



metropolitan orlando  
A REGIONAL TRANSPORTATION PARTNERSHIP

# 2045

## Metropolitan Transportation Plan

Technical Series #7  
Freight & Goods Movement

Adopted: 12/09/2020

# What is in this document?

This document provides freight-related data and information for Florida and the MetroPlan Orlando region for the 2045 Metropolitan Transportation Plan (MTP). The movement of freight and goods is vital to the long range transportation planning process because our community's economy is directly supported by moving freight and goods efficiently. When population, income, and employment grow, freight volumes also increase. Since the completion of the Central Florida Freight Mobility Study and Long Range Transportation Plan, led by MetroPlan Orlando in 2012, there have been significant developments and changes in Central Florida. Some of these are regional, such as the development of SunRail, the shifting of some CSX freight trains from the A Line to the S Line, developing the intermodal logistics center (ILC) in Winter Haven, and the emergence of the commercial space industry in East Central Florida. Others relate to state initiatives, such as FDOT's recent completion of the Florida Transportation Plan and the Freight Mobility and Trade Plan, the Strategic Intermodal System (SIS) Policy Plan, the investment elements of FDOT's Rail and Seaport System Plans, and the trade development strategies identified as part of the Florida Chamber of Commerce's Trade and Logistics Study.

This freight and goods movement summary has been prepared in partnership with FDOT District 5 and the Office of Freight Mobility and Multimodal Operations to serve as a resource in developing the 2045 MTP. Findings from this regional freight technical series provide the foundation for identifying freight mobility needs and opportunities as part of MetroPlan Orlando's holistic needs assessment, congestion management and project prioritization process.

## HOW TO GET INVOLVED IN THE 2045 PLAN



### Online at MetroPlanOrlando.org

Learn more about how long range planning works and sign up for our e-newsletter to get email updates on comment opportunities



### Request printed material

If you don't have digital access and prefer information in paper form, you can make that request by calling the number below



### In person

Invite us to attend your event or present to your group by contacting our community outreach staff



### Questions?

Contact our community outreach staff at ***MTP@MetroPlanOrlando.org*** or ***407-481-5672***



### On social media

Follow us on Facebook and Twitter to learn about transportation news and when we'll be out in the community



# Contents

Introduction .....	7-5
Systems and Assets .....	7-7
Performance and Conditions .....	7-21
Trends .....	7-41
Future Strategies .....	7-42

## Tables

Table 7.1   2045 MTP Freight-related Goals and Objectives .....	7-6
Table 7.2   Florida FMTP Performance Measures .....	7-21
Table 7.3   Top 25 Truck Bottlenecks within MetroPlan Orlando Region .....	7-28

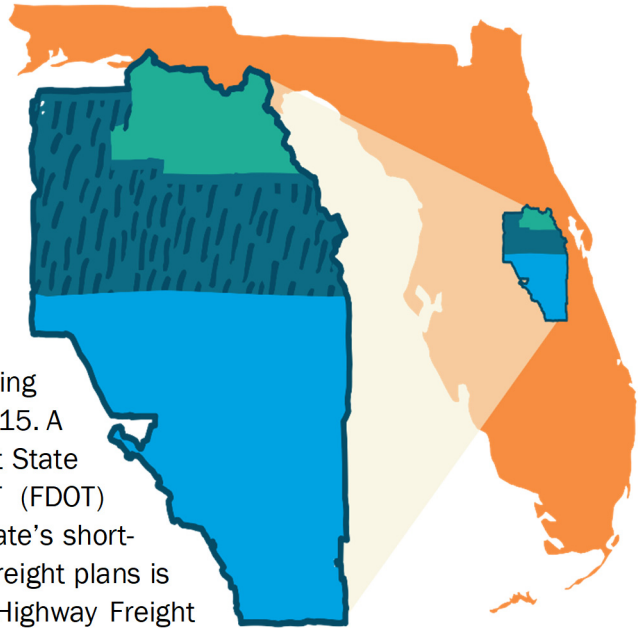
## Figures

Figure 7.1   National Highway Freight Network (NFHN) in Florida .....	7-8
Figure 7.2   National Highway Freight Network (NFHN) in Central Florida .....	7-9
Figure 7.3   Interim National Multimodal Freight Network in Florida .....	7-10
Figure 7.4   Florida's Strategic Intermodal System, MetroPlan Orlando Region .....	7-12
Figure 7.5   Florida's Manufacturing Clusters .....	7-13
Figure 7.6   Central Florida Manufacturing Employment Density .....	7-14
Figure 7.7   Florida's Logistics and Distribution Clusters .....	7-15
Figure 7.8   Central Florida Logistics and Distribution Employment Density .....	7-16
Figure 7.9   Distribution of Employment by Industry Type .....	7-17
Figure 7.10   Average Monthly Freight Employment .....	7-18
Figure 7.11   Maximum Monthly Freight Employment .....	7-19
Figure 7.12   Freight Building Floor Area .....	7-20
Figure 7.13   Pavement Condition .....	7-23
Figure 7.14   Bridge Condition .....	7-24
Figure 7.15   Truck Fatalities, Injuries and Crashes (2012-2016) .....	7-25
Figure 7.16   Truck Crash Heat Map .....	7-26
Figure 7.17   Rail Safety Incidents in MetroPlan Orlando (2009-2018) .....	7-27
Figure 7.18   Top 25 Regional Truck Bottlenecks .....	7-29
Figure 7.19   Existing Level of Service (LOS), 2019 .....	7-31
Figure 7.20   Future Level of Service (LOS), 2040 .....	7-32
Figure 7.21   Truck Volumes, 2018 .....	7-33
Figure 7.22   Truck Volume Percentage Change, 2013-2018 .....	7-34
Figure 7.23   FHWA Freight Analysis Framework (FAF) Tonnage, 2012 .....	7-35
Figure 7.24   FHWA Freight Analysis Framework (FAF), 2045 .....	7-36
Figure 7.25   Truck Parking Utilization, 2019 .....	7-38
Figure 7.26   Truck Parking Areas of Concern, 2019 .....	7-39
Figure 7.27   Orlando Int'l Airport and Orlando-Sanford Int'l Airport (Combined): Air Freight Shipments .....	7-40
Figure 7.28   Orlando Int'l Airport and Orlando-Sanford Int'l Airport (Combined): Air Mail Shipments .....	7-40



# Introduction

There is growing recognition of the importance of freight movement at the national, state and regional level. Most notably, the last two federal transportation bills have increasingly focused on the nation's freight system with the inclusion of freight provisions and requirements. 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).



During 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 of freight needs, and energize the freight community. In 2019, FDOT updated the FMTP. This latest edition used tactical and strategic approaches to implement immediate opportunities while positioning Florida for the future. One key recommendation from both FMTP efforts was 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, the Federal Highway Administration (FHWA) Florida Division outlined expectations for the freight element in LRTPs 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 (NHFP), 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)}.



# 2045 MTP Goals Support the Florida FMTP

The 2019 FMTP developed a series of 10 freight-related objectives to guide the 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, Florida Transportation Plan (FTP), FDOT Modal Plans, partner agency plans, as well as by incorporating feedback provided by the Florida Freight Advisory Committee (FLFAC).

Similarly, MetroPlan Orlando's 2045 MTP'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 while other MTP goals support freight in a broader sense. Freight stakeholders and freight system users will benefit from a balanced, connected, and efficient transportation system. FDOT's Freight Mobility and Trade Plan goals are summarized and will be adopted by reference in *Technical Series #1: Goals and Objectives, Appendix 1A*.

## Freight Goals and Objectives

The 2045 Plan is guided by five overarching goals that together advance our vision for *a regional transportation system that safely and efficiently moves people and goods through a variety of options that support the region's vitality*. Table 7.1 below provides a summary subset of the MTP's Goals and Objectives that correspond to freight needs.

**Table 7.1 | 2045 MTP Freight-related Goals and Objectives**

Goal Area	Goal	Objective
Safety & Security	Provide a safe and secure transportation system for all users	Eliminate the rate and occurrence of transportation system fatalities, injuries, and crashes
		Provide infrastructure and services to help prepare for, respond to, and recover from emergencies
		Prevent and mitigate transportation-related security risks
		Improve emergency response and incident clearance times
		Increase the resiliency of infrastructure to risks, including extreme weather and environmental conditions
Reliability & Performance	Leverage innovative solutions to optimize system performance	Improve travel time reliability on the transportation system
		Enhance and expand the region's ITS, adaptive and actively managed traffic systems
		Reduce travel time per capita (peak and off-peak travel times)
		Adapt transportation infrastructure and technologies to meet changing traveler needs and desires
Access & Connectivity	Enhance communities and lives through improved access to opportunities	Reduce per capita vehicle miles traveled (VMT)
		Plan and develop transportation systems that reflect regional and community values
		Improve access to essential services across all modes of transportation
Health & Environment	Protect and preserve our region's public health and environmentally sensitive areas	Provide transportation solutions that contribute to improved public health
		Reduce per capita related air quality pollutants and greenhouse gas emissions
		Reduce transportation system impacts caused by stormwater issues and flooding
		Prevent disproportionate adverse effects of transportation projects on minority and low-income communities
Investment & Economy	Support economic prosperity through strategic transportation investment	Meet industry, state, and national standards for infrastructure and asset quality, condition, and performance for all public transportation infrastructure
		Reduce per capita delay for residents, visitors, and businesses
		Increase the number of skilled workers in Central Florida's transportation-related industries
		Increase affordability for transportation and housing choices
		Promote transportation projects that expand and enhance economic prosperity

Source: MetroPlan Orlando, 2045 MTP, Technical Series #1: Goals and Objectives



# Systems and Assets

Multiple freight assets are located within the MetroPlan Orlando three-county (Orange, Osceola, and Seminole) region including highways, airports, and railroads. This section provides an overview of the key freight systems and a brief assessment of their overall condition.

## Designated Freight Networks and Facilities

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

### 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.
- Other Interstate Highways: All other segments of interstate not included in the PHFS are also included in the NHFN.
- Critical Urban Freight Corridors and Critical 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.

The NHFN in Florida is shown in Figure 7.1. Highways on the NHFN system within the MetroPlan Orlando region include I-4, SR 417, SR 408, and portions of Florida's Turnpike (SR 91). Designated CUFC and CRFC routes within the MPO boundary include SR 528 in Orange County.

### Interim National Multimodal Freight Network (NMFN)

The Interim NMFN is based on the statutory requirements identified in 49 U.S.C. 70103(b)(2) and includes the NHFN, Class I railroads, the public ports of the United States that have a total annual foreign and domestic trade of at least two million 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.

The NMFN in Florida is shown in Figure 7.3. Portions of the NMFN system in the MetroPlan Orlando area include the NHFN segments and the Orlando International Airport (MCO).

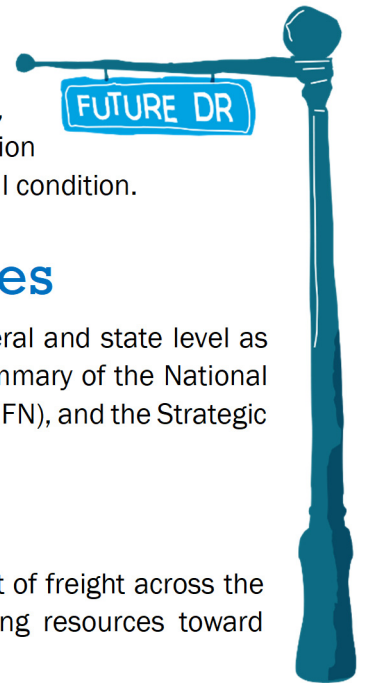
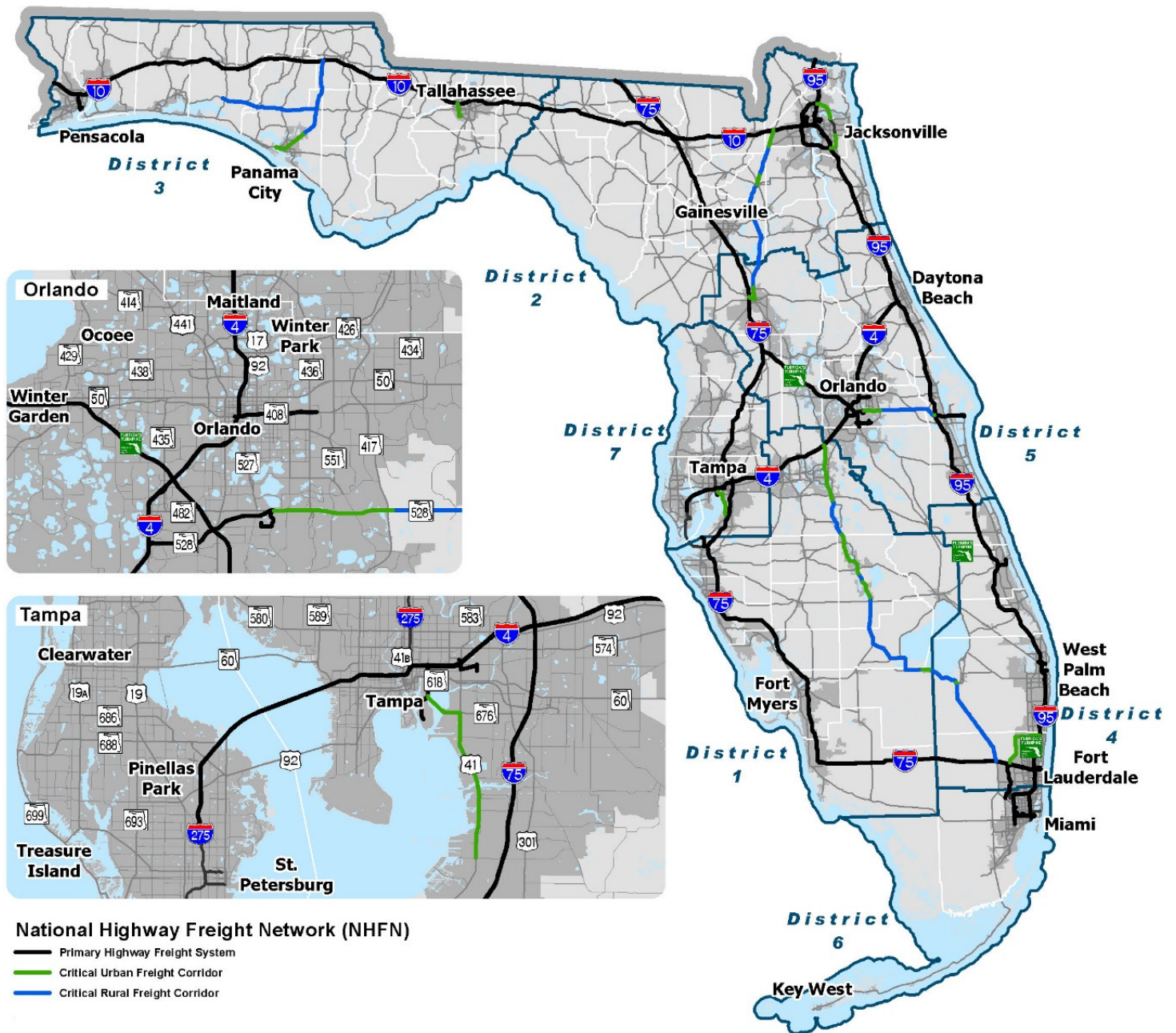


Figure 7.1 | National Highway Freight Network (NHN) in Florida



Source: FDOT, Florida Freight Mobility and Trade Plan, 2019

For more information about the NHN, visit:

<https://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm>

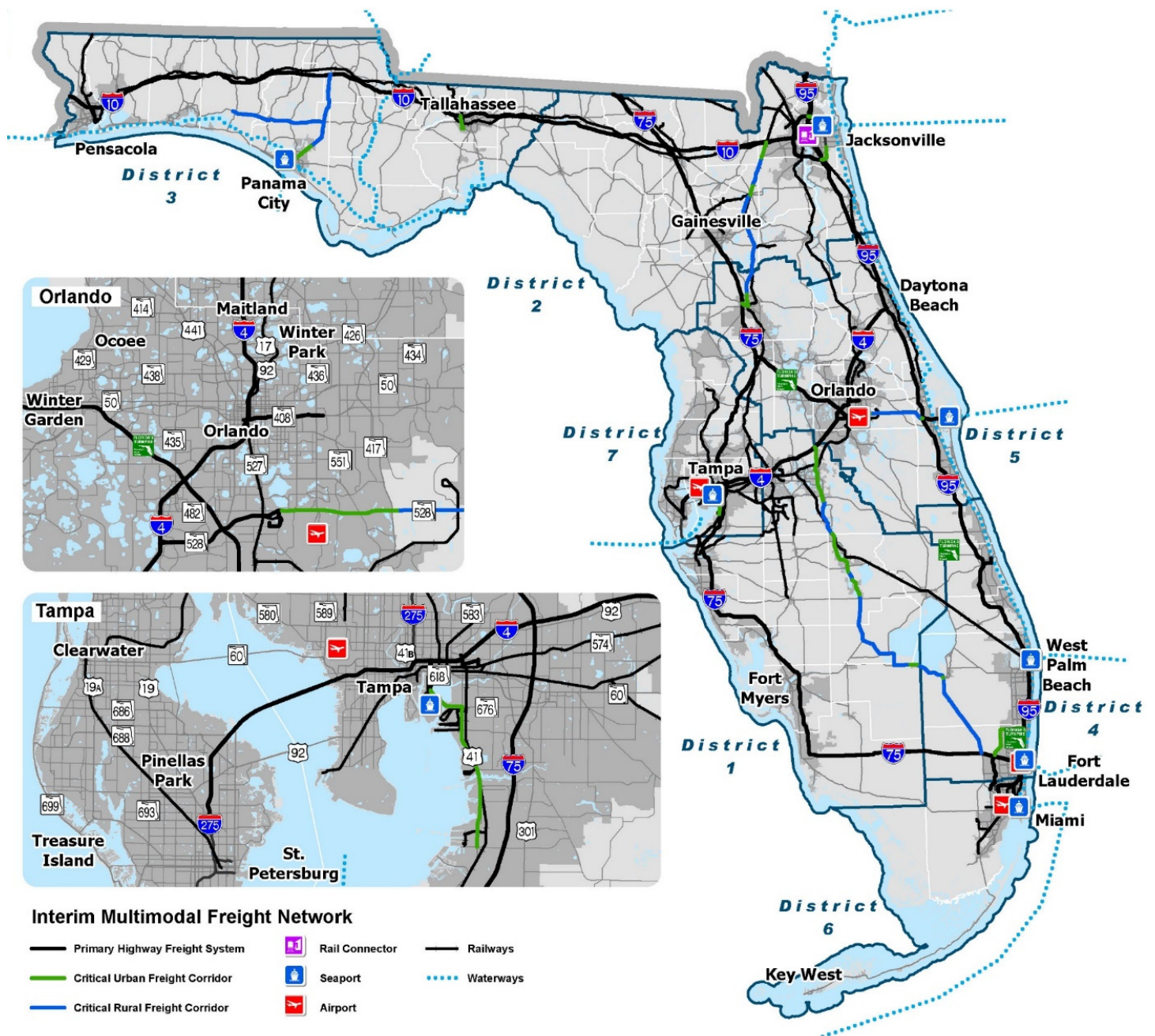
Figure 7.2 on the following page provides a closer look at the NHN roadways within the region as well as MetroPlan Orlando's identified regional freight sub-system (Mobility Corridors, Distribution Routes, and Activity Center Streets).



[illegible]

2045 Metropolitan Transportation Plan | Freight and Goods Movement

Figure 7.3 | Interim National Multimodal Freight Network in Florida



Source: FDOT, Florida Freight Mobility and Trade Plan, 2019

For more information about the interim NMFN, visit:

<https://www.transportation.gov/administrations/office-policy/interim-national-multimodal-freight-network>



## Florida Strategic Intermodal System (SIS)

Florida's Strategic Intermodal System was established in 2003 to focus transportation resources on facilities most important to the movement of people and goods at the interregional, interstate, and international level. 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 are eligible for state transportation investments consistent with the policy framework defined in the SIS Policy Plan.

SIS highways within MetroPlan Orlando include I-4, SR 429, SR 408, SR 528, SR 417, and Florida's Turnpike (SR 91). Other facilities on the SIS include the Orlando Amtrak station, Orlando CSX Intermodal Terminal, Orlando Greyhound station, Orlando International Airport, Kissimmee Amtrak Greyhound station, Orlando-Sanford International Airport, and the Sanford Amtrak station as depicted in Figure 7.4.

For more information about Florida's Strategic Intermodal System, visit: <https://www.fdot.gov/planning/sis/default.shtm>

## Freight Clusters

Florida has multiple clusters of freight activity throughout the state. The location of manufacturing clusters statewide is shown in Figure 7.5 and with more detail in Central Florida in Figure 7.6. The most notable clusters are located 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 United States. These clusters are shown in Figure 7.7 and 7.8.

With respect to MetroPlan Orlando, major freight-related businesses in the area include Correct Craft, Frito Lay, Lockheed Martin, Metal Essence, Mitsubishi Hitachi Power Systems, Northrup Grumman Laser Systems, Siemens Energy, TriQuint, and VOXX International.

Major logistics and distribution centers within MetroPlan Orlando include Air-Transport IT Services, Inc., Aircraft Services International, Amazon.com, Carroll Fulmer Logistics, Corp., CHEP International Inc., Florida Distributing Company, Lowe's, and McLane Company.

Freight transportation infrastructure in the MetroPlan Orlando area plays a crucial role in connecting other major freight clusters in Florida as well as national and international economies.

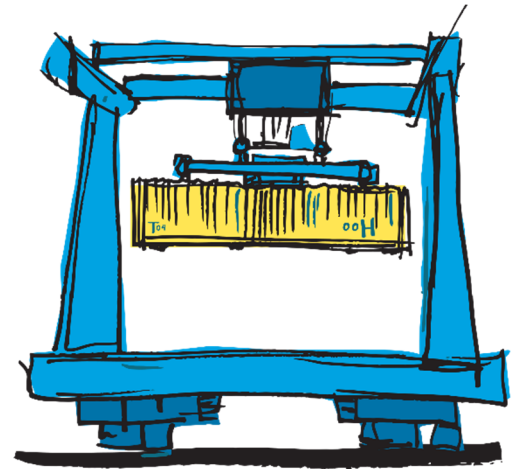


Figure 7.4 | Florida's Strategic Intermodal System, MetroPlan Orlando Region

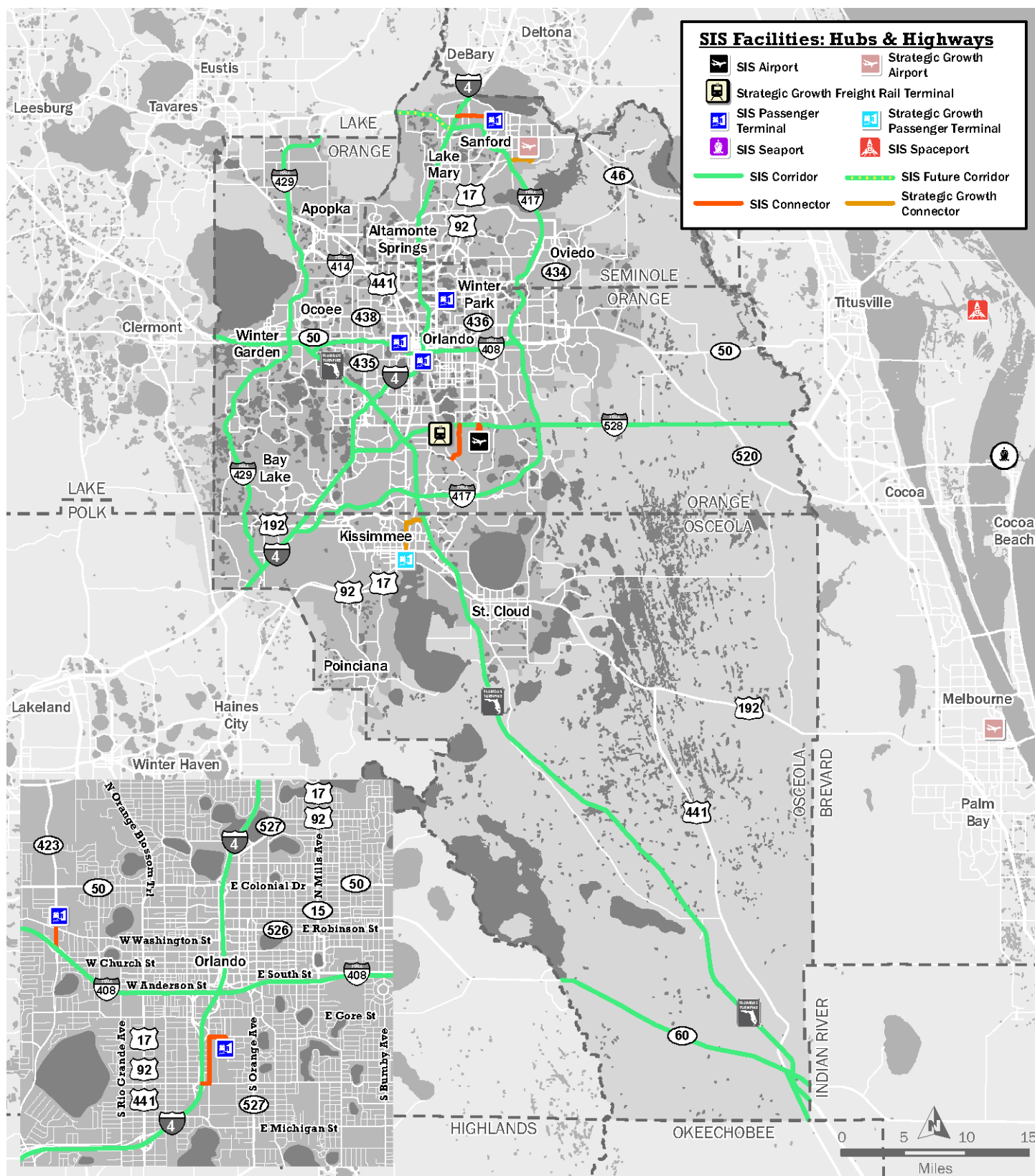
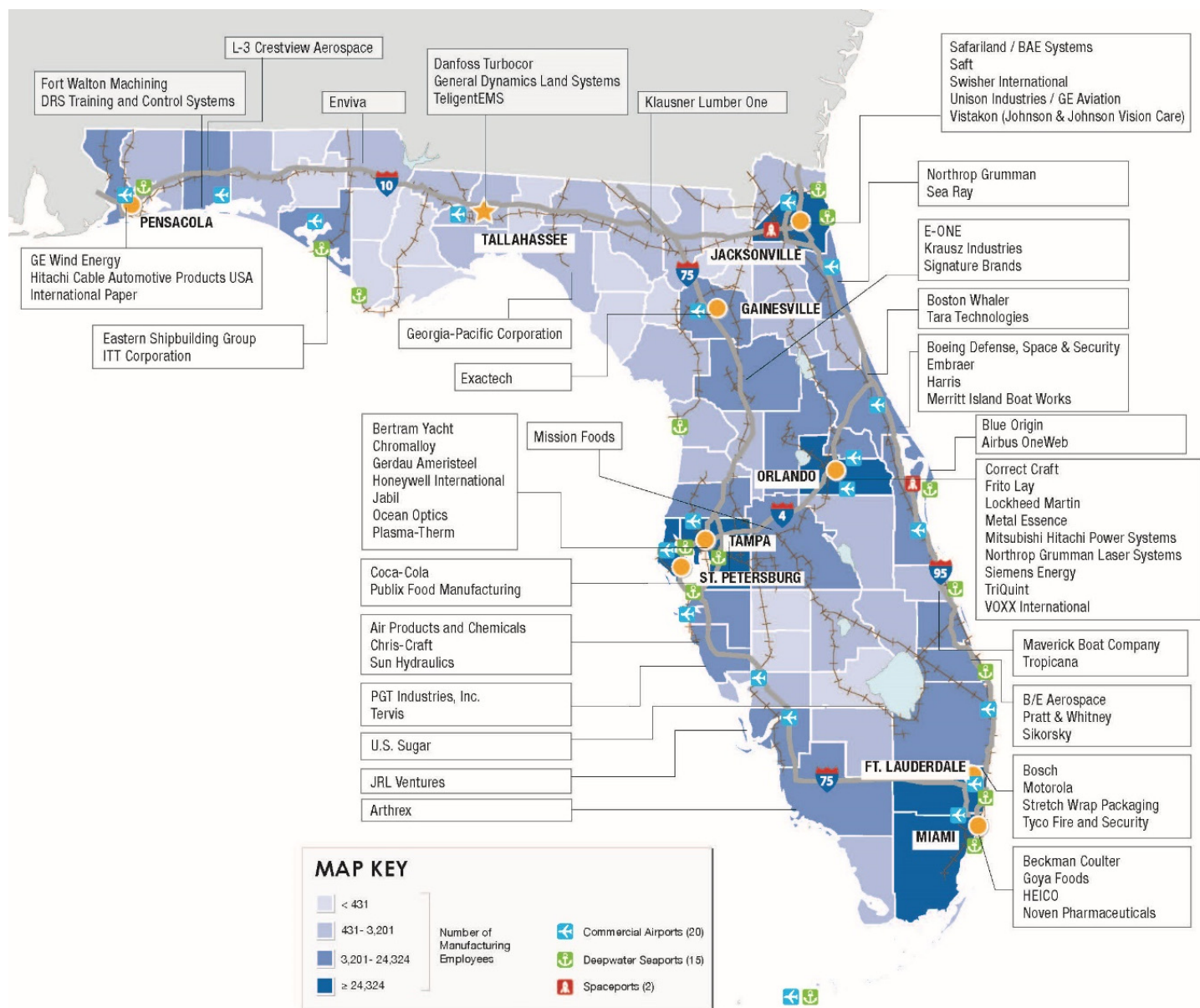


Figure 7.5 | Florida's Manufacturing Clusters

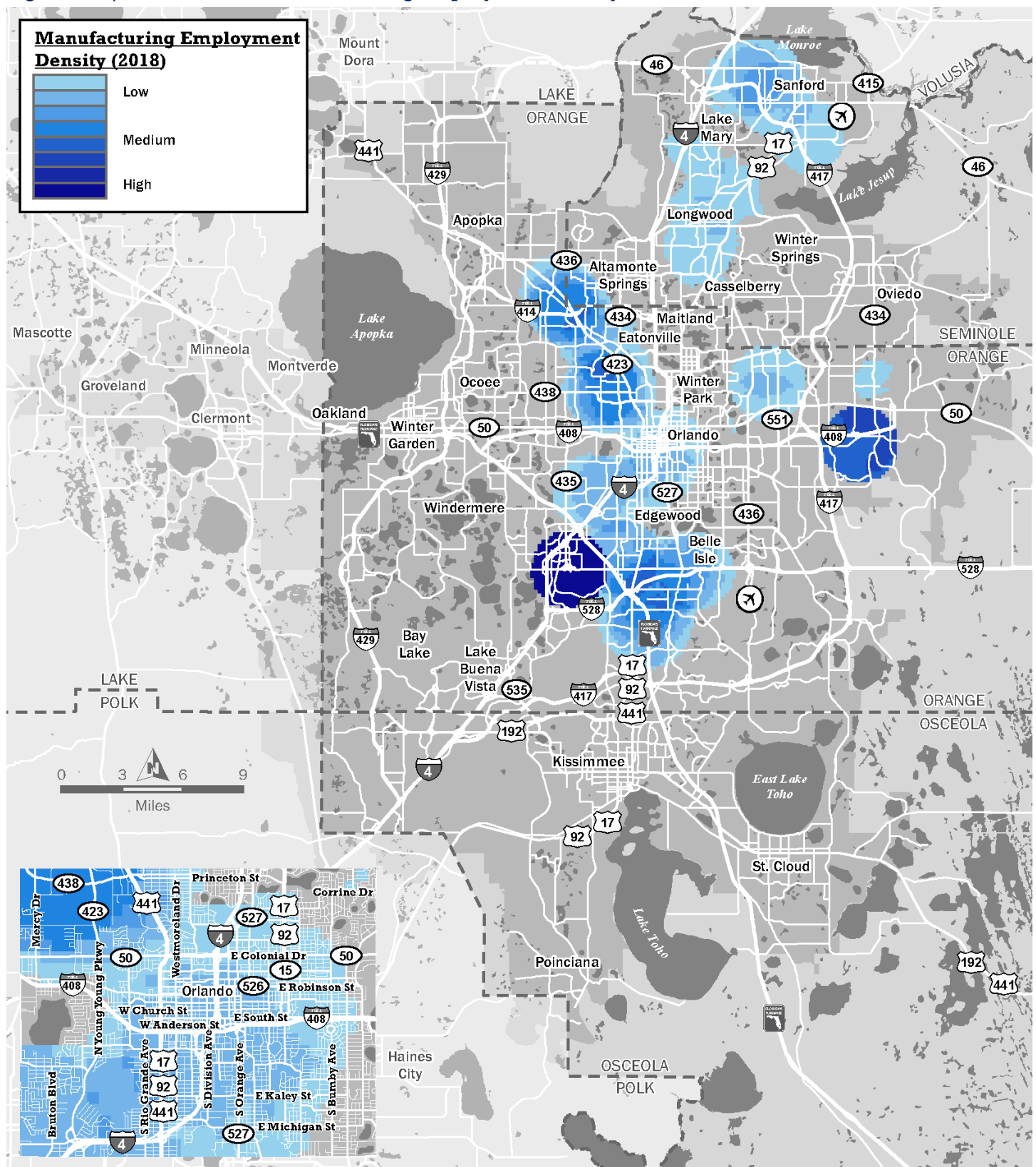


Source: FDOT, FMTP, 2019

Note: Select companies highlighted.



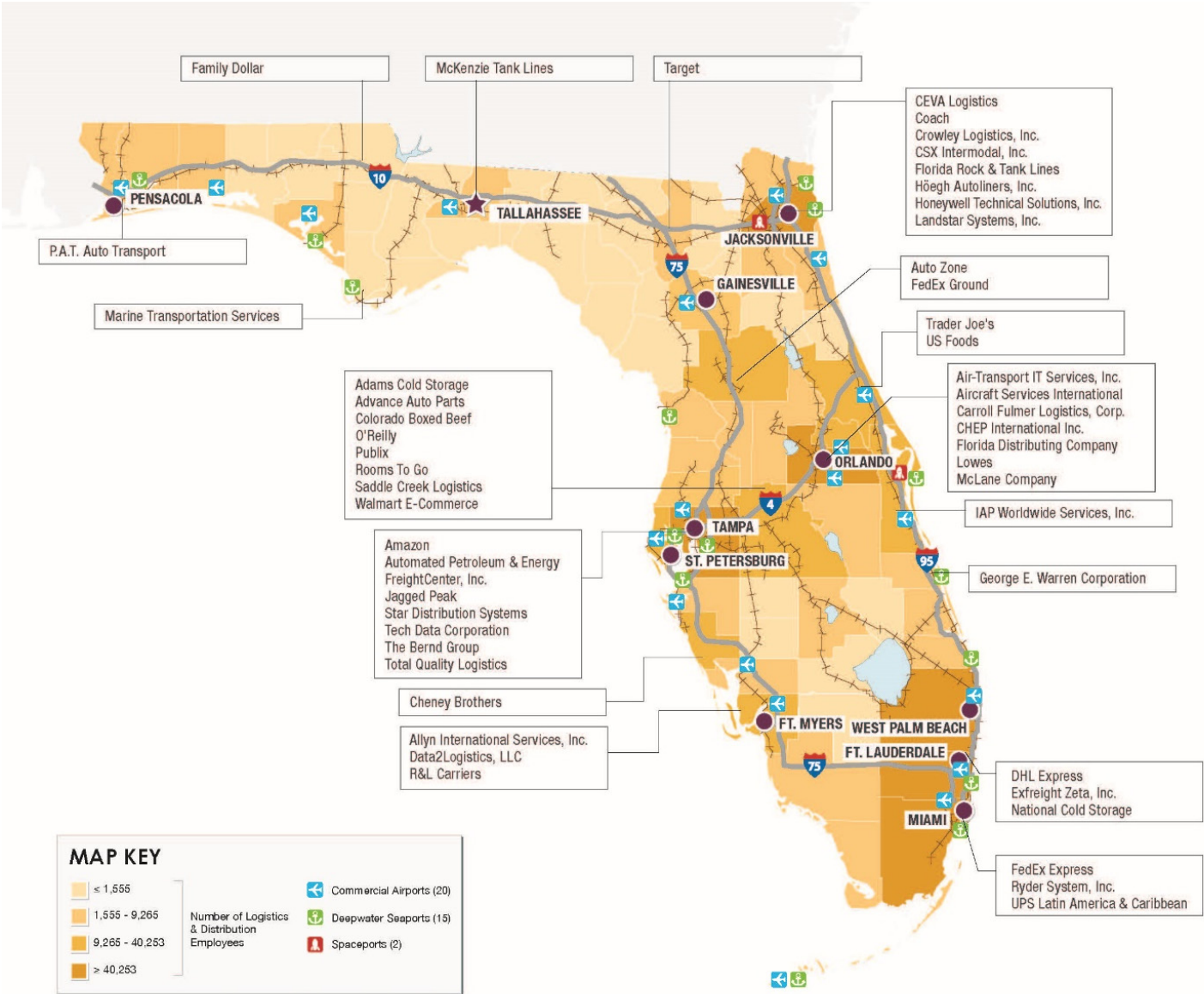
Figure 7.6 | Central Florida Manufacturing Employment Density



Source: FDOT, FMTP, 2018

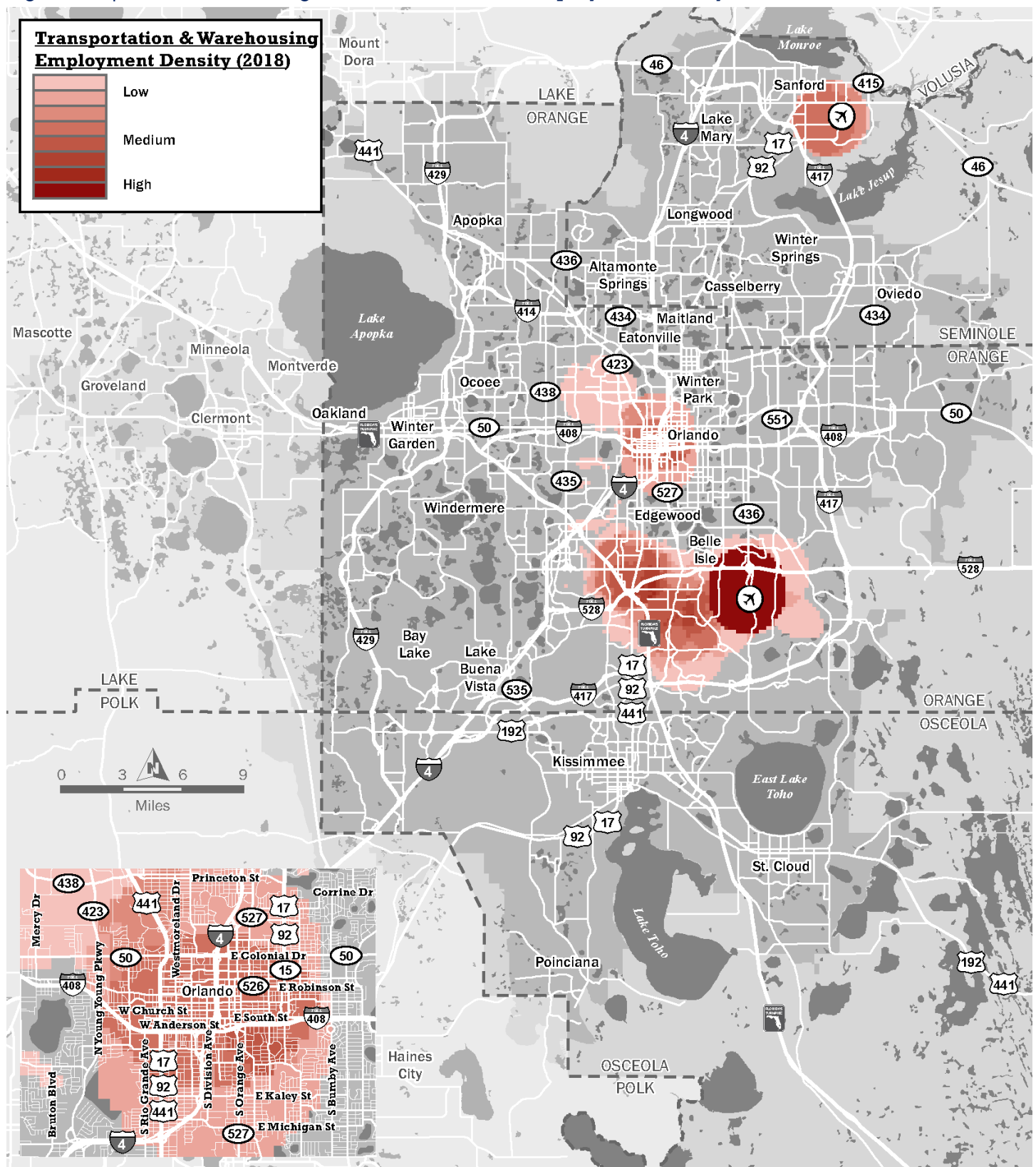


Figure 7.7 | Florida's Logistics and Distribution Clusters



Source: FDOT, FMTP, 2019  
Note: Select companies highlighted.

Figure 7.8 | Central Florida Logistics and Distribution Employment Density



Source: FDOT, FMTF, 2018



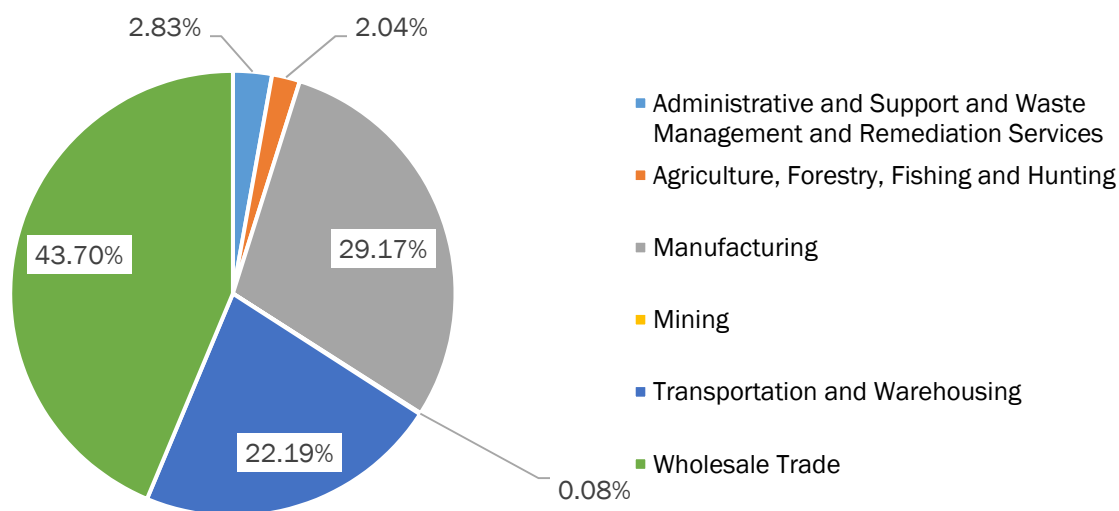
## Employment by Industry Type

Freight-related employment within the MetroPlan Orlando 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:

1. Wholesale Trade
2. Manufacturing
3. Transportation and Warehousing

The distribution of employment by industry type for all freight businesses within MetroPlan Orlando is shown in Figure 7.9. Wholesale Trade accounts for nearly half (44%) of freight employment, followed by Manufacturing at 29% and Transportation and Warehousing at 22%.

Figure 7.9 | Distribution of Employment by Industry Type



Source: Florida Department of Economic Opportunity, 2019

Average employment at freight businesses ranges between one and greater than 3,500 (Figure 7.10). These businesses are largely concentrated in the Landstreet area west of Orlando International Airport, Silver Star Road, and the Lockhart area (U.S. 441 and SR 414) in Orange County. Maximum employment at freight businesses falls within a similar range of between one and greater than 4,000 (Figure 7.11). The largest freight-related employer within the MPO is Lockheed Martin Corporation (a business in the Manufacturing sector) located in Orlando, Florida.

## 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 7.12) closely matches the distribution of freight employment with concentrations predominantly in the northern portion of Central Florida throughout Orlando, Altamonte Springs, Sanford, and Kissimmee.



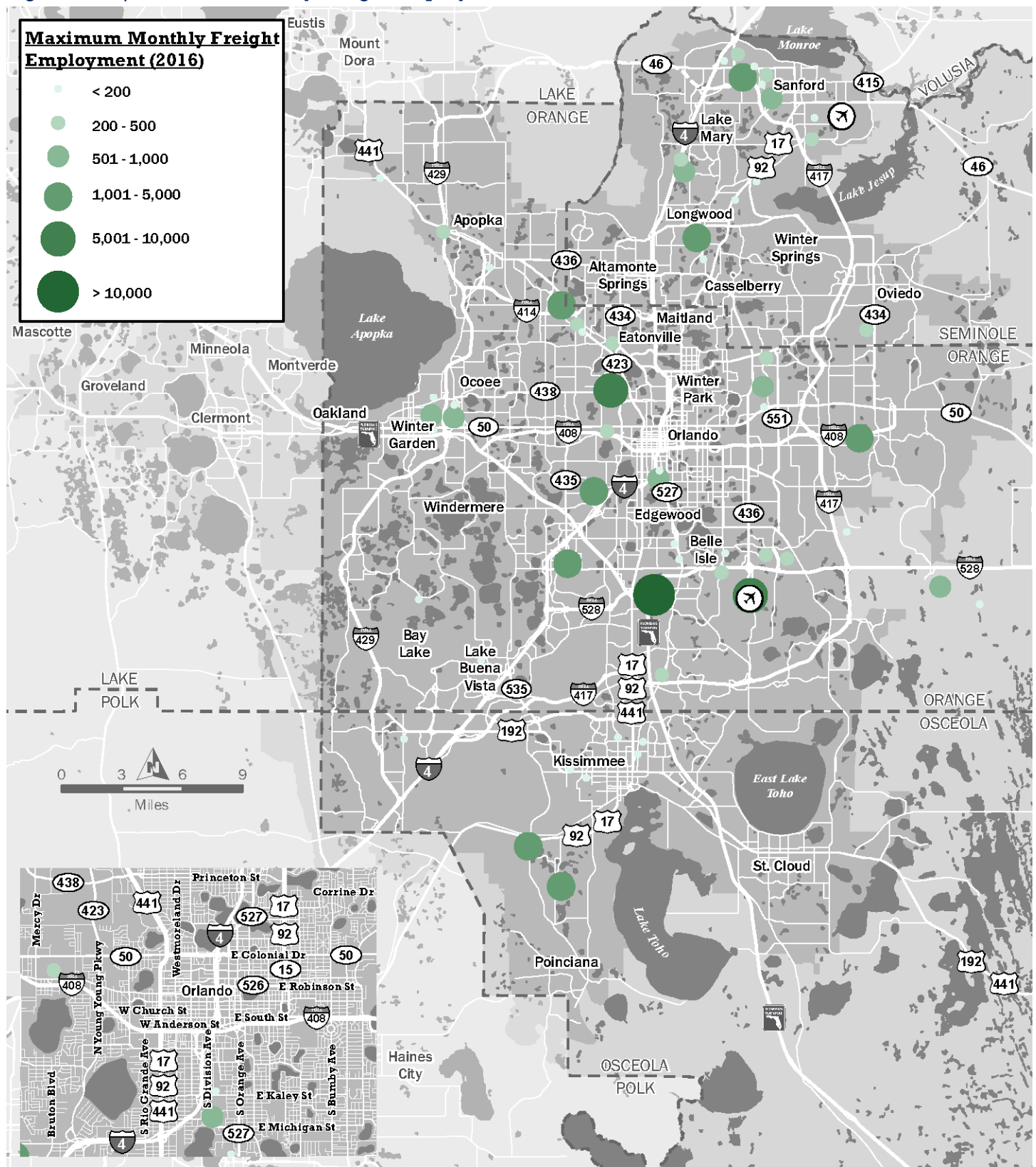
**Average Monthly Freight Employment (2016)**

- < 100
- 100 - 200
- 201 - 500
- 501 - 1,000
- 1,001 - 3,000
- > 3,000

Map showing Average Monthly Freight Employment (2016) by county in Central Florida. The map includes major highways, cities, and lakes. An inset map in the bottom left corner provides a detailed view of the Orlando area, showing streets and employment locations. A scale bar and north arrow are also present.

2045 Metropolitan Transportation Plan | Freight and Goods Movement

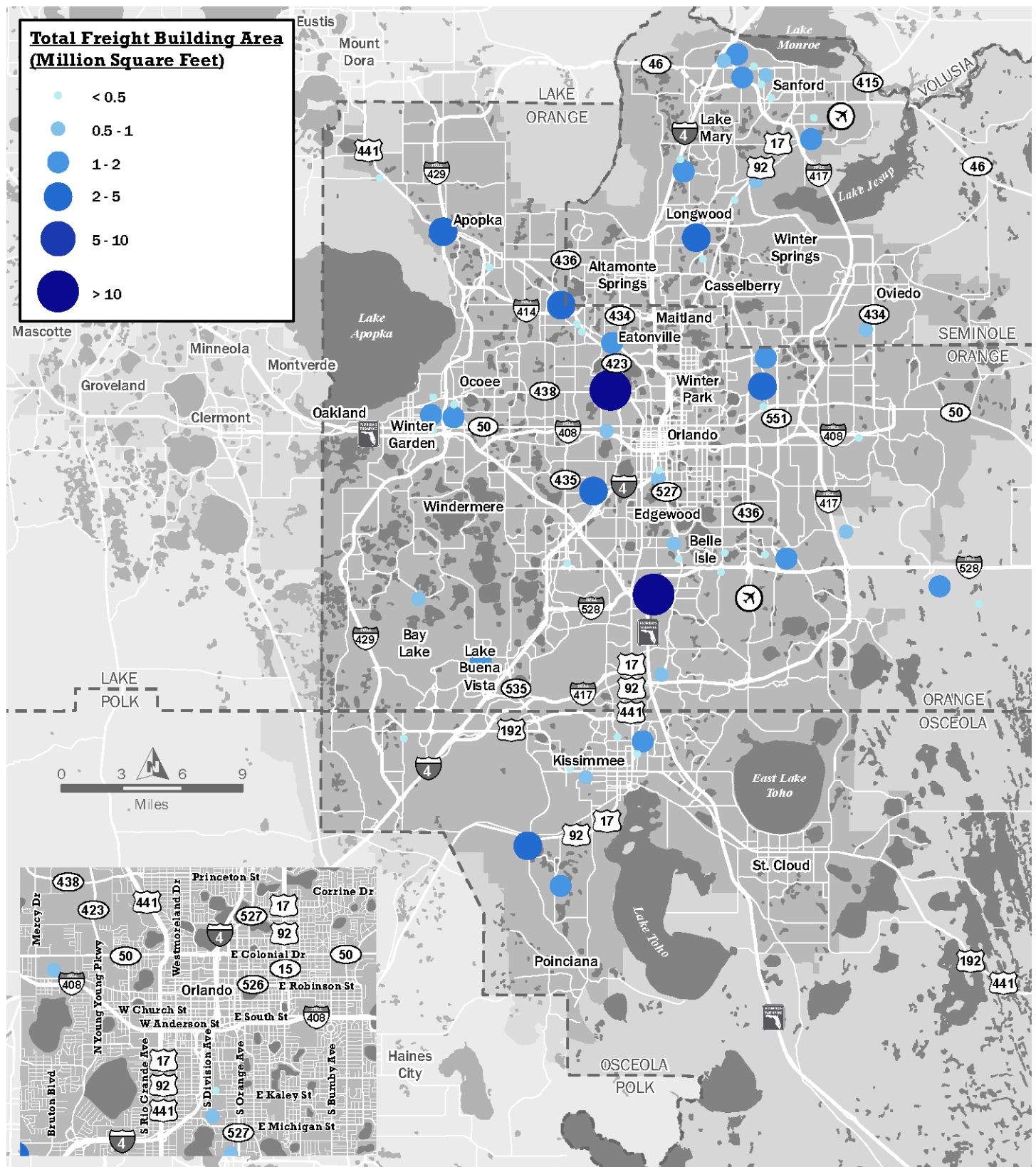
Figure 7.11 | Maximum Monthly Freight Employment



Source: FDOT, FMTP, 2019 / Florida Department of Economic Opportunity, Freight Employment Data, 2016



Figure 7.12 | Freight Building Floor Area



# Performance and Conditions

As detailed in *Technical Series 4: Existing Conditions and Area Profile*, Transportation infrastructure is vital to regional and statewide mobility. Business and consumer goods, visitors, and residents are transported to and from the region by roadways, airports, seaports, and rail. Maintaining and expanding the existing transportation system is essential to serving a variety of users now and in the future.

## Florida FMTP Performance Measures

Through the FMTP update process, FDOT has 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 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 7.2.

Table 7.2 | Florida FMTP Performance Measures

Freight Mode	Quality	Quantity	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	-
Maritime	Seaport Tonnage	-	-
Aviation	Aviation Tonnage	Aviation Departure Reliability	-

Source: FDOT, FMTP, 2019

## Congestion Management and More

MetroPlan Orlando's Congestion Management Process (CMP) addresses reoccurring and non-recurring congestion (travel reliability) in the metropolitan area. The CMP identifies strategies to improve the reliability and performance of the transportation system within the MetroPlan Orlando planning area and supports the 2045 MTP goals and objectives related to: Safety and Security, Reliability and Performance, Access and Connectivity, Health and Environment, and Investment and Economy. *The CMP includes strategies for improving safety, alleviating congestion, and enhancing mobility options for both people and goods.* It focuses on identifying areas where there are existing congestion-related impacts, strategies to mitigate negative impacts of congestion, and performance measures and monitoring program to determine the effectiveness of the strategies.

# Highway System Conditions

The condition of surface transportation infrastructure plays an important role in safety, transportation operations, and efficiency. While the movement of goods is vital to the economy, transporting tens of thousands of kilotons of freight each year can lead to the degradation of our roads, highways, and bridges.

## 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 to measure the presence of cracks and ruts on the roadway as well as overall ride quality. Within MetroPlan Orlando, 37% of the roadway system rates as “Good,” while 63% of the system is rated as “Fair.” Less than 1% of the system is classified as “Poor.” The figure also highlights that the majority of roadway miles (98%) in Central Florida are asphalt pavement.

Some freight-intensive segments were rated as “Poor,” notably small portions of I-4 in Sanford and southwest of Orlando (Figure 7.13). These highway segments are scheduled to be improved as part of the *I-4 Ultimate* and *Beyond the Ultimate* projects.

## 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 1,162 bridges within the MetroPlan Orlando region. Of these, 88% are rated as being in “Good” condition while the remaining 12% are rated as being in “Poor” 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:** 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. This group of bridges require significant maintenance, rehabilitation, or replacement and must be inspected frequently.

**Structurally Deficient:** Any component (Deck, Superstructure, Substructure, or Culverts) in Poor condition. These bridges do not meet current engineering standards, such as narrow lanes or low load-carrying capacity. A bridge that is both structurally deficient and functionally obsolete is only counted as structurally deficient.

MetroPlan Orlando includes 142 bridges defined as functionally obsolete (Figure 7.14). These are primarily concentrated in and around the Orlando area with a concentration of bridges along I-4 through the City. MetroPlan Orlando includes three bridges defined as structurally deficient. Two of these bridges are in the Orlando area with one bridge located in the Kissimmee area. It is important to note, bridges along the I-4 corridor are scheduled to be improved as part of the I-4 Ultimate and Beyond the Ultimate projects.

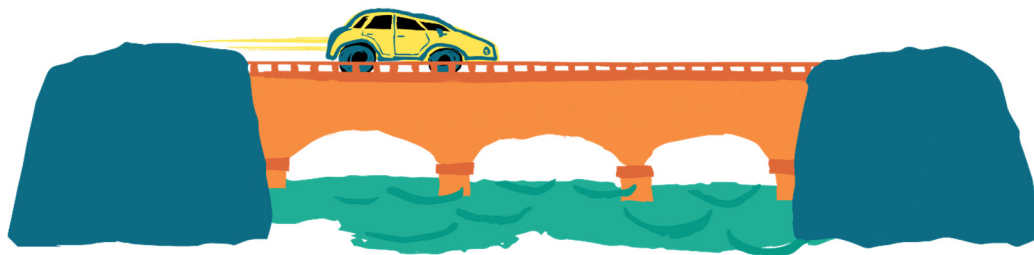
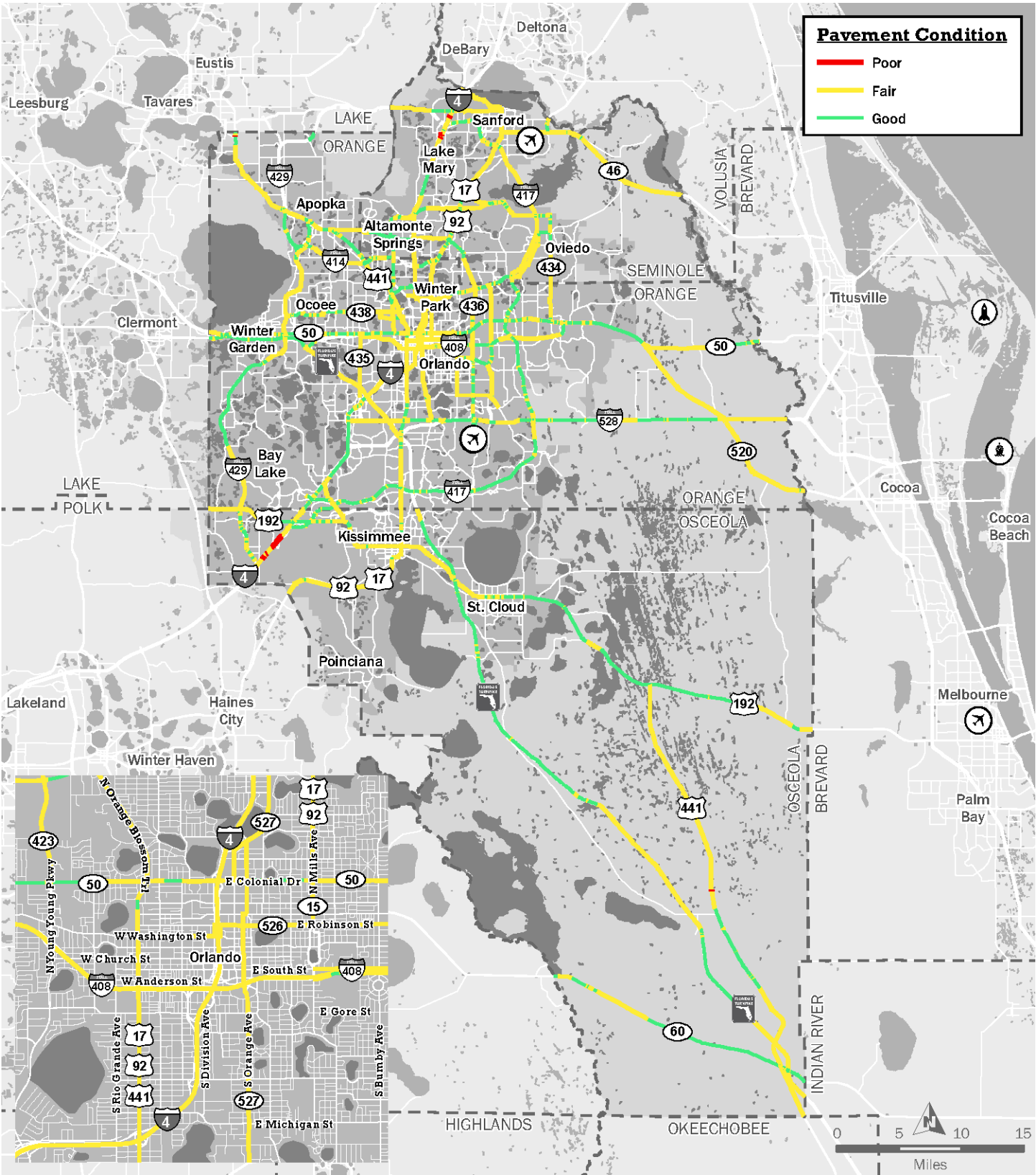


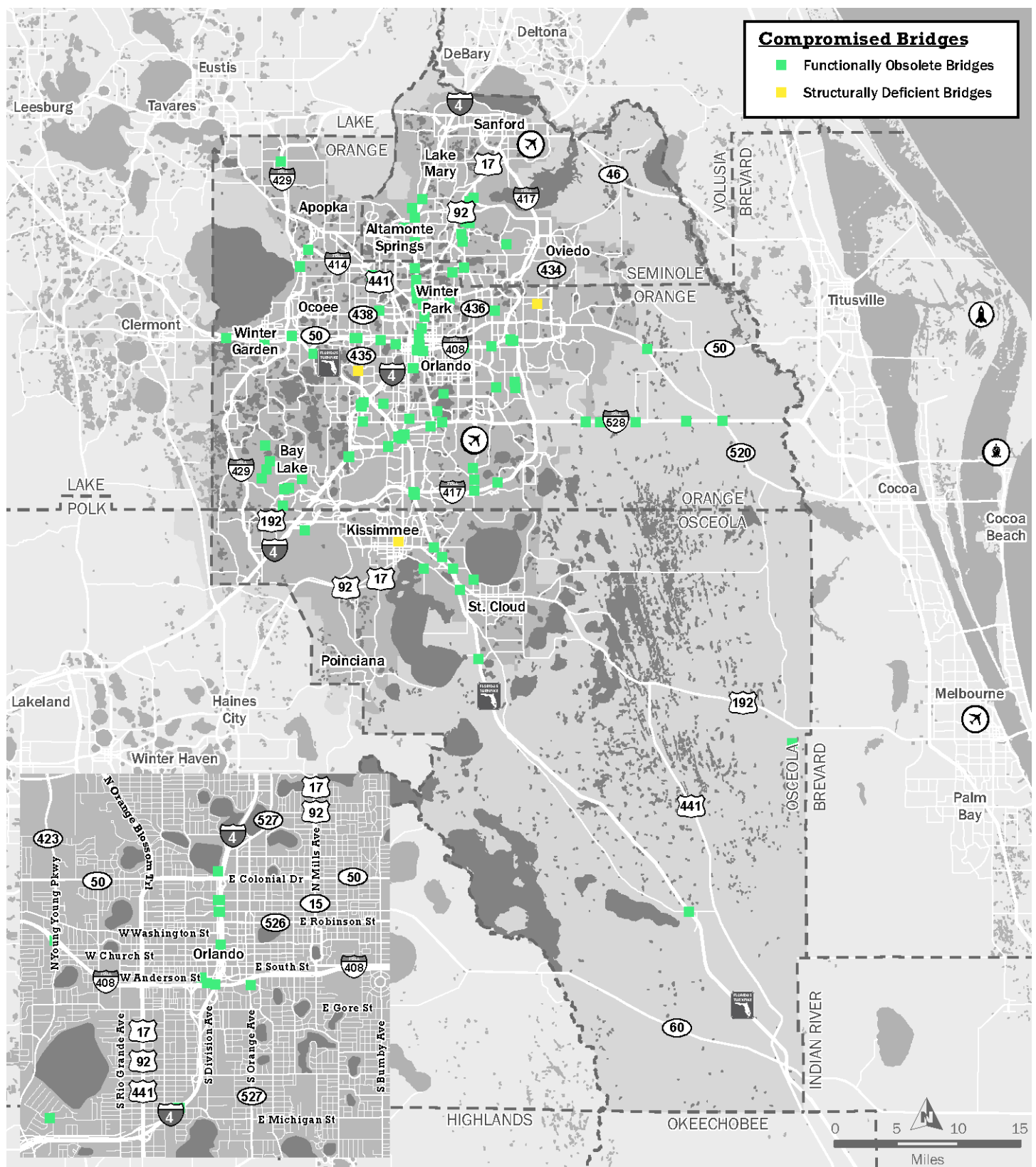
Figure 7.13 | Pavement Condition



Source: FDOT, State Materials Office, 2019



Figure 7.14 | Bridge Condition



# Freight System Safety

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

## Highway Safety

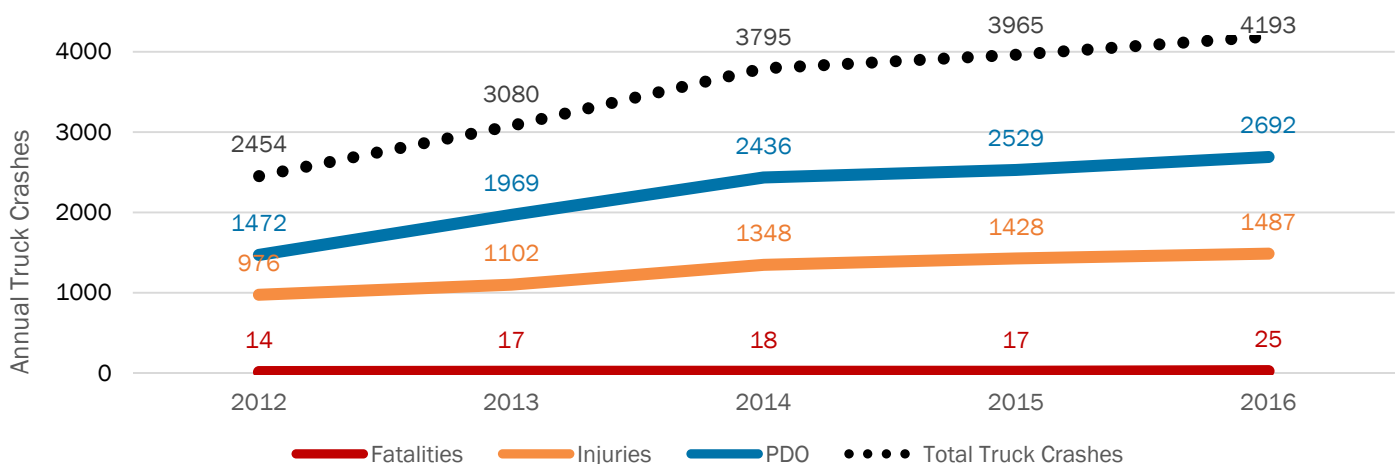
Due to their large size and weight compared to other roadway users, crashes involving trucks are more likely to result in fatalities, serious injuries, or substantial property damage than crashes involving passenger vehicles. Incidents involving truck-tractor trailers and other freight vehicles can result in longer clearance times and may require specialized equipment. This emphasizes the importance of Traffic Incident Management for safety and resiliency.

### Effective Traffic Incident Management

- Saves the lives of emergency responders who are often killed or injured at incident scenes by passing vehicles
- Supports more effective response to large-scale emergencies/disasters
- Helps agencies gain efficiencies with existing resources
- Relieves congestion on our region's roadways
- Reduces delay and motor idling - saving motorists time and money while yielding environmental benefits

Information on the fatalities, injuries, and truck crash totals are shown in Figure 7.15 below. Between 2011 and 2016, the total number of truck crashes increased from 2,454 to 4,193. The majority of this increase comes from a rise in property damage only (PDO) crashes, which have almost doubled from 1,472 to 2,692 over the same period. Fatal truck crashes have remained at a consistent level between 14 and 25 per year.

Figure 7.15 | Truck Fatalities, Injuries and Crashes in MetroPlan Orlando Region (2012-2016)

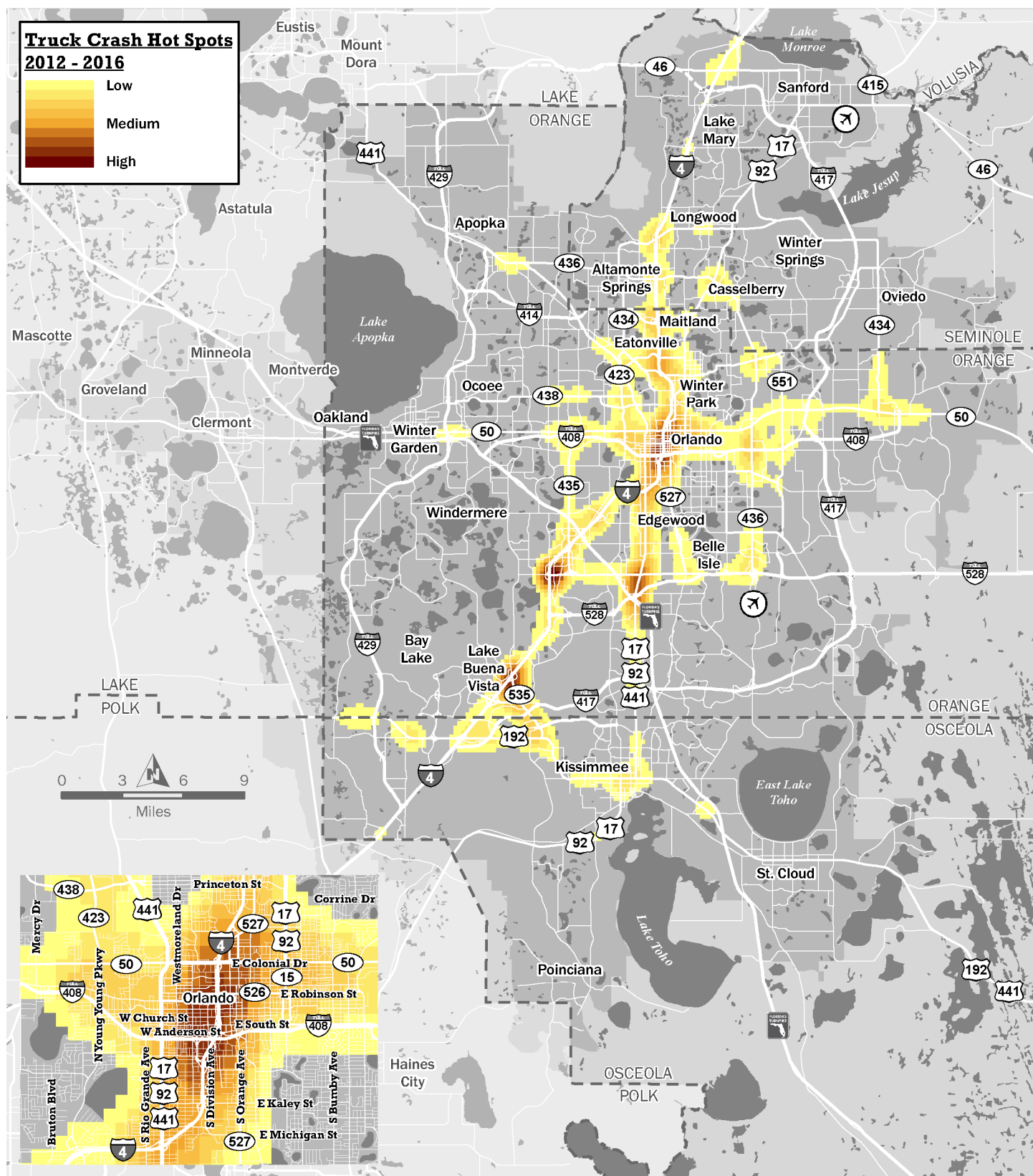


Source: FDOT Crash Analysis Reporting System (CARs), 2016

Highway safety was also reviewed by evaluating the geographic concentration of truck crash hot spots in the area (Figure 7.16). This analysis shows that the highest concentration of truck crashes occurs near the interchange between I-4 and SR 535 to the south and west of Orlando. Other key hot spots include the SR 528 interchanges with both I-4 and US 17.



Figure 7.16 | Truck Crash Heat Map



Source: FDOT Crash Analysis Reporting System (CARs), 2016



## Rail Safety

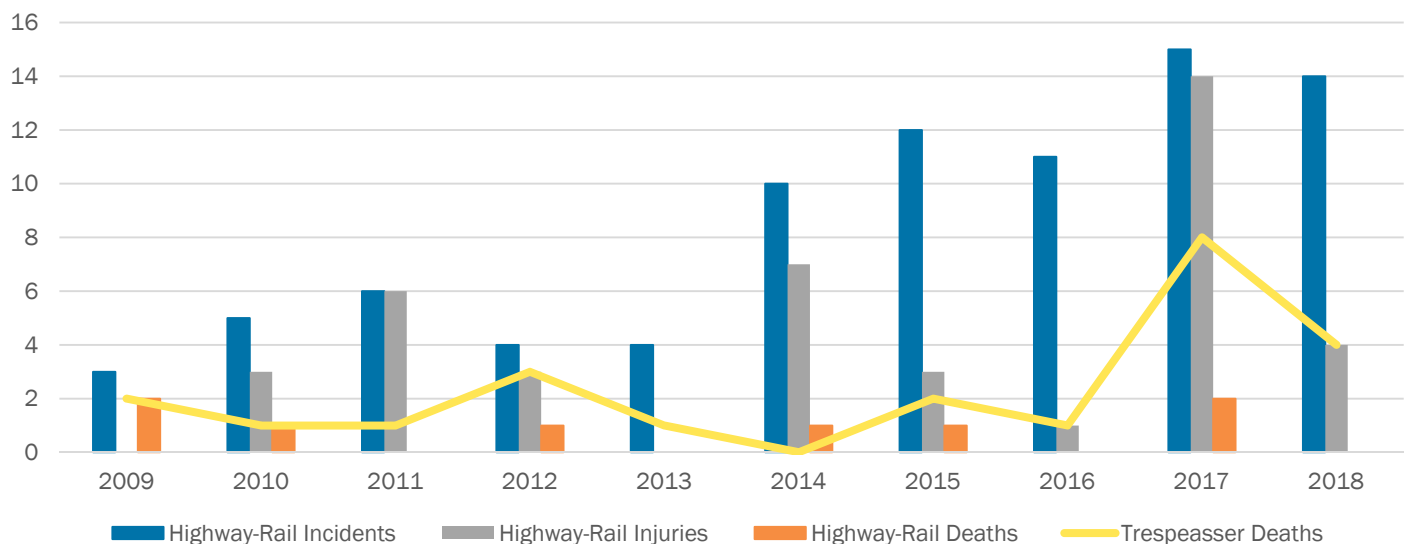
Central Florida's railways support national freight rail operations while also serving inter-regional passenger (currently operated by [Amtrak](#)) and regional commuter rail ([SunRail](#)) services. Rail safety trends were reviewed by evaluating crash/incident data in Orange, Osceola and Seminole Counties from the Federal Railroad Administration's (FRA) Office of Safety Analysis. Figure 7.17 below shows the total number of incidents at highway-rail at-grade crossings per year as well as the total number of injuries and deaths. Between the years 2009 and 2013, crashes at rail crossings in the three counties typically totaled an average of four per year. However, during the years 2014 through 2018, this rose substantially to an average of 12 per year. This statistic correlates with the commencement of SunRail (Commuter Rail) service in May 2014 and the associated increase rail activities and at-grade crossings (higher frequency of rail activity during peak periods and longer periods of the day). Prior to the opening of SunRail in May 2014, there were on average of 42 trains that traversed our region per day. After SunRail began operations, 70 trains passed through the urbanized area. Though SunRail Phase II South opened four additional stations and added four additional trains to the route in July 2018, the average number of trains traveling through the region decreased to 64 trains per day.

The figure also highlights trespasser deaths with Central Florida. Trespasser-related incidents have been increasing nationally and are a growing concern for the FRA and other rail safety stakeholders. A total of 23 trespasser deaths have occurred in the MetroPlan Orlando region between 2009 and 2018.

For information about SunRail's rail safety initiatives, visit: <https://sunrail.com/about/rail-safety/>

For information about suicide prevention and support, visit: <https://suicidepreventionlifeline.org/>

**Figure 7.17 | Rail Safety Incidents in MetroPlan Orlando Region (2009-2018)**



Source: Federal Railroad Administration, 2018



## 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, turn-lane queue length, and geometric features such as turn radius or narrow lane widths. *According to the FHWA's 2018 Traffic Incident Management Performance Measures Final Report, Idling in traffic costs the U.S. trucking industry over \$7.8 billion annually.*

The top 25 truck bottlenecks within MetroPlan Orlando are listed in Table 7.3 and shown in Figure 7.18.

**Table 7.3 | Top 25 Truck Bottlenecks within MetroPlan Orlando Region**

#	Road Name ( Direction)	From	To	Length (Mi)
1	I-4 (WB)	MP 63	MP 61	1.75
2	W Maitland Blvd (EB)	0.6 Miles East of SR-434	Lake Destiny Rd	1.04
3	Narcoossee Rd (SB)	SR 528 / Beachline Expwy	SR 417	3.64
4	Narcoossee Rd (NB)	Boggy Creek Rd	SR 417/CF Greenway	3.81
5	SR 91 (SB)	US-441/SR 528/Exit 254	0.85 Miles north of SR 417 Interchange	3.16
6	Narcoossee Rd (SB)	SR 417/CF Greenway	Boggy Creek Rd	3.77
7	Maitland Blvd (WB)	SR 434/Forest City Rd	Rose Ave	1.36
8	S Narcoossee Rd (NB)	Rummell Rd	Boggy Creek Rd	5.91
9	Narcoossee Rd (NB)	SR 417/CF Greenway	SR 528/Martin Anderson Beachline	3.60
10	S Poinciana Blvd (SB)	US 192/W Irlo Bronson Memorial Hwy	US 17/US 92/S Orange Blossom Trl	6.03
11	I-4 W (WB)	South of Lake Mary Blvd	SR 434/Exit 94	4.21
12	S Narcoossee Rd (SB)	Boggy Creek Rd	Rummell Rd	5.91
13	I-4 (EB)	W Osceola Pkwy	SR 536/Exit 26	1.23
14	S Poinciana Blvd (NB)	US 17/US 92/S Orange Blossom Trl	US 192/W Irlo Bronson Memorial Hwy	6.03
15	S John Young Pkwy (SB)	W Oak Ridge Rd	SR 482/W Sand Lake Rd	1.65
16	S John Young Pkwy (NB)	SR 482/W Sand Lake Rd	W Oak Ridge Rd	1.65
17	N John Young Pkwy (NB)	US 17/US 92/Emmett St	US 192/W Vine St	0.84
18	I-4 (WB)	MP 61	SR 429 Toll/Exit 60	1.05
19	SR 91 (SB)	MP 259.5	SR 441/SR 528/Exit 254	4.31
20	S John Young Pkwy (NB)	Pleasant Hill Rd	Portage St	2.38
21	I-4 (WB)	W Osceola Pkwy	SR 417 Toll/Central Florida Greenway	1.89
22	SR 91 (NB)	Orange Ave	0.85 Miles north of SR 417 Interchange	1.49
23	N John Young Pkwy (SB)	US 192/W Vine St	US 17/US 92/Emmett St	0.88
24	W Vine St (EB)	Vineland Rd	N Hoagland Blvd	3.43
25	Maitland Blvd (EB)	Rose Ave	FL 434/Forest City Rd	1.29

Source: National Performance Measurement Research Dataset (NPMRDS), 2019



[illegible]

2045 Metropolitan Transportation Plan | Freight and Goods Movement

## Truck Volumes and Level of Service

The Level of Service (LOS) for highways is a performance measure used to indicate the quality of vehicle traffic service being provided. The ratings go from A to F where 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 MetroPlan Orlando is shown in Figure 7.19. Multiple segments of roadway are shown at LOS F. These roads are not necessarily concentrated in one location but are distributed throughout the metropolitan area. Notably, nearly all segments of I-4 through the area operate at either LOS E or F.

Figure 7.20 shows a 2040 forecast for LOS in the region. As expected, the overall level of service will decrease significantly with nearly all major roadways operating at LOS E or F.

Truck volumes are also shown in Figure 7.21. Truck volumes are highest on segments of I-4 throughout the area and on the Florida Turnpike (SR 91) between Clermont and Kissimmee. As shown in Figure 7.22, truck volumes have increased on many roadways throughout the area between 2013 and 2018. Many roadways including SR 429, SR 417, and portions of the Florida Turnpike (SR 91) have experienced truck volume growth in excess of 50% over this time period.

## Truck Tonnage

Truck tonnage in the MetroPlan Orlando area was evaluated using the FHWA's Freight Analysis Framework version 4 (FAF4). The FAF4 estimated truck tonnages for 2012 are shown in Figure 7.23. The roadway with the highest tonnage is the Florida Turnpike (SR 91) with over 30,000 kilotons of freight annually on all segments. Other high-tonnage highways include I-4 and SR 528.

The estimated tonnage projected for year 2045 is shown in Figure 7.24. 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 50,000 kilotons annually on the Florida Turnpike (SR 91) and many portions of I-4 and rising to between 10,000 and 50,000 kilotons on SR 528.

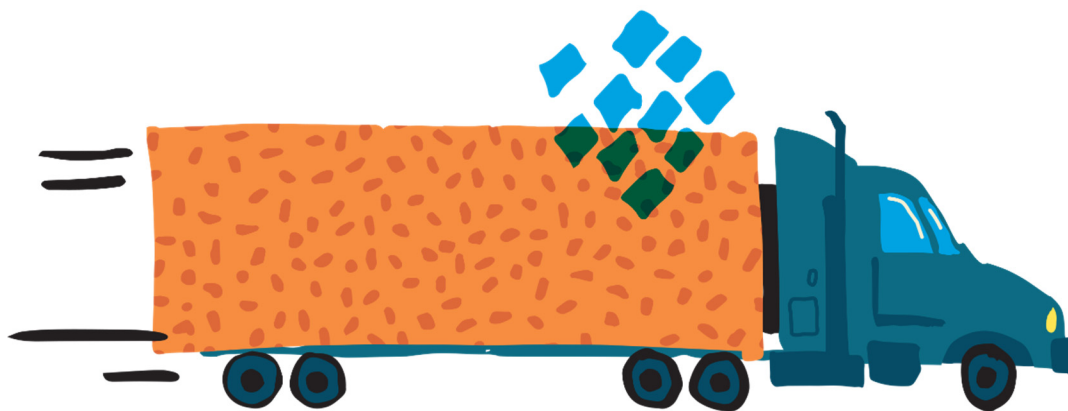
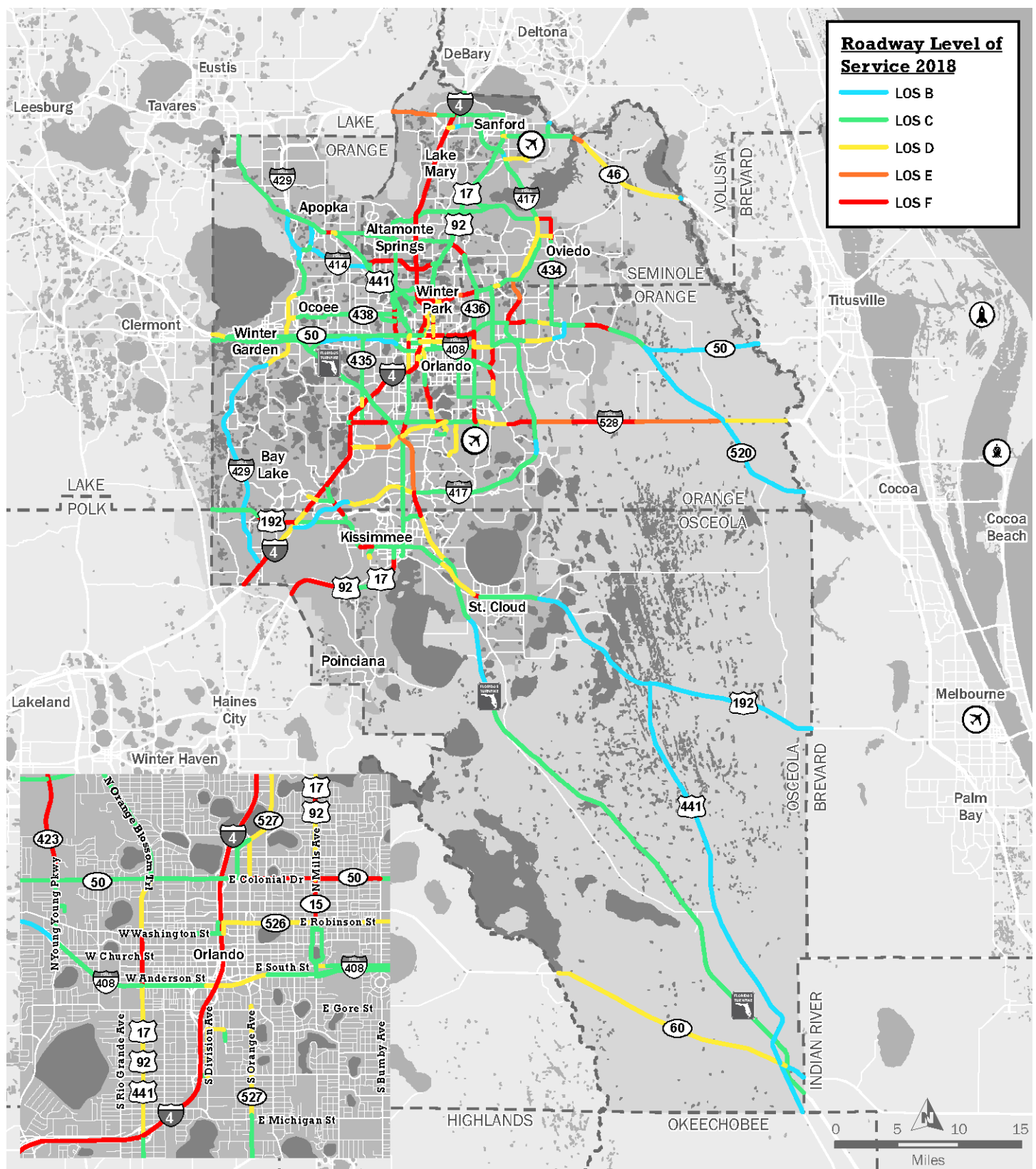


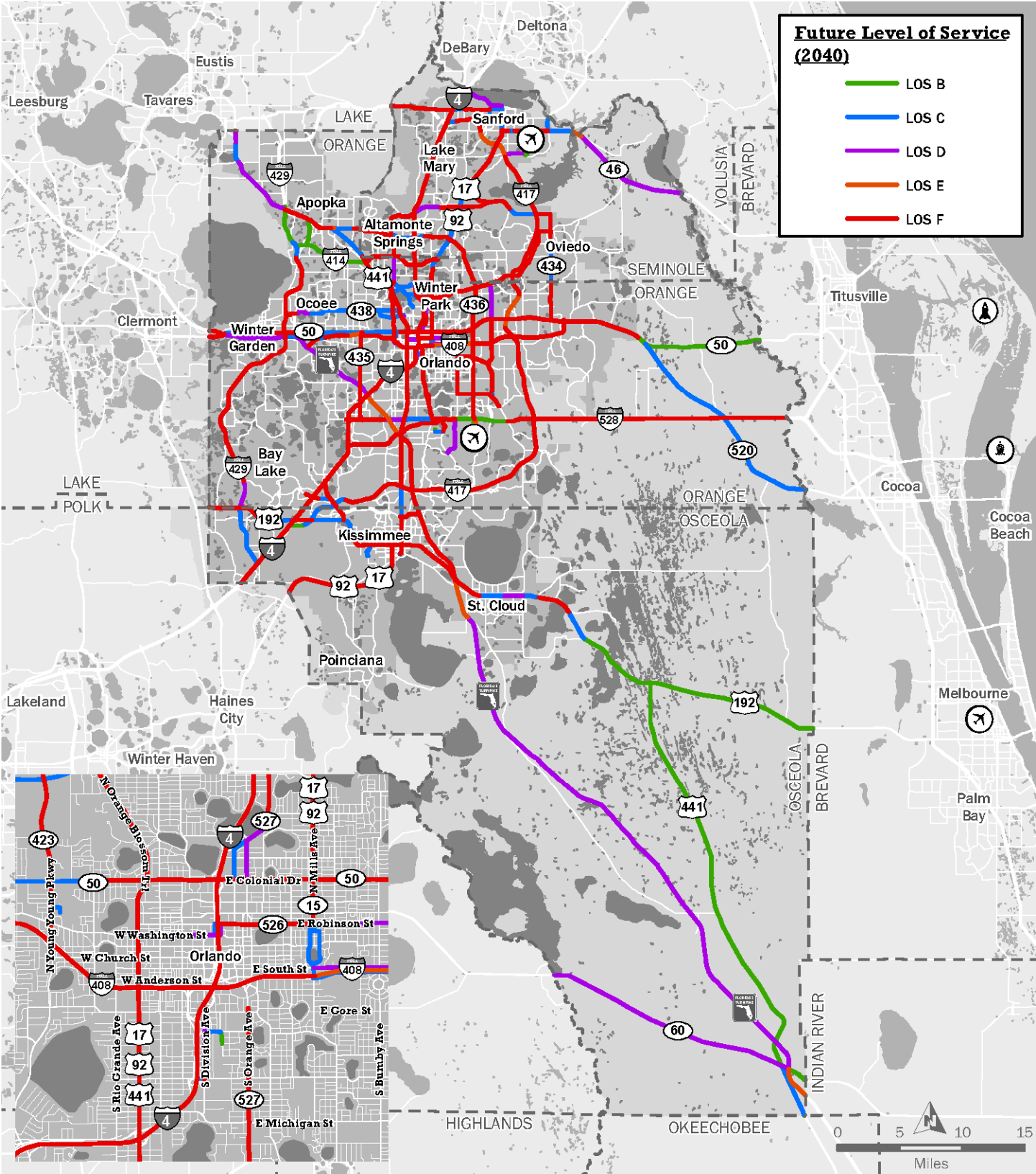
Figure 7.19 | Existing Level of Service (LOS), 2019



Source: FDOT District Five, LOS, 2019



Figure 7.20 | Future Level of Service (LOS), 2040



Source: FDOT District Five, LOS, 2016



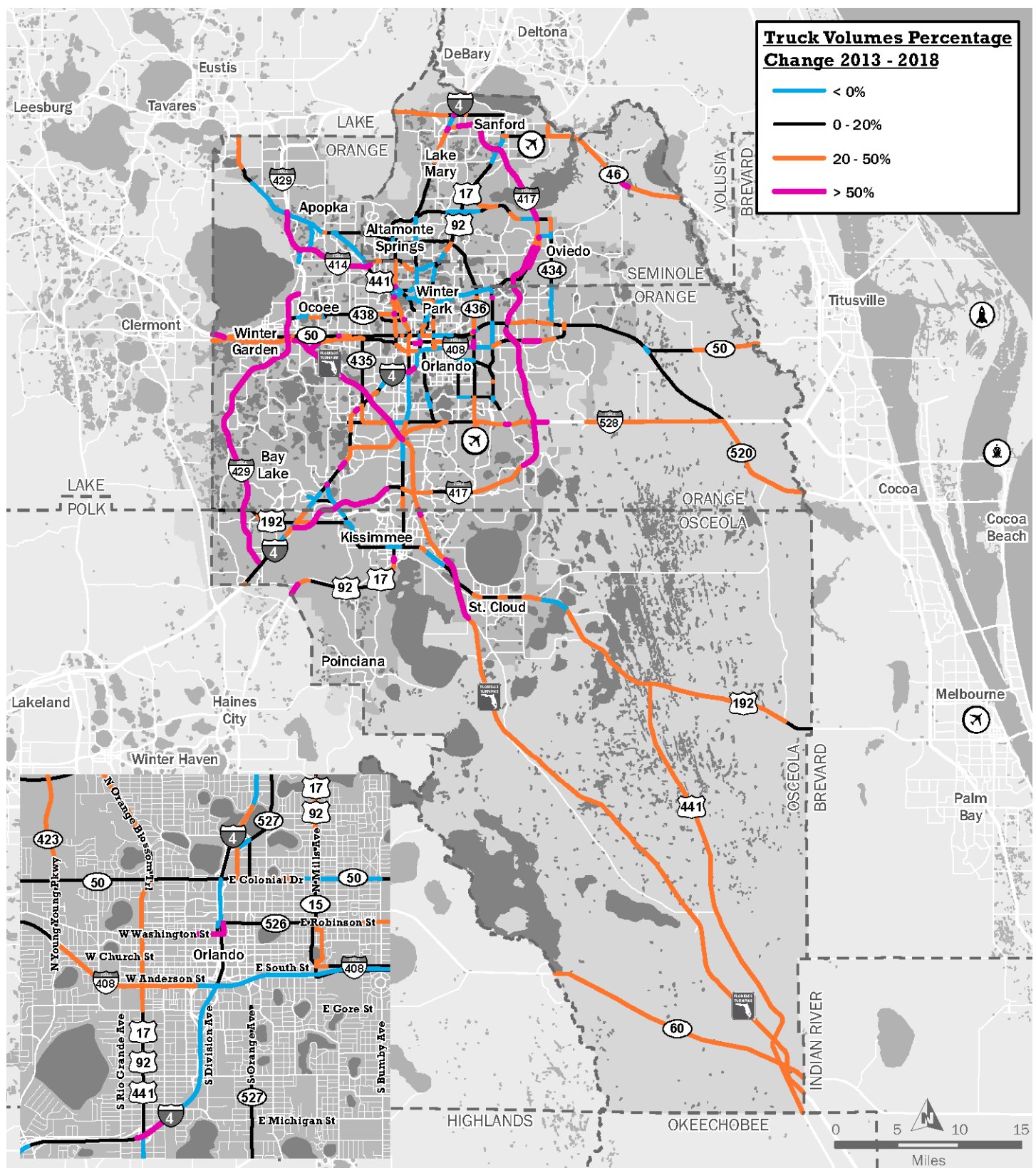
**Average Annual Daily Truck Traffic**

- < 500
- 501 - 1,000
- 1,001 - 2,000
- 2,001 - 5,000
- 5,001 - 10,000
- > 10,000

Map showing Average Annual Daily Truck Traffic by county in Central Florida. The map includes major highways, cities, and an inset map of the Orlando area. The legend indicates traffic volume ranges: < 500, 501 - 1,000, 1,001 - 2,000, 2,001 - 5,000, 5,001 - 10,000, and > 10,000.

2045 Metropolitan Transportation Plan | Freight and Goods Movement

Figure 7.22 | Truck Volume Percentage Change, 2013-2018



Source: FDOT, RCI, 2018



**Freight Analysis Framework**  
**Tonnages 2012 (ktons)**

- < 1,000
- 1,001 - 5,000
- 5,001 - 10,000
- 10,001 - 20,000
- 20,001 - 30,000
- 30,001 - 50,000
- 50,001 - 100,000

Map labels include: Leesburg, Tavares, Eustis, DeBary, Sanford, Lake Mary, Apopka, Altamonte Springs, Ocoee, Winter Park, Oviedo, Titusville, Clermont, Winter Garden, Bay Lake, Kissimmee, St. Cloud, Poinciana, Haines City, Winter Haven, Lakeland, Orlando, Melbourne, Palm Bay, Cocoa, Cocoa Beach, Deltona, Lake Orange, Lake Polk, Lake Wales, Volusia, Seminole, Orange, Osceola, Brevard, Indian River, Highlands, Okeechobee.

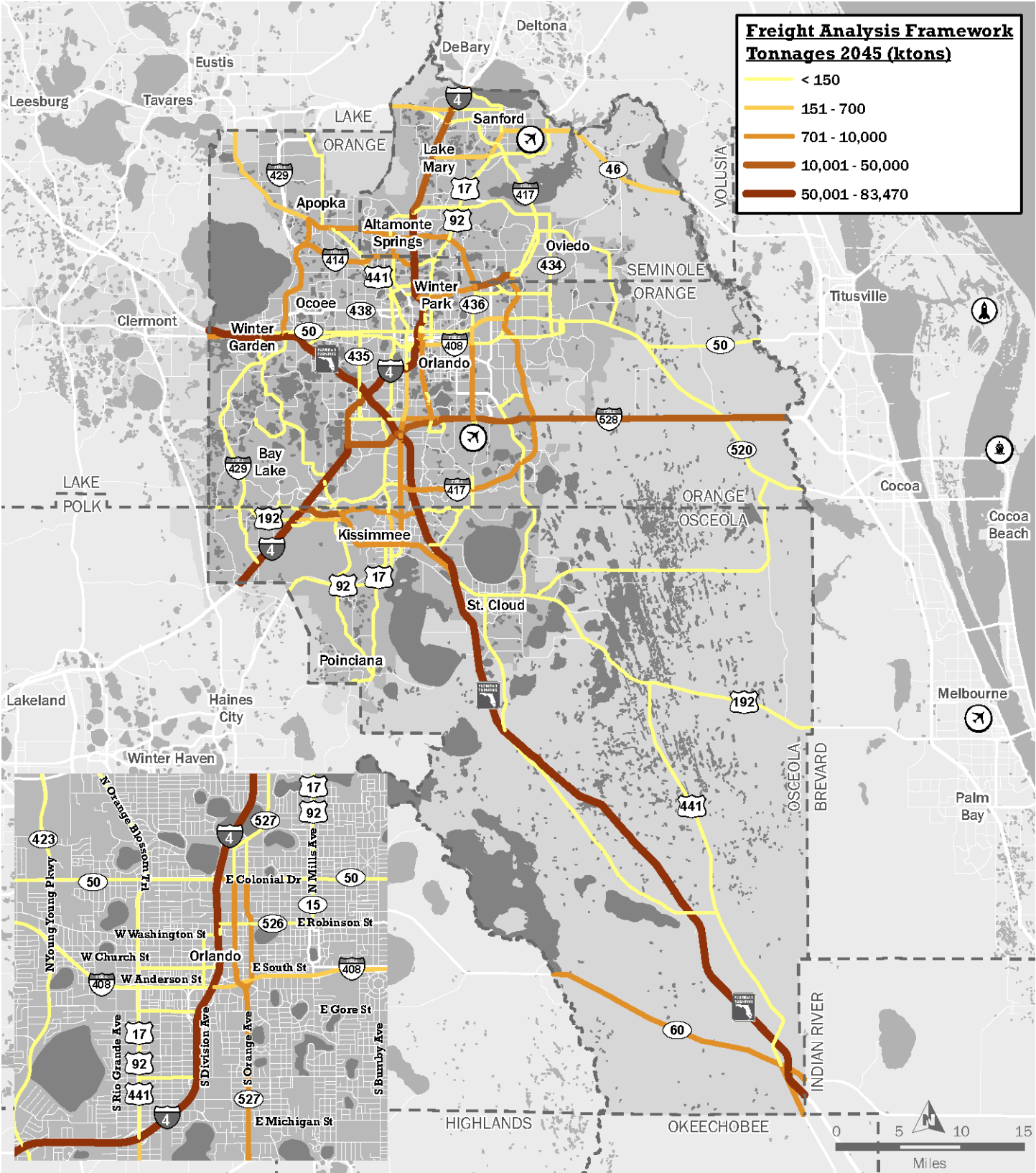
Highway shields shown: 4, 17, 92, 414, 441, 438, 435, 408, 436, 434, 50, 528, 520, 192, 429, 423, 527, 92, 15, 526, 408, 17, 92, 441, 4, 527, 50, 60.

Inset map labels: N Orange Blossom Tr, N Young Young Pkwy, W Washington St, W Church St, W Anderson St, S Division Ave, S Orange Ave, S Bumby Ave, E Colonial Dr, N Mills Ave, E Robinson St, E South St, E Gore St, E Michigan St.

Scale: 0, 5, 10, 15 Miles. North arrow pointing up.

2045 Metropolitan Transportation Plan | Freight and Goods Movement

Figure 7.24 | FHWA Freight Analysis Framework (FAF), 2045



Source: FHWA, FAF4, 2012



# Truck Parking

As Central Florida's population continues to grow and freight movement responds to commercial and consumer demands, truck parking needs must be addressed to ensure the trucking industry has the necessary infrastructure to serve global trade while complying with trucking regulations (hours of service) and the quality of life of nearby communities. Truck parking shortages are a statewide and national safety concern, and an inadequate supply of truck parking locations and spaces can result in negative consequences.

Having safe places with adequate facilities for truck drivers to park keeps truck drivers and the traveling public safe. As of December 2015, hours of service regulations limit driving time to 11 hours, with a maximum on-duty time of 14 hours. Off-duty time minimum must be 10 hours within a minimum duty cycle of 21 hours. A maximum of 8 hours may be worked before a 30-minute rest break. A 34-hour restart provision is required per consecutive seven-day period.

Central Florida is a predominantly consumer-based economy and relies on the safe and efficient movement of goods, making trucks essential to the region's economy and overall quality of life. Each year, trucks move more freight than other modes such as rail, marine, pipelines and aviation. When measured by tonnage, **trucks move about 95 percent of all freight into, out of, within and through our region**. Without trucks, freight would not be able to be moved from rail yards, ports, pipeline terminals and airports to their final destinations – our homes and businesses. Therefore, it is important that the trucking industry has the infrastructure to operate safely within the region, which includes access to available, safe, and secure truck parking.

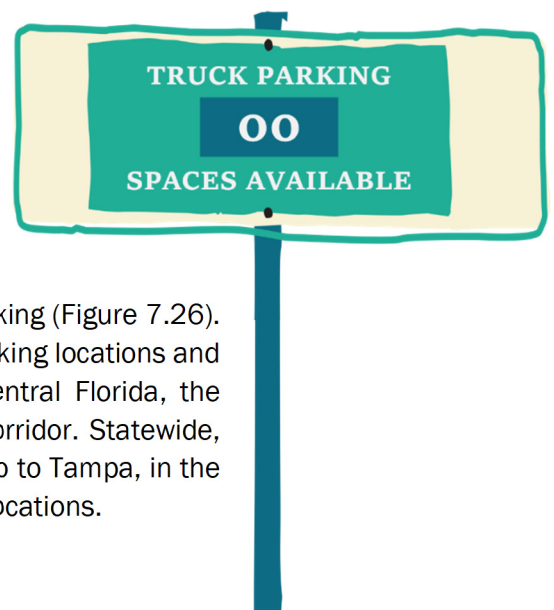
## Jason's Law

Jason Rivenburg was a truck driver who was murdered in 2009. Unable to locate parking, he was forced to park his vehicle in an abandoned lot to meet federal Hours of Service requirements. While asleep, he was robbed and then murdered. Jason's Law was passed three years after this tragic incident in order to bring attention to the national truck parking shortage, and the associated safety and implications; and to provide funding to support parking facility maintenance and construction.

## Inventory and Issues

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. Ten truck parking facilities are located throughout MetroPlan Orlando's three-county region (Figure 7.25). Four of the truck parking facilities located along the I-4 corridor frequently experience utilization in excess of 100 percent. These conditions are inadequate and require action.

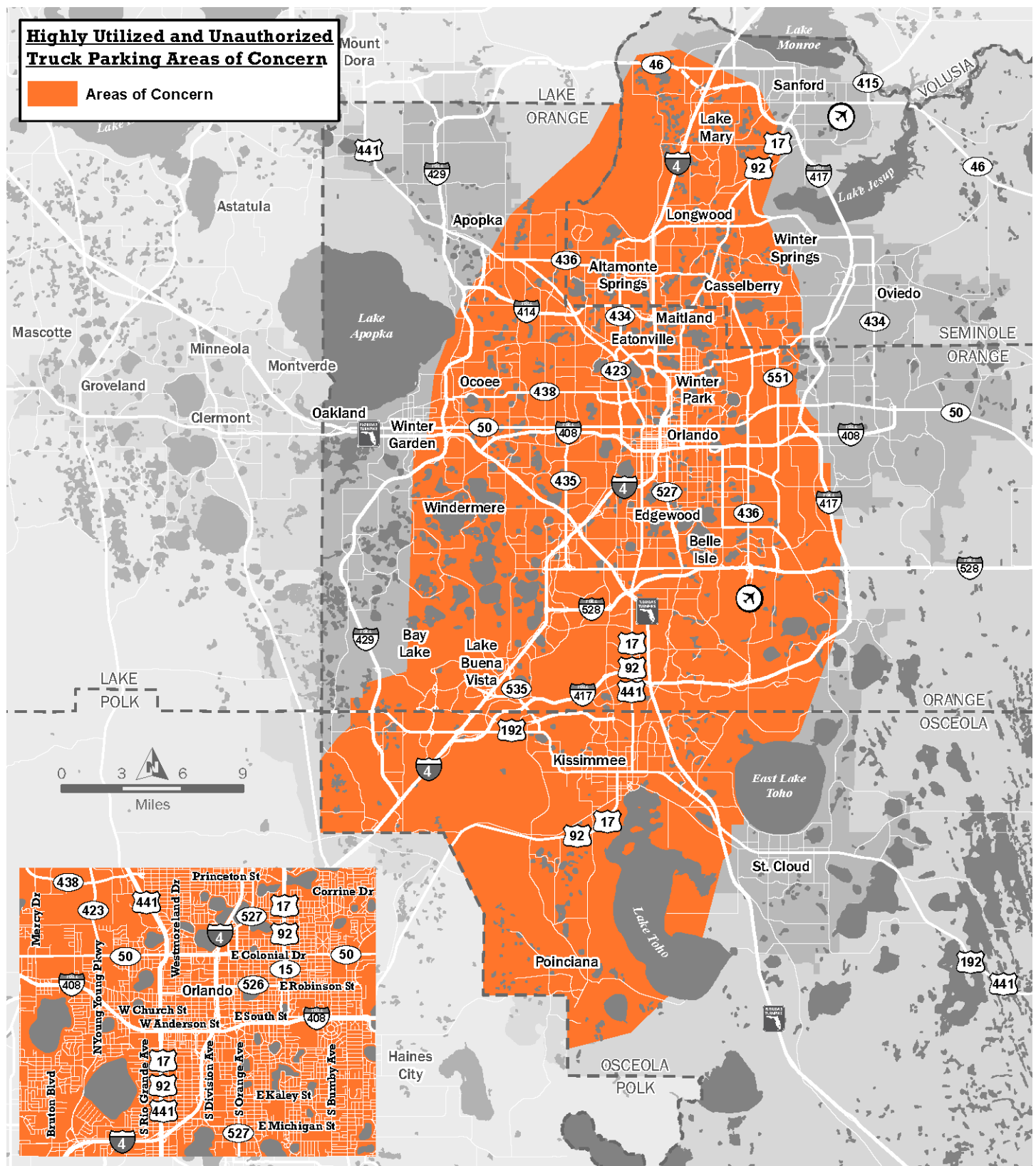
The Florida FMTP also reviewed "areas of concern" related to truck parking (Figure 7.26). These areas were identified by considering both highly utilized truck parking locations and locations with a high density of unauthorized truck stops. Within Central Florida, the designated areas of concern for truck parking extend along the I-4 corridor. Statewide, locations of truck parking concern are concentrated on I-4 from Orlando to Tampa, in the Miami-Fort Lauderdale area, in Jacksonville, and in various other spot locations.



[illegible]

2045 Metropolitan Transportation Plan | Freight and Goods Movement

Figure 7.26 | Truck Parking Areas of Concern, 2019



Source: FDOT, Transportation Data and Analytics Office and Freight and Multimodal Operations Office, 2019

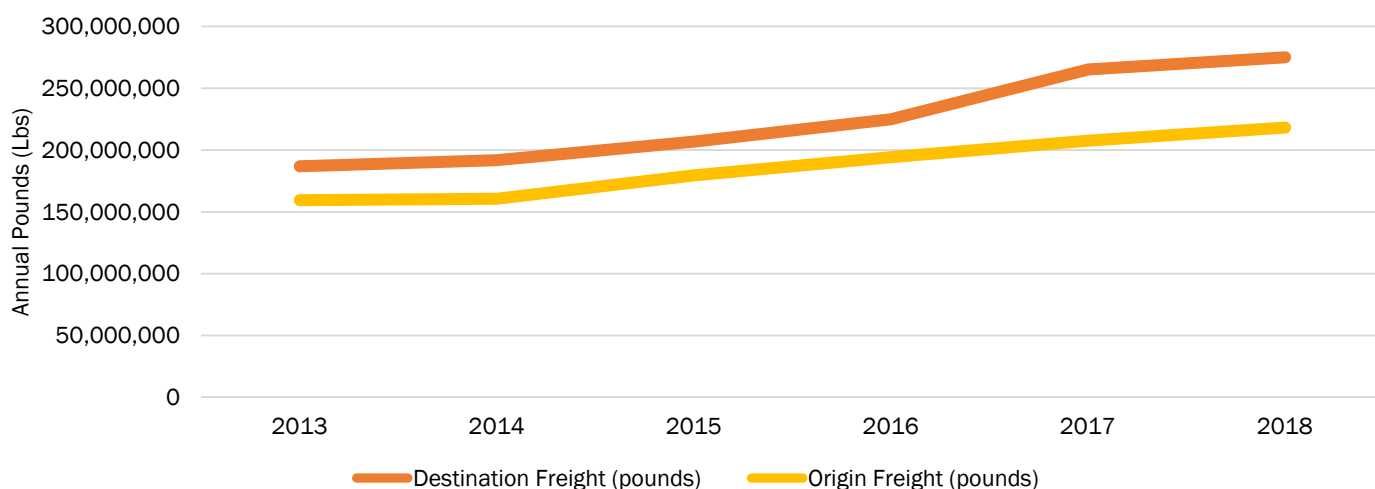


## Aviation

The MetroPlan Orlando region contains two airports with commercial, freight, and mail service. These are the Orlando International Airport (MCO) and the Orlando Sanford International Airport (SFB). Air Cargo tonnage for these airports for the years 2013 through 2018 is shown below for freight (Figure 7.27) and mail (Figure 7.28). Origin and destination freight and mail has remained relatively constant over this period with the exception of a sharp increase in mail shipments from 2013 to 2015.

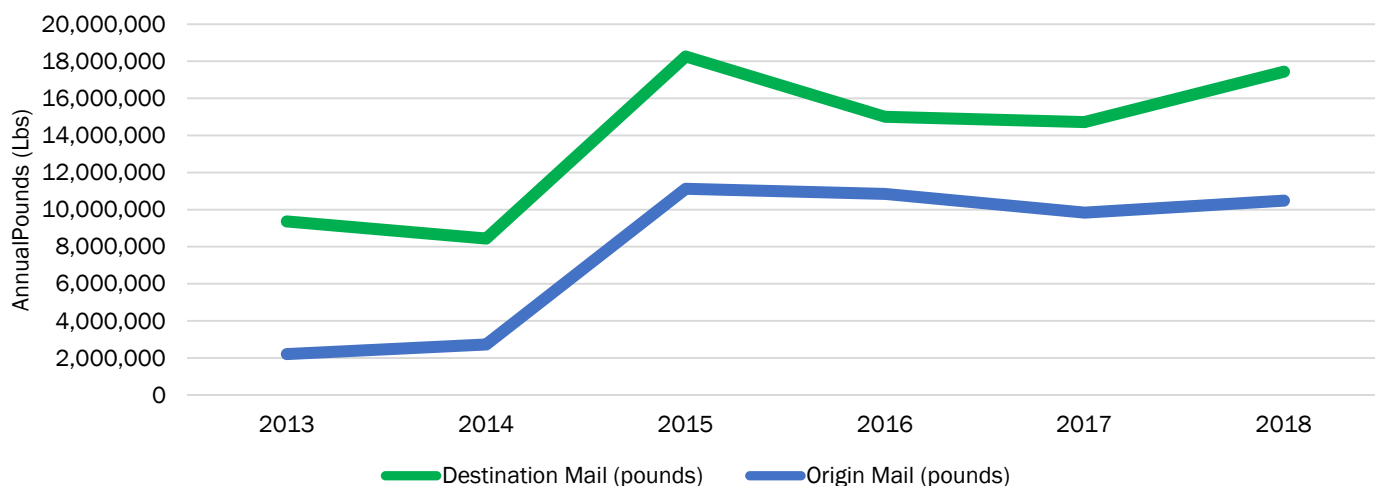


**Figure 7.27 | Orlando Int'l Airport and Orlando-Sanford Int'l Airport (Combined): Air Freight Shipments**



Source: Bureau of Transportation Statistics (BTS), T-100 Dataset, 2018

**Figure 7.28 | Orlando Int'l Airport and Orlando-Sanford Int'l Airport (Combined): Air Mail Shipments**



Source: Bureau of Transportation Statistics (BTS), T-100 Dataset, 2018



# Trends

This section outlines the trends, issues, and needs specific to freight through MetroPlan Orlando's three counties and the surrounding region. The FMTP highlighted several recent and projected changes to Florida's statewide population, economy, and transportation system. Of note are Florida's aging and urbanizing 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. Statewide, the 60 and older population is growing at a faster pace than younger cohorts. As a whole, the population is increasingly concentrated in urban areas. Currently, nine out of every ten Floridians live in urban areas.

Overall trends in the MetroPlan Orlando area are characterized by high growth in both population and employment. By 2045, population in the area is expected to grow by one million with an almost 60 percent increase in employment. Much of this growth is anticipated to occur in density patterns along major transportation corridors and activity centers.

Along with this growth is an expected increase in demand for freight and freight transportation services. Given the landlocked position of MetroPlan Orlando, 95 percent of all freight arrives to the MPO via truck. As the number of trucks on the road continues to increase, dealing with capacity, congestion, and community impacts such as safety and air quality will be of the utmost importance.

## *Tourism*

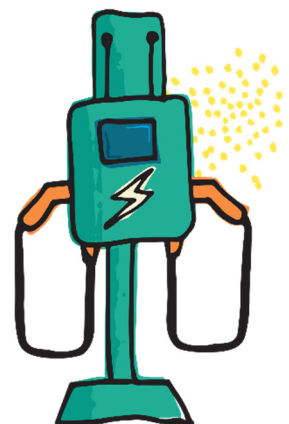
Much of Florida's economy is also characterized and defined by the impact of tourism on the state. In 2018, 126 million people visited Florida. More than 45 million tons of goods are moved into the region annually, with many of these goods destined for the shops, theme parks, hotels and resorts, restaurants, cruise ships, and convention centers that serve more than 75 million visitors to Central Florida each year. Inbound and intra-regional freight is critical to maintaining the competitiveness of the region's number one industry – tourism.

## *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 services 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 service such as Uber Freight being deployed to match freight shipments with drivers in a similar way to how Uber's passenger service matches riders with available drivers.

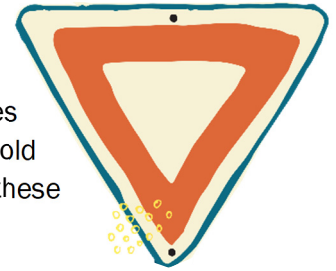
## *Connected and Autonomous Technology*

Florida is at the forefront of multiple transportation technology innovations including connected and automated vehicles, 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.



# Future Freight Strategies

For each FMTP objective, the 2045 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 several items which hold particular relevance to regional agencies like MetroPlan Orlando. A summary of these objectives and how MetroPlan Orlando can work to address them is noted below.



## **Create a More Resilient Multi-Modal Freight System (FMTP # 2)**

*Include resiliency considerations into project life cycle and decision-making processes* – MetroPlan Orlando will continue to focus on resiliency by identifying areas potentially impacted by sea level rise or other natural disasters.

## **Improve Last-Mile Connectivity for All Freight Modes (FMTP # 6)**

*Consider emerging last-mile logistics trends in planning, project development and design processes* – MetroPlan Orlando will continue to encourage the consideration of first-and last-mile freight access issues and concerns.

*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, MetroPlan Orlando will work with local communities to establish curb management strategies to address freight needs.

## **Continue to Forge Partnerships Between the Public and Private Sectors to Improve Trade and Logistics (FMTP #7)**

*Collaborate with public and private sector partners to address freight transportation and logistics needs and workforce development* – MetroPlan Orlando will continue to collaborate with multiple stakeholders in the public and private sector by engaging stakeholders directly in the development of core products and special studies.

*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* – MetroPlan Orlando will continue to actively collaborate with other public and private agencies in the pursuit of freight goals and objectives.

## **Capitalize on Emerging Freight Trends to Promote Economic Development (FMTP #8)**

*Consider freight needs in the development of multimodal and multi-use corridors* – MetroPlan Orlando will continue to consider freight needs 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, MetroPlan Orlando will work with local communities to establish urban freight delivery strategies to address freight needs.

## **Increase Freight-Related Regional and Local Transportation Planning and Land-Use Coordination (FMTP #9)**

*Provide transportation and land use planning guidance to local and regional agencies for economic development and freight efficiencies that support community goals* – MetroPlan Orlando will continue to provide 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* – MetroPlan Orlando will continue to coordinate the development of freight-related plans with FDOT and other agencies to ensure consistency between goals and strategies at all levels.





COMMUNICATE

culture

RESULTS



250 South Orange Avenue • Suite 200 • Orlando, Florida 32801

[www.MetroPlanOrlando.org](http://www.MetroPlanOrlando.org)

407-481-5672

BUS