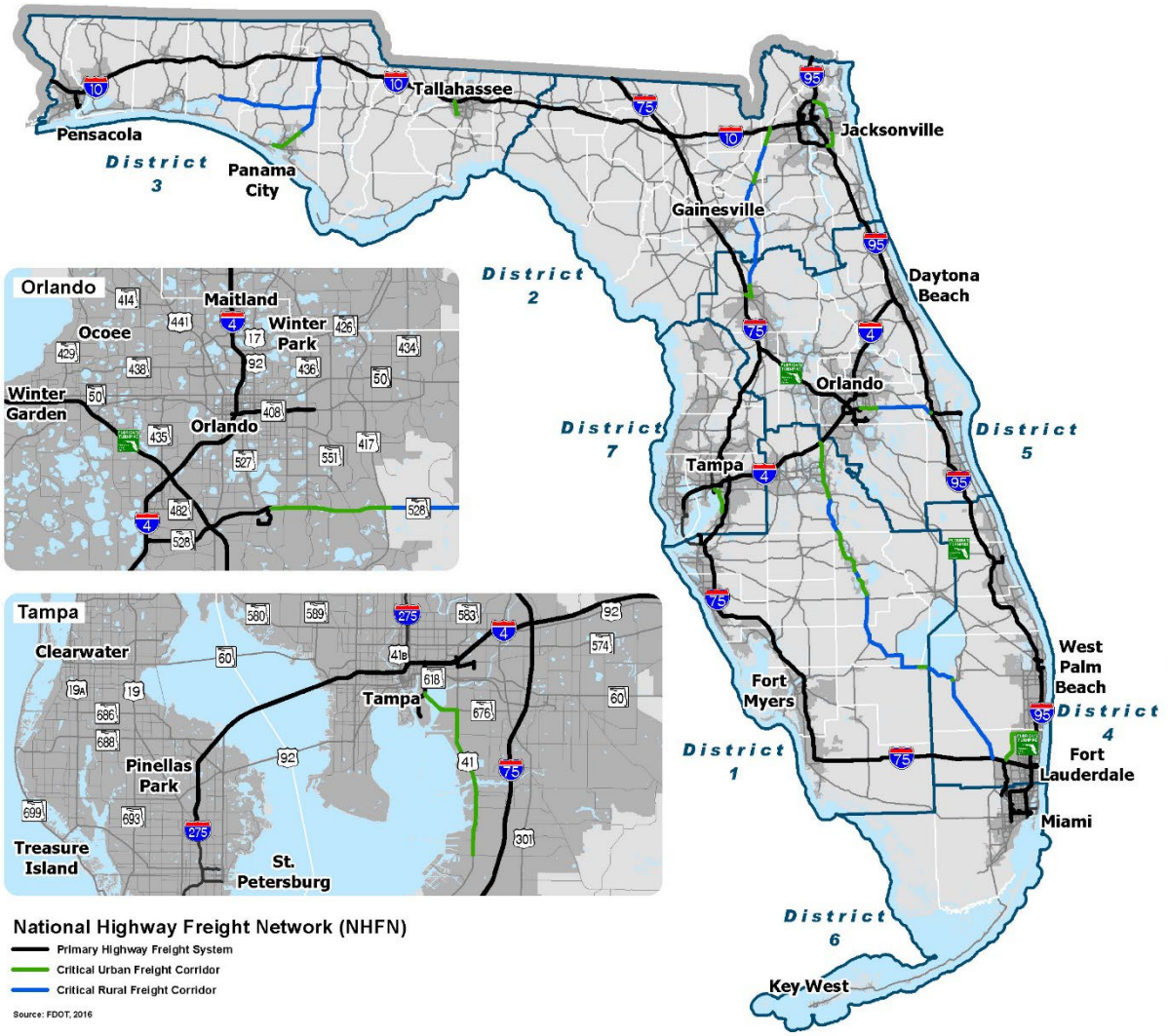
The NHFN is a network of strategically important highway corridors for the movement of freight across the country. This network is expected to assist different states in strategically directing resources toward improved system performance for efficient movement of freight on highways.

The NHFN is composed of the following four roadway sub-systems:

- **Primary Highway Freight System (PHFS):** The network of highways identified as most critical to freight movements based on an FHWA assessment of heavy commercial average daily traffic volumes. This network consists of 37,436 centerline miles of Interstate highways and 4,082 centerline miles of non-Interstate highways. The Florida PHFS contains 1,601 centerline miles.
- **Other Interstate Highways:** All other segments of Interstate not included in the PHFS are also included in the NHFN. This includes 55 centerline miles of highway in Florida.
- **Critical Urban and Rural Freight Corridors (CUFC, CRFC)**: These highways provide critical connections between the PHFS and Interstate highway system and freight-intensive areas. The designation of CUFCs are determined by state agencies in coordination with local agencies such as MPOs and TPOs while the designation of CRFCs are determined solely by the State. There is a maximum mileage allotted to each state individually. Florida's maximum for CUFC designation is 160 centerline miles while it's maximum for CRFC designation is 320 centerline miles.

The NHFN in Florida is shown in Figure 1 below. Highways on the NHFN system within River to Sea TPO planning area include I-95 and I-4. No portions of the designated CUFC and CRFC routes are included within the TPO boundary.

Figure 1. National Highway Freight Network (NHFN) in Florida



Source: FDOT 2020 FMTP

5.1.2 Interim National Multimodal Freight Network (NMFN)

The Interim Multimodal Freight Network (Interim NMFN) is based on the statutory requirements identified in 49 U.S.C. 70103(b)(2) [1] and includes the National Highway Freight Network , the freight rail systems of Class I railroads, the public ports of the United States that have total annual foreign and domestic trade of at least 2,000,000 short tons, the inland and intracoastal waterways of the United States, the Great Lakes, the St. Lawrence Seaway, and coastal and ocean routes along which domestic freight is transported, the 50 airports located in the United States with the highest annual landed weight, and other strategic freight assets such as railroad connectors and border crossings.

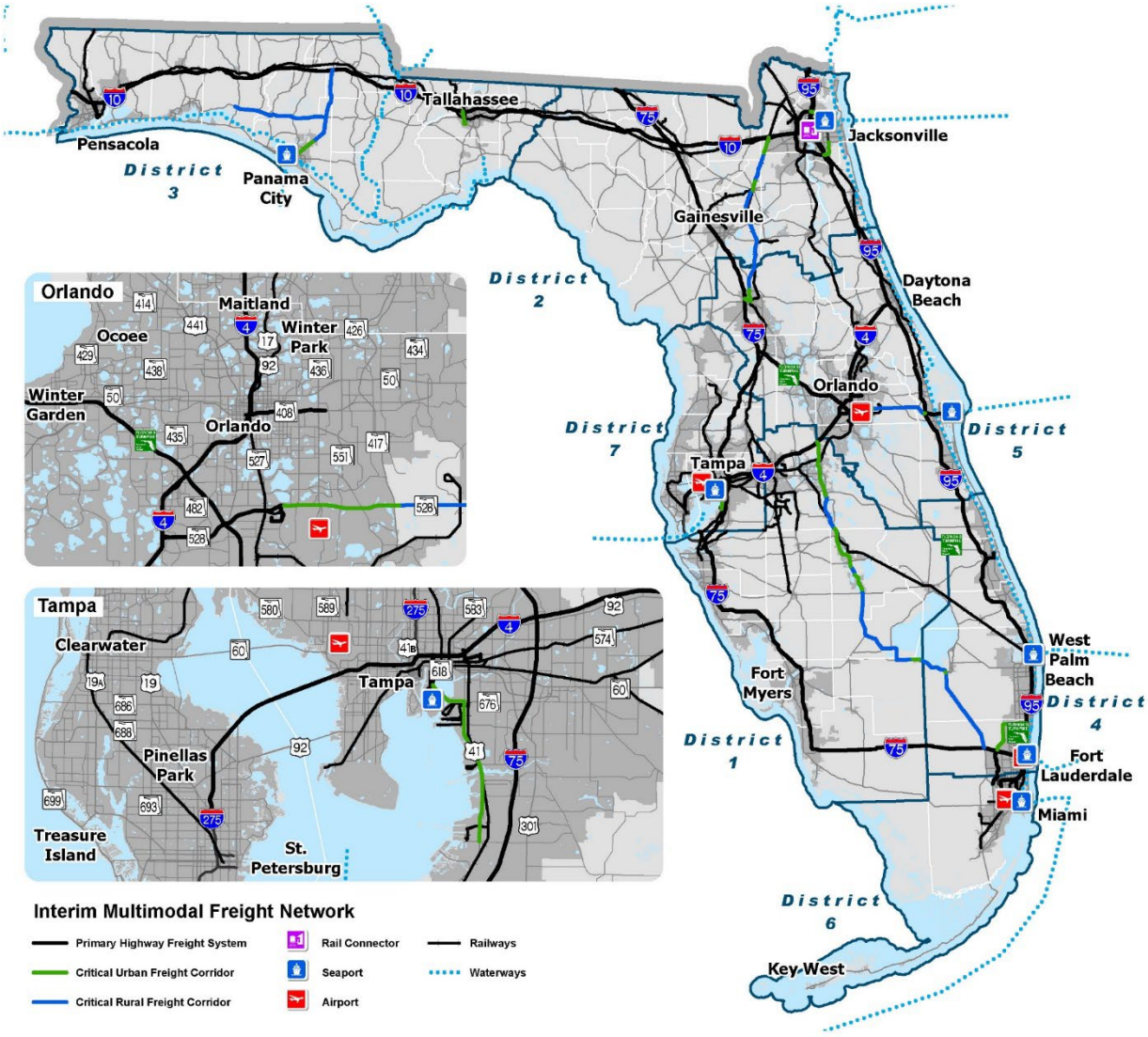
Section 70103 of title 49, U.S.C., established in section 8001 of the Fixing America's Surface Transportation (FAST) Act, directs the Under Secretary of Transportation for Policy to establish a NMFN that will be used to:

- Assist states in strategically directing resources toward improved system performance for the efficient movement of freight on the NMFN;
- Inform freight transportation planning;
- Assist in the prioritization of federal investment; and
- Assess and support federal investments to achieve the national multimodal freight policy goals and the national highway freight program goals.

The NMFN in Florida is shown in Figure 2 below. Portions of the NMFN system within TPO include the portions of the NHFN noted above plus the Intracoastal Waterway system along the Atlantic Ocean.

[1] Establishment of Interim National Multimodal Freight Network, 2015

Figure 2. Interim National Multimodal Freight Network Florida



Source: FDOT 2020 FMTP

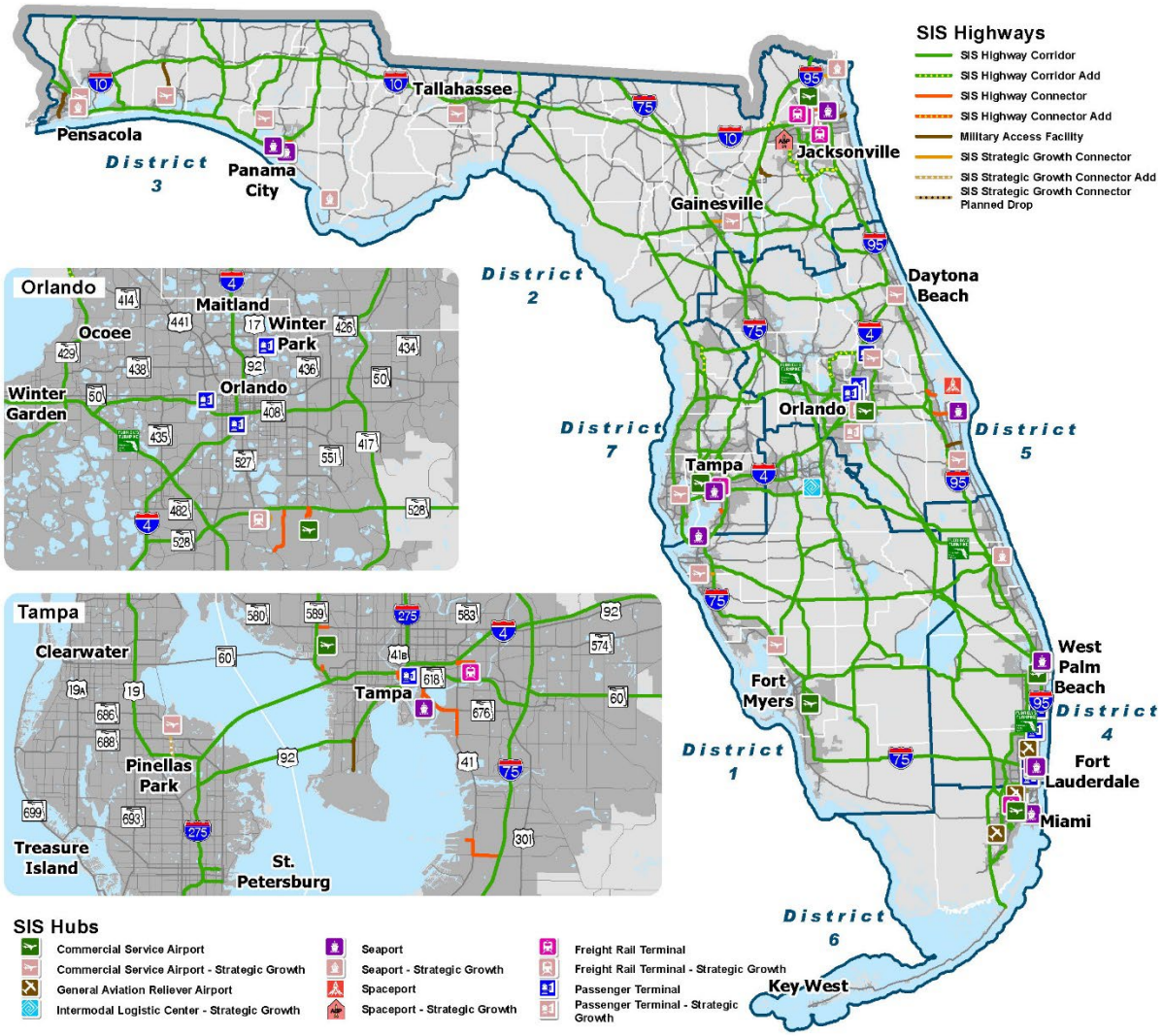
5.1.3 Florida Strategic Intermodal System (SIS)

Florida's Strategic Intermodal System (SIS) was established in 2003 in order to focus transportation resources on facilities most important to the movement of people and goods at the interregional, interstate, and international levels. Facilities on this system represent Florida's highest priority for transportation investments and are a primary focus of long range transportation planning efforts.

The SIS includes the state's largest and most significant commercial service and general aviation airports, spaceports, public seaports, intermodal freight terminals, rail corridors, waterways, and highways. SIS facilities are the workhorses of Florida's transportation system and account for a dominant share of the people and freight movement to, from, and within Florida. The SIS also includes facilities that have strategic growth importance. All facilities designated on the SIS are eligible for state transportation investments consistent with the policy framework defined in the SIS Policy Plan.

The SIS in Florida is shown in Figure 3 below. Facilities and networks within the TPO include I-95, I-4, SR-40, SR-15A, and SR-100. Other facilities on the SIS include the Daytona Beach International Airport (a Commercial Service Airport categorized as a Strategic Growth Airport within the SIS), and CSX and Florida East Coast (FEC) Railway mainlines.

Figure 3. Strategic Intermodal System



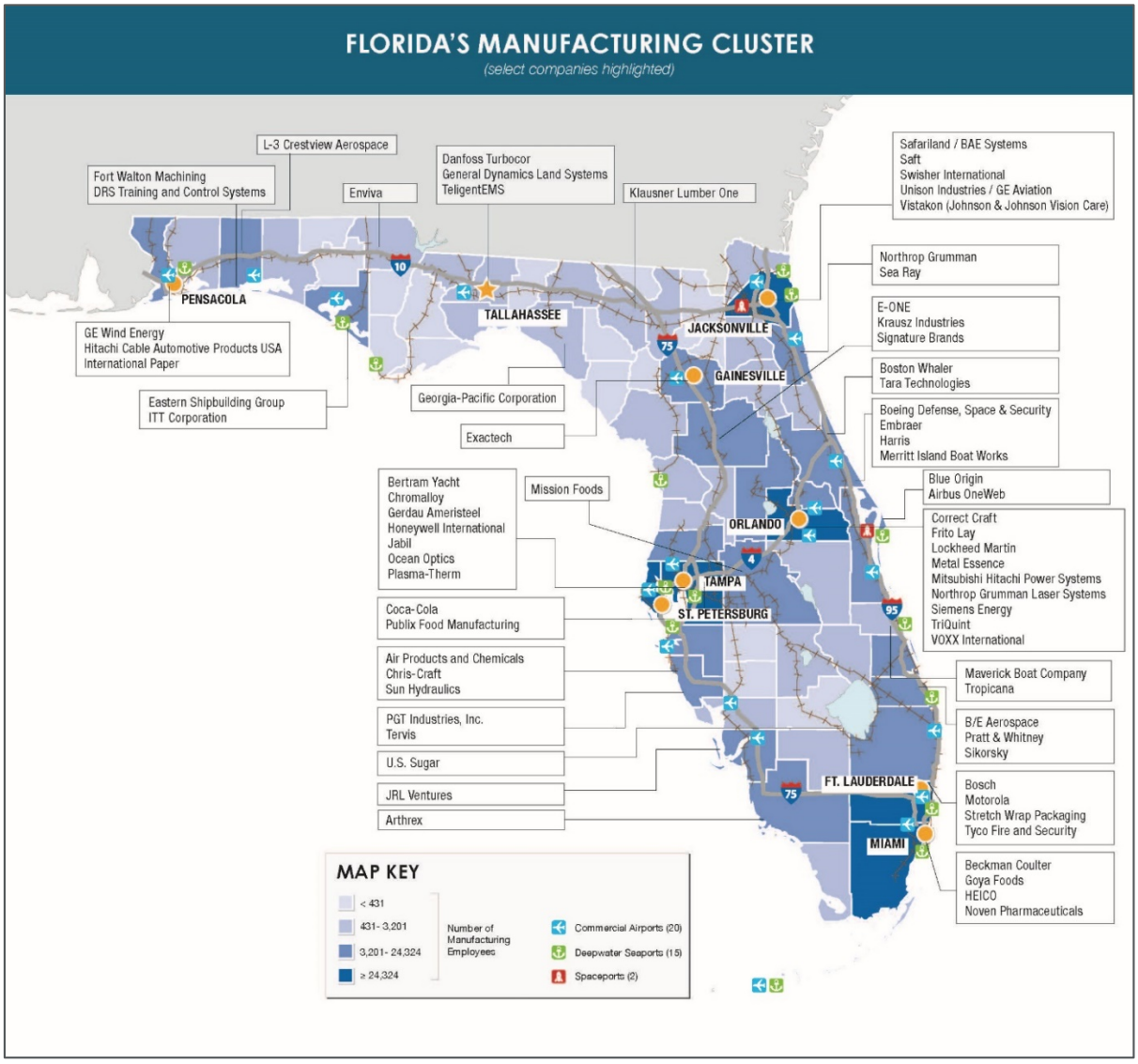
Source: FDOT 2020 FMTP

5.2 Freight Clusters

Florida has multiple clusters of freight activity throughout the state. The location of manufacturing clusters statewide is shown in Figure 4. The most notable clusters are locations in major metropolitan areas including Miami, Tampa-St Petersburg, Orlando, and Jacksonville. In addition to these manufacturing centers, Florida also boasts the third largest cluster of logistics and distribution centers in the US. The locations of these clusters are shown in Figure 5.

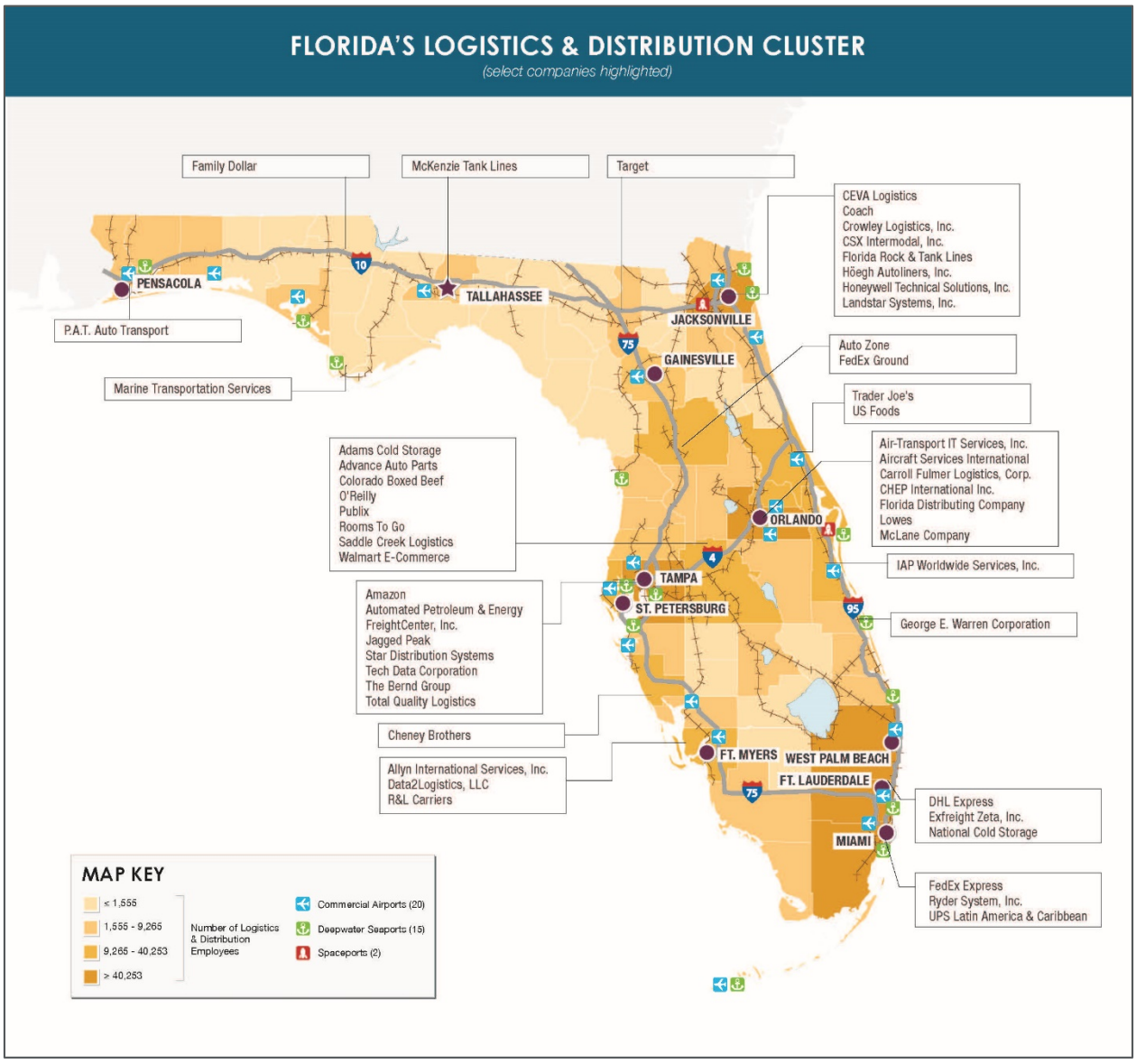
With respect to the River to Sea TPO planning area, major freight-related businesses in the area include Boston Whaler and the Trader Joe's distribution center in Daytona Beach. The freight transportation infrastructure in the River to Sea TPO area plays a crucial role in connecting other major freight clusters in Florida to the regional and national economy.

Figure 4. Florida's Manufacturing Clusters



Source: FDOT 2020 FMTP

Figure 5. Florida's Logistics and Distribution Clusters



Source: FDOT 2020 FMTP

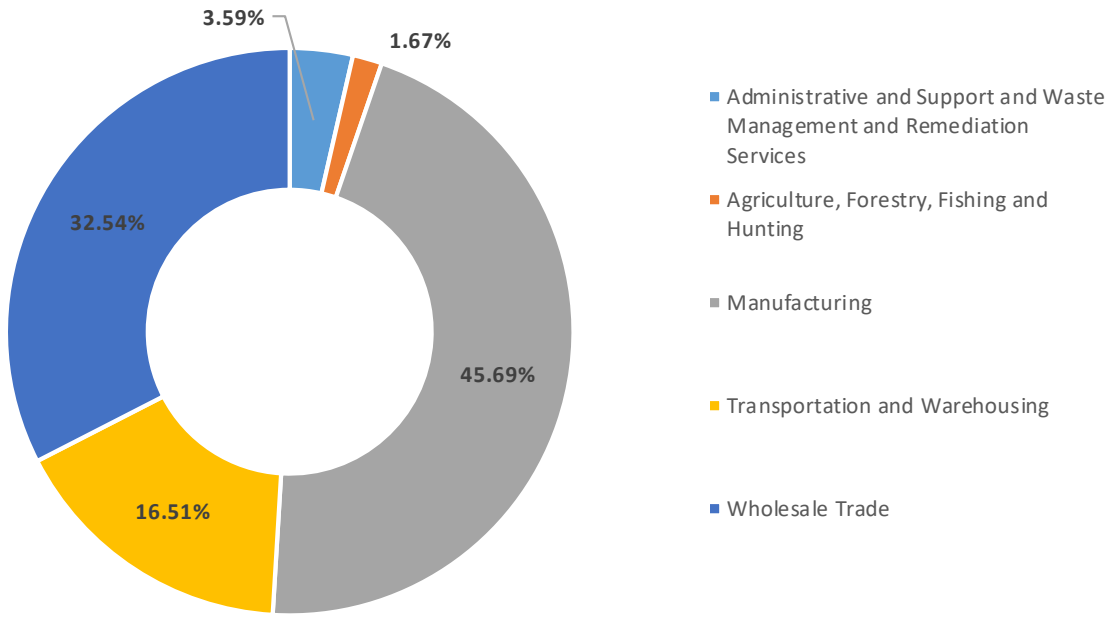
5.2.1 Employment by Industry Type

Freight-related employment within the River to Sea TPO area was evaluated to assess the magnitude and importance of these industries to the local economy. The freight-related industries with the highest employment (top 25 businesses by employee size) are classified under the following sectors:

- Manufacturing
- Wholesale Trade
- Transportation and Warehousing
- Administrative and Support, and Waste Management and Remediation Services

The distribution of employment by industry type for all freight businesses within the River to Sea TPO area is shown in Figure 6 below. Manufacturing accounts for nearly half (46 percent) of freight employment, followed by Administrative and Support and Waste management and Remediation Services at 33 percent, and Transportation and Warehousing at 17 percent.

Figure 6. Distribution of Employment by Industry Type



Average employment at freight businesses ranges between 6 and 2,148 people (Figure 7). These businesses are largely concentrated in the Daytona Beach, New Smyrna Beach, and northern DeLand areas. Maximum employment at freight businesses falls within a similar range of between 8 and 2,607 people (Figure 8). The largest freight-related employer within the River to Sea TPO area is Boston Whaler (a business in the manufacturing sector).

5.2.2 Floor area by Industry Type

The floor area of freight-related businesses by industry type was reviewed using information from the Florida Department of Revenue. The locations and concentrations of freight business floor area (Figure 9) closely matches the distribution of freight employment with concentrations predominantly in the Daytona Beach and DeLand areas.

Figure 7. Average Monthly Freight Employment (2016)

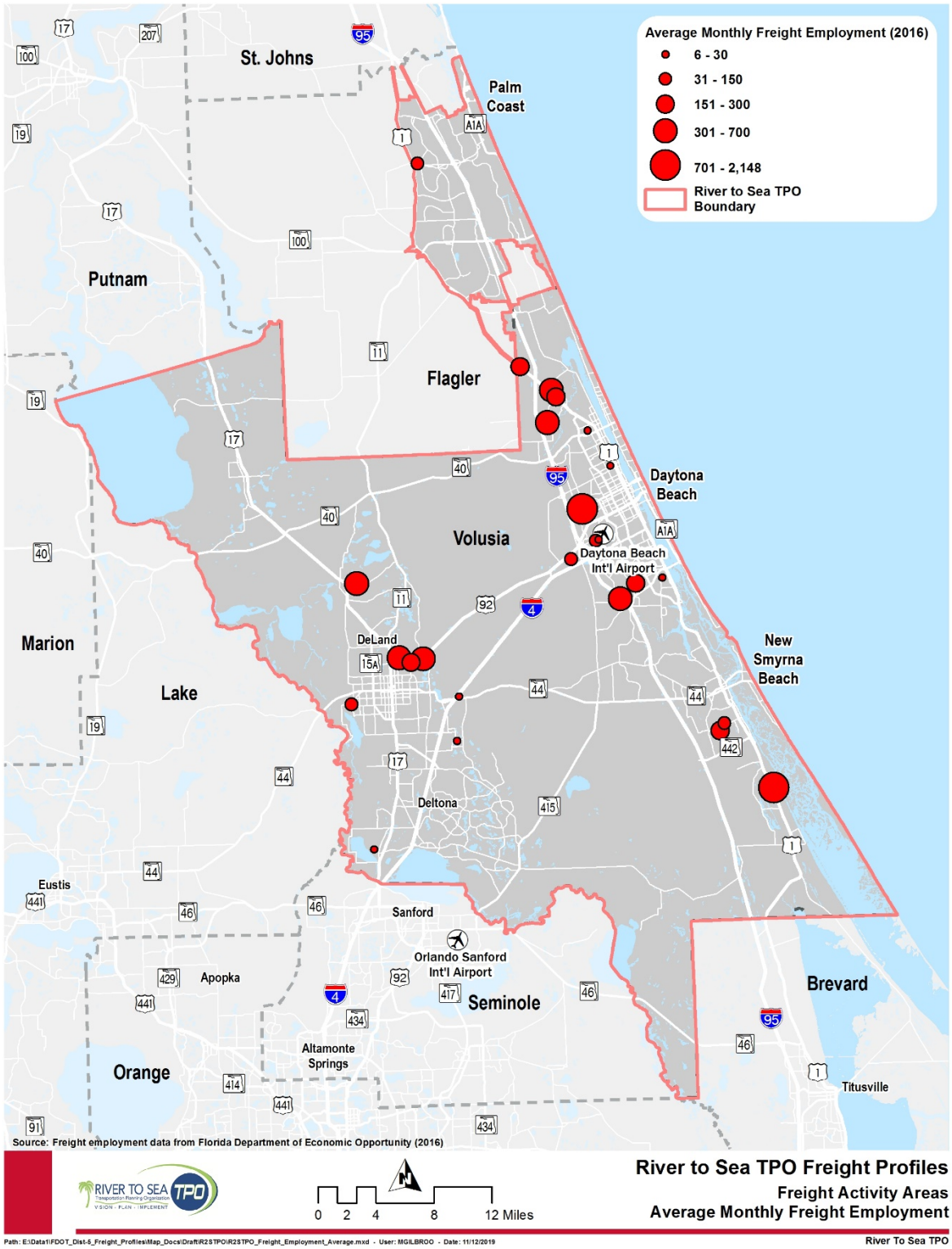


Figure 8. Maximum Monthly Freight Employment (2016)

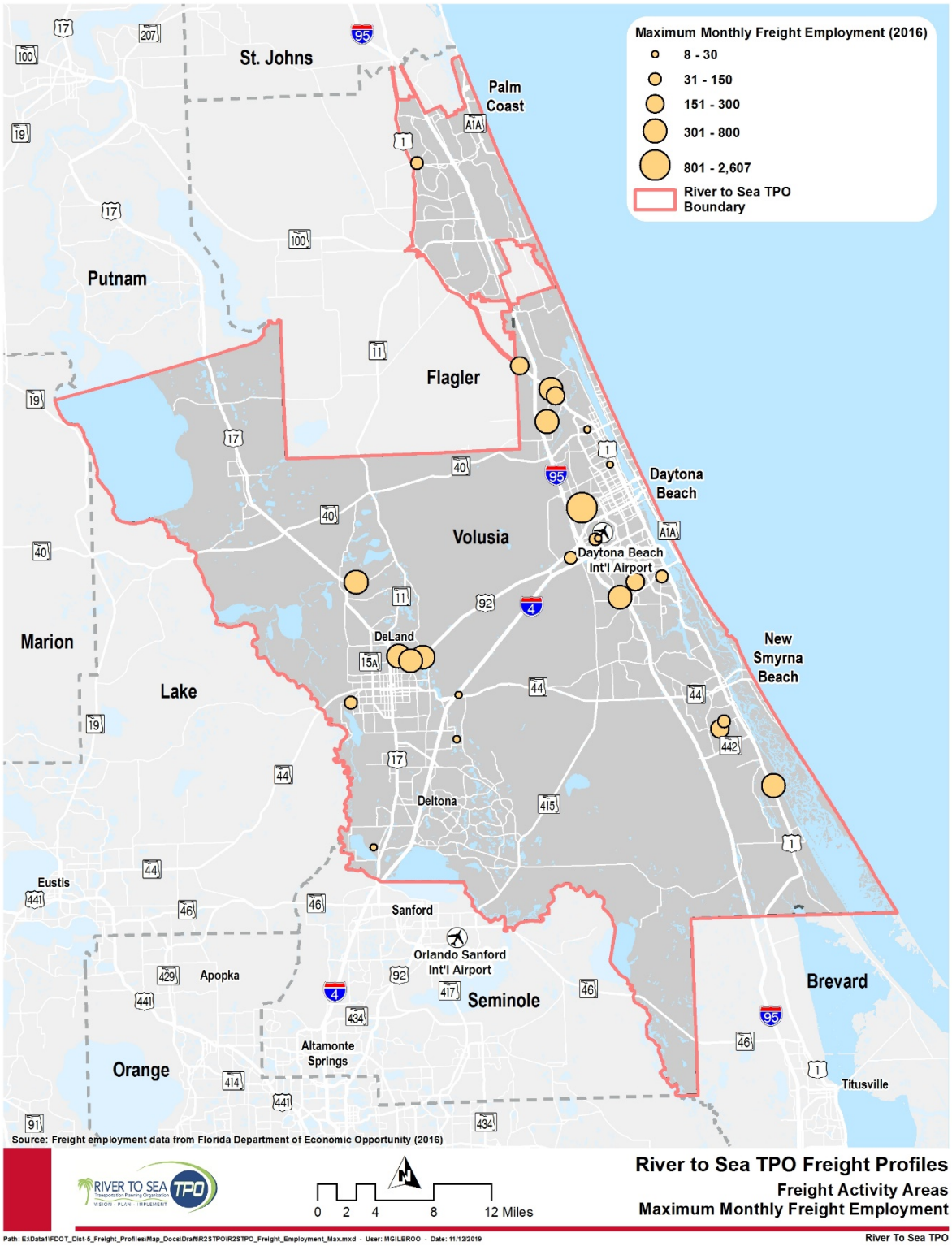
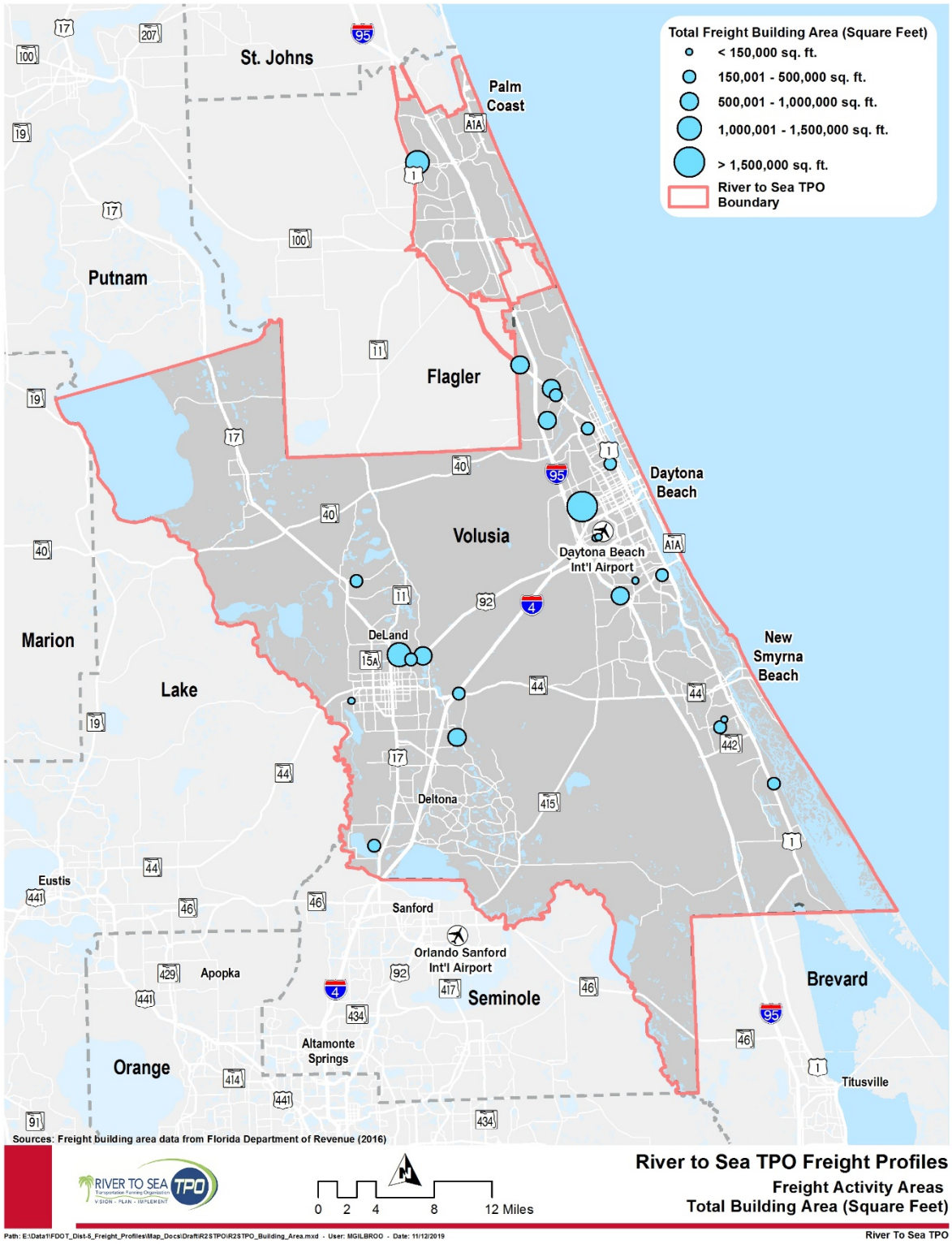


Figure 9. Total Freight Building Area (Square Feet)



6 Performance and Conditions

6.1 FMTP Performance Measures

FDOT and the River to Sea TPO have adopted specific FAST Act performance measures and targets that are defined in the System Performance Report in Chapter 2 of Connect 2045. Through the FMTP update process, FDOT also considered multiple performance measures consistent with FDOT's Source Book, FDOT's Transportation Asset Management Plan (TAMP), Transportation Performance Management (TPM) federal performance measures, Florida Transportation Plan (FTP) goals, the Freight and Mobility Trade Plan (FMTP) objectives and the Highway Performance Monitoring System (HPMS). These measures indicate whether Florida's transportation system is achieving the objectives outlined in the plan and also show whether progress is being made towards the goals. A summary of these performance measures is included Table 2. Note that the FMTP does not set targets outside of FDOT's FAST Act performance measures and targets. The FMTP performance measures are provided for informational purposes.

Table 2. FMTP Performance Measures

Mode	Quantity	Quality	Utilization
Highway	• Truck Miles Traveled • Combination Truck Miles Traveled • Combination Truck Ton Miles	• Combination Truck On-Time Arrival • Combination Truck Planning Time Index • Combination Truck Hours of Delay • Truck Bottlenecks • Percent of travel meeting Level of Service • Highway Pavement Conditions • Bridge Conditions • Highway (Truck) Safety	• Truck Empty Backhaul • Truck Parking Utilization
Rail	• Rail Tonnage	• Rail crashes	
Water	• Seaport Tonnage		
Aviation	• Aviation Tonnage	• Aviation Departure Reliability	

6.2 Highway System Conditions

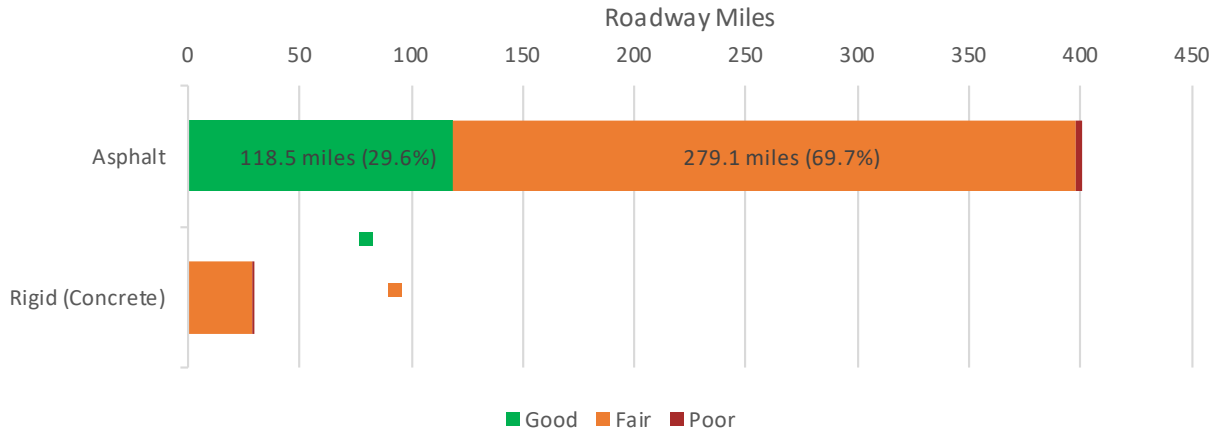
The condition of surface transportation infrastructure plays an import role in safety, transportation operations, and efficiency.

6.2.1 Pavement Condition

Pavement condition is measured on a scale of Good to Fair to Poor based on an annual survey of the state highway system (the survey measures the presence of cracks and

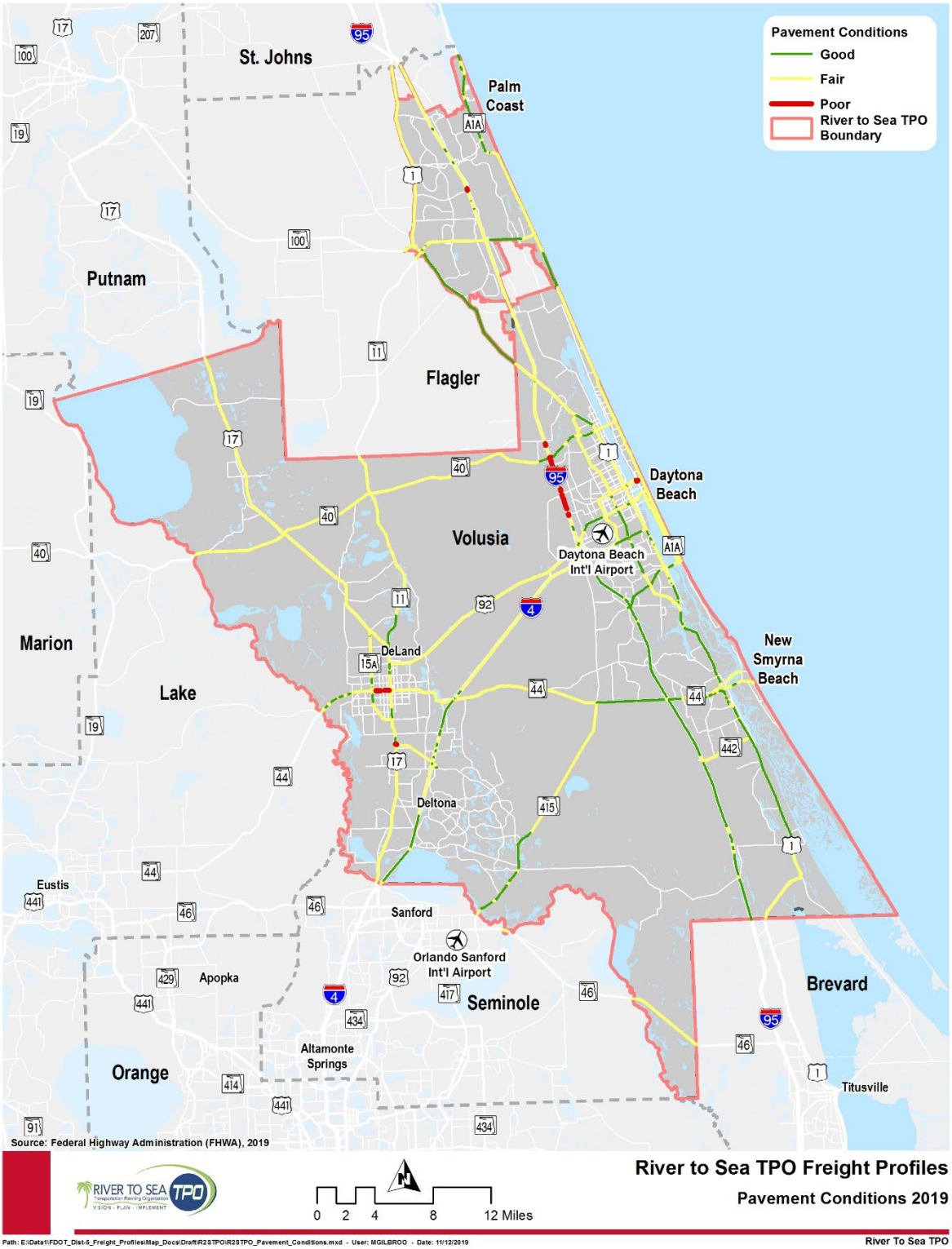
ruts on the roadway as well as considers overall ride quality). Within the River to Sea TPO area, 28 percent of the state highway system rates as "Good", while 72 percent rates as "Fair" (Figure 10). Less than one percent of the state highway system is classified as "Poor". The figure also highlights the fact that the majority of state highway system in the River to Sea TPO area are asphalt pavement (as opposed to concrete).

Figure 10. 2018 NHS Pavement Condition Based on FHWA Performance Measures



Some freight-intensive segments were rated as "Poor", notably the portion of I-95 between SR-40 and US-92, and short segments of roadway within DeLand and Daytona Beach (Figure 11). Note that the I-95 at I-4 interchange was under construction in 2018, which may have impacted the pavement rating.

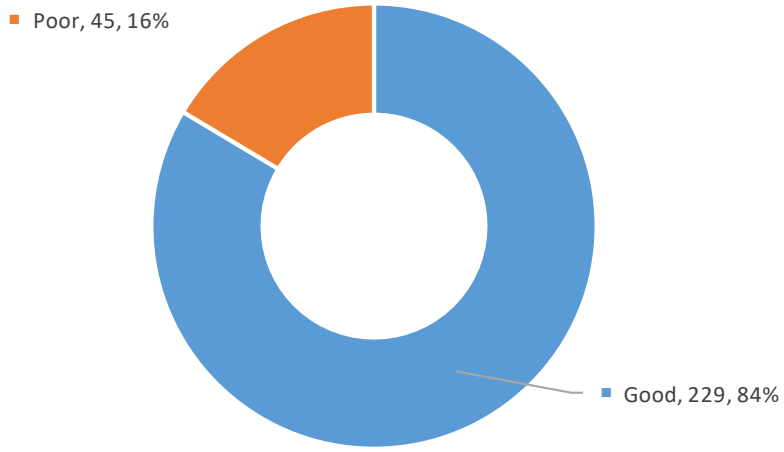
Figure 11. Pavement Conditions



6.2.2 Bridge Condition

Bridges are an important component of the freight transportation system from both a weight capacity standpoint as well as a vertical and horizontal clearance standpoint. Based on a review of the National Bridge Inventory (NBI), there are 274 bridges within the River to Sea TPO area. Of these, 84 percent are rated as being in "Good" condition while the remaining 16 percent are rated as being in "Poor" condition (Figure 12).

Figure 12. Bridge Condition



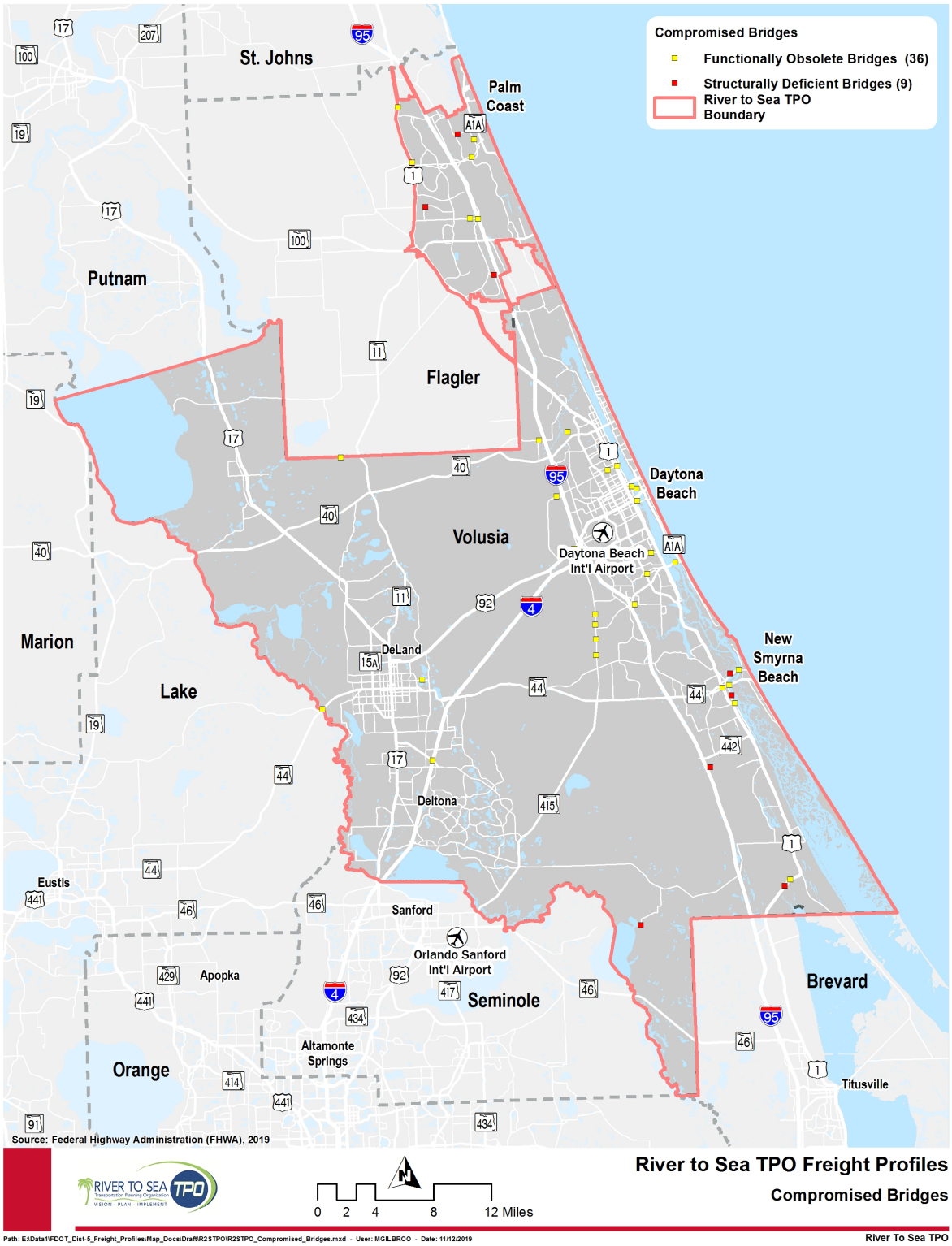
FDOT Bridges and Structures applies ratings of "functionally obsolete" or "structurally deficient" for bridges that do not meet current standards in one or more aspects. The definitions of these terms are shown below.

- **Functionally Obsolete:** A bridge having an appraisal rating of 3 or less for deck geometry, under clearances, or approach roadway alignment, or having an appraisal rating of 3 for structural condition waterway adequacy.
- **Structurally Deficient:** A bridge with any component (deck, superstructure, substructure, or culverts) in Poor condition.

The River to Sea TPO area includes 36 bridges defined as functionally obsolete (Figure 13). These are primarily concentrated in and around Daytona Beach with other concentrations around New Smyrna Beach, Palm Coast, and DeLand.

The River to Sea TPO area includes 9 bridges defined as structurally deficient (Figure 13). The locations of these bridges are clustered on the north side of the TPO area in or near Palm Coast and on the southeast side of the TPO area in and south of New Smyrna Beach.

Figure 13. Functionally Obsolete and Structurally Deficient Bridges



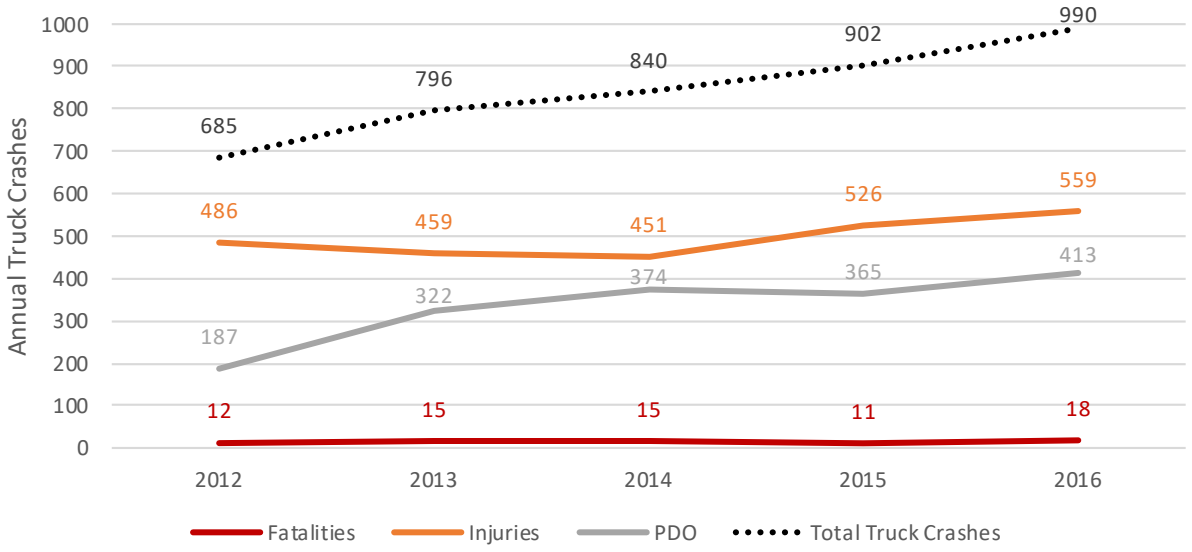
6.3 Freight System Safety

Ensuring the safety of the freight transportation system is crucial for both lessening the impact of freight on other transportation system users and maintaining operation efficiency of the transportation networks and supply chains. The following section reviews safety conditions for highways and railroads within River to Sea TPO area.

6.3.1 Highway Safety

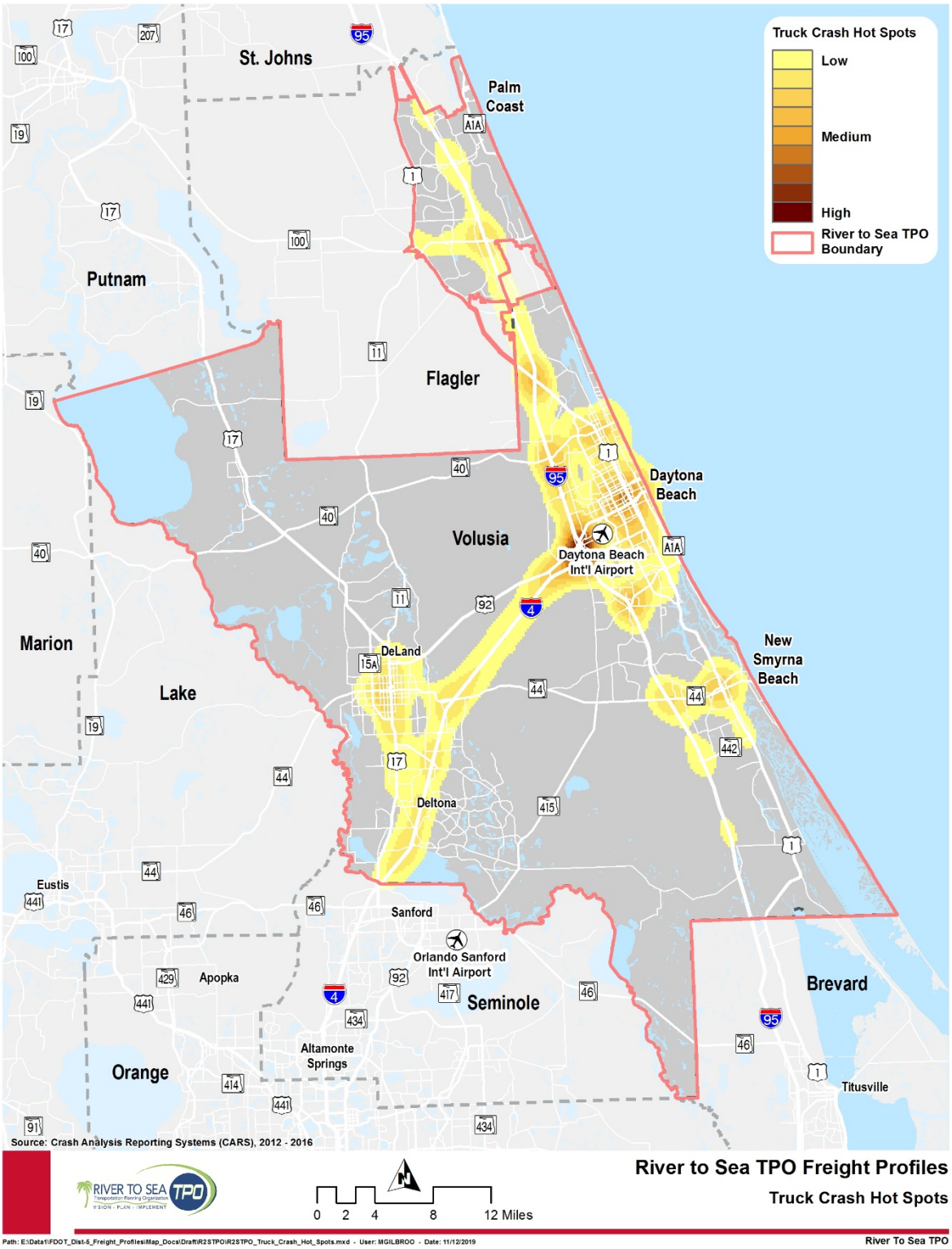
Due to their large size and weight compared to other roadway users, crashes involving trucks are much more likely to result in fatalities, serious injuries, or substantial property damage than crashes involving passenger vehicles. Information on the fatalities, injuries, and truck crash totals are shown in Figure 14 below. Between 2011 and 2016, the total number of truck crashes increased from 685 to 990, a 45 percent increase. Much of this increase can be attributed to a rise in property damage only (PDO) crashes, which have more than doubled from 187 to 413 over the same time period. Fatal truck crashes have remained at a fairly consistent level between 11 and 18 per year. After falling between 2012 and 2014, injury crashes have since risen to 559 in 2016, and overall increase of 15 percent since 2012.

Figure 14. Truck Fatalities, Injuries and Crashes (2011-2016)



Highway safety was also reviewed by evaluating the geographic concentration of truck crash hot spots in the area (Figure 15). This analysis shows that the highest concentration of truck crashes occurs near the interchange of I-4 and I-95 near Daytona Beach. Other key hot spots include the City of Daytona Beach, the intersection of I-95 with US-1, and the intersection of I-95 with State Highway 421.

Figure 15. Truck Crash Hot Spots

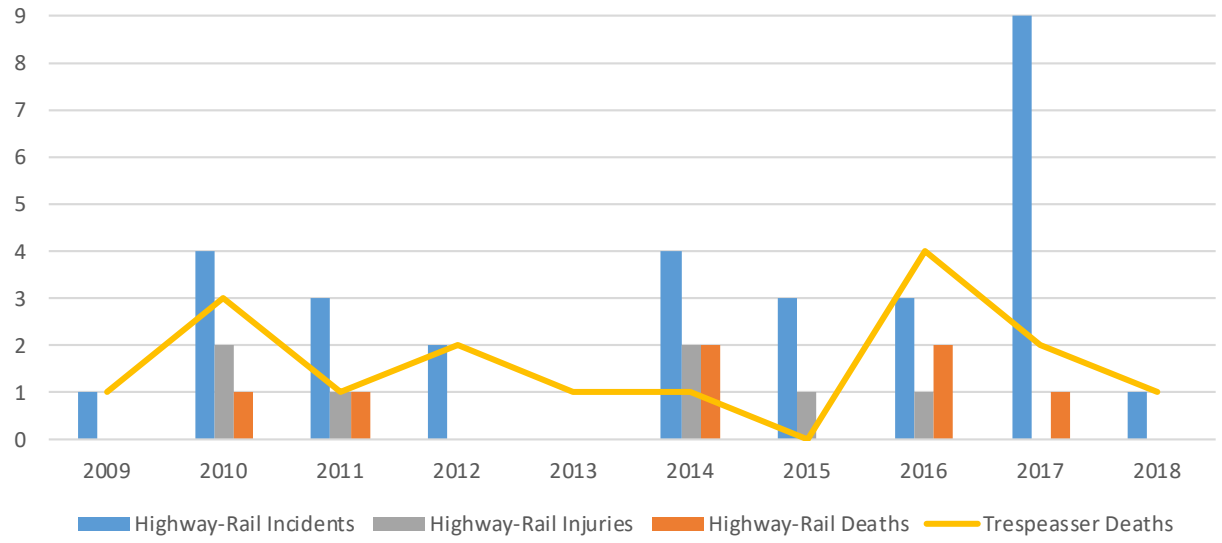


6.3.2 Rail Safety

Rail safety trends were reviewed by evaluating accident/incident data in Volusia County from the Federal Railroad Administration's (FRA) Office of Safety Analysis. Figure 16 shows the total number of incidents at highway-rail at-grade crossings per year as well as the total number of injuries and fatalities. On average, rail crossings in Volusia County experience three or four incidents per year in total. However, 2009 was an outlier year with a total of nine incidents. Seven crash related deaths and seven injuries have occurred in at highway-rail crossings in Volusia County over this time period.

The figure also highlights trespasser deaths. Trespasser-related incidents have been increasing nationally and are a growing concern for the FRA and other rail safety stakeholders. A total of 16 trespasser deaths have occurred in Volusia County over this time period.

Figure 16. Rail Safety Incidents in Volusia County (2009-2018)



6.4 Truck Bottlenecks

Bottlenecks are locations where the flow of traffic consistently falls below acceptable levels of conditions due to features such as freeway exit and entrance ramps, lane reductions, and geometric features such as turns, tunnels, or narrow lane widths. The top 25 truck bottlenecks within the River to Sea TPO area are shown in Figure 17. The majority of bottleneck locations are found on I-95 and US-1, generally on the approaches to cities such as Daytona Beach, New Smyrna Beach, and Palm Coast. Bottlenecks are also found on many east-west roads that connect to these major highways.

6.5 Truck Volumes and Level of Service

The Level of Service (LOS) for highways is a performance measure used to indicate the quality of service being provided. LOS A indicates a free flow of traffic with a low density of vehicles while LOS F indicates a highly congested road requiring frequent slowing and stopping.

Existing LOS for highways in the River to Sea TPO area is shown in Figure 18. Only two small roadway segments on State Highways 40 and 44 are shown at LOS F. The segment of I-4 between Daytona Beach and DeLand is shown at LOS E.

Figure 19 shows a 2040 forecast for LOS in the region. As expected, the overall level of service will decrease significantly – including multiple roadway segments predicted to experience LOS F, particularly I-4 between Daytona Beach and Orlando, and I-95 between Daytona Beach and New Smyrna Beach.

Truck volumes are also shown in Figure 20. Truck volumes are highest on I-4 between Daytona Beach and DeLand followed by portions of I-95 throughout the TPO area. As shown in Figure 21, truck volumes have increased on many roadways throughout the area between 2013 and 2018. Many of the roadways connecting the eastern and western portions of the River to Sea TPO area have experienced increases in truck traffic between 20 and 50 percent.

Figure 17. Truck Bottlenecks

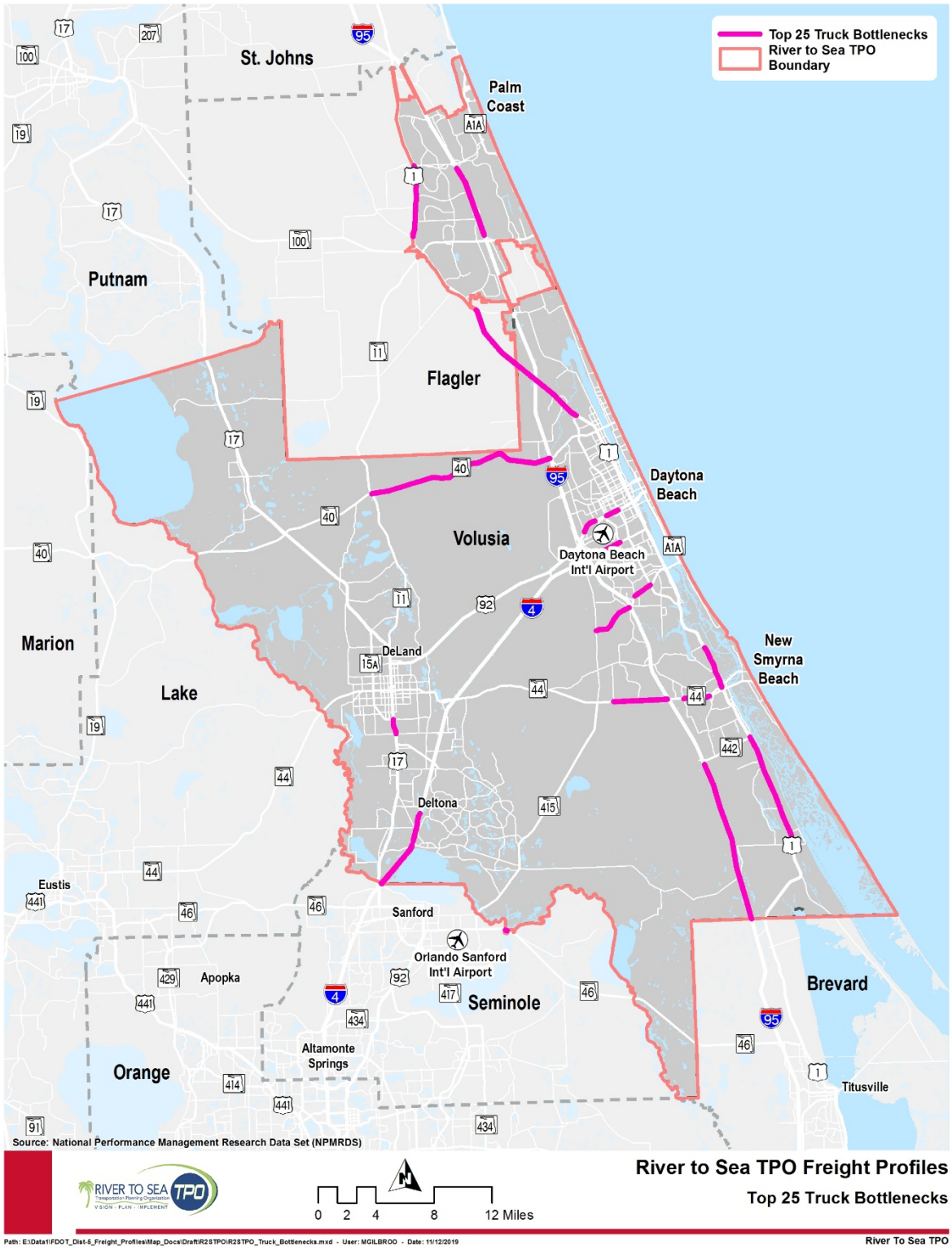


Figure 18. Existing Level of Service (LOS) 2016

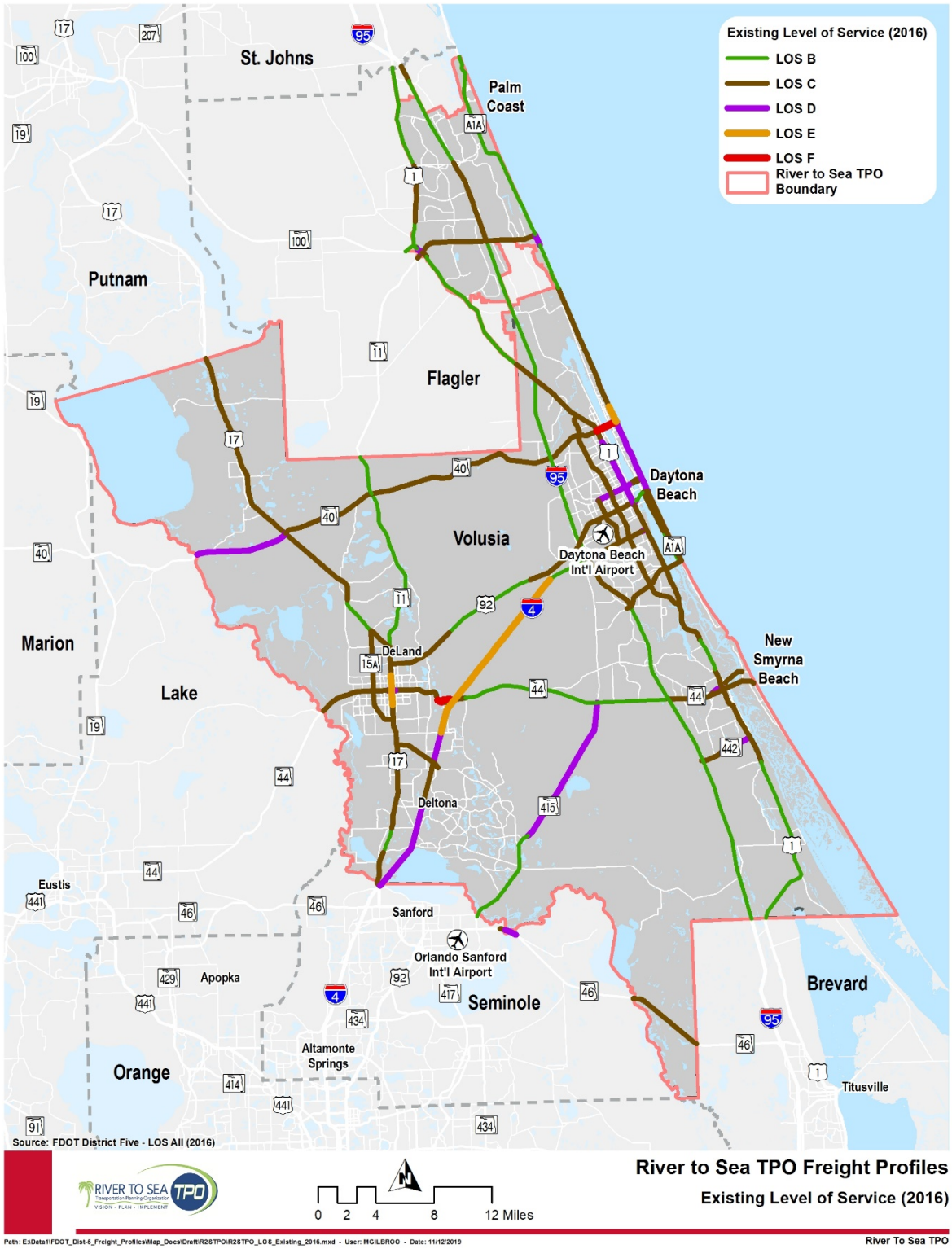


Figure 19. Future Level of Service (LOS) 2040

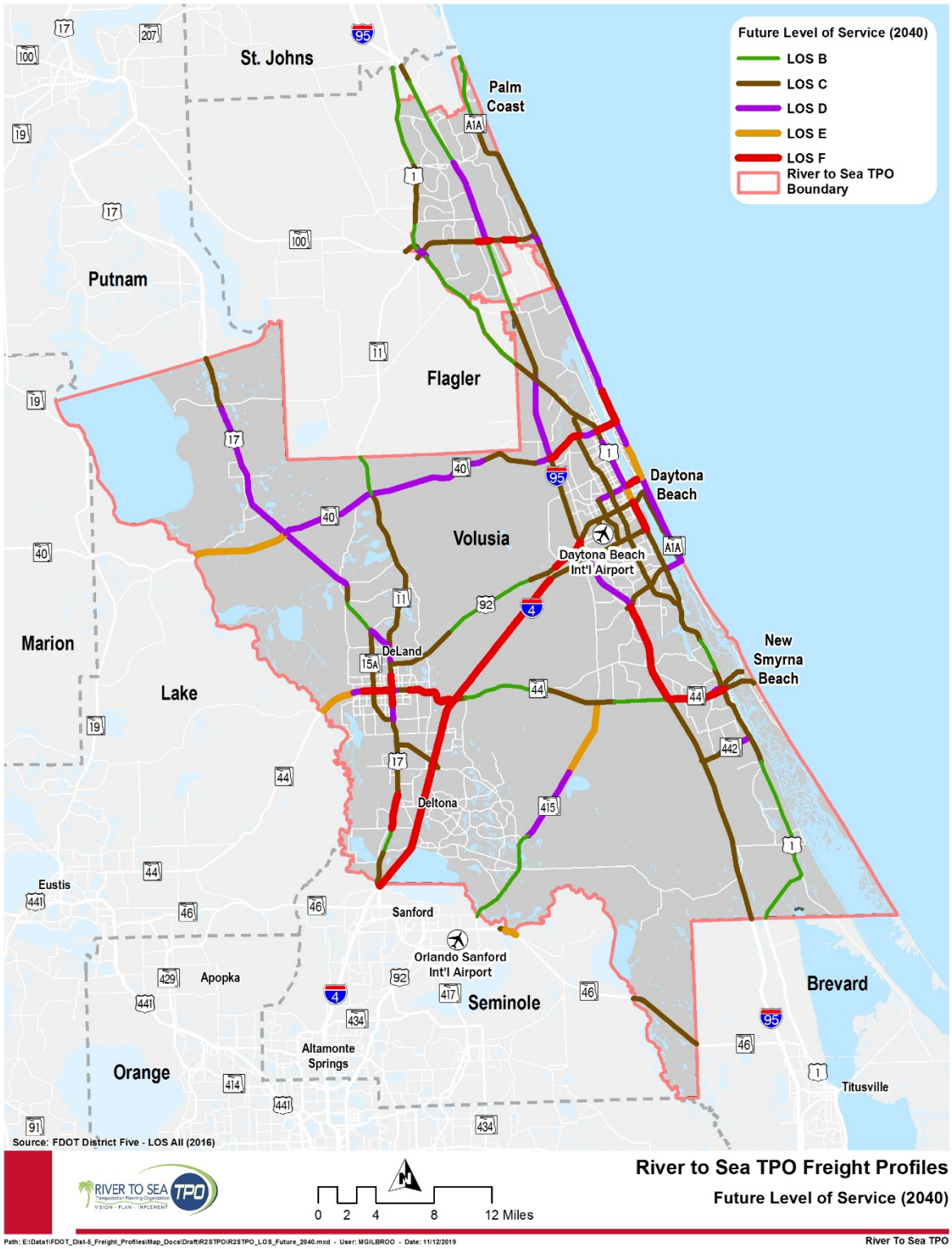


Figure 20. Truck Volumes 2018

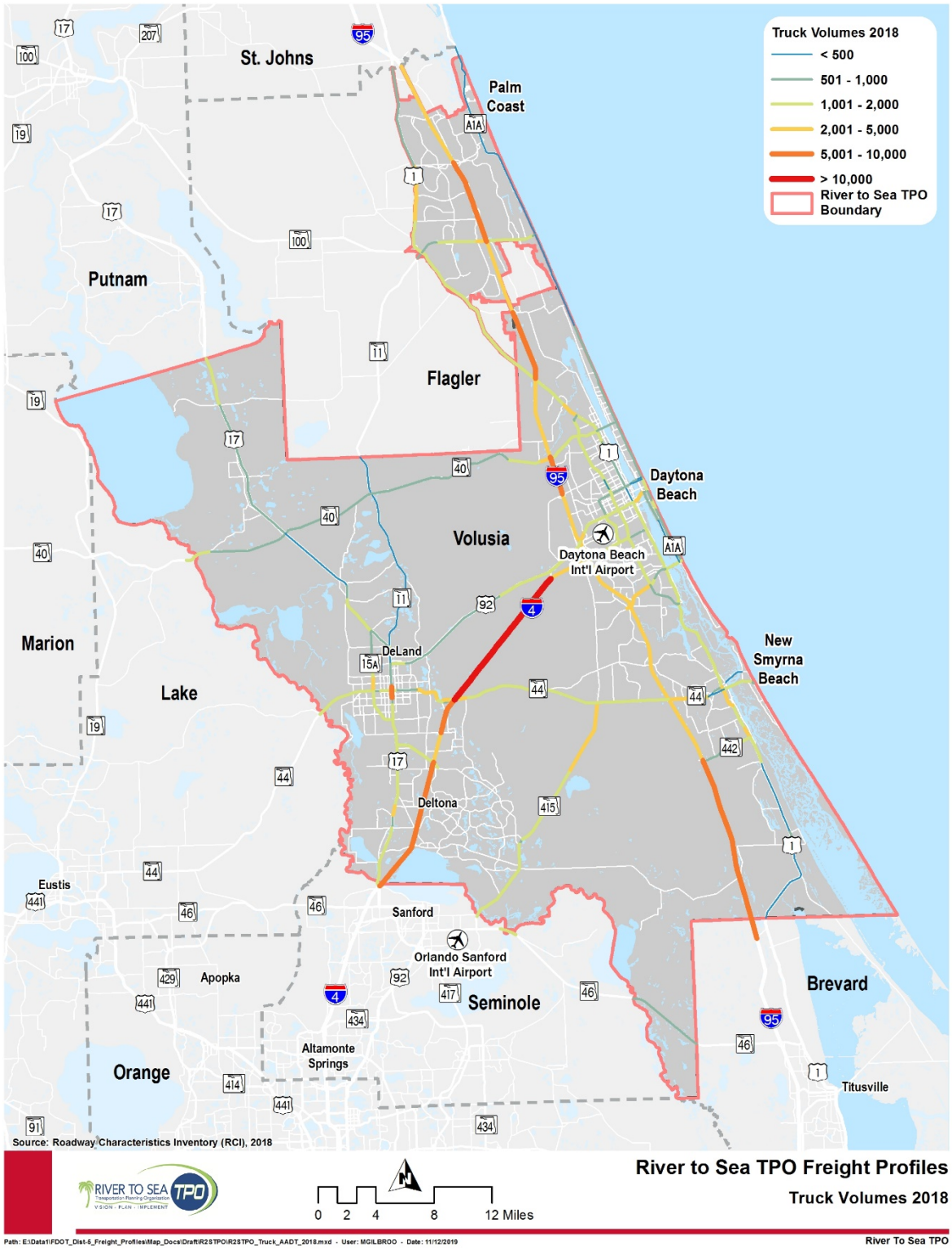
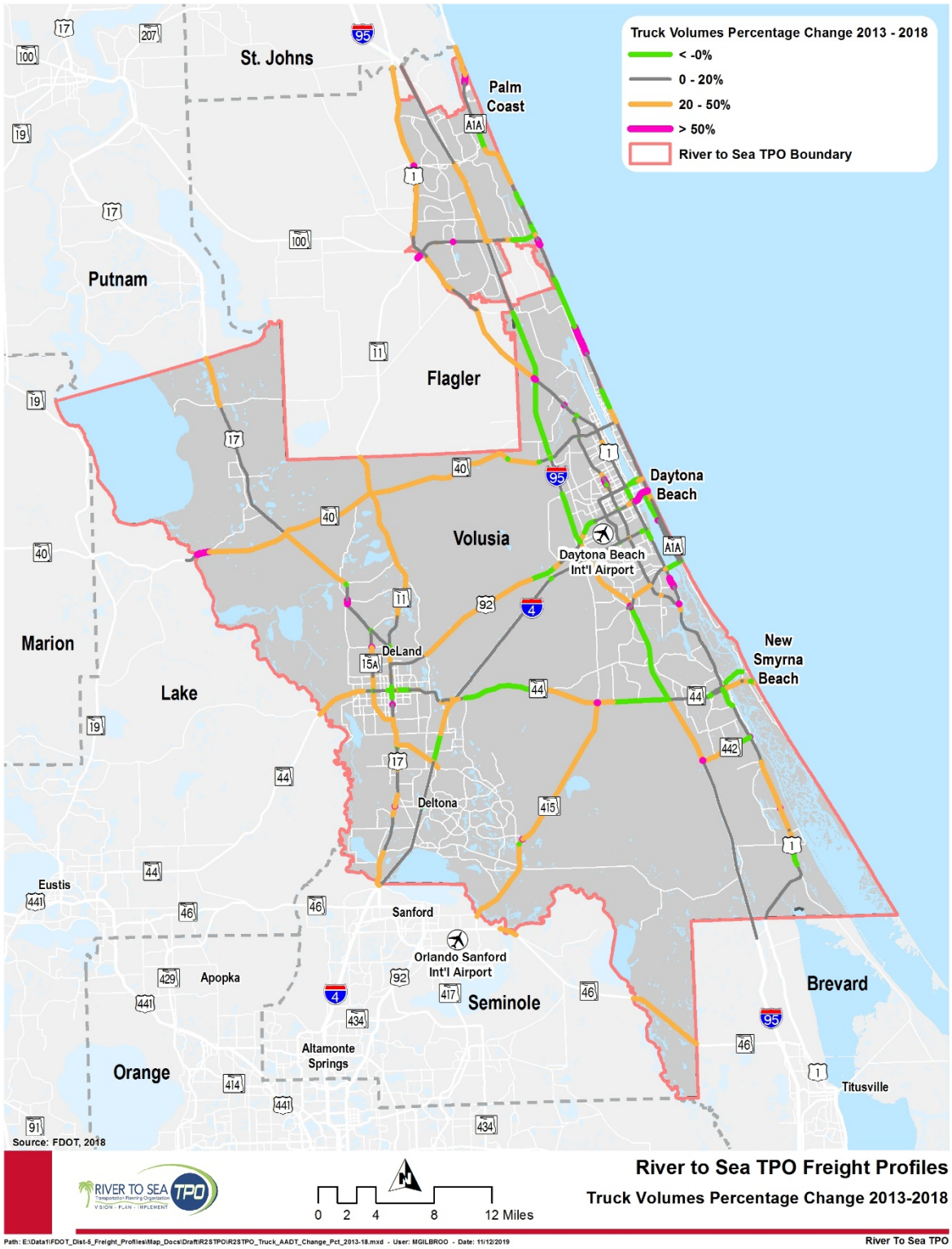


Figure 21. Truck Volume Percentage Change (2013-2018)



6.6 Truck Tonnage

Truck tonnage in the River to Sea TPO area was evaluated using the FHWA's Freight Analysis Framework version 4 (FAF4). The FAF4 estimated truck tonnages for 2012 are shown in Figure 22. The roadway with the highest tonnage is I-95 with over 32,000 kilotons of freight annually on many segments. Other high-tonnage highways include I-4 and US-92.

The estimated tonnage projected for year 2045 in shown in Figure 23. The highest freight tonnages are found on many of the same roadways noted above. However, the overall tonnage carried on these roadways is estimated to increase substantially, rising to over 52,000 kilotons annually on I-95 and between 32,000 and 52,000 kilotons on I-4.

Figure 22. FAF4 Tonnage (2012)

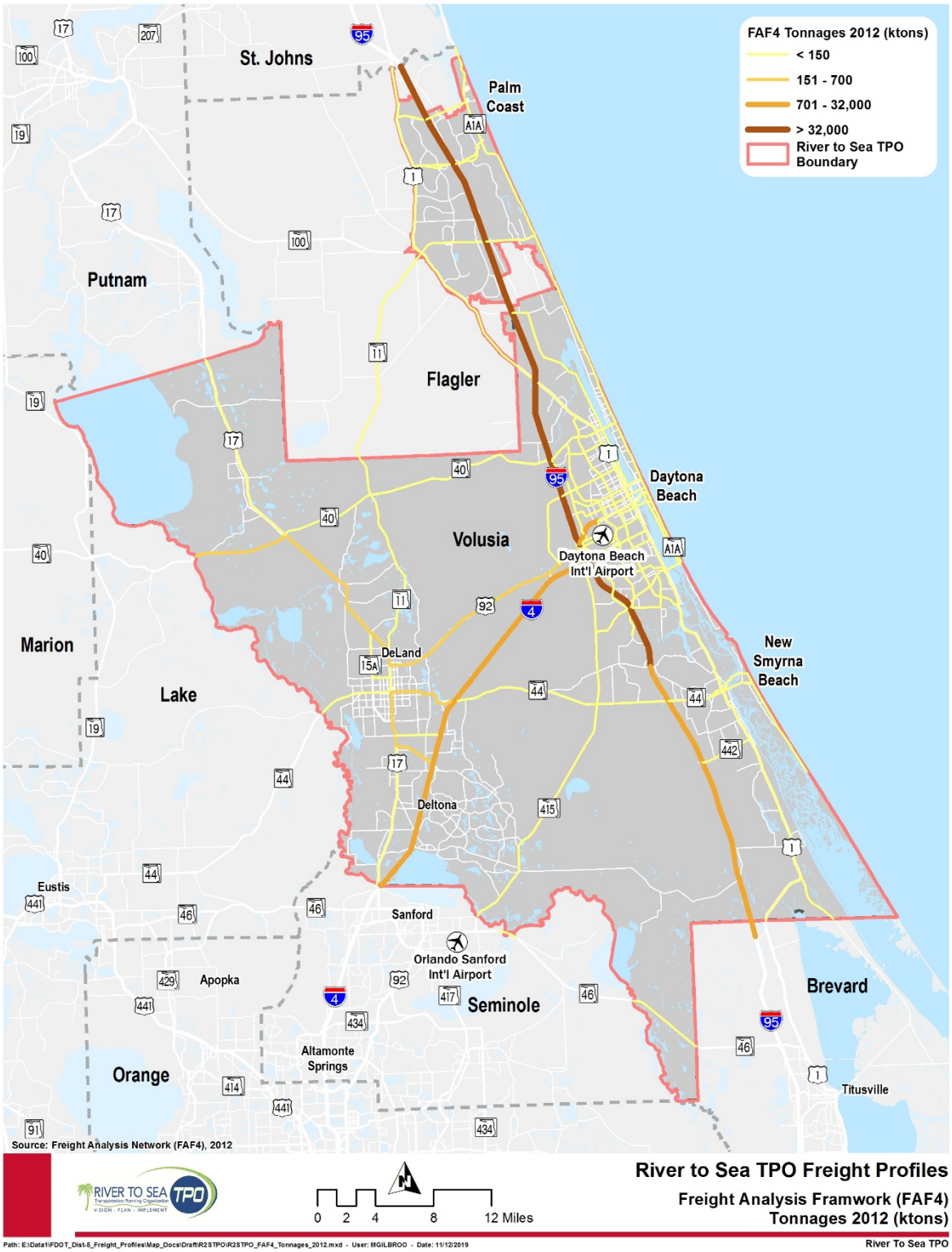
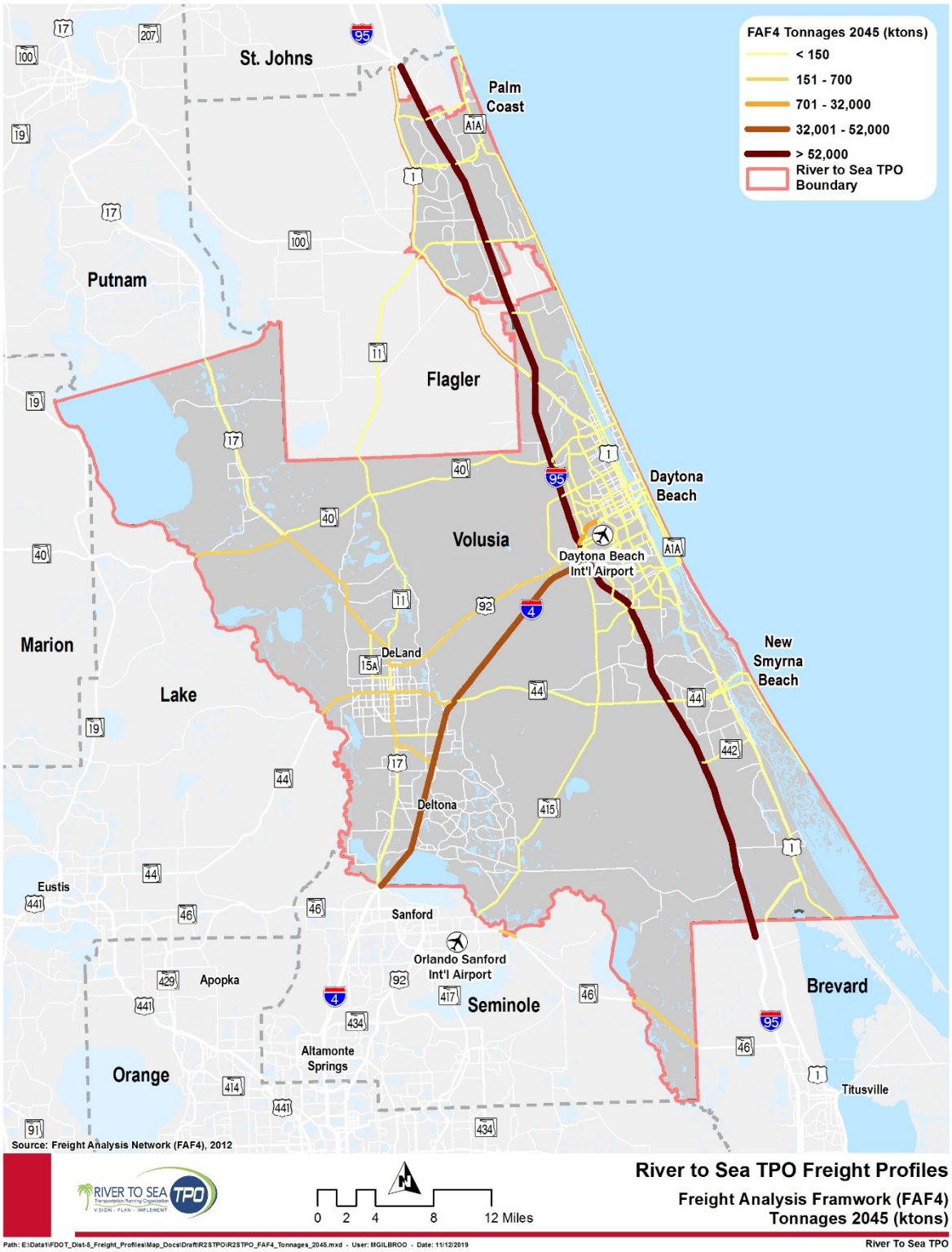


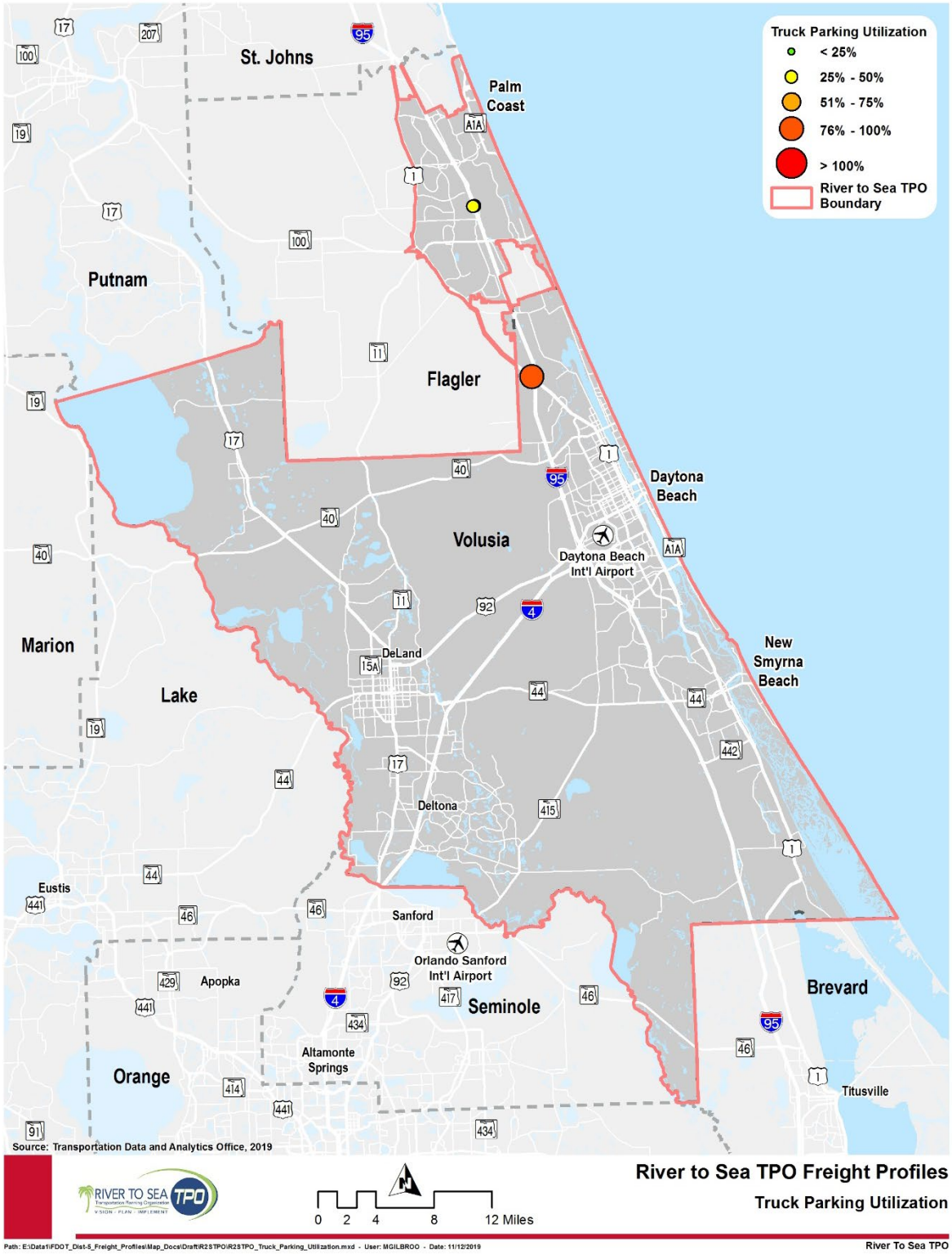
Figure 23. FAF4 Tonnage (2045)



6.7 Truck Parking

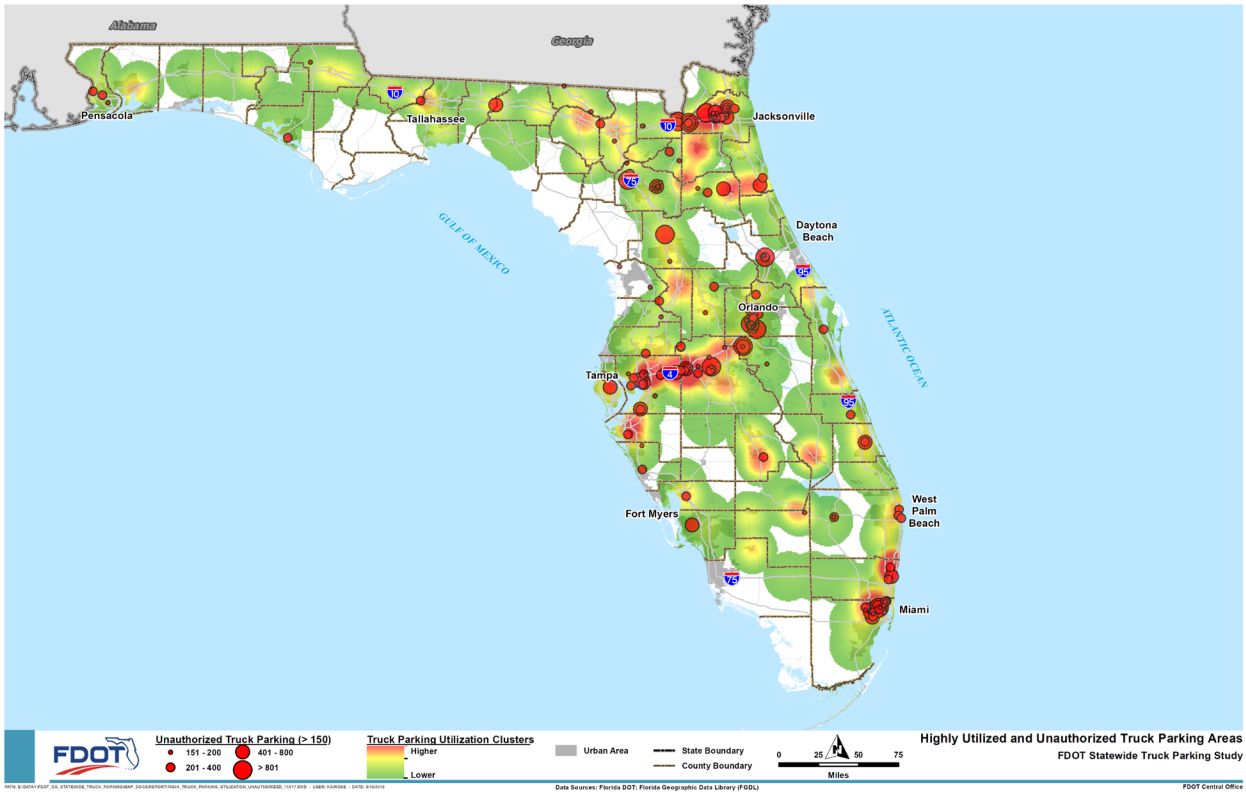
A total of 298 truck parking facilities with a capacity of 10,093 spaces are located in Florida. Of these, approximately one-third (98) are publicly owned while the remaining facilities are privately owned. Two truck parking facilities are located within River to Sea TPO area (Figure 24), both along I-95 north of Daytona Beach. The utilization of the truck parking facility at the intersection of I-95 and US-1 exceeds 100 percent utilization.

Figure 24. Truck Parking Utilization



The FMTP also reviewed "areas of concern" related to truck parking. These areas were identified by considering both highly utilized truck parking locations and locations with a high density of unauthorized truck stops. Statewide, these areas of concern are concentrated on I-4 from Orlando to Tampa, in the Miami-Fort Lauderdale area, in Jacksonville, and in various other spot locations (Figure 25). Within River to Sea TPO area, the primary area of concern for truck parking is located in and around the City of DeLand.

Figure 25. Truck Parking Areas of Concern



6.8 Aviation

The River to Sea TPO area includes one airport with commercial, freight, and mail service - the Daytona Beach Airport (DAB) located in the City of Daytona Beach near the interchange of I-95 and I-4. Air Cargo tonnage for the years 2013 through 2018 is shown below for freight (Figure 27) and mail (Figure 28). Origination and destination freight has remained relatively constant over this time period with the exception of a sharp decline in destination freight from 2017 to 2018. Mail shipments have experienced a sharp increase between 2016 and 2018, rising to more than 3,000 pounds of origin mail and nearly 1,500 pounds of destination mail in 2018.

Figure 26. DAB Air Freight Shipments by Weight

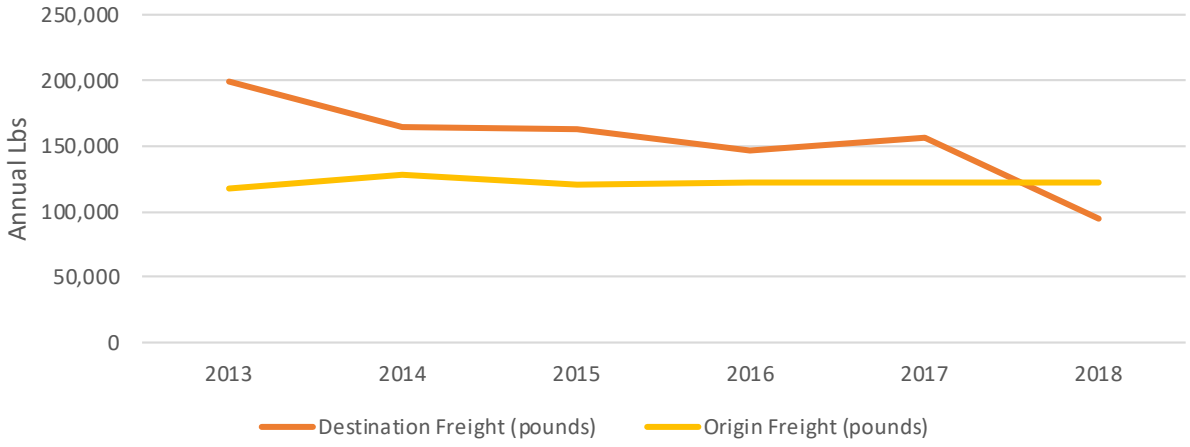
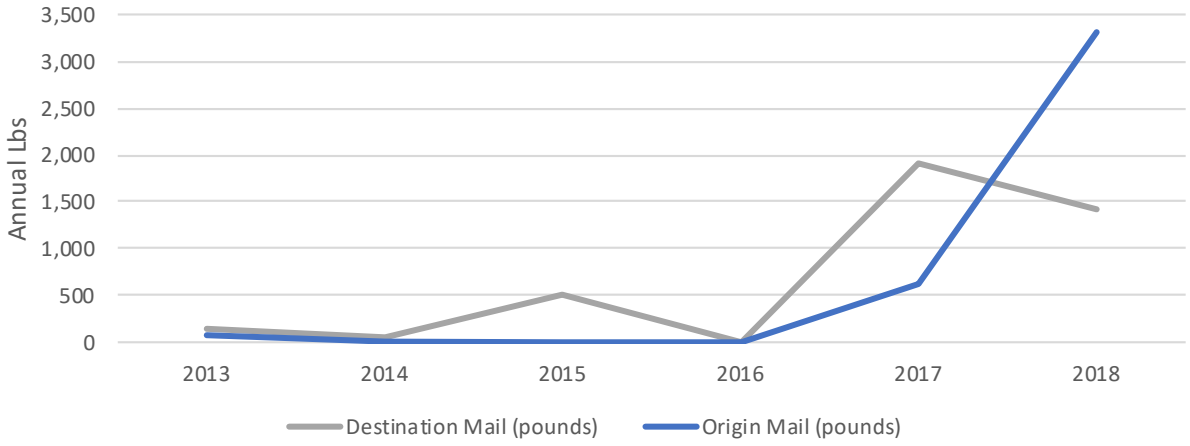


Figure 27. DAB Air Mail Shipments by Weight



7 Trends

This section outlines the trends, issues, and needs specific to the movement of goods through the River to Sea TPO area and the surrounding region.

7.1 FMTP Trends

The FMTP highlights a number of recent and projected changes to Florida's statewide population, economy, and transportation system. Of particular note are Florida's aging population, the high employment in the transportation and material moving sector, and the substantial recent growth in wholesale and retail trade industries.

Growing and Urbanizing Population

Florida's population can largely be described as aging and urbanizing. Overall trends show that Florida's population is growing at a faster rate than the United States as a whole. Its population is also aging with growth rates of the population 60 and older substantially higher than younger cohorts. The population is also increasingly concentrated in urban areas. Currently, nine out of every ten Floridians live in urban areas.

Tourism

Much of Florida's economy is also characterized and defined by the impact of tourism on the state. In 2018, 126 million people visited Florida.

Rise of E-commerce and the Gig Economy

Florida's economy is increasingly being impacted by the rise of both the gig economy and e-commerce. The combination of these trends is altering the freight landscape with service such as "Amazon Flex", a freight mobility as a service (FMaaS) solution which allows anyone with a car and smart phone to pick up and deliver parcels to customers. This approach is being mirrored at a larger scale with services such as Uber Freight being deployed to match freight shipments with available drivers in a similar way to how Uber's passenger service matches riders with available drivers.

Technology

Florida is at the forefront of multiple transportation technology innovations including Connected and Autonomous Vehicle (CAV), truck platooning, and freight signal priority. Additional freight technological improvements implemented or in development in Florida include the implementation of Positive Train Control (PTC), port automation, and drone/robot delivery. The increasing use of these technologies has the potential to significantly increase the overall efficiency of the freight system and supply chains.

8 Future Strategies

For each FMTP objective, the plan also identifies distinct recommendations based on technical analysis results, capturing stakeholder input, addressing issues and needs, and considering emerging market trends and opportunities.

While many of the objectives apply universally to all Florida freight stakeholders, there are many items which hold particular relevance to local and regional agencies such as the River to Sea TPO. A brief summary of these objectives and how the River to Sea TPO might work to address and implement them is provided below.

Objective 2: Create a more resilient multi-modal freight system

- Include resiliency considerations into project life-cycle and decision making processes: The River to Sea TPO conducted the Resiliency Scenario as part of the Connect 2045 plan process, and the plan includes an implementation action to integrate resiliency data into long range planning, consistent with the TPO Board's related policy.

Objective 6: Improve last mile connectivity for all freight modes

- Consider emerging last mile logistics trends in planning, project development and design processes: The River to Sea TPO will encourage the consideration of first- and last-mile freight access concerns as part of long range planning.
- Incorporate innovative curb management strategies into freight design considerations in order to decrease curbside congestion and ensure safety of all road users: With the rapid rise in e-commerce and small parcel deliveries, the River to Sea TPO will work with local communities, as appropriate, to support implementation of effective curb management strategies through planning and identification of project needs.

Objective 7: Continue to forge partnerships between the public and private sectors to improve trade and logistics

- Collaborate with public and private sector partners to address freight transportation and logistics needs and workforce development: The River to Sea TPO will continue to collaborate with multiple stakeholders in the public and private sector to inform planning.
- Communicate and collaborate with other agencies and stakeholders to establish a state freight mobility task force to effectively and successfully implement the FMTP policy and program recommendations: The River to Sea TPO will continue to collaborate with other agencies in the pursuit of freight goals and objectives.

Objective 8: Capitalize on emerging freight trends to promote economic development

- Consider freight needs in the development of multimodal and multi-use corridors: The Connect 2045 planning process included technical criteria that gave priority to projects in designated freight corridors The River to Sea TPO will continue to incorporate freight needs and consider freight-related data such as included in this summary when evaluating multimodal and multi-use corridors.

- Prepare the freight system for smart cities and emerging urban freight delivery patterns: With the rapid rise in e-commerce and small parcel deliveries, the River to Sea TPO will coordinate with local communities, as appropriate, regarding transportation needs to implement effective urban freight delivery strategies.

Objective 9: Increase freight-related regional and local transportation planning and land-use coordination

- Provide transportation and land use planning guidance to local and regional agencies for economic development and freight efficiencies that support community goals: The River to Sea TPO will continue to provide planning guidance to local agencies and communities to support efficient freight systems.
- Coordinate freight-related plans and programs of the private sector and local agencies with FDOT's plans for integrated and informed decision-making: The River to Sea TPO will continue to support the development of freight-related plans with FDOT and other agencies to ensure harmony between goals and strategies at all levels.
- Understand unique needs of urban freight transportation and develop/enhance the process to designate CUFC: The River to Sea TPO will continue to coordinate with freight stakeholders within the TPO planning area to understand the unique needs and issues affecting their day-to-day business.

Appendix A: Top 50 Freight Employers

Name	Industry	City
BOSTON WHALER, INC.	Manufacturing	EDGEWATER
SEA RAY BOATS INC	Manufacturing	PALM COAST
US FOODSERVICE INC	Wholesale Trade	PORT ORANGE
SPARTON DELEON SPRINGS LLC	Manufacturing	DELEON SPRINGS
COVIDIEN LP	Manufacturing	DELAND
TELEDYNE INSTRUMENTS INC	Manufacturing	DAYTONA BEACH
THOMAS & BETTS CORPORATION	Manufacturing	ORMOND BEACH
USF FILTRATION AND SEPARATIONS	Manufacturing	DELAND
UNITED PARCEL SERVICE	Transportation and Warehousing	DAYTONA BEACH
R J DOUGHERTY ASSOCIATES LLC	Manufacturing	EDGEWATER
PERFORMANCE DESIGNS INC	Manufacturing	DELAND
THOMPSON PUMP & MANUFACTURING CO IN	Manufacturing	PORT ORANGE
AO PRECISION MANUFACTURING LLC	Manufacturing	DAYTONA BEACH
PRODUCT QUEST MANUFACTURING, LLC.	Manufacturing	HOLLY HILL
HUDSON TOOL & DIE COMPANY INC	Manufacturing	ORMOND BEACH
CROSS OPTICAL GROUP INC	Manufacturing	DAYTONA BEACH
PLAYTEX MANUFACTURING INC	Manufacturing	ORMOND BEACH
FLORIDA PRODUCTION ENGINEERING INC.	Manufacturing	ORMOND BEACH
SEMINOLE PRECAST MANUFACTURING INC	Manufacturing	DEBARY
RAYDON CORPORATION	Manufacturing	PORT ORANGE
S R PERROTT INC	Wholesale Trade	ORMOND BEACH
KINGSPAN INSULATED PANELS INC	Manufacturing	DELAND
WASTE PRO OF FLORIDA INC	Administrative and Support and Waste Management and Remediation Services	DAYTONA BEACH
TRUE SCIENCE HOLDINGS LLC	Wholesale Trade	DAYTONA BEACH
ARDMORE FARMS INC	Manufacturing	DELAND
DAYTONA BEVERAGES LLC	Wholesale Trade	DAYTONA BEACH
SCCY INDUSTRIES LLC	Wholesale Trade	DAYTONA BEACH
UNITED STATES POSTAL SERVICE	Transportation and Warehousing	DAYTONA BEACH
MERGE HEALTHCARE SOLUTIONS INC	Manufacturing	DAYTONA BEACH

Name	Industry	City
DOUGHERTY MARINE PARTNERSHIP	Manufacturing	EDGEWATER
MICROFLEX INC	Manufacturing	ORMOND BEACH
UNITED STATES POSTAL SERVICE	Transportation and Warehousing	PALM COAST
UNINSURED UNITED PARACHUTE TECHNOLO	Manufacturing	DELAND
COMMAND MEDICAL PRODUCTS INC	Manufacturing	ORMOND BEACH
TOPBUILD CORP	Manufacturing	DAYTONA BEACH
DME HOLDINGS LLC	Manufacturing	DAYTONA BEACH
BRUNSWICK COMMERCIAL & GOVERNMENT P	Manufacturing	EDGEWATER
GAMBRO RENAL PRODUCTS INC	Manufacturing	DAYTONA BEACH
FERNTRUST INC	Wholesale Trade	SEVILLE
SUPERIOR SHEDS INC	Manufacturing	ORANGE CITY
IDEAL DEALS, LLC	Manufacturing	DELAND
U.S. DEPT. OF TRANSPORTATION	Transportation and Warehousing	N/A
INTERNATIONAL BUSINESS MACHINES COR	Manufacturing	DAYTONA BEACH
THE KANTHAL CORP & SUBSIDIARIES	Manufacturing	PALM COAST
UNITED STATES POSTAL SERVICE	Transportation and Warehousing	PORT ORANGE
HANSON PIPE & PRECAST LLC	Manufacturing	DELAND
FLOMET LLC	Manufacturing	DELAND
BOBS SPACE RACERS INC	Manufacturing	HOLLY HILL
COCA-COLA ENTERPRISES INC	Manufacturing	DAYTONA BEACH
DEAN DAIRY HOLDINGS LLC	Manufacturing	ORANGE CITY
Data Source: Florida Department of Economic Opportunity		