U.S. Department of Transportation
Federal Highway Administration

Florida Division

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June 17, 2025

In Reply Refer To:
HDA-FL

Mr. Jared W. Perdue, P.E.
Secretary of Transportation
Florida Department of Transportation
605 Suwannee Street
Tallahassee, Florida 32399

Subject: 2024 Florida State Freight Plan

Dear Secretary Perdue:

The Federal Highway Administration ("FHWA") Florida Division Office ("Division Office") has reviewed the Florida Department of Transportation's (FDOT), Freight Mobility and Trade Plan 2024 ("Plan") dated October 2024 and received by the Division Office on April 24,2025.

The Division Office finds that the Plan contains all elements required by 49 U.S.C. § 70202. The State has, therefore, met the prerequisite in 23 U.S.C. § 167(h)(4) that it develops a State Freight Plan in accordance with 49 U.S.C. § 70202 before it may obligate funds apportioned to the State under 23 U.S.C. § 104(b)(5). The State may now obligate such funds for projects that meet all National Highway Freight Program ("NHFP") eligibility requirements described in 23 U.S.C. § 167, and all other applicable Federal requirements.

Please be advised that the Division Office's finding that the Plan satisfies the requirements of 49 U.S.C. § 70202 and 23 U.S.C. § 167(h)(4) is not a determination that the projects listed in the freight investment plan component of the Plan required by 49 U.S.C. § 70202(c)(2) meet all other NHFP eligibility requirements set forth in 23 U.S.C. § 167, or any other applicable Federal requirement.

If you have any questions regarding NHFP eligibility requirements, please contact Jose Ortiz, FHWA Florida Division Office Project Delivery Team Leader at 850-553-2239.

Sincerely,

Jamie Christian

Jamie Christian, P.E.
Division Administrator

cc: Mr. Daniel Fatahovic, FDOT
Ms. Holly Cohen, FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY AND TRADE PLAN

IIJA Freight Plan Compliance Check List

FDOT

ITEM FOR REVIEW		ASSESSMENT		
		Yes	No	N/A
Section 70202 Requirements				
(a) IN GENERAL. — Each state that receives funding under section 167 of title 23 shall develop a freight plan that provides a comprehensive plan for the immediate and long-range planning activities and investments of the state with respect to freight.		✓		
Observations:	The Florida Freight Mobility and Trade Plan is a comprehensive document which is focused on short term, tactical improvements to improve freight in Florida today and to sustain and grow the economy over the long term as well.			
b) PLAN CONTENTS.—A freight plan described in subsection (a) shall include, at a minimum –		✓		
(1) an identification of significant freight system trends, needs, and issues with respect to the state;		✓		
Observations:	- **Technical Memorandum 1: Freight System and Assets** o Florida's freight system and assets are identified and quantified in this tech memo o The major freight system designations (state and national) are identified and quantified - **Technical Memorandum 2: Freight Conditions and Performance** o Clear quantitative trends on overall freight system performance are identified o State and federal performance measures are used to ID/evaluate trends/needs and issues as they relate to safety, congestion, reliability, bottlenecks, state of good repair, empty backhauls, etc. - **Technical Memorandum 3: Freight System Trends** o This tech memo is dedicated to identifying internal and external trends that impact Florida o Details on commodity flow for existing and horizon years for different modes are provided - **Technical Memorandum 4: Freight System Needs and Issues** o A deeper dive on economic/policy and modal trends to capture specific needs and issues is provided o This tech memo concludes with a SWOT analysis to help organize and focus the development of strategies, improvements, and initiatives in the subsequent tech memos			
(2) a description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the state;		✓		
Observations:	- **Technical Memorandum 2: Performance and Conditions** o This tech memo details state and federal freight performance measures that are used to help prioritize freight projects as listed in Technical Memorandum 7 - **Technical Memorandum 5: Policies and Strategies** o This tech memo provides an overview of freight planning in Florida and its evolution over time o The FMTP objectives, strategies, and performance measures are detailed in this tech memo o Appendix A shows how the FMTP objectives tie into the national freight goals - **Technical Memorandum 6: Project Prioritization** o The project selection process was driven by the performance measures from Technical Memorandum 2, as well as priorities from the Freight & Rail Office, to achieve the FMTP objectives and, ultimately, the FTP and federal freight goals o The quantitative and qualitative processes are explained in this tech memo - **Technical Memorandum 8: Implementation** o An implementation strategy to solve the key issues identified in the FMTP – including short-term initiative and long-term, larger projects – are provided through the lens of the Four Ps o Details on funding availability, constraints, and opportunities for the future – including P3s and across organizations – are provided o Appendix A provides a breakdown of each of the strategies into actionable items with potential partners and time frames			
(3) when applicable, a listing of – (A) multimodal critical rural freight facilities and corridors designated within the state under section 70103 of this title		✓		
(B) critical rural and urban freight corridors designated within the state under section 167 of title 23		✓		
Observations:	- **Technical Memorandum 1: Freight System and Assets** o This tech memo details critical rural and urban freight corridors o The multimodal critical rural freight corridors and facilities are identified in multiple national and statewide designations identified in earlier sections. The major designations which include critical rural freight corridors and facilities are highlighted in the designations listed below: • National Multimodal Freight System • Strategic Intermodal System (SIS)			

ITEM FOR REVIEW		ASSESSMENT		
		Yes	No	N/A
Section 70202 Requirements				
(4) a description of how the plan will improve the ability of the state to meet the national multimodal freight policy goals described in section 70101(b) of this title and the national highway freight program goals described in section 167 of title 23;		✓		

Observations:	- **Technical Memorandum 5: Policies and Strategies**
	  o The FMTP's objectives were built to support the federal freight goals, and these goals drive decision making throughout the process/document. Strategies in this tech memo are tied to those objectives
	- **Technical Memorandum 8: Implementation**
	  o Appendix A outlines action items to affect change for each strategy			

(5) a description of how innovative technologies and operational strategies, including intelligent transportation systems, that improve the safety and efficiency of freight movement, were considered;		✓		

Observations:	The concept that technology and operational efficiencies can improve safety and freight efficiency was a main driver for the development of this plan. As such, technology is interwoven into each Technical Memorandum. The following list details areas where technological and operational strategies were specifically identified:
	- **Technical Memorandum 3: Trends**
	  o This tech memo highlights the technology trends impacting the freight industry, including but not limited to alternative fuels, CAVs, new sensor technology, and UAAs. It also details the instances where Florida is implementing these technologies
	- **Technical Memorandum 4: Needs and Issues**
	  o Issues like congestion, truck parking, and port inefficiencies presented in this tech memo can be alleviated by new freight technologies
	  o SWOT analysis specifically calls out "Opportunities" presented by technology, such as automation and alternative fuels
	- **Technical Memorandum 5: Policies & Strategies**
	  o Technology is built into the FMTP strategies presented in this tech memo
	- **Technical Memorandum 6: Project Prioritization**
	  o The process evaluated projects for their ability to integrate TSM&O and alternative energy initiatives
	- **Technical Memorandum 7: Investments**
	  o The fiscally constrained Freight Investment Plan identifies the amount of freight money directed at ITS projects
	- **Technical Memorandum 8: Implementation**
	  o This tech memo describes a framework to address the key issues identified in the FMTP – including investments in innovative freight technology
	  o Appendix A specifically calls out action items using ITS and operational strategies to solve congestion and safety issues			

(6) in the case of routes on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of roadways, a description of improvements that may be required to reduce or impede the deterioration;		✓		

Observations:	- **Technical Memorandum 2: Conditions and Performance**
	  o Heavy volume roads were identified as well as areas with poor pavement conditions
	- **Technical Memorandum 4: Issues and Needs**
	  o Calls out stakeholder mentions of poor pavement conditions in District 4 and discusses trends that will likely impact roadways with heavy vehicles
	- **Technical Memorandum 5: Policies and Strategies**
	  o One objective described in this tech memo is to ensure that Florida's systems remain in a state of good repair
	  ▪ Objective 3: Ensure the Florida Freight system is in a state of good repair
	- **Technical Memorandum 6: Project Prioritization**
	  o This performance-driven process identified projects that focus on heavily used trucking facilities
	  ▪ Specific criteria used in this process include (but are not limited to): Truck bottlenecks, Truck AADT, and roadways in freight intensive areas
	- **Technical Memorandum 7: Investments**
	  o This fiscally constrained Freight Investment Plan identifies several projects directed at the long-term maintenance of heavy vehicles corridors. This includes traditional improvements but also technological/operational improvements as well
	- **Technical Memorandum 8: Implementation**
	  o This tech memo provides action items for the strategy to maintain a state of good repair			

ITEM FOR REVIEW		ASSESSMENT		
		Yes	No	N/A
Section 70202 Requirements				
(7) an inventory of facilities with freight mobility issues, such as truck bottlenecks, within the state, and for those facilities that are state owned or operated, a description of the strategies the state is employing to address those freight mobility issues;		✓		

Observations:	- **Technical Memorandum 2: Conditions and Performance**
	  o Quantifies the major truck bottlenecks across the state using FHWA'S NPMRDS data. This list of bottlenecks is used as part of project prioritization and selection process
	- **Technical Memorandum 5: Policies and Strategies**
	  o Three objectives described in this tech memo are aimed at alleviating issues such as bottlenecks:
	  ▪ Objective 4: Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning
	  ▪ Objective 5: Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains
	  ▪ Objective 6: Improve first and last mile connectivity for all freight modes
	- **Technical Memorandum 6: Project Prioritization and Selection**
	  o Specific criteria used in the prioritization process include (but are not limited to): Truck bottlenecks, Truck AADT, and roadways in freight intensive areas
	- **Technical Memorandum 7: Investments**
	  o This fiscally constrained Freight Investment Plan identifies several projects directed at reducing freight bottlenecks through traditional capacity projects, ITS, and other freight initiatives (truck parking, etc.)
	- **Technical Memorandum 8: Implementation**
	  o Includes a series of action items to achieve the FMTP objectives			

(8) consideration of any significant congestion or delay caused by freight movements and any strategies to mitigate that congestion and delay;		✓		

Observations:	- **Technical Memorandum 2: Conditions and Performance**
	  o Quantifies the major truck bottlenecks across the state using FHWA'S NPMRDS data. This list of bottlenecks is used as part of project prioritization and selection process
	- **Technical Memorandum 4: Needs and Issues**
	  o Stakeholder input included conversation across the Districts on congestion, identified as one of the largest freight issues in the state
	  o SWOT Analysis: Identifies roadway congestion as a weakness for the Florida freight system
	- **Technical Memorandum 5: Policies and Strategies**
	  o One strategy described in this tech memo is specifically aimed at alleviating congestion and improving reliability:
	  ▪ Objective 4: Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning
	- **Technical Memorandum 6: Project Prioritization and Selection**
	  o This performance-driven process identified traditional projects to reduce congestion and delay
	  o Specific criteria used in this process include (but are not limited to): Truck bottlenecks, Truck AADT, and roadways in freight intensive areas
	  o The process also evaluated projects for their ability to mitigate delay through improving operational efficiency
	- **Technical Memorandum 7: Investments**
	  o This fiscally constrained Freight Investment Plan identifies several projects directed at reducing congestion and delay through traditional capacity projects, ITS, and other freight initiatives (truck parking, etc.)
	- **Technical Memorandum 8: Implementation**
	  o Includes a series of action items to achieve the FMTP objectives			

(9) a freight investment plan that, subject to subsection (c)(2), includes a list of priority projects and describes how funds made available to carry out section 167 of title 23 would be invested and matched;		✓		
Observations:	- **Technical Memorandum 7: Investments** o This tech memo serves as the fiscally constrained Freight Investment Plan. Appendices A and B call out projects (and phases – where applicable) specifically using NHFP dollars and assigned non-federal match			
(10) the most recent commercial motor vehicle parking facilities assessment conducted by the state under subsection (f);		✓		
Observations:	- **Technical Memorandum 1: Systems and Assets** o This tech memo includes the identification of all truck parking locations in the state, conducted by the TDA Office as part of a comprehensive 2019 report, which is the most recent statewide commercial motor vehicle parking facilities assessment. Another statewide analysis will be conducted in 2024			

ITEM FOR REVIEW		ASSESSMENT		
		Yes	No	N/A
Section 70202 Requirements				
	- **Technical Memorandum 2: Conditions and Performance** o This tech memo includes the utilization of each truck parking location in the state determined through an analysis of truck GPS data (ATRI). The methodology and outcomes of this analysis are detailed in a comprehensive 2019 report, which is the most recent statewide commercial motor vehicle parking facilities assessment. Another statewide analysis will be conducted in 2024			
(11) the most recent supply chain cargo flows in the state, expressed by mode of transportation;		✓		
Observations:	- **Technical Memorandum 3: Trends** o Derived from the dataset of the Federal Highway Administration's Freight Analysis Framework Version 5, this tech memo includes information on freight tonnage, value, commodity type, and trade type			
(12) an inventory of commercial ports in the state;		✓		
Observations:	- **Technical Memorandum 1: Systems and Assets** o This tech memo inventories Florida's freight transportation hubs, including its 16 major seaports, 21 commercial service airports, and three spaceports			
(13) if applicable, consideration of the findings or recommendations made by any multi-state freight compact to which the state is a party under section 70204;				✓
(14) the impacts of e-commerce on freight infrastructure in the state;		✓		
Observations:	- **Technical Memorandum 3: Trends** o An overview of e-commerce trends nationally and emerging freight facilities in Florida are discussed in this tech memo - **Technical Memorandum 4: Needs and Issues** o A section on land use conflicts in this tech memo includes a discussion on the impacts of increasing e-commerce facilities near residential areas o Other sections in this tech memo highlight the need for additional capacity, funding, operational improvements, and loosened regulations to handle the increase in freight movement			
(15) considerations of military freight;		✓		
Observations:	- **Technical Memorandum 3: Trends** o A discussion of military presence in Florida, including STRAHNET and STRACNECT networks			
(16) strategies and goals to decrease—				
(A) the severity of impacts of extreme weather and natural disasters on freight mobility		✓		
Observations:	- **Technical Memorandum 3: Trends** o This tech memo includes a section on resilience trends that includes increasing weather-related disruptions - **Technical Memorandum 5: Policies and Strategies** o This tech memo includes strategies to decrease the impacts of extreme weather and natural disasters on freight mobility under Objective 2: Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption. They include: ▪ Leverage the FDOT Resilience Action Plan (RAP) and Resilience Implementation Plan (RIP) to better incorporate resilience into freight planning ▪ Develop a contingency plan to support private sector freight mobility continuance of operations and to support disaster relief logistics operations ▪ Improve supply chain resiliency of critical commodities (like fuel) considering all four phases of emergency management (prepare, respond, recover, and mitigate) - **Technical Memorandum 8: Implementation** o Includes a series of action items to achieve these FMTP strategies			
(B) the impacts of freight movement on local air pollution		✓		
Observations:	- **Technical Memorandum 3: Trends** o This tech memo includes a section on alternative fuel trends and Florida initiatives - **Technical Memorandum 5: Policies & Strategies** o This tech memo includes strategies to decrease the impacts of freight movement on local air pollution under Objective 10: Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats. They include:			

ITEM FOR REVIEW	ASSESSMENT		
	Yes	No	N/A
Section 70202 Requirements			
▪ Support transportation solutions that enhance Florida's natural resources and wildlife ▪ Support the development of alternative fuel infrastructure at seaports and intermodal logistics centers, and along major trade corridors - **Technical Memorandum 8: Implementation** o Includes a series of action items to achieve these FMTP strategies			
(C) the impacts of freight movement on flooding and stormwater runoff	✓		
Observations: - **Technical Memorandum 3: Trends** o This tech memo includes a section on resilience trends that includes stresses like sea-level rise - **Technical Memorandum 5: Policies and Strategies** o This tech memo includes strategies to decrease the impacts of freight movement on flooding and stormwater runoff under Objective 2: Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption. They include: ▪ Improve weather resiliency of freight transportation facilities and build redundancies into the system ▪ Ensure freight-related infrastructure projects evaluate measures to reduce flooding and stormwater runoff - **Technical Memorandum 8: Implementation** o Includes a series of action items to achieve these FMTP strategies			
(D) the impacts of freight movement on wildlife habitat loss	✓		
Observations: - **Technical Memorandum 4: Needs and Issues** o This tech memo includes a section on environmental stewardship and community concerns - **Technical Memorandum 5: Policies and Strategies** o This tech memo includes strategies to decrease the impacts of freight movement on local air pollution under Objective 10: Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats. They include: ▪ Ensure freight-related infrastructure projects evaluate measures to reduce the impact on wildlife habitats ▪ Invest in wildlife safety measures surrounding freight infrastructure - **Technical Memorandum 8: Implementation** o Includes a series of action items to achieve these FMTP strategies			
(17) Consultation with the state freight advisory committee, if applicable.	✓		
Observations: Between Fall 2021 to Fall 2023 the FLFAC helped develop a supply chain solution framework that teed up many of the topics and strategies taken up by our internal Project Advisory Committee for FMTP24 update. - **Technical Memorandum 4: Needs and Issues** o Additionally, seven regional freight forums were held in person around the state, as well as one virtual meeting, to capture wider public and private stakeholder input, detailed in this tech memo. Many FLFAC members participated in one or more locations, and helped get the word out ahead of the events. The results of this outreach were validated in the September 2023 meeting, and directly tied to the trends and issues/needs identified in the plan. In December 2023, the FLFAC completed an online survey to suggest weights for project prioritization. In Spring 2024, FLFAC participated in the public comment period on the full draft plan, and in March 2025 the FLFAC approved the FMTP24.			
(c) RELATIONSHIP TO LONG-RANGE PLAN.—	✓		
(1) INCORPORATION. ---A freight plan described in subsection (a) may be developed separately from or incorporated into the statewide strategic long-range transportation plan required by section 135 of title 23.	✓		
(2) FISCAL CONSTRAINT. ---The freight investment plan component of a freight plan shall include a project, or an identified phase of a project, only if funding for completion of the project can reasonably be anticipated to be available for the project within the time period identified in the freight investment plan.	✓		
Observations: - **Technical Memorandum 5: Policies and Strategies** o The FMTP was designed to integrate FDOT's Modal Plans (goals/strategies) and serve as the "parent" freight plan with overarching freight objectives that directly support the Florida Transportation Plan and federal freight goals - **Technical Memorandum 7: Investments** o This tech memo serves as the FMTP's fiscally constrained Freight Investment Plan			
(d) PLANNING PERIOD.—			
A state freight plan described in subsection (a) shall address an 8-year forecast period.	✓		

ITEM FOR REVIEW		ASSESSMENT		
		Yes	No	N/A
Section 70202 Requirements				
(e) UPDATES.—				
(1) In general.-A state shall update a state freight plan described in subsection (a) not less frequently than once every 4 years.		✓		
(2) Freight investment plan.- A state may update a freight investment plan described in subsection (b)(9) more frequently than is required under paragraph (1).		✓		
Observations:	Florida resubmits its Investment Plan annually for FHWA approval			
As part of the development or updating, as applicable, of a state freight plan under this section, each state that receives funding under section 167 of title 23, in consultation with relevant state motor carrier safety personnel, shall conduct an assessment of—				
(1) the capability of the state, together with the private sector in the state, to provide adequate parking facilities and rest facilities for commercial motor vehicles engaged in interstate transportation;		✓		
Observations:	This plan provides the supply of the state's truck facilities and the utilization of each truck parking location in the state determined through an analysis of truck GPS data (ATRI). The methodology and outcomes of this analysis are detailed in a comprehensive 2019 report, which is the most recent statewide commercial motor vehicle parking facilities assessment. Another statewide analysis will be conducted in 2024. The plan discusses the need for additional truck parking facilities and prioritizes projects that provide additional spaces.			
(2) the volume of commercial motor vehicle traffic in the state;		✓		
Observations:	This plan provides the annual trends of average daily truck miles traveled for different facility types in the state. It includes a statewide map for Annual Average Daily Truck Traffic (AADTT) in 2022 along major roadways in the state and a statewide map of percentage changes in AADTT from 2015 to 2022.			
(3) whether there exist any areas within the state with a shortage of adequate commercial motor vehicle parking facilities, including an analysis (economic or otherwise, as the state determines to be appropriate) of the underlying causes of such a shortage.		✓		
Observations:	The plan highlights that there are areas of the state that are currently experiencing a shortage of adequate truck parking, based on discussions with stakeholders as well as an analysis of truck GPS data (ATRI). The methodology and outcomes of this analysis are detailed in a comprehensive 2019 report, which is the most recent statewide commercial motor vehicle parking facilities assessment. Another statewide analysis will be conducted in 2024. Continuous discussions with stakeholders prior to and during the creation of this plan have informed the underlying causes of the shortage, including the increasing demand for freight moved by trucks, HOS regulations that are not in sync with the industry needs, and systemic inefficiencies leading to empty backhaul.			
(g) PRIORITY.—Each state freight plan under this section shall include a requirement that the state, in carrying out activities under the state freight plan—				
(1) enhance reliability or redundancy of freight transportation;		✓		
Observations:	Enhancing reliability/redundancy is built into the objectives of this plan. Action items for implementation are also included. - Objective 1: Leverage data and technology to improve freight system safety and security - Objective 2: Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption - Objective 4: Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning - Objective 5: Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains - Objective 10: Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats.			
(2) incorporate the ability to rapidly restore access and reliability with respect to freight transportation.		✓		
Observations:	Incorporating rapid restoration access and reliability is built into the objectives of this plan. Action items for implementation are also included: - Objective 2: Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption - Objective 4: Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning - Objective 6: Improve first and last mile connectivity for all freight modes			
(h) APPROVAL.—				
(1) IN GENERAL.—The Secretary of Transportation shall approve a state freight plan described in subsection (a) if the plan achieves compliance with the requirements of this section.				
(2) SAVINGS PROVISION.—Nothing in this subsection establishes new procedural requirements for the approval of a state freight plan described in subsection (a).				

FMTP24

FREIGHT MOBILITY AND TRADE PLAN

Freight & Rail Office
Florida Department of Transportation
freight@dot.state.fl.us

FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY & TRADE PLAN

Visual Plan

October 2024

FDOT

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FMTP Overview

What's Inside?

The Freight Mobility and Trade Plan (FMTP) is a comprehensive plan that identifies freight transportation facilities critical to the state's economic growth and guides multimodal freight investments in the state. To receive funding under the National Highway Freight Program (23 U.S.C. 167), the FAST Act requires the development of a state freight plan which must address the state's freight planning activities and investments, both immediate and long-range.

PLAN OVERVIEW

The past decade has seen an evolution of Florida's strategic planning and legislative initiatives that has reshaped the state's approach to freight transportation. The development of freight policy has helped build a world-class transportation network that supports the dynamic needs of Florida's residents and businesses and positions the state as a national leader in freight innovation.

The FMTP is an important member of the larger FDOT family of plans. It is designed to assist the state in meeting its overarching transportation goals as outlined in the Florida Transportation Plan (FTP).

FTP GOALS

- *Safety and security for residents, visitors, and businesses*
- *Agile, resilient, and quality transportation infrastructure*
- *Connected, efficient, and reliable mobility for people and freight*
- *Transportation choices that improve accessibility and equity*
- *Transportation solutions that strengthen Florida's economy*
- *Transportation systems that enhance Florida's communities*
- *Transportation solutions that enhance Florida's environment*

2012 — *MAP-21 established national freight policy and goals and a formal national freight network. The Florida Legislature passed F.S. 334.044 directing FDOT to create a freight plan*

2013-2014 — *Florida published its first Statewide Freight Plan*

2015 — *The FAST Act created a National Multimodal Freight Network and dedicated freight funding through the National Highway Freight Program*

2016 — *A freight office was established within FDOT*

2017 — *The state developed a Florida Freight Advisory Committee (FLFAC) and went through the process of designating and prioritizing the Florida Highway Freight Network*

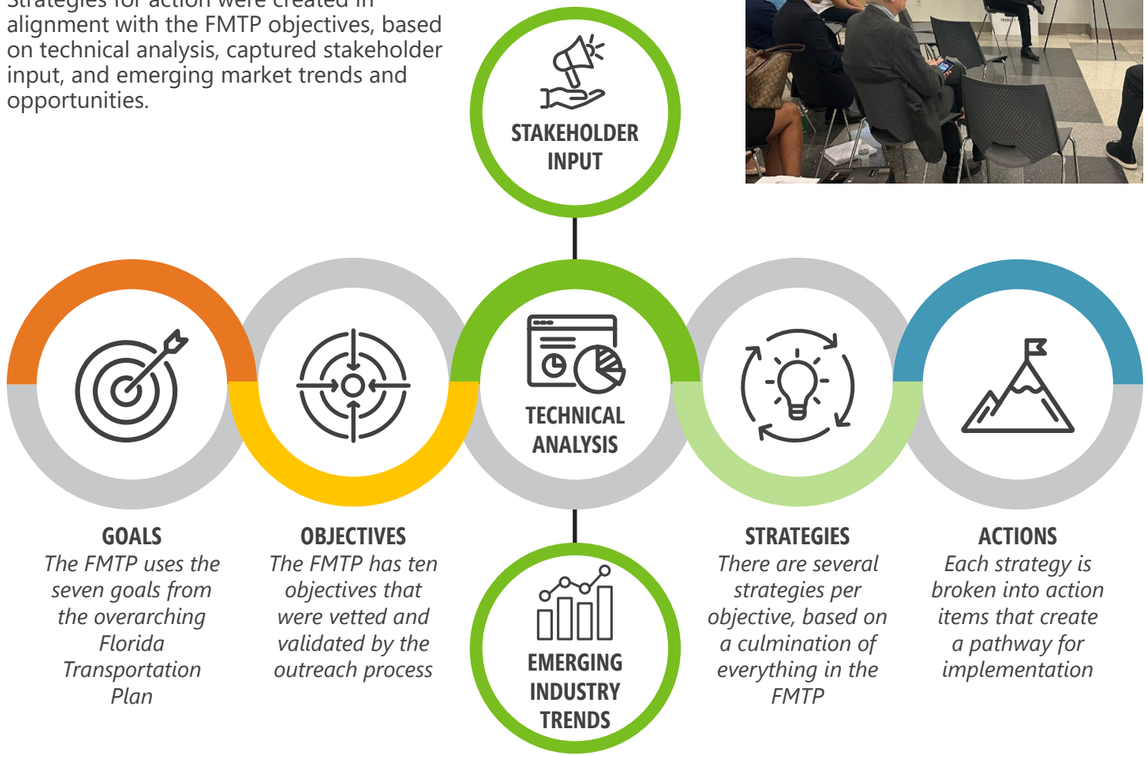
2020 — *Florida's second Statewide Freight Plan was published*

2021 — *The federal government recognized the importance of freight infrastructure and created additional opportunities for substantial investments*

2024 — *Florida's third Statewide Freight Plan is published*

PLANNING PROCESS

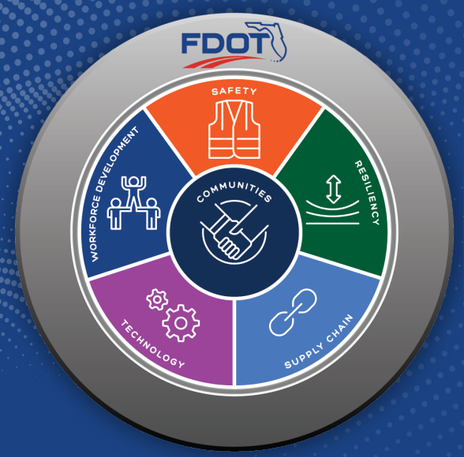
The purpose of the FMTP is to deliver results for Florida. The FMTP objectives were established with the Florida Transportation Plan (FTP) goals in mind. Strategies for action were created in alignment with the FMTP objectives, based on technical analysis, captured stakeholder input, and emerging market trends and opportunities.



THIS PLAN:

- TELLS THE STORY OF FREIGHT IN FLORIDA
- SUPPORTS THE SEVEN FLORIDA TRANSPORTATION PLAN GOALS
- PROVIDES STRATEGIES TO ACHIEVE FREIGHT-RELATED GOALS THAT ALIGN WITH FDOT'S VISION, MISSION AND THE FDOT COMPASS
- FULFILLS FEDERAL REQUIREMENTS

FDOT COMPASS



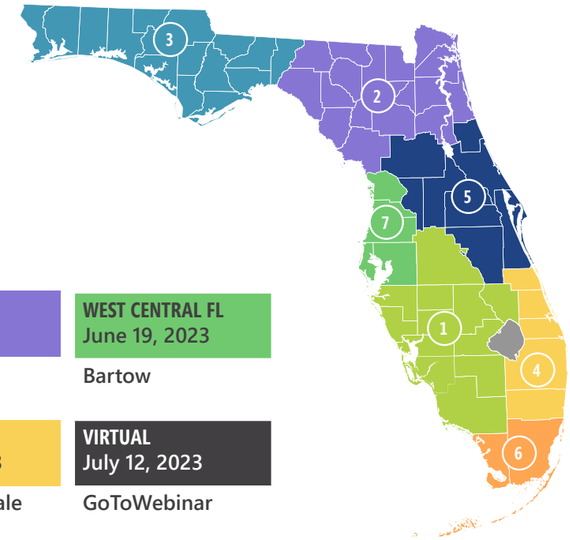
STAKEHOLDER INPUT

To create the FMTP, an inclusive engagement process was utilized involving everyone in the freight community - from private sector stakeholders in the shipping and manufacturing industries, and business executives to the general public.

PROJECT ADVISORY COMMITTEE
The Project Advisory Committee, an internal body consisting of representatives from FDOT offices related to freight, provided guidance in the development of the plan and helped validate the results along the way.

FREIGHT ADVISORY COMMITTEE
The Florida Freight Advisory Committee (FLFAC), consisting of representatives from a cross-section of public and private sector freight stakeholders, advised on freight-related priorities, issues, projects, and funding needs.

REGIONAL FREIGHT FORUMS
Eight Regional Freight Forums, including one virtual statewide session, collected input on the issues facing Florida and potential solutions. This collaborative process provided venues and opportunities for interaction with those who utilize, provide, and plan for the freight transportation system. Incorporating an industry participation approach allowed the state to better understand the needs of freight stakeholders and proactively streamline freight investments.



CENTRAL FL June 12, 2023 Deland	**SOUTHWEST FL** June 13, 2023 Ft. Myers	**NORTHEAST FL** June 15, 2023 Jacksonville	**WEST CENTRAL FL** June 19, 2023 Bartow
NORTH FL June 21, 2023 Tallahassee	**SOUTH FL** June 29, 2023 Aventura	**SOUTHEAST FL** June 30, 2023 Fort Lauderdale	**VIRTUAL** July 12, 2023 GoToWebinar

FMTP GOALS & OBJECTIVES

The 2024 FMTP uses the goals from the broader Florida Transportation Plan (FTP). The FMTP objectives were developed by examining goals and objectives from the FTP, FDOT Modal Plans, partner agency plans, as well as by incorporating feedback provided by the FDOT Project Advisory Committee. This crosswalk ensured that the FMTP objectives reflect Florida's collective freight vision and set the stage for collaborative implementation of the FMTP recommendations.

FMTP GOALS	FMTP OBJECTIVES	
Safety and security for residents, visitors, and businesses	1	Leverage data and technology to improve freight system safety and security
Agile, resilient, and quality transportation infrastructure	2	Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption
	3	Ensure the Florida freight system is in a state of good repair
Connected, efficient, and reliable mobility for people and freight	4	Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning
Transportation choices that improve accessibility and equity	5	Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains
	6	Improve first and last mile connectivity for all freight modes
Transportation solutions that strengthen Florida's economy	7	Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development
	8	Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture
Transportation systems that enhance Florida's communities	9	Increase freight-related regional and local transportation planning and land use coordination
Transportation solutions that enhance Florida's environment	10	Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats

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Systems & Performance

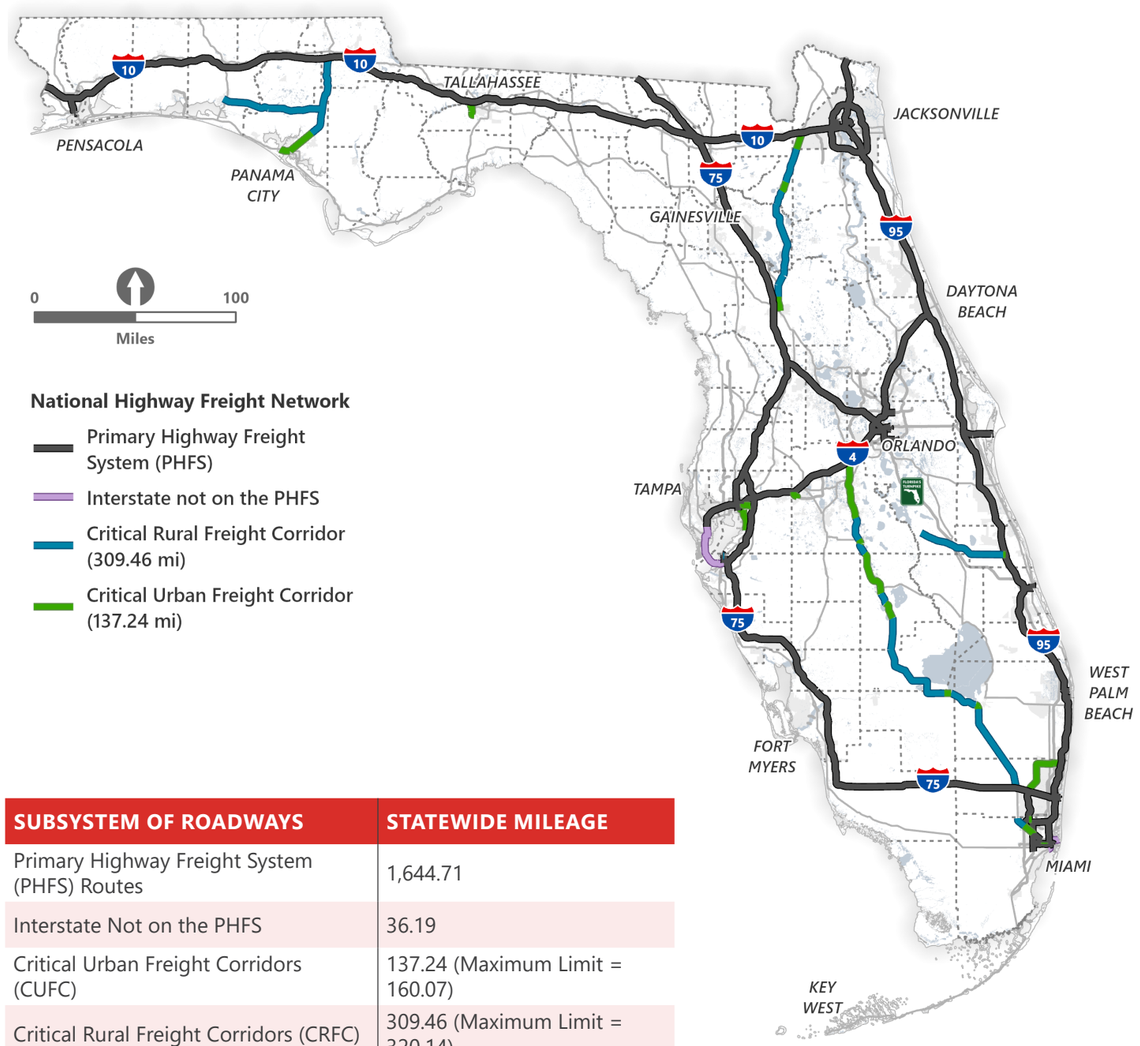
What's Inside?

- *National Highway Freight Network*
- *Strategic Intermodal System*
- *Multimodal Freight Facilities*
- *Freight Intensive Areas*
- *System Performance Statistics*

Florida's freight systems and assets are essential to the efficient movement of goods and commodities across all modes within the state. Florida's transportation system serves a diverse range of needs when it comes to freight by providing for the movement of goods across local, regional, interstate, and international integrated multimodal networks. Technical Memorandums 1 and 2 include more detailed discussions on Florida's freight transportation assets.

NATIONAL HIGHWAY FREIGHT NETWORK

The National Highway Freight Network (NHFN), established by the FAST Act, helps strategically direct resources toward improved system performance for efficient movement of freight on highways. It is comprised of a subsystem of roadways that are listed in the table below. More information on the NHFN can be found online at https://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm.

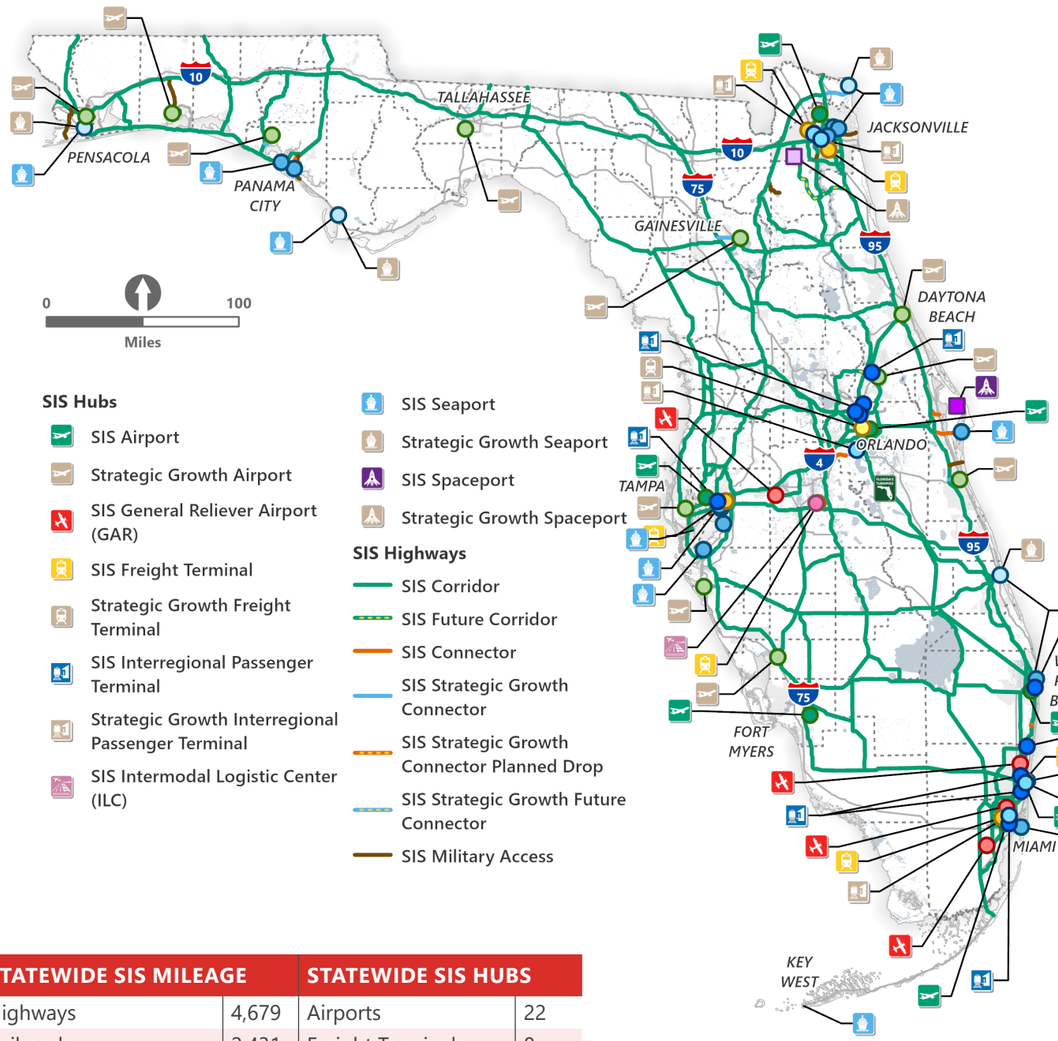


SUBSYSTEM OF ROADWAYS	STATEWIDE MILEAGE
Primary Highway Freight System (PHFS) Routes	1,644.71
Interstate Not on the PHFS	36.19
Critical Urban Freight Corridors (CUFC)	137.24 (Maximum Limit = 160.07)
Critical Rural Freight Corridors (CRFC)	309.46 (Maximum Limit = 320.14)
Total	**2,127.60**

Source: FDOT & FHWA (2024)

STRATEGIC INTERMODAL SYSTEM

The Strategic Intermodal System (SIS) is Florida's high priority network of transportation facilities important to the state's economy and mobility. The Governor and Legislature established the SIS in 2003 to focus the state's limited transportation resources on the facilities most significant for interregional, interstate, and international travel. The SIS is the state's highest priority for transportation capacity investments, and a primary focus for implementing the Florida Transportation Plan (FTP). More information on SIS is available online at Strategic Intermodal System (fdot.gov).



Source: FDOT Systems Implementation Office (2024)

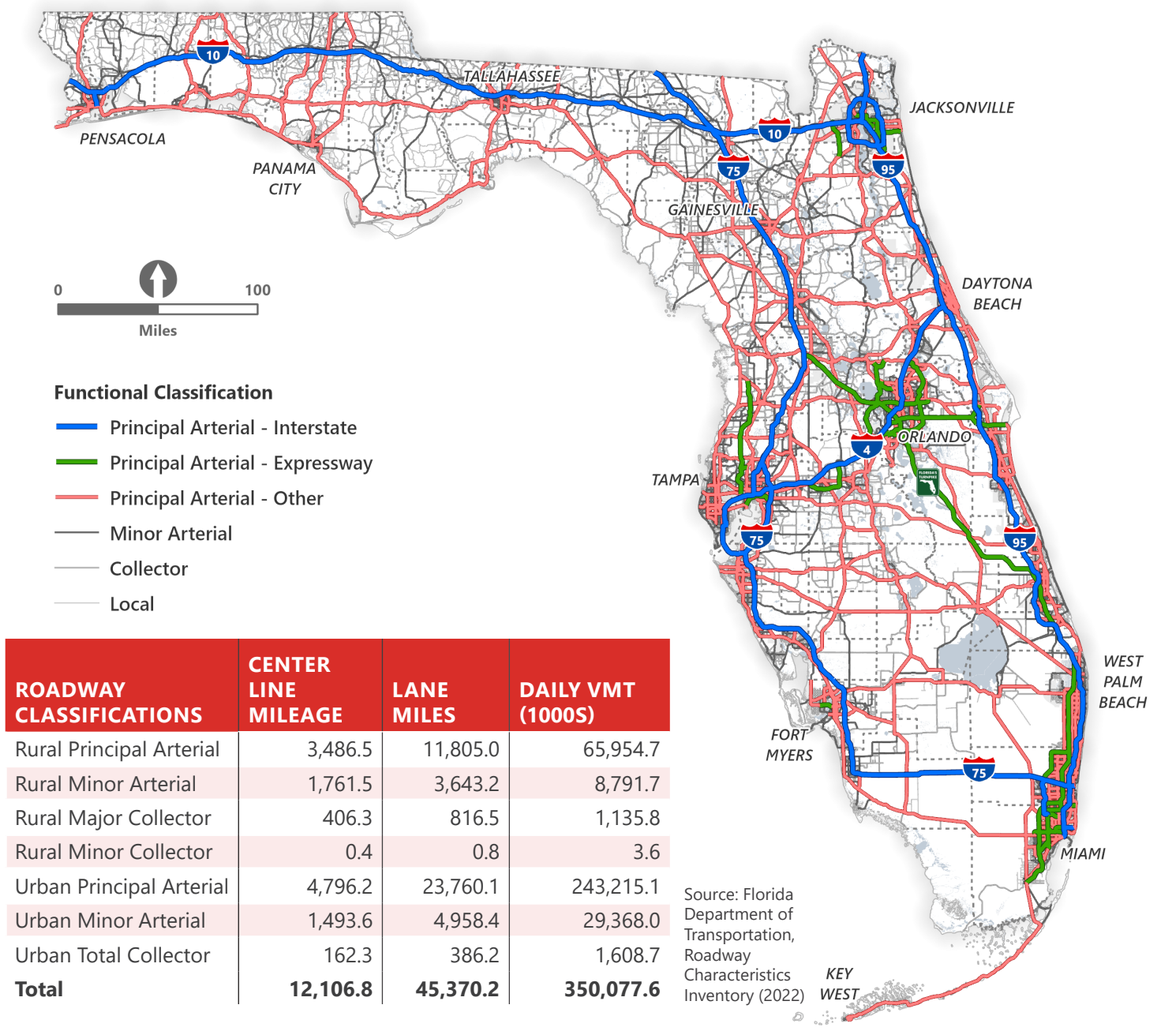
STATEWIDE SIS MILEAGE		STATEWIDE SIS HUBS	
Highways	4,679	Airports	22
Railroads	2,431	Freight Terminals	8
Waterways	1,079	Intermodal Logistic Centers	1
		Seaports	12
		Spaceports	2

MULTIMODAL FREIGHT FACILITIES

Florida's multimodal freight and logistics infrastructure supports over 22 million residents and 137 million annual visitors while providing connectivity between freight modes and transportation options that support the state's economy. From road to rail, to airports, seaports, and spaceports, Florida moves people, products and ideas to and from the rest of the world – fast. The following maps highlight Florida's major multimodal facilities.

Road Network

Florida's road network supports its trucking industry, which makes up the majority of freight movement in the state by tonnage and value. Functional classification is based on the service the roadways are intended to provide. Florida has over 12,000 miles of functionally classified state roads that support over 350 million daily vehicle miles traveled.

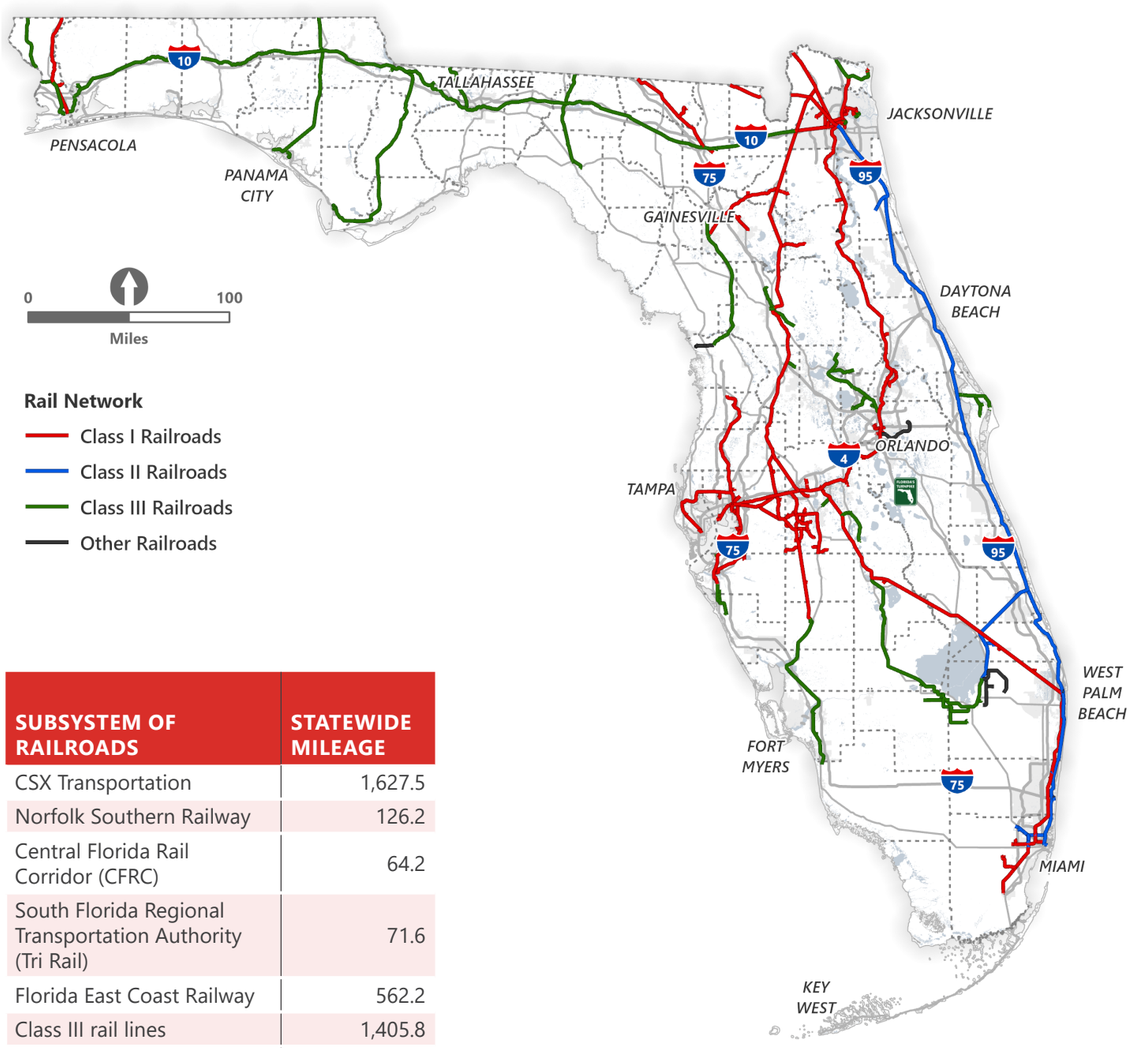


ROADWAY CLASSIFICATIONS	CENTER LINE MILEAGE	LANE MILES	DAILY VMT (1000S)
Rural Principal Arterial	3,486.5	11,805.0	65,954.7
Rural Minor Arterial	1,761.5	3,643.2	8,791.7
Rural Major Collector	406.3	816.5	1,135.8
Rural Minor Collector	0.4	0.8	3.6
Urban Principal Arterial	4,796.2	23,760.1	243,215.1
Urban Minor Arterial	1,493.6	4,958.4	29,368.0
Urban Total Collector	162.3	386.2	1,608.7
Total	**12,106.8**	**45,370.2**	**350,077.6**

Source: Florida Department of Transportation, Roadway Characteristics Inventory (2022)

Rail System

Florida's freight rail system is operated by two Class I railroads (CSX and Norfolk Southern), one Class II railroad (FEC), and multiple Class III railroads that are further categorized as switching and terminal railroads or short lines. Florida's railroads carried 39.5M originated rail tons and 57.2M rail terminated tons across 3,858 miles of track in 2021, moving everything from general merchandise and construction aggregates to specialized goods such as compressed fuels and natural gasses, and providing an alternative to highway freight movement.

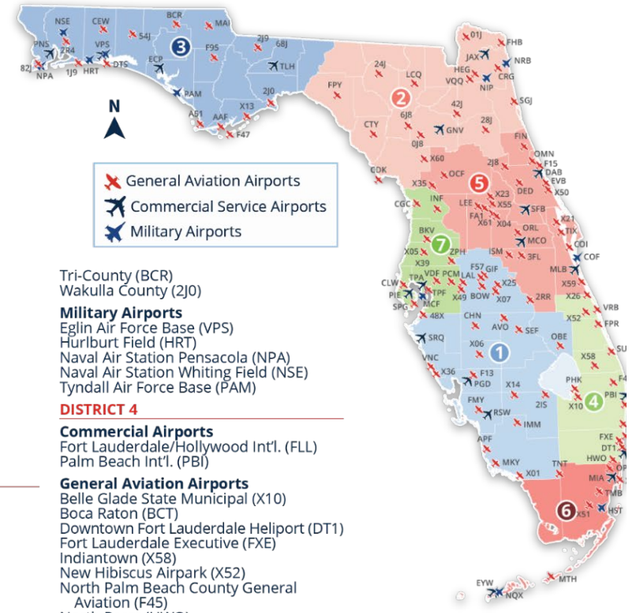


SUBSYSTEM OF RAILROADS	STATEWIDE MILEAGE
CSX Transportation	1,627.5
Norfolk Southern Railway	126.2
Central Florida Rail Corridor (CFRC)	64.2
South Florida Regional Transportation Authority (Tri Rail)	71.6
Florida East Coast Railway	562.2
Class III rail lines	1,405.8
Total Mileage	**3,858**

Source: FDOT Rail System Plan (2022)

Aviation System

Florida's aviation system includes over 128 public-use airports, with 21 commercial service airports and 107 general aviation airports spanning the Panhandle to the Florida Keys. The aviation system also includes 11 military aviation facilities, with numerous off-airport businesses relying on the aviation system to transport personnel, goods, and services.



DISTRICT 1

Commercial Airports
Punta Gorda (PGD)
Sarasota/Bradenton Int'l. (SRQ)
Southwest Florida Int'l. (RSW)

General Aviation Airports
Airglades (2IS)
Arcadia Municipal (X06)
Avon Park Executive (AVO)
Bartow Executive (BOW)
Buchan (X36)
Chalet Suzanne Air Strip (X25)
Everglades Airpark (X01)
Immokalee Regional (IMM)
Jack Browns Seaplane Base (F57)
La Belle Municipal (X14)
Lake Wales Municipal (X07)
Lakeland Linder Int'l. (LAL)
Manatee (48X)
Marco Island Executive (MKY)
Naples Municipal (APF)
Okeechobee County (OBE)
Page Field (FMY)
River Ranch Resort (2RR)
Sebring Regional (SEF)
Shell Creek Airpark (F13)
South Lakeland (X49)
Venice Municipal (VNC)
Wauchula Municipal (CHN)
Winter Haven Regional (GIF)

DISTRICT 2

Commercial Airports
Gainesville Regional (GNV)
Jacksonville Int'l. (JAX)

General Aviation Airports
Cecil (VQQ)
Cross City (CTY)
Fernandina Beach Municipal (FHB)
Flying Ten (0J8)
George T Lewis (CDK)
Herlong Recreational (HEG)
Hilliard Airpark (01J)
Jacksonville Executive At Craig (CRG)
Keystone Heights (42J)
Lake City Gateway (LCQ)
Northeast Florida Regional (SGJ)
Oak Tree Landing (6J8)
Palatka Municipal-Lt Kay Larkin Field (28J)
Perry-Foley (FPY)
Suwannee County (24J)
Williston Municipal (X60)

Military Airports
Naval Air Station Jacksonville (NIP)
Naval Air Station Mayport (NRB)

DISTRICT 3

Commercial Airports
Destin – Fort Walton Beach (VPS)
Northwest Florida Beaches Int'l. (ECP)
Pensacola Int'l. (PNS)
Tallahassee Int'l. (TLH)

General Aviation Airports
Apalachicola Regional-Cleve Randolph Field (AAF)
Bob Sikes (CEW)
Calhoun County (F95)
Carrabelle – Thompson (X13)
Costin (A51)
DeFuniak Springs (54J)
Destin Executive (DTS)
Fort Walton Beach (1J9)
Marianna Municipal (MAI)
Peter Prince Field (2R4)
Quincy Municipal (2J9)
Roscoe Field (82J)
St George Island (F47)
Tri-County (BCR)
Wakulla County (2J0)

Military Airports
Eglin Air Force Base (VPS)
Hurlburt Field (HRT)
Naval Air Station Pensacola (NPA)
Naval Air Station Whiting Field (NSE)
Tyndall Air Force Base (PAM)

DISTRICT 4

Commercial Airports
Fort Lauderdale/Hollywood Int'l. (FLL)
Palm Beach Int'l. (PBI)

General Aviation Airports
Belle Glade State Municipal (X10)
Boca Raton (BCT)
Downtown Fort Lauderdale Heliport (DT1)
Fort Lauderdale Executive (FXE)
Indiantown (X58)
New Hibiscus Airpark (X52)
North Palm Beach County General Aviation (F45)
North Perry (HWO)
Palm Beach County Glades (PHK)
Palm Beach County Park (LNA)
Pompano Beach Airpark (PMP)
Sebastian Municipal (X26)
Treasure Coast Int'l. (FPR)
Vero Beach Regional (VRB)
Witham Field (SUA)

DISTRICT 5

Commercial Airports
Daytona Beach Int'l. (DAB)
Melbourne Orlando Int'l. (MLB)
Orlando Int'l. (MCO)
Orlando Sanford Int'l. (SFB)

General Aviation Airports
Arthur Dunn Air Park (X21)
Bob White Field (X61)
Deland Municipal – Sidney H Taylor Field (DED)
Executive (ORL)
Flagler Executive (FIN)
Halifax River Sea Plane Base (F15)
Kissimmee Gateway (ISM)
Leesburg Int'l. (LEE)
Marion County (X35)
Massey Ranch Airpark (X50)
Merritt Island (COI)
Mid-Florida (X55)
New Smyrna Beach Municipal (EVB)
Ocala Int'l.-Jim Taylor Field (OCF)
Orlando Apopka (X04)
Ormond Beach Municipal (OMN)
Pierson Municipal (2J8)
Space Coast Regional (TIX)
St Cloud Seaplane Base (3FL)
Tavares Seaplane Base (FA1)
Umatilla Municipal (X23)
Valkaria (X59)

Military Airports
Patrick Space Force Base (COF)

DISTRICT 6

Commercial Airports
Key West Int'l. (EYW)
Miami Int'l. (MIA)

General Aviation Airports
Dade-Collier Training And Transition (TNT)
Miami Executive (TMB)
Miami Homestead General Aviation (X
Miami Seaplane Base (X44)
Miami-Opa Locka Executive (OPF)
The Florida Keys Marathon Int'l. (MTH)

Military Airports
Homestead Air Force Base (HST)
Naval Air Station Key West (NQX)

DISTRICT 7

Commercial Airports
St Pete-Clearwater Int'l. (PIE)
Tampa Int'l. (TPA)

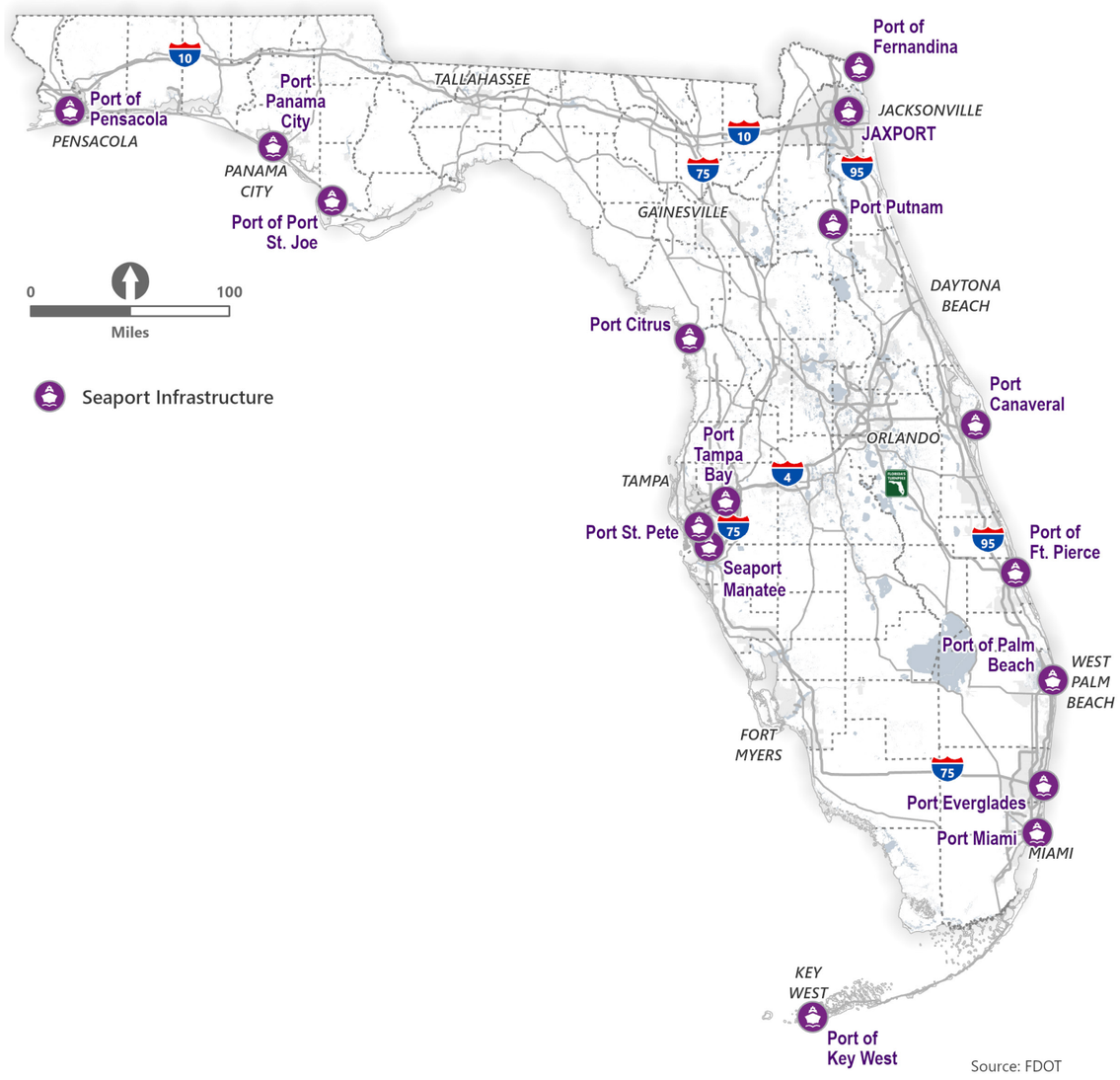
General Aviation Airports
Albert Whitted (SPG)
Brooksville – Tampa Bay Regional (BK\
Clearwater Air Park (CLW)
Crystal River – Captain Tom Davis Fielc (CGC)
Inverness (INF)
Peter O Knight (TPF)
Pilot Country (X05)
Plant City (PCM)
Tampa Executive (VDF)
Zephyrhills Municipal (ZPH)

Military Airports
MacDill Air Force Base (MCF)

Source: FDOT's 2022 Florida Statewide Economic Impact Study

Seaport System

Florida's proximity to east-west trade lanes that enter and leave the western hemisphere and the north-south shipping corridor supplying the Americas places it squarely in the center of international commerce. Florida's 16 seaports are strategically positioned along the state's coastlines. Port Citrus and Port Putnam (an inland river port that supports barge traffic) are currently inactive.

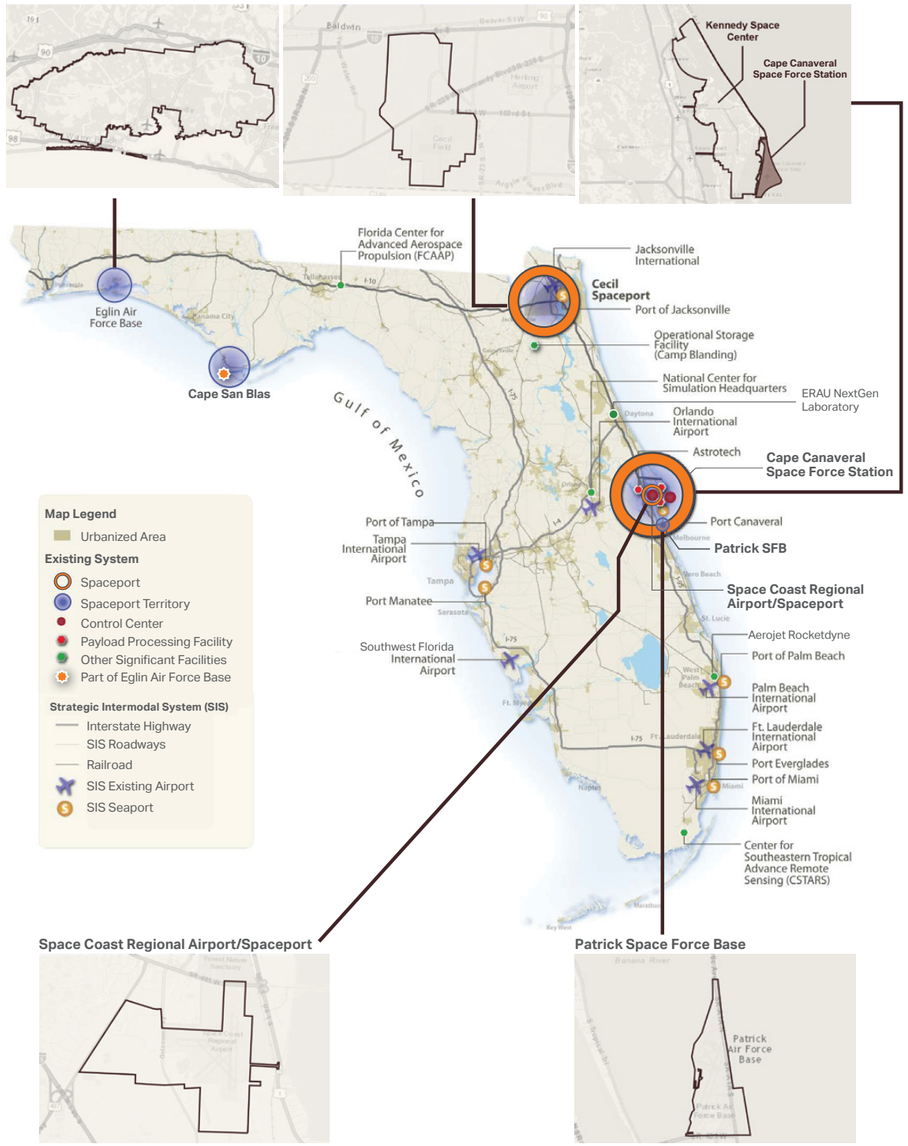


Source: FDOT

Source: FDOT (2022)

Spaceport System

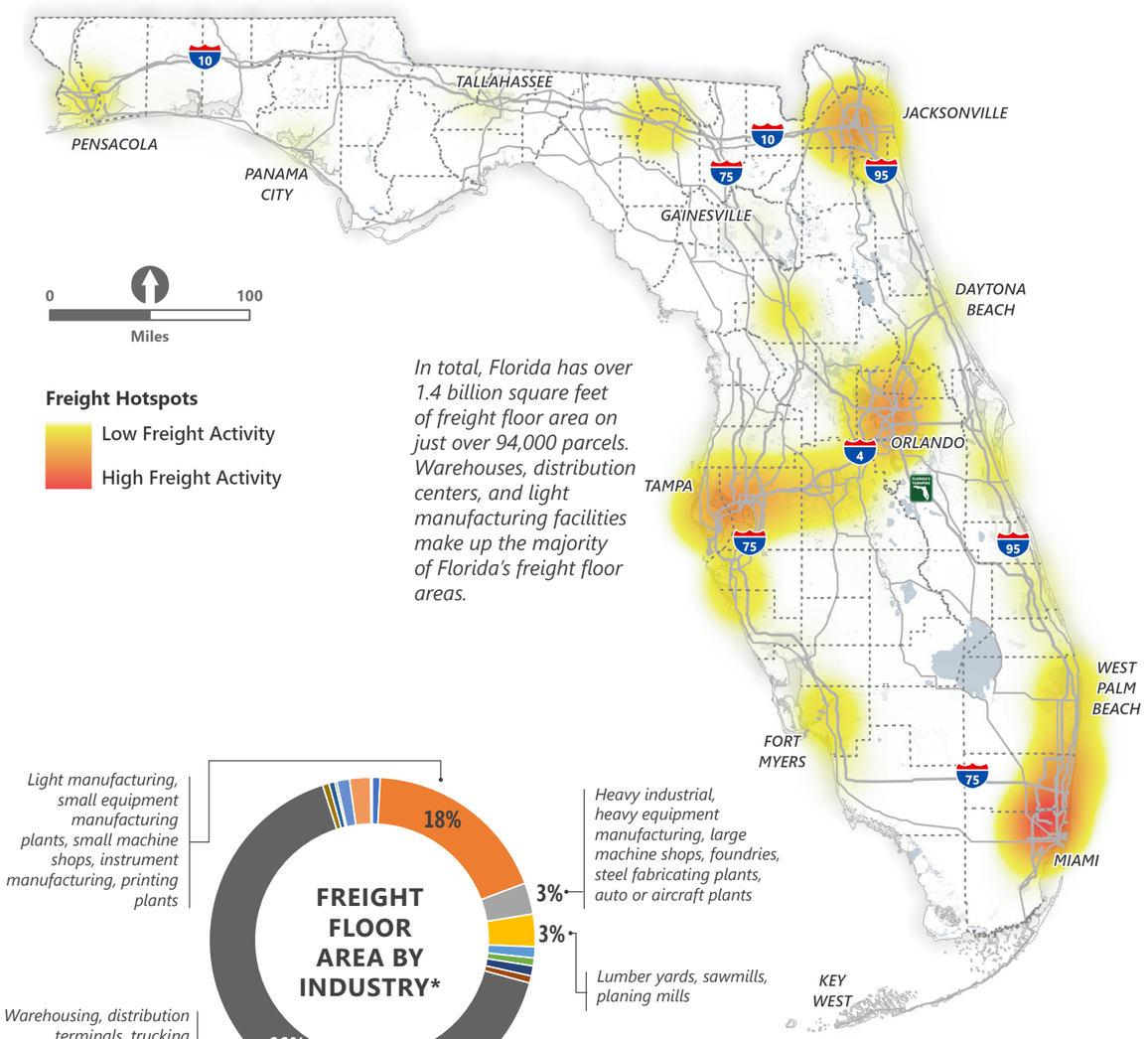
The Space industry in Florida is a growing economic and freight generator, with 72 orbital missions launching from the Space Coast in 2023. Florida's three major Federal Aviation Administration (FAA) licensed spaceports are located at Cape Canaveral Space Force Station, Jacksonville Aviation Authority's Cecil Spaceport, and Titusville-Cocoa Airport Authority's Space Coast Regional Airport and Spaceport.



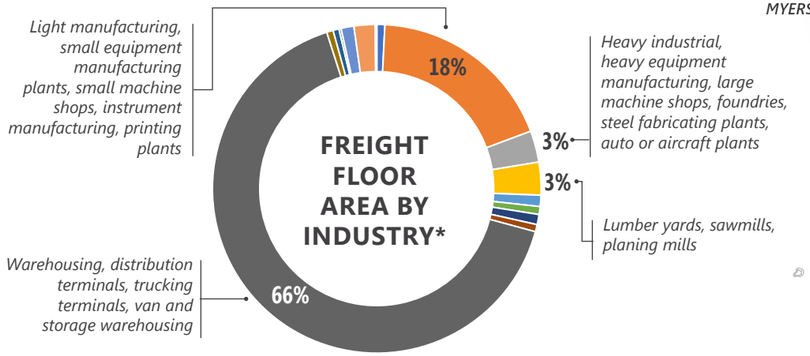
Source: FDOT Spaceport Improvement Program 2023-2024

FREIGHT INTENSIVE AREAS

A freight intensive area is a cluster or group of freight facilities that generates, distributes, or attracts large amounts of freight activities and has a significant impact on Florida's transportation system and economy. This analysis used Florida 2021 Department of Revenue (DOR) parcel data and 2021 Florida Department of Commerce (DOC) employment data to locate freight activity areas. The freight hotspots and floor areas statistics are shown below.



In total, Florida has over 1.4 billion square feet of freight floor area on just over 94,000 parcels. Warehouses, distribution centers, and light manufacturing facilities make up the majority of Florida's freight floor areas.



**The industries not called out in the pie chart each make up 2 percent or less of the total freight floor area*

Source: Florida Department of Transportation, Freight and Rail Office (2021)

SYSTEM PERFORMANCE STATISTICS

Combination Truck Miles Traveled	17.8 million average daily truck miles traveled on the State Highway System	**2022**
Percent of Empty Trucks	On average, 41.9% of Class 9 trucks left the state empty on I-95, I-10, and I-75	**2022**
Combination Truck Planning Time Index	1.51 planning time index; for a trip that would take 10 minutes in free-flow conditions, the 95th percentile travel time is 15 minutes	**2022**
Truck Bottlenecks	The top recurring bottlenecks in the state are along I-4 near the I-275 interchange. The top non-recurring bottleneck in the state is along U.S 27 near Florida Interchange; Miami-Dade County has 49% of the top 150 recurring and 35% of the top 150 non-recurring bottlenecks	**2021**
Highway Pavement Conditions	NHS Interstate: 73.4% of pavement is in Good condition; 26.4% is in Fair condition; 0.3% is in Poor condition; NHS Non-Interstate: 48.8% of pavement is in Good condition; 50.6% is in Fair condition; 0.6% is in Poor condition	**2022**
Bridge Conditions	For FDOT owned NHS bridges, 69.41% of the total NHS deck area is in Good condition and less than 1% is in Poor condition; There are 375 structurally deficient bridges in the state	**2022**
Highway (Commercial Vehicle) Safety	197,513 commercial vehicle collisions on Florida's roadways, leading to 1,465 fatalities over the 5-year period	**2018-2022**
Truck Parking Utilization	During peak periods, truck parking demand can exceed 150% of authorized parking capacity in some areas of the state	**2019**
Truck Detention Time	The annual average truck detention time at the Port of Jacksonville, Port of Miami, and Port of Tampa Bay is 129.33 minutes	**2022**
Truck Tonnage	674.6 million tons moved by truck (originating, terminating, and within)	**2022**
Rail Tonnage	39.5 million originated rail tons; 57.2 million rail terminated tons	**2021**
Rail Safety	117 highway-railroad incidents, with 50 injuries and 21 fatalities	**2022**
Seaport Tonnage and TEU	112.5 million tons and 4.3 million TEUs	**2022**
Aviation Tonnage	3.3 million tons of air cargo flowed through airports in Florida	**2022**
Spaceport Launches	72 orbital missions launched from Florida's Space Coast	**2023**

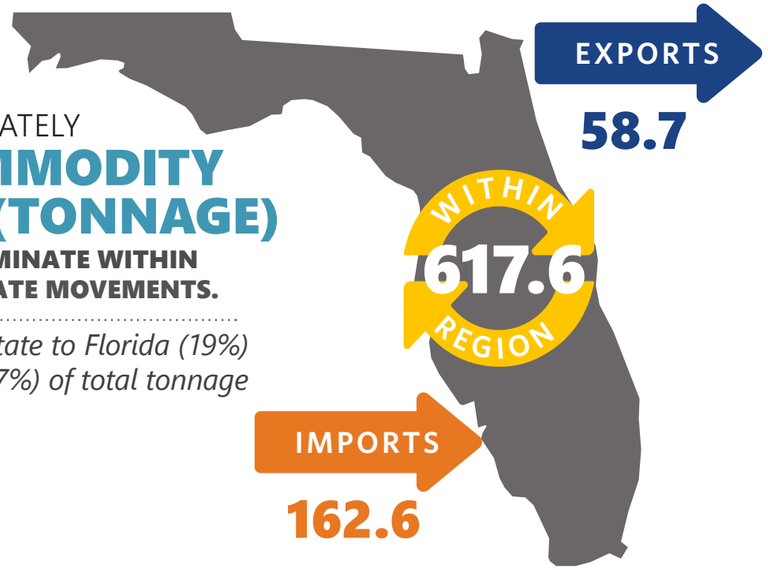
Trends

What's Inside?

- » ***Supply Chain Flows***
- » ***Demographic Trends***
- » ***Economic Trends***
- » ***Resilience & Alternative Fuel Trends***
- » ***Technology Trends***
- » ***Modal Trends***

The evolution of freight transportation is largely shaped by demographics, consumer behavior, the economy, regulations, and technological advances. The dynamic nature of freight mobility and trends affecting freight movement must be considered when developing policies, programs and projects to address freight needs and issues. A deeper dive into trends can be found in Technical Memorandum 3.

» SUPPLY CHAIN FLOWS



APPROXIMATELY

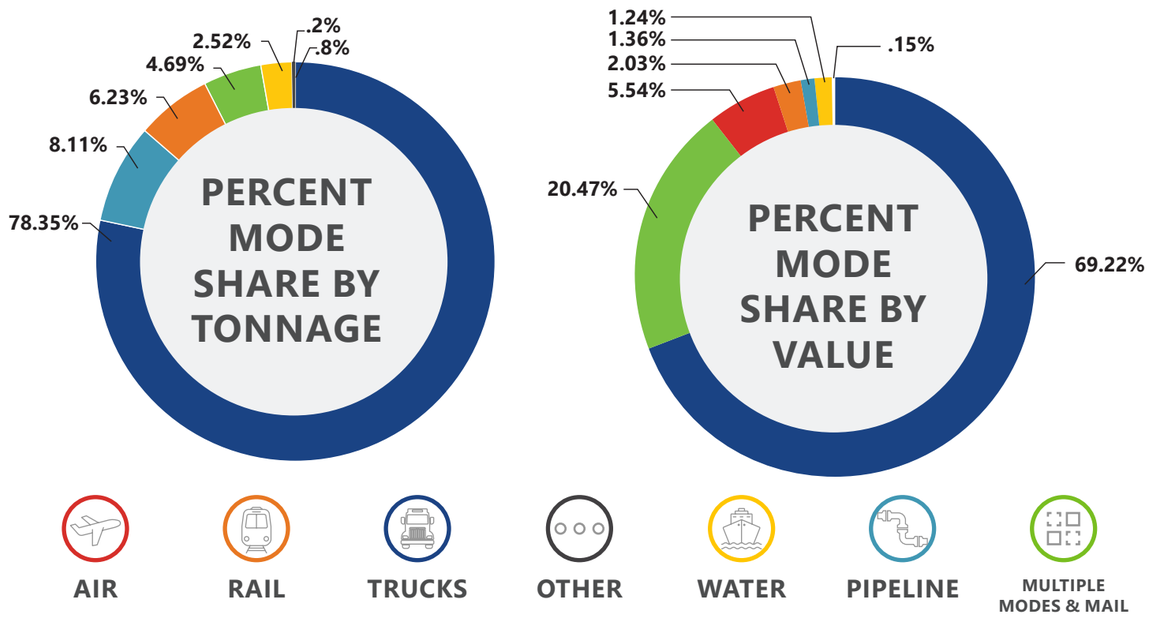
74% OF COMMODITY MOVEMENTS (TONNAGE)

ORIGINATE AND TERMINATE WITHIN FLORIDA AS INSTRASTATE MOVEMENTS.

*The imports from out of state to Florida (19%) **outnumber** the exports (7%) of total tonnage*

Numbers are in Million Tons
- FAF 5.5.1, 2022

Trucks overwhelmingly dominate both tonnage and value when it comes to modal share breakdowns. However, the share of air transport and 'multiple modes and mail' are notably low in tonnage but high in value, suggesting a prevalence of high-value commodities transported by these modes. Conversely, pipelines account for a substantial tonnage share, but exhibit a relatively low value share, indicating the transportation of lower-value commodities via pipelines. Similar patterns are observed for the rail and water modes.



TOP DOMESTIC IMPORTS:

BY TONNAGE:

- Coal
- Gasoline
- Natural gas
- Non-metal mineral products
- Other foodstuffs

BY VALUE:

- Electronics
- Machinery
- Mixed freight
- Motorized vehicles
- Pharmaceuticals

TOP DOMESTIC EXPORTS:

BY TONNAGE:

- Fertilizers
- Newsprint/paper
- Non-metal mineral products
- Other agricultural products
- Other foodstuffs

BY VALUE:

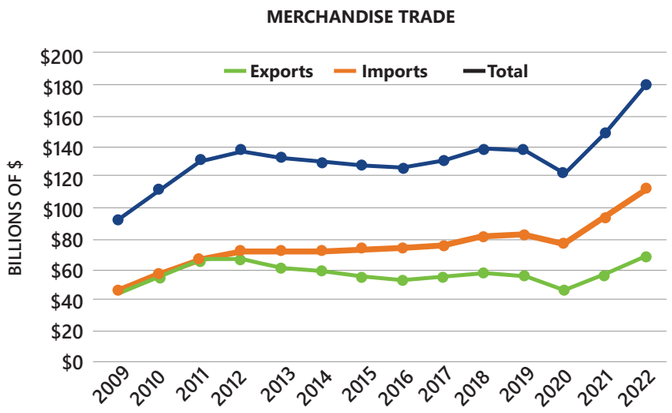
- Electronics
- Motorized vehicles
- Pharmaceuticals
- Precision instruments
- Textiles/leather

TOP INTERNATIONAL IMPORT PARTNERS

EAST ASIA | MEXICO | CANADA

TOP INTERNATIONAL EXPORT PARTNERS

BRAZIL | CANADA | MEXICO



Florida exports and imports were balanced at **$46 billion** in 2009 but grew at different rates through 2022.

Exports grew by about 44 percent over the 14-year period, while **imports rose at 145 percent** over the corresponding timeframe.

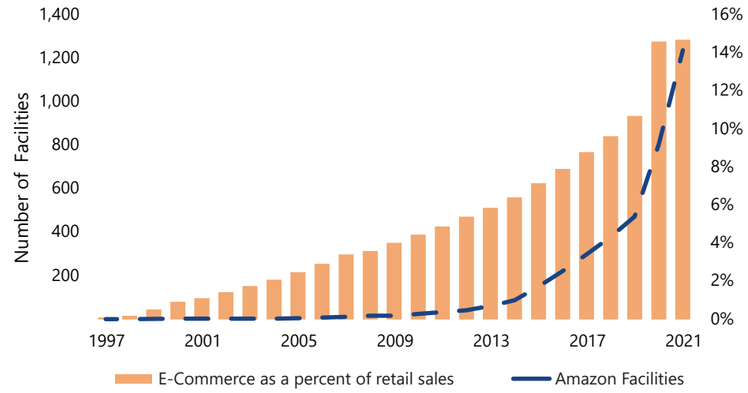
ECONOMIC TRENDS

FLORIDA HAS A GROSS STATE PRODUCT OF
$1.4 TRILLION, RANKED 4TH
AMONG ALL STATES

IF FLORIDA WERE AN INDEPENDENT COUNTY, IT WOULD
RANK 14TH
IN THE WORLD

E-COMMERCE

Fueled by economic growth and other factors, demand for goods has surged. Consumers have increasingly turned to e-commerce, and the market share is expected to continue to rise. At this pace, the percentage of e-commerce retail sales may reach 25 percent by 2025.



Florida's average retail gasoline prices have fluctuated and gone up markedly since 2004. **Fuel prices are projected to continue to rise through 2044.** U.S. gasoline retail prices are forecast to reach **$5.3/gallon in 2044**. U.S. Diesel retail prices are forecasted to extend to **$6.4/gallon in 2044**.

FLORIDA'S TOTAL EMPLOYMENT
INCREASED 60%

2000 → **2022**

8.9M **14.2M**

OUTPACING NATIONAL
EMPLOYMENT GROWTH RATE BY DOUBLE SINCE 2000

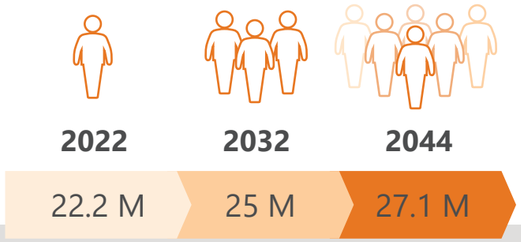
FLORIDA IS HOME TO
21 MILITARY BASES
WITH MORE THAN
66,971
ACTIVE PERSONNEL

Over
860,000
jobs are directly linked with the military which accounts for
8.5% **of Florida's economy**

The value of production generated by the private good producing industries along with trade, transportation and warehousing was over

$327 BILLION

DEMOGRAPHIC TRENDS



As of 2024, Florida has a population of **23 million**, ranked 3rd among the states.

Florida's statewide population is expected to add over **4 million** residents by 2044.

-Bureau of Economic and Business Research (2023) projection

BY 2044:

THE SHARE OF FLORIDA'S POPULATION:

24yrs *and younger will **shrink***

80yrs *and older will **almost double***

- BEBR projection

*Over the past two decades, the **median age** of Florida residents has gone up by four years **from 38.7 years in 2000 to 42.7 years in 2022.***

- U.S. Census Data

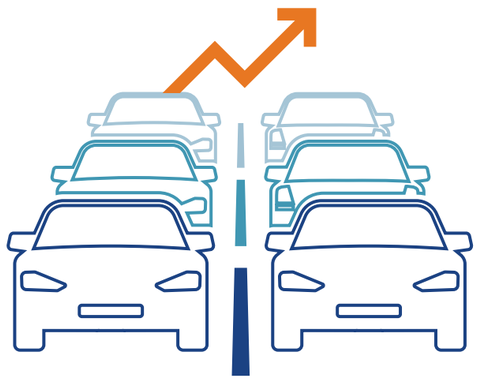
Visitors to Florida expanded by almost **65 MILLION** annually between 2000 and 2022

2.4% *Annual forecasted growth*

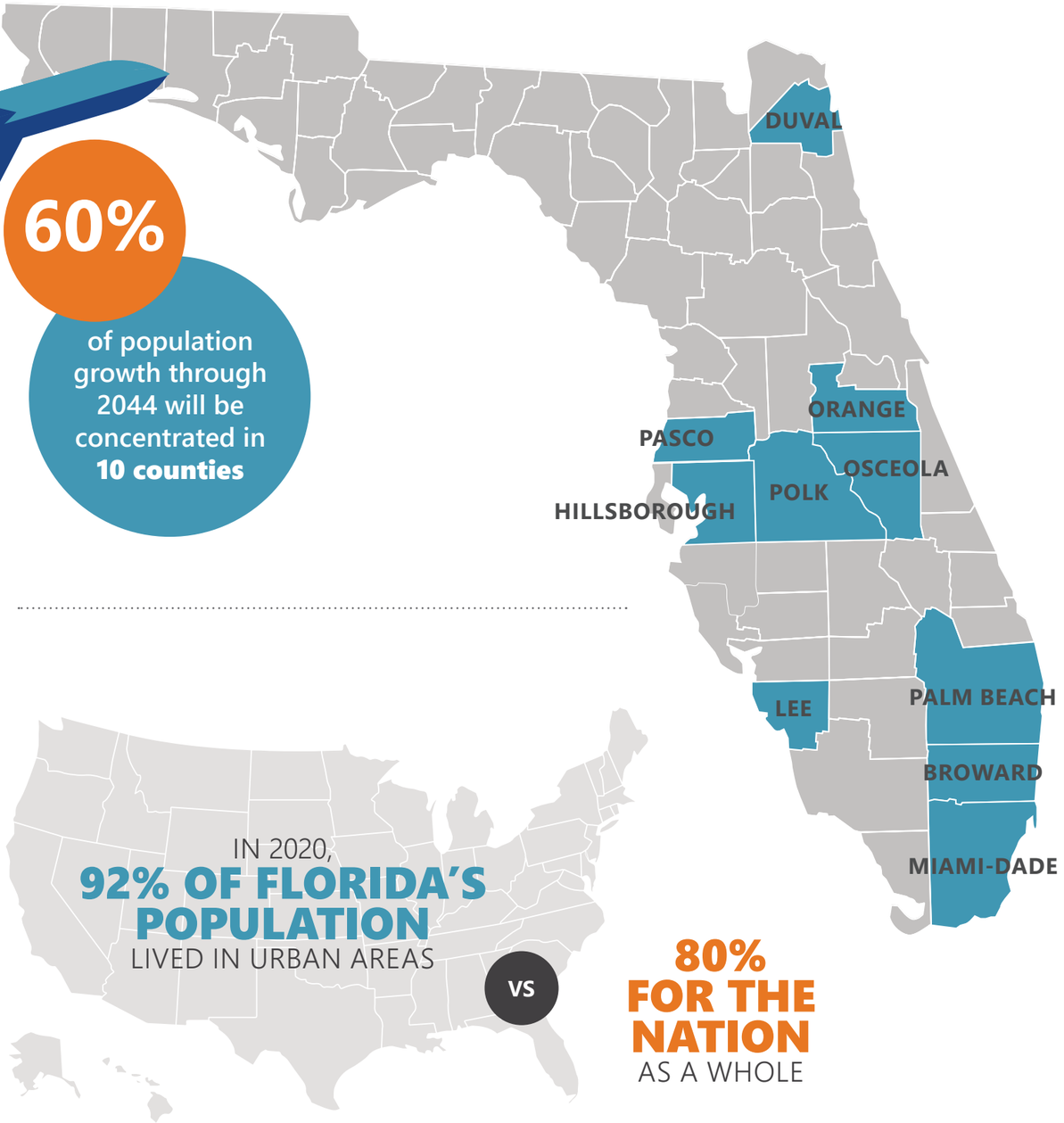
2022	2032	2044
137.4 M VISITORS	191 M VISITORS	232 M VISITORS

Population growth + ***Urbanization trends*** =

Transformative effects on Florida's supply chains

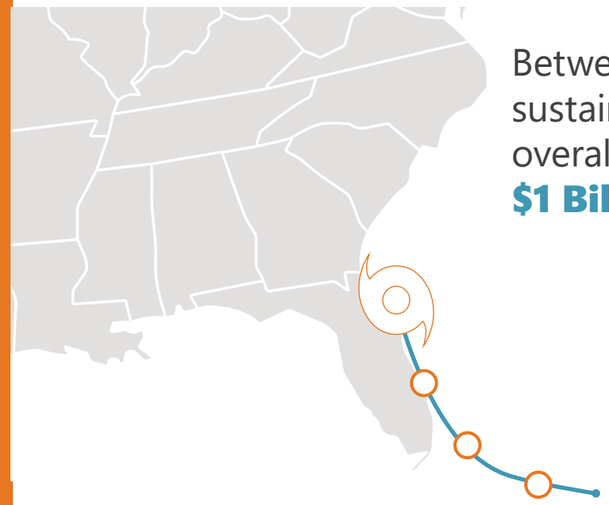


Increased congestion, higher numbers of urban deliveries and changing distribution networks are expected to have a **significant impact on the state's economy.



Per Freight Facts and Figures, published by BTS, the average American citizen accounts for approximately **60 tons of freight per year.**

RESILIENCE & ALTERNATIVE FUEL TRENDS



Between 2018 and 2022, the U.S. sustained **90 weather events** where overall damages reached or exceeded **$1 Billion**

*With 1,350 miles of coastline, Florida is particularly vulnerable to **flooding, hurricanes, and other tropical storms**. More than 15 million people live in coastal counties today.*

Weather-related damages in Florida in 2020 were

$451M

- NOAA

Florida is among the **top 10 states** most impacted by **wildfires**

Between 2020 - 2021 the **transportation industry** experienced a **186% increase** in **weekly ransomeware attacks**

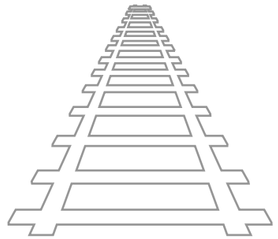
The amount of precipitation during heavy rainstorms has **increased by 27%** **in the Southeast over the last 60 years.**

- EPA

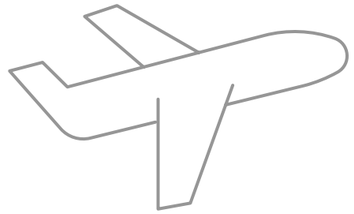
FDOT incorporates resiliency into statewide planning efforts, manages infrastructure assets like roadway pavements through analysis and implementation, and invests in hazard reduction measures in advance of floods and hurricanes.

Almost 1,100 miles **of major highways** in Florida accomodate emergency shoulder use to temporarily **increase traffic flow and capacity** during major evacuation events

On average, **railroads are 3 TO 4 TIMES more fuel efficient** than trucks on a ton-mile basis



Florida East Coast Railway has been operating on LNG since late 2015 and CSX is testing a new biodiesel fuel blend in its Tampa fleet.



Several Florida airports are partnering with companies to bring **Sustainable Aviation Fuel (SAF) to Florida's aviation community.**

Additionally, electric-powered aircrafts are being tested in the U.S. for short (500-800 mile) express feeder air cargo routes.

The 2021 national congestion figure of **1.27 billion hours of delay is the equivalent of 460,000 truck drivers sitting idle for one year.**

-ATRI Cost of Congestion to the Trucking Industry: 2023 Update

In 2022, FDOT added over **4,000 MILES** (58% increase) to its **Alternative Fuel Corridors**

*Florida seaports are on the leading edge of alternative fuel utilization nationally. Florida is already **deploying LNG for its cargo and cruise vessels** and is poised to deploy the **world's largest shore power system**.*

Port Miami is establishing itself at the forefront of shore power

» TECHNOLOGY TRENDS

Freight signal priority has been demonstrated to reduce truck travel times by 10%

FDOT has developed several projects with freight signal priority including the I-4 and I-75 FRAME, Smart Bay, Florida Keys COAST, and SR 60 CAV projects.

Advanced Air Mobility is an emerging aviation ecosystem that leverages new aircraft and an array of innovative technologies to provide the opportunity for more efficient and sustainable options for transportation.

Delivery Drones can deliver packages to their final destination once a truck reaches a strategic location and deploys them. The benefits include **significant fuel/time savings** for parcel delivery services and a reduction in costs for maintenance of unpaved roads to rural counties.

Florida has installed the **truck parking availability system (TPAS)** at approximately 68 locations along interstates: I-4, I-10, I-75, and I-95. Results show that the sensor installation exhibited **95% accuracy providing occupancy information and 90 percent accuracy with turnover information.**

FDOT uses weigh-in-motion technology that can measure the weight of a vehicle as it passes over roadway sensors. This electronic clearance allows wireless screening of trucks at heading speeds, saving time by eliminating the need for trucks to pull over at weigh stations.

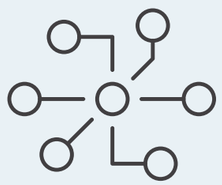
Port Automation for seaports can **significantly improve on-facility operations** resulting in greater throughput of cargo and passengers.

By 2025, it is estimated that more than

171 zettabytes ($171x10^{21}$)

of data will be generated annually

*Data collected from new types of sensors can provide the **timely and valuable data** underpinnings to power analytical insights.*

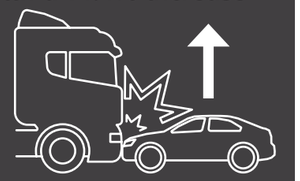


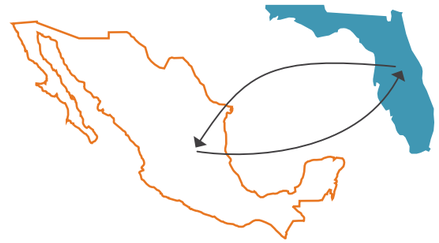
SunTrax is a large-scale, innovative facility developed by Florida's Turnpike Enterprise dedicated to the research, development, and testing of emerging transportation technologies in safe and controlled environments.

Positive Train Control technology is in operation on all **57,536 required freight and passenger railroad route** miles in the US.

» MODAL TRENDS

The number of fatalities in crashes involving commercial vehicles has shown an upward trend, with a 14.4% increase in fatalities, rising from 292 fatalities in 2018 to 334 fatalities in 2022.

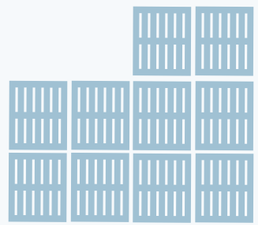




Florida has increased the number of ports with direct access to Mexico from one to seven, allowing for more competitive freight movement via ship than via truck. Port Tampa Bay has been an immediate beneficiary of this expansion. Additionally, the Port of Panama City established partnerships with automotive manufacturers in Mexico, offering high-efficiency port facilities to ship parts and vehicles.

–T&L2030

In 2022, approximately **3.3 million tons of air cargo** flowed through the airports in Florida, a **21% increase in tonnage since 2018.**



THE NUMBER OF LAUNCHES FROM FLORIDA'S SPACE COAST HAS RISEN

19 → **72**

2017 **2023**

REFLECTING A

279% INCREASE

OVER THAT PERIOD

IN 2023, THERE WERE **1,506** COMMERCIAL SPACE PAYLOADS, AN INCREASE OF OVER **12,000%** FROM 2017

Space payload accounts for the weight in pounds of civilian, commercial, and Department of Defense cargo or satellites sent into Earth's orbit through Florida's spaceports.

Commercial payloads began increasing significantly in 2019 with the SpaceX Starlink constellation and SpaceX Transporter multi-payload rideshare missions.

-FDOT Source Book

Lakeland Linder International Airport (LAL) in Florida **HAS BECOME A TOP 4 CARGO AIRPORT IN TONNAGE**, since it established an Amazon Airhub for air cargo.

The rate of highway-railroad incidents in Florida has been increasing over the past decade. Between 2013 and 2023, 959 of the 3,790 rail incidents in Florida occurred at a highway-railroad grade crossing.

Needs & Issues

What's Inside?

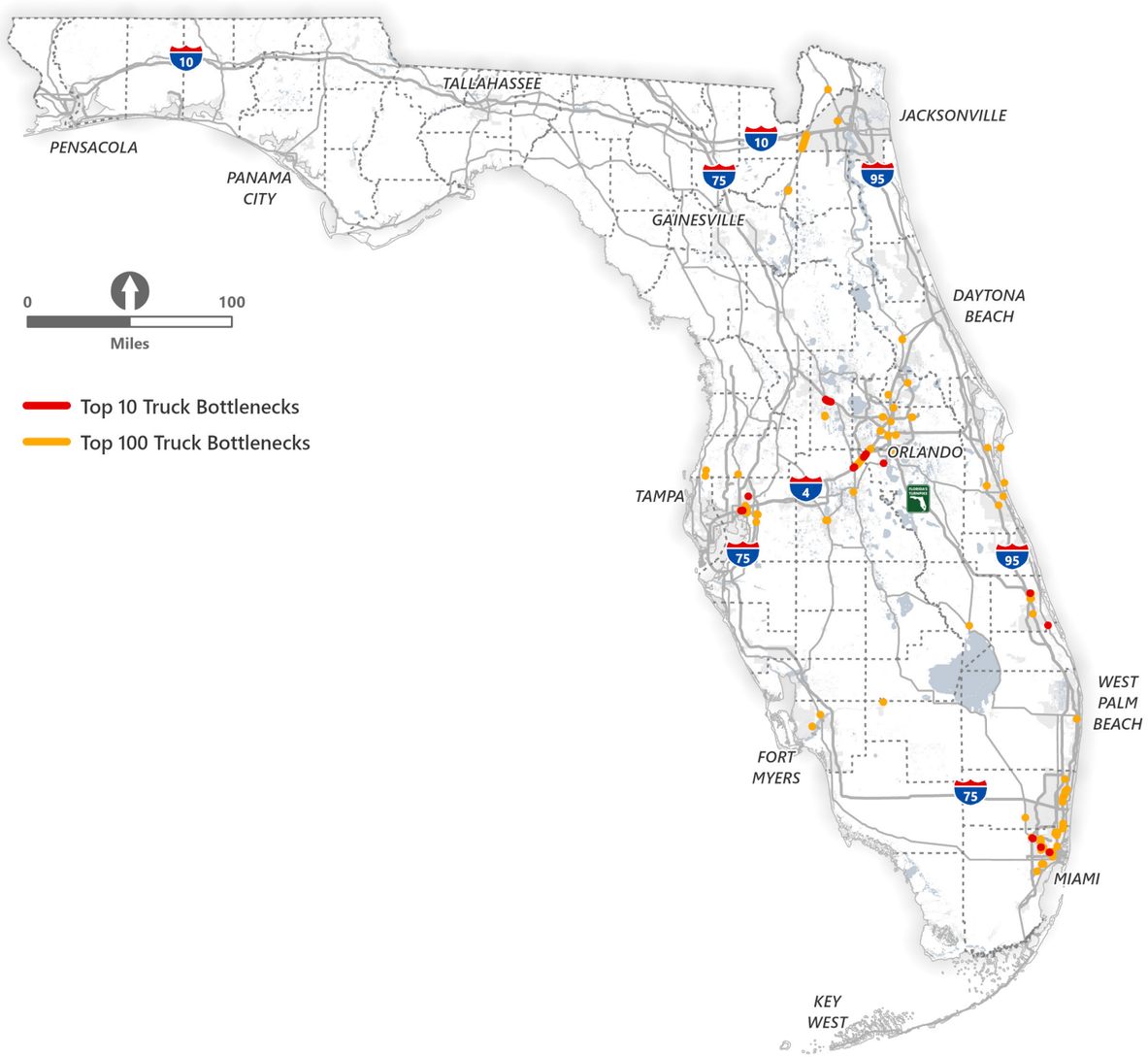
The needs and issues discussed in this chapter were derived from a combination of analysis of Florida's freight performance and input from stakeholders. The three issues presented were found to be the top challenges impacting freight mobility in the state, along with on-going supply chain disruptions. A more robust discussion of freight needs and issues impacting Florida can be found in Technical Memorandum 4.

ISSUES & NEEDS OVERVIEW

TYPE	MODE	NEEDS & ISSUES	
Economic/Policy	Multimodal	• Rising Costs • Domestic Freight Imbalance • Workforce Issues • Land Use Conflicts • Environmental Stewardship and Community Concerns	• Communication/Collaboration • Funding • Freight Education/Messaging/ Training • Broadband/Cybersecurity • Statewide Approach
Infrastructure	Highway	• Congestion/Bottlenecks • Aging Infrastructure • Truck Parking	• Crashes
	Maritime	• Port Access/Channel Depth • Operational Inefficiencies	• Inland Ports • Panama Canal Water Issues
	Rail	• Passenger vs Freight Conflicts • Blocked Crossings	• Crossing Safety
	Aviation	• Fuel Resilience	• Drone Delivery Policies/Procedures
	Space	• Oversized Cargo/Congestion	
	Pipeline	• Capacity	

CONGESTION/BOTTLENECKS

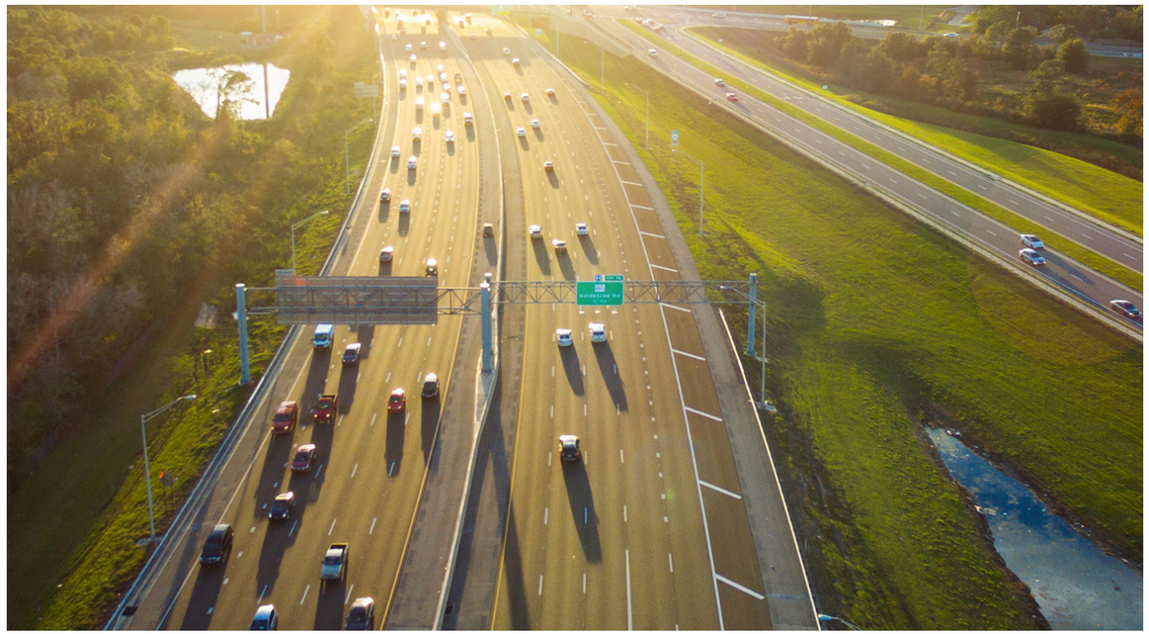
There are a growing number of vehicles on the road creating a mix of truck and passenger traffic leading to increased congestion. In 2021, the annual cost of congestion to the U.S. trucking industry reached an all-time high of $94.6 billion, up from $74.5 billion in 2016. Florida ranked 3rd for the annual cost of congestion to the trucking industry at $7.15 billion in 2021. The locations of the top 100 truck bottlenecks in the state are shown below.



Source: FDOT Freight and Rail Office (2021)

RANK	RECURRING CONGESTION		NON-RECURRING CONGESTION	
	Roadway Section	County	Roadway Section	County
1	I-4 W near I-275 interchange	Hillsborough	US-27 S – eastbound direction near Florida Turnpike interchange	Lake
2	I-4 W near SR 429 interchange - southbound	Osceola	I-4 Eastbound near US 27 interchange	Polk
3	I-4 Eastbound near US 27 interchange	Polk	NW 36th St westbound near Miami International Airport	Miami-Dade
4	I-4 W near I-275 interchange	Hillsborough	W Okeechobee Rd eastbound at Turnpike interchange	Miami-Dade
5	W Okeechobee Rd westbound at Turnpike interchange	Miami-Dade	E Fowler Ave near Temple Terrace	Hillsborough
6	W Okeechobee Rd eastbound at Turnpike interchange	Miami-Dade	US-27 S – eastbound direction near Florida Turnpike interchange	Lake
7	I-4 W near I-275 interchange	Hillsborough	NW Jensen Beach Blvd eastbound near North River Shores	Martin
8	Orange Ave eastbound near I-95 interchange	St Lucie	Orange Ave eastbound near I-95 interchange	St Lucie
9	NW 36th St westbound near Miami International Airport	Miami-Dade	I-4 W near SR 429 interchange - southbound	Osceola
10	NW 74th St near MetroRail Palmetto Station	Miami-Dade	S John Young Pkwy	Osceola

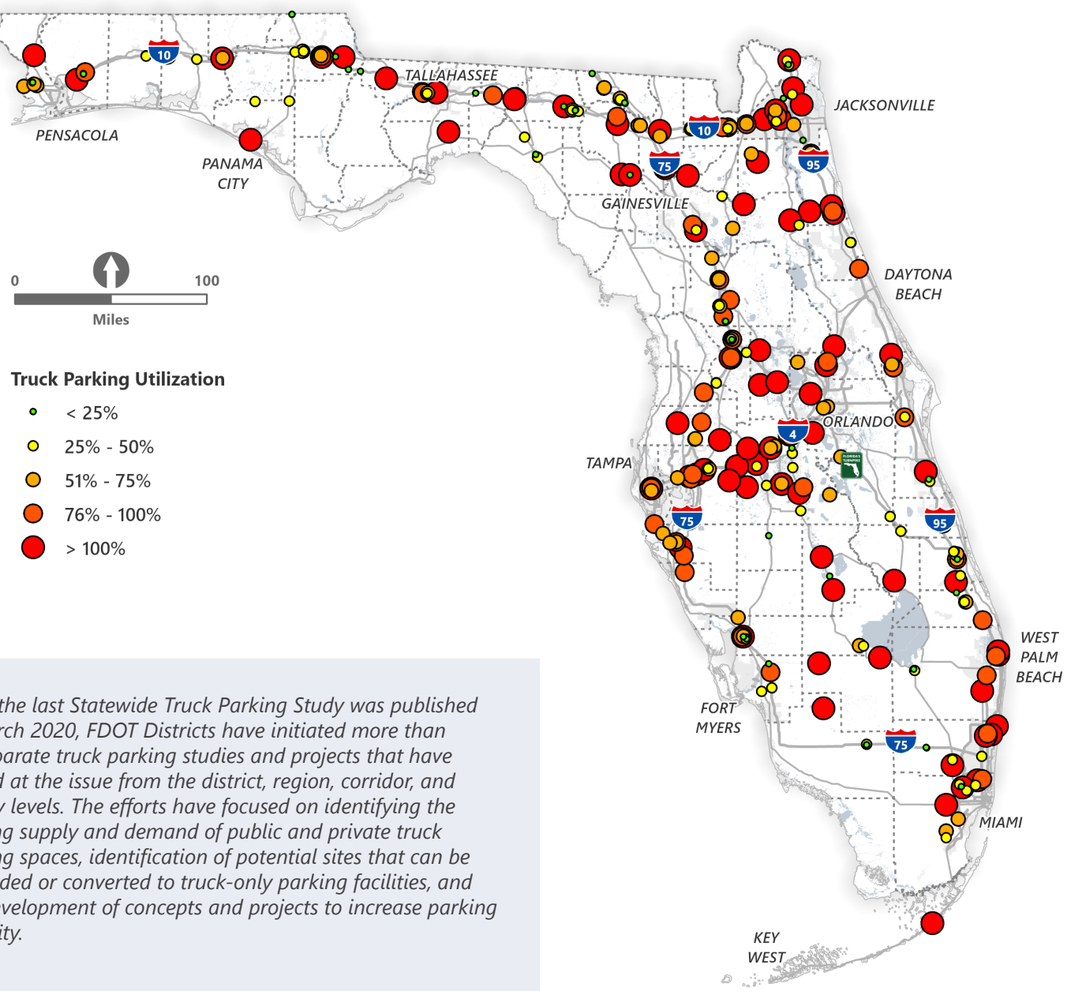
The table shows the top 10 recurring and non-recurring congestion segments during a regular weekday. It is important to distinguish these two measures because research shows that freight users can schedule deliveries to consider recurring congestion, however non-recurring congestion is difficult to predict, which can lead to delays in deliveries.



TRUCK PARKING

The need for safe and accessible commercial parking is consistently identified as one of the major issues affecting truck drivers and the freight industry in the United States. In Florida, the limited availability of truck parking spaces has caused overcrowding and overflow at existing truck parking locations, particularly along the I-4, I-10, I-75, and I-95 corridors. At times, truck drivers turn to parking on the interstate mainline, ramp shoulders, or in vacant lots, often causing safety hazards. Analysis found that during peak periods truck parking demand can exceed 150 percent in some areas of the state.

FDOT's Truck Parking Availability System (TPAS) is helping to improve the safety of truck drivers by identifying safe locations to park along the interstate system and maximizing their HOS requirements by lowering the amount of time spent to find parking spaces. The State of Florida currently has 20 weigh stations, 53 rest areas, and 4 welcome centers that support truck parking with a total of 2,539 monitored TPAS spaces.



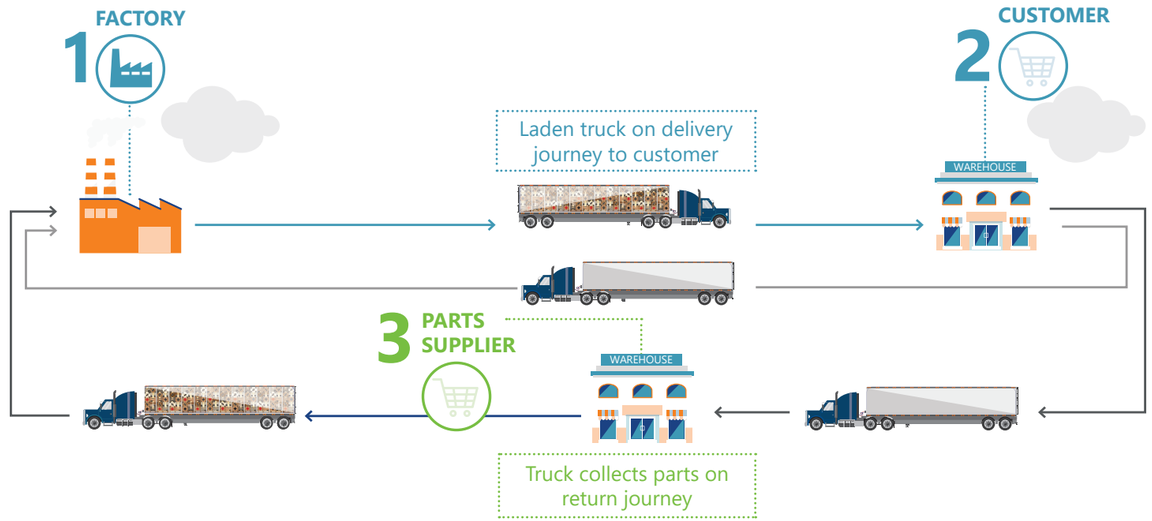
Source: FDOT Transportation Data and Analytics Office (2019)

Since the last Statewide Truck Parking Study was published in March 2020, FDOT Districts have initiated more than 30 separate truck parking studies and projects that have looked at the issue from the district, region, corridor, and facility levels. The efforts have focused on identifying the existing supply and demand of public and private truck parking spaces, identification of potential sites that can be expanded or converted to truck-only parking facilities, and the development of concepts and projects to increase parking capacity.

EMPTY BACKHAUL

Truck empty backhaul is the return movement of a truck from its destination to its point of origin when the truck is not hauling cargo. An imbalance of trade flows is the fundamental reason behind empty backhaul; Florida is a consumer state with a relatively small manufacturing sector and a relatively large distance from other major U.S. consumer markets. On average, 41.9% of Class 9 trucks left the state empty on I-95, I-10, and I-75 in 2022.

Empty backhaul tends to increase supply chain costs, as carriers need to pass along the cost of empty backhaul to shippers and customers. It also reduces both productivity and profitability of the motor carrier industry. Addressing empty backhaul reduces costs and environmental impacts for the commercial motor vehicle industry.



Percentage of Empty Class 9 Trucks by Direction of Travel

	I-95		I-10		I-75	
YEAR	Out of State	In-State	Out of State	In-State	Out of State	In-State
2015	40.97%	14.97%	28.07%	17.23%	N/A	N/A
2016	38.20%	13.23%	29.12%	16.93%	N/A	N/A
2017	37.14%	11.53%	29.64%	16.88%	47.93%	11.06%
2018	34.94%	9.35%	28.84%	22.16%	N/A	N/A
2019	32.29%	9.52%	30.50%	18.33%	N/A	N/A
2020	29.50%	8.02%	28.21%	16.18%	16.37%	10.74%
2021	65.00%	53.77%	31.94%	16.81%	19.20%	11.59%
2022	44.75%	N/A	37.26%	15.17%	43.77%	15.49%

SWOT ANALYSIS

STRENGTHS	WEAKNESSES
Location: Florida is the primary gateway to South America and the Caribbean. Air cargo and maritime shipping utilize Florida's airports and seaports as transfer facilities to supply the U.S.	**Trade imbalance:** As a high consumption state, inbound goods movement outweighs outbound goods movement
Diverse & versatile freight assets: Florida is versatile in having multimodal options and being able to accommodate a variety of issues	**Congestion:** Roadway congestion has a significant impact on cargo movement in the form of hours of wasted time in traffic, lost financial productivity, and wasted fuel
Strong market demand: Florida is the third most populous state and growing, with diverse economic industries	**Lack of available land:** As the state grows, land is becoming extremely valuable in urban areas and the competition for development is tight
Culture of public & private sector collaboration: The state has a proactive approach on goods movement issues that involve all modes - seaports, highway, freight rail, aviation and spaceports	**Truck parking availability:** Truck parking demand exceeds supply, particularly along the I-4, I-10, I-75, and I-95 corridors
	Workforce availability: Florida's logistics industry is facing a workforce shortfall throughout the supply chain – pilots, mechanics, railroad workers, and truck drivers

OPPORTUNITIES	THREATS
Fuel choice: Growth of biodiesel fuels and continued research in hydrogen cells and electricity provide alternative fuel opportunities	**User conflicts:** Florida has experienced increasingly frequent conflicts between users (railroad, highway, bike, pedestrian) as well as between passenger and freight movement
Automation: Connected and automated vehicles and systems have the potential to reduce crashes, emissions and alleviate aspects of the workforce shortage	**Cybersecurity:** The threat of cyberattacks continues to increase in supply chain processes
Inland ports: The development of inland ports could provide improved intermodal connectivity and relieve congestion	**Geopolitics:** World geopolitics continuously impact the freight industry
Grade separations: Grade-separated crossings could improve safety and provide congestion relief	**Weather impacts:** Weather events, such as hurricanes, can be disruptive to Florida's operations at ports, highways, railroads, warehouses, and manufacturing facilities
Aerospace industry: Florida has the infrastructure and the expertise to support and test early-phase developments within aerospace	**Increasing logistics costs:** Florida consumers may continue to feel the trickle-down impacts of increased costs for fuel, labor/wages, insurance, maintenance, and equipment prices
Public transit: Public transit can reduce congestion and relieve freight movement	
Policy and outreach: Several areas would benefit from the development of policy or increased outreach, like manufacturing, land use, truck parking, and freight education/messaging	

Prioritization

What's Inside?

Understanding the immediate and long-range freight needs of the state has helped the Freight & Rail Office (FRO) establish a prioritization process for decision-making– ensuring the right projects are advanced for the right reasons at the right time for the right purpose. More information on project prioritization and selection can be found in Technical Memorandum 6.

PROJECT PRIORITIZATION PROCESS

The process for identifying, prioritizing, and programming freight projects adheres to two guiding principles: it must be objective, consistent, data-driven, and transparent to all involved in the process; and it needs to have flexibility to align with diverse freight system needs. These guiding principles are the core of the three-step process informing the project identification and prioritization methodology. The overall process is designed to be repeatable and living, so that the priorities reflect the changing industry needs, both short- and long-term.

IDENTIFICATION OF PROJECTS

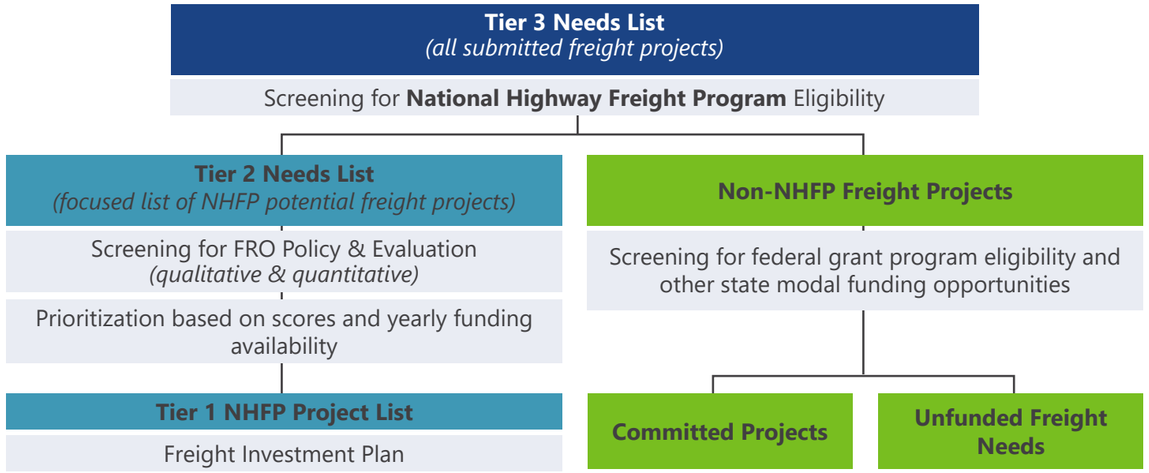
The process begins with a call for freight projects by the FRO. This request is disseminated to the FDOT Districts, MPOs, local jurisdictions, the FLFAC, and other freight stakeholders. A Tier 3 Needs List is compiled based on statewide analysis and input from all parties involved.

PROJECT CLASSIFICATION AND FUNDING ELIGIBILITY SCREENING

The FRO screens the Tier 3 Needs List for NHFP funding eligibility, resulting in a Tier 2 Needs List. Remaining projects are screened for potential as federal discretionary grant contenders as well as for alternate funding sources within the Work Program.

QUALITATIVE AND QUANTITATIVE EVALUATION

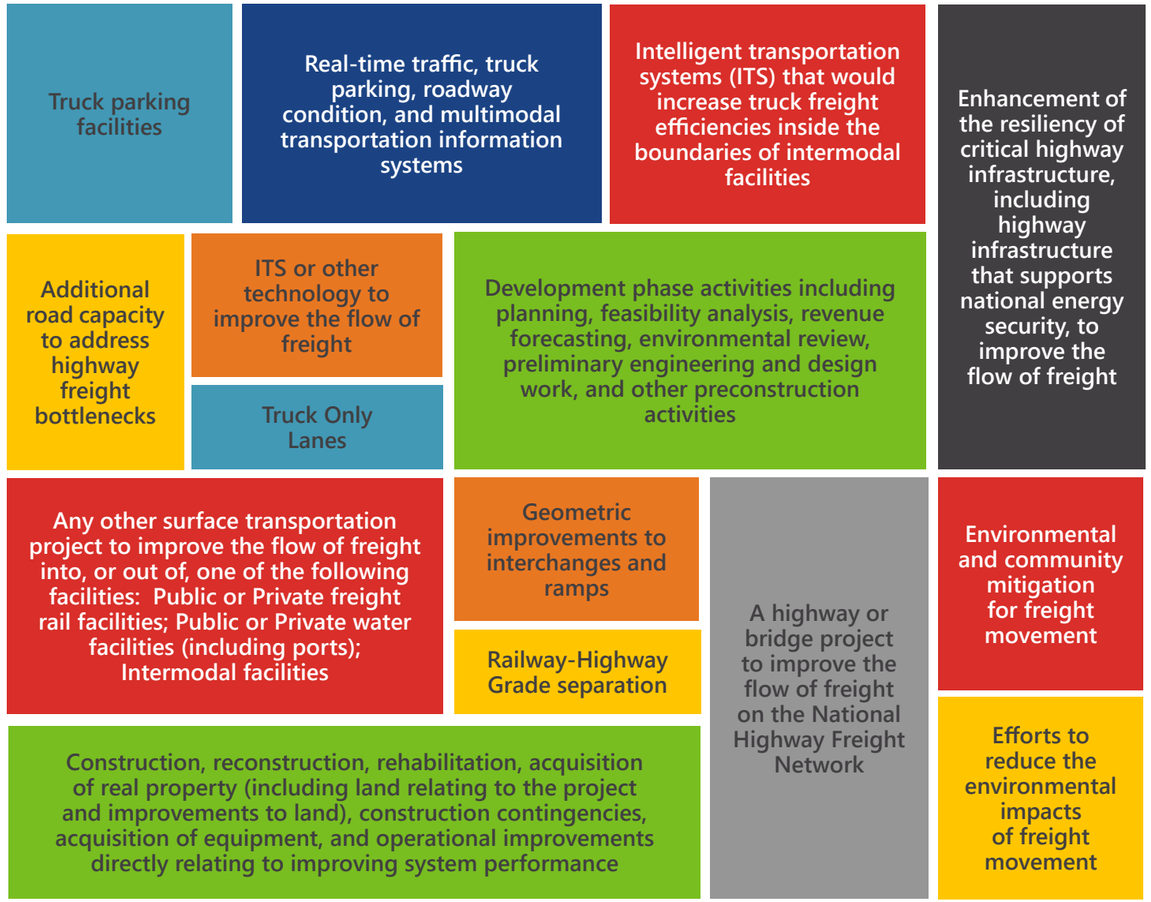
The next step focuses on an evaluation of the qualitative and quantitative aspects of the freight projects in the Tier 2 Needs List. A freight project eligible for NHFP funding must support one or more of the state's freight objectives as identified in the FMTP. The prioritization methodology is designed to select projects that solve freight system needs, and uses multiple data sources, freight performance metrics, and input from the freight industry. This process results in a Tier 1 NHFP Project List.



FRO PROJECT SCREENING

All project types listed in the Federal Eligibility section of **Technical Memorandum 6** are viable for NHFP funding. However, the project types that align with the Freight & Rail Office priorities are likely to receive higher scores on the qualitative scoring of the updated FMTP prioritization process based on the latest FMTP objectives. With this FMTP24 update, projects that enhance resilience of the freight system and reduce environmental impacts have been added to the Freight & Rail Office priorities.

Freight & Rail Office Priority Project Types



Beyond the federal eligibility requirements and preferences for specific project types, the Freight & Rail Office has established a set of internal criteria to ensure projects submitted are ready for production:

- Projects must be located on the National Highway Freight Network
- Projects must clearly identify the need(s) and develop the business case to justify project selection

PROJECT EVALUATION FRAMEWORK

The following project evaluation framework shows how the prioritization process uses the quantitative and qualitative metrics to arrive at a project score. After each project is given a quantitative score and a qualitative score corresponding to each objective, a weighted average score is computed. The weights are determined by the Florida Freight Advisory Committee.

FMTP24 OBJECTIVES	QUANTITATIVE METRICS	QUALITATIVE METRICS
Leverage data and technology to improve freight system safety and security	*Commercial Vehicle Safety ((Truck Injuries/Truck VMT) x 1000 (Truck fatalities/ Truck VMT) x 1000)	Does this project measurably improve freight safety?
		Is this a technology driven or Transportation Systems Management and Operations project?
Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption	RAP Low - High Tier Vulnerability Area	Does this project enhance the reliability or redundancy of the freight transportation system?
		Does this project improve the durability of freight infrastructure in a vulnerable coastal region? If it is in a RAP Vulnerable Area (low, medium, or high), this metric is required.
		Does this project support evacuation and recovery efforts?
Ensure the Florida freight system is in a state of good repair	*Bridge Conditions (Presence of structurally deficient bridges)	Does this project have a bridge repair/ maintenance component?
	*Highway Pavement (Presence of poor pavement conditions)	Does this project improve pavement conditions?
Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning	*Truck Miles Traveled (Annual Average Daily Truck Traffic)	Does this project address a truck parking need/ create staging areas for loading?
		Does this project relieve congestion?
	*Truck Bottlenecks (Roadways with top bottlenecks)	Is this a grade separation project?
Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains	Not Applicable	Is this project the result of a legislative/policy effort to improve supply chain efficiency?
Improve first and last mile connectivity for all freight modes	Vicinity of Hubs	Does this project improve first/last mile connectivity?
	Roadways within freight intensive areas	
Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development	Not Applicable	Does this project include stakeholder involvement?
Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture	Labor force (ratio of county labor force by county total population relative to average statewide ratio)	Does this project incorporate an innovative freight concept?
	County GRP Level (compared to state average)	
	Freight industry (by share of employment)	Does this project address points of friction between local communities and freight?
	Population Density (compared to state average)	
Increase freight-related regional and local transportation planning and land use coordination	Not Applicable	Is this project on the MPOAC freight project list or in a local freight planning document?
Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats	On designated alternative fuel corridor	Does this project reduce air pollution?
	Number of alternative fuel stations within 5 miles of corridor	Does this project incorporate protections for wildlife before/during/after project lifecycle?

Investments

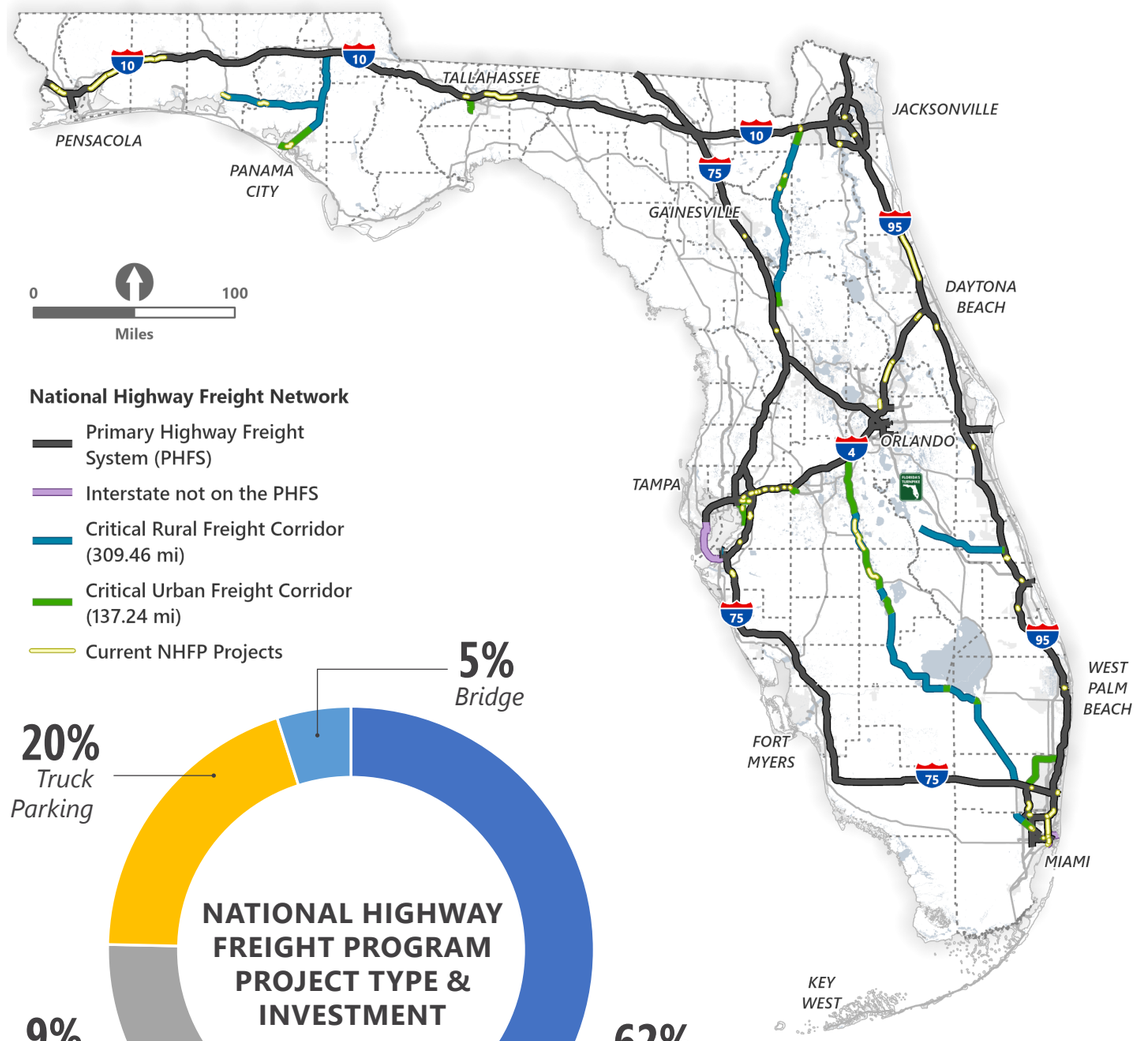
What's Inside?

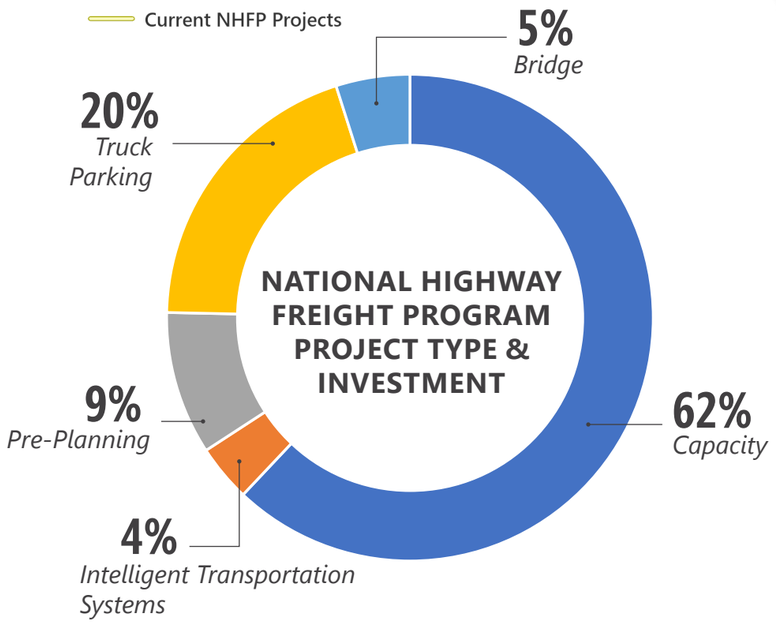
- » ***National Highway Freight Program Funded Projects***
- » ***Freight Funding in the Adopted Work Program***
- » ***SIS Funded Freight Projects***

The FMTP establishes a 5-year financially constrained Freight Investment Plan inclusive of all funded freight projects within the state. More information can be found in Technical Memorandum 7.

NATIONAL HIGHWAY FREIGHT PROGRAM FUNDED PROJECTS

Florida leverages the National Highway Freight Program to help deliver its freight projects. The projects are selected based on their priority, cost, and ability to improve freight bottlenecks, congestion, level of service, and other factors in freight mobility (highlighted in the previous section). Between 2017 and 2024, there has been $463.7 million provided for 75 NHFP projects, with a further $301.2 million expected between 2025 and 2029.



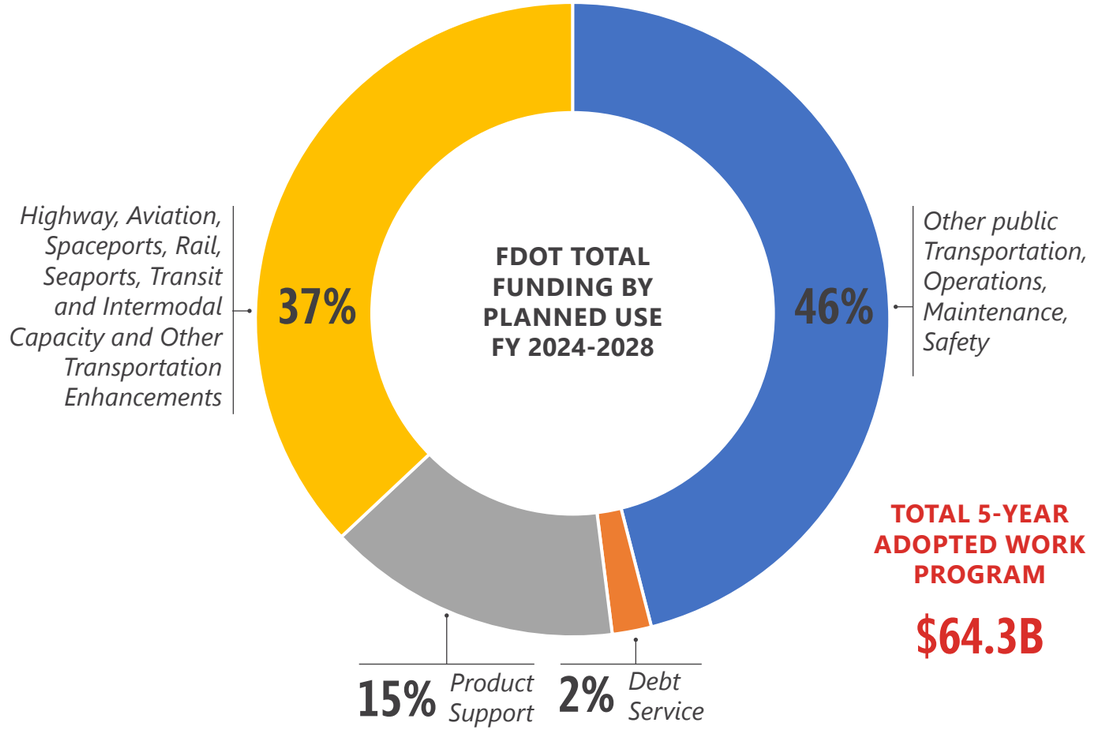


Source: FDOT & FHWA (2024)

FREIGHT FUNDING IN THE ADOPTED WORK PROGRAM

FDOT develops a Five-Year Work Program in accordance with Section 339.135 Florida Statutes. This reflects a program of over $64 billion over a 5-year period (2024 – 2028).

Of this, $23.5 billion, or 37% of the total funds, is utilized specifically for projects such as Highway, Aviation, Rail, Seaports, New Starts Transit and Intermodal Capacity and Other Transportation Enhancements. These projects span the variety of systems supporting all FDOT offices inclusive of freight, safety, and capacity.



TOTAL 5-YEAR ADOPTED WORK PROGRAM

$64.3B

PROJECT TYPE	ESTIMATED FUNDING TOTAL
Capacity	$3,906,941,024
Airport Expansion	$147,683,987
Bridge Maintenance	$1,226,262,987
Rail Capacity	$96,704,978
Intelligent Transportation Systems	$41,753,529
Intermodal Logistics Center	$45,520,531
Seaport Expansion	$522,234,431
Truck Parking	$45,848,088
Studies	$100,673,769

Between 2020 and 2030, 204 projects are designated with the group identifier FRGT (freight) in the Adopted Work Program. These projects have been designated due to their impact on the Florida freight system, and the projects utilize multiple funding sources from across FDOT. This table highlights these projects by total investment in each work mix type.

SIS FUNDED FREIGHT PROJECTS

Certain programs listed within the Adopted Work Program (AWP) support freight more directly than others, with the Strategic Intermodal System (SIS) network affecting highway freight the most. Within the AWP is the SIS 1st Five Year Plan, a major set of encumbered funds totaling $16.9 billion for supporting freight and transit systems. Beyond this five-year horizon are the SIS 2nd Five-Year Plan which sets funding for years 6-10 and the SIS Cost Feasible Plan (CFP) which sets funding from 2035-2050. The CFP has a much broader vision which includes over $30 billion in funds over that period.

TOTAL 5-YEAR ADOPTED WORK PROGRAM (SIS FREIGHT PROJECTS)

$16.9B

SIS First Five Year Plan

The First Five Year Plan illustrates projects on the SIS that are funded by the legislature in the Work Program (Year 1) and projects that are programmed for proposed funding in the next 2 to 5 years. The SIS freight investments through 2028 are broken out in the pie chart below.

SIS Second Five Year Plan

The Second Five Year Plan illustrates projects that are planned to be funded in the five years (Years 6 through 10) beyond the SIS First Five. Projects in this plan can move forward into the First Five Year plan as funds become available.

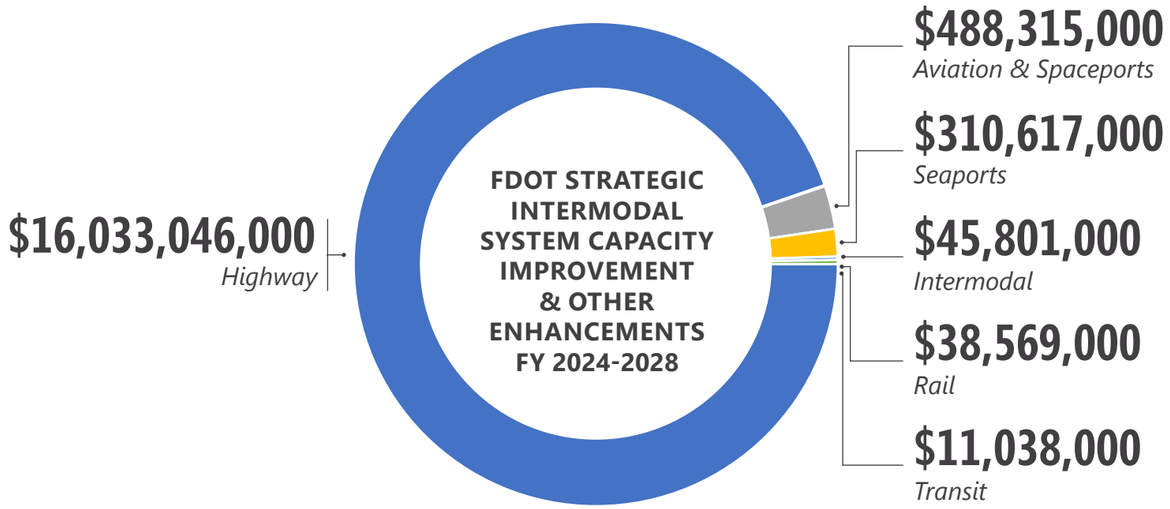
SIS Cost Feasible Plan (CFP)

The 2045 SIS CFP evaluates SIS needs in light of available future revenues and represents a phased plan for capacity improvements utilizing forecasted revenues. The main purpose of the 2045 SIS CFP is to efficiently plan for and fund future capacity improvements and comply with the Section 339.64, Florida Statutes requirement for a long-range cost feasible plan.

All of the above SIS plans can be found at the following link: *https://www.fdot.gov/planning/systems/sis/plans.shtm*

The SIS Connection

SIS plans are an important tool for FDOT in meeting immediate and long-term freight needs. The SIS network overlaps with the National Highway Freight Network and the SIS objectives align with FMTP objectives. It is imperative that the Freight & Rail Office continues to work with the Systems Implementation Office to identify prudent investments and funding strategies.



Implementation

What's Inside?

- ***Strategies***
- ***Implementation Plan***

FMTP strategies are an integrated group of policies, programs, projects and partnerships designed to improve freight mobility, efficiency, reliability and foster economic development. More information can be found in Technical Memorandums 5 and 8.

FMTP STRATEGIES

1 *Leverage data and technology to improve freight system safety and security*

1.1. Continue to analyze truck parking needs, identify appropriate solutions, and provide more safe and secure truck parking facilities where needed
1.2. Identify commercial vehicle high crash segments and intersections, analyze causal factors, and implement effective countermeasures
1.3. Identify high incident rail-highway grade crossings, analyze causal factors, and implement countermeasures
1.4. Identify disruptions and areas for improvement in critical supply chains through data and system security
1.5. Utilize emerging technologies to improve safety, mobility, and reliability of freight corridors

2 *Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption*

2.1. Leverage the FDOT Resilience Action Plan (RAP) to better incorporate resilience into freight planning
2.2. Improve weather resiliency of freight transportation by hardening infrastructure and building redundancies into the system
2.3. Ensure freight-related projects evaluate measures to reduce vulnerability to disruptions
2.4. Support private sector and military freight mobility continuance of operations and disaster relief logistics operations
2.5. Improve supply chain resiliency of critical commodities considering all four phases of emergency management (prepare, respond, recover, and mitigate)

3 *Ensure the Florida Freight system is in a state of good repair*

3.1. Utilize data-driven asset management approach to guide multimodal freight investments
3.2. Optimize the functionality, efficiency, and reliability of existing freight systems
3.3. Incorporate resilience into re-builds and infrastructure improvements
3.4. Preserve and maintain the existing State Highway System (SHS)
3.5. Maximize use of existing and unused facilities and properties for freight development

4 *Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning*

4.1. Support development of intermodal logistics centers/inland ports to increase seaport throughput and improve supply chain efficiencies
4.2. Increase infrastructure capacity at modal hubs as well as to and from key freight clusters around the state
4.3. Improve the convenience and efficiency of connecting between multiple freight modes

5 *Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains*

5.1. Reduce financial, institutional, data, statutory, and regulatory barriers
5.2. Streamline FDOT processes to support supply chain projects that are more dynamic and responsive
5.3. Enhance intergovernmental partnerships for supply chain projects
5.4. Drive strategic investments that support state's multimodal/intermodal freight system vision

6 *Improve first and last mile connectivity for all freight modes*

6.1. Prepare the freight system for emerging urban freight delivery patterns
6.2. Improve freight mobility through operations solutions

7 *Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development*

7.1. Collaborate with public and private sector partners to address workforce development needs, facility conditions, training, and recruitment
7.2. Incorporate freight and logistics planning and engineering into academic curricula of schools, colleges, and universities
7.3. Work with partners to support a statewide manufacturing initiative
7.4. Expand Florida supply chain partnerships

8 *Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture*

8.1. Support manufacturing activities to strengthen domestic supply chain
8.2. Ensure strategic representation of Florida at the national level to help shape federal decisions on trade and logistics
8.3. Develop next-generation freight corridors and intermodal facilities leveraging latest technology and considering multimodal freight demand
8.4. Promote Florida as a freight-friendly state that's open for business

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

9.1. Provide transportation and land use planning guidance to local and regional agencies for economic development and freight efficiencies that support community goals
9.2. Create pipeline of freight projects that are ready immediately upon funding availability
9.3. Preserve corridors for flexible use
9.4. Identify freight impacts on communities and pursue solutions
9.5. Coordinate freight-related plans and programs of the private sector, local agencies, and FDOT Districts for integrated and informed decision-making

10 *Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats*

10.1. Support transportation solutions that enhance Florida's natural resources and wildlife
10.2. Support the development of alternative fuel infrastructure at seaports and intermodal logistics centers, and along major trade corridors
10.3. Ensure freight-related infrastructure projects evaluate measures to reduce the impact on wildlife habitats
10.4. Invest in wildlife protection measures surrounding freight infrastructure

IMPLEMENTATION FRAMEWORK

The strategies established in the FMTP24 can help move the needle on Florida's freight objectives. The strategies can be generalized through the lenses of policies, programs, projects, and partnerships to provide a framework for implementation. Action items for each strategy, along with internal/external partners and suggested time frames can be found in **Technical Memorandum 8**.

POLICIES	PROGRAMS	PROJECTS	PARTNERSHIPS
Funding: Dedicated freight funding is the most important tool to support Florida's freight needs	**ILC and Aggregate programs:** New and revived legislative programs that benefit freight movement need support through policy direction and awareness	**Truck parking:** Revamp existing rest areas to add truck parking capacity and reconfigure the existing ROW to increase truck parking space	**Trade, logistics, and workforce development:** Leverage partnerships to advocate for the state's workforce development needs including pay, conditions, training, and recruitment
Support truck drivers: Hours of Service regulations, driver compensation, and lack of truck parking are hampering an already overburdened industry	**Truck Parking Improvement Program:** Truck parking needs a dedicated funding mechanism and programmatic initiatives	**Bottlenecks:** Use technology, Intelligent Transportation Systems, and innovative techniques to enhance fluidity, throughput, and efficiency	**Local partnership in grant applications:** Work to support local partners in funding their improvements to the transportation network
Guidance: Develop freight corridor design guidelines to incorporate truck routes within complete streets	**Programs that support innovation:** Programs that incorporate new technologies, advanced telecommunications, and resilient energy supplies will be an important part of the larger infrastructure investment to modernize freight movements	**Freight hubs:** Develop inland ports to increase seaport capacity and promote economic development, and increase infrastructure capacity at modal hubs as well as to and from key freight clusters around the state including e-commerce facilities	**Multistate freight corridors:** Improve coordination with adjacent states to facilitate seamless multistate freight corridors
Streamline priority investments: Prioritize and fund projects that are responsive to current market realities and future trends	**Cybersecurity programs:** The threat of cyberattacks is ever increasing, and Florida should ensure it is prepared to secure its supply chains from digital malice	**Safety:** Improve warning and protection at rail-highway grade crossings, and implement counter measures in high truck crash locations	
Loosen restrictions between private and public investments: Regulations placed on P3s hamper the ability to drive innovation in conjunction with industry partners		**Congestion:** Improve truck route signage and social media platforms for truck driver information on roadway conditions	

FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY AND TRADE PLAN

Technical Memorandum 1
Freight Systems & Assets

FDOT

CONTENTS

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LIST OF ACRONYMS

AAR	Association of American Railroads
AFC	Alternative Fuel Corridors
BIL	Bipartisan Infrastructure Law
CBP	Customs and Border Protection
CNG	Compressed Natural Gas
CRFCs	Critical Rural Freight Corridors
CUFCs	Critical Urban Freight Corridors
DEO	Department of Economic Opportunity
DOR	Department of Revenue
EV	Electric Vehicle
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation Act
FDOT	Florida Department of Transportation
FEC	Florida East Coast
FHWA	Federal Highway Administration
FTP	Florida Transportation Plan
FTZ	Foreign Trade Zone
HY	Hydrogen
IIJA	Infrastructure Investment and Jobs Act
ILC	Intermodal Logistics Center
LNG	Liquified Natural Gas
LPG	Liquified Petroleum Gas (Propane)
MAF	Military Access Facilities
MCSAW	Motor Carrier Size and Weight Inspection Stations
MPOs	Metropolitan Planning Organizations
MRO	Maintenance, Repair, and Overhaul
NHFP	National Highway Freight Program
NHFN	National Highway Freight Network
NHS	National Highway System
NMFN	National Multimodal Freight Network
PHFS	Primary Highway Freight System
SHS	State Highway System
SIS	Strategic Intermodal System
STRACNET	Strategic Rail Corridor Network
STRAHNET	Strategic Highway Network
TDA	Transportation Data and Analytics
TTMS	Telemetered Traffic Monitoring Sites

U.S.	United States
USDOT	U.S. Department of Transportation
VMT	Vehicle Miles Traveled
WIM	Weigh In Motion

Introduction

Florida relies on its freight system and assets to ensure the smooth flow of goods and commodities through various transportation modes within the state. This technical memorandum offers a detailed inventory and description of Florida's freight system and assets. Florida's freight transportation system plays a crucial role in meeting diverse transportation needs, facilitating the movement of goods across local, regional, interstate, and international multimodal networks. Therefore, it is essential to gain insights into the features and locations of existing infrastructure throughout the state to analyze trends, identify needs, and address issues in the freight system.

This document provides information on the following:

- National Freight and Freight-Related System Designations
- Statewide Freight and Freight-Related System Designations
- Transportation Assets
- Transportation Hubs
- Major Freight and Freight-Related Industries

National Freight and Freight-Related System Designations

This section provides an overview of all freight and freight-related systems that have been designated by national and federal organizations. These systems are listed below:

- National Highway System (NHS)
- National Highway Freight Network (NHFN)
- Alternative Fuel Corridors (AFC)
- Foreign Trade Zones (FTZ)
- Natural Gas Pipelines
- National Multimodal Freight Network (NMFN)

National Highway System

Definition: The National Highway System (NHS) consists of roadways important to the nation's economy, defense, and mobility. It was developed by the U.S. Department of Transportation (USDOT) in cooperation with state DOT's, local officials, and metropolitan planning organizations (MPOs). Regulatory procedures for the system actions on the NHS are explained in the Code of Federal Regulations (23 CFR 470). The NHS is inclusive of the following subsystems of roadways (note that a specific highway route may be on more than one subsystem):

- *Interstate:* The Eisenhower Interstate System of highways.
- *Other Principal Arterials:* Highways in rural and urban areas that provide access between an arterial and a major port, airport, public transportation facility, or other intermodal transportation facility.
- *Strategic Highway Network (STRAHNET):* Network of highways that are important to the strategic defense policy and provide access, continuity, and emergency capabilities for defense purposes.
- *Major Strategic Highway Network Connectors:* Highways that provide access between major military installations and highways that are part of the STRAHNET.
- *Intermodal Connectors:* Highways that provide access between major intermodal facilities and the other four subsystems making up the NHS.

Importance to Freight: The NHS consists of interconnected urban and rural principal arterials and highways (including toll facilities) that serve major population centers, international border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities, and other major travel destinations. This network also serves interstate and interregional travel. States are encouraged to utilize federal funds for improving the efficiency and safety of this network. Ultimately, the NHS is one of the most important networks in

stimulating and maintaining Florida's economy, as this network carries the heaviest truck traffic linking goods and commerce to and from major population centers and intermodal hubs.

Summary Statistics: Figure 1 depicts the statewide coverage of the NHS. Table 1 lists the mileage of different subsystems of NHS roadways in Florida (note that a specific highway route may be on more than one subsystem). Table 2 provides the centerline mileage, lane mileage, and daily vehicle miles traveled on the Florida portion of the NHS (State Highway System only) for the year 2022.

Table 1 | National Highway Subsystem Mileage (includes State Highway System only)

Subsystems of Roadways	Mileage (as of December 2022)
NHS Mainline (including interstate)	8127.61
NHS Connectors	99.36
NHS Airport Connectors	43.53
NHS Port Connectors	43.42
NHS Amtrak Connectors	3.32
NHS Rail/Truck Connectors	9.08
STRAHNET (includes Interstate)	1974.47
STRAHNET Regular (not Interstate)	366.83
STRAHNET Connector	112.47

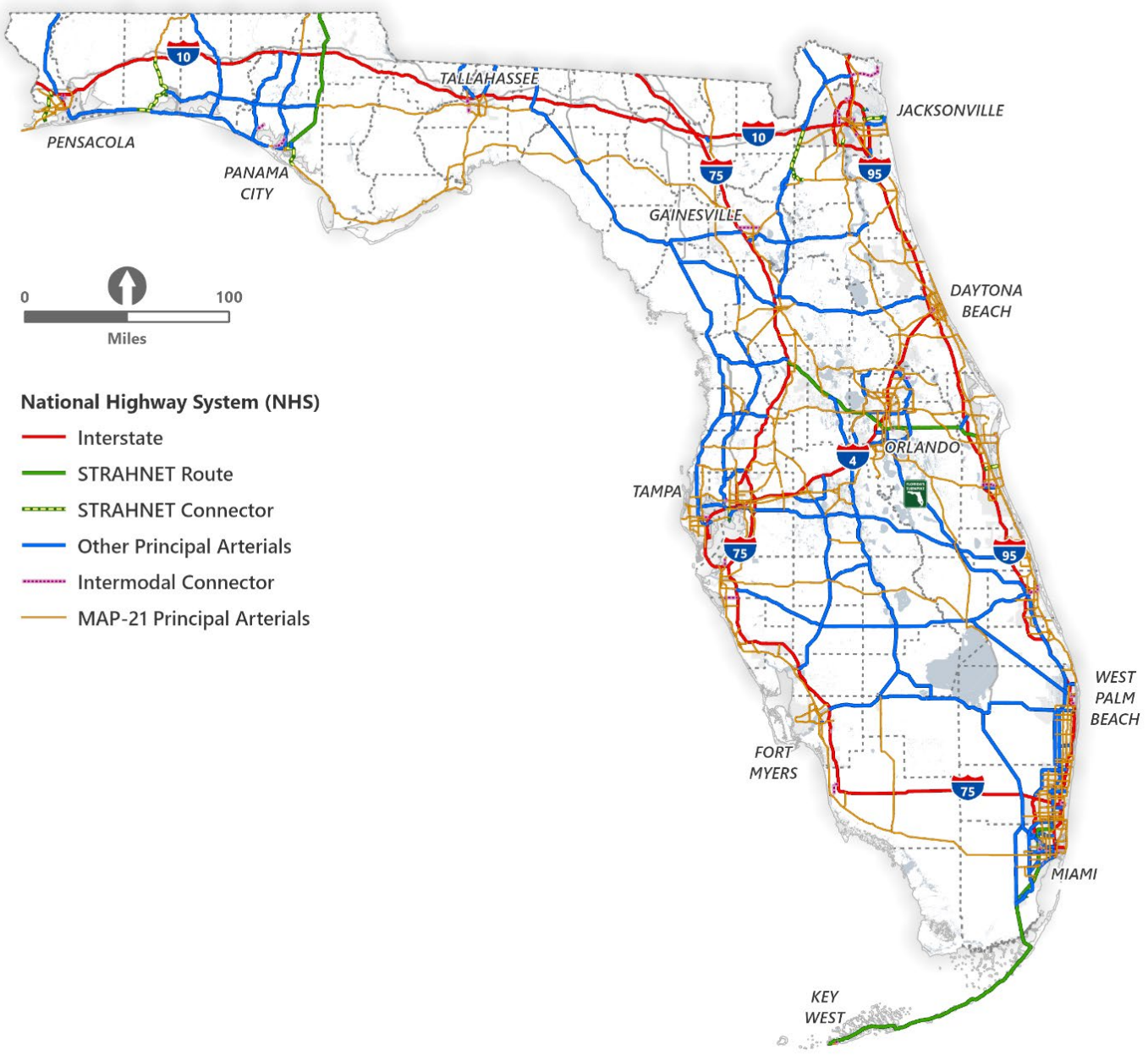
Data Source: *Roadway Characteristics Inventory, 2022*

Table 2 | National Highway System Mileage (includes State Highway System only)

Roadway Classifications	Centerline Miles	Lane Miles	Daily Vehicle Miles Traveled (1000s)
Rural Interstate	717.27	3,590.07	33,319.37
Rural Toll	172.84	674.11	6,559.77
Rural Other	2,558.22	7,456.24	25,644.44
Urban Interstate	777.91	5,174.48	88,421.69
Urban Toll	484.51	2,645.72	37,402.49
Urban Other	3,516.21	15,767.53	116,449.54
Total	**8,226.96**	**35,308.15**	**307,797.30**

Data Source: *Roadway Characteristics Inventory, 2022*

Figure 1 | National Highway System



Data Source: *Roadway Characteristics Inventory, 2022*

National Highway Freight Network

Definition: Under 23 U.S.C. 167(c)(1), the Federal Highway Administration (FHWA) Administrator is required to establish a NHFN to strategically direct Federal resources and policies toward improved performance of the Network. The NHFN includes the following subsystems of roadways:

- *Primary Highway Freight System (PHFS):* Network of highways identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data. The FHWA re-designated the PHFS to meet the statutory requirements of the authorizing law.
- *Other interstate portions not on the PHFS:* these highways comprise the remaining portion of interstate roads not included in the PHFS. These routes provide important continuity and access to freight transportation facilities.
- *Critical Rural Freight Corridors (CRFCs):* Public roadways not in an urbanized area that provide access and connection to the PHFS and the interstate with other important ports, public transportation facilities, or other intermodal freight facilities. States are responsible for designating public roads in their state as CRFCs. In accordance with 23 U.S.C. 167(e), a state may designate a public road within the borders of the state as a CRFC if the public road is not in an urbanized area, and meets criteria outlined in the National Highway Freight Program (NFHP) implementation guidance document.
- *Critical Urban Freight Corridors (CUFCs):* Public roadways in urbanized areas that provide access and connection to the PHFS and the interstate with other ports, public transportation facilities, or other intermodal transportation facilities. Regardless of population, a public road may be designated as a CUFC if it is in an urbanized area and meets criteria outlined in the NHFP implementation guidance document.

Appendix A provides the list of all designated CRFCs, and Appendix B provides the list of all designated CUFCs.

Importance to Freight: This network has assisted Florida in strategically directing resources toward improved system performance for efficient movement of freight on highways, including the NHS, freight intermodal connectors, and aerotropolis transportation systems. The NHFP was established to improve the efficient movement of freight on the NHFN.

Summary Statistics: Figure 2 depicts the statewide coverage of the NHFN. Table 3 lists the mileage of different subsystems of NHFN roadways in Florida.

Table 3 | Statewide Mileages of National Highway Freight Network

Subsystem of Roadways	Statewide Mileages
Primary Highway Freight System (PHFS) Routes	1,644.71
Interstate Not on the PHFS	36.19
Critical Urban Freight Corridors (CUFC)	137.24 (Maximum Limit = 160.07)
Critical Rural Freight Corridors (CRFC)	309.46 (Maximum Limit = 320.14)
Total	**2,127.60**

Data Source: *Federal Highway Administration and Roadway Characteristics Inventory (2023)*

Alternative Fuel Corridor Designations

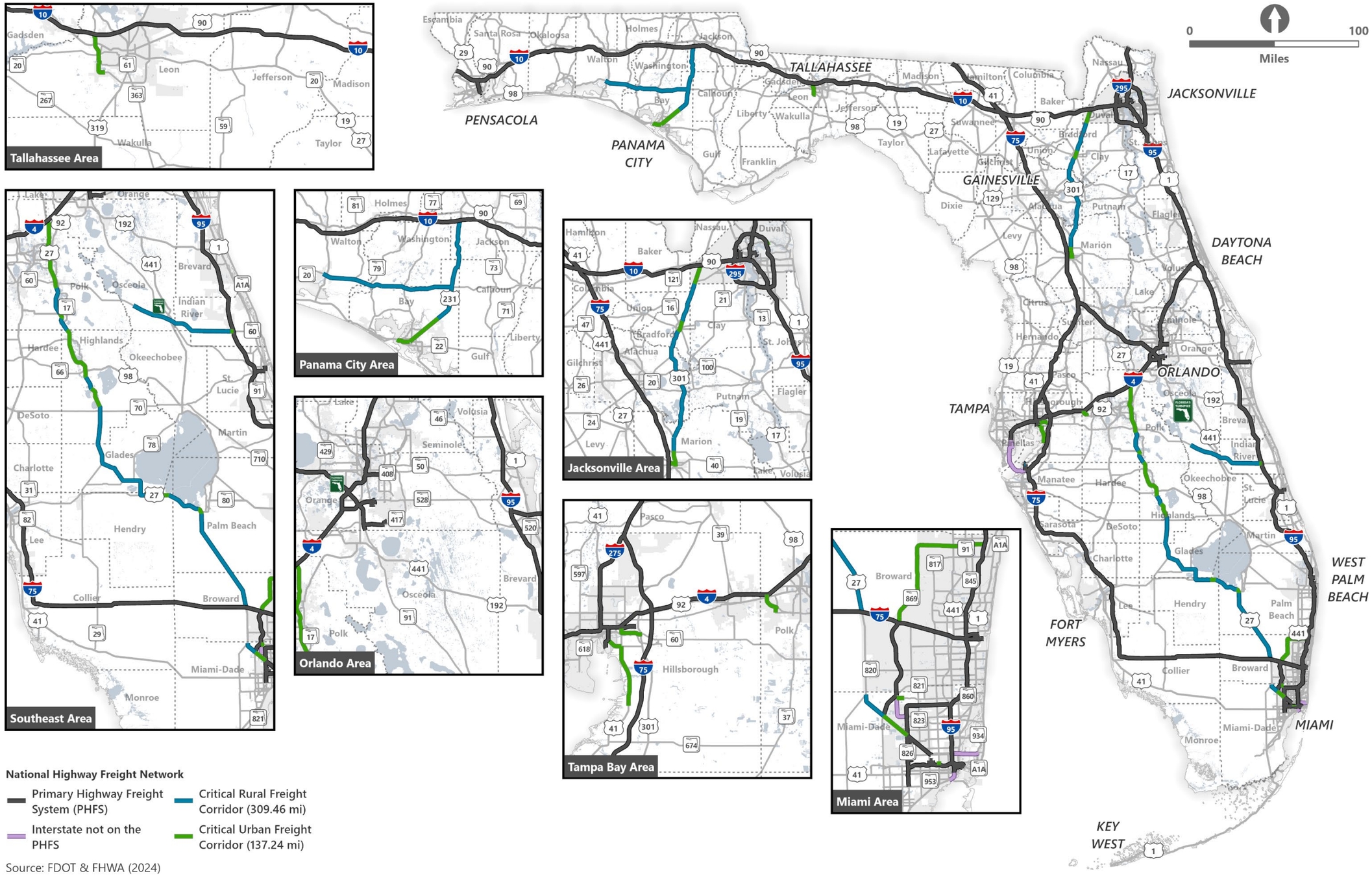
Definition: In accordance with 23 U.S.C. 151, FHWA has designated the Alternative Fuel Corridors to support installation of EV charging, hydrogen, propane, and natural gas fueling infrastructure at strategic locations along major national highways. The FHWA has updated and redesignated the corridors on an annual basis by soliciting nominations from state and local officials. The recurring process responds to the rapidly evolving state of vehicle technology, increased market adoption, and installation of infrastructure related to the use of alternative fuels.

Importance to Freight: The designation of AFCs has grown in importance because it is now tied to funding provisions under the Bipartisan Infrastructure Law (BIL). The BIL was enacted as the Infrastructure Investment and Jobs Act (IIJA), (Public Law 117-58) on November 15, 2021. The BIL established the National Electric Vehicle Infrastructure Formula Program and the Charging and Fueling Infrastructure Discretionary Grant Program, both of which provide eligibility based on AFC designations.

The BIL makes the most transformative investment in EV charging in United States (U.S.) history that will put us on a path to a nationwide network of 500,000 EV chargers that ensures a convenient, reliable, affordable, and equitable charging experience for all users. This national network will:

- Accelerate equitable adoption of EVs, including for those who cannot reliably charge at home.
- Reduce transportation-related greenhouse gas emissions and help put the U.S. on a path to net-zero emissions by no later than 2050.
- Position U.S. industries to lead global transportation electrification efforts and help create family-sustaining union jobs that cannot be outsourced.

Figure 2 | National Highway Freight Network



National Highway Freight Network

- Primary Highway Freight System (PHFS)
- Interstate not on the PHFS
- Critical Rural Freight Corridor (309.46 mi)
- Critical Urban Freight Corridor (137.24 mi)

Source: FDOT & FHWA (2024)

Summary Statistics: Designated corridors in Florida include interstates and major state roads. Figure 3 includes the electric vehicle corridor designations in the state of Florida. Total mileage of Alternative Fuel Corridors designated as corridor pending and corridor ready is 6256.25 miles. The breakdown by alternative fuel type is provided below.

- Compressed Natural Gas (CNG): Corridor pending (1,182.75 miles) and Corridor ready (672.85 miles)
- Electric Vehicle (EV): Corridor pending (5,402.92 miles) and Corridor ready (840.95 miles)
- Liquified Natural Gas (LNG): Corridor pending (971.94 miles) and Corridor ready (114.15 miles)
- Liquified Petroleum Gas (LPG): Corridor pending (903.40 miles) and Corridor ready (476.83 miles)
- Hydrogen (HY): Corridor pending (264.63 miles)

Table 4 provides further details of EV Corridor designations in the state of Florida which are also illustrated in Figure 3.

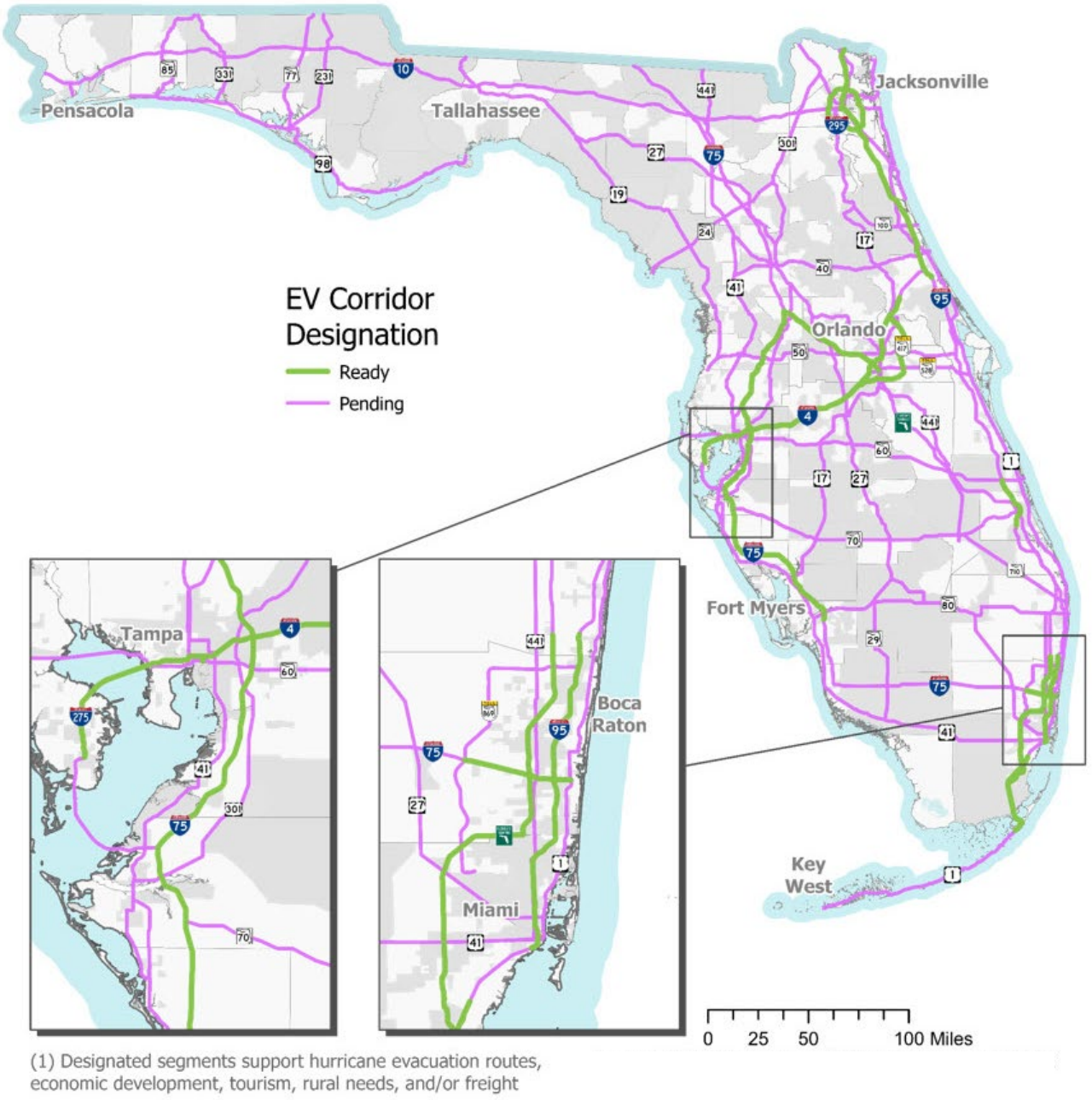
Table 4 | Corridor Pending and Corridor Ready EV Corridors (Round 1-6)

Roadway Name	EV	Mileage
I-10	Signage Pending	361.37
I-110	Signage Pending	6.18
I-275	Signage Pending	36.27
I-275	Signage Ready	28.15
I-295	Signage Ready	59.83
I-4	Signage Pending	18.20
I-4	Signage Ready	114.47
I-595	Signage Ready	13.56
I-75	Signage Pending	281.62
I-75	Signage Ready	200.80
I-95	Signage Pending	184.11
I-95	Signage Ready	197.49
SR 10	Signage Pending	7.75
SR 100	Signage Pending	39.27
SR 105	Signage Pending	38.33
SR 24	Signage Pending	72.12
SR 29	Signage Pending	75.37
SR 40	Signage Pending	91.83
SR 417	Signage Ready	54.09
SR 50	Signage Pending	108.65
SR 528	Signage Pending	46.71
SR 60	Signage Pending	165.69

Roadway Name	EV	Mileage
SR 70	Signage Pending	138.97
SR 710	Signage Pending	56.86
SR 77	Signage Pending	63.07
SR 80	Signage Pending	122.83
SR 821	Signage Ready	47.46
SR 85	Signage Pending	56.66
SR 869	Signage Pending	24.73
SR 91	Signage Pending	178.86
SR 91	Signage Ready	81.74
SR A1A	Signage Pending	50.14
US 1	Signage Pending	787.56
US 1	Signage Ready	43.35
US 17	Signage Pending	327.32
US 19	Signage Pending	163.98
US 231	Signage Pending	66.67
US 27	Signage Pending	495.85
US 301	Signage Pending	269.86
US 331	Signage Pending	49.38
US 41	Signage Pending	447.05
US 441	Signage Pending	391.65
US 98	Signage Pending	177.98

Data Source: *FHWA Designation of AFC Corridors as of 7/5/22*

Figure 3 | Round 1-6 Electric Vehicle Corridor Designations



(1) Designated segments support hurricane evacuation routes, economic development, tourism, rural needs, and/or freight

Data Source: *FHWA Designation of AFC Corridors as of 7/5/22*

Foreign Trade Zones

Definition: A Foreign Trade Zone (FTZ) is a secure area under the supervision of the Bureau of Customs and Border Protection (CBP). FTZs are considered outside the customs territory of the United States for the purposes of payment of duty. The authority for establishing zones is granted by the Foreign Trade Zone Board, under the Foreign-Trade Zones Act of 1934, as amended (19 U.S.C. 81a-81u). The Foreign-Trade Zones Act is administered through two sets of regulations, the FTZ Regulations (15 CFR Part 400) and CBP Regulations (19 CFR Part 146).

Importance to Freight: FTZs are vital for freight and international trade due to their role in duty deferral, streamlined customs procedures, and inventory management. FTZs enhance supply chain efficiency, benefiting businesses with cost savings and faster processing times. They serve as distribution hubs, improve global trade expansion, and can lead to job creation in logistics and related sectors.

Summary Statistics:[1]

- Florida has the 2nd largest FTZ Network in the United States.
- Florida is ranked 6th in the U.S. for exports ($) and 15th for merchandise received ($).
- For warehouse and distribution activity Florida is ranked 3rd in the U.S. for exports ($) and 11th for merchandise received ($).
- For production activity, Florida is ranked 10th in the U.S. for exports ($) and 17th for merchandise received ($).
- For warehouse and distribution activity ($) Palm Beach County (Zone 135) is ranked 10th, Miami-Dade County (Zone 281), is ranked 11th, Broward County (Zone 25) is ranked 12th, and Fort Lauderdale (Zone 241) is ranked 20th out of all zones in the U.S. for exports.
- The major products by value include pharmaceuticals (30%), ships/boats (19%), oil/petroleum (12%), vehicles (11%), and textiles/footwear (5%).

[1] 79th Annual Report of the Foreign-Trade Zones Board to the Congress of the United States

Table 5 provides the list of Foreign Trade Zones in the state. Figure 4 provides the locations.

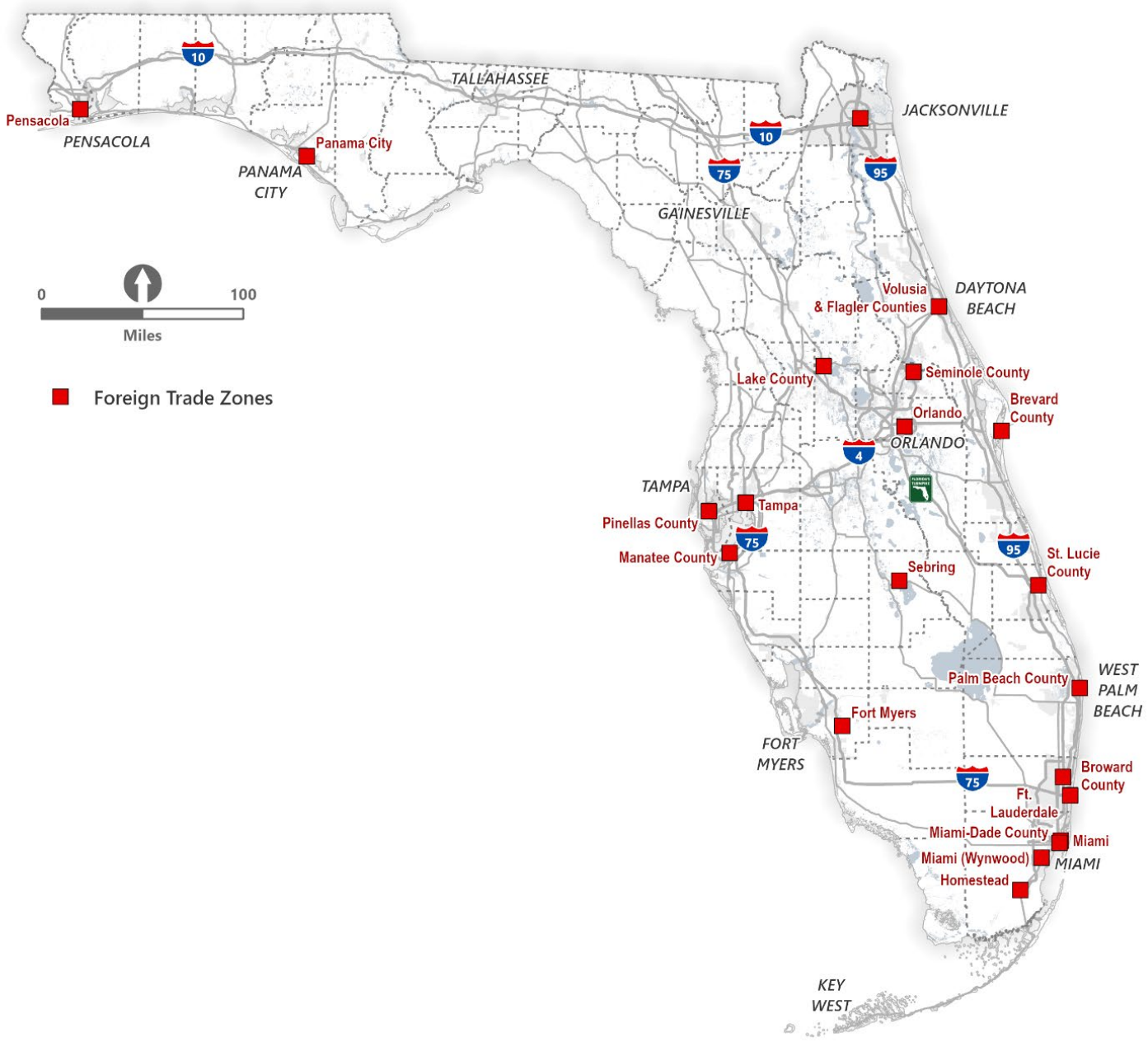
Table 5 | Florida's Foreign Trade Zones

Foreign Trade Zones (FTZ) Number	Merchandise Received	Exports	Employees
FTZ No. 25 Broward County	$1,000-5,000 Mil	$1,000-5,000 Mil	501-750
FTZ No. 32 Miami	$500-750 Mil	$250-500 Mil	751-1,000
FTZ No. 42 Orlando	$500-750 Mil	$100-250 Mil	751-1,000
FTZ No. 64 Jacksonville	$1,000-5,000 Mil	$100-250 Mil	1,501-2,000
FTZ No. 65 Panama City	$100-250 Mil	$0 -0.5 Mil	1,251-1,500
FTZ No. 79 Tampa	$500-750 Mil	$5-10 Mil	251-500
FTZ No. 135 Palm Beach County	$1,000-5,000 Mil	$1,000-5,000 Mil	251-500
FTZ No. 136 Brevard County	$500-750 Mil	$250-500 Mil	151-250
FTZ No. 166 Homestead	$0	$0	0
FTZ No. 169 Manatee County	$0	$0	0
FTZ No. 180 Miami (Wynwood)*	NA	NA	NA
FTZ No. 193 Pinellas County	$1,000-5,000 Mil	$100-250 Mil	1,501-2,000
FTZ No. 198 Volusia and Flagler County	$0	$0	0
FTZ No. 213 Fort Myers	$100-250 Mil	$1-5 Mil	1-25
FTZ No. 215 Sebring	$0	$0	0
FTZ No. 218 St. Lucie County	$0	$0	0
FTZ No. 241 Fort Lauderdale	$500-750 Mil	$250-500 Mil	251-500
FTZ No. 249 Pensacola	$750-1,000 Mil	$0	251-500
FTZ No. 250 Seminole County	$25-50 Mil	$0-0.5 Mil	1-25
FTZ No. 281 Miami-Dade County	$1,000-5,000 Mil	$1,000-5000 Mil	1,251-1,500
FTZ No. 292 Lake County*	$0	$0	0

Data Source: *Foreign Trade Zone Board, 2021*

**Not included in the 83rd Annual Report of the Foreign-Trade Zones Board to the Congress of the United States*

Figure 4 | Foreign Trade Zones in Florida

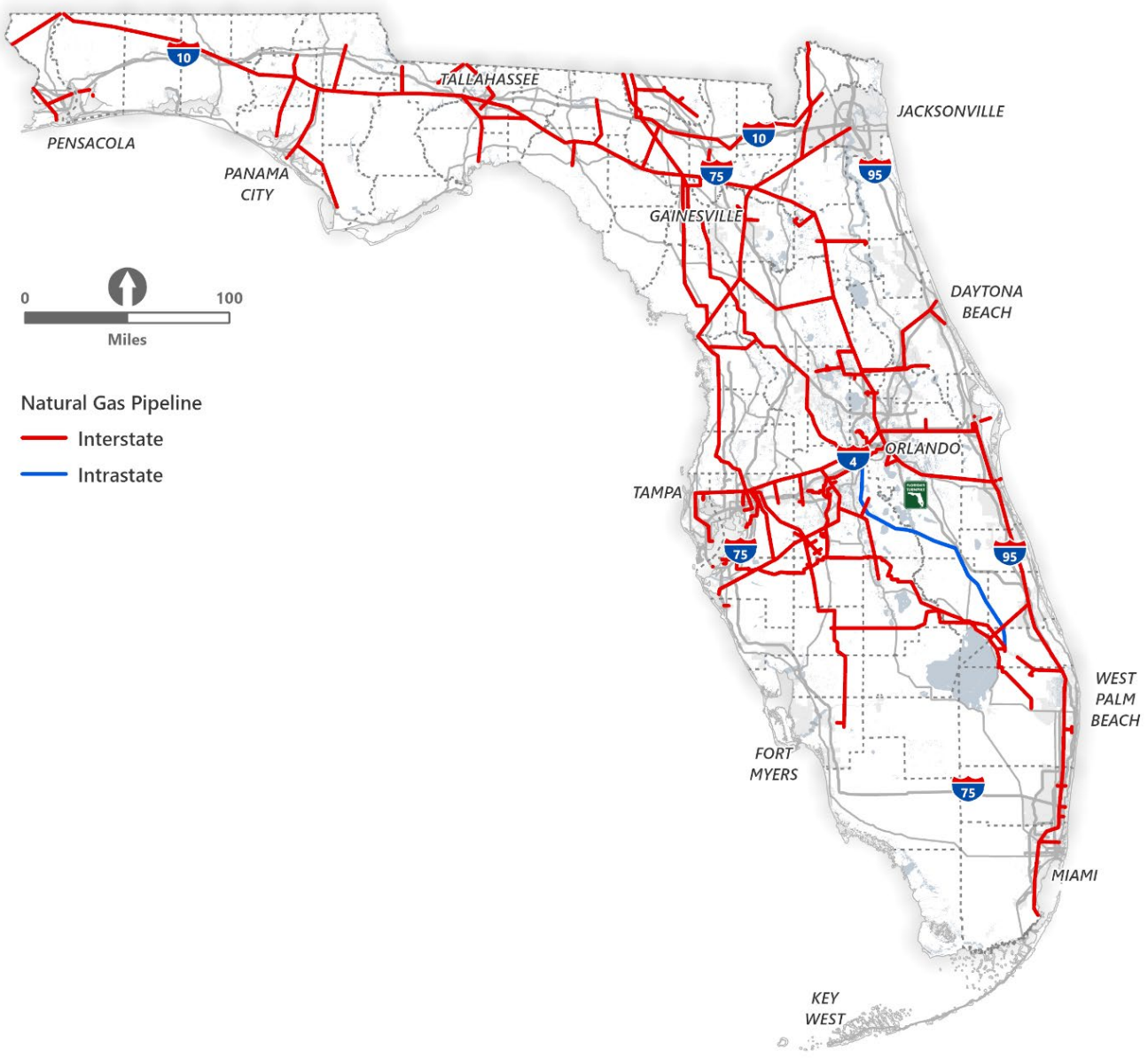


Data Source: *Foreign Trade Zone Board, 2021*

Natural Gas Pipelines

The natural gas transmission pipelines in the U.S. are highlighted in Figure 5 below. This map does not depict the offshore natural gas pipeline to Florida called the Gulfstream Natural Gas Pipeline. It transports natural gas from the Mobile Bay area of the Gulf of Mexico to Florida.

Figure 5 | Florida's Natural Gas Interstate and Intrastate Pipelines



Data Source: *U.S. Energy Atlas (as of January 9, 2023)*

National Multimodal Freight Network (NMFN)

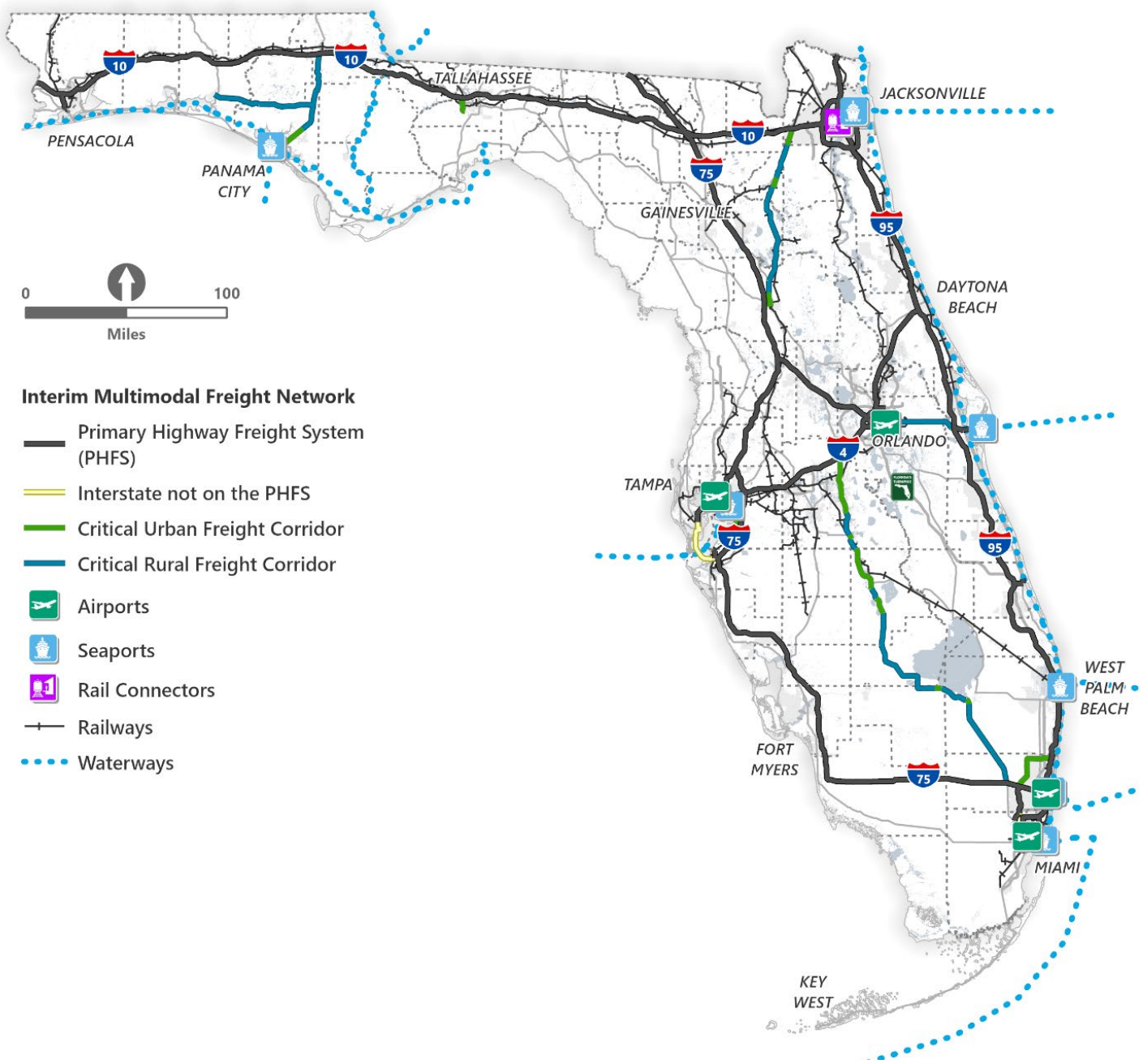
Definition: The Interim National Multimodal Freight Network (Interim NMFN) is based on the statutory requirements identified in 49 U.S.C. 70103(b)(2) and includes the NHFN, the freight rail system of Class I railroads, the public ports of the U.S. that have total annual foreign and domestic trade of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

Importance to Freight: 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.
- Assess and support federal investments to achieve the national multimodal freight policy goals and the National Highway Freight Program goals.

Summary Statistics: Figure 6 provides the statewide information for the Interim NMFN. **It is important to note that the NMFN has not been updated since 2015-16**.

Figure 6 | Interim National Multimodal Freight Network (Florida)



Data Source: *Florida Freight and Mobility Trade Plan (2020)*

Statewide Freight and Freight Related System Designations

This section provides an overview of all freight and freight-related systems or classifications that have been designated by the state of Florida. These systems are listed below:

- Strategic Intermodal System (SIS)
- Functional Classification
- State Highway System (SHS)
- Rail Network
- Intermodal Logistics Centers (ILCs)

Strategic Intermodal System

Definition: The Strategic Intermodal System (SIS) is Florida's high priority network of transportation facilities most important to the state's economy and mobility. The Governor and Legislature established the SIS in 2003 to focus the state's transportation resources on the facilities most significant for interregional, interstate, and international travel. The SIS is the state's highest priority for transportation capacity investments and a primary focus for implementing the Florida Transportation Plan (FTP), the state's long-range transportation vision and policy plan. SIS facilities are designated using objective criteria and thresholds related to high levels of people and goods movement. Facilities that do not yet meet the established criteria and thresholds but demonstrate that they will meet the criteria in the future are designated as "Strategic Growth."

Hubs: Airports, seaports, spaceports, passenger terminals, freight rail terminals, and passenger rail and intercity bus terminals serving to move people or goods between Florida's regions or between Florida and other national or global markets.

Corridors: Highways, rail lines, waterways, and other exclusive-use facilities connecting major markets within the state or between Florida and other states and countries.

Intermodal Connectors: Highways, rail lines, waterways, and local public transit systems serving as connectors between hubs and corridors, or between hubs and other hubs.

Military Access Facilities (MAF): Highways or rail lines linking SIS corridors to the state's strategic military installations.

Importance to Freight: The SIS is a statewide network of high priority transportation facilities that seamlessly flows from one mode to the next with the goal of providing the highest degree of mobility for people and goods traveling throughout Florida. The SIS plays a vital role in achieving Florida's goal of enhancing economic competitiveness and improving the quality of life for its citizens and visitors. The SIS was established in Florida Statutes to focus resources on transportation facilities of statewide and interregional significance.

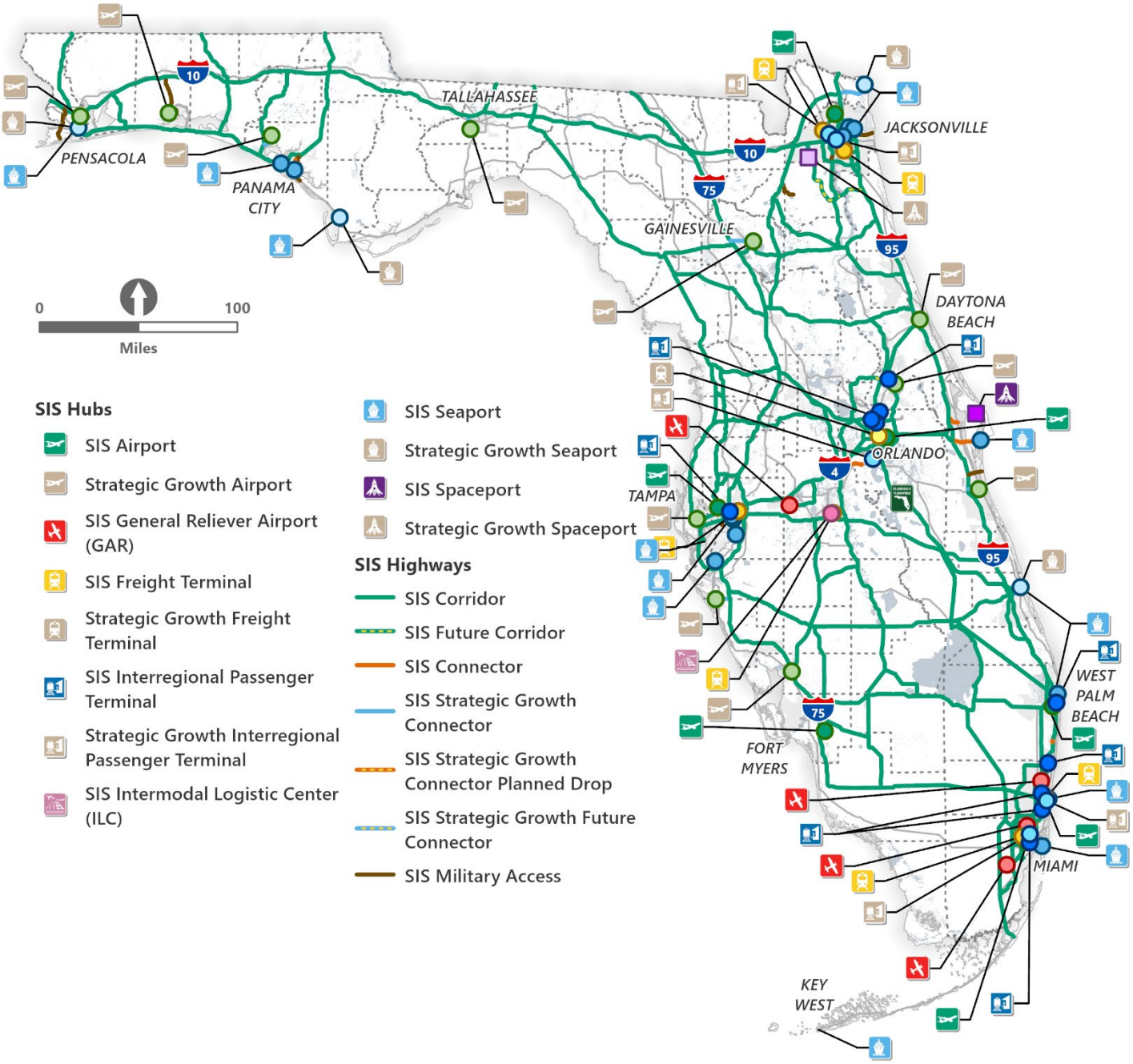
Summary Statistics: Figure 7 and Table 6 depict the statewide coverage of SIS network designations that include the SIS and strategic growth SIS network (freight only).

Table 6 | Statewide Statistics of Strategic Intermodal System

Statewide Mileage		Statewide Hubs	
Highways		**Airports**	
SIS Highway Corridor	4362	SIS Airport	7
SIS Highway Connector	108	Strategic Growth Airport	11
Strategic Growth Highway Connector	93	SIS General Aviation Reliever	4
Future SIS Highway Corridor	53	***Total SIS Airport Designations***	***22***
Future Strategic Growth Highway Connector	6	**Freight Terminals**	
Military Access Facility	57	SIS Freight Terminal	7
Total SIS Highway Miles	***4679***	Strategic Growth Freight Terminal	1
Railroads		***Total SIS Freight Rail Terminal Designations***	***8***
SIS Railroad	1785	**Intermodal Logistic Centers**	
Strategic Growth Railroad	399	Strategic Growth ILC	1
SIS Railroad Connector	115	***Total SIS ILC Designations***	***1***
Strategic Growth Railroad Connector	126	**Seaports**	
Future SIS Railroad	6	SIS Seaport	8
Total SIS Railroad Miles	***2431***	Strategic Growth Seaport	4
Waterways		***Total SIS Seaport Designations***	***12***
SIS Waterway	893	**Spaceports**	
Strategic Growth Waterway	6	SIS Spaceport	1
SIS Waterway Connector	166	Strategic Growth Spaceport	1
Future SIS Waterway Connector	14	***Total SIS Spaceport Designations***	***2***
Total SIS Waterway Miles	***1079***		

Data Source: ***FDOT, SIS Atlas (2024)***

Figure 7 | Florida's Strategic Intermodal System



Data Source: *Florida Department of Transportation, Strategic Intermodal System (2024)*

Functional Classification

Definition: Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the service they are intended to provide. Five functional classification categories are common to rural and urban roads. The rural or urban designation is part of the complete functional classification designation. The procedure is developed by the Florida Department of Transportation (FDOT). The roads are classified in the following categories:

- Principal Arterial (Urban and Rural)
- Minor Arterial (Urban and Rural)
- Major Collector (Urban and Rural)
- Minor Collector (Urban and Rural)
- Local (Urban and Rural)

Importance to Freight: The significance of these functional classifications lies in their integration into key designations such as NHS, SIS, and other major categories, as many of the primary road types within the functional classification system are included.

Summary Statistics: Table 7 and Figure 8 depict the coverage of the functional classification system for the state.

Table 7 | Florida's Functional Classification Mileages (2022)

Roadway Classifications	Centerline Mileage	Lane Miles	Daily VMT (1000s)
Rural Principal Arterial	3,486.5	11,805.0	65,954.7
Rural Minor Arterial	1,761.5	3,643.2	8,791.7
Rural Major Collector	406.3	816.5	1,135.8
Rural Minor Collector	0.4	0.8	3.6
Urban Principal Arterial	4,796.2	23,760.1	243,215.1
Urban Minor Arterial	1,493.6	4,958.4	29,368.0
Urban Total Collector	162.3	386.2	1,608.7
Total	**12,106.8**	**45,370.2**	**350,077.6**

Data Source: *Florida Department of Transportation, Roadway Characteristics Inventory (2022)*

Figure 8 | Roadway Functional Classification

Data Source: *Florida Department of Transportation, Roadway Characteristics Inventory (2022)*

State Highway System

Definition: The State Highway System (SHS) includes roadways under the jurisdiction of the FDOT, state-chartered expressway authorities, and other state agencies. Per F.S. 335.02, FDOT, state-chartered expressway authorities, and other state agencies have the authority to designate roads as part of the SHS. The procedure and handbooks are developed by the FDOT.

Importance to Freight: By designating through the SHS, Florida is able to maintain and monitor its roadways for an efficient, reliable, and safe system that ensures mobility of people and goods.

Summary Statistics: Table 8 provides the centerline mileage, lane mileage, and daily vehicle miles traveled on SHS for 2022.

Table 8 | Florida's State Highway System Mileages (2022)

Subsystems	Centerline Mileage	Lane Miles	Daily VMT (1000s)
Interstate - Rural	717.3	3,590.1	33,319.4
Toll - Rural	198.4	752.8	6,954.3
Other - Rural	4,754.9	11,981.0	35,903.7
Interstate - Urban	778.0	5,174.5	88,421.7
Toll - Urban	517.8	2,773.0	37,992.3
Other - Urban	5,191.3	21,245.5	147,964.6
Total	**12,157.5**	**45,516.8**	**350,556.05**

Data Source: *Florida Department of Transportation, Roadway Characteristics Inventory (2022)*

State Rail Network

As per the Association of American Railroads (AAR), in 2021, Florida ranked 23rd in the country for total number of railroads (16 freight railroads), and ranked 25th in the country for railroad mileage (with 2,700+ miles of mainline railroads). Railroads are classified based on their annual operating revenues. The class to which a carrier belongs is determined in accordance with the following revenue thresholds:

- **Class I:** Carriers having annual operating revenues of $943,898,958 or more after applying the railroad revenue deflator formula.
- **Class II:** Carriers having annual operating revenues of less than $943,898,958 but in excess of $42,370,575 after applying the railroad revenue deflator formula.
- **Class III:** Carriers having annual operating revenues of $42,370,575 or less after applying the railroad revenue deflator formula.

Florida's freight rail system is operated by two Class I railroads (CSX Transportation, and Norfolk Southern Corp.), one Class II railroad, and multiple Class III railroads that are further categorized as switching and terminal railroads or short lines. Florida has 3,858 miles of railroads, including

CSX as the largest railroad in the state. The Florida East Coast (FEC) is the second largest railroad owner, although some mileage is operated by a short line. Table 9 and Figure 9 provide the statewide mileages and statewide coverage of the rail network.

Table 9 | Statewide Mileages of the Florida Rail Network

Subsystem of Railroads	Statewide Mileages
CSX Transportation	1,627.5
Norfolk Southern Railway	126.2
Central Florida Rail Corridor (CFRC)	64.2
South Florida Regional Transportation Authority (Tri Rail)	71.6
Florida East Coast Railway	562.2
Class III rail lines	1,405.8
Total Mileage	**3,858.0**

*Includes mainline, siding, spur, connector, yard, and storage miles. Route miles shown elsewhere refer to aggregate length, excluding yard tracks, sidings, and parallel lines.

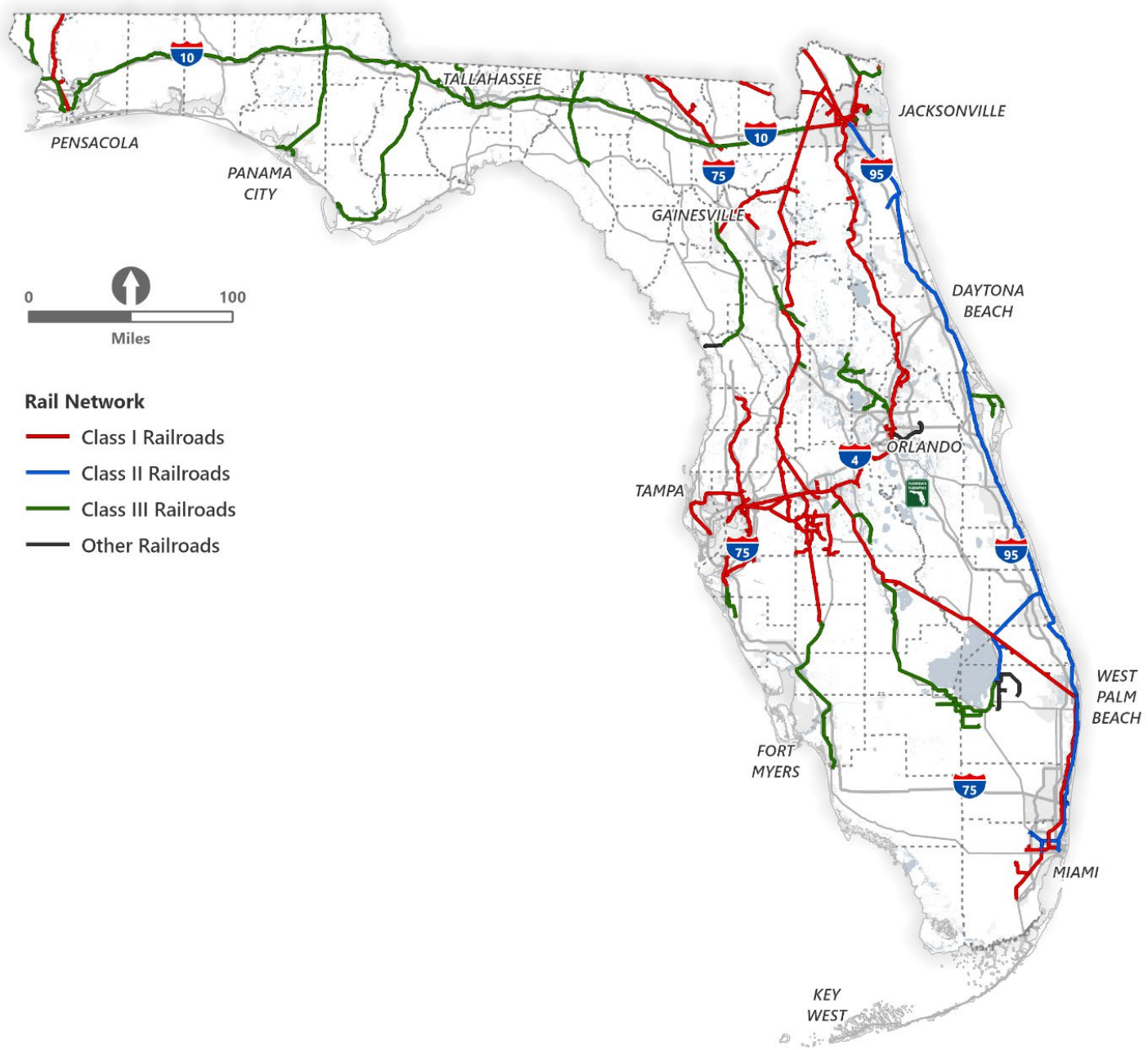
**Includes switching, terminal, private operators, and US Government.

Data Source: *FDOT Freight & Rail Office, Florida Rail System Plan (2022)*

As per the 2022 Florida Rail System Plan, there was a total of 5,324 at-grade highway-rail crossings in Florida. Of these, 4,025 at-grade crossings are on public roads with the remaining considered private crossings. There are 2,952 at-grade crossings with active warning devices and 1,846 at-grade crossings with passive warning devices.

The Strategic Rail Corridor Network (STRACNET) is another designated rail network that is important to the U.S. strategic defense policy, and which provides access, continuity, and emergency capabilities for defense purposes.

Figure 9 | Florida's Statewide Rail Network



Data Source: *FDOT Freight & Rail Office, Florida Rail System Plan (2022)*

Intermodal Logistics Centers

Definition: According to Section 311.101(2), F.S.: the term "intermodal logistics center (ILC)" means a facility or group of facilities serving as a point of intermodal transfer of freight in a specific area physically separated from a seaport where activities relating to transport, logistics, goods distribution, consolidation, or value-added activities are carried out and whose activities and services are designed to support or be supported by conveyance or shipping through one or more seaports listed in S. 311.09, F.S.

Currently, the Central Florida Intermodal Logistics Center is designated as SIS ILC-Strategic growth.

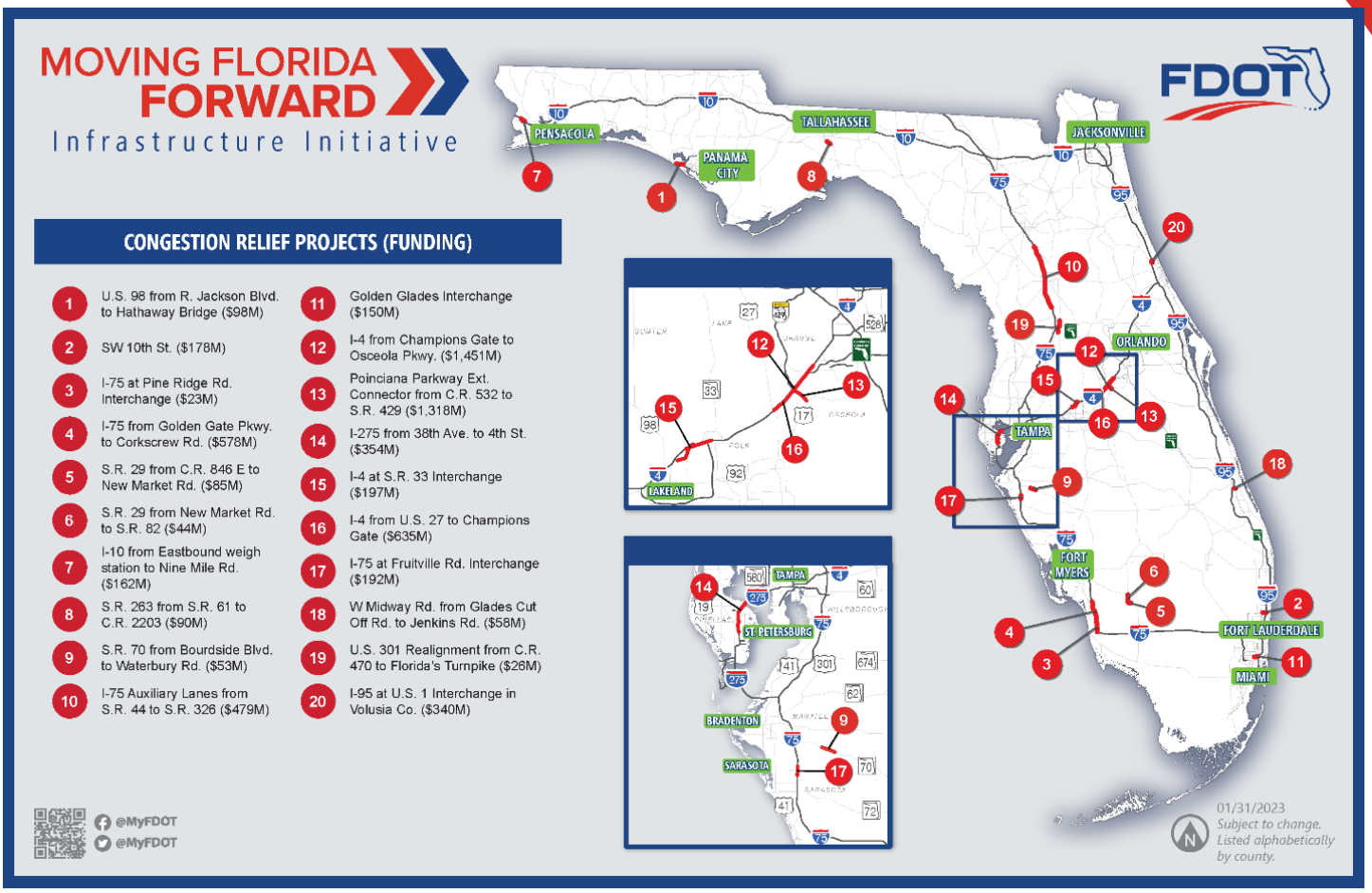
Moving Florida Forward Infrastructure Initiative

On January 30, 2023, Governor DeSantis announced Moving Florida Forward, a bold and historic infrastructure initiative. This investment prioritizes $4 billion towards the state's transportation infrastructure to directly and immediately address congestion relief and perpetual safety on roadways, support resiliency in existing and future projects, and maintain the FDOT as a national leader in transportation technology, all while supporting a robust and active supply chain.

As the state continues to experience rapid population and tourism growth, the Moving Florida Forward infrastructure initiative will focus on critical improvements to ensure that transportation infrastructure can meet the demands of current and future residents and visitors, including investments to major interstates and arterial roadways to ensure people and goods can move safely. As Florida's population is projected to grow by an average of about 600 people every day over the next 30 years – with some areas of the state currently experiencing more than 20 percent growth rates – the Moving Florida Forward proposal will help relieve congestion, enhance safety, facilitate trade, promote economic growth, and provide a more resilient transportation infrastructure. Resiliency is critical to the integrity of roadways and corridors, especially during severe weather events such as hurricanes.

In addition to the priority projects included in the Moving Florida Forward infrastructure initiative, FDOT remains committed to simultaneously delivering projects in the existing FDOT Five-Year Work Program, which is funded by the Department's annual budget. More information on Moving Florida Forward, including a statewide map and corresponding list of proposed projects, can be found below.

Figure 10 | Moving Florida Forward Infrastructure Initiative



Data Source: *Moving Florida Forward Infrastructure Initiative*

Multimodal Critical Rural Freight Corridors and Facilities

The multimodal critical rural freight corridors and facilities are identified in multiple national and statewide designations as identified below:

- National Highway Freight Network (Figure 2)
- Interim National Multimodal Freight System (Figure 6)
- Strategic Intermodal System (Figure 7)

Transportation Assets

In addition to national and state designated systems, Florida has a wide array of transportation assets that enable the movement of goods and services to help stimulate and support Florida's freight economy. Investment in transportation assets is essential to building and maintaining these critical resources. The transportation assets listed below are detailed in this document:

- All public roadways
- Bridges
- Weigh In Motion (WIM) and Telemetered Traffic Monitoring Sites (TTMS) maintained by FDOT's Transportation Data and Analytics (TDA) Office, Agricultural Inspection Stations, and Motor Carrier Size and Weight Inspection Stations (MCSAW)
- Truck Parking Supply
- Transportation Hubs
- Freight Intensive Areas

All Public Roadways

The following is a summary of the existing public road mileage in Florida as required by Section 402 c of Title 23, United States Code. From 2021 to 2022 there has been an increase of 164 miles of public roadways across Florida. Table 10 provides a breakdown of mileages for different roadway system ownership. To date, most population centers are linked by paved roadways and virtually all economic hubs are connected by major highways. Figure 11 provides annual trends for centerline mileage, lane miles, and daily vehicle miles traveled from 1991 to 2022. Trends indicate that Vehicle Miles Traveled (VMT) has grown at a higher rate than the increased capacity provided by FDOT investments.

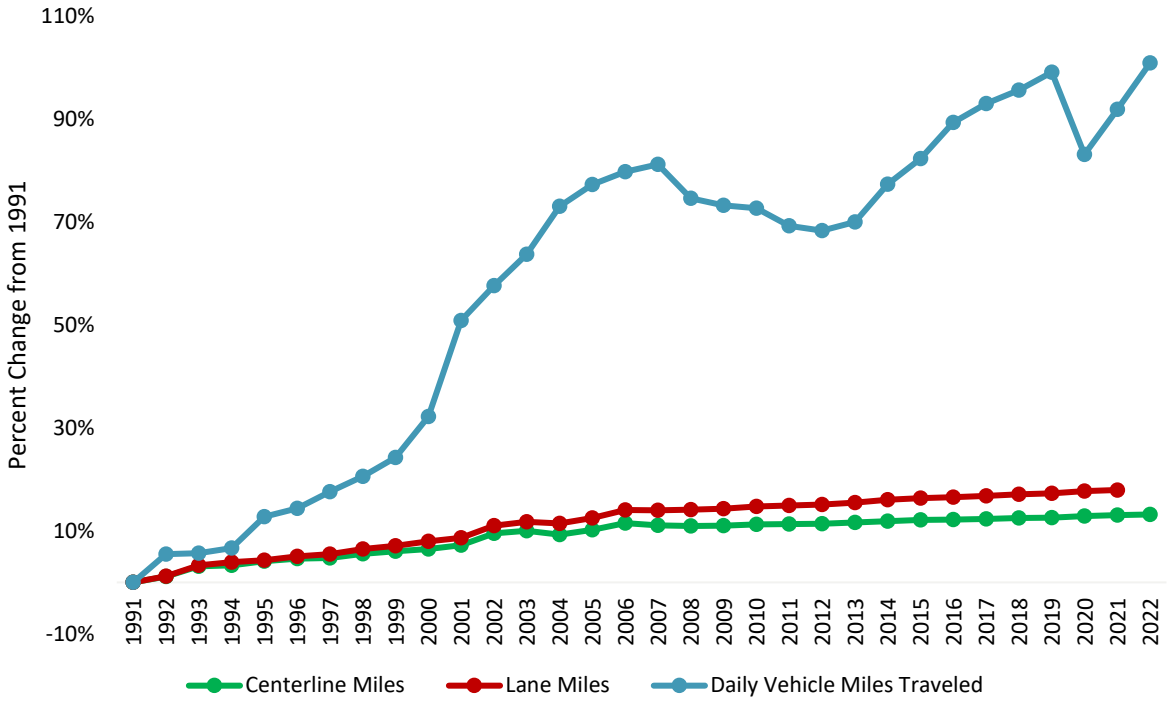
Table 10 | Certified Public Roadway Mileage (2022)

Roadway System Ownership	Miles
State Highway System	12,157.5
County Road System	70,699.3
City Street System	38,672.7
Bureau of Indian Affair Roads	183.6
Indian Nation Roads	28.9
Bureau of Land Management Roads	0.9
USDA Forest Service Roads	1,246.2
National Park Service Roads	189.0
U.S. Army Corps of Engineers Roads	32.2
U.S. Army Roads (other)	6.5
U.S. Department of Defense Roads (Excluding Army)	415.0

Roadway System Ownership	Miles
U.S. Fish and Wildlife Service Roads	124.5
National Aeronautics and Space Administration Roads	60.0
Total Mileage	**123,816.3**

Data Source: *Florida Department of Transportation, Florida Certified Public Roadway Mileage (2022)*

Figure 11 | Percent Change in Centerline Miles, Lane Miles, and Daily Vehicle Miles Traveled (Base Year: 1991)



Data Source: *Florida Department of Transportation, Transportation Data and Analytics (2022)*
**Lane miles for 2022 is not available yet.*

Bridges

Bridges are a key component of Florida's transportation assets. Maintaining their integrity is critical for the safe and efficient travel of freight across transportation networks. As per the 2022 Annual Florida Bridge Inventory report, there are more than 12,000 bridges in the state of Florida. Table 11 provides the number of bridges owned by different entities/agencies.

Table 11 | Number of Bridges by Ownership

Maintenance Responsibility	Number of bridges
Florida Department of Transportation	7,152
County	3,957
City/Town	1,292
Other State	174
Other Local	86
Federal	4
Others	84
Total	**12,749**

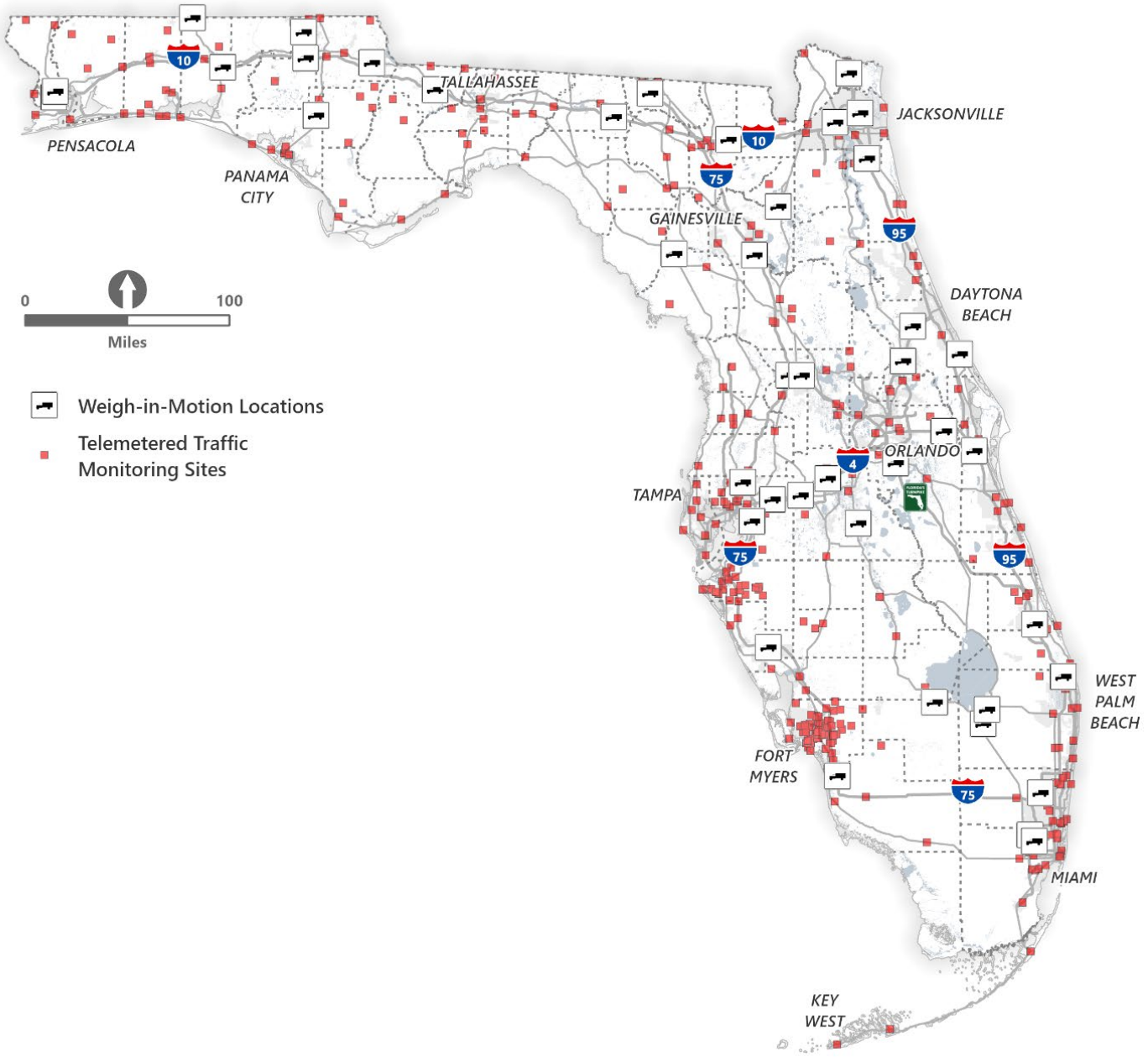
Data Source: Office of Maintenance, Fiscal Year Annual Bridge Inventory Report (2022)

Weigh in Motion, Telemetered Traffic Monitoring Sites, Agricultural Inspection Sites, and Motor Carrier Size and Weigh Stations

Information on the truck traffic volume, truck weight, and truck cargo that traverses Florida's transportation system is essential to understanding existing travel conditions and maintaining the safe passage of trucks and cargo across Florida's roadways. Florida coordinates truck volume data collection via several state and local entities tasked with monitoring the flow of traffic along essential public roadways. The state oversees the protection of Florida's agricultural commerce by inspecting trucks carrying agricultural products. Additionally, the state maintains the safe condition of highways and bridges by ensuring truck weight and dimension compliance.

The TDA office coordinates the collection of traffic data on all state highways and many highways not on the SHS. Depending on location, traffic data may include daily counts, vehicle classification, speeds, weight, and direction. The TDA office operates a network of more than 350 continuous traffic monitoring sites for daily transmittal of data. The TDA office also coordinates the collection of short-duration traffic studies at thousands of sites by FDOT District personnel. Figure 12 depicts the coverage of TDA continuous traffic monitoring sites (WIM and TTMS) across the state of Florida.

Figure 12 | TDA WIM and TTMS Sites



Data Source: *Florida Department of Transportation, Transportation Data and Analytics (2022)*

The Florida Department of Agriculture and Consumer Services' Office of Agricultural Law Enforcement operates 23 agricultural inspection stations to protect Florida's agriculture and ensure a safe food supply. An agricultural inspection station is located on every paved highway going into and out of the state. These stations are operated 24 hours a day, 365 days a year and are expected to monitor all agricultural commerce traversing via truck into and out of Florida. They are staffed by law enforcement officers whose main duty is to prevent plant and animal pests, diseases, and unsafe food from entering Florida. Trucks, rental trucks, vans, trailers, and any vehicles carrying agricultural, horticultural, or livestock products must stop at an inspection station. It is important to note that Florida partners with two bypass services, PrePass and Drivewyze PreClear, to provide qualified commercial carriers with the opportunity to bypass agricultural inspection sites. FDOT's MCSAW stations fulfill their mission of providing a safe transportation system by performing commercial vehicle size and weight enforcement. The primary purpose of the MCSAW weight enforcement program is to protect Florida's highway system and bridges from damage caused by overweight vehicles. Vehicles are weighed at its 20 fixed weigh station locations and mobile enforcement with portable scales statewide. Over 20 million vehicles are weighed annually.

Truck Parking Supply

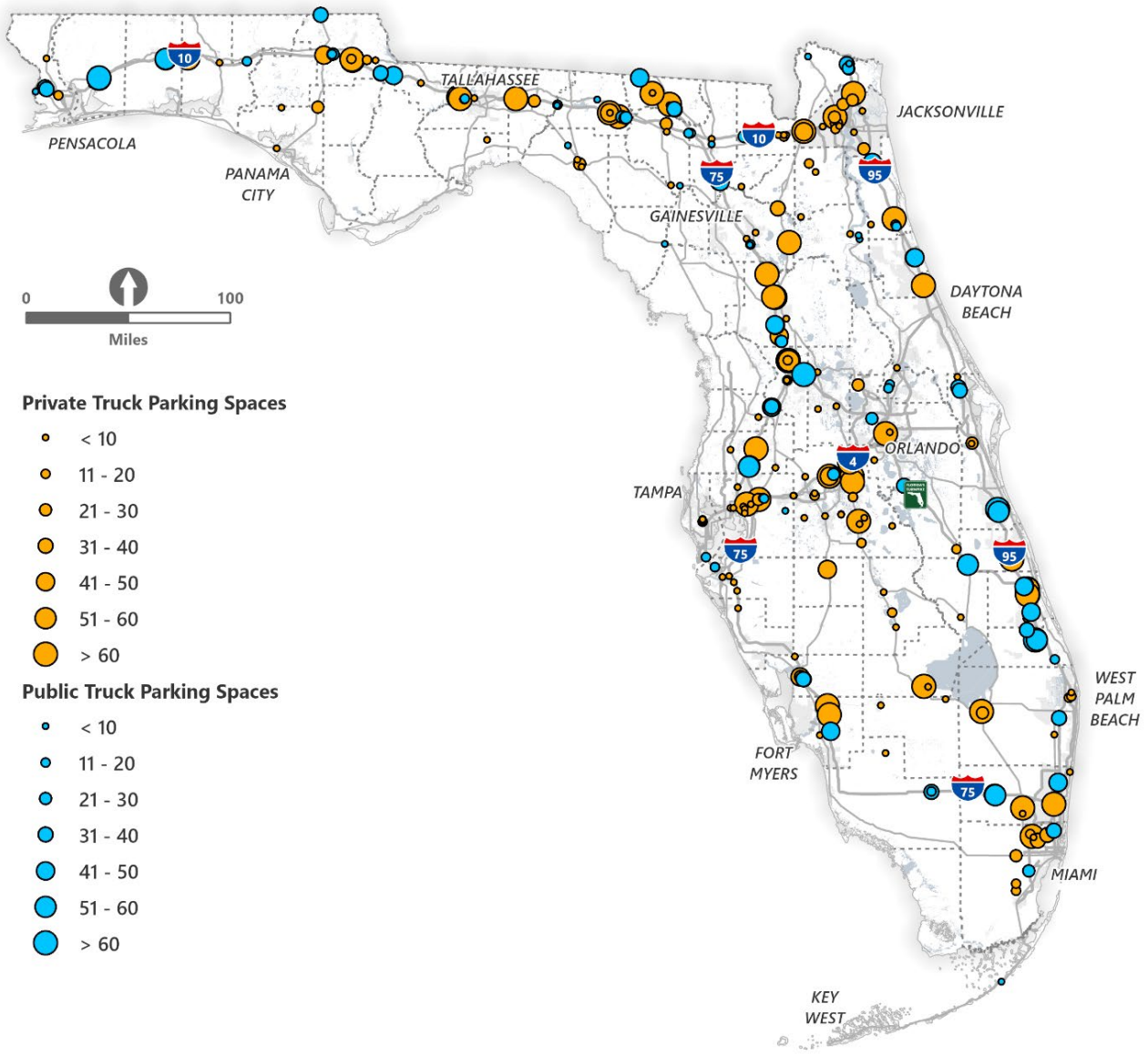
According to a 2019 study conducted by the TDA office, a total of 298 truck parking locations exist across the state – a third of these locations are publicly-owned facilities (98) and the remaining facilities are privately-owned (200). Out of a total of 10,093 truck parking spaces estimated in the state, around 30 percent of these spaces are located at publicly owned facilities (3,028) and the remaining 70 percent are privately-owned facilities (7,065). These truck parking supply statistics indicate that privately-owned facilities are responsible for most of the truck parking supply in Florida. Table 12 shows the supply information for every District. Figure 13 provides a statewide coverage of all truck parking locations identified in the study.

Table 12 | Truck Parking Locations and Spaces

FDOT District	Facility Type	Number of Locations	Number of Spaces	FDOT District	Facility Type	Number of Locations	Number of Spaces
1	Private	47	1,104	**5**	Private	26	1,288
	Public	8	225		Public	14	531
2	Private	52	1,665	**6**	Private	10	240
	Public	31	655		Public	2	38
3	Private	24	864	**7**	Private	19	431
	Public	19	635		Public	8	200
4	Private	22	1,473	**Turnpike**	Public	8	344
	Public	8	400	**Statewide**	**Total**	**298**	**10,093**

Data Source: *Florida Department of Transportation, Transportation Data and Analytics (2019)*

Figure 13 | Statewide Truck Parking Supply Locations



Data Source: *Florida Department of Transportation, Transportation Data and Analytics (2019)*

Transportation Hubs

Florida's infrastructure comprises an extensive network of roadways and rail, complemented by 14 active seaports, 19 commercial service airports, and three spaceports. This section will center its attention on the seaports, airports, and spaceports within the state.

Seaports

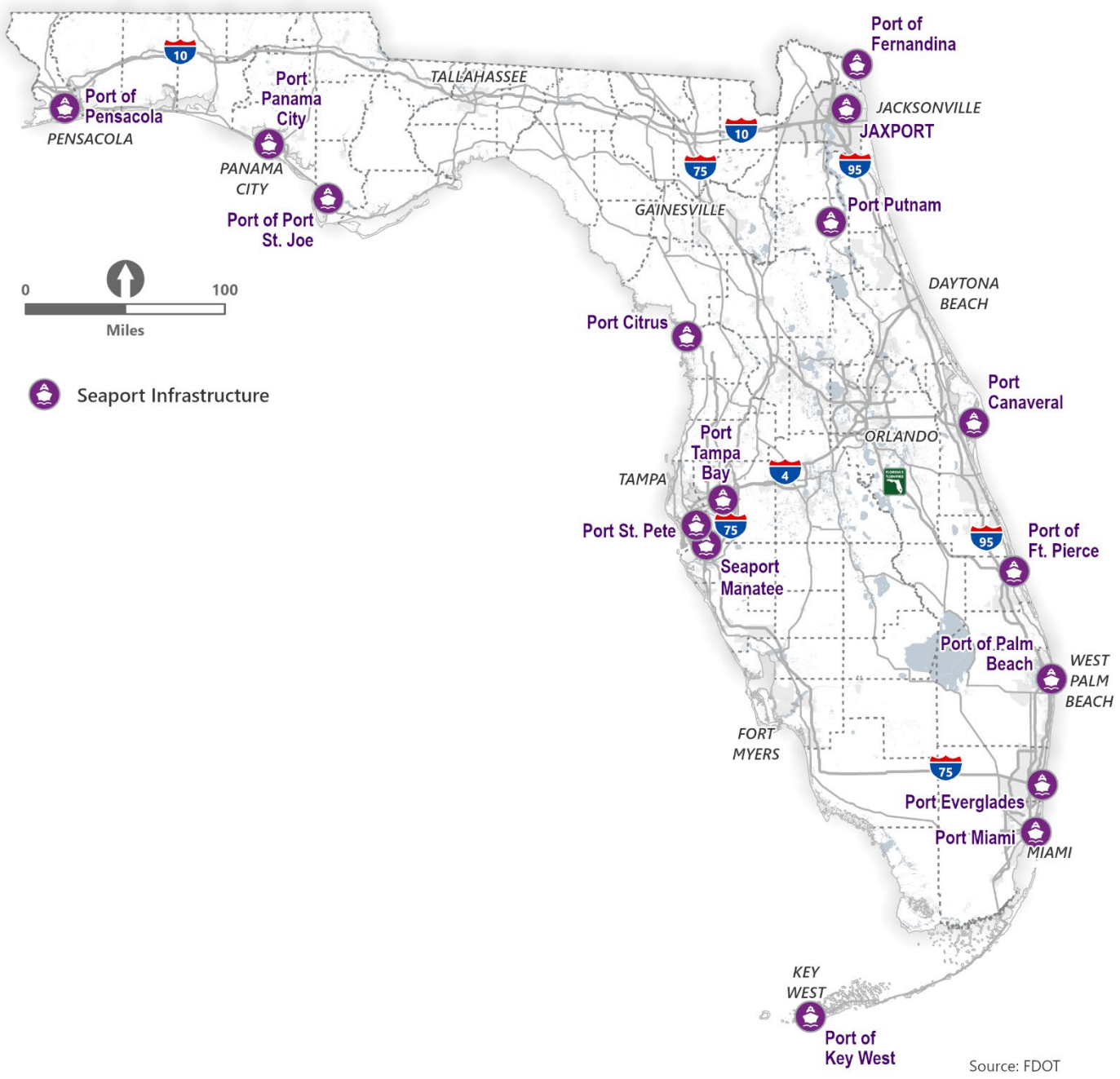
Florida's proximity to east-west trade lanes that enter and leave the western hemisphere and the north-south shipping corridor supplying the Americas places it squarely in the center of international commerce. As shown in Figure 14, 16 total seaports are strategically positioned along the state's coastlines. Port Citrus and Port Putnam (an inland river port that supports barge traffic) are currently inactive. Table 13 provides a list of active seaports in the state of Florida as per SIS and Florida Ports Council.

Table 13 | Florida's Active Seaports

Name of Port	Cargo	Cruise	SIS Designated Port	SIS Strategic Growth Component
Port Canaveral	**Y**	**Y**	**Y**	
Port Everglades	**Y**	**Y**	**Y**	
Port of Fernandina	**Y**			**Y**
Port of Fort Pierce	**Y**	**Y**		**Y**
JAXPORT	**Y**	**Y**	**Y**	
Port of Key West		**Y**		
Seaport Manatee	**Y**		**Y**	
Port Miami	**Y**	**Y**	**Y**	
Port of Palm Beach	**Y**	**Y**	**Y**	
Port Panama City	**Y**		**Y**	
Port of Pensacola	**Y**			**Y**
Port of Port St. Joe	**Y**			**Y**
Port St. Pete				
Port Tampa Bay	**Y**	**Y**	**Y**	

Data Source: *FDOT Seaport Office, 2022*

Figure 14 | Florida's Seaport Infrastructure



Data Source: *FDOT Seaport Office*

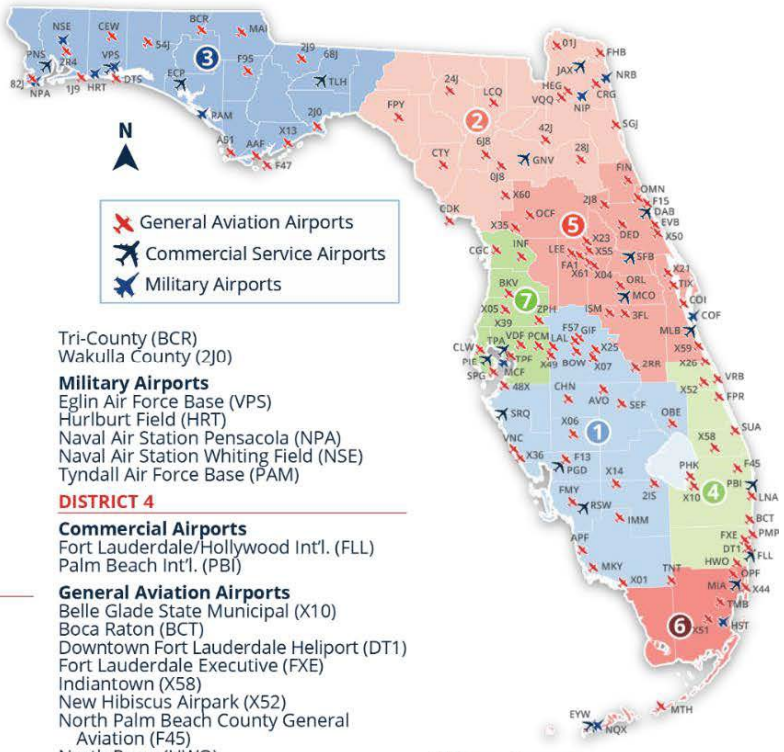
Airports

Florida's aviation system (pictured in Figure 15) includes over 128 public-use airports, including 21 commercial service airports and 107 general aviation airports spanning the Panhandle to the Florida Keys. The aviation system also includes 11 military aviation facilities, with numerous off-airport businesses relying on the aviation system to transport personnel, goods, and services.

As per F.S. Chapter 332, the "Florida Airport System" includes all existing public-use airports that are owned and operated within the state and those public-use airports which will be developed and made operational in the future. Primary airports are defined in 49 U.S.C. § 47102(16) as public airports receiving scheduled air carrier service with 10,000 or more enplaned passengers per year. Primary airports (Table 14) are further classified (2023-2027 National Plan of Integrated Airport Systems (NPIAS) standards) by their share of U.S. enplanements as follows:

- Large Hub Airport: Large hubs are defined by statute (49 U.S.C. § 47102(11)) as those airports that each account for 1 percent or more of total U.S. passenger enplanements.
- Medium Hub Airport: Medium hubs are defined by statute (49 U.S.C. § 47102(13)) as airports that each account for between 0.25 percent and 1 percent of total U.S. passenger enplanements.
- Small Hub Airport: Small hubs are defined by statute (49 U.S.C. § 47102(25)) as airports that account for 0.05 percent to 0.25 percent of total U.S. passengers.
- Non-Hub Airports: Commercial service airports that account for less than 0.05 percent of all commercial passenger enplanements but have more than 10,000 annual enplanements are categorized as non-hub primary airports (49 U.S.C. § 47102(14)).

Figure 15 | Florida's Aviation Facilities*



DISTRICT 1

Commercial Airports
Punta Gorda (PGD)
Sarasota/Bradenton Int'l. (SRQ)
Southwest Florida Int'l. (RSW)

General Aviation Airports
Airglades (2IS)
Arcadia Municipal (X06)
Avon Park Executive (AVO)
Bartow Executive (BOW)
Buchan (X36)
Chalet Suzanne Air Strip (X25)
Everglades Airpark (X01)
Immokalee Regional (IMM)
Jack Browns Seaplane Base (F57)
La Belle Municipal (X14)
Lake Wales Municipal (X07)
Lakeland Linder Int'l. (LAL)
Manatee (48X)
Marco Island Executive (MKY)
Naples Municipal (APF)
Okeechobee County (OBE)
Page Field (FMY)
River Ranch Resort (2RR)
Sebring Regional (SEF)
Shell Creek Airpark (F13)
South Lakeland (X49)
Venice Municipal (VNC)
Wauchula Municipal (CHN)
Winter Haven Regional (GIF)

DISTRICT 2

Commercial Airports
Gainesville Regional (GNV)
Jacksonville Int'l. (JAX)

General Aviation Airports
Cecil (VQQ)
Cross City (CTY)
Fernandina Beach Municipal (FHB)
Flying Ten (0J8)
George T Lewis (CDK)
Herlong Recreational (HEG)
Hilliard Airpark (01J)
Jacksonville Executive At Craig (CRG)
Keystone Heights (42J)
Lake City Gateway (LCQ)
Northeast Florida Regional (SGJ)
Oak Tree Landing (6J8)
Palatka Municipal-Lt Kay Larkin Field (28J)
Perry-Foley (FPY)
Suwannee County (24J)
Williston Municipal (X60)

Military Airports
Naval Air Station Jacksonville (NIP)
Naval Air Station Mayport (NRB)

DISTRICT 3

Commercial Airports
Destin – Fort Walton Beach (VPS)
Northwest Florida Beaches Int'l. (ECP)
Pensacola Int'l. (PNS)
Tallahassee Int'l. (TLH)

General Aviation Airports
Apalachicola Regional-Cleve Randolph Field (AAF)
Bob Sikes (CEW)
Calhoun County (F95)
Carrabelle – Thompson (X13)
Costin (A51)
DeFuniak Springs (54J)
Destin Executive (DTS)
Fort Walton Beach (1J9)
Marianna Municipal (MAI)
Peter Prince Field (2R4)
Quincy Municipal (2J9)
Roscoe Field (82J)
St George Island (F47)
Tri-County (BCR)
Wakulla County (2J0)

Military Airports
Eglin Air Force Base (VPS)
Hurlburt Field (HRT)
Naval Air Station Pensacola (NPA)
Naval Air Station Whiting Field (NSE)
Tyndall Air Force Base (PAM)

DISTRICT 4

Commercial Airports
Fort Lauderdale/Hollywood Int'l. (FLL)
Palm Beach Int'l. (PBI)

General Aviation Airports
Belle Glade State Municipal (X10)
Boca Raton (BCT)
Downtown Fort Lauderdale Heliport (DT1)
Fort Lauderdale Executive (FXE)
Indiantown (X58)
New Hibiscus Airpark (X52)
North Palm Beach County General Aviation (F45)
North Perry (HWO)
Palm Beach County Glades (PHK)
Palm Beach County Park (LNA)
Pompano Beach Airpark (PMP)
Sebastian Municipal (X26)
Treasure Coast Int'l. (FPR)
Vero Beach Regional (VRB)
Witham Field (SUA)

DISTRICT 5

Commercial Airports
Daytona Beach Int'l. (DAB)
Melbourne Orlando Int'l. (MLB)
Orlando Int'l. (MCO)
Orlando Sanford Int'l. (SFB)

General Aviation Airports
Arthur Dunn Air Park (X21)
Bob White Field (X61)
Deland Municipal – Sidney H Taylor Field (DED)
Executive (ORL)
Flagler Executive (FIN)
Halifax River Sea Plane Base (F15)
Kissimmee Gateway (ISM)
Leesburg Int'l. (LEE)
Marion County (X35)
Massey Ranch Airpark (X50)
Merritt Island (COI)
Mid-Florida (X55)
New Smyrna Beach Municipal (EVB)
Ocala Int'l.-Jim Taylor Field (OCF)
Orlando Apopka (X04)
Ormond Beach Municipal (OMN)
Pierson Municipal (2J8)
Space Coast Regional (TIX)
St Cloud Seaplane Base (3FL)
Tavares Seaplane Base (FA1)
Umatilla Municipal (X23)
Valkaria (X59)

Military Airports
Patrick Space Force Base (COF)

DISTRICT 6

Commercial Airports
Key West Int'l. (EYW)
Miami Int'l. (MIA)

General Aviation Airports
Dade-Collier Training And Transition (TNT)
Miami Executive (TMB)
Miami Homestead General Aviation (X51)
Miami Seaplane Base (X44)
Miami-Opa Locka Executive (OPF)
The Florida Keys Marathon Int'l. (MTH)

Military Airports
Homestead Air Force Base (HST)
Naval Air Station Key West (NQX)

DISTRICT 7

Commercial Airports
St Pete-Clearwater Int'l. (PIE)
Tampa Int'l. (TPA)

General Aviation Airports
Albert Whitted (SPG)
Brooksville – Tampa Bay Regional (BKV)
Clearwater Air Park (CLW)
Crystal River – Captain Tom Davis Field (CGC)
Inverness (INF)
Peter O Knight (TPF)
Pilot Country (X05)
Plant City (PCM)
Tampa Executive (VDF)
Zephyrhills Municipal (ZPH)

Military Airports
MacDill Air Force Base (MCF)

Data Source: *FDOT's 2022 Florida Statewide Economic Impact Study*

**Notes: Tampa North Aero Park did not participate in the source study so was not included on the map or list but is an active public use airport. Additionally, DT1 is a helistop and not a heliport (no fueling, repairs or storage permitted). LAL and VRB both host commercial passenger air service now.*

Table 14 | Florida's Primary Airports

Name of Airport	FAA ID	NPIAS Classification*	SIS	SIS Strategic Growth
Daytona Beach International Airport	DAB	Non-hub		Y
Eglin AFB/Destin-Ft Walton Beach Airport	VPS	Small-Hub		Y
Fort Lauderdale-Hollywood International Airport	FLL	Large-Hub	Y	
Gainesville Regional Airport	GNV	Non-Hub		Y
Jacksonville International Airport	JAX	Medium-Hub	Y	
Key West International Airport	EYW	Small-Hub		
Melbourne Orlando International Airport	MLB	Non-Hub		Y
Miami International Airport	MIA	Large-Hub	Y	
Northwest Florida Beaches International Airport	ECP	Small-Hub		Y
Orlando International Airport	MCO	Large-Hub	Y	
Orlando Sanford International Airport	SFB	Small-Hub		Y
Palm Beach International Airport	PBI	Medium-Hub	Y	
Pensacola International Airport	PNS	Small-Hub		Y
Punta Gorda Airport	PGD	Small-Hub		Y
Sarasota Bradenton International Airport	SRQ	Small-Hub		Y
Southwest Florida International Airport	RSW	Medium-Hub	Y	
St Pete-Clearwater International Airport	PIE	Small-Hub		Y
Tallahassee International Airport	TLH	Non-Hub		Y
Tampa International Airport	TPA	Large-Hub	Y	

** National Plan of Integrated Airport Systems (NPIAS)*

Data Source: *National Plan of Integrated Airport Systems (NPIAS)*

Spaceports

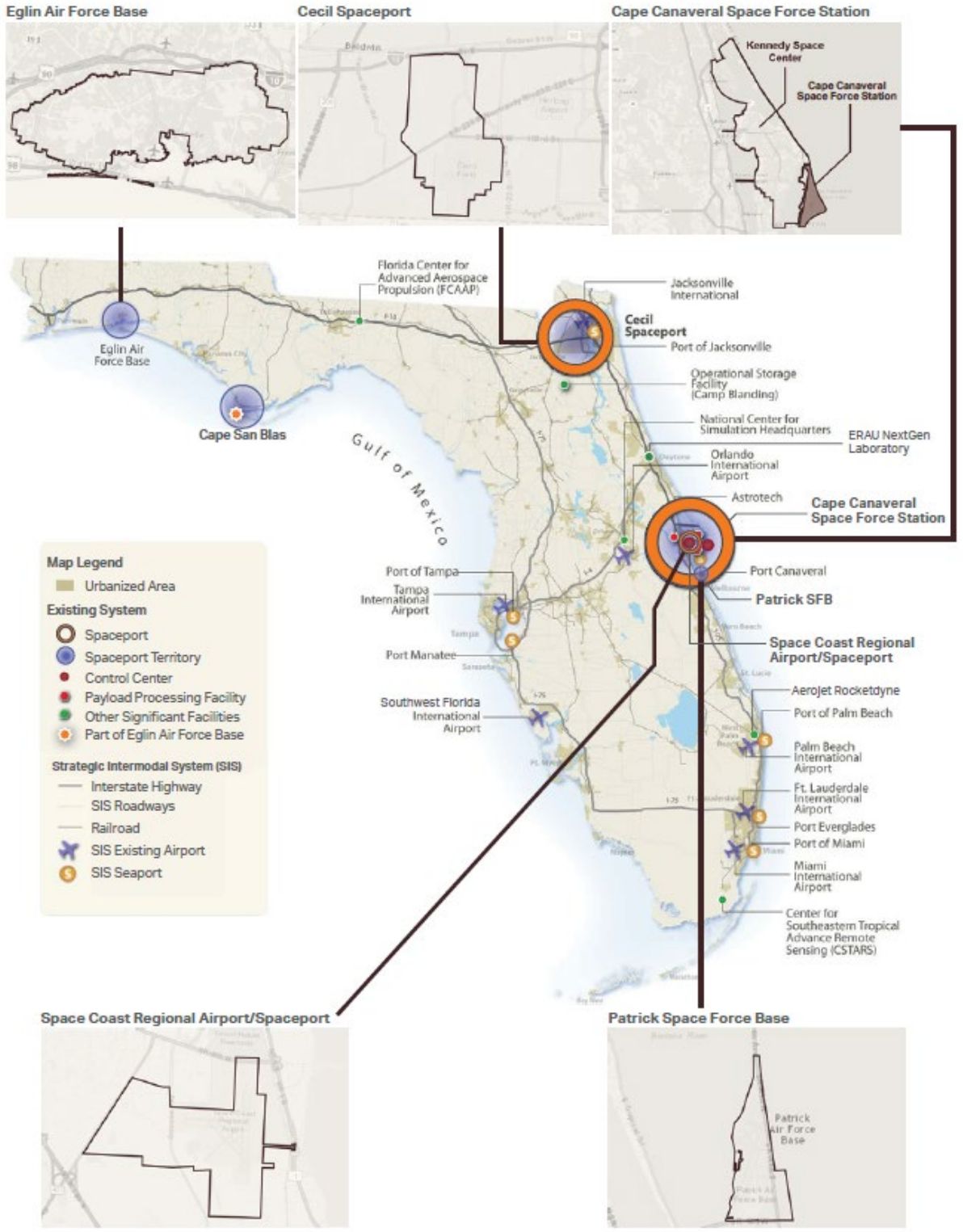
Florida's three major Federal Aviation Administration (FAA) licensed spaceports are located at Cape Canaveral Space Force Station, Jacksonville Aviation Authority's Cecil Spaceport, and Titusville-Cocoa Airport Authority's Space Coast Regional Airport and Spaceport.

The following are FAA licensed spaceport facilities for launch and landing activity in Florida:

- **Cape Canaveral Space Force Station** –vertical and horizontal launch
- **Kennedy Space Center (NASA)** –vertical and horizontal launch
- **Space Florida Launch Complex 46** – vertical launch
- **Space Florida Launch and Landing Facility** –horizontal launch and orbital reentry
- **Cecil Air and Space Port** – horizontal launch
- **Space Coast Regional Airport** –horizontal launch

Figure 16 illustrates Florida's Existing Spaceport System.

Figure 16 | Florida's Existing Spaceport System



Data Source: *FDOT Spaceport Improvement Program, 2023-2024*

Freight Intensive Areas

Consistent with the Florida Transportation Plan, the Florida Department of Transportation explored ways to identify major freight (industrial and commercial) intensive areas. This statewide project was conducted by the FDOT Freight and Rail Office in coordination with the FDOT Transportation Data and Analytics Office. A freight intensive area is a cluster or group of freight facilities that generates, distributes, or attracts large amounts of freight activities, and has a significant impact on Florida's transportation system and economy. The analysis used 2021 Florida Department of Revenue (DOR) parcel data, and 2021 Florida Department of Economic Opportunity (DEO) employment data to locate freight activity areas. Tables 15-16 provide summary statistics for the industrial and commercial parcel floor area in the state. Figure 17 depicts freight intensive areas in the state of Florida.

Table 15 | Statewide Summary Statistics for Industrial Parcel Floor Area

DOR Land Use Description	Total Area (Square Feet)	Number of Parcels
Wholesale outlets, produce houses, manufacturing outlets	11,783,336	509
Light manufacturing, small equipment manufacturing plants, small machine shops, instrument manufacturing, printing plants	276,109,350	10,753
Heavy industrial, heavy equipment manufacturing, large machine shops, foundries, steel fabricating plants, auto or aircraft plants	46,087,470	602
Lumber yards, sawmills, planning mills	48,211,366	425
Packing plants, fruit and vegetable packing plants, meat packing plants	16,486,075	432
Canneries, fruit and vegetable, bottlers and brewers, distilleries, wineries	11,555,486	117
Other food processing, candy factories, bakeries, potato chip factories	14,847,354	305
Mineral processing, phosphate processing, cement plants, refineries, clay plants, rock and gravel plants	10,544,537	937
Warehousing, distribution terminals, trucking terminals, van and storage warehousing	982,268,832	43,766
Open storage, new and used building supplies, junk yards, auto wrecking, fuel storage, equipment and material storage	9,521,439	4,095
Orchard Groves, citrus, etc.	8,674,813	15,289
Poultry, bees, tropical fish, rabbits, etc.	3,129,460	1,021
Dairies, feed lots	18,816,930	4,598
Utility, gas and electricity, telephone and telegraph, locally assessed railroads, water and sewer service, pipelines	31,046,982	9,877
Mining lands, petroleum lands, or gas lands	2,226,404	1,417
Total	**1,491,309,834**	**94,143**

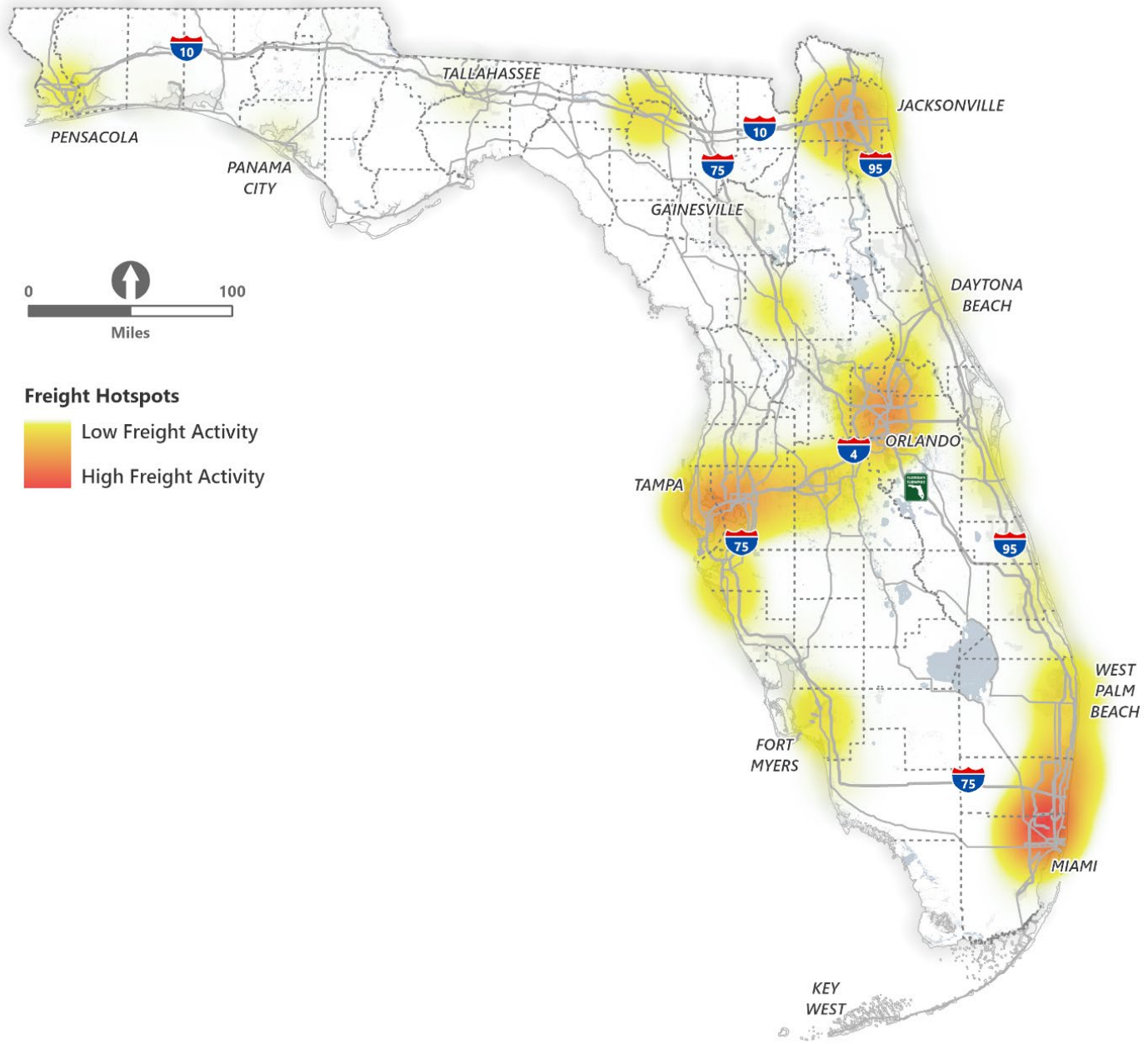
Data Source: *Florida Department of Transportation, Freight and Rail Office (2021)*

Table 16 | Statewide Summary Statistics for Commercial Parcel Floor Area

DOR Land Use Description	Total Area (Square Feet)	Number of Parcels
Stores, one story	340,011,416	40,578
Mixed use - store and office or store and residential combination	87,779,135	15,609
Department Stores	92,316,993	935
Supermarkets	35,325,492	2,518
Regional Shopping Centers	81,660,835	388
Community Shopping Centers	326,406,963	7,976
Restaurants, cafeterias	41,028,099	8,802
Drive-in Restaurants	13,213,564	4,485
Auto sales, auto repair and storage, auto service shops, body and fender shops, commercial garages, farm and machinery sales and services	134,396,272	15,927
Florists, greenhouses	976,381	339
Hotels, motels	311,229,996	11,284
Total	**1,464,345,146**	**108,841**

Data Source: *Florida Department of Transportation, Freight and Rail Office (2021)*

Figure 17 | Florida's Freight Intensive Areas

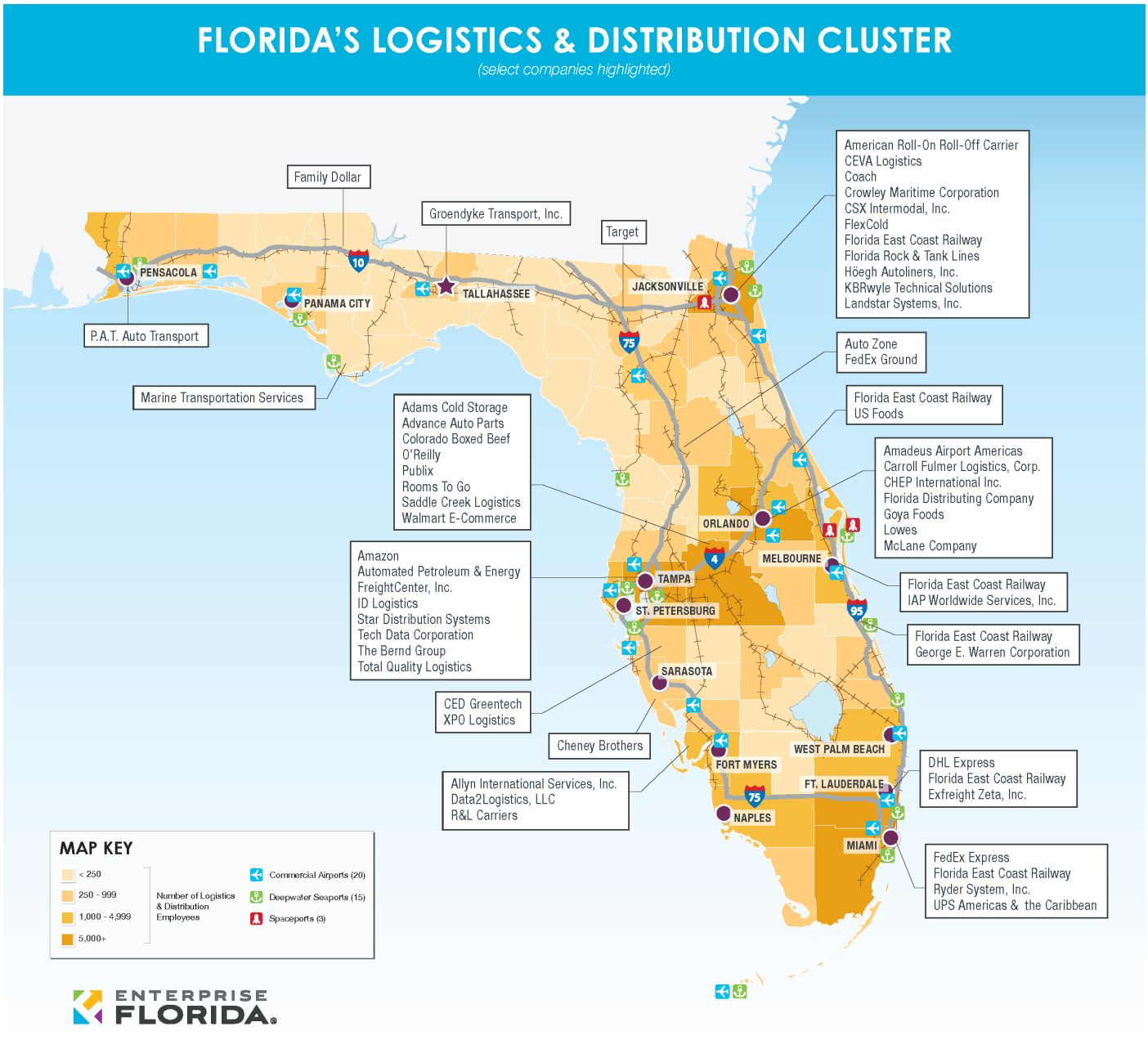


Data Source: *Florida Department of Transportation, Freight and Rail Office (2021)*

Figures 18, 19, 20, and 21 highlight the four major industry sectors in Florida with a statewide map identifying the major establishments in their respective sectors. The four major industry sectors include logistics and distribution, manufacturing, aviation and aerospace, and cleantech. These maps, created by Select Florida, highlight the emergence of strong freight activities. Here are some key highlights of the freight and related industries which were identified by Select Florida:

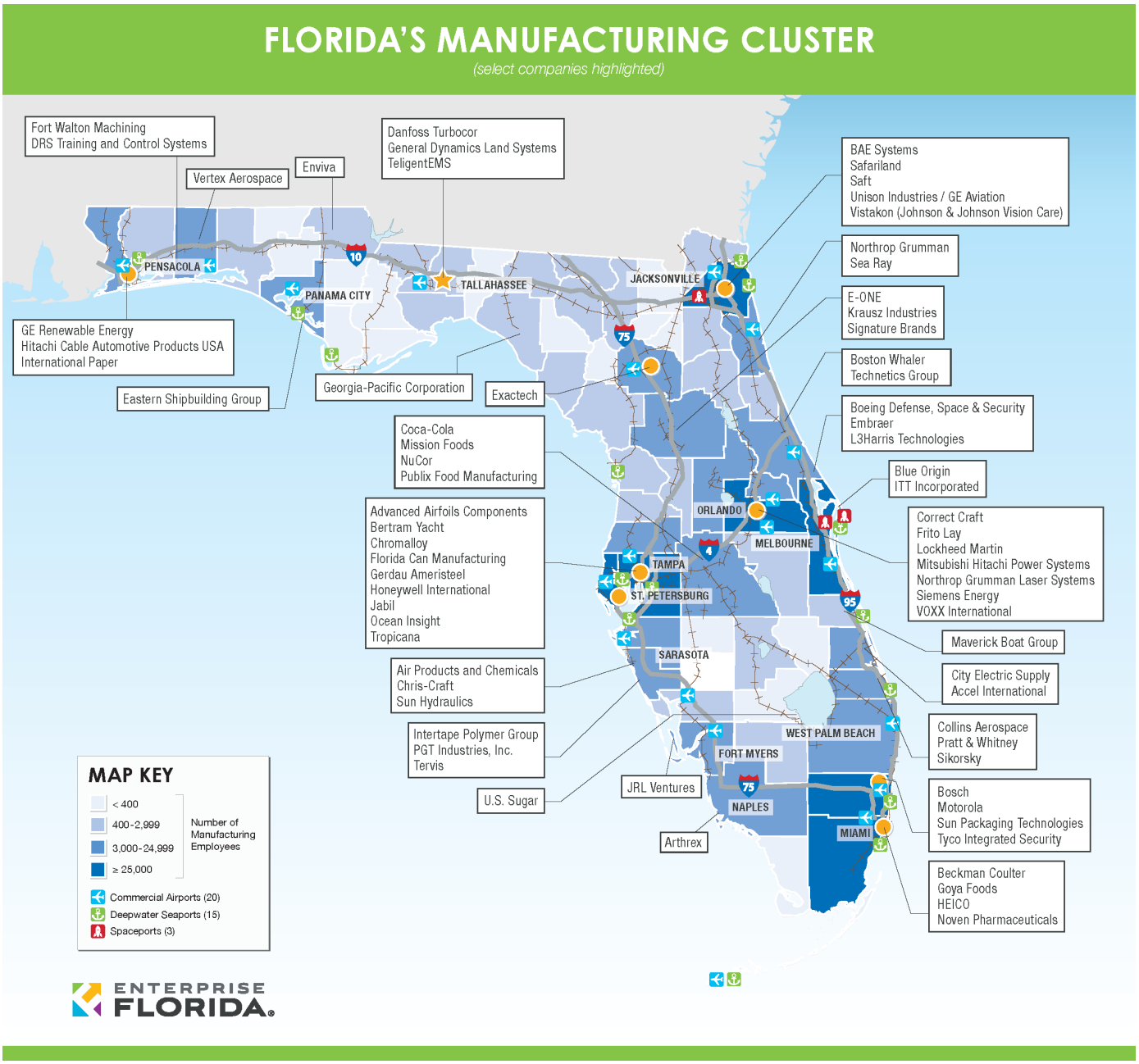
- #2 best ranking in the 2023 Chief Executive Best and Worst States for Business survey of chiefs. Chief Executive's rankings are compiled from a single source: the opinions of CEOs and business owners in the U.S. Nearly 700 CEOs, with representation from every state, participated in this year's survey, conducted in January 2023.
- #1 in number of Maintenance, Repair, and Overhaul (MRO) establishments
- #3 in aircraft manufacturing establishments in the U.S. The state boasts a total of over 640 aerospace establishments and 2,000 aviation establishments.
- #3rd largest number of transportation and warehousing establishments in the nation.
- Florida's business landscape includes a robust network of over 550 companies specializing in renewable energy technologies such as wind, solar, hydrogen, and batteries. Moreover, over 7,200 Florida-based companies excel in LEDs, OLEDs, green architecture, building controls, energy modeling, and advanced materials like nanomaterials, coatings, bioplastics, and ceramics. An additional 4,000+ companies offer expertise in environmental fields, including reverse osmosis, desalination technologies, water remediation, bioremediation, and waste treatment technologies.
- #2nd largest medical device manufacturing industry.
- 4th for the most biotech R&D facilities. The state houses 525 biotech establishments and 434 pharmaceutical manufacturing establishments.
- For over five decades, Florida has been synonymous with space exploration, with some of history's most significant launches taking place on the Space Coast. This legacy continues today with industry leaders like United Launch Alliance, SpaceX, and Blue Origin. Additionally, major aviation companies such as Embraer, Boeing, and Piper have substantial operations and presence within the state.

Figure 18 | Florida's Logistics and Distribution Clusters



Data Source: *Select Florida, accessed in 2023*

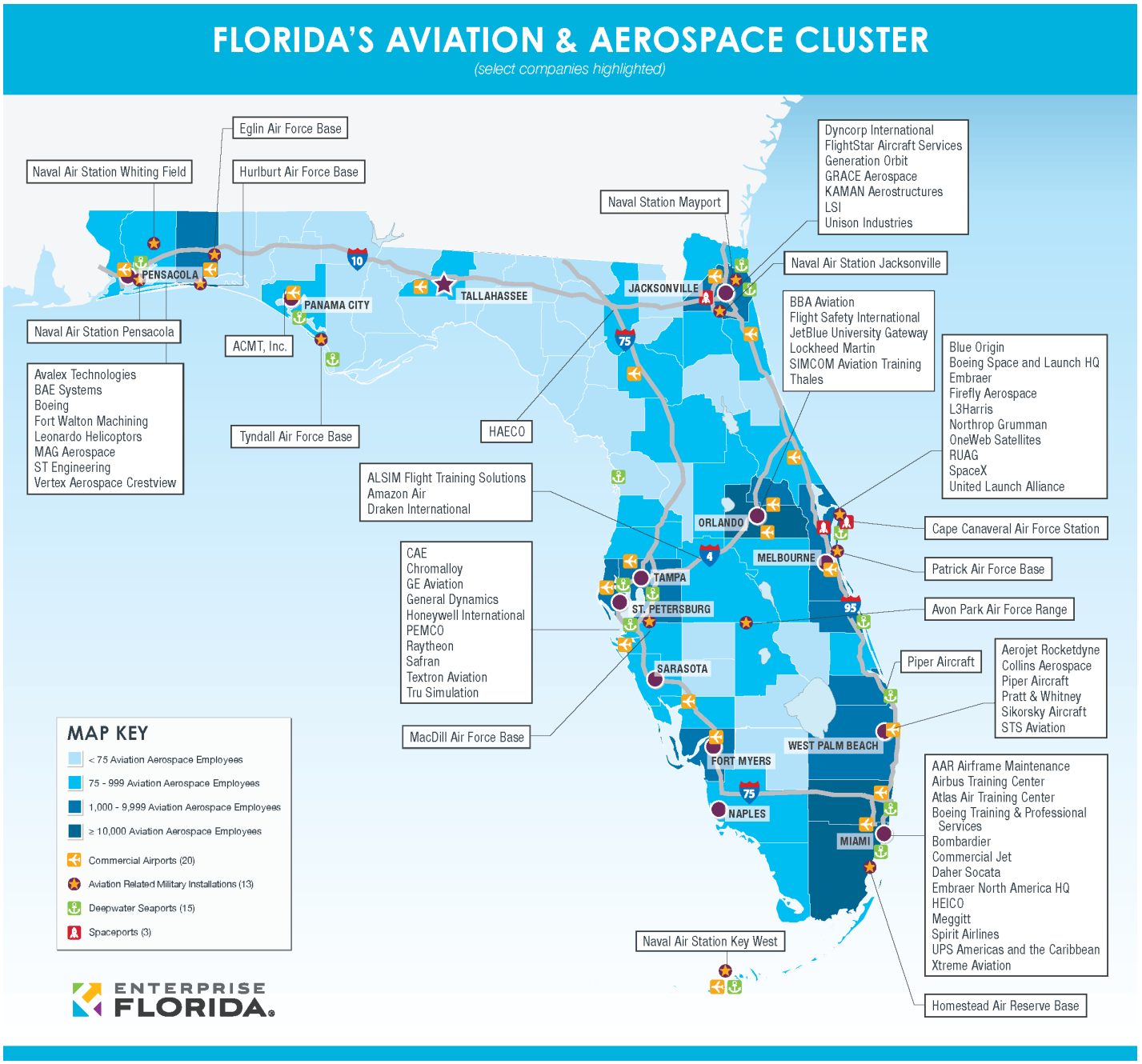
Figure 19 | Florida's Manufacturing Clusters



Data Source: *Select Florida, accessed in 2023*

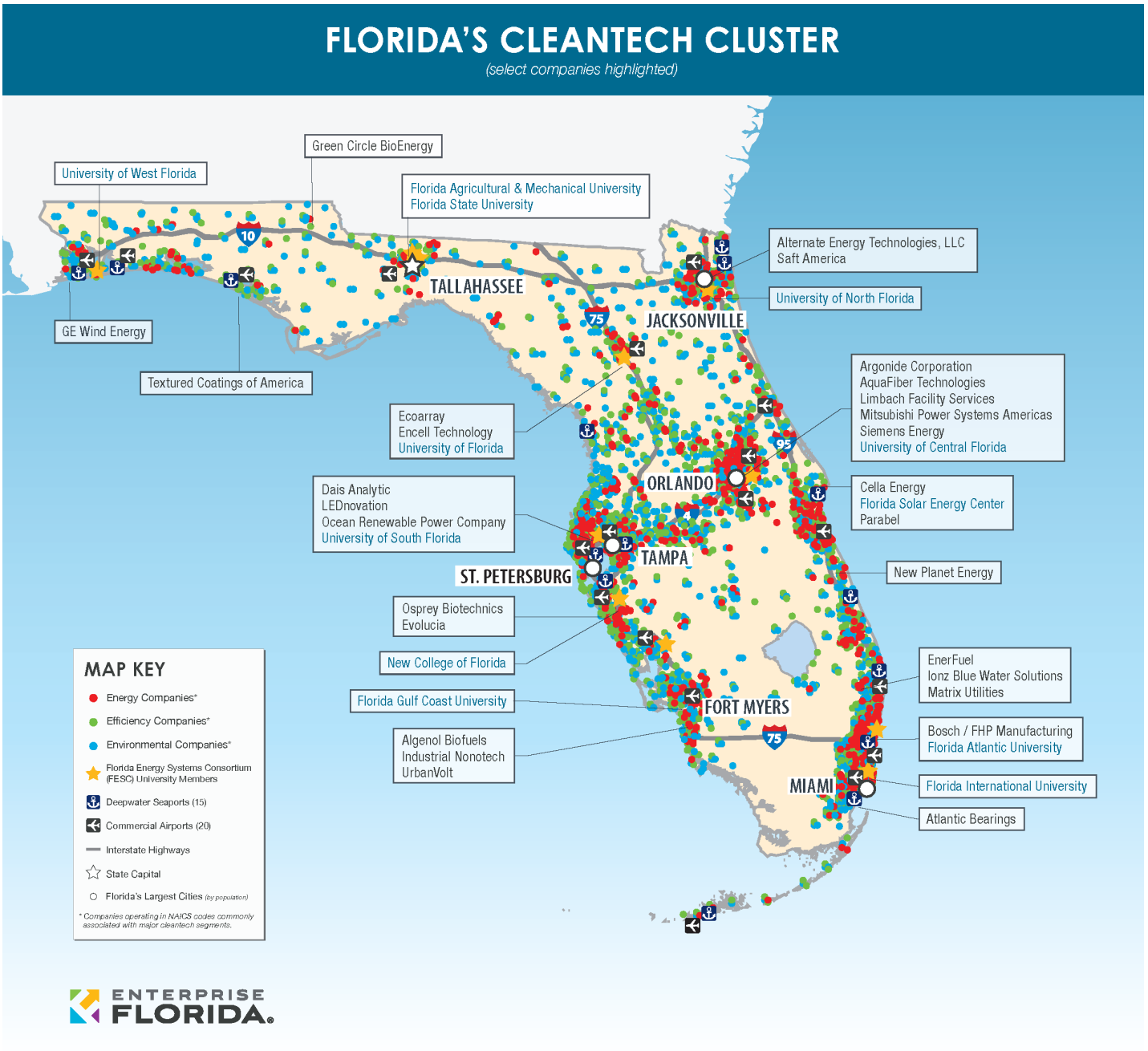
**Note: Florida Can Manufacturing is in Winter Haven, Polk County, not Hillsborough County as depicted.*

Figure 20 | Florida's Aviation and Aerospace Cluster



Data Source: *Select Florida, accessed in 2023*

Figure 21 | Florida's Cleantech Cluster



Data Source: *Select Florida, accessed in 2023*

Appendix A: Critical Rural Freight Corridors

Route No	Start	End	Length (Mi)	CRFC_ID	FAST_ACT	Critical Freight Connectivity	Strategic State Freight Network 1	Strategic Freight Network 2	Supports National Significance	New Addition
SR 20	SR-79	County Road 83 Alternate	15.37	B	Provides access to energy exploration, development, installation, or production areas	Required link to complete connection from key freight facility to NHFN	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
SR 20	US-231	SR-79	1.17	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
SR 20	US-231	SR-79	16.68	C	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the State	Connects key freight facilities to the NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N
SR 331	US-301	Country Road 225 Alternate	1.87	A	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the State	Connects key freight facilities to the NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N
US 231	I-10	Bayou George Drive	45.34	D	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the State	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 27	E Palm Beach Rd	I-75	9.17	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N

US 27	Forge Meade Rd	Highlands County Line	0.43	G	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 27	Highlands County Line	SR-80	6.12	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 27	Lake Josephine Dr	County Road 17N	1.00	G	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 27	Masterpiece Rd	Fort Mead Rd.	9.69	G	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 27	Old US-27 Highway	E Palm Beach Rd.	0.84	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 27	S Sun and Lakes Blvd	Highlands County Line	3.08	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N

US 27	SR-80	Lewis Blvd.	3.92	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 301	Clay County Line	NE 193rd Street	29.88	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 301	NE Waldo Road	NW 77th Street	98.27	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US 301	S Walnut Street	NE Waldo Rd	22.77	A	Rural Principal arterial roadway with a minimum of 25 percent of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks	Required link to complete connection from key freight zone to NHFN	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
South Dock Street	US 41	Reeder Rd	0.52	A, D	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves connection between US41 and port Manatee	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	Y
SR-25/ US-27	Miami-Dade County Line	SR-821 Turnpike	6.91	A, C, D, F, G	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves linkage between Turnpike, Miami-Dade, and US 27 heading out of Miami	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Future Truck Parking projects planned	Enhances freight connectivity and potential truck parking	Y
SR-60	Fl Natural Scenic Trail	102nd Ave.	36.43	A, C, D	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves linkage between SR 60 and I-95	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic		Enhances freight connectivity and potential truck parking	Y
Total Existing CRFC			**309.46**							**43.86**

Appendix B: Critical Urban Freight Corridors

Route No	Start	End	Length (Mi)	CUFC_ID	FAST_ACT	Critical Freight Connectivity	Strategic State Freight Network 1	Strategic Freight Network 2	Supports National Significance	New Addition
SR-105	Blount Island Road	I-295	1.22	H	Connects an intermodal facility to the PHFS, the interstate system, or an intermodal freight facility	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances import/export of connected key freight facility	N
SR-263	I-10	SR-365	6.76	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Connects key freight facilities to the NHFN		Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N
SR-869	I-95	I-75	19.96	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Connect Key Freight facilities to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances multimodal freight connectivity	N
US-231	Bayou George Drive	US-98	8.40	H	Connects an intermodal facility to the PHFS, the interstate system, or an intermodal freight facility	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Multimodal freight connection route to create seamless freight mobility operations	Enhances import/export of connected key freight facility	N
US-27	County Road 17N	S Sun and Lakes Blvd.	7.23	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
US-27	E Palm Beach Rd	I-75	0.15	J	Serves a major freight generator, logistics center, or manufacturing and warehouse industrial land	Connect Key Freight facilities to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
US-27	Highlands County Line	Lake Josephine Drive	18.67	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N

US-27	I-4	SR-60	21.75	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Connect Key Freight facilities to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
US-27	I-75	US-301	2.84	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Connect Key Freight facilities to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
US-27	Lewis Blvd.	Old US 27 Highway	3.13	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
US-27	Old US 27 Highway	E Palm Beach Rd	0.07	J	Serves a major freight generator, logistics center, or manufacturing and warehouse industrial land	Required link to complete connection from key freight zone to NHFN		Alternate freight route to reduce delay, avoid blockages and increase reliability of the network	Enhances multimodal freight connectivity	N
US-301	I-10	Clay County Line	7.51	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Connect Key Freight facilities to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N
US-301	NE 193rd St	S Walnut St	4.38	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N
US-301	NW 10th Street	Silver Spring Boulevard	0.69	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Required link to complete connection from key freight zone to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N
US-301	NW 77th St	NW 10th St	4.89	K	Corridor that is important to the movement of freight within the region, as determined by the MPO or State	Required link to complete connection from key facility to NHFN	Ton volume is equal to or greater than the mean ton volume and the percentage change in ton volume is equal to or greater than the mean percentage change of ton volume throughout the District	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N

US-41	S 22nd St	Big Bend Rd	9.58	H	Connects an intermodal facility to the PHFS, the interstate system, or an intermodal freight facility	Required link to complete connection from key facility to NHFN		Multimodal freight connection route to create seamless freight mobility operations	Enhances import/export of connected key freight facility	N
US-98	US-231	Sun Harbor Rd	4.47	H	Connects an intermodal facility to the PHFS, the interstate system, or an intermodal freight facility	Connect Key Freight facilities to NHFN		Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Enhances multimodal freight connectivity	N
SR-25/ US-27	SR-826 Palmetto	SR-821 Turnpike	5.0	H, J, K	Provides access to Significant freight warehousing and industry as well as an alternative route for traffic off the NHFN	Required link to complete connection from key freight facility to NHFN as well as NHFN to NHFN between SR 821 and SR 826	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	FM: 447645-2&3 FM: 423251-3 Description: This project provides a connection between the port and I-275	Enhances multimodal freight connectivity	Y
SR-9/NW 27TH AVENUE OVER MIAMI RIVER	NW 20th Street	SR-836 Dolphin Expressway	0.6	H, J, K	Provides an alternative route for traffic heading to the Okeechobee Road corridor and to and from the Miami International Airport	Required link to complete connection from key freight zone to NHFN	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	FM: 446190-1 Description: This bridge operates between the airport and the port and is a truck bottleneck leading towards the NHFN. Bridge improvement is a key consideration of Florida	Enhances multimodal freight connectivity and intermodal freight access to Miami International Airport	Y
SR-860	I-75/SR93	NW 79th PL	1.28	H, J, K	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves linkage between I-75 and Turnpike	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	FM: 438864-2 Description: Improves interchange between I-75 and Florida's turnpike	Enhances freight connectivity	Y
N 50th St	E Broadway Ave (SR-574)	Adamo Dr. (SR-60)	0.72	H, J, K	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves linkage between I-4 and SR 60/ Port Tampa Bay	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Future Intermodal projects planned	Enhances freight connectivity	Y
Adamo Dr. (SR-60)	N 50th St.	Wayne Place	3.19	H, J, K	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves linkage between I-4 and SR 60/ Port Tampa Bay	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Future Intermodal projects planned	Enhances freight connectivity	Y
SR-572 (Airport Rd)	SR-570	Drane Field Rd	0.81	H, J, K	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves freight and pedestrian safety between I-4 and Lakeland Airport	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Future Intermodal projects planned	Enhances freight safety	Y

SR-570	SR-572 (Airport Rd)	I-4	2.77	H, J, K	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves freight and pedestrian safety between I-4 and Lakeland Airport	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic	Future Intermodal projects planned	Enhances freight safety	Y
SR-60	102nd Ave	I-95	1.17	A, C, D	Corridor that is vital to improving the efficient movement of freight of importance to the economy of the County and District	Improves linkage between SR 60 and I-95	Dispersion freight route to create redundancy of the network which offers multiple ways for freight traffic		Enhances freight connectivity and potential truck parking	Y
Total Existing CUFC			**137.24**							**15.54 added**

FMTP24

FREIGHT MOBILITY AND TRADE PLAN

Freight & Rail Office
Florida Department of Transportation
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FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY AND TRADE PLAN

Technical Memorandum 2
Freight Conditions and Performance

FDOT

CONTENTS

FIGURES

TABLES

LIST OF ACRONYMS

AADT	Annual Average Daily Traffic
AADTT	Annual Average Daily Truck Traffic
ATRI	American Transportation Research Institute
FO	Functionally Obsolete
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FMTP	Freight and Mobility Trade Plan
FTP	Florida Transportation Plan
HPMS	Highway Performance Monitoring System
IRI	International Roughness Index
LAL	Lakeland Linder International Airport
MPO	Metropolitan Planning Organization
NBI	National Bridge Inspection
NHCRP	National Highway Cooperative Research Project
NHS	National Highway System
NPMRDS	National Performance Management Research Data Set
PTI	Truck Planning Time Index
RCI	Roadway Characteristics Inventory
SD	Structurally Deficient
SHS	State Highway System
TAMP	Transportation Asset Management Plan
TEU	Twenty-foot Equivalent Units
TMC	Traffic Message Channel
TMT	Truck Miles Traveled
TPM	Transportation Performance Management
TTTR	Truck Travel Time Reliability
VHD	Vehicle Hours of Delay
VHD/M	Vehicle Hours of Delay per Segment Mile
VHT	Vehicle Hours Traveled
VHU	Vehicle Hours of Unreliability
VHU/M	Vehicle Hours of Unreliability per Segment Mile
VMT	Vehicle Miles Traveled
WIM	Weigh-in-Motion

Introduction

Florida's freight systems and assets are essential to the efficient movement of goods and commodities across all modes within the state. This technical memorandum evaluates and documents the condition and performance of the state's freight transportation systems and assets described in the "Systems and Assets Technical Memorandum." The performance measures included in this document are consistent with the Florida Department of Transportation's (FDOT) Source Book, FDOT Transportation Asset Management Plan (TAMP), Transportation Performance Management (TPM) federal performance measures, Florida Transportation Plan (FTP) goals, Freight and Mobility Trade Plan (FMTP) objectives, and Highway Performance Monitoring System (HPMS). These measures indicate whether Florida's transportation system is achieving the objectives outlined in this plan and show whether progress is being made toward federal and organizational goals. Measures included in this document are categorized by mode: highway, rail, seaport, and aviation. Additionally, performance measures required by the Federal Highway Administration (FHWA), such as bridge and pavement conditions, are also summarized. A summary of every applicable performance measure and condition is provided, including their definitions, data sources, and outcomes. Further, certain performance metrics and conditions outlined here are suggested for use in the context of prioritizing freight projects. These performance metrics pertain primarily to highways, as the focus is on the National Highway Freight Program. Technical Memorandum 6 elaborates on the metrics and methodology used in freight project prioritization.

Freight and Freight Related Measures Appraisal

This document plays a pivotal role within the FMTP as it delineates the current performance measures and conditions, which are drawn from available data and derived from the existing measures established by FDOT and the federal programs mentioned below.

Highway Performance Monitoring System (HPMS)

- Contains system information on all public roads, and information on characteristics of arterial and collector functional systems.
- The data are used extensively in the assessment of highway system condition, performance, and investment needs.

FDOT Transportation Asset Management Plan (TAMP)

The principal objectives for asset management are:

- Ensure the safety and security of transportation customers.
- Minimize damage to infrastructure from vehicles.
- Achieve and maintain a state of good repair for the transportation assets.
- Reduce the vulnerability and increase the resilience of critical infrastructure to impacts from sea level rise, extreme weather, and events.

Florida Transportation Plan (FTP)

The 2020 Florida Transportation Plan Vision element outlines seven key goals. FMTP goals align with these FTP goals and the targeted performance measures in this technical memorandum are useful to satisfy these goals, as follows:

- Safety and security for Florida's residents, visitors, and businesses
- Agile, resilient, and quality transportation infrastructure
- Connected, efficient, and reliable mobility for people and freight
- Transportation choices that improve equity and accessibility
- Transportation solutions that strengthen Florida's economy
- Transportation solutions that enhance Florida's environment
- Transportation systems that enhance Florida's communities

FDOT Source Book

The FDOT Source Book is the trusted source for measuring the performance of Florida's multimodal transportation system. It reports on several facets of performance including:

- Mobility: how people and goods are moved.
- External Factors: how the needs of traveling public are impacted by the changes outside of the transportation systems.
- Infrastructure: how transportation assets are being managed.
- Safety: how safely people travel through the state.

Highway Performance

The different highway performance measures outlined in this technical memorandum are listed below:

- Combination Truck Miles Traveled
- Percent of Empty Trucks
- Combination Truck Planning Time Index
- Truck Bottlenecks
- Highway Pavement Conditions
- Bridge Conditions
- Highway (Truck) Safety
- Truck Parking Utilization
- Truck Detention Time

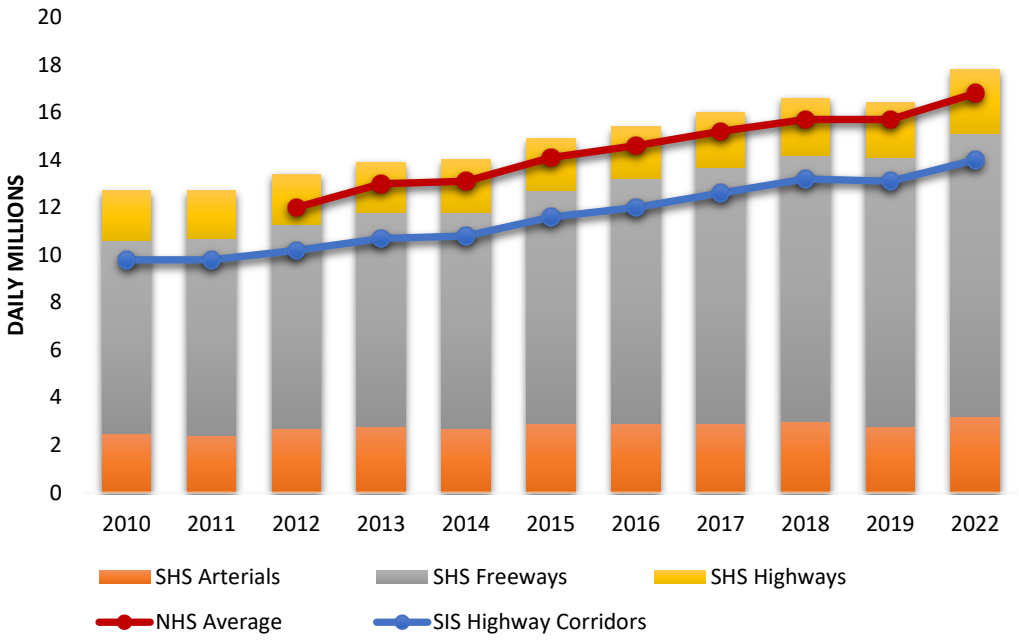
Combination Truck Miles Traveled

Combination Truck Miles Traveled (TMT) is computed by multiplying daily Vehicle Miles Traveled (VMT) by the combination truck factor. The combination truck factor is provided on a county-by-county basis and represents the proportion of heavy vehicles that are combination trucks (Classes 8-13).

$$Combination\ Truck\ Miles\ Traveled = \sum Segment\ Length \times Volume \times Combination\ Truck\ Factor$$

Figure 1 provides the annual trends of average daily CTMT for different facility types in the state. The number of daily combination truck miles traveled on Florida's State Highway System (SHS) has been steadily increasing since 2010. Truck miles traveled increased by 40.16 percent from 2010 to 2022. In 2022, there were 17.8 million average daily truck miles traveled, a 7.88 percent increase from 2019. Figure 2 depicts a statewide map for Annual Average Daily Truck Traffic (AADTT) in 2022 along major roadways in the state. Figure 3 depicts a statewide map of percentage changes in AADTT from 2015 to 2022.

Figure 1 | Average Daily Combination Truck Miles Traveled by Facility Type in Florida



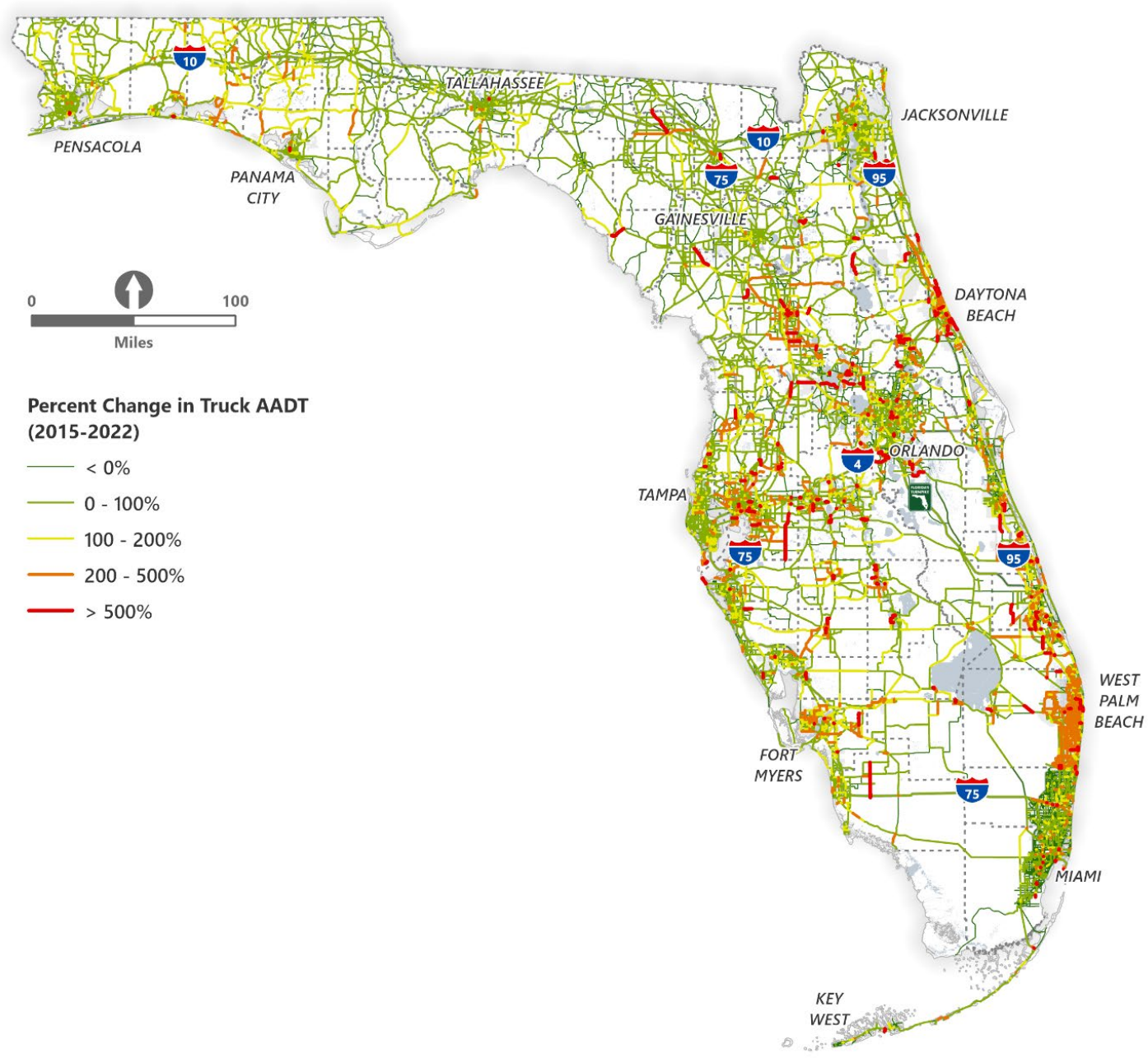
Data Source: *FDOT Source Book*

**No analysis available for years 2020 and 2021*

Figure 2 | Annual Average Daily Truck Traffic (2022)

***Data Source**: FDOT Transportation Data and Analytics Office*

Figure 3 | Percent Change in Annual Average Daily Truck Traffic (2015-2022)

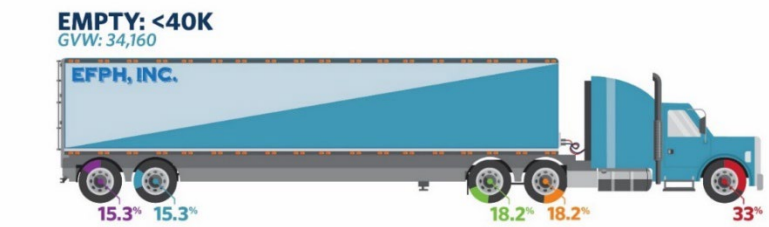


***Data Source**: FDOT Transportation Data and Analytics Office*

Percent of Empty Trucks

The truck empty haul measure discussed in this section utilizes Weigh-in-Motion (WIM) data spanning the years 2015 to 2022. The dataset comprises individual records of trucks passing through each WIM site within the state, containing information such as date, time, travel direction, travel lane, gross vehicle weight, vehicle class, vehicle length, axle spacing, and axle weights for each truck. Based on a 2018 study done by Transportation Data and Analytics, it has been determined that if the gross vehicle weight is less than 40,000 lbs., it is categorized as "empty." Figure 4 illustrates a typical example of a Class 9 empty truck. An analysis of the distribution of truck traffic by vehicle class at these sites reveals that Class 9 trucks are responsible for hauling 75 percent of the total tonnage passing through the WIM sites in Florida. As a result, the analysis of empty trucks primarily concentrates on Class 9 vehicles.

Figure 4 | Class 9 Truck Axle Weight Load Distribution



***Data Source**: FDOT Transportation Data and Analytics Office*

As depicted in Table 1, the three WIM sites (I-10, I-75, and I-95) located near the state border exhibit a notable disparity in the proportion of empty trucks entering the state versus those exiting. The findings suggest that Florida functions primarily as a consumer state, resulting in a higher prevalence of empty trucks departing from the state.

Table 1 | Percentage of Empty Class 9 Trucks by Direction of Travel (2015-2022)

Year	I-95		I-10		I-75	
	Out of State	In-State	Out of State	In-State	Out of State	In-State
2015	40.97%	14.97%	28.07%	17.23%	N/A	N/A
2016	38.20%	13.23%	29.12%	16.93%	N/A	N/A
2017	37.14%	11.53%	29.64%	16.88%	47.93%	11.06%
2018	34.94%	9.35%	28.84%	22.16%	N/A	N/A
2019	32.29%	9.52%	30.50%	18.33%	N/A	N/A
2020	29.50%	8.02%	28.21%	16.18%	16.37%	10.74%
2021	65.00%	53.77%	31.94%	16.81%	19.20%	11.59%
2022	44.75%	N/A	37.26%	15.17%	43.77%	15.49%

*N/A – Data not available/collected.

***Data Source**: FDOT Transportation Data and Analytics Office*

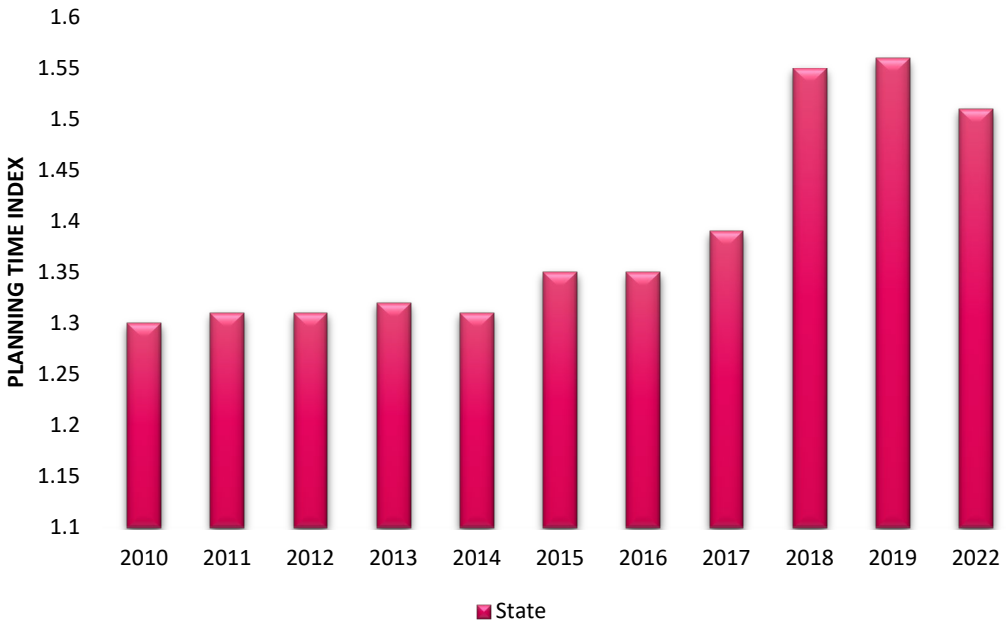
Combination Truck Planning Time Index

As per the FDOT Source Book, the combination truck planning time index (PTI) is defined as ratio of the 95th percentile peak period travel time to the free flow travel time. This measure represents the additional time that a shipper should budget to ensure on-time arrival 95 percent of the time. The reporting period is the peak period (4:00 p.m. to 6:00 p.m.) for the urbanized areas of the seven largest Florida Metropolitan Planning Organizations (MPO) and the peak hour (hour with the highest hourly factor) for other urbanized areas and elsewhere. For this measure: the higher the PTI, the less reliable, and the lower the PTI, the more reliable on-time truck shipments are.

$$PTI = \frac{Travel\ Time_{95th\ percentile}}{Travel\ Time_{free-flow}}$$

Figure 5 provides the annual trends of this index for the state. From 2010 to 2022, combination truck PTI during peak hour increased from 1.30 to 1.51. For a trip that would take 10 minutes in free-flow conditions, the 95th percentile travel time is 15.1 minutes with a PTI of 1.51. The shipper needs to plan an additional 5.1 minutes for the trip to arrive on time.

Figure 5 | Peak Hour Combination Truck Planning Time Index (2010-2022)



*Includes Freeways only | *No analysis available for years 2020 and 2021.*

Data Source: *FDOT Source Book*

Truck Bottlenecks

The roadway segments that rank highest in recurring congestion or in non-recurring congestion are defined as truck bottlenecks in the state of Florida. Appendix A explains the methodology for identifying truck bottlenecks and additional analysis outcomes. Recurring congestion is quantified as the number of hours of travel above the free flow conditions, defined as the Vehicle Hours of Delay (VHD). Non-recurring congestion, quantified as the number of Vehicle Hours of Unreliability (VHU) accumulated in each segment, was calculated as the difference between the 95th percentile travel time and the average travel time. These congestion measures are explained in more detail in Appendix A. The objective of the analysis was to describe the recurring and non-recurring congestion during a regular weekday. It is important to distinguish these two measures because research shows that freight users are more concerned with non-recurring congestion than recurring congestion. Motor carriers can easily schedule deliveries to consider recurring congestion; however non-recurring congestion is difficult to predict, which could lead to delays and later deliveries. This causes disruptions for not only the motor carrier, but also for the receiver. One of the most important factors in modern-day supply-chains is being on-time, which becomes much more difficult with high levels of non-recurring congestion. Figure 6 depicts the state's top 10 truck bottlenecks (for recurring or non-recurring congestion), and the top 100 truck bottlenecks (for recurring or non-recurring congestion) in 2021. Table 2 provides the top 10 truck bottlenecks for recurring and non-recurring congestion in 2021.

The top recurring bottlenecks in the state are along I-4 near I-275 interchange. The top non-recurring bottleneck in the state is along U.S 27 near Florida Interchange. The I-4, Central Florida, and major highways in Miami-Dade County are also among the top 10 truck bottlenecks. It is important to note that the American Transportation Research Institute (ATRI) publishes a list of the top 100 bottlenecks in the country every year. In 2023, the ATRI study identified that the 73rd top truck bottleneck in the U.S. is in Florida. It is in Tampa along I-4 and I-275. The same truck bottleneck is one of the top-ranked in the state as per the analysis conducted in this plan. It should be noted that the methodology and data sources used to assess truck bottlenecks by ATRI differs from the study described here. As such, the results of each study vary. Future work should determine the causes of each truck bottleneck identified in this plan.

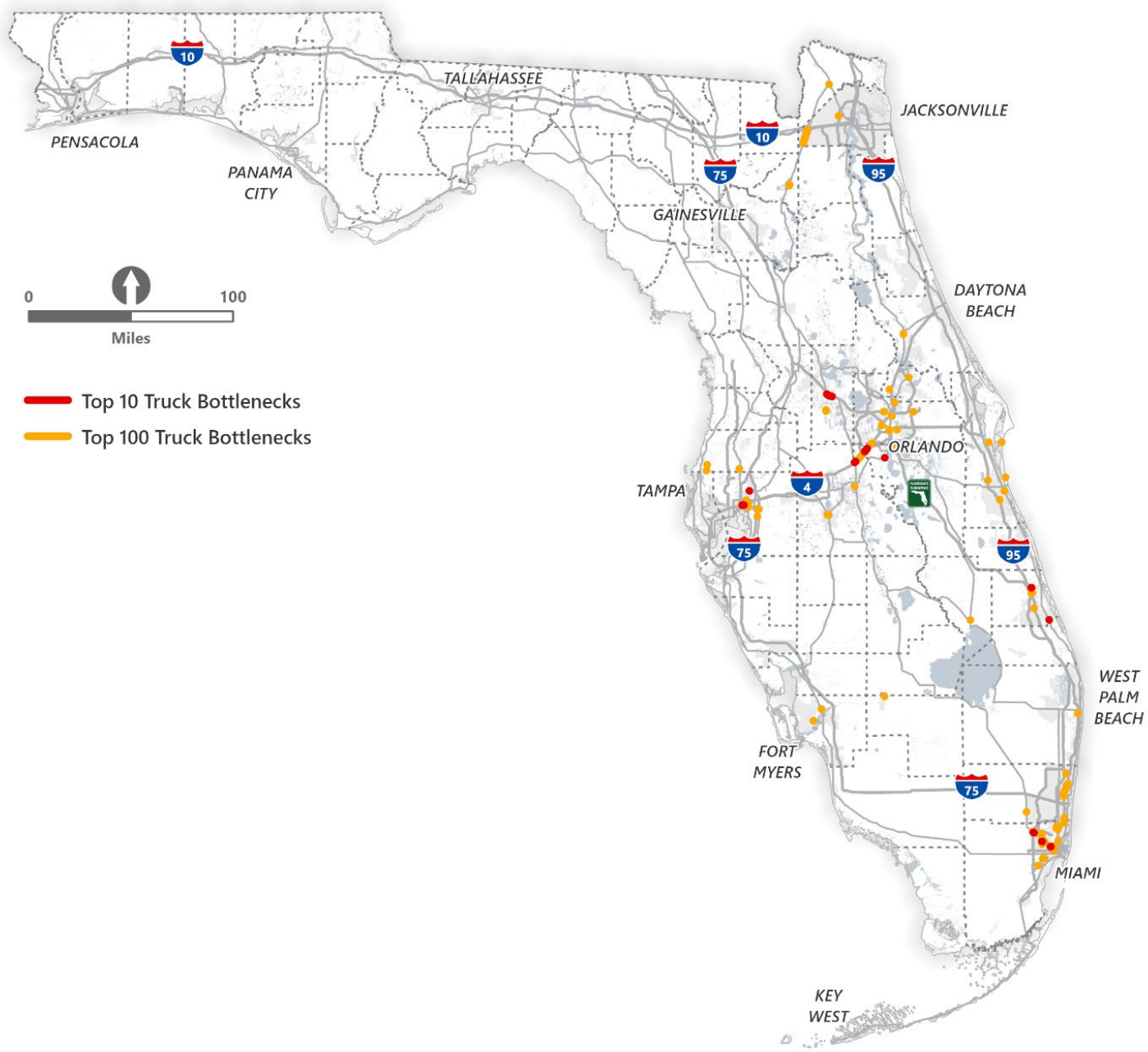
Table 2 | Top 10 Truck Bottlenecks for Recurring and Non-Recurring Congestion (2021)

Rank	Recurring Congestion		Non-Recurring Congestion	
	Roadway Section	County	Roadway Section	County
#1	I-4 W near I-275 interchange*	Hillsborough	US-27 S – eastbound direction near Florida Turnpike interchange	Lake
#2	I-4 W near SR 429 interchange - southbound	Osceola	I-4 Eastbound near US 27 interchange	Polk
#3	I-4 Eastbound near US 27 interchange	Polk	NW 36th St westbound near Miami International Airport	Miami-Dade
#4	I-4 W near I-275 interchange*	Hillsborough	W Okeechobee Rd eastbound at Turnpike interchange	Miami-Dade
#5	W Okeechobee Rd westbound at Turnpike interchange	Miami-Dade	E Fowler Ave near Temple Terrace	Hillsborough
#6	W Okeechobee Rd eastbound at Turnpike interchange	Miami-Dade	US-27 S – eastbound direction near Florida Turnpike interchange	Lake
#7	I-4 W near I-275 interchange*	Hillsborough	NW Jensen Beach Blvd eastbound near North River Shores	Martin
#8	Orange Ave eastbound near I-95 interchange	St Lucie	Orange Ave eastbound near I-95 interchange	St Lucie
#9	NW 36th St westbound near Miami International Airport	Miami-Dade	I-4 W near SR 429 interchange - southbound	Osceola
#10	NW 74th St near MetroRail Palmetto Station	Miami-Dade	S John Young Pkwy	Osceola

Data Source: *FHWA National Performance Measurement Research Data Set and FDOT Freight and Rail Office*

** The three segments of I-4 W are in proximity to the I-275 interchange but constitute successive corridor segments. It's important to note that these segments are distinct and not identical to each other.*

Figure 6 | Florida's Major Truck Bottlenecks (2021)



Data Source: *FDOT Freight and Rail Office (2021)*

Highway Pavement Conditions

The FHWA regulations (23 CFR 490 Subpart C) define the national performance management measures for assessing the condition and reporting on targets established for the pavements on the National Highway System (NHS). The measures are:

- Percentage of Interstate pavements by lane mile in Good condition
- Percentage of Interstate pavements by lane mile in Poor condition
- Percentage of non-Interstate NHS pavements by lane mile in Good condition
- Percentage of non-Interstate NHS pavements by lane mile in Poor condition

Table 3 shows the FHWA's criteria for assessing pavement condition. The pavement performance measures refer to the percentage of pavement classified as in Good or Poor condition based on ratings for roughness (IRI), cracking percent, rutting, and faulting. The segment of pavement is considered to be in Good condition if all three metrics (IRI, cracking percent, and rutting or faulting) meet the criteria for Good. The segment is considered to be in Poor condition if two of the three metrics are rated to be Poor; and Fair if the segment does not meet the criteria for either Good or Poor condition.

Table 3 | Pavement Condition Criteria (FHWA)

Rating Factors	Good	Fair	Poor
IRI (in/mile)	< 95	95-170	>170
Cracking Percent	<5	5-10 (CRCP) 5-15 (Jointed) 5-20 (Asphalt)	>10 (CRCP) >15 (Jointed) >20 (Asphalt)
Rutting (in) for asphalt only	<0.2	0.2-0.4	>0.4
Faulting (in) for jointed only	<0.1	0.1-0.15	>0.15

Data Source: *FDOT Source Book*
Continuously Reinforced Concrete Pavements - CRCP

Table 4 presents the targets for the pavement assets. The Department's target for the SHS is mandated by statute (s., 334.046). In accordance with the federal regulations, the Department established statewide targets in coordination with the state's MPOs, to the extent practicable, for each FHWA pavement performance measure. The condition/performance of the NHS pavement assets is assessed by FHWA based on these targets.

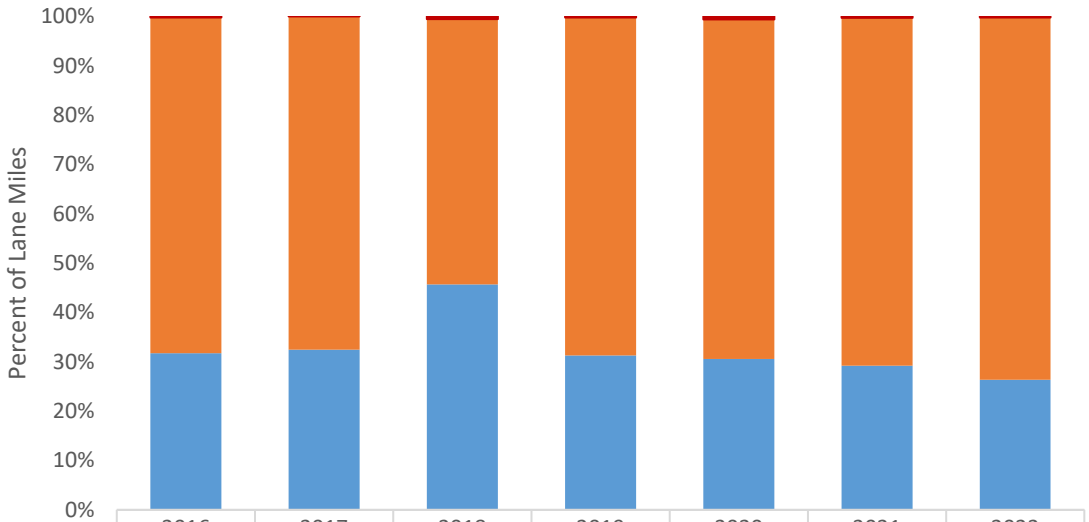
Table 4 | FDOT Pavement Targets

FHWA Performance Measure	2023 Target
% of Interstate pavement by lane mile in good condition.	60.0%
% of Interstate pavement by lane mile in poor condition.	5.0%
% of non-Interstate NHS pavement by lane mile in good condition.	40.0%
% of non-Interstate NHS pavement by lane mile in poor condition.	5.0%

Data Source: *Transportation Asset Management Plan (TAMP), 2022*

Figure 7a and Figure 7b present the condition of the NHS pavement in Florida based on FHWA performance measures. Overall, pavement on the NHS is in Good and Fair condition with a relatively small fraction recorded as in Poor condition. For calculating % of NHS pavements in Good/Fair/Poor Condition, sections with bridges, unpaved surfaces, "other" surface types and missing data (any of IRI, Cracking %, Rutting or Faulting) are excluded. A section can have missing, invalid or unresolved data (any of IRI, Cracking %, Rutting or Faulting) due to roadway under construction, data not collected, etc.

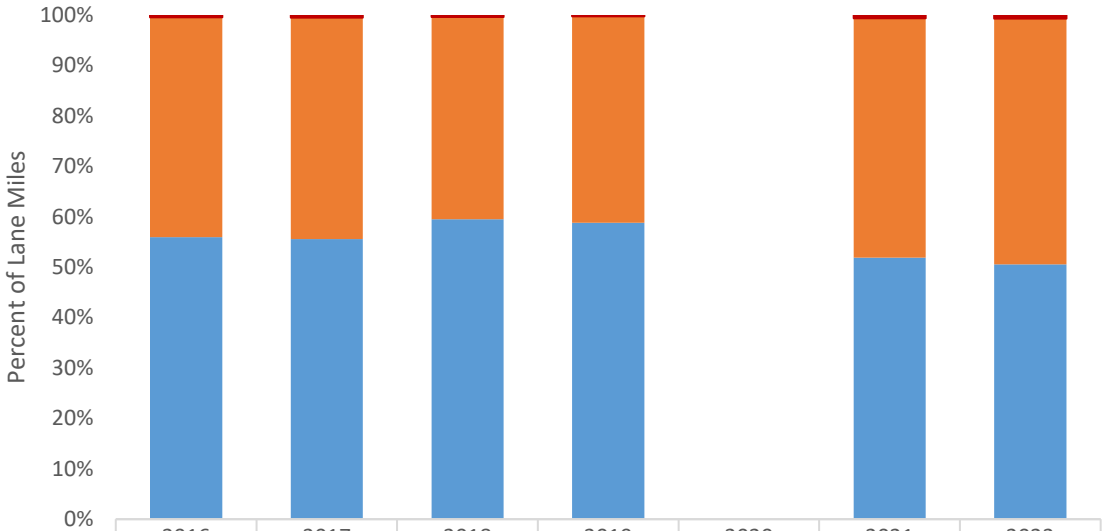
Figure 7a | NHS Interstate Pavement Condition



	2016	2017	2018	2019	2020	2021	2022
Poor	0.24%	0.01%	0.57%	0.23%	0.61%	0.29%	0.25%
Good	68.00%	67.51%	53.73%	68.45%	68.80%	70.49%	73.39%
Fair	31.77%	32.48%	45.70%	31.32%	30.59%	29.21%	26.36%

Data Source: *FDOT Source Book*

Figure 8b | Non-Interstate - NHS Pavement Condition



	2016	2017	2018	2019	2020	2021	2022
Poor	0.39%	0.46%	0.37%	0.20%	0.00%	0.62%	0.64%
Good	43.64%	43.98%	40.10%	40.96%	0.00%	47.50%	48.78%
Fair	55.97%	55.56%	59.53%	58.84%	0.00%	51.87%	50.57%

Data Source: *FDOT Source Book*

Figure 8 depicts a statewide map of pavement conditions for the NHS as per FHWA ratings in 2021. The statistics indicate that the state performs very well for pavement conditions with a few issue areas highlighted on the map.

Figure 9 | Florida's Pavement Conditions (2021)

Data Source: *Federal Highway Administration (FHWA)*

Bridge Conditions

The FHWA regulations (23 CFR 490 Subpart D) define the national performance management measures for assessing the condition and reporting on the targets established for bridges on the NHS. The measures are:

- Percentage of NHS bridges by deck area in Good condition.
- Percentage of NHS bridges by deck area in Poor condition.

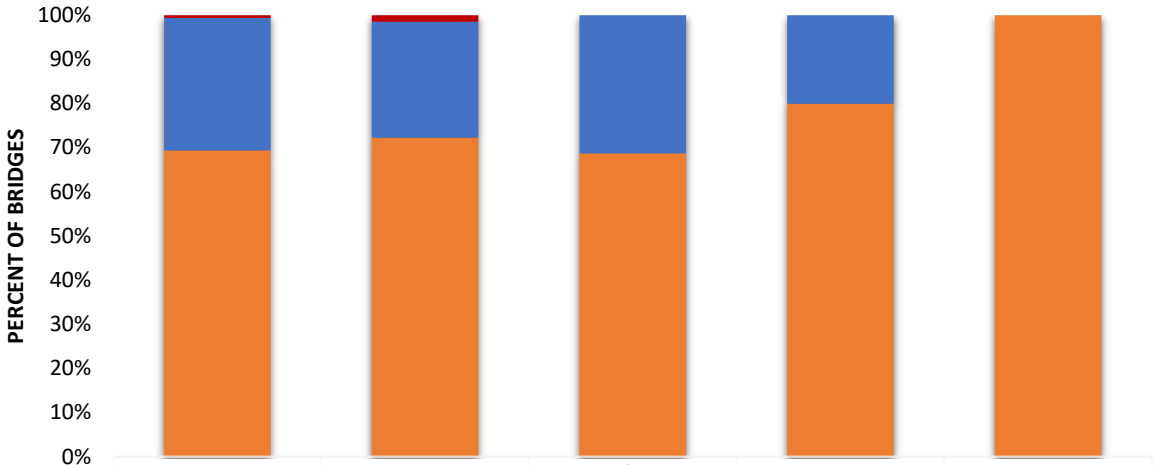
The FHWA uses the National Bridge Inspection (NBI) rating as its primary performance measure for the condition of bridges. However, as shown in Table 5, the rating criteria varies from what is used by the Department. The FHWA considers bridges to be in Good condition if the NBI rating is greater than or equal to 7; Fair condition if the NBI rating is 6 or 5; and Poor condition if the NBI rating is 4 or less. Table 5 shows the targets for the bridge assets. The Department's target for the SHS is mandated by statute (s., 334.046) and in accordance with the federal regulations, the Department established statewide targets in coordination with the state's MPOs, to the extent practicable, for each NHS pavement and bridge performance measure. The condition/performance of the NHS bridge assets will be assessed by FHWA based on these targets.

Table 5 | FHWA NHS Bridge Targets

FHWA Performance Measure	2023 Target
Percent of NHS bridges by deck area in good condition.	50%
Percent of NHS bridges by deck area in poor condition.	10%

Figure 9 depicts the NHS structural condition by maintenance responsibility. For FDOT-owned NHS bridges, 69.41 percent of the total NHS deck area is in Good condition and less than 1 percent is in Poor condition. This demonstrates the state's bridges are in a state of good repair, and do not exhibit signs of structural deterioration.

Figure 10 | NHS Structural Condition by Maintenance Responsibility

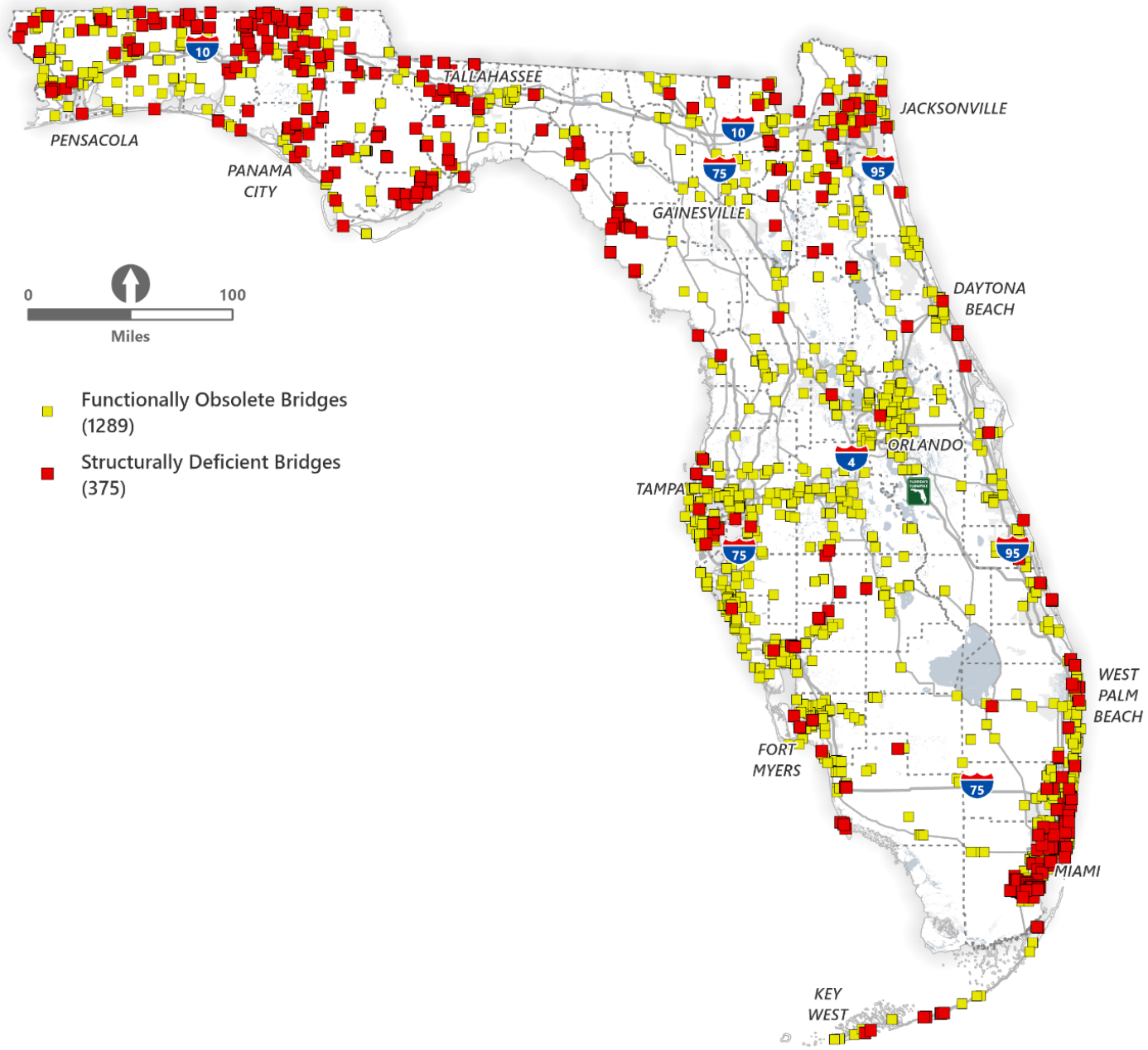


	FDOT	County	City / Town	Other State	Others
Poor	0.62%	1.46%	0.00%	0.00%	0.00%
Fair	29.96%	26.28%	31.25%	20.00%	0.00%
Good	69.41%	72.26%	68.75%	80.00%	100.00%

Data Source: *2022 FDOT Transportation Asset Management Plan*

Figure 10 depicts all structurally deficient (SD) and functionally obsolete (FO) bridges in the state of Florida. FO means that the bridge design is outdated. For example, narrow shoulders, narrow lanes, or older traffic barriers can induce the functionally obsolete classification. Functionally obsolete bridges are scheduled for replacement or rehabilitation as budgets permit. There were 1,289 such bridges in Florida as of 2022. SD means that one of the NBI structural condition states is 4—Poor, or worse, for Deck, Superstructure, Substructure, or Culvert. For a description of NBI terms, see the (Bridge Management System Coding Guide). Structurally deficient bridges are recommended for repair, or scheduled for replacement; meanwhile, they are posted as necessary for load restrictions, or closed. As per 2022 National Bridge Inventory, there are 375 structurally deficient bridges in the state.

Figure 11 | Florida's Functionally Obsolete and Structurally Deficient Bridges (2022)



Data Source: *National Bridge Inventory*

FDOT's core bridge measure is the percent of bridges on the SHS meeting FDOT standards. The target is to have at least 90 percent of bridges maintained by the Department achieve a NBI rating of 6 or higher to meet the mandate of 334.046(4), F.S.

Highway (Commercial Vehicles) Safety

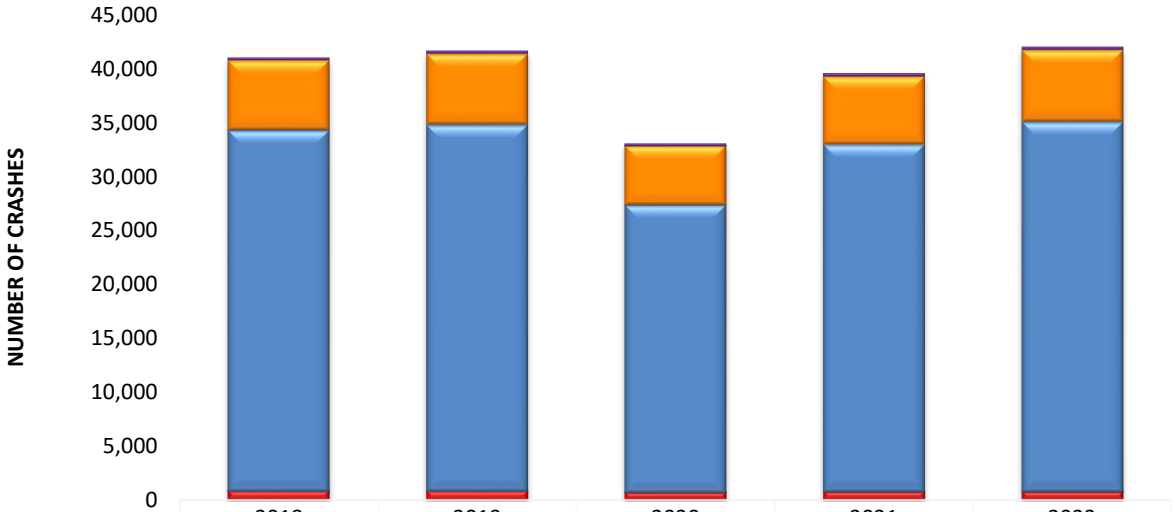
The assessment of highway safety with respect to commercial vehicles is conducted in this analysis through the utilization of three distinct performance metrics, each of which is defined below:

- *Number of Commercial Vehicle Fatalities:* The total number of fatalities on Florida's roadways as a direct result of a traffic crash involving a commercial vehicle within 30 days of the crash occurrence.
- *Number of Commercial Vehicle Injuries:* The total number of injuries from traffic crashes involving a commercial vehicle that occur on Florida's roadways.
- *Number of Commercial Vehicle Crashes that resulted in Injury or Fatality:* The total number of traffic accidents on Florida's roadways involving a truck that resulted in an injury or/and fatality.

Figure 11 illustrates the categorization of commercial vehicle crashes by severity type, while Figure 12 presents data on the fatalities and injuries associated with commercial vehicles. Between 2018 and 2022, Florida's roadways witnessed 197,513 commercial vehicle collisions, leading to 1,465 fatalities. The number of fatalities in crashes involving commercial vehicles has shown an upward trend, with a 14.4 percent increase in fatalities, rising from 292 fatalities in 2018 to 334 fatalities in 2022.

Figure 13 shows the areas in Florida with the highest concentration of commercial vehicle crashes. Major metropolitan areas such as Tampa, Orlando, Jacksonville, and Miami-Fort Lauderdale have higher occurrences of truck crashes. Unsurprisingly, urban areas have more occurrences of truck crashes than rural areas.

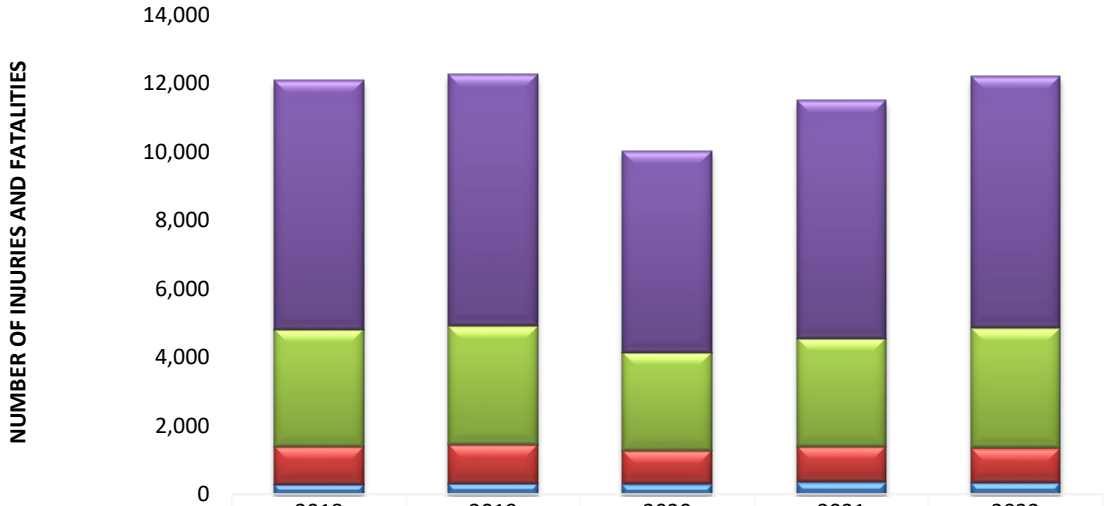
Figure 12 | Commercial Vehicle Crashes by Severity Type (2018-2022)



	2018	2019	2020	2021	2022
Fatality	270	283	283	327	302
Injury	6,470	6,559	5,512	6,292	6,640
No Injury	33,422	33,969	26,667	32,207	34,285
Serious Injury	864	843	746	788	784

Data Source: *Signal Four Analytics. 2023*

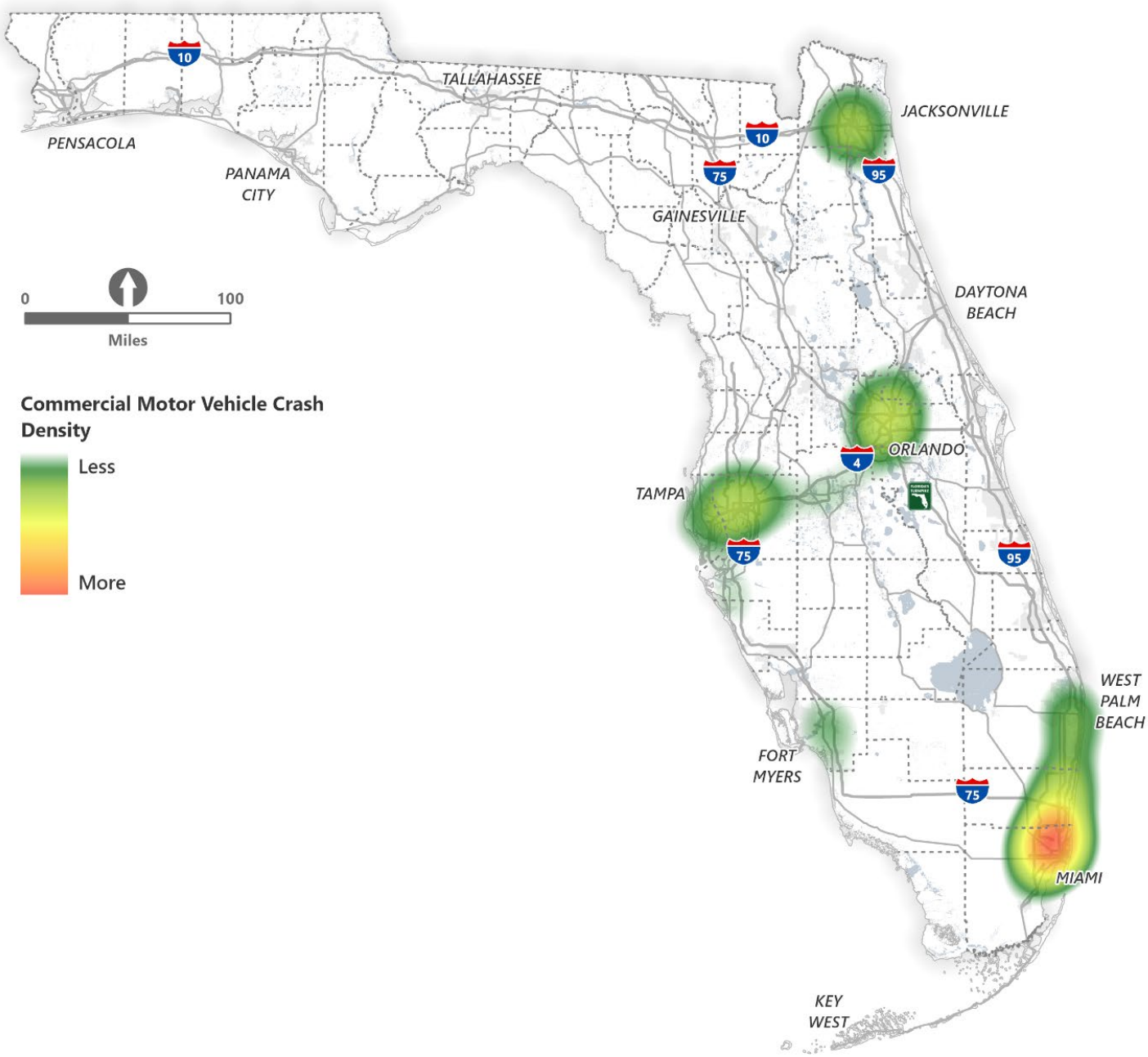
Figure 13 | Number of Fatalities and Injuries Involving Commercial Vehicles (2018-2022)



	2018	2019	2020	2021	2022
Possible Injuries	7,284	7,346	5,891	6,961	7,336
Non-Incapacitating Injuries	3,411	3,467	2,868	3,162	3,523
Incapacitating Injuries	1,107	1,142	969	1,037	1,010
Fatalities	292	312	301	358	334

Data Source: *Signal Four Analytics, 2023.*

Figure 14 | Florida's Truck Crash Hot Spots (2018-2022)



Data Source: *Signal Four Analytics, 2023*

Truck Parking Utilization

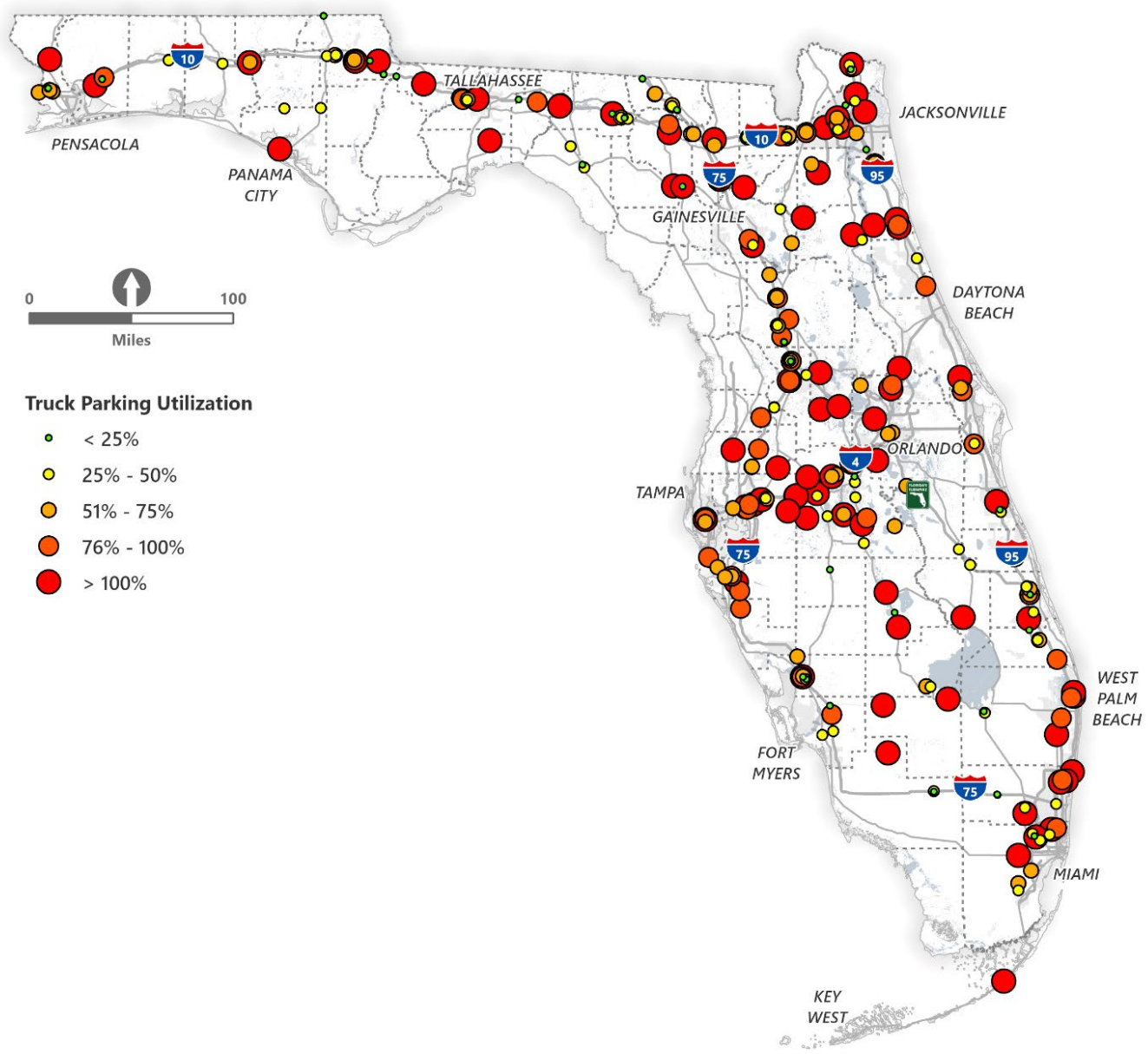
The identification of all truck parking locations was part of the previous technical memorandum. The utilization of each truck parking location in the state was determined through an analysis of truck GPS data (ATRI). The methodology and outcomes of this analysis are detailed in a comprehensive 2019 report. The analysis defines truck parking utilization as the percentage of total parked trucks (adjusted for an expansion factor) at a specific hour of the day relative to the total truck parking spaces at that location. This approach offers insights into how truck parking activity varies throughout the day for various facility types and geographic areas. The computation of this measure relies on hourly utilization datasets and supply information.

Figure 14 presents the truck parking utilization for individual locations across the state. The findings clearly highlight that private locations exhibit higher utilization throughout the day compared to public locations. Figure 15 identifies major areas of concern by considering both highly utilized truck parking locations and locations with a high density of unauthorized truck stops. These different figures collectively underscore that truck parking is a significant issue in the state of Florida, necessitating both traditional and innovative solutions to address this problem.

Since this statewide analysis was last conducted in 2019, FDOT Districts have initiated more than 30 separate truck parking studies and projects that have looked at the issue from the district, region, corridor, and facility levels. The efforts have focused on identifying the existing supply and demand of public and private truck parking spaces, identification of potential sites that can be expanded or converted to truck-only parking facilities, and the development of concepts and projects to increase parking capacity.[1] Another statewide analysis will be conducted in 2024.

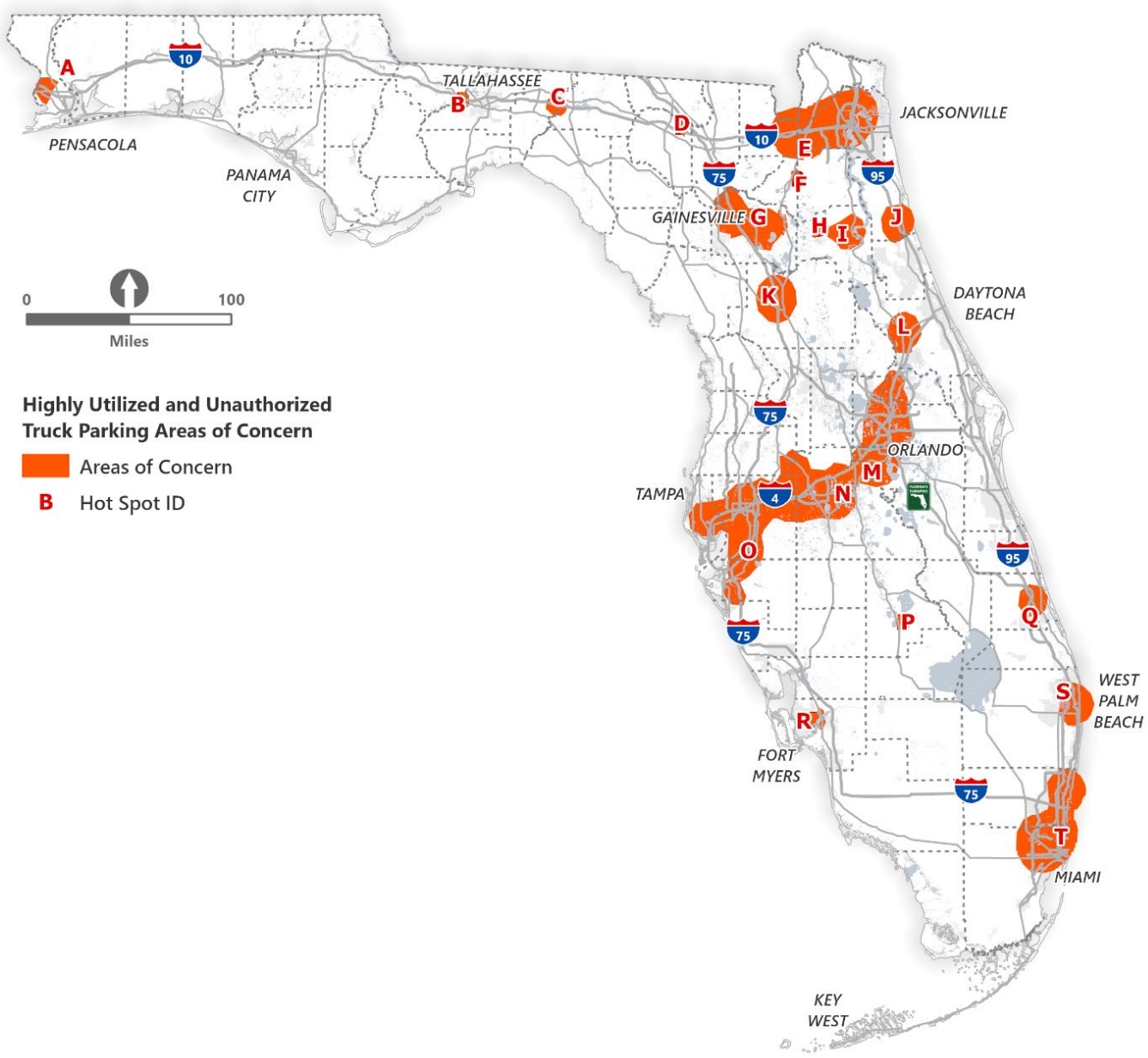
[1] *FDOT Truck Parking Implementation Study, 2023*

Figure 15 | Truck Parking Utilization



Data Source: *FDOT Transportation Data and Analytics, 2019*

Figure 16 | Truck Parking Areas of Concern



Data Source: *FDOT Transportation Data and Analytics, 2019*

Truck Detention Time

Truck detention times measure the average wait times at docks or facilities for freight pickup and delivery, incurring costs for carriers due to idle time. Since carriers are often paid per mile driven, this idling is non-revenue generating and impacts their bottom line. Detention also disrupts operational efficiency by causing scheduling issues for drivers, potentially leading to missed loads. Calculating truck detention times involves using geofencing and telematics on trucks to monitor detention at specific locations. This analysis assesses detention times across various time frames, geographic areas, and industries in Florida.

Table 6 presents the annual average truck detention times at three major Florida seaports (Port of Jacksonville, Port of Miami, and Port of Tampa Bay). Notably, there was a significant increase in truck detention times at Port Tampa Bay, although it is important to mention that these times decreased after spiking in 2020-2021. The table also outlines the annual average truck detention durations for various facility types in Florida. Among these, truck detention times have risen for facility categories such as Apparel Retail, Distributors, Industrial Machinery, Internet & Direct Marketing Retail, and Soft Drinks.

Table 6 | Annual Average Truck Detention Time (mins) for different facility types and Seaports

Facilities	2018	2019	2020	2021	2022
JAXPORT	151	109	125	126	135
Port Miami	118	131	127	131	133
Port Tampa Bay	112	117	161	185	120
Air Freight & Logistics	118	125	120	137	141
Apparel Retail	143	175	151	146	158
Automobile Manufacturers	98	109	118	108	110
Automotive Retail	128	137	135	129	126
Computer & Electronic Retail	125	109	97	102	129
Department Stores	142	107	155	169	133
Distributors	181	176	156	172	186
Diversified Metals & Mining	146	210	112	104	134
Food Distributors	155	165	161	179	174
Home Improvement Retail	146	147	139	128	121
Industrial Machinery	65	64	94	111	165
Internet & Direct Marketing Retail	171	169	150	168	175
Oil & Gas Refining & Marketing	115	129	135	125	120
Soft Drinks	113	145	158	168	183
Specialty Stores	173	166	139	137	139

Rail Performance

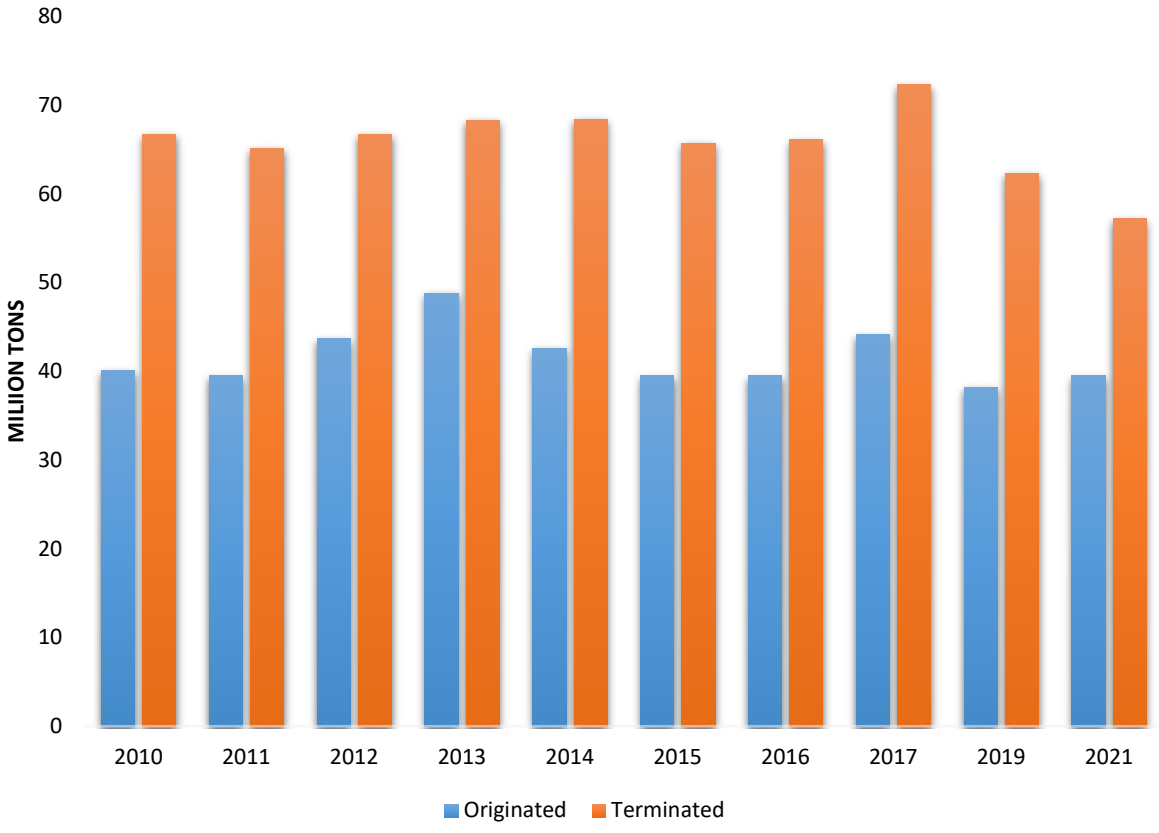
Two different rail performance measures outlined in this technical memorandum are listed below:

- Rail Tonnage
- Rail Safety

Rail Tonnage

In 2021, Florida ranked 11th in the country with 39.5 million originated rail tons, and 7th with 57.2 million rail terminated tons, according to the Association of American Railroads data. On the other hand, Florida ranked 11th in the country with 639,400 originated rail carloads, and ranks 8th with 990,400 terminated rail carloads. The statistics emphasize the state being a consumer state (Figure 16). Figures 17 and 18 provide a breakdown of commodity shares for rail traffic originating and terminating in Florida, respectively.

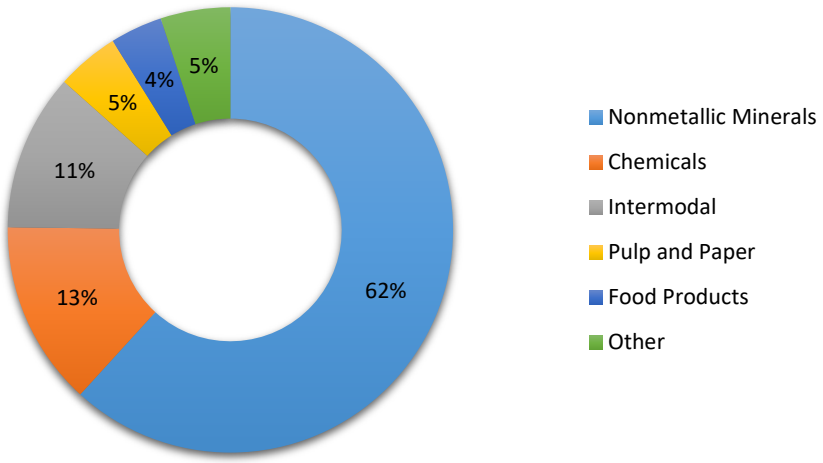
Figure 17 | Florida Rail Tonnage Trends



** 2018 and 2020 data is not published*

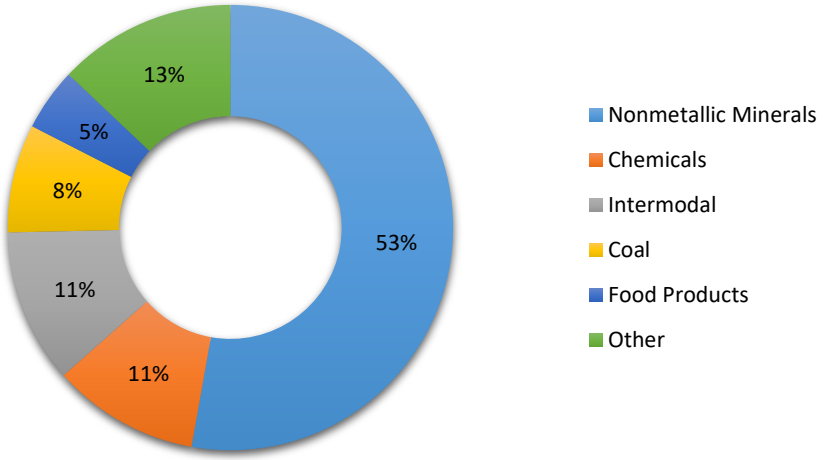
Data Source: *Association of American Railroads and FDOT Source Book, 2021*

Figure 18 | 2021 Major Rail Commodities Originating in Florida (based on tons)



Data Source: *Association of American Railroads, 2021*

Figure 19 | 2021 Major Rail Commodities Terminating in Florida (based on tons)

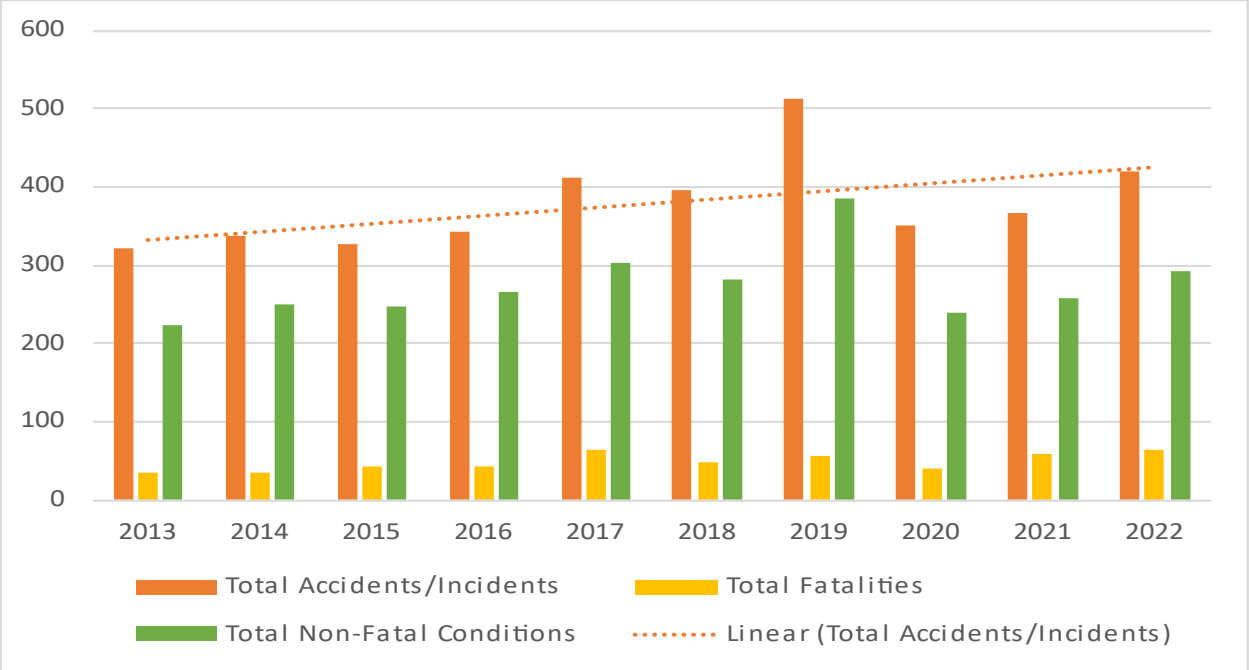


Data Source: *Association of American Railroads, 2021*

Rail Safety

The following is a statistical review of rail safety in Florida over the 2013 to 2022 period. It addresses the rail incident trends and provides details as to the type of rail incidents, those affected, and the cause. Figure 19 displays the total rail incidents in Florida over a 10-year timeframe. Florida experienced an upward trend of rail incidents totaling 3,790 occurrences between 2013 and 2022. This period saw a total of 2,748 injuries and 485 deaths.

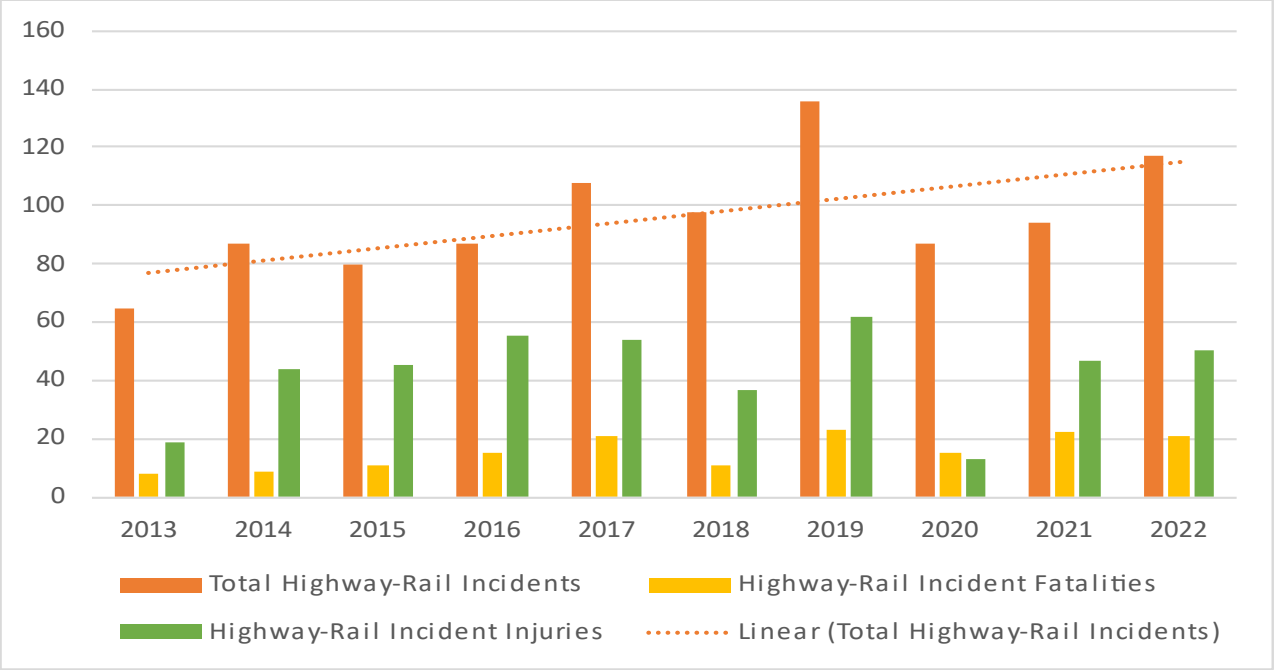
Figure 20 | Total Rail Incidents in Florida, 2013-2022



Data Source: *FRA Office of Safety Analysis, 2023*

Figure 20 shows the number of highway-rail grade crossing incidents, fatalities, and injuries that have occurred at Florida's grade crossings over the past decade. During that time period, 959 of the 3,790 incidents occurred at a highway-railroad grade crossing. The figure shows that the number of incidents occurring at crossings has also been trending upward. Florida ranked number four in most highway-rail grade crossing incidents in the U.S. in 2022, with 117 incidents, 21 fatalities, and 50 injuries.

Figure 21 | Total Highway-Rail Grade Crossing Incidents in Florida, 2013-2023



Data Source: *FRA Office of Safety Analysis, 2023*

Seaport Performance

The seaport throughput performance measures, based on tonnage and Twenty-foot Equivalent Units (TEUs), are summarized in this section.

Seaport Tonnage and TEU

Seaport tonnage quantifies the international and domestic waterborne tons of cargo handled at Florida's public deep-water seaports. This measure includes all types of cargo handled at a seaport, namely liquid bulk cargo, containerized cargo, dry bulk cargo, and breakbulk cargo. The tonnage, TEUs data pertaining to various seaports were obtained from the Florida Seaport Mission Plan of 2023.

Table 7 provides an overview of the total tonnage movements at various Florida Seaports, along with a breakdown of significant cargo categories. Florida's seaports moved 22.4 M tons of dry bulk, 54.9 M tons of liquid bulk, 9 M tons of breakbulk, and 26.2 M tons of containerized cargo, totaling 112.5 M tons and 4.3 M TEUs in all in 2022. In the state of Florida, Port Tampa Bay claims the top position for total tonnage, dry bulk, and liquid bulk operations. JAXPORT leads in breakbulk tonnage in the state, while Port Miami secures the number one spot for containerized movements (in state).

Table 7 | Waterborne Cargo Types Handled by Florida Seaports (by Tonnage in 2022)

Florida Seaport	Dry Bulk	Liquid Bulk	Break bulk	Containerized Cargo	Total Tonnage	TEU
Port of Pensacola	86.6%	0.0%	13.2%	0.2%	421,438	678
Port Panama City	48.8%	1.1%	40.9%	9.5%	2,023,431	54,792
Port Tampa Bay	30.1%	64.0%	3.5%	2.4%	34,428,184	178,637
SeaPort Manatee	21.0%	59.0%	7.5%	12.8%	10,790,964	177,108
Port Miami	0.0%	0.0%	0.0%	100.0%	9,853,645	1,197,664
Port Everglades	6.8%	65.3%	1.0%	26.8%	27,351,508	1,107,546
Port of Palm Beach	22.6%	15.4%	4.1%	57.9%	2,560,462	262,233
Port Canaveral	33.4%	50.8%	15.7%	0.1%	6,564,851	2,050
JAXPORT	21.2%	27.0%	24.3%	27.6%	18,160,342	1,319,304
Port of Fernandina	1.5%	0.0%	80.7%	17.8%	371,180	10,042
Statewide	**19.9%**	**48.8%**	**8.0%**	**23.3%**	**112,532,005**	**4,310,054**

** The ports of Fort Pierce, Key West, St. Joe, and St. Pete did not report cargo tonnage for 2022. Additionally, the ports of Citrus and Putnam did not provide data for 2022*

Data Source: *Individual Seaports, all data is provided in fiscal year.*

Aviation Performance

The aviation throughput performance, based on tonnage, is summarized in this section.

Aviation Tonnage

In 2022, approximately 3.3 million tons of air cargo flowed through the airports in Florida, according to the most recent data available from the Bureau of Transportation Statistics. This marks a 21 percent increase in tonnage since 2018. Tables 8 and 9 provide a list of the primary freight airports, both in terms of origin and destination. Among these, Miami International Airport stands out as the largest airport in Florida in terms of aviation cargo traffic. Other significant airports can be found in major cities such as Orlando, Tampa, Fort Lauderdale, and Jacksonville. Remarkably, there has been a substantial change in the movement of cargo tonnage at Lakeland Linder International Airport (LAL) in Florida. This shift can be primarily credited to the introduction of an Amazon Air regional air hub at LAL. The presence of several nearby facilities integrated into Amazon's delivery network has significantly contributed to this development.

Table 8 | Top 5 Freight Origin Airports (tons)

Florida Airports	2018	2019	2020	2021	2022
Miami International Airport	846,349	811,541	871,184	985,794	992,387
Orlando International Airport	109,037	114,753	99,369	100,177	92,422
Tampa International Airport	101,234	107,378	118,030	106,089	110,223
Fort Lauderdale-Hollywood International Airport	58,455	58,877	46,659	58,286	53,565
Jacksonville International Airport	40,756	44,136	45,815	43,690	40,842
Lakeland Linder International Airport	-	-	17,031	64,638	69,119

Data Source: *Bureau of Transportation Statistics, accessed in 2023.*

Table 9 | Top 5 Freight Destination Airports (tons)

Florida Airports	2018	2019	2020	2021	2022
Miami International Airport	1,189,185	1,191,681	1,281,049	1,371,926	1,455,877
Orlando International Airport	137,305	144,168	112,393	113,628	123,123
Tampa International Airport	110,618	112,823	126,805	111,253	123,106
Fort Lauderdale-Hollywood International Airport	69,407	61,696	45,967	58,355	60,015
Jacksonville International Airport	45,178	47,788	51,651	53,278	49,879
Lakeland Linder International Airport	-	-	19,173	63,453	78,782

Data Source: *Bureau of Transportation Statistics, accessed in 2023.*

Spaceport Performance

The number of launches from Florida's Space Coast has risen significantly in recent years, from 19 in 2017 to 72 in 2023, an increase of 279 percent during that period.

The number of payloads describes the amount of military, civil, and commercial cargo launched into space. Commercial payloads may include cargo, crew, scientific experiments, and other equipment. Payload weight is the mass carried aboard exclusive of that necessary for operation and flight. Table 10 shows that the number of commercial payloads has experienced a remarkable surge, soaring from 12 in 2017 to 1,506 in 2023, marking an astounding 12,550 percent growth. Likewise, payload weight grew from 170,047 pounds in 2017 to 2,051,940 in 2023, representing a 1,206 percent increase. Commercial payloads began increasing significantly in 2019 with the SpaceX Starlink constellation and SpaceX Transporter multi-payload rideshare missions. Two other commercial space companies that have launched from Florida are Blue Origin and United Launch Alliance.

Table 10 | Number of Payloads and Pounds of Payloads

Year*	Number of Payloads			Weight*
	DoD	Civil (NASA, NOAA…)	Commercial	
2017	6	1	12	170,047
2018	7	3	12	175,763
2019	30	2	131	239,774
2020	6	2	853	694,970
2021	6	2	1,109	740,798
2022	5	2	1,616	1,289,926
2023	6	1	1,506	2,051,940

Data Source: *FDOT Source Book* **Measured in pounds at sea level on Earth*

Appendix A. Truck Bottleneck Analysis Methodology and Outcomes

National Performance Management Research Data Set (NPMRDS)

Federal guidance published January 18, 2017 (23 CFR Part 490 – Subpart F) established, for the first time, a freight-specific performance measure – Truck Travel Time Reliability (TTTR). TTTR scores must be calculated annually for interstate highways and reported to the U.S. Department of Transportation (USDOT) along with other required HPMS information annually. Starting in 2018, USDOT requires the measure to be calculated yearly, reporting values for the previous calendar year. This measure is calculated using the National Performance Management Research Data Set (NPMRDS). NPMRDS is developed by the FHWA to provide a comprehensive picture of travel times throughout the National Highway Network for passenger vehicles and trucks. NPMRDS is a probe dataset commissioned by the FHWA, available for free to departments of transportation and metropolitan planning organizations.

NPMRDS data were obtained for Florida from January 1, 2021, to December 31, 2021. These data contained approximately 335.3 million observations of vehicle travel times on the NHS. NPMRDS segments the NHS in Florida into 15,652 segments identified by a Traffic Message Channel (TMC) code. The travel time records cover the entire analysis period of one year at a resolution of 15 minutes.

Because of the breadth and detail of NPMRDS data, users are not limited to only the calculation of the Federal TTTR metric. NPMRDS allows for analyzing other travel time-based performance metrics like those explored in this analysis to identify primary bottlenecks or chokepoints on the state's highway freight infrastructure.

Performance Measurement Methodology

The methodology used for the bottleneck analysis follows the recommendation of National Highway Cooperative Research Project (NHCRP) 07-24: *Estimating the Value of Truck Travel Time Reliability*. NHCRP Project 07-24 recommends methodologies for estimating recurring and non-recurring congestion from NPMRDS data.

The analysis aims to describe the locations of recurring and non-recurring congestion during an average weekday in 2021 in the Florida transportation system. While both measures are essential information for carrier operations, regular congestion patterns can be avoided, while event-driven instances of congestion are less predictable and more disruptive. Research suggests that freight users care much more about non-recurring congestion. Arriving on time is the most important factor in modern-day supply chains, and it becomes much more difficult under conditions where non-recurring congestion occurs at higher levels.

The NPMRDS data were filtered to exclude weekends and federal holidays in 2021, including New Year's Day, Martin Luther King Day, Memorial Day, Independence Day, Juneteenth, Labor Day, and the Thanksgiving and Christmas holidays. Truck and highway operations on these days are likely to be different than on an average weekday.

For each segment and each hour of the day, several travel metrics were calculated.

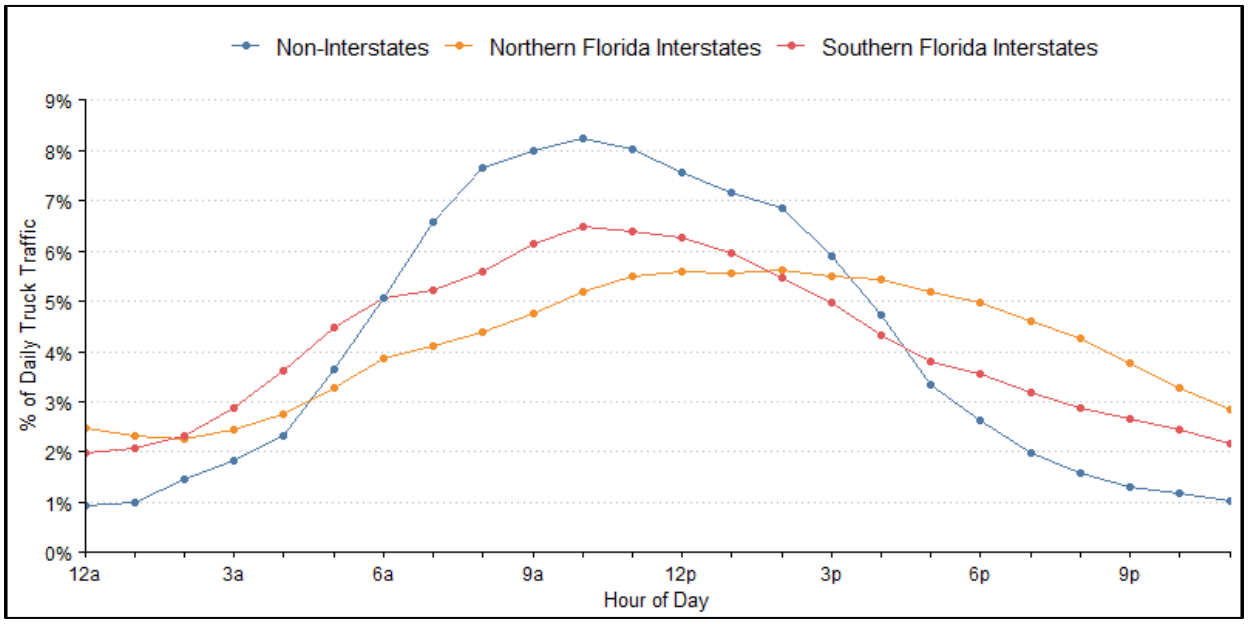
- $\bar{\tau}_h$ - The average travel time during the hour h
- $10\%_\tau$ – The 10th percentile travel time across all hours of the day; representative of a segment's free flow travel time
- $95\%\tau_h$– The 95th percentile travel time during hour h. This represents how slow the speed of travel on the segment can be within the hour 5 percent of the time. The 95th percentile travel time is often used in congestion metrics to represent unreliable conditions.

For each segment, the truck VMT was calculated as

$$VMT = \sum_{\forall h} l\, T_h \qquad (1)$$

where ι represents the length of the segment and τ_h represents the hourly truck volume. Hourly Truck volumes were obtained from the NPMRDS network shapefile which contains Annual Average Daily Traffic (AADT) for each segment. The two-way AADTs from NPMRRDS were converted to unidirectional volumes by dividing them by two. Hourly volumes were estimated by multiplying the segment AADTs by one of three hourly factors representing the assumed share of truck volume per hour of the day. Hourly factors were estimated using Florida WIM data (2022) from locations across Florida. Distributions were generalized separately for interstates in north Florida, interstates in south Florida, and all other lower functional class roadways whose related stations followed similar hourly patterns (Figure A-1).

Figure A-1 | Hourly Factors



Like VMT, the Vehicle Hours Traveled (VHT) was calculated for each segment as

$$VHT = \sum_{\forall h} \bar{\tau}_h \, \mathrm{T}_h$$

Recurring congestion was quantified as the number of hours of travel above the free flow conditions, defined as the VHD. VHD was estimated by comparing average travel times to the free flow travel time and multiplying by the hourly truck volume, summing totals by segment.

$$VHD = \sum_{\forall h} (\bar{\tau}_h - 10\%\tau_h) \, \mathrm{T}_h$$

Non-recurring congestion, quantified as the number of VHU accumulated in each segment, was calculated as the difference between the 95th percentile travel time and the average travel time. This measure, first introduced in NCHRP 07-245, sums the hours of uncertainty truck face throughout the day. This measure is preferred to often-used travel time indices or buffer indices for unreliability because it is additive and captures only time spent under non-recurring congestion.

$$VHU = \sum_{\forall h} (95\%\tau_h - \bar{\tau}_h) \, \mathrm{T}_h$$

To compare the VHD and VHU across segments, calculations were normalized by segment mileage; this prevents segments from being labeled as a bottleneck just because they are long.

Additionally, the average speed of all trucks on each segment was calculated as

$$V = VMT / VHT$$

and the average miles of travel per hour of unreliability was calculated as

$$\mathrm{U} = VMT / VHU$$

Using NPMRDS to Identify Top Truck Bottlenecks

As described, the two key performance measures calculated for this analysis are:

- Vehicle (Truck) Hours of Delay per Segment Mile (VHD/M)
- Vehicle (Truck) Hours of Unreliability per Segment Mile (VHU/M)

The continuous measures range from near zero to values higher than 225 VHD/M and 445 VHU/M for the least reliable segments with the most delay. There are no specific cutoff points at which the metrics indicate that delay or unreliability are acceptable or unacceptable. Therefore, it is recommended that the metrics be used in three ways:

1. To identify the segments in Florida's NHS with the highest VHD/M and VHU/M as leading candidates for further attention or interventions.
2. To identify the concentrations of the highest VHD/M and VHU/M segments by county and by route/road number; and
3. To examine the relative performance of Florida's NHS in each region, identifying segments that are performing better or worse than average, to highlight the most significant challenges and opportunities at the regional level.

Data reduction

To avoid including segments in the analysis of truck bottlenecks that may rank highly due to an outlier observation in NPMRDS speeds, poor data density, or a conflation error in the NPMRDS network, three criteria were used for excluding 378 segments from final rankings and reporting. Segments with more than ten hours where the congested travel times were estimated from less than 50 NPMRDS observations, or a V value of less than five, or a U value of less than five were withheld from being ranked.

Highest VHD/M and VHU/M segments

The VHD/M and VHU/M metrics were calculated for 15,634 TMC segments in Florida, and this document reports the 150 highest VHD/M and 150 highest VHU/M values. The top 150 VHD/M segments are considered leading Recurring Congestion Bottlenecks and have significant truck volumes and the most considerable differences between average travel times and free flow speeds (Table A-1). The top 150 VHU/M segments can be considered leading Non-Recurring

Congestion Bottlenecks and have significant truck volumes along with congested travel times that be much worse than average travel times, causing unreliability for system users (Table A-2).

Note: Road Names are sometimes not in parent dataset. To find the exact segments on ArcGIS Online, use: https://fdot.maps.arcgis.com/apps/webappviewer/index.html?id=51c1bd2cc7754ea48506623bb623a283

Table A-1 | Leading Recurring Truck Congestion Bottlenecks

Rank	Road Name	Direction	County	VHD/M
1	I-4 W	W	Hillsborough	225.8
2	I-4 W	S	Osceola	206.8
3	I-4 E	E	Polk	193.1
4	I-4 W	W	Hillsborough	187.5
5	W Okeechobee Rd	W	Miami-Dade	184.5
6	W Okeechobee Rd	E	Miami-Dade	179.8
7	I-4 W	W	Hillsborough	178.9
8	Orange Ave	E	St Lucie	174.1
9	NW 36th St	W	Miami-Dade	172.1
10	NW 74th St	W	Miami-Dade	170.2
11	NW 36th St	W	Miami-Dade	162.1
12	W Okeechobee Rd	W	Miami-Dade	151.1
13	SR-826 E	E	Miami-Dade	150.4
14	Palmetto Expy	S	Miami-Dade	150.1
15	I-95 S	S	Broward	150.0
16	Florida's Tpke S	S	Miami-Dade	148.9
17	Palmetto Expy	S	Miami-Dade	148.1
18	SR-826 S	S	Miami-Dade	147.7
19	US-27 S	E	Lake	147.2
20	Unity Blvd	N	Miami-Dade	144.5
21	SR-826 N	N	Miami-Dade	143.4
22	E Okeechobee Rd	W	Miami-Dade	142.6
23	W Okeechobee Rd	W	Miami-Dade	138.8
24	I-95 S	S	Broward	138.2
25	Palmetto Expy	S	Miami-Dade	135.6
26	I-4 W	W	Hillsborough	135.4
27	SR-826 N	N	Miami-Dade	135.2
28	NW 36th St	E	Miami-Dade	135.0
29	NA	N	Orange	134.8
30	SR-826 S	S	Miami-Dade	127.1
31	Palmetto Expy	N	Miami-Dade	126.7
32	NW 74th St	E	Miami-Dade	125.7
33	I-95 S	S	Miami-Dade	125.4

Rank	Road Name	Direction	County	VHD/M
34	NW 74th St	E	Miami-Dade	125.0
35	Palmetto Expy	N	Miami-Dade	124.9
36	Palmetto Expy	S	Miami-Dade	124.5
37	Orange Blossom Trl S	N	Orange	122.3
38	NW 36th St	E	Miami-Dade	121.5
39	Orange Blossom Trl S	N	Orange	120.9
40	NW 36th St	W	Miami-Dade	120.6
41	E Fowler Ave	W	Hillsborough	120.2
42	W Okeechobee Rd	W	Miami-Dade	119.6
43	I-95 S	S	Broward	119.1
44	NW Jensen Beach Blvd	E	Martin	118.7
45	SR-826 N	N	Miami-Dade	117.0
46	Pritchard Rd	W	Duval	114.5
47	I-95 S	S	Broward	113.0
48	SR-826 S	S	Miami-Dade	112.7
49	I-4 E	E	Polk	112.4
50	NW 36th St	E	Miami-Dade	112.3
51	NW 74th St Conn	W	Miami-Dade	111.9
52	I-95 S	S	Miami-Dade	111.1
53	I-4 W	S	Osceola	111.0
54	NW 74th St Conn	E	Miami-Dade	110.3
55	I-95 S	S	Miami-Dade	110.2
56	E Okeechobee Rd	W	Miami-Dade	109.7
57	I-95 S	S	Miami-Dade	109.3
58	W Okeechobee Rd	W	Miami-Dade	109.1
59	I-95 S	S	Miami-Dade	108.4
60	NW 27th Ave	N	Miami-Dade	107.8
61	Okeechobee Rd	W	St Lucie	107.0
62	I-4 E	N	Osceola	105.8
63	US-27 N	N	Broward	105.1
64	I-95 S	S	Broward	104.5
65	I-95 S	S	Miami-Dade	104.5
66	W Brandon Blvd	E	Hillsborough	104.3
67	I-95 S	S	Broward	103.5
68	N 50th St	S	Hillsborough	103.2
69	N Broadway Ave	S	Polk	103.1
70	NW 27th Ave	S	Miami-Dade	102.0
71	NW 27th Ave	S	Miami-Dade	100.9
72	Eau Gallie Blvd W	W	Brevard	100.8
73	NW 27th Ave	N	Miami-Dade	100.2

Rank	Road Name	Direction	County	VHD/M
74	US-98 N	N	Polk	99.5
75	I-4 W	S	Osceola	99.3
76	I-95 S	S	Broward	99.1
77	Orange Ave	E	St Lucie	98.6
78	I-95 S	S	Broward	97.8
79	W Okeechobee Rd	E	Miami-Dade	97.7
80	SW 88TH ST	W	Miami-Dade	97.6
81	E Osceola Pkwy	E	Osceola	97.3
82	NW 27th Ave	N	Miami-Dade	95.8
83	Land O Lakes Blvd	N	Pasco	95.5
84	Palmetto Expy	S	Miami-Dade	94.7
85	E Fowler Ave	E	Hillsborough	94.3
86	W Sunrise Blvd	W	Broward	93.9
87	East-West Expy	E	Orange	93.9
88	SW 40th St	W	Miami-Dade	93.5
89	W Kaley St	E	Orange	93.2
90	East-West Expy	W	Orange	93.0
91	SR-826 E	E	Miami-Dade	93.0
92	NW 7th Ave Ext	E	Miami-Dade	92.9
93	W Okeechobee Rd	W	Miami-Dade	92.9
94	N Woodland Blvd	S	Volusia	92.8
95	N 50th St	S	Hillsborough	92.6
96	US-301 N	N	Hillsborough	92.5
97	N 50th St	N	Hillsborough	91.6
98	I-95 N	N	Broward	90.6
99	Unity Blvd	N	Miami-Dade	89.9
100	NW 36th St	W	Miami-Dade	89.7
101	E Busch Blvd	W	Hillsborough	89.6
102	N Atlantic Ave	S	Brevard	89.4
103	NA	S	Brevard	89.3
104	NW 27th Ave	S	Miami-Dade	89.2
105	NW 27th Ave	S	Miami-Dade	89.1
106	Del Prado Blvd S	N	Lee	88.9
107	I-95 Express Ln S	S	Broward	88.9
108	Del Prado Blvd S	S	Lee	88.7
109	NW 27th Ave	N	Miami-Dade	88.5
110	NW 74th St	W	Miami-Dade	88.0
111	Boggy Creek Rd	W	Orange	87.8
112	Orange Ave	W	St Lucie	87.7
113	I-4 E	N	Orange	87.7

Rank	Road Name	Direction	County	VHD/M
114	I-95 N	N	Broward	87.3
115	45th St	E	Palm Beach	87.2
116	US-17-92	N	Volusia	86.5
117	Florida's Tpke S	S	Miami-Dade	86.2
118	I-95 S	S	Broward	85.8
119	45th St	W	Palm Beach	85.4
120	45th St	W	Palm Beach	85.0
121	E Okeechobee Rd	E	Miami-Dade	84.4
122	SR-33	N	Lake	84.4
123	SW 10th St	W	Broward	84.1
124	NW 79th St	E	Miami-Dade	83.4
125	I-4 W	S	Orange	83.3
126	SR-826 E	E	Miami-Dade	82.8
127	N 22nd St	N	Hillsborough	81.8
128	SW 10th St	E	Broward	81.7
129	E Oakland Park Blvd	E	Broward	81.0
130	SR-434 E	E	Seminole	81.0
131	I-4 E	N	Orange	80.7
132	I-95 S	S	Broward	80.5
133	I-4 W	S	Orange	80.1
134	Palmetto Expy	S	Miami-Dade	80.1
135	SW 40th St	E	Miami-Dade	79.1
136	NW 79th St	W	Miami-Dade	78.5
137	1st St	S	Manatee	78.4
138	Palmetto Expy	S	Miami-Dade	78.0
139	SW 88th St	W	Miami-Dade	78.0
140	Forest Hill Blvd	E	Palm Beach	77.9
141	S Biscayne Blvd	E	Miami-Dade	77.8
142	SR-826 E	E	Miami-Dade	77.8
143	Brickell Ave	N	Miami-Dade	77.7
144	SW 88th St	E	Miami-Dade	77.4
145	NW 27th Ave	S	Miami-Dade	77.3
146	NW 72nd Ave	N	Miami-Dade	76.8
147	Hollywood Blvd	W	Broward	76.8
148	SW 40th St	E	Miami-Dade	76.4
149	I-95 S	S	Broward	76.3
150	W Commercial Blvd	E	Broward	75.5

Table A-2 | Leading Non-Recurring Truck Congestion Bottlenecks

Rank	Road Name	Direction	County	VHD/M
1	US-27 S	E	Lake	444.7
2	I-4 E	E	Polk	398.3
3	NW 36th St	W	Miami-Dade	340.8
4	W Okeechobee Rd	E	Miami-Dade	325.9
5	E Fowler Ave	E	Hillsborough	289.0
6	US-27 S	E	Lake	282.8
7	NW Jensen Beach Blvd	E	Martin	278.4
8	Orange Ave	E	St Lucie	275.6
9	I-4 W	S	Osceola	273.8
10	S John Young Pkwy	W	Osceola	269.7
11	NA	N	Orange	265.7
12	Palmetto Expy	S	Miami-Dade	257.6
13	Del Prado Blvd S	S	Lee	255.4
14	East-West Expy	E	Orange	253.9
15	East-West Expy	W	Orange	253.3
16	E Fowler Ave	W	Hillsborough	252.6
17	Orange Ave	E	St Lucie	251.2
18	NA	S	Brevard	245.9
19	NA	S	Pasco	245.8
20	NW 36th St	W	Miami-Dade	243.4
21	NA	N	Brevard	243.1
22	SR-33	N	Lake	241.3
23	NW 36th St	W	Miami-Dade	240.3
24	Land O Lakes Blvd	N	Pasco	240.2
25	I-95 N	N	Broward	238.7
26	N Broadway Ave	S	Polk	237.4
27	US-98 N	N	Polk	233.9
28	Florida's Tpke S	S	Miami-Dade	233.1
29	I-95 N	N	Broward	230.7
30	Eau Gallie Blvd W	W	Brevard	223.3
31	Us-301 N	N	Hillsborough	222.8
32	I-95 S	S	Broward	221.2
33	Forest Hill Blvd	E	Palm Beach	221.0
34	Florida's Tpke S	S	Miami-Dade	219.6
35	I-95 N	N	Broward	219.4
36	NW 36th St	E	Miami-Dade	219.3
37	NW 7th Ave Ext	E	Miami-Dade	219.1

Rank	Road Name	Direction	County	VHD/M
38	E Hickpochee Ave	E	Hendry	217.9
39	S Temple Ave	N	Bradford	217.1
40	I-95 S	S	Broward	214.3
41	SR-826 S	S	Miami-Dade	214.1
42	Okeechobee Rd	W	St Lucie	211.8
43	NA	S	Brevard	211.6
44	W Okeechobee Rd	W	Miami-Dade	211.5
45	NW 27th Ave	N	Miami-Dade	211.1
46	NW 74th St	E	Miami-Dade	210.9
47	NW 74th St	E	Miami-Dade	210.3
48	NA	N	Pasco	210.1
49	Landstreet Rd E	E	Orange	207.7
50	US-301 N	N	Duval	206.3
51	Robert J Conlan Blvd NE	E	Brevard	205.8
52	Orange Ave	W	St Lucie	205.6
53	SR-826 S	S	Miami-Dade	205.2
54	NW 36th St	E	Miami-Dade	205.2
55	US-27 S	S	Polk	205.1
56	US-27 N	N	Broward	204.5
57	NW 41st St	W	Miami-Dade	204.5
58	S Kings Rd	W	Nassau	203.6
59	NW 79th St	W	Miami-Dade	201.8
60	W Kaley St	E	Orange	201.5
61	I-95 N	N	Broward	201.3
62	Pine Island Rd	W	Lee	199.5
63	Palmetto Expy	S	Miami-Dade	198.8
64	I-4 E	N	Orange	198.1
65	W Okeechobee Rd	W	Miami-Dade	197.2
66	East-West Expy	W	Orange	196.8
67	E Lake Mary Blvd	W	Seminole	196.0
68	I-95 N	N	Broward	195.9
69	I-95 N	N	Broward	195.8
70	Palmetto Expy	S	Miami-Dade	195.6
71	US-27 N	W	Lake	195.5
72	I-95 S	S	Broward	195.3
73	SR-434 E	E	Seminole	194.4
74	Del Prado Blvd S	N	Lee	194.1
75	N Powerline Rd	S	Broward	193.5
76	SR-70	E	Okeechobee	193.0

Rank	Road Name	Direction	County	VHD/M
77	I-95 S	S	Broward	193.0
78	SW 88th St	W	Miami-Dade	192.8
79	Pritchard Rd	W	Duval	192.7
80	I-4 W	W	Hillsborough	189.9
81	N Woodland Blvd	S	Volusia	188.6
82	NW 36th St	W	Miami-Dade	188.5
83	I-95 S	S	Broward	188.1
84	Unity Blvd	N	Miami-Dade	185.4
85	I-95 Express Ln S	S	Broward	184.3
86	SR-826 E	E	Miami-Dade	184.0
87	I-4 W	W	Hillsborough	183.7
88	Mitchell Blvd	S	Pasco	183.6
89	St Lucie West Blvd	W	St Lucie	183.4
90	NW 27th Ave	N	Miami-Dade	181.9
91	E Okeechobee Rd	W	Miami-Dade	181.3
92	NW 27th Ave	N	Miami-Dade	181.3
93	N Atlantic Ave	S	Brevard	181.0
94	SW 88TH ST	W	Miami-Dade	180.6
95	Eau Gallie Blvd E	E	Brevard	180.5
96	S 50th St	S	Hillsborough	180.2
97	N 40th St	N	Hillsborough	179.8
98	Palmetto Expy	S	Miami-Dade	178.5
99	I-95 N	N	Broward	177.7
100	S Kirkman Rd	N	Orange	177.2
101	US-27 S	S	Polk	177.1
102	SR-60 W	W	Polk	176.9
103	NW 27th Ave	N	Miami-Dade	176.4
104	45th St	W	Palm Beach	176.4
105	NW 27th Ave	N	Miami-Dade	176.2
106	E Osceola Pkwy	E	Osceola	175.6
107	NW 27th Ave	S	Miami-Dade	175.3
108	SW 177th Ave	S	Miami-Dade	175.2
109	SR-826 N	N	Miami-Dade	174.6
110	N 50th St	S	Hillsborough	174.4
111	N Powerline Rd	S	Broward	173.7
112	Lee Rd	W	Orange	173.5
113	W Okeechobee Rd	W	Miami-Dade	172.9
114	I-95 S	S	Miami-Dade	172.2
115	W Okeechobee Rd	E	Miami-Dade	172.2

Rank	Road Name	Direction	County	VHD/M
116	Eau Gallie Blvd W	E	Brevard	172.0
117	W Kaley St	E	Orange	171.8
118	I-4 E	E	Polk	171.4
119	SR-826 E	E	Miami-Dade	171.1
120	45th St	W	Palm Beach	169.9
121	King St	E	Brevard	169.1
122	NW 72nd Ave	N	Miami-Dade	167.5
123	Doral Blvd	W	Miami-Dade	166.9
124	NW 27th Ave	S	Miami-Dade	166.7
125	I-4 E	N	Orange	166.5
126	NW 27th Ave	S	Miami-Dade	166.3
127	E Magnolia St	E	Desoto	166.2
128	NA	E	Hillsborough	166.1
129	S Orange Blossom Trl	N	Orange	165.6
130	NW 72nd Ave	S	Miami-Dade	165.5
131	US-17-92	N	Volusia	165.2
132	N Powerline Rd	N	Broward	164.8
133	NW 36th St	E	Miami-Dade	164.7
134	Palmetto Expy	S	Miami-Dade	164.5
135	SR-60 E	E	Polk	164.2
136	I-95 S	S	Broward	163.5
137	I-95 N	N	Broward	163.0
138	NW 27th Ave	S	Miami-Dade	162.9
139	Heckscher Dr	W	Duval	162.7
140	East-West Expy	W	Orange	162.1
141	I-95 S	S	Broward	161.8
142	Palmetto Expy	N	Miami-Dade	161.5
143	I-95 S	S	Miami-Dade	161.1
144	W Okeechobee Rd	W	Miami-Dade	161.0
145	NW 27th Ave	N	Miami-Dade	160.8
146	Unity Blvd	N	Miami-Dade	160.4
147	I-4 E	N	Orange	159.7
148	SR-826 E	E	Miami-Dade	158.5
149	S Kings Rd	E	Nassau	158.4
150	E Oakland Park Blvd	W	Broward	157.8

Concentration of Highest VHD/M and VHU/M Segments

The top 150 VHD/M and VHU/M segments show a strong tendency to cluster in a limited number of counties (Figure A-2 / Figure A-3).

- Miami-Dade County has 49 percent of the top 150 recurring and 35 percent of the top 150 non-recurring bottlenecks
- Broward County has 14 percent of the top 150 recurring and 14 percent of the top 150 non-recurring bottlenecks
- Hillsborough County has 9 percent of the top 150 recurring and 6 percent of the top 150 non-recurring bottlenecks
- Orange County has 7 percent of the top 150 recurring and 9 percent of the top 150 non-recurring bottlenecks
- Brevard and Polk County had 6 percent and 5 percent of the top 150 non-recurring bottlenecks.
- Other Counties which included at least 1 percent of the state's top recurring or non-recurring bottlenecks included Osceola, St. Lucie, Palm Beach, Volusia, Lee, Lake, Pasco, Duval, Nassau, and Seminole counties.

Figure A-2 | Share of Top 150 Recurring Truck Congestion Bottlenecks by County

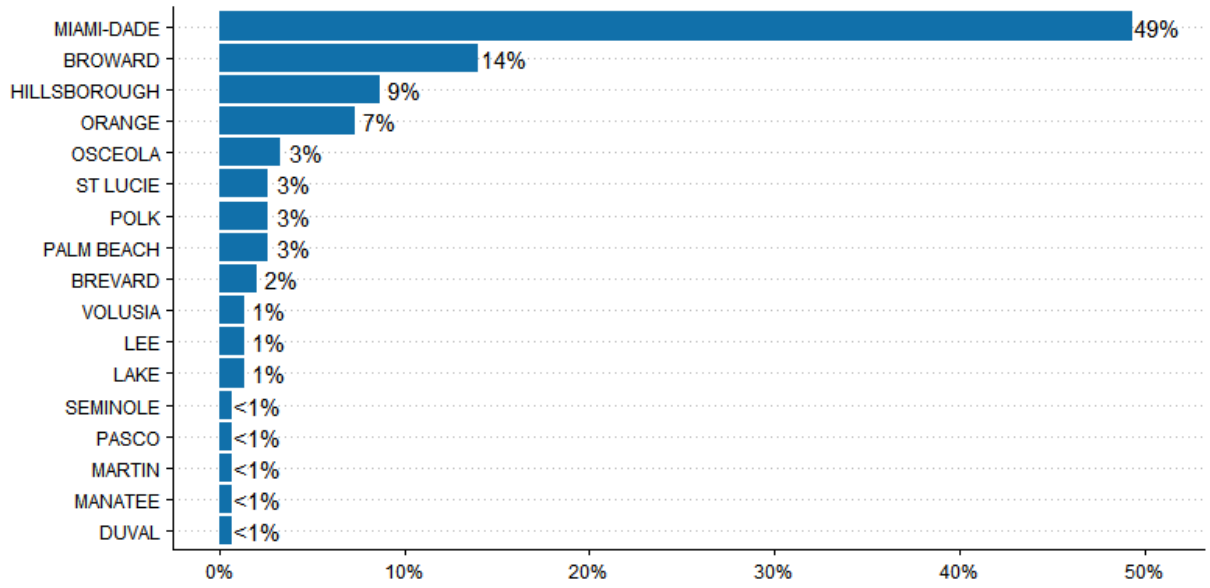
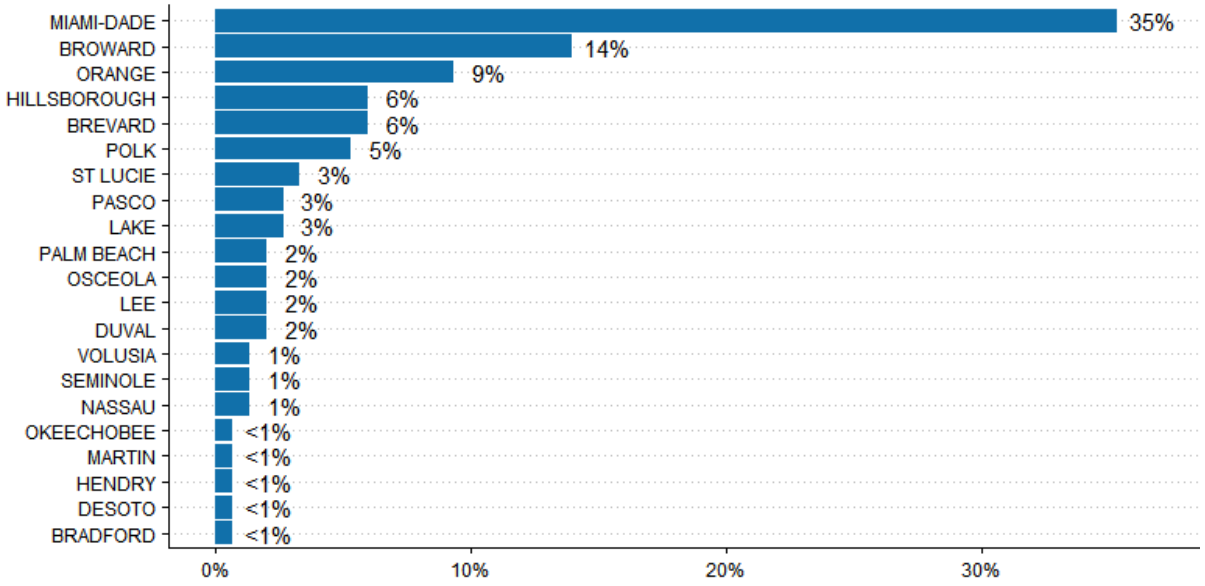


Figure A-3 | Share of Top 150 Non-Recurring Truck Congestion Bottlenecks by County



As shown in Table A-3, the highest share of the Top 150 recurring bottleneck locations are found in:

- Miami-Dade County on NW 27th Ave, Palmetto Expressway, W, Okeechobee Road, NW 36th St, I-95 South, NW 74th St, and SR-826 E
- Broward County on I-95 South
- Hillsborough County on I-4 West

Table A-3 | Share of Top 150 Recurring Truck Congestion Bottlenecks by County and Road

County	Road Name	% of Top 150
Miami-Dade	NW 27th Ave	6%
Miami-Dade	Palmetto Expy	6%
Miami-Dade	W Okeechobee Rd	5%
Miami-Dade	NW 36th St	5%
Miami-Dade	I-95 S	4%
Miami-Dade	NW 74th St	3%
Miami-Dade	SR-826 E	3%
Miami-Dade	E Okeechobee Rd	2%
Miami-Dade	SR-826 N	2%
Miami-Dade	SR-826 S	2%
Miami-Dade	SW 40th St	2%
Miami-Dade	SW 88th St	2%
Miami-Dade	Florida's Tpke S	1%

County	Road Name	% of Top 150
Miami-Dade	NW 74th St Conn	1%
Miami-Dade	NW 79th St	1%
Miami-Dade	Unity Blvd	1%
Miami-Dade	Brickell Ave	<1%
Miami-Dade	NW 72nd Ave	<1%
Miami-Dade	NW 7th Ave Ext	<1%
Miami-Dade	S Biscayne Blvd	<1%
Broward	I-95 S	7%
Broward	I-95 N	1%
Broward	SW 10th St	1%
Broward	E Oakland Park Blvd	<1%
Broward	Hollywood Blvd	<1%
Broward	I-95 Express Ln S	<1%
Broward	US-27 N	<1%
Broward	W Commercial Blvd	<1%
Broward	W Sunrise Blvd	<1%
Hillsborough	I-4 W	3%
Hillsborough	N 50th St	2%
Hillsborough	E Fowler Ave	1%
Hillsborough	E Busch Blvd	<1%
Hillsborough	N 22nd St	<1%
Hillsborough	Us-301 N	<1%
Hillsborough	W Brandon Blvd	<1%
Orange	East-West Expy	1%
Orange	I-4 E	1%
Orange	I-4 W	1%
Orange	Orange Blossom Trl S	1%
Orange	Boggy Creek Rd	<1%
Orange	W Kaley St	<1%
Osceola	I-4 W	2%
Osceola	E Osceola Pkwy	<1%
Osceola	I-4 E	<1%
St Lucie	Orange Ave	2%
St Lucie	Okeechobee Rd	<1%
Polk	I-4 E	1%
Polk	N Broadway Ave	<1%
Polk	US-98 N	<1%
Palm Beach	45th St	2%
Palm Beach	Forest Hill Blvd	<1%

County	Road Name	% of Top 150
Brevard	Eau Gallie Blvd W	<1%
Brevard	N Atlantic Ave	<1%
Volusia	N Woodland Blvd	<1%
Volusia	US-17-92	<1%
Lee	Del Prado Blvd S	1%
Lake	SR-33	<1%
Lake	US-27 S	<1%
Seminole	SR-434 E	<1%
Pasco	Land O Lakes Blvd	<1%
Martin	NW Jensen Beach Blvd	<1%
Manatee	1st St	<1%
Duval	Pritchard Rd	<1%

As shown in Table A-4, the highest share of the Top 150 non-recurring bottleneck locations are found in:

- Miami-Dade County on NW 27th Ave, NW 36th St, Palmetto Expressway and W Okeechobee Road
- Broward County on I-95 North and I-95 South
- Orange County on the East-West Expressway

Table A-4 | Share of Top 150 non-Recurring Truck Congestion Bottlenecks by County and Road

County	Road Name	% of Top 150
Miami-Dade	NW 27th Ave	7%
Miami-Dade	NW 36th St	5%
Miami-Dade	Palmetto Expy	4%
Miami-Dade	W Okeechobee Rd	4%
Miami-Dade	SR-826 E	2%
Miami-Dade	Florida's Tpke S	1%
Miami-Dade	I-95 S	1%
Miami-Dade	NW 72nd Ave	1%
Miami-Dade	NW 74th St	1%
Miami-Dade	SR-826 S	1%
Miami-Dade	SW 88th St	1%
Miami-Dade	Unity Blvd	1%
Miami-Dade	Doral Blvd	<1%
Miami-Dade	E Okeechobee Rd	<1%

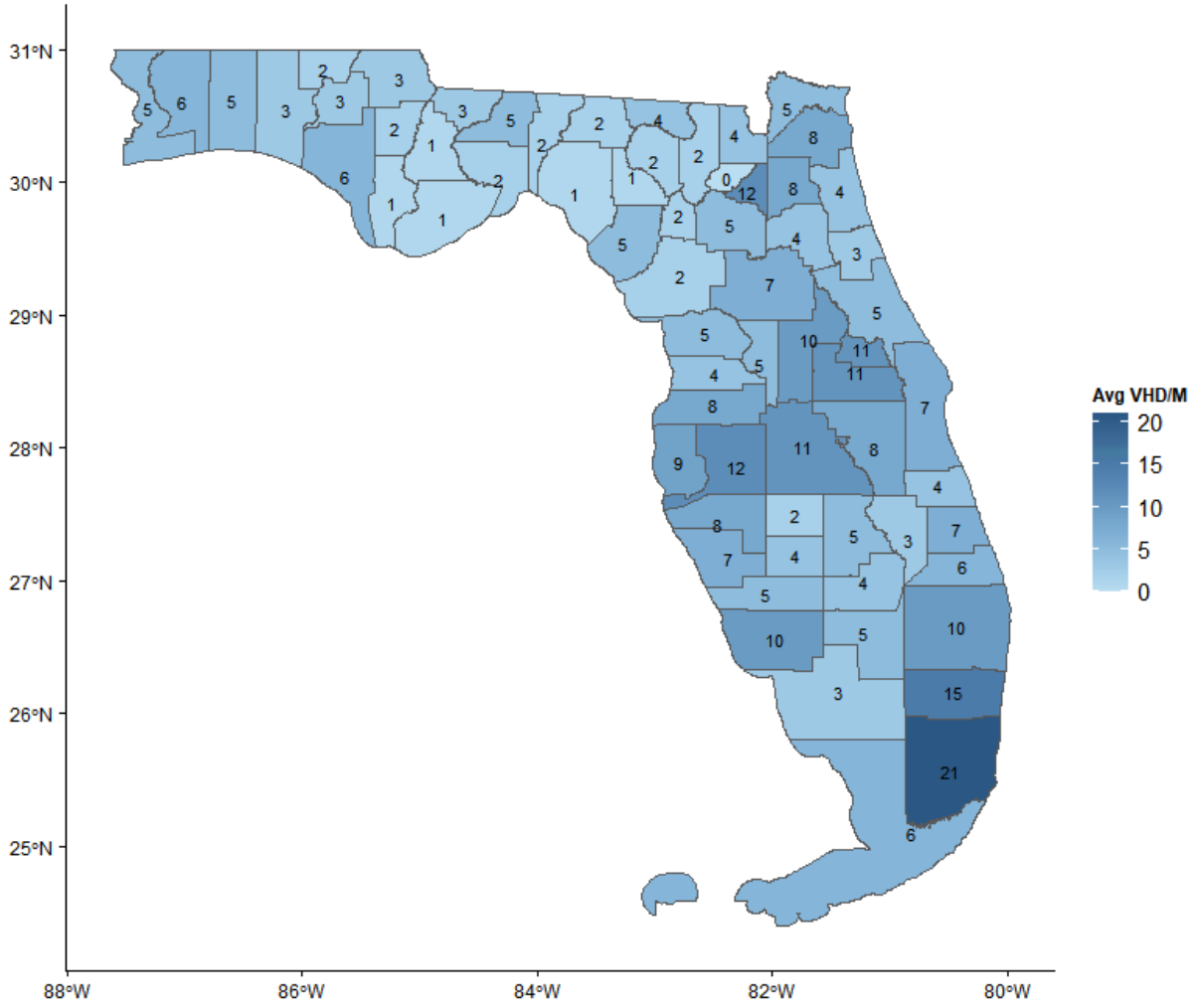
County	Road Name	% of Top 150
Miami-Dade	NW 41st St	<1%
Miami-Dade	NW 79th St	<1%
Miami-Dade	NW 7th Ave Ext	<1%
Miami-Dade	SR-826 N	<1%
Miami-Dade	SW 177th Ave	<1%
Broward	I-95 N	5%
Broward	I-95 S	5%
Broward	N Powerline Rd	2%
Broward	E Oakland Park Blvd	<1%
Broward	I-95 Express Ln S	<1%
Broward	US-27 N	<1%
Orange	East-West Expy	3%
Orange	I-4 E	2%
Orange	W Kaley St	1%
Orange	Landstreet Rd E	<1%
Orange	Lee Rd	<1%
Orange	S Kirkman Rd	<1%
Orange	S Orange Blossom Trl	<1%
Hillsborough	E Fowler Ave	1%
Hillsborough	I-4 W	1%
Hillsborough	N 40th St	<1%
Hillsborough	N 50th St	<1%
Hillsborough	S 50th St	<1%
Hillsborough	US-301 N	<1%
Brevard	Eau Gallie Blvd W	1%
Brevard	Eau Gallie Blvd E	<1%
Brevard	King St	<1%
Brevard	N Atlantic Ave	<1%
Brevard	Robert J Conlan Blvd Ne	<1%
Polk	I-4 E	1%
Polk	US-27 S	1%
Polk	N Broadway Ave	<1%
Polk	SR-60 E	<1%
Polk	SR-60 W	<1%
Polk	US-98 N	<1%
St Lucie	Orange Ave	2%
St Lucie	Okeechobee Rd	<1%
St Lucie	St Lucie West Blvd	<1%
Pasco	Land O Lakes Blvd	<1%

County	Road Name	% of Top 150
Pasco	Mitchell Blvd	<1%
Lake	US-27 S	1%
Lake	SR-33	<1%
Lake	US-27 N	<1%
Palm Beach	45th St	1%
Palm Beach	Forest Hill Blvd	<1%
Osceola	E Osceola Pkwy	<1%
Osceola	I-4 W	<1%
Osceola	S John Young Pkwy	<1%
Lee	Del Prado Blvd S	1%
Lee	Pine Island Rd	<1%
Duval	Heckscher Dr	<1%
Duval	Pritchard Rd	<1%
Duval	US-301 N	<1%
Volusia	N Woodland Blvd	<1%
Volusia	US-17-92	<1%
Seminole	E Lake Mary Blvd	<1%
Seminole	SR-434 E	<1%
Nassau	S Kings Rd	1%
Okeechobee	SR-70	<1%
Martin	Nw Jensen Beach Blvd	<1%
Hendry	E Hickpochee Ave	<1%
Desoto	E Magnolia St	<1%
Bradford	S Temple Ave	<1%

Regional Performance

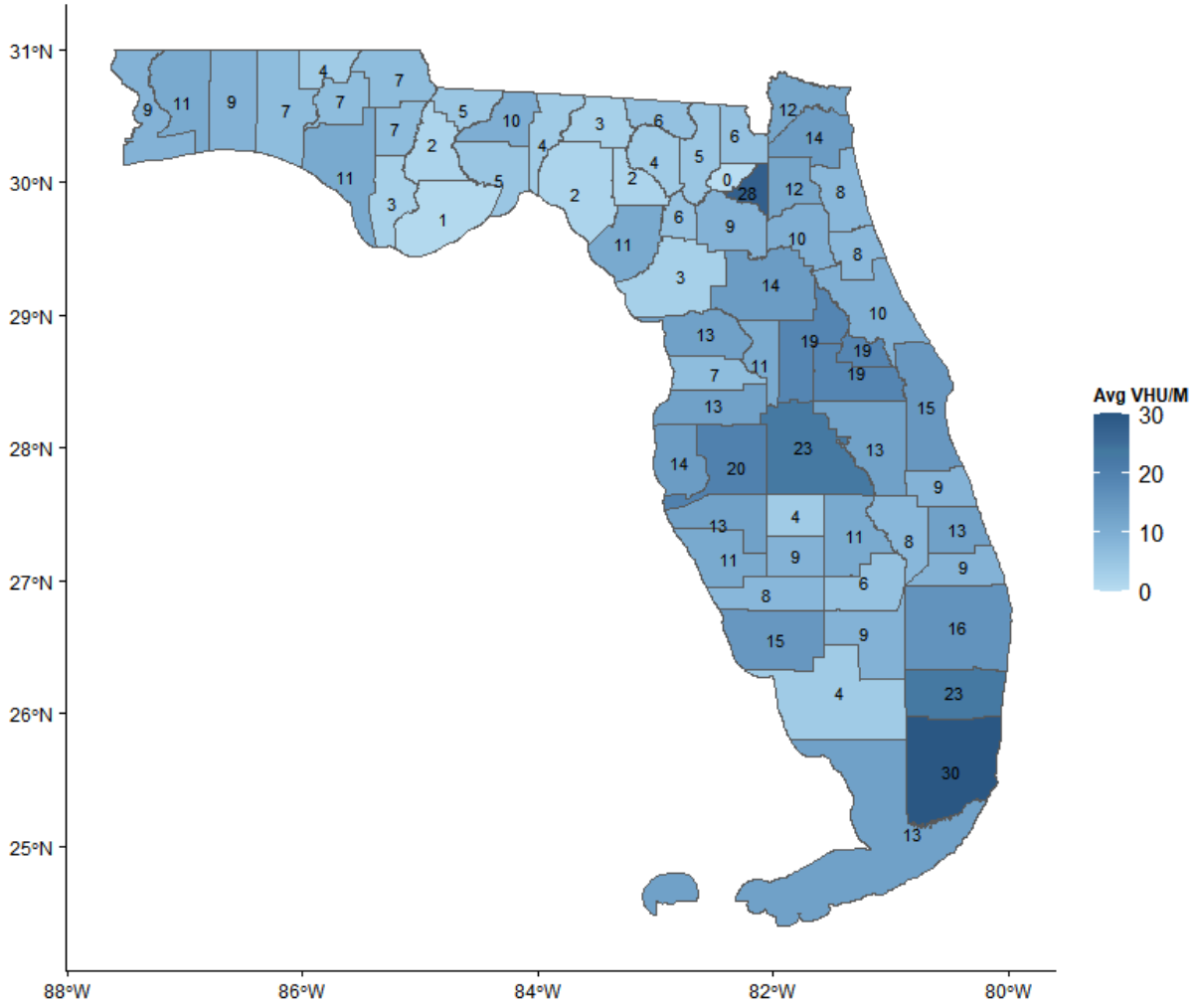
Figure A-4 illustrates the sum of all VHD divided by the sum of all segment miles in each of Florida's counties, providing a general measure of how recurring bottlenecks are distributed throughout the state. The highest average VHD/M, by far, is in Miami-Dade (21), followed by Broward, Bradford, Hillsborough, and Orange counties.

Figure A-4 | County-Wide Average VHD/M (Intensity of Recurring Congestion)



Similarly, Figure A-5 shows the sum of all VHU divided by the sum of all segment miles in each of Florida's counties, providing a general measure of how non-recurring bottlenecks are distributed throughout the state. The highest average VHU/M, is again in Miami-Dade (30), followed by Bradford, Broward, Polk, Hillsborough, and Orange counties.

Figure A-5 | County-Wide Average VHU/M (Intensity of Non-Recurring Congestion)



To illustrate the distribution of non-recurring congestion in more detail, links with a VHU/M value greater than the median VHU/M of 27 were mapped statewide in Figure A-6. Clusters of bottlenecks are shown throughout the state and in more detail in the highly congested Miami area in Figure A-7.

Figure A-6 | Segments with >= 27 VHU/M (Non-recurring congestion)

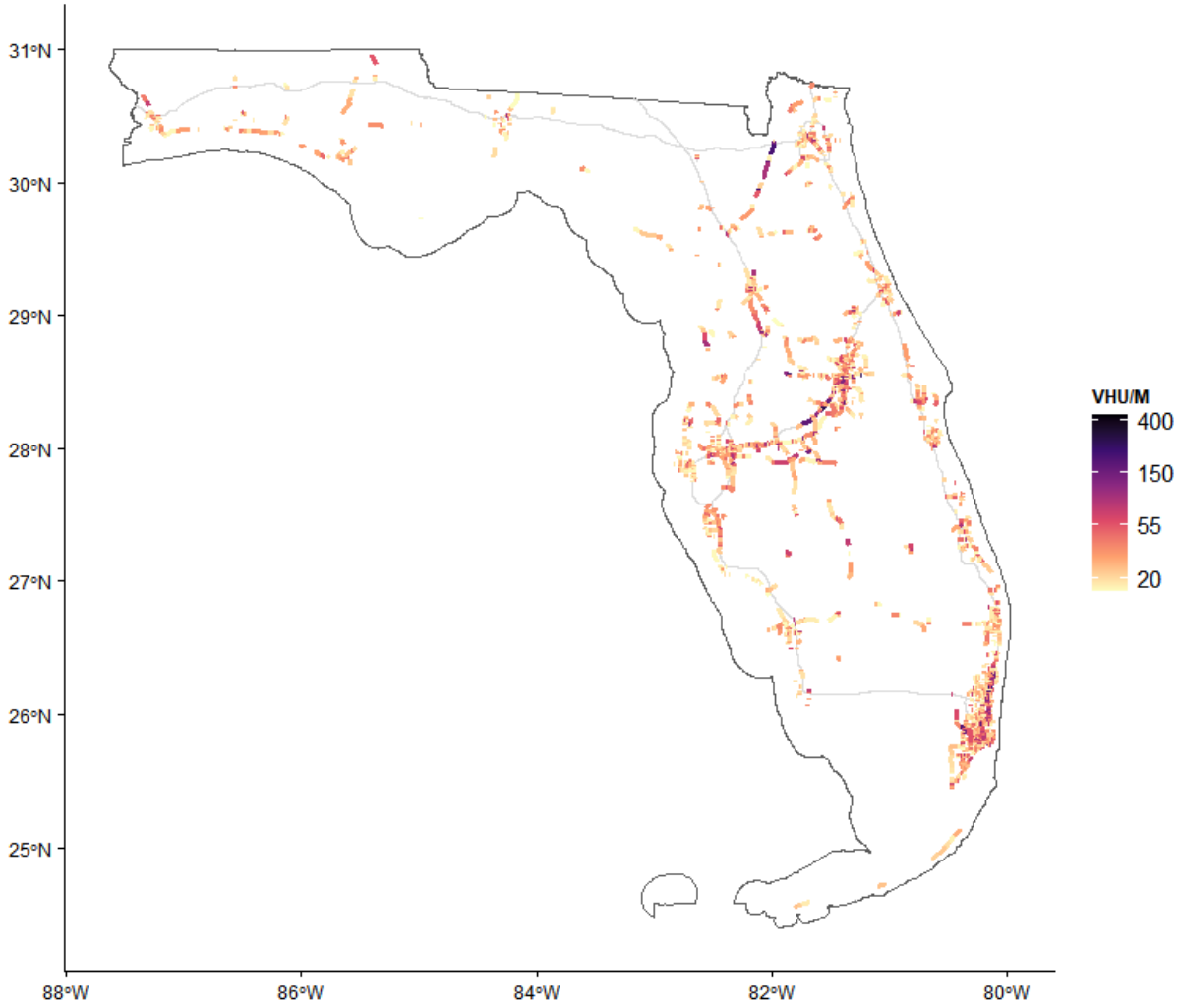
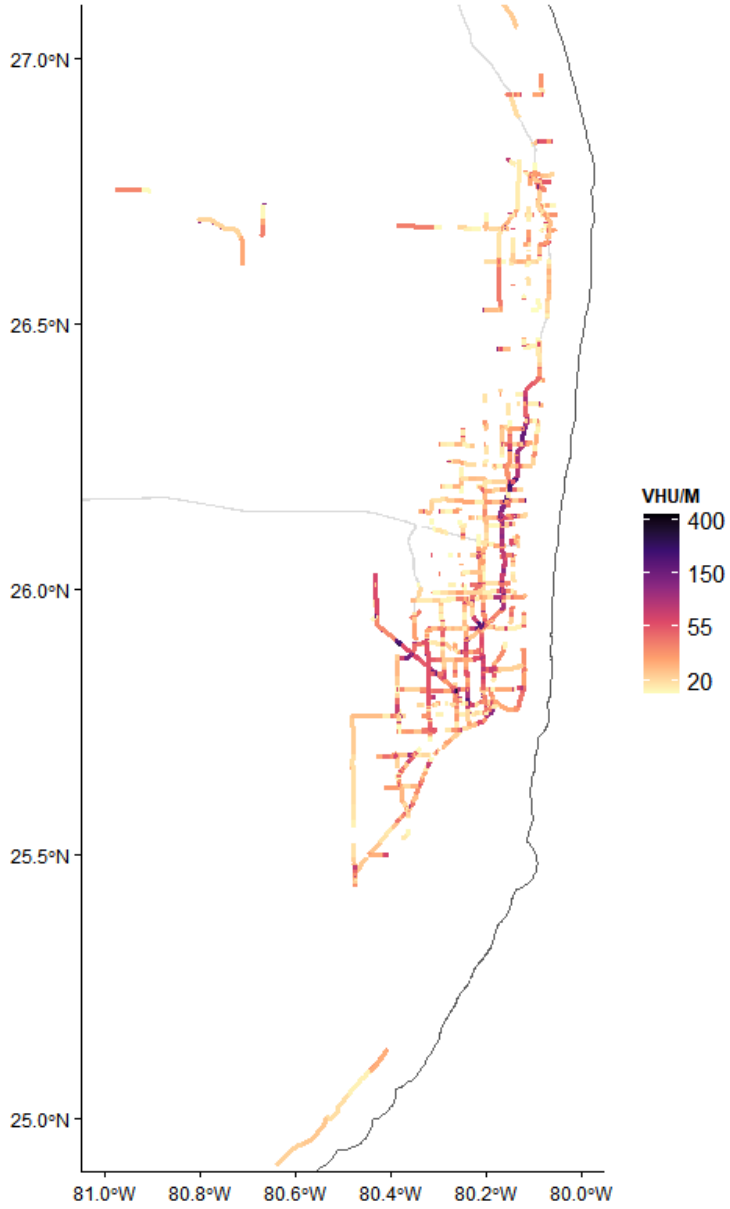


Figure A-7 | Segments with >= 27 VHU/M (Non-recurring congestion) Miami-Dade, Broward Region



FMTP24

FREIGHT MOBILITY AND TRADE PLAN

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Technical Memorandum 3
Freight System Trends

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CONTENTS

FIGURES

TABLES

List of Acronyms

AAM	Advanced Air Mobility
ATI	Automated Track Inspections
BEA	Bureau of Economic Analysis
BTS	Bureau of Transportation Statistics
CAAGR	Compound Average Annual Growth Rate
CCTV	Closed-Circuit Television
CNG	Compressed Natural Gas
DATP	Driver Assisted Truck Platooning
EDR	Office of Economic and Demographic Research
EIA	U.S. Energy Information Administration
EV	Electric Vehicles
EVSE	Electric Vehicle Supply Equipment
eVTOL	Electric Vertical-Takeoff-and-Landing
FAF	Freight Analysis Framework
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FOX	Freight Operations eXchange
FRA	Federal Railroad Administration
FRATIS	Freight Advanced Traveler Information System
FSP	Freight Signal Priority
GDP	Gross Domestic Product
GSP	Gross State Product
IIJA	Infrastructure Investment and Jobs Act
ILC	Intermodal Logistics Center
ITS	Intelligent Transportation System
LNG	Liquefied Natural Gas
LPG	Liquid Propane Gas
MCSAW	Motor Carrier Size and Weight Office
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
NAFTA	North American Free Trade Agreement
NEVI	National Electric Vehicle Infrastructure
NextGen NHTS	Next-Generation National Household Travel Survey
O-D	Origin-Destination
PROTECT	Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation
PTC	Positive Train Control
RAP	Resilience Action Plan
RDT&E	Research, Development, Training, and Evaluation
RIP	Resilience Implementation Plan
RNG	Renewable Natural Gas

SAF	Sustainable Aviation Fuel
SCTG	Standard Classification of Transported Goods
SCTG2	Two-Digit Standard Classification of Transported Goods
SHS	State Highway System
SIS	Strategic Intermodal System
STRACNET	Strategic Rail Corridor Network
STRAHNET	Strategic Highway Network
TPAS	Truck Parking Availability System
U.S.	United States
USMCA	Agreement between the United States of America, Mexico, and Canada
V2I	Vehicle-to-Infrastructure
V2V	Vehicle-to-Vehicle
V2X	Vehicle-to-Anything
VMT	Vehicle Miles Traveled

Introduction

The trends influencing freight in Florida are borne from worldwide-effects. Supply chains are global and interconnected, meaning the businesses, workers, infrastructure processes, and practices that underlie the sourcing, manufacturing, transportation, and sale of goods, are impacted by a multitude of factors and have trickle-down impacts. In 2022, the USDOT looked at America's supply chains and identified the trends below[1]:

- Growing freight demand
- Changing consumer preferences
- Increasing need for qualified logistics workforce
- Increasingly complex global supply chains
- Increasing weather disruptions
- New technologies

These trends are being felt in Florida and are connected to Florida's growth opportunities and supply chain resiliency. The purpose of this section is to describe how these key trends are impacting Florida - specifically pertaining to freight flows, demographics, economics, weather, and technology - and how they may affect future freight needs in the state. This memorandum also highlights Florida's current supply chain resilience initiatives as well as specific constraints that the state is facing.

The data deployed in assessing the trends were sourced from various state and federal governmental agencies.

[1] Supply Chain Assessment of the Transportation Industrial Base: Freight and Logistics | US Department of Transportation

Freight Flow Trends

Throughout this section, freight data summaries and key findings are presented to enhance comprehension of the flow of commodities in Florida. Derived from the dataset of the Federal Highway Administration's (FHWA) Freight Analysis Framework Version 5 (FAF5), these summaries include information on freight tonnage, value, commodity type, and trade type, with the following definitions:

- Freight Tonnage: total weight of commodities shipped
- Freight Value: total monetary value (2017 $) for the commodities shipped
- Commodity Type: goods category as per the Bureau of Transportation Statistics (BTS)'s Standard Classification of Transported Goods (SCTG), referenced at a two-digit level
- Trade Type: a distinction between domestic freight, which only includes domestic shipments moved between origins and destinations inside the United States (U.S.), and foreign trade flows

Statewide Commodity Flow Analysis

Figure 1 illustrates the commodity flows (tonnage) for the state of Florida using the Freight Analysis Framework (FAF), 2022 data (5.5.1 version). Approximately 74 percent of commodity movements (tonnage) originate and terminate within Florida as intrastate movements. The imports to Florida (19 percent) outnumber the exports (7 percent). This pattern underscores that Florida is predominantly a consumer state. Subsequent figures and tables provide a comprehensive breakdown of the commodity flows for the state of Florida that identifies the major trading partners, modal splits, and the commodity types for different commodity flow movements.

Figure 1 | Commodity Movement Inside, Outside, and Within Florida (2022)

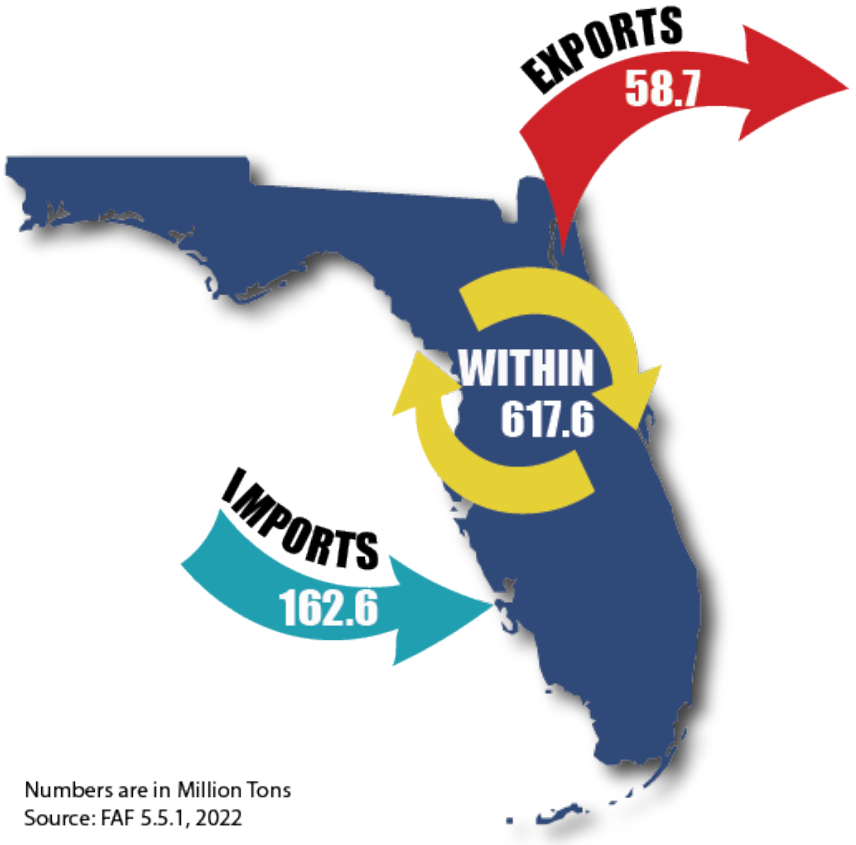
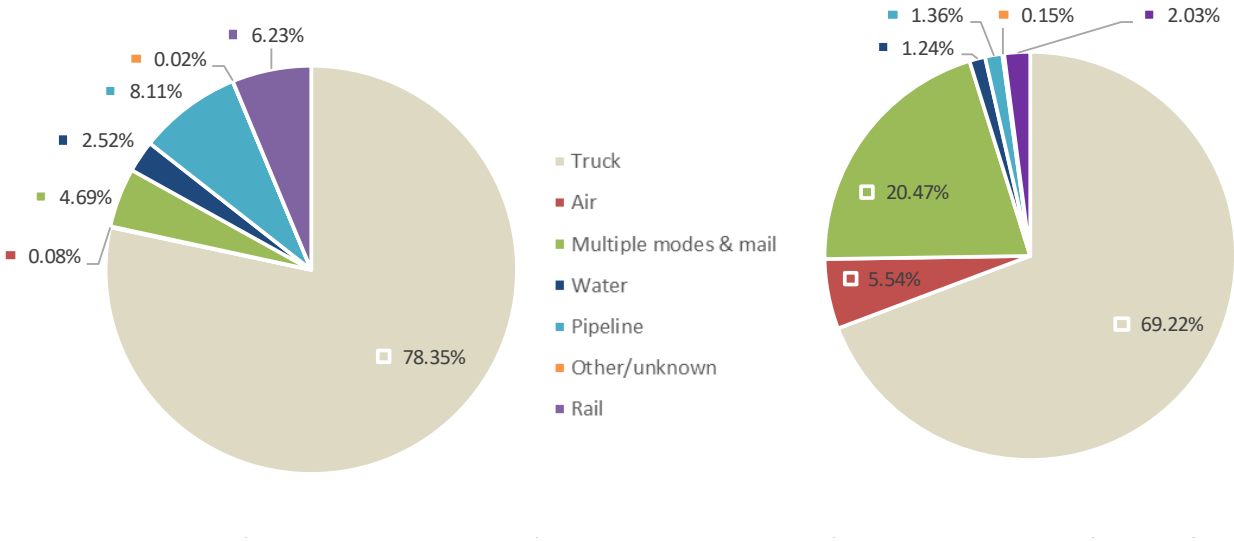


Figure 2 displays the percent modal share of commodity flow in terms of both tonnage and value. Trucks overwhelmingly dominate both tonnage and value shares. However, the share of air transport and 'multiple modes and mail' are notably low in tonnage but high in value, suggesting a prevalence of high-value commodities transported by these modes. Conversely, pipelines account for a substantial tonnage share, but exhibit a relatively low value share, indicating the transportation of lower-value commodities via pipelines. Similar patterns are observed for the rail and water modes.

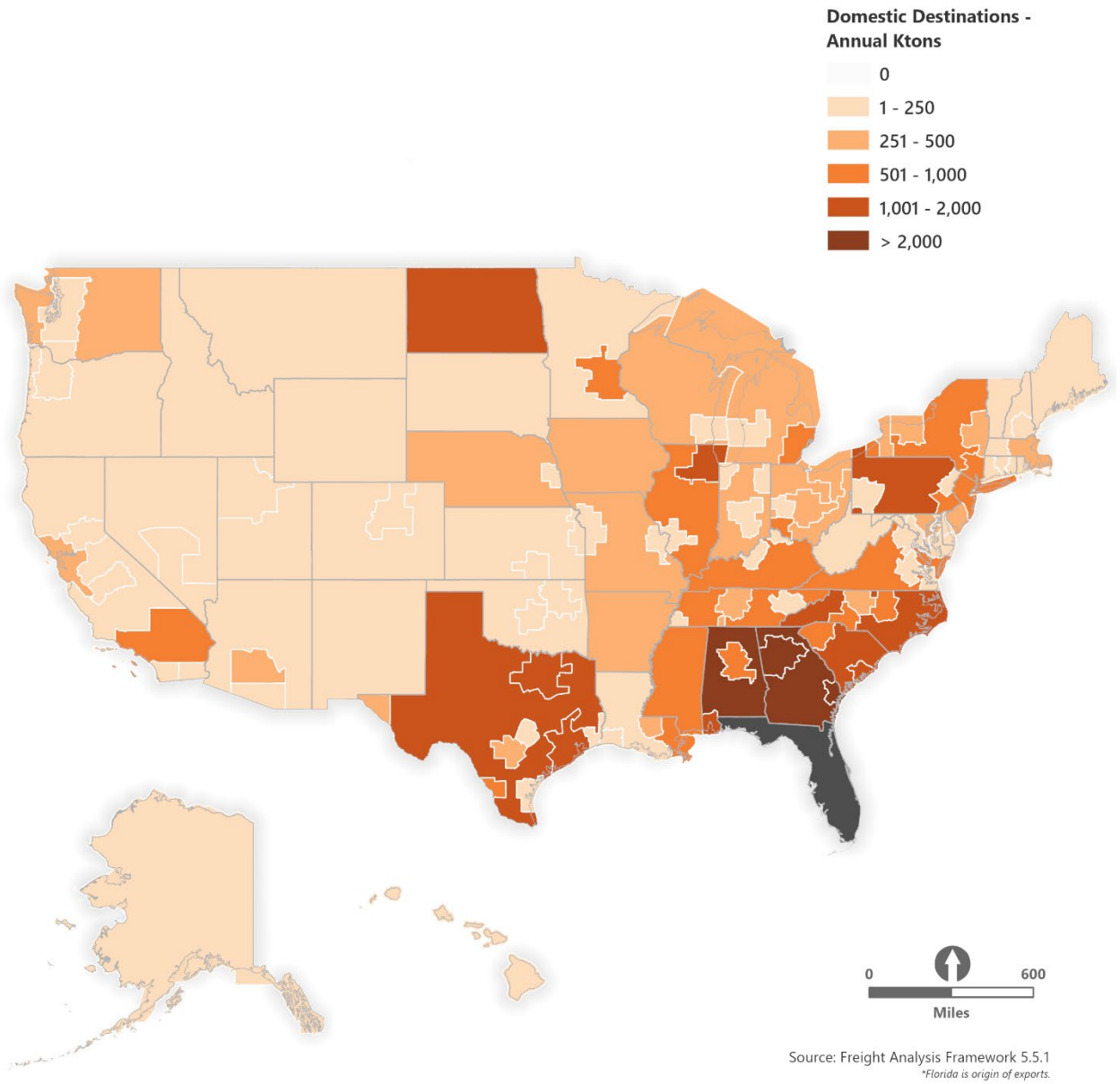
Figure 2 | Percent Mode Shares by Tonnage (Left) and by Value (Right) (2022)



Data Source: Freight Analysis Framework 5.5.1.

Figure 3 depicts the domestic destinations of commodity movement from Florida. The destinations are categorized by FAF zones. FAF zones include the 132 domestic regions in the U.S. These regions are defined by FHWA. In terms of total tonnage movements, the top five destination FAF zones include the rest of Georgia (11.6 percent), Atlanta-Georgia (8.5 percent), the rest of Alabama (5.6 percent), Savannah-Georgia (4 percent), and the rest of South Carolina (2.8 percent).

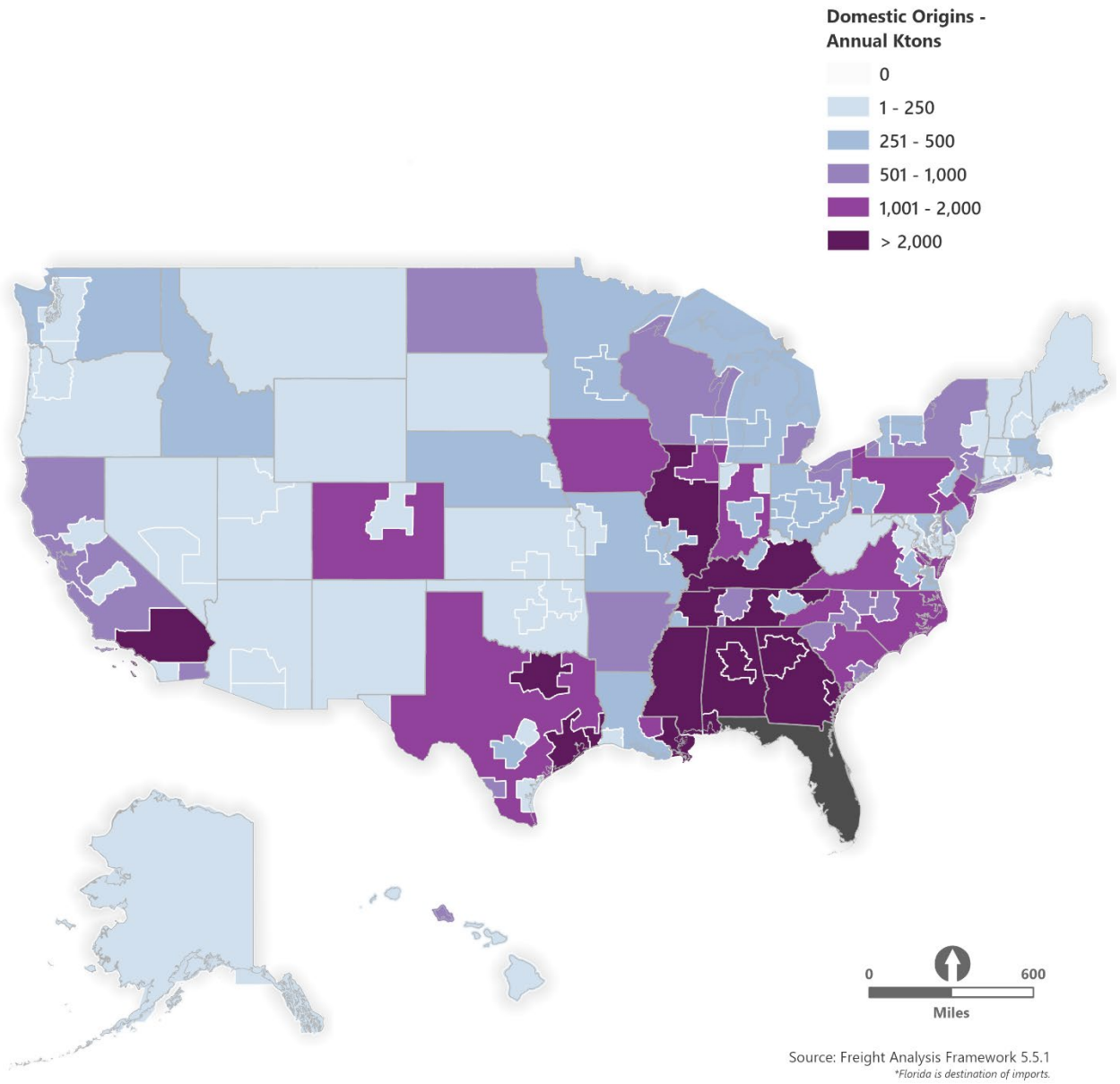
Figure 3 | Domestic Destinations for Florida Exports (in ktons, 2022))



Data Source: Freight Analysis Framework 5.5.1.

Figure 4 depicts the domestic origins of commodity movement to Florida. The origins are categorized by FAF zones. In terms of total tonnage movements, the top five origin FAF zones include the rest of Alabama (12.9 percent), the rest of Georgia (11.5 percent), Mobile-Alabama (9.4 percent), New Orleans LA-MS (6.7 percent), and Mississippi (4.8 percent).

Figure 4 | Domestic Origins to Florida (in ktons, 2022)



Data Source: Freight Analysis Framework 5.5.1.

Table 1 presents a detailed breakdown of domestic imports and domestic exports categorized by different commodity types, utilizing the two-digit Standard Classification of Transported Goods (SCTG2) classification system. The top five commodities for domestic imports and exports, both in terms of tonnage and value, are visually emphasized in red. Notably, the leading domestic imports by tonnage include coal, gasoline, natural gas, nonmetal mineral products,

and other foodstuffs. Conversely, the top domestic imports by value consist of electronics, machinery, mixed freight, motorized vehicles, and pharmaceuticals. Examining domestic exports, the primary commodities by tonnage include fertilizers, newsprint/paper, nonmetal mineral products, other agricultural products, and other foodstuffs. In contrast, the foremost domestic exports by value involve electronics, motorized vehicles, pharmaceuticals, precision instruments and textiles/leather. Gravel, natural gas/fossil products, natural sand, nonmetal mineral products, and waste/scrap rank as the primary commodities for intrastate transportation based on tonnage. In terms of value, the leading intrastate movements include electronics, machinery, mixed freight, motorized vehicles, and pharmaceuticals.

Table 1 | Commodity Types of Domestic Movements (2022)

Commodity Types (SCTG2)	Domestic Imports		Domestic Exports		Intrastate Movements	
	ktons	$M (2017 $)	ktons	$M (2017 $)	ktons	$M (2017 $)
Alcoholic beverages	2,372.8	5,875.1	1,359.9	3,818.8	7,421.3	15,712.6
Animal feed	1,417.7	1,427.5	2,844.3	561.2	4,404.5	2,551.5
Articles-base metal	1,846.5	7,042.0	1,186.2	4,401.5	2,683.1	9,126.4
Base metals	2,501.4	5,201.8	1,224.2	2,654.5	3,200.4	5,794.4
Basic chemicals	4,791.4	5,660.2	2,434.1	2,543.9	5,162.3	7,113.2
Building stone	42.6	40.7	49.1	36.2	2,608.2	1,010.2
Cereal grains	1,462.3	284.9	345.3	87.5	5,646.2	1,037.9
Chemical prods.	2,039.6	11,775.5	920.1	4,578.3	2,703.2	7,186.1
Coal	***8,747.5***	407.7	77.9	13.2	419.0	24.0
Crude petroleum	812.6	63.5	86.6	25.9	4.1	17.6
Electronics	2,204.3	***52,753.2***	803.9	***24,122.3***	2,180.3	***40,183.9***
Fertilizers	1,286.5	496.4	***5,630.9***	1,623.7	19,710.5	5,879.7
Fuel oils	3,512.1	1,959.8	136.6	50.9	15,360.0	8,070.9
Furniture	1,391.6	7,498.5	333.6	2,021.3	1,783.9	10,309.9
Gasoline	***15,833.9***	9,125.7	925.1	500.3	38,016.2	20,955.5
Gravel	6,743.8	127.2	1,331.7	32.9	***123,938.4***	1,531.5
Live animals/fish	69.9	283.4	652.3	1,609.1	272.4	955.9
Logs	322.1	116.8	1,349.3	307.2	19,062.2	509.4
Machinery	2,112.2	***29,066.6***	2,767.0	10,708.7	4,492.6	***27,241.8***
Meat/seafood	2,910.6	13,588.2	846.5	5,110.9	2,168.9	14,731.2
Metallic ores	208.2	256.0	255.9	340.7	150.4	107.0

Commodity Types (SCTG2)	Domestic Imports		Domestic Exports		Intrastate Movements	
	ktons	$M (2017 $)	ktons	$M (2017 $)	ktons	$M (2017 $)
Milled grain prods.	2,082.9	4,488.5	661.6	1,542.5	2,221.4	4,937.3
Misc. mfg. prods.	1,794.3	24,798.4	527.3	11,913.6	3,936.0	16,555.1
Mixed freight	6,826.1	***34,720.6***	2,681.3	9,434.8	20,794.6	***83,003.5***
Motorized vehicles	3,468.6	***39,544.2***	1,083.8	***14,957.0***	3,049.2	***31,829.0***
Natural gas and other fossil products	***35,686.6***	6,658.3	653.4	804.3	***39,210.9***	11,004.3
Natural sands	7,577.0	151.1	536.6	93.7	***61,517.5***	1,267.0
Newsprint/paper	2,892.6	2,686.3	***3,493.8***	2,431.6	2,314.8	2,400.3
Nonmetal min. prods.	***8,267.2***	4,530.7	***3,221.0***	1,246.7	***85,169.3***	10,993.7
Nonmetal minerals	2,635.9	460.4	2,211.2	481.5	9,666.4	1,158.9
Other ag prods.	4,399.3	4,984.9	***3,160.4***	4,426.7	32,441.5	11,927.0
Other foodstuffs	***9,376.2***	13,424.3	***6,538.7***	6,108.3	24,228.5	21,702.1
Paper articles	1,618.1	3,587.7	652.1	1,467.1	1,701.4	3,053.8
Pharmaceuticals	1,605.1	***27,046.7***	247.2	***19,835.3***	2,195.4	***46,874.0***
Plastics/rubber	4,440.8	14,357.0	1,774.2	7,138.0	4,121.8	13,993.6
Precision instruments	345.5	19,106.8	484.8	***16,911.7***	922.6	8,565.7
Printed prods.	459.3	3,317.1	244.6	1,966.3	751.4	2,706.9
Textiles/leather	1,633.6	21,613.1	1,012.7	***12,373.2***	991.7	8,793.4
Tobacco prods.	84.5	724.1	60.4	2,295.4	174.8	2,005.9
Transport equip.	242.5	7,863.8	208.1	7,876.3	319.1	7,977.5
Waste/scrap	862.6	527.4	1,369.9	751.0	***42,147.0***	1,323.6
Wood prods.	3,686.8	3,268.6	2,300.3	1,543.7	18,349.8	10,778.0
Grand Total	**162,615.1**	**390,910.6**	**58,684.0**	**190,747.7**	**617,613.1**	**482,901.2**

Data Source: Freight Analysis Framework 5.5.1.

Table 2 illustrates the movement of commodities exported from Florida gateways (including Florida airports and seaports) to international destinations, categorized according to FAF data. It is crucial to emphasize that 77 percent of these international exports by tonnage are directed towards the rest of the Americas. It should also be noted that these international exports from

Florida gateways may have their origin within Florida or outside the state. Additionally, Table 2 presents the percentage of international exports originating within Florida, revealing that 65.4 percent of the total export tonnage comes from the state.

Table 2 | International Export and Import Trading Partners from Florida Gateways (2022)

International Trading Partners*	Total Exports	Originating in Florida	Total Imports	Terminating in Florida
	ktons	% ktons	ktons	% ktons
Africa	91	80.67%	393	85.98%
Canada	116	99.91%	1,076	68.21%
Eastern Asia	773	77.94%	4,028	83.60%
Europe	715	83.84%	6,703	82.45%
Mexico	742	88.71%	2,170	61.00%
Rest of Americas	11,662	60.52%	10,824	73.05%
SE Asia & Oceania	425	87.52%	1,921	86.93%
SW & Central Asia	754	68.22%	4,220	80.15%
Total	**15,278**	**65.41%**	**31,335**	**77.39%**

Data Source: Freight Analysis Framework 5.5.1.

*Includes commodities that are exported or imported via Florida gateways (airports/seaports)

Table 2 also delineates the movements of commodity flow imported into Florida gateways from international origins. The notable origins are Asia, Europe, and the rest of the Americas. The imports arriving at Florida gateways may terminate either within the state or extend beyond its borders. Table 2 further depicts the percentage of international imports originating within Florida. It is noteworthy to highlight that 77.4 percent of all imported tonnage is consumed within Florida. The total tonnage imported into Florida gateways is twice that of the total tonnage exported from these gateways.

Table 3 presents a detailed breakdown of international imports and exports categorized by different commodity types, utilizing the two-digit SCTG2 classification system. The top five commodities for international imports and exports, in terms of tonnage, are visually emphasized in red font. Notably, the leading international imports by tonnage encompass gasoline, gravel, motorized vehicles, nonmetal mineral products, and nonmetal minerals. Examining international exports, the primary commodities by tonnage include chemical products, fertilizers, mixed freight, newsprints/paper, and pharmaceuticals. An essential observation is that high-value goods like pharmaceuticals and electronics are exported more from Florida gateways.

Table 3 | Commodity Types of International Movements via Florida Gateways (2022)

Commodity Types (SCTG2)	International Imports (ktons)	International Exports (ktons)
Alcoholic beverages	216	47
Animal feed	17	49
Articles-base metal	585	305
Base metals	1,168	71
Basic chemicals	242	331
Building stone	3	1
Cereal grains	47	61
Chemical prods.	469	***739***
Coal	418	5
Crude petroleum	4	0
Electronics	492	593
Fertilizers	963	***3,689***
Fuel oils	1,055	312
Furniture	228	57
Gasoline	***2,609***	345
Gravel	***1,256***	3
Live animals/fish	4	2
Logs	16	25
Machinery	373	675
Meat/seafood	537	153
Metallic ores	120	1
Milled grain prods.	37	43
Misc. mfg. prods.	131	87
Mixed freight	138	***961***
Motorized vehicles	***1,307***	646
Natural gas and other fossil products	216	324
Natural sands	2	8
Newsprint/paper	888	***1,139***
Nonmetal min. prods.	***9,317***	199
Nonmetal minerals	***3,118***	29
Other ag prods.	1,019	520
Other foodstuffs	317	244
Paper articles	76	212
Pharmaceuticals	45	***1,039***
Plastics/rubber	974	528

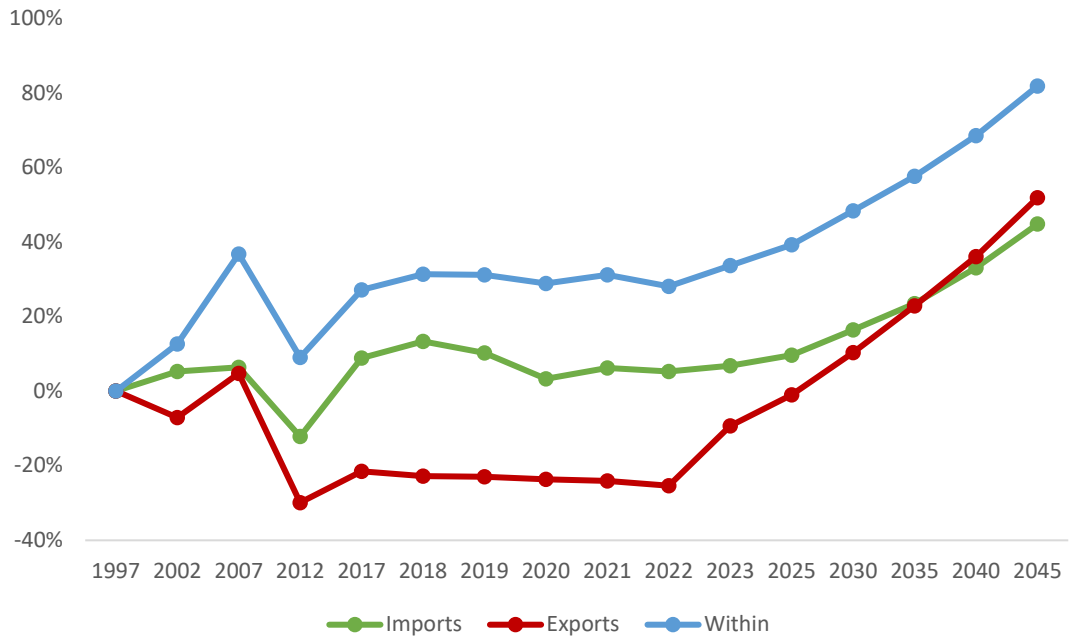
Commodity Types (SCTG2)	International Imports (ktons)	International Exports (ktons)
Precision instruments	210	147
Printed prods.	36	103
Textiles/leather	1,100	321
Tobacco prods.	153	8
Transport equip.	213	171
Waste/scrap	172	706
Wood prods.	1,044	378
Total	**31,335**	**15,278**

Data Source: Freight Analysis Framework 5.5.1.

In terms of modal splits, Florida seaports, are major gateways for international imports (97 percent) and international exports (96 percent) when considering tonnage. However, airports play a noteworthy role in the realm of international imports (30 percent) and international exports (51 percent) when assessed based on value.

Figure 5 illustrates the percentage change in commodity tonnage relative to the 1997 statistics. It is crucial to note that the recession that affected the U.S. in 2007-2009 led to a substantial decline in exports in 2012. The trendlines in the figure below indicate that the projected growth rates in exports from 2022 onward are significantly higher compared to imports and intrastate movements within Florida. By 2045, the forecasted tonnages stand at 223.57 million tons for domestic imports, 119.39 million tons for domestic exports, and 876.67 million tons for intrastate movements.

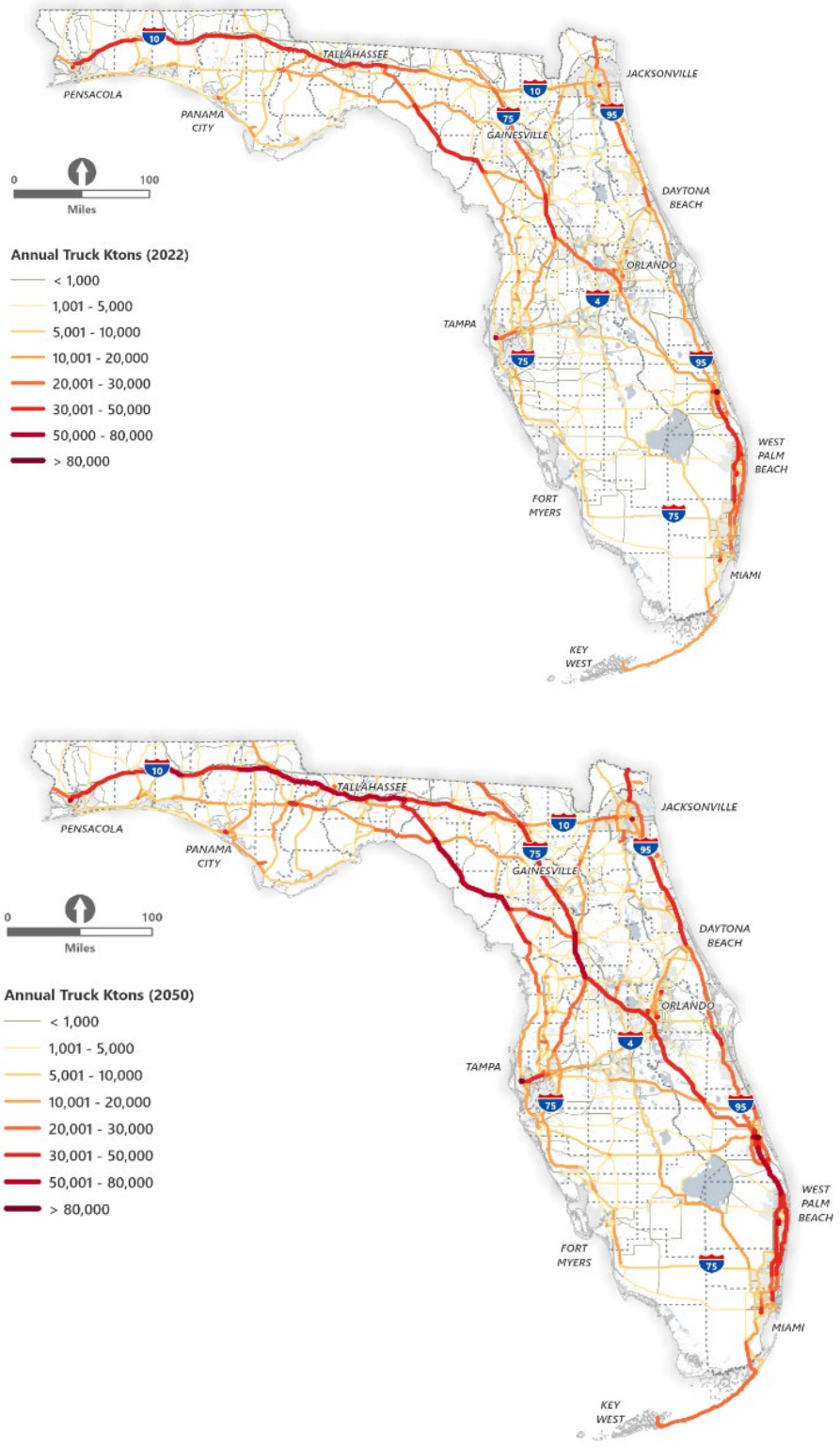
Figure 5 | Percent Change in Commodity Tonnage Imported, Exported, and Within Florida



Data Source: Freight Analysis Framework 5.5.1.

Figure 6 depicts the estimated tonnage movement on different roadways for years 2022 and 2050. The roadways identified with high 2022 truck tonnage movements and 2050 (forecast) truck tonnage movements are the roadway segments that should be potentially prioritized for freight and freight related projects.

Figure 6 | Freight Analysis Framework Roadway Tonnage (Ktons) Moved in Florida, 2022 and 2050

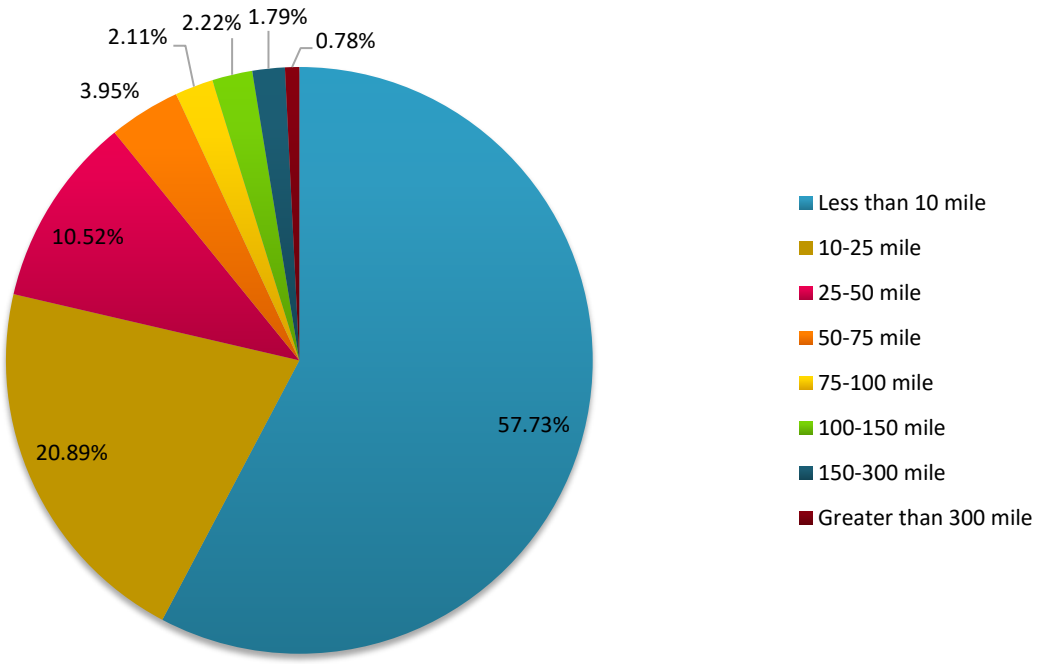


Truck Origin-Destination Flows

This section uses the 2021 Next-Generation National Household Travel Survey (NextGen NHTS) information to analyze the truck flows in Florida. The emphasis is on understanding the truck flows between origins and destinations, including trips within Florida and interzonal truck trips outside Florida. The zones referred to here are the Next Gen Metropolitan Statistical Area (MSA) zones.

The national-level Origin-Destination (O-D) tables for truck travel have been generated by the FHWA using passively collected mobile device location data (sourced from INRIX and ATRI). In 2021, the total annual truck trips within Florida amounted to 801.5 million. Additionally, there were 23.2 million interzonal truck trips originating or terminating outside Florida. Figure 7 visually represents the distribution of Florida-based truck trips (with either origin or destination in Florida) across various distance ranges. As expected, most of these truck trips cover distances of less than 10 miles (57.7 percent), while approximately 4.8 percent of all trips extend beyond 100 miles.

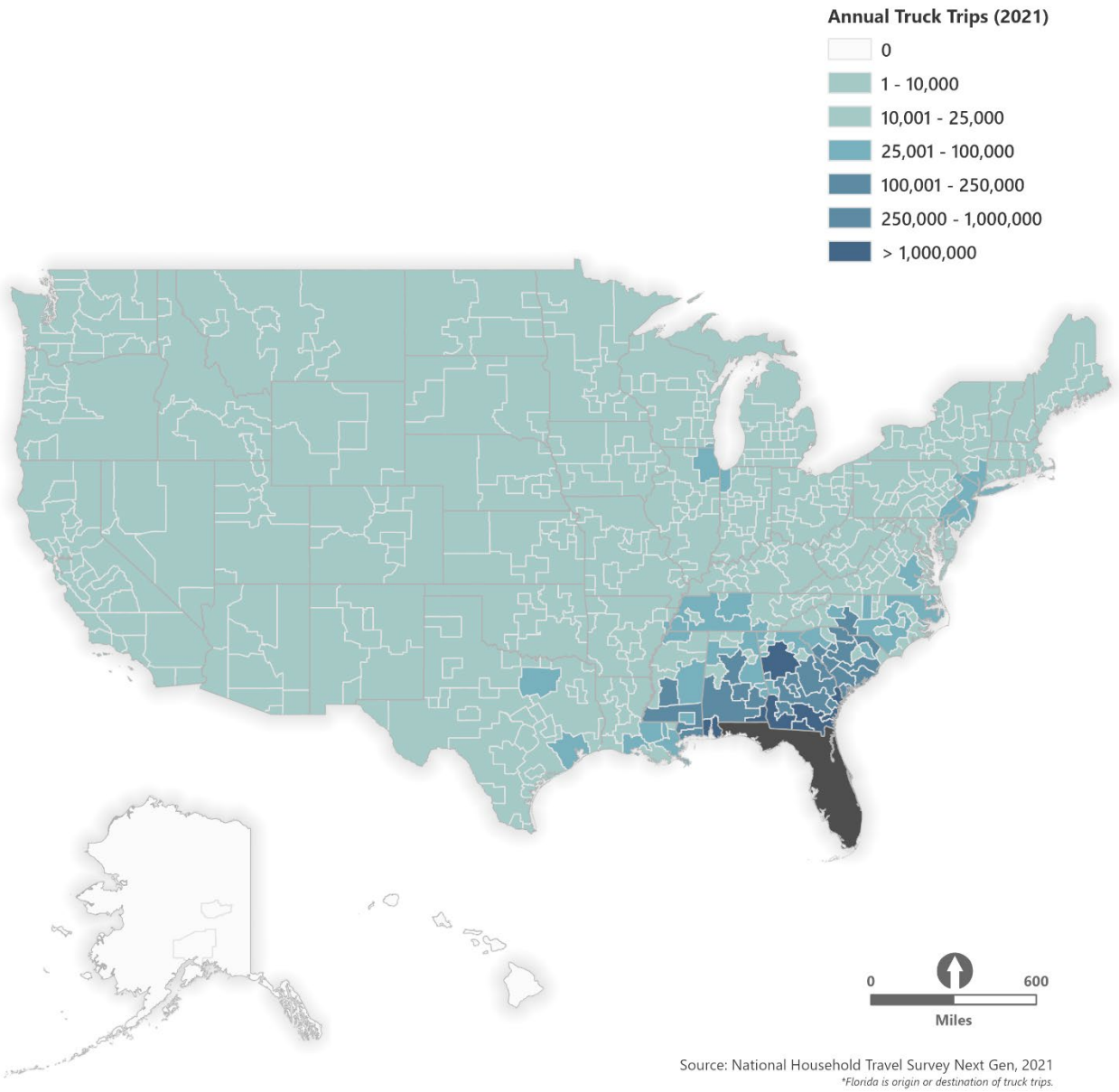
Figure 7 | Florida Annual Truck Trip Distribution by Distance Ranges (2021)



Data Source: National Household Travel Survey Next Gen, 2021

Figure 8 depicts the interzonal trips that either originated from or terminated in Florida. Significant zones of origins and destinations beyond Florida's borders includes zones in nearby states, such as Georgia, Alabama, and South Carolina.

Figure 8 | Annual Truck Trips with Either Origins or Destinations Outside Florida (2021)



Data Source: National Household Travel Survey Next Gen, 2021

Demographic Trends

Demographic trends are a key factor driving freight movements in the state. Growth in the state population, its distribution by age, and shifting urban versus rural areas all influence the amount of freight demand and changing consumer preferences, impacting freight flows.

Total Population

Larger population correlates with greater consumption of freight (60 tons annually on average per U.S. resident), which amounts to a need for increased freight movement and related transportation infrastructure as the state's population grows.

Per Freight Facts and Figures, published by BTS, the average American resident accounts for approximately 60 tons of freight per year.

Historical

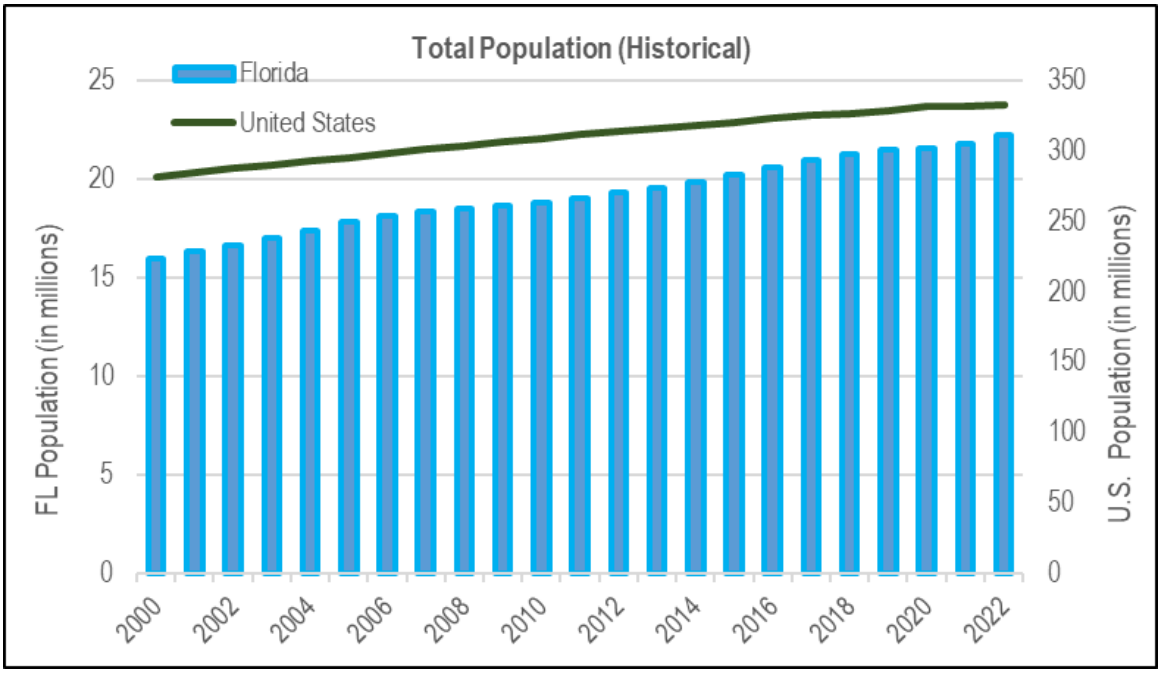
Florida's statewide total population increased by almost 6.3 million during the 2000 through 2022 timeframe, reaching the estimated total of 22.2 million in 2022, based on the Census Bureau data, as summarized in Table 4. This equated to a total percentage growth of 39 percent or a compound average annual growth rate (CAAGR) of 1.5 percent, which was almost double the U.S. national average rate of 0.8 percent per year over the same period since 2000. Florida is now the third most populous state in the nation, behind California (at 39 million residents), and Texas (at 30 million). A comparison of the state and national population growth trajectories since 2000 is presented in Figure 9. Furthermore, Florida's 2022 population density of 415 residents per square mile is more than four times greater than the nation as a whole (at 94), which is favorable for freight market concentration. It is worth noting that there is significant variation in density across the state.

Table 4 | Florida Historical Population Growth

Area	Population		Absolute Increase	Annual Growth Rate
	2000	2022	2000-2022	2000-2022
Florida	**15,982,378**	**22,244,823**	**6,262,445**	**1.5%**
United States	281,421,906	333,287,557	51,865,651	0.8%

Date Source: Census, 2023.

Figure 9 | Florida and U.S. National Historical Population Trends

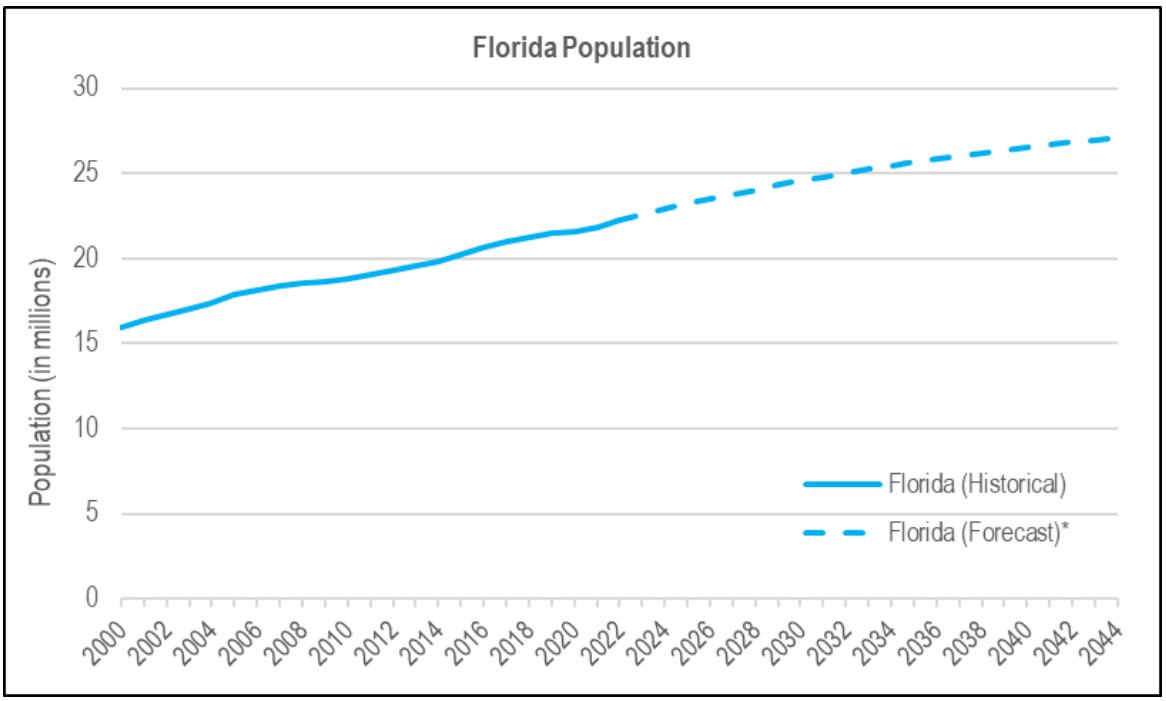


Data Source: Census, 2023.

Forecasted

Florida's statewide population is expected to rise to 25.0 million in 2032 and 27.1 million in 2044, based on the Bureau of Economic and Business Research (2023) projection, see Figure 10. This is an increase of 4.9 million relative to the 2022 estimate, and equivalent to the CAAGR of 0.9 percent (or an absolute increase of 22 percent). While decelerating from the historical growth rate of 1.5 percent, this growth rate is still forecasted to exceed the corresponding national average of 0.6 percent (Census, 2023). The projected population net growth of millions of new residents indicates that the state will continue to attract more people, and hence more freight demand, and grow faster than the national average over the coming two decades.

Figure 10 | Florida Forecasted Population Trend



Data Sources: Census, 2023, and BEBR, 2023.

* Forecast annual values interpolated based on BEBR's five-year interval projections.

Aging

As Florida's population has increased over time, so has the median age of the state residents. Over just the past two decades, the median age of Florida residents has gone up by four years from 38.7 years in 2000 to 42.7 years in 2022, based on the U.S. Census data. This aging trend has also applied to the nation as a whole, and generally to the larger industrialized world. The median age in the U.S. has risen by 3.6 years since 2000, and stands at 39 years as of 2022 (see Table 5). The share of the older population (those 65 years of age plus) was 21.6 percent compared to the national average of 17.3 percent in 2022, while the share of children (those 18 years or younger) was 19.3 percent statewide vs. 21.7 percent nationally, both indicating a relatively older population fabric in Florida.

Table 5 | Historical Median Age

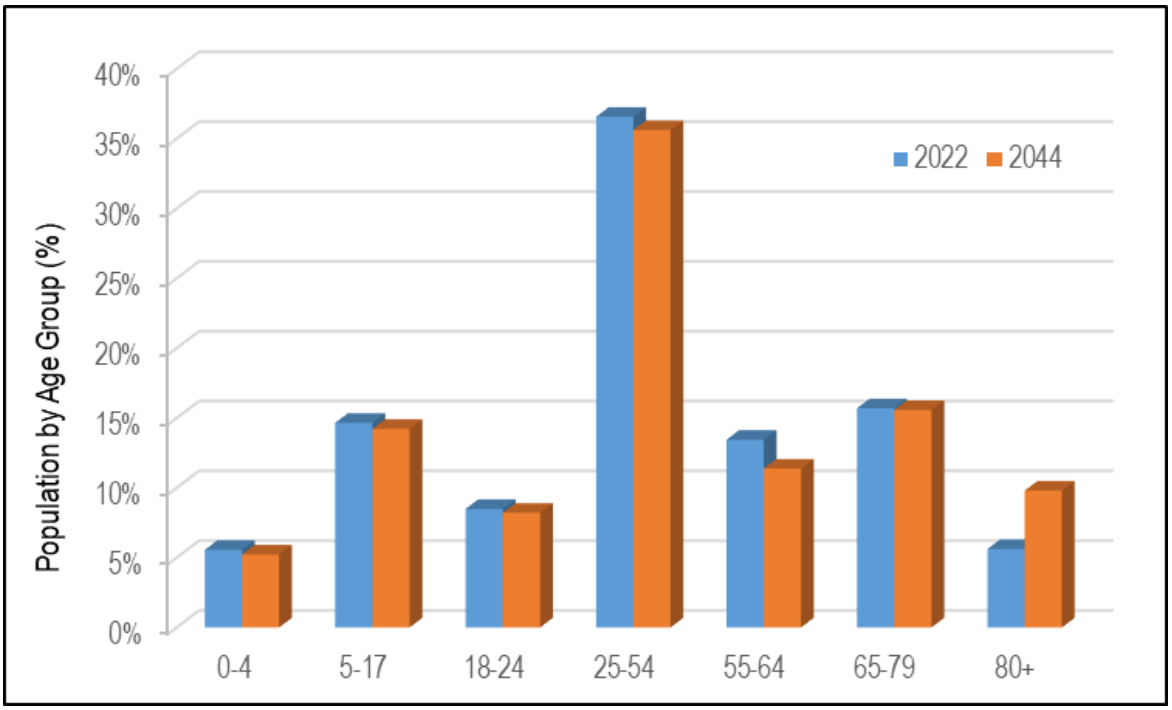
Area	Median Age		Absolute Increase
	2000	2022	2000-2022
Florida	**38.7**	**42.7**	**4.0**
United States	35.4	39.0	3.6

Data Source: Census, 2023.

Going forward, the aging of the state population is expected to continue. According to the recent BEBR projection, the share of the younger age groups, particularly those 24 years of age and younger, will shrink by 2044, while the share of seniors 80 years and older will likely almost double by 2044, as per Figure 11.

The aging phenomenon will have impacts on retirements and overall structure of the labor market as well as the types of goods and freight services that will be demanded in the upcoming decades.

Figure 11 | Florida Forecasted Population by Age Group



Data Source: BEBR, 2022. Annual values interpolated based on BEBR's five-year interval projections.

The aging population will have impacts on the consumer consumption patterns as well as the labor market in Florida, and consequently on the freight distribution.

Urbanizing

Increasingly, Americans, including Florida residents, have chosen to make their homes in urban settings. By 2022, 92 percent of Florida's population lived in urban areas, compared to 80 percent for the nation (see Table 6). Both of these urban percentages are high and have risen substantially over the decades.

Table 6 | Urban Population Shares

Area	Urban Population Share	
	2000	2020
Florida	**89%**	**92%**
United States	79%	80%

Data Source: Census, 2023.

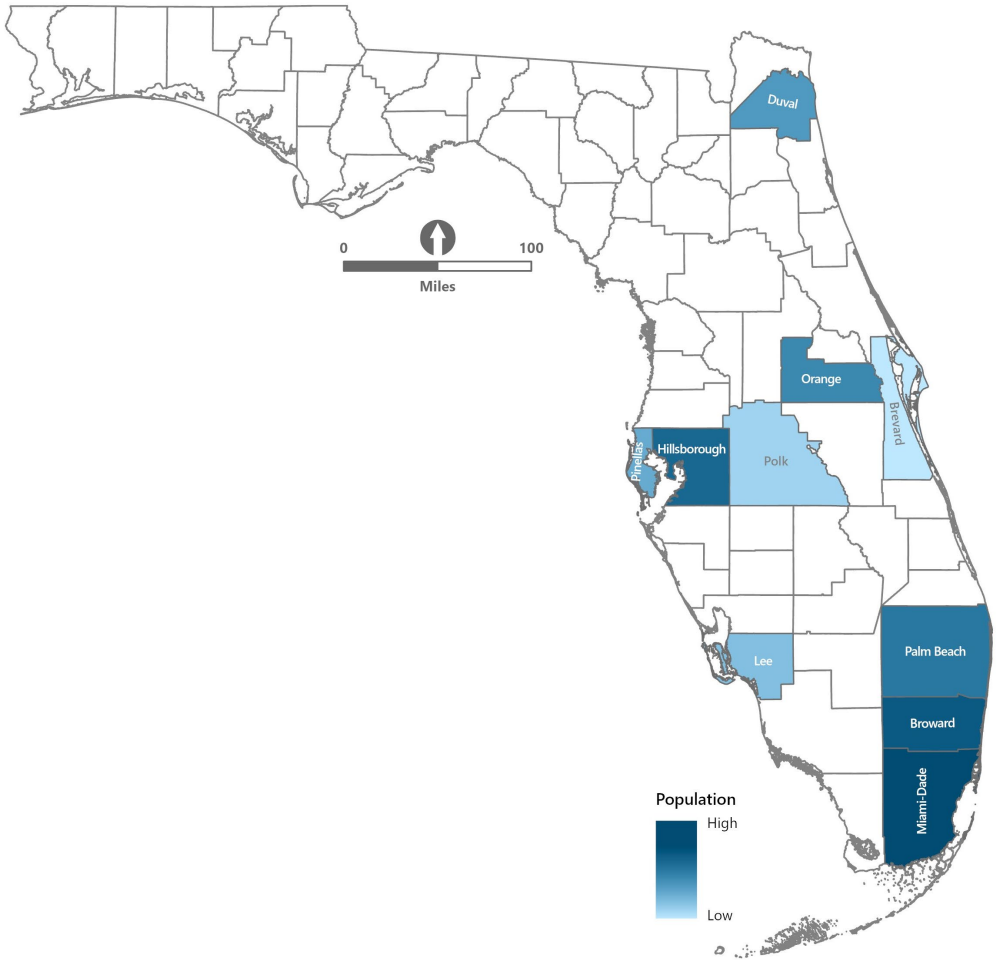
Currently, the ten most populous counties in Florida comprise 60 percent of the statewide population total, see Figure 12. These counties contain the largest metropolitan/urban areas in the state.

Going forward, almost 60 percent of the population growth through 2044 is projected to be concentrated in ten counties.[2] As presented in Figure 13, these counties with highest population growth over the next 20 years are located in and around the largest urban areas of Miami/Ft. Lauderdale/Palm Beach, Jacksonville, Ft. Myers-Cape Coral, and the Tampa-Orlando/I-4 Corridor.

Greater urbanization will lead to higher concentration of freight deliveries and likely increased congestion in metro areas.

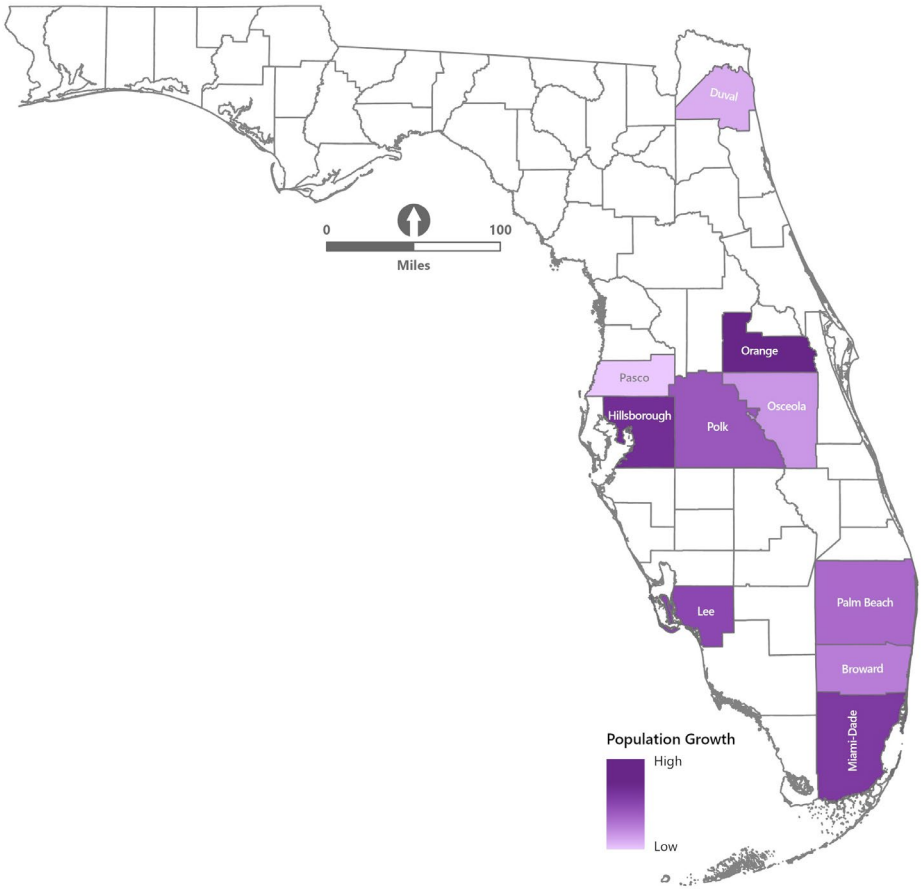
[2] Source: BEBR, 2023 data.

Figure 12 | Florida's Most Populous Counties (2022)



Data Source: BEBR 2023 data.

Figure 13 | Urban Population Growth (2022-2044)



Data Source: BEBR, 2023.

Economic Trends

Economic trends largely influence production and consumption of goods. Trends include growth in the state employment and gross state product, which are subject to the economic cycles, and are typically more volatile than population and other demographic trends. Economic trends impact freight flows due to influence on the amount of freight demand, changing consumer preferences, and the influence of the production of goods and availability of the workforce.

The progressive global integration of Florida's economy means its trade, tourism, and other industries can be impacted by recessions, instability, and supply chain disruptions around the world.[3] Recent disruptions have been caused by global events, such as the COVID-19 pandemic, shortages in labor and production, trade policies, shifting trade lines, and global conflicts.

The threat of cyberattacks continues to increase due to improved hacking methods, limited oversight, and pandemic-related challenges. More companies have digitized their supply chain processes, which provides more entry points for hackers. Globally, cybersecurity breaches have impacted 93 percent of firms as of early 2022. In 2021, the Colonial Pipeline cyberattack severely impacted southern states in the U.S.—71 percent of gas stations ran out of fuel.[4]

Total Employment

Employment is a key economic consideration because it has a direct impact on the production and consumption of goods. It is a key driver of economic growth and prosperity; Employment provides people with an income, which gives them the confidence to buy goods and services, which in turn helps businesses grow and boosts economic growth.

Historical

Florida's total employment grew by 5.3 million (equivalent to 60 percent in total, or 2.2 percent CAAGR) between 2000 and 2022, reaching the level of 14.2 million in 2022, based on the Bureau of Economic Analysis (BEA), as shown in Table 3. In comparison, the U.S. nation employment increased by less than half of Florida's pace (28 percent in total, or 1.1 percent CAAGR) since 2022, see Table 7 and Figure 14.

[3] Florida Transportation Plan, Emerging Trends, 2022

[4] "The Supply Chain Is the Next Big Cyberattack Target," SDC Executive, March 16, 2022

Table 7 | Florida Historical Employment Growth

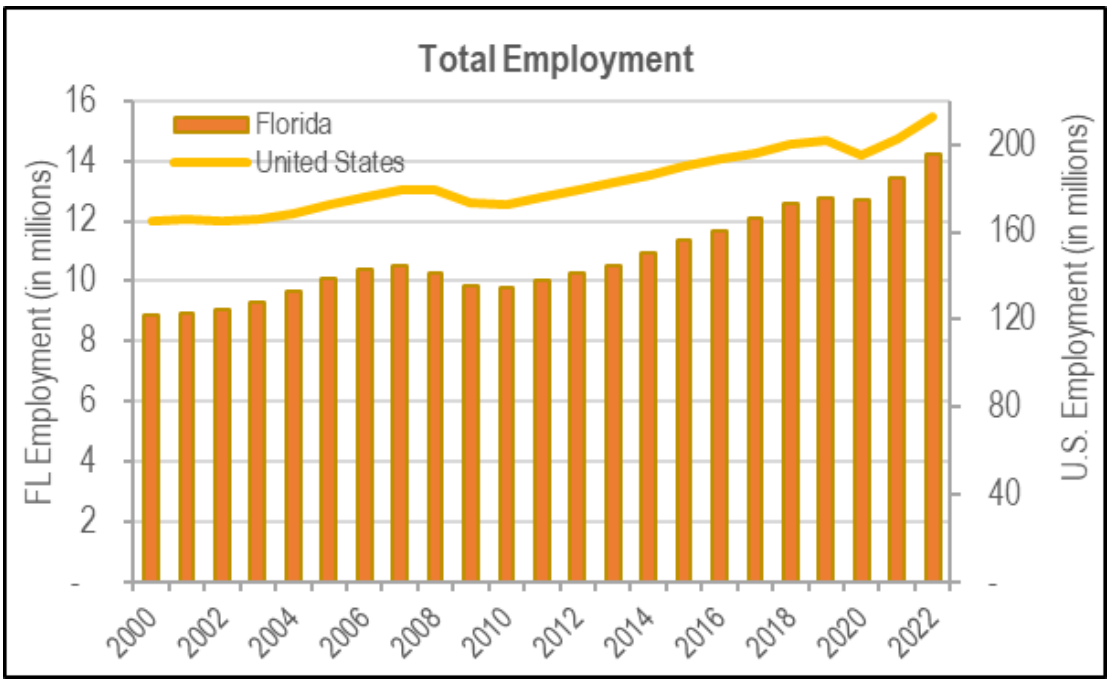
Area	Employment		Absolute Increase	Annual Growth Rate
	2000	2022	2000-2022	2000-2022
Florida	**8,881,279**	**14,227,252**	**5,345,973**	**2.2%**
United States	165,370,800	212,442,000	47,071,200	1.1%

Data Source: BEA, 2023.

Forecasted

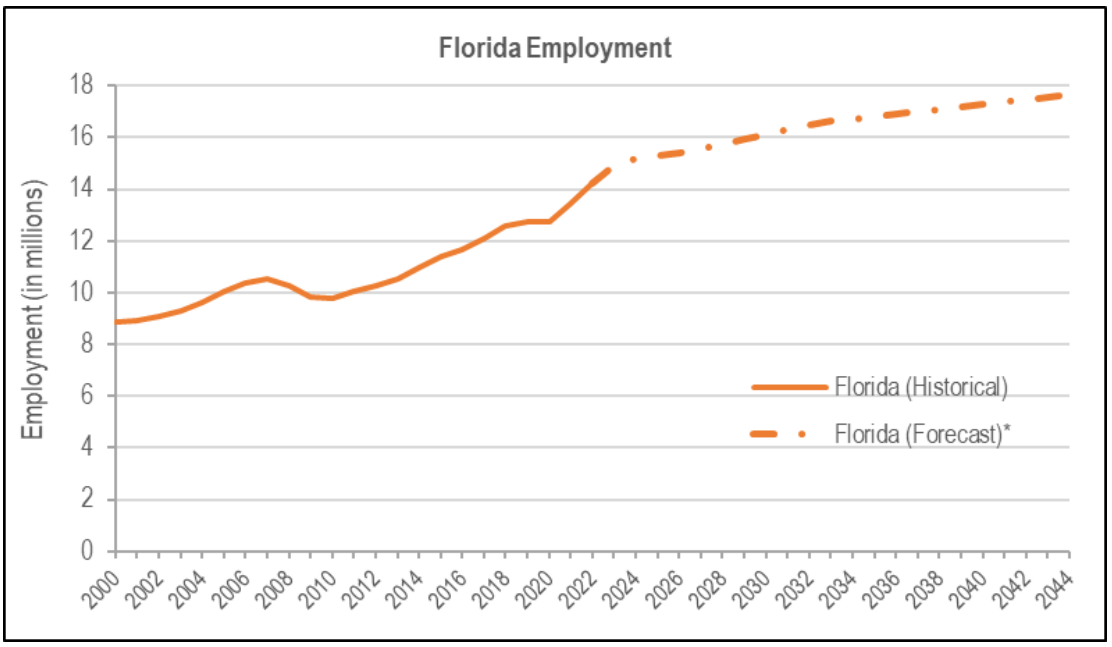
As shown in Figure 15, future statewide employment growth trend is expected to continue its upward trajectory. Based on growth rate forecast by the Office of Economic and Demographic Research (EDR), Florida employment is expected to increase by about 1.0 percent on average through 2044, with total employment at 16.5 million in 2032 and rising to 17.7 million in 2044.

Figure 14 | Florida and U.S. National Historical Employment Trends



Data Source: BEA, 2023.

Figure 15 | Florida Forecasted Employment Trend



Data Sources: BEA, 2023; and EDR, 2023. * Past 2033, the projected volumes are based on half the average growth rate of the preceding five years forecasted by EDR.

Gross State Product

Gross State Product (GSP) is the total value of goods and services produced by a state's economy. Similarly, the national-level Gross Domestic Product (GDP) represents a market valuation, both private and public, of goods and services produced within a given country.

Historical

Florida's total real (inflation-adjusted) GSP expanded at a strong rate of 2.3 percent annually (or 67 percent in total) between 2000 and 2022, reaching the level of $1.1 trillion in 2022 (in constant 2012-dollar terms), according to the BEA. Comparatively, the nationwide growth rate in real GDP was 1.9 percent per annual (or 52 percent in total) over the same timeframe, see Table 8.

Table 8 | Historical Real Gross Domestic Product Growth

Area	GSP\ (in millions of 2012$)		Absolute Increase	Annual Growth Rate
	2000	2022	2000-2022	2000-2022
Florida	**$642,708**	**$1,070,930**	**$428,222**	**2.3%**
United States	$13,138,035	$20,014,100	$6,876,065	1.9%

Data Source: BEA, 2023.

As of 2022, Florida's GSP (at $1.4 trillion, in current dollar terms) stands as the fourth highest in the nation, behind California (at $3.6 trillion), Texas (at $2.4 trillion), and New York State ($2.0 trillion), according to the BEA. Florida's economy also fares well size-wise in comparison to the top 20 national economies globally, per the World Bank data.

GSP by Industry

Some industries are more heavily reliant on freight movement than others. In Florida, as seen in Table 9, the value of the production generated by the private good-producing industries along with trade, transportation, and warehousing was over $327 billion (or almost 27 percent of the state's total GSP) in 2022. The other industries still depend on freight movement for their operations, but typically to lesser extent than the goods-producing industries.

Table 9 | Florida 2022 GSP by Industry

Industry Description	Value (millions of 2017$)	%
Agriculture, forestry, fishing, and hunting	$5,250	0.4%
Mining, quarrying, and oil and gas extraction	$959	0.1%

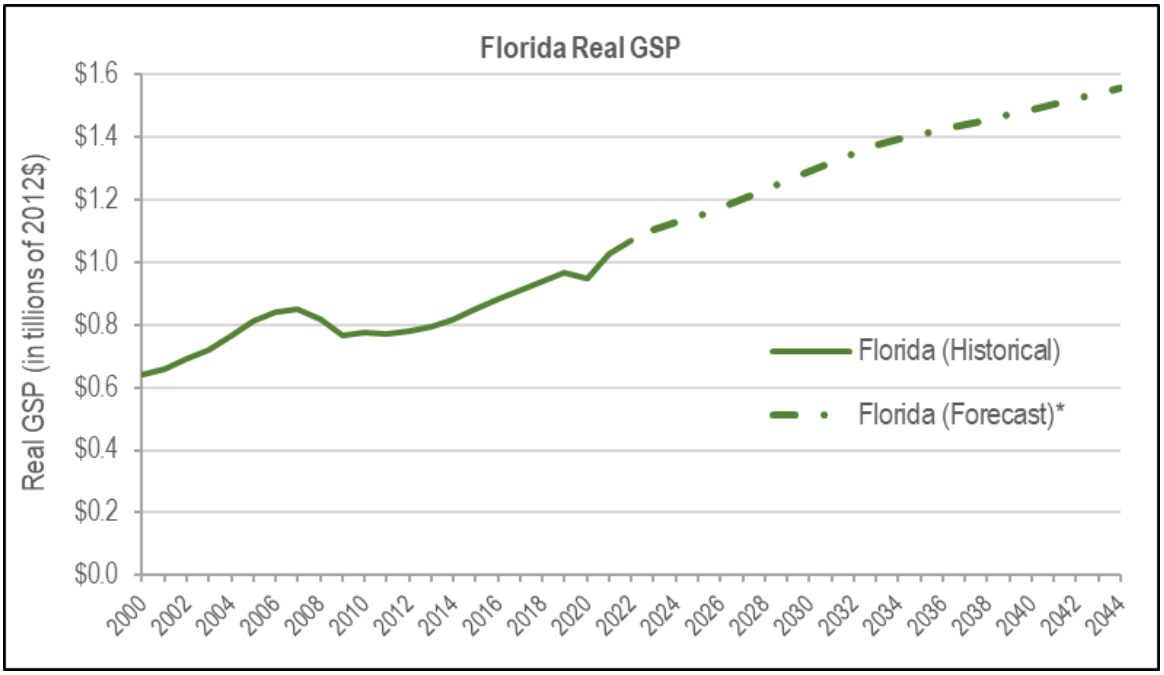
Industry Description	Value (millions of 2017$)	%
Construction	$58,841	4.8%
Manufacturing	$61,947	5.1%
Wholesale trade	$72,796	5.9%
Retail trade	$83,944	6.9%
Transportation and warehousing	$43,653	3.6%
Subtotal: Private goods-producing industries and trade and transportation and warehousing	**$327,389**	**26.7%**
Utilities	$18,991	1.6%
Information	$55,444	4.5%
Finance, insurance, real estate, rental, and leasing	$304,253	24.9%
Professional and business services	$188,582	15.4%
Educational services, health care, and social assistance	$112,562	9.2%
Arts, entertainment, recreation, accommodation, and food services	$71,102	5.8%
Other services (except government and government enterprises)	$28,767	2.3%
Subtotal: Private service-producing industries	$779,700	63.7%
Government and government enterprises	$117,133	9.6%
All Industry Total	$1,218,430	100.0%

Data Source: BEA, 2023.

Forecasted

Florida's total real GSP is forecasted to decelerate to an average annual growth pace of 1.7 percent through 2044, yielding total value of all final goods and services produced in the state at $1.3 trillion in 2032 and rising to $1.6 trillion in year 2044. This trajectory is shown in Figure 16. These amounts of annual economic activity in the State will require very large freight movements to support it.

Figure 16 | Florida Forecasted GSP Trend

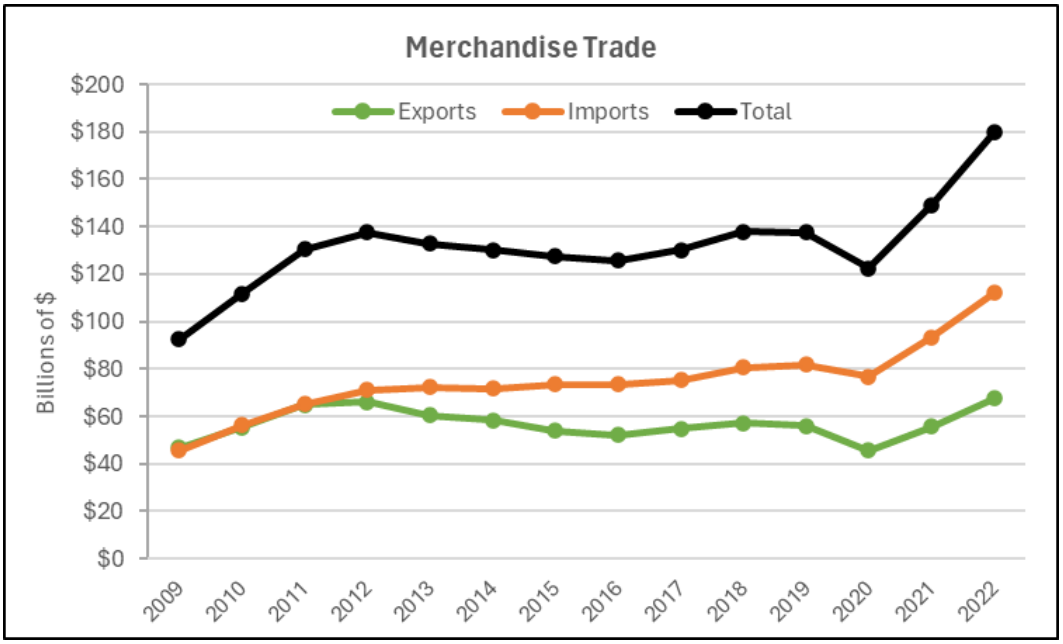


Data Sources: BEA, 2023; and EDR, 2023. * Past 2033, the projected volumes are based on half the average growth rate of the preceding five years forecasted by EDR.

Global Trade

Florida's international merchandise trade has grown over the years. As shown in Figure 17, both exports and imports stood at around $46 billion in 2009 (first year of available data from the U.S. Trade Administration), but grew at different rates through 2022. Exports grew by about 44 percent (equivalent to 2.9 percent per annum) over the 14-year period, while imports rose much more robustly, at 145 percent (7.1 percent/year) over the corresponding timeframe. Florida's total merchandise trade (both international exports and imports combined) increased from close to $93 billion in 2009 to about $180 billion in 2022, equivalent to 94 percent in total (or 5.2 percent/year). In comparison, the total merchandise trade for the United States as a whole grew by 103 percent (or 5.6 percent/year) from 2000 through 2022, with growth in exports and imports at more similar rates of 5.3 percent and 5.8 percent on average per annum, respectively.

Figure 17 | Florida Historical Merchandise International Trade Trends



Data Source: U.S. International Trade Administration, 2023.

As can been seen in Figure 16, following the previous peak for total merchandise trade and exports in particular in 2012, Florida experienced several years of decline in traded values, until a double-digit plunge in 2020. This trade trend in the U.S. and the larger world as a whole has been somewhat similar. These were caused by a combination of various geopolitical factors and the COVID-19 pandemic. These headwinds included various protectionist measures (e.g., tariffs on metals, lumber, etc.), Brexit, the pandemic with its related lockdowns and ensuing recession in 2020, and Russia's invasion of Ukraine that contributed to various global supply chain disruptions, including shortages of energy and agricultural products that exacerbated the resurgence of inflation, including higher transportation costs. Global trade, including Florida's exports and imports, has rebounded sharply, albeit from the low 2020 levels, in both 2021 and 2022, but, given continuing and additional trade impedances, such as resurgence of conflicts in the Middle East, those double-digit annual gains are expected to moderate substantially going forward.

Global Trade by Product

Florida's top five export product categories included Computer and Electronics (21.3 percent of total exported dollar value), Transportation Equipment (18.1 percent), Chemicals (15.5 percent), Machinery (except electrical, at 8.7 percent), and Processed Foods (5.3 percent). Table 10 shows the top 10 merchandise products exported from Florida in 2022. When combined, the other products not in the top 10 accounted for only 14 percent of the state total.

Table 10 | Florida 2022 Top Merchandise Exported Products

Product Category	Value (millions of $)	% Share
Computer & Electronic Products	$14,446	21.3%
Transportation Equipment	$12,272	18.1%
Chemicals	$10,474	15.5%
Machinery, Except Electrical	$5,859	8.7%
Processed Foods	$3,594	5.3%
Miscellaneous Manufactures	$3,207	4.7%
Electrical Equipment, Appliances & Components	$2,531	3.7%
Fabricated Metal Products	$2,406	3.6%
Paper	$1,803	2.7%
Used Or Second-Hand Merchandise	$1,640	2.4%
Other (combined)	$9,498	14.0%
Total	$67,729	100.0%

Data Source: U.S. International Trade Administration, 2023.

On the imports side, Florida's top five products included Transportation Equipment (13.8 percent of total imported value), Computer and Electronics (11.7 percent), Chemicals (8.7 percent), Agricultural Products (5.8 percent), and Machinery (except electrical, at 5.2 percent). Table 11 shows the top 10 merchandise products imported from Florida in 2022. The other products combined but not in the top 10 amounted to 32.1 percent of the state total.

Table 11 | Florida 2022 Top Merchandise Imported Products

Product Category	Value (millions of $)	% Share
Transportation Equipment	$15,483	13.8%
Computer & Electronic Products	$13,082	11.7%
Chemicals	$9,721	8.7%
Agricultural Products	$6,457	5.8%
Machinery, Except Electrical	$5,822	5.2%
Goods Returned (Exports and Imports) and Reimports - Canada Only	$5,448	4.9%
Beverages & Tobacco Products	$5,132	4.6%
Processed Foods	$5,015	4.5%
Electrical Equipment, Appliances & Components	$4,951	4.4%

Product Category	Value (millions of $)	% Share
Primary Metal Manufactures	$4,879	4.4%
Other (combined)	$35,993	32.1%
Total	$111,982	100.0%

Data Source: U.S. International Trade Administration, 2023.

Global Trade Partners

Florida has foreign trade relationships with multiple countries. In 2022, Florida exported $67.7 billion worth of merchandise to 219 countries across the world. Brazil (at 8.3 percent), Canada (at 8 percent), and Mexico (at 6 percent) are currently Florida's top exporting partners, with the other destinations in the top 10 located in Europe and Latin America. Table 12 summarizes the shares of the state exports for the top 10 country-level partners, which collectively purchased over 47 percent of Florida's exports in 2022.

Table 12 | Florida 2022 Top Merchandise Export Partners

Partner	Value (millions of $)	% Share
Brazil	$5,644	8.3%
Canada	$5,402	8.0%
Mexico	$4,034	6.0%
United Kingdom	$3,863	5.7%
Colombia	$2,724	4.0%
Dominican Republic	$2,491	3.7%
Chile	$2,100	3.1%
Argentina	$1,959	2.9%
Germany	$1,805	2.7%
Peru	$1,596	2.4%
Rest of the World	$36,110	53.3%
World Total	$67,729	100.0%

Data Source: U.S. International Trade Administration, 2023.

On the imports side, Florida purchased $112 billion of merchandise from 221 countries in 2022. China (at 12.4 percent), Mexico (at 8.6 percent), and Canada (at 5.2 percent) are Florida's top importing partners, with the other origins in the top 10 located in Europe, the Far East, and South America. Table 13 shows the shares of the Florida import for the top 10 country-level partners, accounting for over 56 percent of Florida's total imports in 2022.

Table 13 | Florida 2022 Top Merchandise Import Partners

Partner	Value (millions of $)	% Share
China	$13,866	12.4%
Mexico	$9,638	8.6%
Canada	$5,797	5.2%
Ireland	$5,551	5.0%
Japan	$5,472	4.9%
Germany	$5,136	4.6%
Brazil	$4,993	4.5%
France	$4,530	4.0%
Chile	$3,989	3.6%
Vietnam	$3,948	3.5%
Rest of the World	$49,062	43.8%
World Total	$111,982	100.0%

Data Source: U.S. International Trade Administration, 2023.

Going forward, it will be important for Florida to maintain and diversify its trade relationships with dependable partners, such as those that trade fairly and can be confidently considered American allies and friends relative to the origins and destinations in adversarial and unreliable countries. This should help strengthen reliability and resilience of the state's supply chain.

Tourism

Florida has been fortunate to attract large numbers of visitors every year over the past several decades. The state's freight system caters to the needs of these visitors as well.

Historical

Visitors to Florida expanded by almost 65 million annually between 2000 and 2022, reaching 137.4 million in 2022. This was almost 5 percent above the previous (pre-pandemic) annual peak in 2019. This corresponds to an annual growth rate of 2.9 percent (or 89 percent in total) over the recent 22-year period, as seen in Table 14.

Table 14 | Florida Historical Visitors Growth

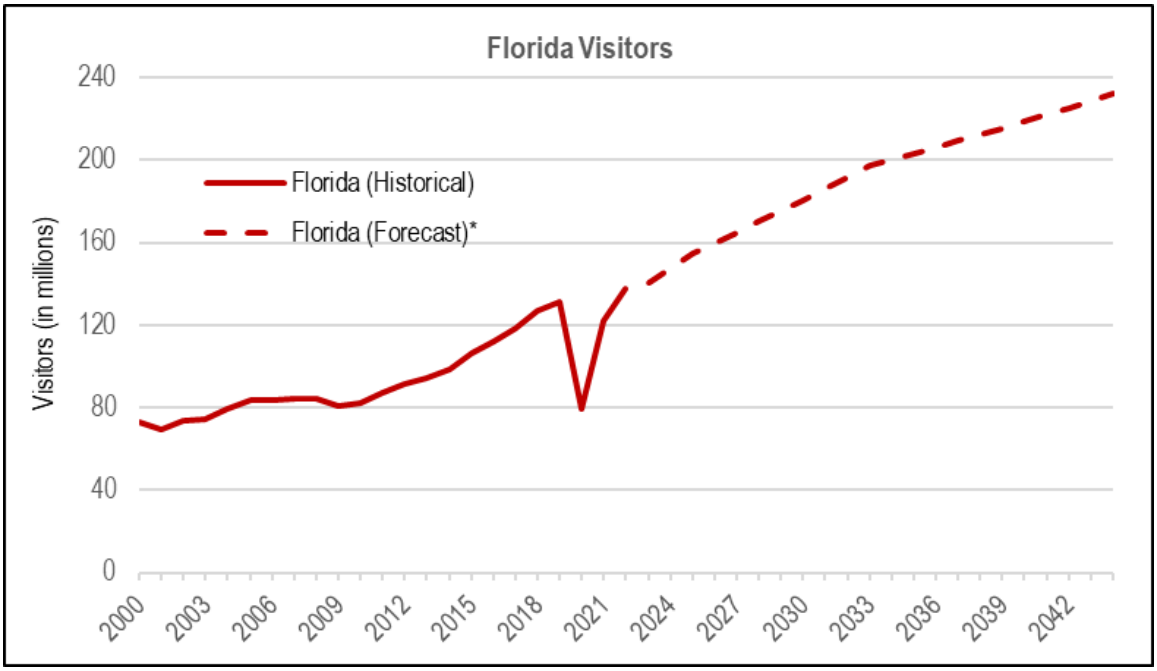
Area	Visitors (in millions)		Absolute Increase	Annual Growth Rate
	2000	2022	2000-2022	2000-2022
Florida	72.8	137.4	64.6	2.9%

Data Sources: Visit Florida, 2023.

Forecasted

As shown in Figure 18, future visitations to Florida will continue to trend upward. Based on growth rate forecast by the EDR, Florida can expect 2.4 percent average annual growth in visitors through 2044, with total annual visitors at 191 million in 2032 and increasing to 232 million annually in 2044.

Figure 18 | Florida Forecasted Visitors Trend



Data Sources: Visit Florida, 2023; and EDR, 2023. * Past 2033, the projected volumes are based on half the average growth rate of the preceding five years forecasted by EDR.

Fuel

Fuel costs are an important factor in the total cost of moving freight and can also influence modal choices. Fuel supply chains are also especially critical in supporting emergency response.

Historical

Florida average retail gasoline prices have fluctuated and gone up markedly since 2004 (earliest year of available data), doubling from $1.9/gallon to $3.8/gallon through 2022, or at an average annual rate of 3.9 percent per annuum, as shown in Table 15 and Figure 19. This increase is below those experienced nationwide (in nominal and percentage terms) for both gasoline and diesel fuel. U.S. crude oil, of which retail prices are based, also rose substantially – by 4.7 percent per annum on average or 139 percent in total between 2004-202 period.

Table 15 | Historical Fuel Cost Change

Metric	Fuel Price ($/gallon)*		Absolute Increase	Annual Growth Rate
	2004	2022	2004-2022	2004-2022
FL Gasoline	**$1.91**	**$3.81**	**$1.90**	**3.9%**
U.S. Gasoline	$1.90	$4.18	$2.29	4.5%
U.S. Diesel	$1.81	$4.99	$3.18	5.8%
U.S. Crude Oil	$41.51	$94.90	$53.39	4.7%

Data Source: EIA, 2023.

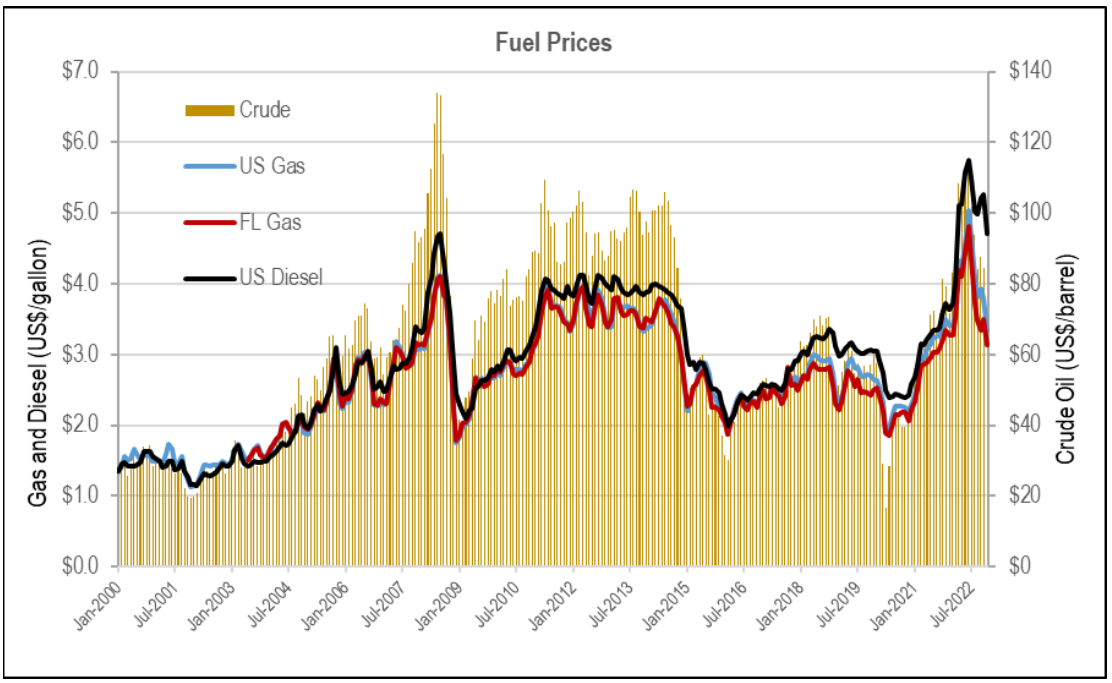
* The prices are average annual in dollars per gallon, except for Crude Oil, which is in dollars per barrel. Gasoline prices are for all grades. Crude oil is for Cushing, West Texas Intermediate (WTI). 2004 is the earliest year of available pricing data for all the four fuel categories.

Forecasted

Fuel prices are projected to continue to rise through 2044. According to the latest projections by the U.S. Energy Information Administration (EIA), U.S. gasoline (all grades) retail prices are forecast to reach $5.3/gallon in 2044, which equates to a CAAGR of 1.1 percent in nominal (inflation-unadjusted) terms relative to the recent peak of $4.2/gallon in 2022. U.S. diesel retail prices are forecasted to increase by an average of 1.0 percent annually, extending to $6.4/gallon in 2044 from the recent high of $5.1/gallon in 2022. See Figure 20.

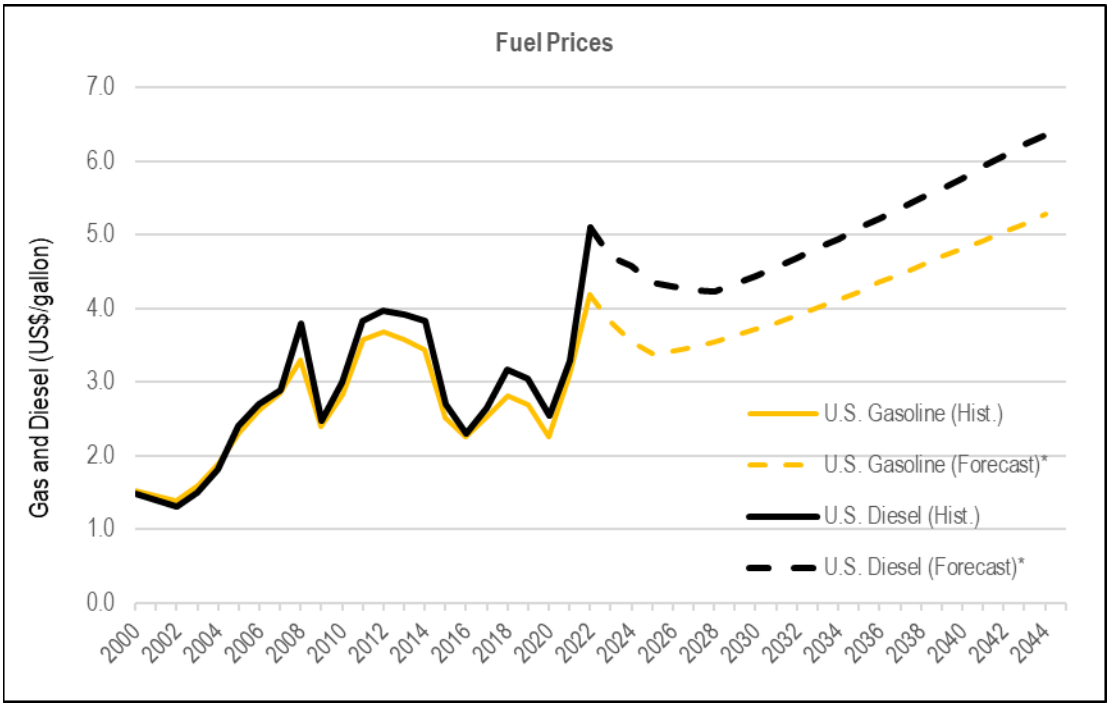
In summary, based on the demographic and economic trend indicators one can conclude that economic growth and related freight in Florida and the larger U.S. is likely to decelerate in the coming 20 years. Additional freight will still be demanded, but the pace of growth will likely be slower over time.

Figure 19 | Historical Fuel Price Trends



Data Source: EIA, 2022.

Figure 20 | Forecasted Fuel Price Trends

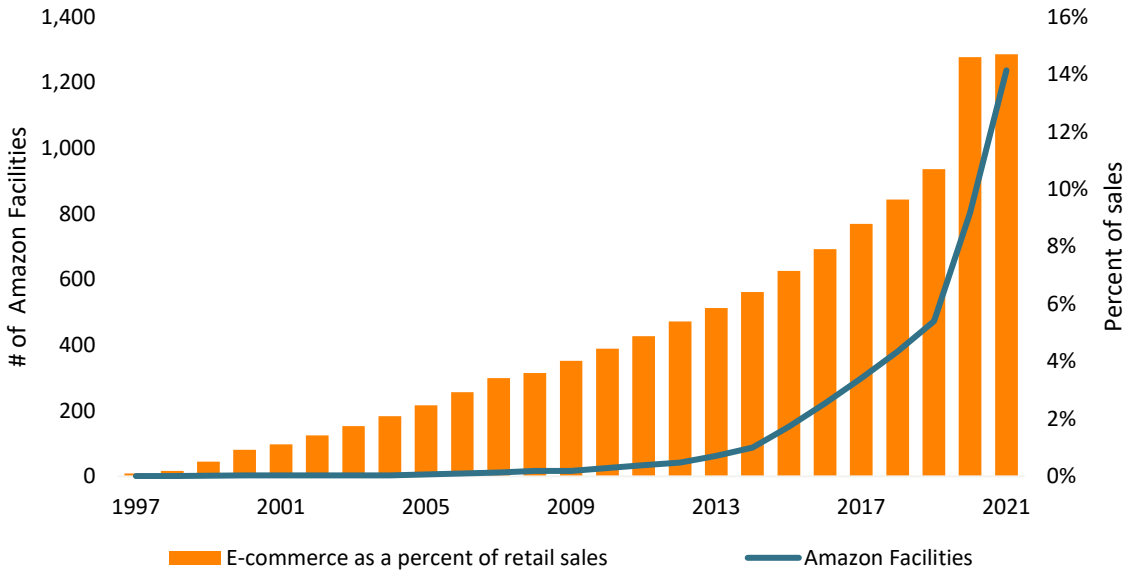


Data Source: EIA, 2023.

E-Commerce and Emerging Freight Land Uses

E-commerce has changed the way people shop and consume products and services. The growth of e-commerce and the associated demand for quick delivery has dramatically changed logistics strategies. It has accelerated construction of fulfillment centers and distribution hubs closer to populated areas, and created innovations in who makes final deliveries and when, where, and how those deliveries occur. In 2020, the global pandemic disrupted supply chains, and freight and goods movements were slowed for a variety of reasons, including disrupted shipping lanes, labor and material shortages, and fluctuating demand. As the nation responded to the pandemic and the economy rebounded, e-commerce growth accelerated. Today, global trade faces many unknowns as the supply chain returns to a 'new normal.' Fueled by post-pandemic economic growth and other factors, demand for goods is surging. Consumers have increasingly turned to e-commerce, and the market share is expected to continue to rise. At this pace, the percentage of e-commerce retail sales may reach 25 percent by 2025. The projected growth rate is derived from historical trends and estimates provided by Statista. The number of Amazon facilities in the U.S. is displayed in Figure 21 on a graph that also shows the growth of e-commerce as a percentage of total retail sales.

Figure 21 | E-commerce as a Percentage of Retail Sales and Growth of Amazon Facilities



Data Source: U.S. Census Bureau.

There are various types of emerging freight land uses identified in the state of Florida. The numbers of each type of facility located in Florida are listed in Table 16, and graphically depicted in Figure 22. Some of the facilities are co-located.

Table 16 | Emerging Freight Land Uses/Facilities in Florida

Facility Type	Number of Facilities
Amazon Inbound Cross Dock*	1
Amazon Fulfillment Centers**	27
Sortable facilities (450,000 – 1,000,000 sq.ft.)	*8*
Non-sortable facilities (1,000,000 sq.ft.)	*7*
Mini facilities (150,000 – 250,000 sq.ft.)	*4*
Specialty facilities	*3*
Seasonal facilities/shared	*2*
To be decided	*2*
Amazon Sortation Centers	9
Amazon Small Package Delivery Stations	62
Amazon Heavy Merchandize Delivery Center	11
Amazon Air Hub	1
Amazon Fresh Hubs	7
Amazon/Whole Foods Retail Food Distribution Center	1
Sam's Club Distribution Centers	2
Sam's Club E-commerce Store	1
Target E-commerce Distribution Centers	2
Target Food Distribution Centers	1
Walmart E-commerce Fulfillment Centers	2
Walmart Food Distribution Centers	4
Walmart Regional General Merchandise Distribution Centers	3
Total	134

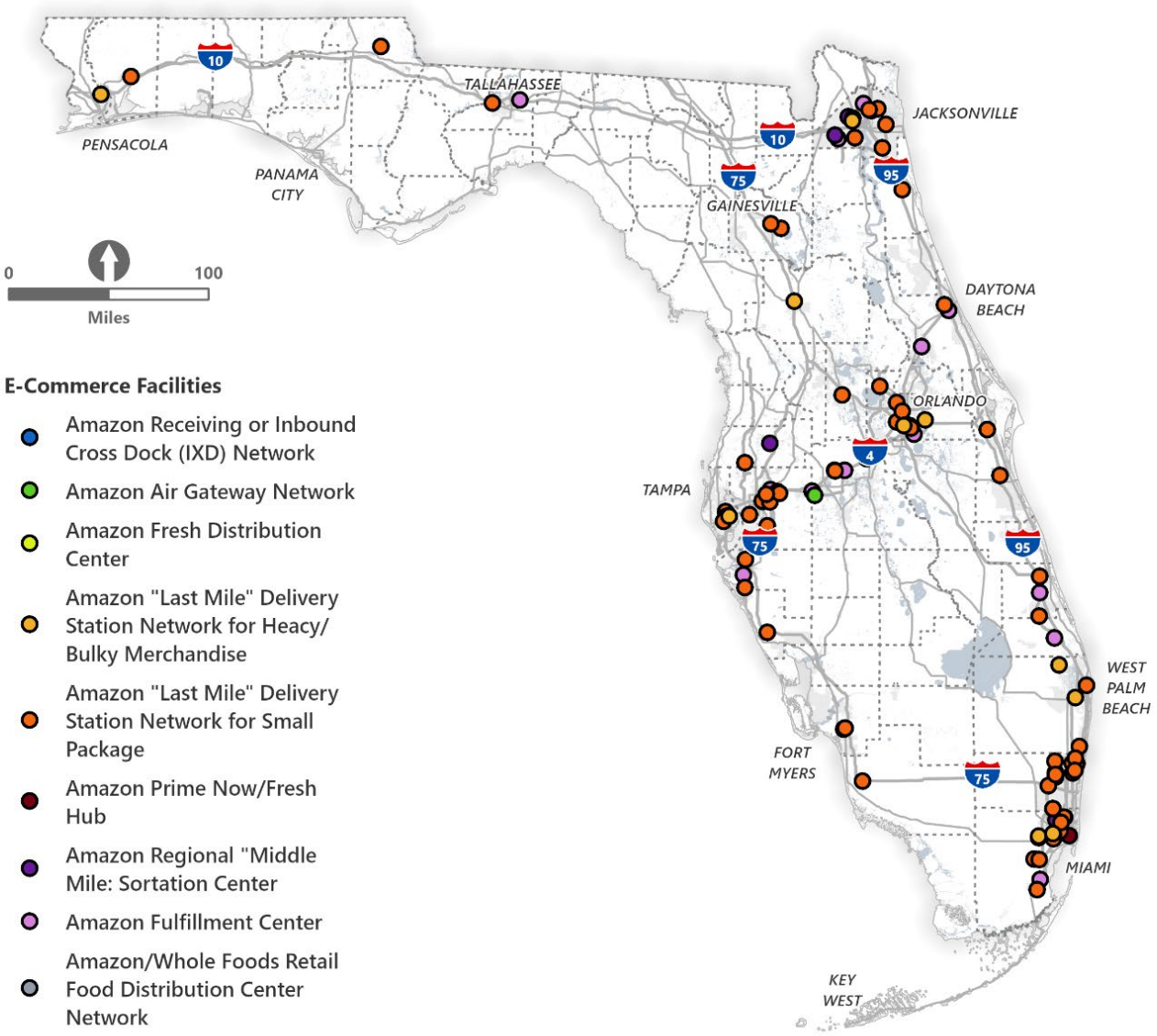
Data Source: FDOT Systems Implementation Office, 2022.

**Cross dock refers to a specially designed logistics facility where goods can be directly transferred from inbound trucks or railcars to outbound vehicles*

***Fulfillment centers process and ship orders directly to end customers; distribution centers store and distribute goods to retailers or other locations*

****Middle mile (from Figure 22) is part of the supply chain between the first and last mile, focused on moving products from the manufacturing facility to the warehouse, distribution center or retail facility*

Figure 22 | Emerging Freight Land Uses/ Facilities in Florida



Source: FDOT Systems Implementation Office, 2022

Military Freight

The U.S. military has a significant and strategic presence in Florida. Twenty-one military installations in Florida provide resources and power projection platforms to enable all branches of the military to maintain a high level of readiness, fulfill national security requirements, and to support the overarching mission of national defense. The Florida Strategic Intermodal System (SIS) and multimodal freight system are critical for military mobility needs and to support the movement of cargo to support not only the installations, but to deploy personnel and equipment rapidly for national defense purposes.

Florida is home to:[5]

- Twenty-one military installations
- Three of ten unified combatant command headquarters
- Hosts two (of only four) deep water naval ports with adjacent airfields
- The military's only east coast space launch facility
- The Marine Corps' only maritime prepositioning force facility
- One of only three Navy Fleet Readiness Centers
- The Joint Gulf Range Complex
- State National Guard Joint Training Center
- Several critical research, development, training, and evaluation (RDT&E) centers

Over 860,000 jobs are directly linked with the military, which accounts for 8.5 percent of Florida's economy.

Diverse and complex supply chains are necessary to efficiently and reliably provide logistics support to Florida-based military sites and for deployment of military units. Large amounts of fuel, food, ammunition, maintenance, equipment and materials, and medical supplies are critical to maintaining military units in a combat and mission-ready posture. Transportation infrastructure including highways, rail, water ports, airports, and pipelines are critical to supporting many military-related supply chains and to support deployment of units. The state's military installations serve as freight generators due to mobilization and deployment of military units and forces and consumer markets needing large and diverse quantities of supplies.

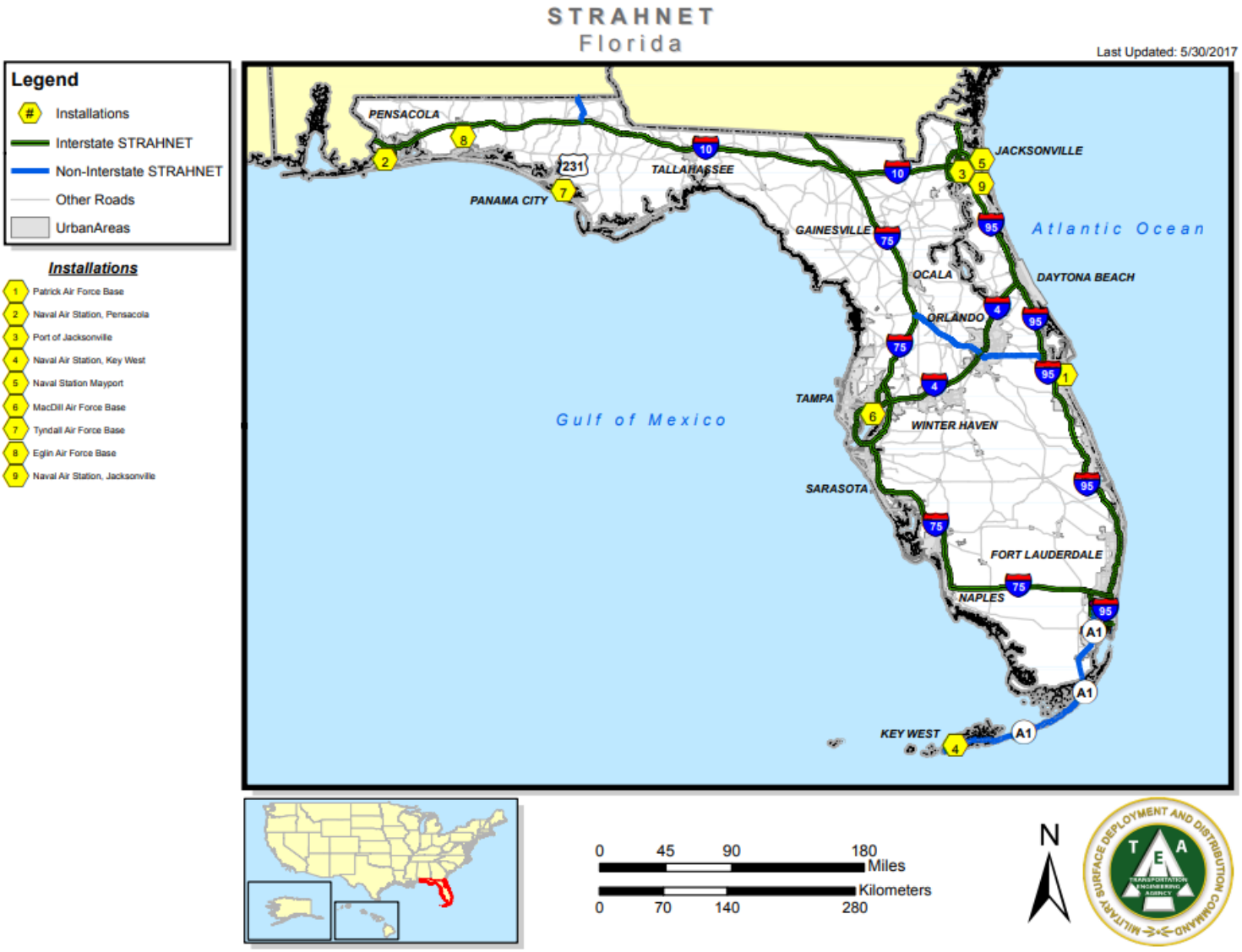
In 2020, JaxPort facilitated an "Elite" cargo move, transporting over 1,000 pieces of U.S. military equipment to Europe for use in a training mission (see photos below). JaxPort is one of 17 ports in the United States that are on-call to move equipment for national security reasons.[6]

[5] Florida Military & Defense Economic Impact Study, January 2022
[6] Jacksonville conducts elite U.S. Army deployment operation

The Strategic Highway Network (STRAHNET) and the Strategic Rail Corridor Network (STRACNET) were developed by the U.S. Department of Defense in coordination with the FHWA and Federal Railroad Administration (FRA). The STRAHNET and STRACNET are networks of interconnected highways and rail lines, respectively, which support the U.S. military with access, continuity, and emergency capabilities for defense purposes.

Florida's STRAHNET installations and routes are shown in Figure 23.

Figure 23 | Florida's STRAHNET Installations



Florida's STRACNET system is shown in Figure 24. It includes multiple CSX and FEC rail lines throughout the state.

Figure 24 | Florida's STRACNET Network

Weather Trends

The U.S. has sustained 371 weather and climate disasters since 1980 (8.4 per year) where overall damages/costs reached or exceeded $1 billion. The total cost of these 371 events exceeds $2.615 trillion. In the last five years (2018-2022) alone, there were 90 of these such events (18.0 per year).[7] Since these events have intensified in duration, magnitude, and frequency, transportation agencies are identifying ways to protect, preserve, and improve their assets to combat extreme events and protect communities and local economies.[8]

With 1,350 miles of coastline, Florida is particularly vulnerable to flooding, hurricanes, and other tropical storms. More than 15 million people live in coastal counties today. Since 2000, tidal flooding across Florida has increased by 352 percent.[9]

Florida's geographic position makes it a target to increasingly severe storms. In 2017 and 2018, Florida was hit by two catastrophic hurricanes in Irma and Michael, respectively. These two events caused devastating storm surge and major wind damage, flooding, road and port closures, power outages, surges in demand for essential supplies, and forced millions of people to evacuate. Combined they caused an estimated $17 billion in insurance loss.[10] Hurricane Ian struck the west coast of the peninsula as a category 4 storm in September 2022, and damage is estimated at $115 billion, including insured and uninsured losses, making it the third costliest cyclone to strike the United States according to NOAA.[11]

Weather disruptions go beyond hurricanes and flooding. Florida has a higher frequency of tornadoes per 10,000 square miles than any other state. It is also among the top 10 states most impacted by wildfires.[12] Smoke from fires causes visibility issues, inciting safety concerns and major delays. Additionally, while not as common, freezes cause disruptions to the agricultural industry. Citrus fruit left on trees goes bad during a freeze, and bridges and roads ice over, creating dangerous conditions for truckers.

FDOT incorporates resiliency into statewide planning efforts, manages infrastructure assets like roadway pavements through analysis and implementation, and invests in hazard reduction measures in advance of floods and hurricanes.

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[7] NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2023). https://www.ncei.noaa.gov/access/billions/, DOI: 10.25921/stkw-7w73
[8] lrtp-resilience-quick-guide-4-5-2023.pdf (windows.net)
[9] FDOT_EmeringTrends_2022_Final.pdf (floridatransportationplan.com)
[10] lrtp-resilience-quick-guide-4-5-2023.pdf (windows.net)
[11] One Year Later, Hurricane Ian Recovery Continues with Nearly $8.7 Billion in Federal Support | FEMA.gov
[12] FDOT Resiliency Subject Brief, 2022

Florida's State Hazard Mitigation Plan (SHMP) is the state source for hazard identification. The SHMP not only identifies Florida's risk and vulnerability to hazards, but also sets the mitigation strategy, priorities, and actions for reducing the potential impacts from future hazards.[13]

[13] FL SHMP (arcgis.com)

Freight Technology Trends

Technologies continue to evolve the freight industry. Alternative fuels, blockchain, automation, data collection, smart sensors, modeling, and drone technology are cutting across the modes and having significant impacts on global supply chains. New fuels provide new opportunities to reduce local air pollution caused by freight vehicles. Blockchain allows for an entire supply chain network to contribute to data validation, helping build trust and confidence among users in the data and information industry. Automation is filling labor shortage gaps. Data collected from new types of sensors can provide the timely and valuable data underpinnings to power analytical insights. Scanning technology and drones are helping conduct safety and regulatory inspections in record time. COVID-19 vaccine distribution has led to innovations in the storing, loading, and movement of temperature-sensitive products. Digital representations utilizing AI and advanced computing can model real world effects and help plan for future shifts in cargo flows.

Alternative Fuels

For each type of alternative fuel, there are unique opportunities and challenges associated with its use. Due to high up-front costs of fleet conversion and infrastructure investment, there is a hesitancy in the alternative fuel freight industry to commit to a type of alternative fuel that may not be the best option down the line, especially in an arena where technological advancements are happening quickly. A breakdown of the opportunities and challenges by fuel type is found in Table 17.

Table 17 | Opportunities and Challenges by Alternative Fuel Type

Type	Opportunities	Challenges
Biodiesel	• Not made from fossil fuels, but from vegetable oils and/or animal fats • Biodiesel can directly replace traditional diesel in common diesel engines • Biodiesel can improve the lubricity of the fuel at blend levels as low as 1% • The federal government is pushing requirements for incremental blending of fossil fuels with alternative fuels • Biodiesel and renewable diesel are the most common • Using biodiesel in place of petroleum diesel	• Biodiesel is only used for blending (B20 is most common blend, which ranges from 6% to 20% biodiesel blended with petroleum diesel) • Pure biodiesel can crystallize and gel in cold temperatures, potentially damaging a truck's engine (most major engine manufacturers void warranties if a blend above 20% is used in a diesel engine) • High cost of production

Type	Opportunities	Challenges
Compressed Natural Gas (CNG)	• Natural gas is abundant in the U.S. • CNG experiences less price volatility than diesel due to supply • A growing amount of natural gas is being produced from landfills, sewage plants and agricultural waste as opposed to fossil fuel extracts (Renewable Natural Gas/RNG/Biomethane) • Increasingly being used for dedicated fleets and regional deliveries • On average, natural gas engines are up to 10 decibels quieter than a comparable diesel engine	• When diesel prices are low, diesel is more cost-effective than CNG • CNG vehicles require different engines and fueling stations than diesel trucks, so upfront investment is significant • For long-haul, LNG offers a greater energy density than CNG, meaning the fuel range is more comparable to conventional fuel • Mostly still comes from fossil fuels from large-scale drilling operations, leaving a large carbon footprint
Liquified Natural Gas (LNG)	• Natural gas is abundant in the U.S. • LNG is suitable for trucks that require longer ranges than CNG (more energy can be stored by volume), but still less range than diesel (one GGE equals about 1.5 gallons of LNG) • Air quality benefits over diesel, but less than CNG due to necessity of cooling	• High production cost (purifying natural gas and super-cooling it to -260°F to turn it into a liquid) • LNG must be kept cold and stored in double-walled, vacuum-insulated pressure vessels (expensive cryogenic tanks) • Mostly still comes from fossil fuels
Propane (Liquid Propane Gas/LPG)	• Propane is a well-established alternative fuel and typically costs less per gallon than gasoline • Propane vehicles provide a comparable driving range to conventionally fueled vehicles • Potential for lower maintenance costs - popular choice for high-mileage vehicles •	• Propane vehicles are usually more expensive than gasoline counterparts • Energy density is significantly less than diesel (more fuel needed to go the same distance)
Hydrogen Fuel Cell Electric Vehicles (Hydrogen /FCEVs)	• Battery-powered vehicles; energy source comes from a fuel cell combining pure hydrogen and oxygen to produce electricity • Emits only water vapor and warm air • Great range (Nikola claims its hydrogen fuel cell trucks can travel over 1,000 miles at a time) • As battery technology improves, cost will go down	• Price point - hydrogen is expensive, difficult to process, and expensive to transport – and purchase point of vehicles is high • Need specific fueling stations that are different from regular EV (only 40 public hydrogen fueling stations in the U.S. in 2019, most in California, 0 in Florida)
Electric Vehicles (BEV, PHEV)	• Encompasses electric motors powered by electricity stored in batteries or a combination of electric and internal combustion engines • Electricity to charge the batteries can be generated by any type of fuel, including renewable sources • Cost is decreasing, charging stations are becoming more widely available, and range is increasing • Excellent opportunities for last-mile solutions with lighter-duty freight vehicles	• Very heavy batteries, not enough range for long-haul • Need for dedicated infrastructure, as businesses cannot afford to have trucks waiting in line behind passenger vehicles to charge
Ethanol (E85)	• A liquid alcohol fuel that is frequently fermented from corn, but many other plant materials, including other grains, sugar cane, or even algae can be used. • Added to gasoline and used as blends in common diesel engines (flex-fuel vehicles can run on 85% ethanol blend - E85) • Cost of E85 on a per gallon basis is generally less than gasoline	• Less energy dense than gasoline, so it requires a greater volume of fuel to travel a given distance • Lower fuel economy may mean higher cost, especially for long-distances

Trucking

While there is promise for alternative fuels in the trucking industry, the two biggest barriers remain for their use in fleets: up-front investment and availability of infrastructure/re-fueling stations. The trucking industry relies almost exclusively on diesel today.

Electric

In general, the practicality of medium- and heavy-duty long-haul truck electrification is challenged due to the weight of the trucks combined with the haul distances and geographies that involve substantial energy surges for greater inclines. A changing regulatory landscape, technology improvements leading to smaller and cheaper batteries, more truck models, and more demand are all helping to grow a nascent electric-vehicle industry serving heavy-duty trucking and farming vehicles.[14]

Electric vehicles have started to break the barrier of fueling stations, with over 8,450 electric vehicle charging stations (EVSE ports) throughout the state in September 2023 (96 percent of all Alternative Fuel charging stations in Florida).[15] EV is already serving the passenger (non-freight) and light-duty markets. However, heavy-duty fleet vehicles currently use heavy-duty EV charging equipment which operate at greater than 150 kW and require their own dedicated EV charging network. As the network gets built out, heavy-duty EV charging will primarily be located along the SHS, at truck stops, intermodal hubs, and distribution centers.

Florida will receive approximately $198 million in National Electric Vehicle Infrastructure (NEVI) formula funds through the federal FY 26. These funds will be used to grow the network of EV chargers by installing, maintaining, and operating direct current fast charger sites for the duration of the five-year Program. Working in tandem with industry partners to fill in the gaps and identify innovative solutions that support charging in rural, disadvantaged, and underserved areas, Florida's goal is for the market to continue to self-support after the program ends.[16] Figure 3 in Tech Memo 1 shows a map of Florida's current Alternative Fuel Corridors. In 2022, FDOT added over 4,000 miles (a 58 percent increase) to the network. This represents a great opportunity for Florida's communities to utilize all available funding to build a complete EV network in the state.

Natural Gas

Natural gas vehicles are often seen in the form of corporate and government fleets, due to the manageable size of the fleets (the up-front investment cost is recouped relatively quickly by lower fuel prices), the state and federal incentives and efficiency requirements, and the ability of

[14] "Experts: The Heavy-Duty Vehicle Sector Is Primed for Growth", 2021
[15] Florida Transportation Data for Alternative Fuels and Vehicles
[16] Florida's Electric Vehicle Infrastructure 2023 Update

these types of vehicles to return to terminals for re-fueling daily. As of September 2023, Florida has 56 Compressed Natural Gas (CNG) and three Liquefied Natural Gas (LNG) refueling stations.[17]

Some logistics companies are investing in natural gas as fuel for their fleets, including Amazon and UPS. Amazon is hoping to run a carbon neutral business by 2040 and has ordered more than 700 CNG class 6 and class 8 trucks. UPS aims to reduce the environmental impact of its 123,000-vehicle fleet by phasing in more than 6,000 natural gas-powered trucks over three years and stepping up purchases of renewable natural gas (RNG).[18]

Saddle Creek is a nationwide third-party logistics and trucking company based in Lakeland, Florida. They currently have a fleet of 200 CNG trucks, which represents more than 40 percent of their total for-hire fleet. Saddle Creek estimates that their trucks have traveled more than 55 million miles on CNG. The company is continuing to invest in CNG, converting 50 of their older diesel trucks into dual CNG-diesel fuel vehicles, and recently completing a $1.5 million upgrade to their fueling facility in Lakeland to accommodate the growing fleet.[19]

Hydrogen Fuel Cell

Hydrogen fuel cell vehicles have potential benefits for heavy duty vehicles compared to electric. The vehicle can be lighter, the driving range is longer, and the fueling time is shorter. A growing number of developers are adopting hydrogen fuel cells as a complementary technology to battery-electric powered vehicles.[20] Hyundai, Nikola and Toyota are all working on hydrogen fuel cell powered trucks. The hydrogen fuel cell stack works like a mini power plant, converting hydrogen to electricity that can run the trucks. Drivers can fuel their vehicles almost as quickly as they can with diesel, and the system is lighter than the power supply for a similar battery-electric truck. There are currently no hydrogen refueling stations in Florida.[21]

Ports

The current standard for freight vessel fuel is diesel, but Florida seaports are on the leading edge of alternative fuel utilization nationally. Florida is already deploying LNG for its cargo and cruise vessels and is poised to deploy the world's largest shore power system.

LNG

There are two primary applications for LNG in the maritime shipping industry - a fuel source for the motive power in maritime vessels, and a commodity cargo for import and export – both of

[17] Florida Transportation Data for Alternative Fuels and Vehicles
[18] "Exclusive-Amazon orders hundreds of trucks that run on natural gas", 2021
[19] "Demand Grows for CNG"
[20] "The Dawn of Electric Trucks", 2019
[21] Florida Transportation Data for Alternative Fuels and Vehicles

which are growing. LNG offers a lower energy cost per ton than traditional maritime heavy fuel oil and is fast approaching the status of a fully developed technology. A limiting factor is the lack of available infrastructure to supply LNG-powered vessels. Using LNG requires retrofitting existing vessels or purchasing new LNG powered vessels, and LNG bunkering requires specialized infrastructure for supply, storage, and delivery to vessels.[22]

Jacksonville currently has the largest LNG bunkering operation at a U.S. port. JaxPort can store ~16 million gallons of LNG and has 1.9 million gallons of daily LNG production. The only other LNG bunkering facility in the U.S. is Port Fourchon, Louisiana. In 2020, Port Canaveral was the homeport for the first fully LNG powered cruise ship in North America, Carnival Cruise Line's Mardi Gras.[23]

Shore Power

With shore power (or cold ironing) technology, a vessel shuts down all on-board power generation from diesel engines and connects to shore power supplied by the local utility. PortMiami is establishing itself at the forefront of pushing shore power with its project to install five shore power systems for cruise ships at the port. When installed in PortMiami by the end of 2023, it will be the largest shore power system in the world.[24]

Rail

Railroads are the most environmentally friendly mode of surface transportation for moving freight. On average, railroads are three to four times more fuel efficient than trucks on a ton-mile basis. Railroads are continuing to embrace innovative solutions, like exploring alternative fuel use in existing locomotive fleets and hybrid diesel-electric propulsion technology. Class I railroads are also upgrading yard equipment, such as switcher locomotives, cranes, and service trucks.[25]

LNG

Like seaports, LNG has proven to be the most cost effective and beneficial alternative fuel source for rail. Technology includes dual-fuel trains that use both LNG and diesel fuel. Unlike the shipping industry, the bunkering market is not experiencing the growth necessary to support Class I railroad operators for cross-country rail lines, so regional rail companies are the sole users of LNG powered locomotives.[26]

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[22] Florida Seaport Transportation and Economic Development Council (2020). Alternative Fuels Study.
[23] ibid
[24] PortMiami to deploy world's largest shore power system - Marine Log
[25] AAR-Climate-Change-Fact-Sheet.pdf
[26] Florida Seaport Transportation and Economic Development Council (2020). Alternative Fuels Study.

There are currently four freight rail operators in Florida, including CSX, Florida East Coast Railway, Seminole Gulf Railway, and Genesee Wyoming Railroad. Florida East Coast Railway has been operating on LNG since late 2015 and completed the conversion of its entire mainline thru-haul fleet to run on LNG. [27]

Biodiesel

CSX is finishing up testing a 20% soybean oil-based fuel blend (B20 biodiesel) in its Tampa locomotive fleet with over 200,000 gallons burned.

Aviation

The aviation industry is focused on delivering sustainable aviation fuels (SAF), innovative new propulsion technologies, and other efficiency improvements (such as improvements to air traffic navigation).[28] Advanced Air Mobility is an emerging aviation ecosystem that leverages new aircraft and an array of innovative technologies to provide the opportunity for more efficient, more sustainable, and more equitable options for transportation.[29] As the aviation industry looks toward alternative fuels, Florida is poised to take advantage of the latest developments.

SAF

Fort Lauderdale Executive Airport and Melbourne Orlando International Airport are leading the industry and partnering with companies to bring Sustainable Aviation Fuel (SAF) to Florida's aviation community. According to the United States Department of Energy, SAF is a biofuel used to power aircraft with similar properties to conventional jet fuel.

Electric

Electric-powered aircrafts are being tested in the U.S. for short (500-800 mile) express feeder air cargo routes. A new type of aircraft known as eVTOL (electric vertical-takeoff-and-landing) is also being explored for passenger and air cargo. eVTOL differs from traditional helicopters and offers lower maintenance, lower noise, reduced environmental impact, and better safety prospects.[30] Applicable federal regulations still are emerging, but the FAA's "Innovate28" plan has a goal for multiple origin/destination service in at least one geographic area by 2028.

[27] See https://www.railwayage.com/mechanical/locomotives/fec-rolls-out-lng/ and https://fecrwy.com/news/blog-lng-operations/ for more information.
[28] Net zero 2050: sustainable aviation fuels (iata.org)
[29] AAM Implementation Plan, Version 1.0
[30] FDOT Advanced Air Mobility Roadmap

Space

Florida's space industry is on the cutting edge of fuel technology. The two predominant fuel types today are highly refined kerosene (RP-1) and liquid hydrogen. However, LNG is the new alternative fuel in the rocket business and becoming a primary fuel in the form of methane. The proximity of Port Canaveral to the Cape Canaveral Space Force Station and Kennedy Space Center provides a nexus for development of regional LNG infrastructure capable of meeting the needs of growing space and maritime industries.

Space X uses methane as fuel for its Raptor engine, the critical propulsion for the Falcon 9 rocket and future Starship launches.[31] In its New Glenn rocket, schedule to fly for the first time in 2024, Blue Origin will also use methane as the primary fuel for its BE-4 engines, the most powerful LNG fueled rocket motor ever developed.

Beyond alternative fuels, the following technologies listed by mode are helping to optimize the efficiency of freight movement by reducing human error, increasing operational speed and safety, and improving overall productivity. Florida is on the cutting edge of advances that play a critical role in the success of the state's economy and global position.

Highway Technology

Connected vehicle technology utilizes a combination of vehicle- and infrastructure-based radio units that exchange messages to improve mobility and safety. Relevant connected vehicle applications include freight-specific traveler information, curve speed warnings, and oversize/overweight detection. Connected vehicle hardware and software can complement planned intelligent transportation system (ITS) and signal projects.

Automated vehicle technology utilizes on-board sensors to interpret roadway conditions and make driving decisions on behalf of the driver. This may range from simple assistive tasks such as emergency braking to fully automated operations without the need for driver inputs. Near-term opportunities include vehicles with low speeds and small form factors, such as delivery robots and automated airside vehicles at airports. Twenty-four states allow level 4 autonomous semi-truck commercial deployment.[32]

SunTrax is a large-scale, state-of-the-art facility being developed by FDOT and Florida's Turnpike Enterprise dedicated to the research, development, and testing of emerging transportation technologies in safe and controlled environments. The entire site is a connected environment for

[31] Florida Seaport Transportation and Economic Development Council (2020). Alternative Fuels Study.
[32] FDOT, Emerging Trends, 2023 emergingtrends.pdf (windows.net)

the testing of vehicle-to-infrastructure (V2I), vehicle-to-vehicle (V2V), and vehicle-to-anything (V2X) communications.

Driver Assisted Truck Platooning (DATP) utilizes a combination of connected and automated vehicle technologies to establish connectivity between multiple trucks, with a front driver making driving inputs and following trucks automated to replicate these inputs in real time, enabling drastically shorter headways. This could result in fuel savings, reduced driver fatigue, and increased roadway capacity. FDOT has conducted two pilot projects involving truck platooning, with Peloton (2017), and Starsky Robotics (2019).

While the technology is novel, the real-world use cases are currently limited. The trucking industry has not identified cost-effective or operational efficiencies with DATP, and owner-operator linkages are not likely due to safety and interoperability issues. Most fleets plan for single tractor-trailer movements (52' of cargo, not 104' of cargo).

Freight signal priority utilizes infrastructure-based sensors, which could include connected vehicle radios, to detect the presence of trucks and extend green lights to allow their passage. Freight signal priority has been demonstrated to reduce truck travel times by 10 percent. FDOT has developed several projects with freight signal priority including the I-4 and I-75 FRAME, Smart Bay, Florida Keys COAST, and SR 60 CAV projects.

Freight traveler information applications use real time data to allow drivers and operators to make informed trip planning and completion decisions. Example freight applications include freight-specific trip planning, drayage optimization, and dynamic eco routing to minimize fuel consumption. South Florida was the site of one of three U.S. DOT Freight Advanced Traveler Information System (FRATIS) pilot projects.

Data-driven decision making is helping to add new truck parking locations. Utilizing big data, advanced data processing software, and novel methodologies are what spurred the success of FDOT's Truck Parking Study. Truck parking availability uses infrastructure-based sensors to detect the presence of trucks via in-ground or microwave sensors or closed-circuit television (CCTV) cameras to detect activity in and out of a parking lot. Real-time parking is disseminated to truck drivers using in-vehicle radios, dynamic message signs, mobile apps, websites, or a combination. Florida has installed the truck parking availability system (TPAS) at approximately 68 locations along interstates: I-4, I-10, I-75, and I-95. Results show that the sensor installation exhibited 95 percent accuracy providing occupancy information and 90 percent accuracy with turnover information.

Weigh-in-motion technologies use ITS infrastructure that measures the weight of a vehicle as it passes over roadway sensors. This electronic clearance allows wireless screening of trucks at heading speeds, eliminating the need for trucks to pull over at weigh stations. The FDOT Motor Carrier Size and Weight Office (MCSAW) deployments show approximately 50 percent of the commercial vehicles receive a bypass due to size and weight compliance. FDOT has also developed the Freight Operations eXchange (FOX) database, which will be a primary driver for how weigh stations work in the future. The FOX dataset will allow MCSAW to determine if the truck has recently been processed at another station and if so, provide an additional bypass based upon previous compliance checks.

Electronic tolling facilities use electronic detection equipment like in-ground sensors to assess the number of axles and apply an appropriate toll. Tolls may be paid using prepaid toll transponders or mailed to the owner based on their license plate. Florida's Turnpike is a key example of electronic tolling, with additional through lanes constructed to bypass local traffic. This reduces stop and go activity for toll payments.

Truck-only lanes are lanes constructed and reserved for commercial vehicles on major freight corridors. Truck-only lanes have been constructed along part of I-5 in California and are currently under consideration along I-75 in Georgia. While they have the potential to significantly alleviate truck traffic in limited access facilities and reduce time delays for deliveries, truck-only lanes have a high initial cost and result in a reduction in general purpose travel lanes. By establishing truck-only lanes, technologies such as Weigh in Motion and Freight Signal Priority (FSP) can be integrated as a design feature from the ground up.

On a smaller scale, personal delivery devices are being explored for consumer-oriented/last mile freight operations in Miami. "Tiny Mile" robots have joined a series of pilots that have turned Miami into a testing haven for autonomous innovation.[33]

Rail Technology

Positive Train Control (PTC) systems are designed to prevent train-to-train collisions, over-speed derailments, incursions into established work zones, and movements of trains through switches left in the wrong position. PTC technology is in operation on all 57,536 required freight and passenger railroad route miles nationally as of the December 31, 2020 statutory deadline set forth by Congress.[34]

[33] Tiny Mile's pink robot pilot joins Miami's autonomous testing ground - Axios Miami
[34] Positive Train Control (PTC) | FRA (dot.gov)

Smart Sensors for train wheels are an important part of rail safety. Investments in a variety of smart sensors, including infrared, acoustic monitoring, and laser technology, monitor the health of railcar wheels. They alert railroads to wheel anomalies, which can affect their performance, damage track, or indicate brake problems. This allows railroads to fix small problems before they become serious.[35] Aided by smart sensors deployed across the network and advancements in track inspection technologies, railroads have amassed databases with hundreds of terabytes of information about the condition of track and equipment. This virtual goldmine of data coupled with improved data analytics software allows railroads to uncover critical data trends and apply this learning to enhance safety and operations.[36]

Automated Track Inspections (ATI) hold great promise for the future of railroad safety and efficiency. An advanced algorithm can analyze track geometry of more than 1,500 curves in track in just a few hours, whereas it would take a team of four people 10 months to manually complete the same task. All Class I railroads use some sort of automated technology for inspections to supplement the manual inspections required by federal regulation. With increased use enabled by next-generation technology and modifications to federal regulation, railroads will be able to conduct safety inspections more frequently, detect more flaws more reliably and respond more quickly while keeping workers out of harm's way.

Seaport Technology

Smart Ports can help ensure the port has a steady supply of work. Connected shipping and container management vessels can ensure efficient utilization of space at the port. These connections can be made to other modes and inland ports to maximize space and the movement of goods. BlockChain will be a critical technology for ensuring that these cargo movements are tracked safely and securely. It will provide each port with a verifiable and non-fungible tracking ID that can be traced between ports around the globe.

IR Sensors are critical for BlockChain as this is where the information will be stored. The Smart Ports of the future will have infra-red detectors at all points of entry to ensure detection of the information.

Port Automation for seaports could significantly improve on-facility operations resulting in greater throughput of cargo and passengers. Automated cranes could improve capacity/throughput/productivity (containers per hour), and automated submersibles (underwater drones) can be used for ship inspections.

[35] Technology Makes Freight Railroads Safer - Association of American Railroads (aar.org)
[36] Technology Drives the Future of Rail - Association of American Railroads (aar.org)

Modeling Behavior (Digital Twins) will help ports determine workloads and capacity well ahead of time to avoid bottlenecks and backlog. By creating a digital representation of the port utilizing AI and advanced computing and applying real world effects such as weather, worker capacity, and cargo throughput the port can more appropriately plan around future shifts in cargo flows.

Security and Scanning are critical facets of ports being international areas of entry. Through the use of x-ray and other directed energy scanning technologies, ports will be able to protect against human and contraband trafficking in a more thorough and efficient manner. As these issues grow, it is becoming more critical to ensure that all ports of entry (not just seaports) invest in and adopt these technologies. Radiation portal monitors are used at the Port of Miami.[37]

Aviation Technology

NextGen is the FAA's multibillion-dollar program to modernize the U.S. National Airspace System. It helps airlines, general aviation operators, pilots, and air traffic controllers get access to data and tools that help passengers and cargo arrive at their destinations more quickly. This transformation involves an ongoing rollout of improvements which began in 2007.[38]

As part of the AAM landscape, delivery drones can deliver packages to their final destination once a truck reaches a strategic location and deploys them. The benefits include significant fuel/time savings for parcel delivery services and a reduction in costs for maintenance of unpaved roads to rural counties. Delivery vehicles currently add significant wear and tear on these facilities as a result of e-commerce. Amazon is currently testing a service that will drop its pharmacy patients' medications on their doorsteps via drone in an hour or less with customers in College Station, Texas.[39] UPS used drones to deliver COVID-19 vaccines in Winston Salem, North Carolina. Drones were also used to deliver prescription medication in The Villages, Florida.[40]

AI Scanning Systems are being used as a quick way of recording cargo dimensions. The system uses advanced machine-learning, scales, cameras, and 3D scanners to provide instantaneous, accurate scans of parcels and pallets. Sensors are used to collect data from millions of points simultaneously rather than a single laser scanned point. The machine-learning algorithm can

[37] The Port of Miami, Florida, US - Ship Technology (ship-technology.com)
[38] Next Generation Air Transportation System (NextGen) | Federal Aviation Administration (faa.gov)
[39] Amazon is testing drones to deliver your medications in an hour or less - CBS News
[40] emergingtrends.pdf (windows.net)

improve the accuracy with every scan and can be used on black plastic surfaces which have traditionally been a challenge for freight scanners. [41]

Miami International Airport is building four-story cargo facility (Vertically Integrated Cargo Community, or VICC) at that will be the first of its kind in the Western Hemisphere and, when completed, will increase the airport's total cargo capacity by at least 50% or potentially up to two million tons annually.[42]

Space Technology

Cargo Delivery Via Rockets is an experiment sponsored by the Air Force Research Lab and the Transportation Command, with the potential for delivering masses of cargo and smaller more targeted deliveries (e.g. medical supplies) at great speed.[43] If successful, a program of record could be planned as early as 2026.

Deep Space Freight Corridors and an infrastructure of reliable systems for transporting supplies to space are critical for establishing colonies on the moon and Mars. The development of a next-generation supply chain will require larger rockets carrying heavier payloads, automation to compensate for communication time lag over large distances and new lightweight, affordable, reusable, and recyclable packaging to withstand radiation and the rapid changes in temperature found in space. [44]

Pipeline Technology

Pipelines may be used to transport liquids, gas, and in some cases solids like grain, rocks, cement, and solid waste over long distances. Advancements in pipeline technology aim to improve monitoring and detection of conditions which represent a threat to the integrity of the pipeline and thereby the safety of the system.

Intelligent Pig technology is a type of in-line inspection equipment used to examine a large portion of a pipeline. The "pig" is inserted into the pipeline and is carried by the product flowing through the pipe. Intelligent pigs are equipped with sensors and data recording equipment. These sensors can detect and measure corrosion, material loss, cracks, dents, and other deformation within the pipeline as well as the exact location markers of the abnormalities.

[41] aircargonews.net/technology/cargo-spectre-offers-speedy-ai-cargo-scanning/
[42] MIA receives approval of a $400+ million cargo facility (miami-airport.com)
[43] Space Force envisions 'freight trains' to space, 'Walmarts on orbit' - Breaking Defense
[44] NASA to develop deep-space freight corridors - FreightWaves

Intelligent pigs are nondestructive to the pipeline and may use magnetic resonance or ultrasonic waves to identify potential abnormalities. [45]

[45] 1 (liquidenergypipelines.org)

Florida Growth and Supply Chain Resilience Initiatives

The impacts of disruption to the nation's freight system have become more apparent to planners, policy makers, freight stakeholders, and the public at large. Supply chains are impacted by disruptions from shocks (individual events) and stresses (longer-term shifts). These events and conditions can result in unanticipated transportation system impacts and increasing constraints on infrastructure, impeding access to reliable mobility for people and goods.[46]

In response to numerous disruptions, Florida's freight transportation systems must become more resilient, in terms of their ability to: resist disruption; adapt quickly and provide emergency services immediately following disruption; and re-establish full operations following disruption. With more awareness about these threats at a national level, there is more federal money, along with new project standards and updated policies, upon which Florida can capitalize to improve the state's freight system resilience.

Resilience Policies

The Infrastructure Investment and Jobs Act (IIJA) created the Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) program providing $7.4 billion nationally in both formula and discretionary funding programs for transportation resilience. These programs provide approximately $70 million annually to the Florida Department of Transportation (FDOT) to cover resilience projects and incremental costs to make projects and facilities more resilient.

In 2021, Senate Bill 1954 was signed into law to protect Florida's inland waterways, coastlines, shores, and coral reefs. This bill, combined with the 2021-2022 budget, was part of the largest investment in the state's history – over $640 million – to support efforts to ensure state and local communities are prepared.[47] It included:

- $12.5 million for the Resilient Coastlines Initiative for resilience projects and coral reef protection
- $29 million for establishment and planning efforts of the Resilient Florida Grant Program
- $500 million in federal funding for implementation of statewide resilience projects
- $100 million for Resilient Florida Grant Program projects in partnership with local communities

[46] briefing_sheets_resilience_0630.pdf (windows.net)
[47] Governor Ron DeSantis Signs Bill to Further Strengthen Florida's Resiliency Efforts, 2021

- Federal Regulation 23 CFR Part 450 requires Metropolitan Planning Organization (MPO) and statewide transportation planning processes to improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.

In 2020, FDOT adopted a resilience policy that defines the principles of resilience as "the ability to adapt to changing conditions and prepare for, withstand, and recover from disruption."[48]

In July 2023, FDOT published its Resilience Action Plan (RAP) required by Florida Statute. The plan focuses on four specific hazards that may impact the Florida State Highway System (SHS) and the communities it serves. The plan assesses the potential impacts on the SHS and identifies strategies to improve the resiliency of transportation facilities. The RAP Data Viewer allows users to view and download data, and the vulnerability assessment is included as part of the FMTP24 prioritization process.

[48] FDOT Resiliency Subject Brief, 2022

Florida Growth and Supply Chain Resilience Constraints

As global economic competition increases, trade patterns change, social patterns shift, and strides are made in alternative fuels and supply chain technologies, decisions about how best to invest limited public resources in freight capacity are increasingly critical.

Considerations include what infrastructure capacity is needed and where, how to make the best use of existing capacity, and how local policies, constraints, and investments may affect the performance of regional and national networks. Locally driven decisions about freight capacity can create regional competition that leads to inefficient national investments.

Statutory and Constitutional Constraints

Funding – Transportation projects, whether they involve maintenance, new installations, upgrades, replacements, or operations, have become more costly. Solutions that could be instrumental in relieving freight congestion, such as public transit systems to get cars off the road, truck bypasses at major intersections, or highway-railroad grade separations, are often unrealistic to fund with a single agency. There are both opportunities and hurdles in aligning transportation investments with federal and state legislative goals and capitalizing on multi-state investments and public-private partnerships.

Additionally, some project types can't be funded, like local roads due to CRFC/CUFC mileage limitations or short line railroad maintenance due to ownership restrictions. With the Build America, Buy America Act in the IIJA, certain specialized modal products built overseas, like cranes, can no longer be purchased without exemption. Competition with other transportation priorities adds another layer of difficulty – freight projects require greater visibility/understanding by local leaders to get put on the docket. Statutory restrictions on local government funding, such as recent changes affecting impact fees and sales taxes, constrains the ability to affect the overall safety, capacity, efficiency, and partnership capability of Florida's transportation network at a local level.

Trade Patterns – The growing shift from global (offshoring) manufacturing to regional (re-shoring or near shoring) has changed trade and corresponding job growth, which could bring more freight to Florida because of its proximity to Mexico, the Caribbean, and Latin America. A notable measure of these shifts is the removal of NAFTA (North American Free Trade Agreement) from the Mexico-Canada-United States trade partnership. It was replaced with the United States-Mexico-Canada Agreement. The changes between the agreement between the United States of America, Mexico, and Canada (USMCA) and NAFTA are subtle but distinct in their efforts towards reshoring.

The Jones Act, which refers to Section 27 of the Merchant Marine Act of 1920 (P.L. 66- 261), requires that vessels transporting cargo from one U.S. point to another U.S. point be U.S.-built, and owned and crewed by U.S. citizens. The act once provided protection for U.S. shipyards, domestic carriers, and American merchant sailors. Now it is a subject of debate because some experts argue that it leads to high domestic ocean shipping costs and constrains the availability of ships for domestic use.[49] Similarly, the Build America, Buy America Act in the IIJA expands on the Federal government's work to ensure that the future is made in America by American workers by strengthening and expanding Buy America rules to all taxpayer-funded infrastructure and public works projects.[50]

Coupling this with other global re-shoring efforts, such as Brexit, it is becoming clearer that supply chains need to further prepare for increased Trade Barriers that have an intent of reshoring. This could mean many things to the supply chain; whether it be more raw materials from abroad or less imports altogether is unknown.

Intermodal Logistics Center (ILC) Policy/Economic Incentives – Florida could benefit from additional intermodal facilities to make intermodal shipping more efficient. However, the development of a new facility can require hundreds of millions of dollars in investment and go beyond the transportation and distribution functionality. Other states compete for these new facilities, and they often offer economic incentives valued highly. These investments are designed to attract the key anchor tenant, which often consists of a major manufacturer that provides the host community significant economic benefits well beyond a transportation hub.

Previously, Florida had an ILC Infrastructure Support Program, which provided at least $5 million annually from the State Transportation Trust Fund for infrastructure enhancements such as road construction, rail expansion, and dock improvements, with maximum awards of $2.5 million per applicant. The program sunset in July 2020, and funding was considered again during Florida's 2024 Legislative Session.

Many of Florida's existing programs do not provide sufficient support and make it difficult for local communities to compete against larger economic incentive packages. Florida's programs have primarily focused on surrounding transportation infrastructure improvements whereas other state incentive packages include a broad scope of benefits such as a reduction in property

[49] Shipping Under the Jones Act: Legislative and Regulatory Background (congress.gov)
[50] FACT SHEET: Biden-Harris Administration Ensuring Future is Made in America | The White House

taxes and community college training. Florida could improve support in this area by offering larger economic incentives for companies to relocate to the state.[51]

Compatibility of land uses – With increasing population and limited space comes increasing conflicts that arise between the transportation demands for freight, passengers, businesses, and residents. Community concern about freight facilities can stem from impacts of the externalities on surrounding neighborhoods. There is an increasing need for more truck parking and distribution centers, but such freight operations near residential neighborhoods also face substantial opposition. Policymakers have a significant role to play in assessing those tradeoffs to set policies and regulatory standards that effectively address issues of economic development, public safety, and environmental sustainability.

[51] Florida ILC Study, 2023

FMTP24

FREIGHT MOBILITY AND TRADE PLAN

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FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY AND TRADE PLAN

Technical Memorandum 4
Needs & Issues

FDOT

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List of Acronyms

AAM	Advanced Air Mobility
ADAS	Advanced Driver Assistance Systems
AI	Artificial intelligence
ATA	American Trucking Associations
ATRI	American Transportation Research Institute
CAVs	Connected and Autonomous Vehicles
CNG	Compressed Natural Gas
DATP	Driver-Assistive Truck Platooning
DDoS	Distributed Denial-of- Service
DFCs	District Freight Coordinators
EAA	Everglades Agricultural Area
EPA	Environmental Protection Agency
FAF	Freight Analysis Framework
FDOT	Florida Department of Transportation
FHP	Florida Highway Patrol
FLHSMV	Florida Department of Highway Safety and Motor Vehicles
FMTP	Freight and Mobility Trade Plan
FRA	Federal Railroad Administration
GDP	Gross Domestic Product
HATs	Highly Automated Trucks
IIJA	Infrastructure Investment and Jobs Act
ILC	Intermodal Logistics Center
ITS	Intelligent Transportation System
LNG	Liquefied Natural Gas
LTL	Less-than-Truckload
MPO	Metropolitan Planning Organization
NHFP	National Highway Freight Program
NOFO	Notice of Funding Opportunity
P3s	Public Private Partnerships
RFID	Radio Frequency Identification
SAF	Sustainable Aviation Fuel
SWOT	Strengths, Weaknesses, Opportunities, and Threats
U.S.	United States

Introduction

This technical memorandum describes freight mobility and trade specific needs and issues that were identified through a review of current conditions, industry trends, stakeholder input, and past studies. The respective needs and issues in this memorandum are organized by mode, including multimodal considerations. This memorandum begins with an overview of the outreach conducted for stakeholder input, and concludes with a comprehensive Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, which will be used to inform this plan's recommendations and implementation effort.

Outreach Overview

Stakeholder and public input on local needs, issues, and strategies improves the decision-making process and increases transparency to create a robust statewide freight plan update. A series of Regional Freight Forums were held to bring together freight stakeholders of all types: city, county, and Metropolitan Planning Organization (MPO) planners and transportation engineers; business owners; community redevelopment agencies; and other transportation users.

The Regional Freight Forums focused on regional trends, issues, needs, and opportunities. They took place around the state to obtain feedback from regional and local partners and the public to allow for regional specificity. The hosting Florida Department of Transportation (FDOT) District Freight Coordinators (DFCs) aided the FDOT Central Office staff in putting the forums together.

The Regional Freight Forums were held from June 12 through July 12, 2023. Figure 1 shows the specific date and location for each meeting.

Figure 1 | Regional Freight Forums Schedule

CENTRAL FL– June 12, 2023 | 1PM-4PM
FDOT Deland - Cypress A&B Conference Room
719 South Woodland Blvd., Deland, FL 32720

SOUTHWEST FL– June 13, 2023| 1PM-4PM
FDOT Southwest Area Office (SWAO) Conference Room
10041 Daniels Parkway, Ft. Myers, FL 33913

NORTHEAST FL– June 15, 2023 | 9AM-12PM
FDOT Jacksonville - Urban Office Training Center
2198 Edison Avenue, Jacksonville, FL 32204

WEST CENTRAL FL– June 19, 2023 | 1PM-4PM
FDOT District 1 HQ Conference Room
801 North Broadway Avenue, Bartow, FL 33830

NORTH FL– June 21, 2023 | 1PM-4PM
FDOT Central Office - Auditorium
605 Suwannee Street, Tallahassee, Florida 32399

SOUTH FL– June 29, 2023 | 1PM-4PM
Miami-Dade Public Library - Aventura Branch
2930 Aventura Blvd., Aventura, FL 33180

SOUTHEAST FL– June 30, 2023 | 1PM-4PM
FDOT Fort Lauderdale - Auditorium
3400 West Commercial Blvd., Ft. Lauderdale, FL 33309

VIRTUAL– July 12, 2023 | 9AM-12PM
GoToWebinar – Register Here:
FMTP24 GoToWebinar Registration

Forum Agenda

At each Freight Forum, Central Office staff or District Leadership opened the meeting with a welcome and introductions. Central Office staff introduced the importance of this plan to statewide freight planning and the FDOT freight planning process with slides on:

- The importance of freight;
- What the Freight and Mobility Trade Plan (FMTP) is and who uses it;
- The National Highway Freight Program & Network;
- Last plan objectives and what's changed for this update; and
- Themes for the updated plan.

Next, the District Freight Coordinator provided audience members with a regional perspective on the issues, challenges, and opportunities related to freight in their District. They touched on topics such as:

- The importance of freight at a regional level;
- How the District uses the FMTP;
- What has been done since the last plan;
- Regional projects on their Needs Lists/bottlenecks; and
- Other District freight efforts.

The breakout portion of the agenda followed in two components. First, a live polling session was done to understand who was in the room and engage the audience on higher-level freight concepts. The live polling questions were:

- Who do you represent?
- Where in Florida are you located?
- What is your sphere of influence in the state?
- What type of goods do you deal with primarily?
- Which freight mode is most important to your operations?
- Which aspect of freight is most important to you?
- As a consumer, which shopping model provides you the most value?
- Rank the order in which you would address these infrastructure needs.
- On a 1-10 scale, how would you rate Florida's freight infrastructure?

Afterwards, participants separated into breakout groups where a facilitator prompted them on key regional issues related to freight. Participants were asked questions such as:

- What are the challenges you face within Florida with your supply chain flows?
- What opportunities do you see with freight?
- What are the most important needs in your region/community?
- What new and developing technologies should Florida support to enhance freight mobility?
- How can we leverage collaboration to improve freight mobility?
- Based on your growing business needs, how would you like to see the infrastructure of Florida change to suit your needs?
- What have you seen that works well to address severity of impacts of extreme weather and natural disasters on freight mobility?
- Do alternative fuels have a place in your supply chain?
- What are the impacts you've seen of e-commerce on freight infrastructure?
- FDOT has most purview over seaport connectivity and railroad capacity. How would you improve these?
- What work force development needs do you see in the freight industry?

Once the breakout session concluded, at the events with multiple breakout groups, a volunteer from each group gave a summary of his/her group discussion to the rest of the audience. The last agenda item was concluding remarks from Central Office staff to highlight topics discussed and provide information on the next steps for the creation of the FMTP24.

After the events, the breakout group conversation notes and live polling results were compiled to create a comprehensive look at trends, needs, issues, and opportunities for freight in Florida. This section focuses primarily on needs and issues. They are broken down by economic/policy needs and issues, and infrastructure needs and issues by mode. Table 1 provides an overview of the topics.

Table 1 | Summary Issues and Needs from the Regional Freight Forums

Type	Mode	Issues and Needs	
Economic/Policy	**Multimodal**	• Rising Costs	• Communication/Collaboration
		• Domestic Freight Imbalance	• Funding
		• Workforce Issues	• Freight Education/Messaging/ Training
		• Land Use Conflicts	• Broadband/Cybersecurity
		• Environmental Stewardship and Community Concerns	• Statewide Approach
Infrastructure	**Highway**	• Congestion/Bottlenecks	• Crashes
		• Aging Infrastructure	
		• Truck Parking	
	Maritime	• Port Access/Channel Depth	• Inland Ports
		• Operational Inefficiencies	• Panama Canal Water Issues
	Rail	• Passenger vs Freight Conflicts	• Crossing Safety
		• Blocked Crossings	
	Aviation	• Fuel Resilience	• Drone Delivery Policies and Procedures
	Space	• Oversized Cargo/Congestion	
	Pipeline	• Capacity	

Economic/Policy Needs & Issues

Economic and policy needs and issues tend to cut across the modes. Since 2020, there have been multiple events that have highlighted the importance of the supply chain. From bottlenecks of container ships anchored outside of ports to truck and train operations that were seeing significant price spikes, whole sectors of distribution and manufacturing were unable to be supplied with the inputs they needed to function. Coupled with a steep increase of consumer demand after the global lockdowns, freight issues and needs have been felt everywhere.

There are some global supply chain challenges that are felt more acutely in Florida, including congestion, domestic freight imbalances, workforce issues, and land use conflicts. By better understanding the issues impacting its freight systems, Florida can proactively plan for future volatility in the supply chain.

Rising Costs

The global inflation rate has been highly elevated. The shifting supply of and demand for goods and services prompted by the pandemic as well as global events, i.e., the War in Ukraine, trade sanctions with China, the Israeli war in Gaza, etc., have contributed to high inflation. The cost of doing business continues to rise, with both businesses and consumers feeling the pinch of the price increases. Inflation in the United States (U.S.) reached the highest annual rate (around 7 percent) since 1981[1] in 2021 and 2022, and even though the inflation rate has since fallen, it is still an issue that is felt at practically every level of the supply chain. In 2023, U.S. Business Logistics Costs reached 9.1 percent of the U.S. Gross Domestic Product (GDP), the highest share ever realized.[2] The transportation industry is then impacted by increased costs for fuel, labor/ wages, insurance, maintenance, and equipment prices – which ultimately trickle down to the consumer.

Many trucking companies are small businesses and lack negotiating power for purchasing fuel and other inputs. Per the American Trucking Associations (ATA), almost 96 percent of all trucking firms operate 10 or fewer trucks. The trucking industry has an acute commercial driver shortage, estimated to be 80,000 nationally by the ATA. Competition for drivers is fierce and carriers have increased wages to recruit and retain drivers. Carrier operating costs, for both trucking and rail, have increased significantly in recent years, and while transportation rates have also risen, it has been less than both industries need as evidenced by the recent bankruptcy of Yellow-Roadway, the nation's largest Less-than-Truckload (LTL) trucking firm, and the merger of Canadian Pacific and Kansas City Southern Railroads. Total carrier operating costs have

[1] Pew Research Center. "In the U.S. and around the world, inflation is high and getting higher.", June 15, 2022.
[2] Council of Supply Chain Management Professionals Report, June 2023.

increased for both trucking and rail, have outpaced rate increases. Many shippers and receivers also experience labor availability issues. Overall, consumer demand is relatively high and many supply chains are constricted, which reduces the supply of containers, and is increasing the cost of transportation.

Airports and seaports are gateways for import and export of freight. As the volumes of freight have increased ports have become congested. Many have developed or entered business arrangements to immediately push inbound products to inland ports to maintain efficiency of throughput at the port. Ports that are clogged by inbound containers usually charge demurrage, which increases logistics costs for both shippers and receivers, but does not fully alleviate the congestion.

Domestic Freight Imbalance

There is a domestic trade imbalance between Florida and the rest of the U.S. Florida is a consuming state as its growing base of over 22 million residents and 130 million plus visitors require large volumes of goods and services. Key economic development agencies at the state and regional levels have long identified growth in manufacturing as a critical goal for the state.[3]

The trucking industry experiences this issue acutely. As seen in Tech Memo 2, on average, 41.9 percent of Class 9 trucks left Florida empty on I-95, I-10, and I-75 in 2022. Inbound loads must charge more to compensate for not having an outbound load. In addition, the increased costs of moving goods between modes leads to many shippers committing to a single mode. Reducing costs of such transfers can incentivize shippers to include a mode transfer in the goods movement.

Using technology to track the movement of trucks and other freight can help provide some predictability that can help shippers find potential partners in reducing empty loads. It can also help the industry in creating a modal shift for containers and other cargo.

Hearing from truck drivers during outreach revealed another reason for empty backhaul; Many drivers leave Florida empty as a regular practice because the freight rates are so low that it is cheaper to drive to Georgia or South Carolina to get a load that pays better. This is a form of driver protest on the low rates that freight brokers are offering as they skim profits from the loads originating from Florida. There is a need for the Federal Motor Carrier Safety Administration (FMCSA) to enforce transparency regulations on broker rates.

[3] FDOT's Intermodal Logistics Centers Serving Florida Seaports, 2023.

Florida should continue to attract targeted industries to increase manufacturing, support reshoring and next-gen manufacturing activities to strengthen the domestic supply chain, and support transparency on broker rates for truck driver pay. As the manufacturing sector grows in Florida, empty backhauls will be lessened with completed goods needing vehicle transport to leave the state.

Workforce Shortage

There is a lack of available labor throughout all aspects of the supply chain – drivers, mechanics, pilots, and railroad workers. An ATA study estimated that the national truck driver shortage hit a historic high of 80,000 drivers in 2021. By 2030, the shortage could surpass 160,000 drivers.[4] Similarly, aircraft pilots are an aging workforce with a mandatory retirement age and high barriers to entry.[5] The rail industry is also experiencing a serious labor issue, as a decimated railroad workforce and strikes over workplace policies hobble the already-delicate supply chain. Roughly 125,000 U.S. rail workers were on the verge of walking off the job in August 2022 when negotiations between their unions and rail companies soured over the long-running issues of sick leave and attendance policies.[6]

The impacts of an industry-wide workforce shortage are felt widely, from the cost of consumer goods to shipping delays, to increased stress on workers. There is a need for new technical skills as equipment becomes more advanced, but staffing shortages are a challenge at all levels of the skills hierarchy. In many cases, specifically for truck drivers, the issues are more about pay/working conditions/working hours than a lack of available personnel. There is a wage and work culture issue, exacerbated by the lack of safe truck parking, that creates a high turnover rate in the industry. Florida can support workforce development solutions through improving conditions for drivers and other operators, increasing transparency and pay, and promoting training initiatives that will help close essential workforce gaps, strengthen the talent pipeline, and ultimately enhance the state's economic competitiveness.

Land Use Conflicts

Freight considerations are often left out of land use planning conversations. In general, local development tends to be focused on residential development, which removes land for industrial areas. As new laws make it easier to develop residential instead of industrial lands, good planning practices are threatened and ensuing incompatibly leads to safety issues down the line. The issue can be boiled down to land costs rising faster than the profit margins of freight

[4] ATRI. "Critical Issues in the Trucking Industry – 2021," October 2021.
[5] After Covid-19, Aviation Faces A Pilot Shortage (oliverwyman.com)
[6] Bloomberg Law. "Rail Strike Threat Brings New Focus on Work Attendance Policies," October 7, 2022.

facilities, making them commercially unviable. Zoning for freight is another important part of the planning discussion, as it provides the standards for allowable building height and required parking, impervious surface ratios, and any buffers between properties, which affect the types of facilities that can be built.

In South Florida, stakeholders mentioned that land is extremely valuable and the competition for development is tight. Industrial space and warehouse space prices in the Miami area are millions of dollars per acre, and these cost increases have spread into Broward and Palm Beach counties.[7] Golf courses and retail centers are being redeveloped into warehouses to keep freight moving. An enormous challenge is to improve first and last mile connectivity/access for all modes in urban areas where the geometries are already set, and the environment has already been built. Development boundaries in the Miami area are limited by the ocean on one side and the Everglades on the other side. Limited access/egress by throughfares leads to a lack of redundancy in routing options. There are environmental constraints in the form of protected areas – such as the aquifer in the South-Dade area – and the susceptibility to flooding due to the low land elevation (and the need to dedicate stormwater drainage/retention to property) that need to be considered with development.

In addition, as explored in Tech Memo 3, the number of e-commerce facilities is growing. E-commerce facilities, especially delivery stations, are getting closer to urban developments to make delivery times shorter. Unlike traditional warehouses, they can operate 24/7 with tractor-trailers, delivery vans, and on-call drivers generating an enormous amount of activity.[8] This can contribute to further freight and residential conflicts.

Florida will require improved land-use planning that considers future freight. This is inclusive of more land, but also considers innovative freight solutions such as multi-story and multi-use freight facilities[9] and new freight delivery methods that can take existing infrastructure and maximize its potential.

Environmental Stewardship and Community Concerns

Freight facilities generate externalities that may impact surrounding land uses. For example, community concerns about truck parking facilities can stem from impacts of the externalities on surrounding neighborhoods (i.e., roadway impacts from increased truck traffic, nighttime light pollution, noise and air pollution from idling trucks, trash and dumping at the site, perceptions of security and crime issues, equity impacts to neighborhoods adjacent to freight-intensive land

[7] Florida Chamber of Commerce Trade & Logistics 2030 Study
[8] "What to Do When an E-Commerce Warehouse Comes to Town", Planning Magazine, 2021
[9] Prologis has built the nation's first multi-level warehouse. Will the tenants come? - FreightWaves

uses, etc.). Through zoning, some cities have forced freight intensive land uses (warehousing, manufacturing, distribution centers, etc.) to move away from urban population centers in response to citizen complaints about noise and traffic. Balancing residents' livability and freight mobility is important, given the continued growth of the state's population.[10]

Additionally, Florida has species that need to be protected, such as the gopher tortoise, snail kites, and manatees. During outreach, there was mention of repaving projects that required monitoring of local wildlife, which is an expensive process that is difficult to maintain throughout the duration of the project. More resources are needed for this type of monitoring. For the health of Florida's ecosystems, it is critical that the state evaluates measures to combat the negative impacts of construction projects and invests in wildlife protection measures surrounding freight infrastructure.

Supply Chain Visibility

Supply chain visibility is the ability to view or track inventory as it moves through the supply chain. Real-time supply chain visibility is the complete, end-to-end view of a company's logistics, inventory and warehouse management processes, and people in real time. This visibility increases in resolution depending on how many technologies are involved in the tracking process. Investments such as Radio Frequency Identification (RFID) sensors and Bluetooth technology help in the tracking of systems but are an increased cost burden to private industry.

Most of these investments are made to improve the functionality and efficiency of private businesses and that information is kept from the public. Proprietary algorithms and other systems keep their business models competitive with other businesses. In states such as Florida, sunshine laws make it difficult for private partnerships to form around these data streams as there is a fear that the data could then be utilized by other organizations at no cost.

Communication/Collaboration

Communication and collaboration were discussed as both are a challenge and an opportunity across the state. Multi-jurisdictional coordination for planning, administration, and funding means that different organizations/agencies represent overlapping areas, and stakeholders may not know who to contact or may have conflicting priorities. Additionally, getting the right people to the table is difficult, especially across the public/private sector divide. One inhibitor is planning timelines; the industry plans for more immediate futures, while the public sector tends to plan with much longer horizons. There is also a perception from the public sector that the freight industry will handle certain issues, and a perception from private industry that the public

[10] FMTP 2020.

sector will help solve certain issues; the reality is that most of these issues are interwoven and require public private partnerships. Public Private Partnerships (P3s) are a key collaborative effort that FDOT and supply chain stakeholders have been attempting to utilize for some time. There are significant legislative hurdles at both federal and state levels before this can happen.

Legislative reform could allow more leeway in cost, profit, and maintenance sharing for P3 facilities. By identifying industry champions that can facilitate information exchange on projects and changes to the legislative environment, Florida can position itself to affect change in these arenas, paving the way for innovative new partnerships.

Funding

Funding is a primary consideration for all transportation projects, but freight funding has historically received a smaller percentage of dedicated state and federal funds than other investment types. The National Highway Freight Program (NHFP) is the state's primary funding source for freight projects, but it provides just a fraction of the need. As various costs increase across the sector, funding becomes tighter year over year.

One of the biggest opportunities is the amount of grant funding coming through the Infrastructure Investment and Jobs Act (IIJA). FDOT can take advantage of the competitive grants by proactively preparing and getting applications out quickly with projects that are ready to go, applying for multiple types of grants per project, and collaborating with stakeholders pre-NOFO (Notice of Funding Opportunity). FDOT District offices have created Grant Coordinator positions to better prepare for competitive grants and ensure that the most successful application possible can be submitted with local partnerships.

Freight Education/Messaging/Training

The global pandemic and issues with the supply chain have brought more attention to freight. It has become a topic that requires guidance in the messaging since, in many cases, it is mentioned in a negative light. With the increasing number of universities offering supply chain and logistics degrees there are more people than ever that know the importance and needs of the industry to be a primary planning consideration.

Education and trade schools will be an important piece to resupplying the workforce, but it will also be necessary to work towards changing the public's negative perception of freight. Many issues in the freight industry stem from people not understanding freight mobility and its impact on quality of life and services. Recognizing the interdependency between economic vitality, quality of life, and goods movement can help paint a picture of the importance of the freight network.

Broadband

Reliable broadband Internet access is necessary for economic development in a modern economy, and it is increasingly becoming as critical to basic infrastructure needs such as modern roads, water and wastewater services, and energy. Broadband Internet plays a central role in business development, jobs, education, health, housing, and other publicly desired services, as it is the communities' connection to future economic growth. Current lack of broadband Internet contributes to the digital divide for entire communities, and the expansion of broadband Internet represents a tremendous opportunity particularly for rural and underserved communities across Florida, including their ability to grow and recruit businesses and generate high-quality and sustainable jobs. The Florida Strategic Plan for Broadband identifies how the state will support and facilitate the task communities have before them in recognizing and planning how to meet their broadband Internet needs.[11]

Cybersecurity

The need for cybersecurity increases as quickly as the digital technology evolves. As discussed in Tech Memo 3, as the supply chains become more digitized, they also become more vulnerable to disruptions from cyberattacks. These cyberattacks can be as sophisticated as an attack from a foreign actor bringing down domestic pipelines to brute force attacks such as ransomware and distributed denial-of- service (DDoS) attacks that are meant to overwhelm systems using data. Cybersecurity is a growing field that requires significant cost investment to stay ahead of the attackers. One of the primary issues is that many of the more damaging attacks are increasingly rare and cost prohibitive to prevent, and smaller firms do not have the capability to fund security against even the smaller kinds of attacks let alone the highly sophisticated variations. Due to the disparate nature of the many firms and their control of data and information, it is difficult to establish a centralized (federal or state) security system for the full network. In the face of an ever-increasing number of attacks from those with malicious intent, these costs become more prohibitive while not doing anything is also costly.

[11] The Florida Strategic Plan for Broadband (floridajobs.org)

Statewide Approach

With its extensive coastline, statewide seaport system planning includes coordinating with statewide freight planning, project management, and coordinating seaport infrastructure projects with Florida's 16 publicly owned seaports (14 deepwater, 2 inactive). While the number and location of seaports offers a broad range of services for potential businesses, it can also garner competition among them as they vie for resources. Other southeastern states have a central port authority allowing for more cohesive planning.[12] Florida faces increasing competition from these states, such as Georgia, who can prioritize all their seaport investments into a unified source. Efforts such as the Florida Seaport Transportation and Economic Development (FSTED) Program strengthen Florida's position, allowing the ports to play to their strengths while working as one. Additional funding towards the annual grant program and/or enhanced flexibility on match requirements could allow for greater competition with other states.

[12] Intermodal Logistics Centers Serving Florida's Seaports, June 2023.

Infrastructure Issues/Needs

Infrastructure issues and needs were another subset of the freight forum discussions. The topics discussed overlap significantly with the needs identified through the performance and conditions analyses outlined in Tech Memo 2, and specific examples brought up by stakeholders are highlighted in this section.

Highway

Highways are the most utilized mode of freight movement in Florida. According to the Freight Analysis Framework (FAF) data presented in Tech Memo 3, trucks make up 78 percent of total tonnage movement in Florida. This level of movement is predicted to grow across the state, as e-commerce continues to gain popularity, increasing the burden in areas where there is little room for development. Florida's unique geography creates multiple bottlenecks throughout the state highway system; FDOT is working to reduce these bottlenecks and improve the flow. In addition to targeting the below issue areas, it will be important to ensure cohesive planning and execution in line with the Florida Strategic Highway Safety Plan (SHSP).

Congestion/Bottlenecks

Congestion was the number one recurring issue brought up with stakeholders and partners around the state. According to the American Transportation Research Institute's (ATRI) Cost of Congestion to the Trucking Industry: 2023 Update, the national trucking industry combined for 1.27 billion hours of delay in 2021. The analysis of Florida's trucking congestion in Tech Memo 2 shows the top 100 bottlenecks in the state.

Stakeholders in District 5 brought up congestion on SR34, and stakeholders in District 1 mentioned freight backups in LaBelle due to capacity and weight restrictions, as well as insufficient capacity on I-75, I-4, US27, SR33, and SR60.

Florida is experiencing rapid population growth, particularly in the central and southern regions, which is an issue greatly affecting freight demand, capacity, and mobility. With this growth comes an increase in crashes and more roadway construction to prepare for the future, both of which are major causes of congestion.

Some of the needs discussed during outreach were improved access to transit and passenger rail opportunities to remove vehicles from the road, reducing contact between freight and passenger modes. Additionally, there has been an increased focus on the possibility of separating freight traffic from highways by use of truck bypasses or truck-only lanes. Many of these changes are expensive to implement due to the high cost of land. Florida could also rely on the use of technologies like freight signal priority to

keep freight flowing without having to incur the costs of further infrastructure investments. Increased use of Artificial intelligence (AI) could help truckers route around congestion and assist in shipping some of the more time-sensitive supply chain items. Technology can also be utilized to reduce the costs of modal shifts so that freight may move to a separate mode as needed, based on congestion and other factors.

Aging Infrastructure

Aging infrastructure can be an issue for Florida's transportation system. The analysis from Tech Memo 2 shows that while Florida has most of its bridges in a state of good repair, there are still some that need maintenance and investment.

The roads and bridges most in need of repair are the more rural roads in the farming and industrial hinterlands. The reduced capacity of rural infrastructure negatively impacts growers and manufacturers as part of their daily operations and increases concern about safety of their employees as they travel to and from facilities.

Stakeholders in District 4 mentioned several roads in the Everglades Agricultural Area (EAA) that needed repair, including CR880, SR80, and Airport Road in Belle Glade.

Aging bridge and roadway infrastructure can also be found in metropolitan areas of Florida, particularly in lower income areas where the local government may not have the funds to improve conditions. Many low-income neighborhoods are located near freight generating facilities and, as such, their roadway systems take an inordinate amount of heavyweight traffic compared to other neighborhoods. This leads to increased maintenance costs for local vehicles in an already economically suppressed area.

As truck traffic continues to increase across the state, care should be taken to retain Florida's quality road network including through continued leveraging of federal funds for emergency repairs, given the cost to develop new interstate in urban and/or rural areas.

Truck Parking

Commercial drivers nationally ranked truck parking as the number two concern in the industry (after driver compensation), according to ATRI's "Critical Issues in The Trucking Industry – 2023."[13] The primary concerns of truck parking are a lack of spaces in the places that need it the most, and a significant cost barrier to establishing more parking infrastructure in those areas. This is exacerbated by regulations that are incompatible with current industry demands and consumer expectations due to wait times at shipper/receiver facilities and congestion. Truck

[13] ATRI. Critical Issues in the Trucking Industry, 2023.

drivers must wait to load/unload at distribution centers, and those hours are counted towards total driver hours of service, per the Federal Motor Carrier Safety Regulations, before taking a mandatory rest period. Despite improvements with both public and private facilities adding more truck parking, the demand for e-commerce continues to grow, increasing the number of trucks on state and local roads that need safe places to park.

During outreach events, stakeholders suggested that, prior to certification of occupancy to any new facility (distribution center, etc.) that anticipates truck processing/deliveries as part of its operations, land planners should ensure that the facility has provided designated areas for overnight truck parking. While this is a potential solution, it is an increased cost to bear on the businesses, particularly in areas where land costs are expensive. Resolution of the truck parking dilemma will continue to require a multitude of solutions.

Crashes

There are a growing number of vehicles on the road, but also an increasing mix of freight, local, and tourist traffic leading to unpredictability in travel times and a high rate of incidents. According to the analysis done in Tech Memo 2, Florida's roadways witnessed around 197,513 commercial vehicle collisions between 2018 and 2022, leading to 1,465 fatalities. FDOT's primary goal is to create a safe transportation system for the people of Florida. While these crash numbers are increasing in totality, they are reducing as a rate compared to the total number of drivers on the roads. Even so, it is important that FDOT focus on partnership with Florida Department of Highway Safety and Motor Vehicles (FLHSMV) and Florida Highway Patrol (FHP) to improve enforcement and to stay at the forefront of technology to enhance safe operations. Specifically, Advanced Driver Assistance Systems (ADAS), Highly Automated Trucks (HATs), Connected and Autonomous Vehicles (CAVs), and Driver-Assistive Truck Platooning (DATP) hold great promise in reducing accidents for motor carriers.

Maritime

Florida's seaports represent key domestic and international gateways for Florida's supply chains. As stated in Tech Memo 2, Florida's seaports moved 112.5 M tons and 4.3 M TEUs in 2022. The capability of Florida's seaports to compete for business and continue to grow in the coming years is predicated on their ability to provide state of the practice services and capacities (e.g., water depth, terminal capacity and equipment, roadway, and rail connections) and the ability of their host communities and the state of Florida to ensure efficient access to markets.[14]

[14] 2020 Seaport System Plan.

Port Access/Channel Depth

According to the 2020 Seaport System Plan, the most frequent categories of seaport issues by stakeholders are on channel and harbor dredging and deepening and intermodal access which impact capacity, access, and efficiency concerns. These concerns largely stem from the worldwide trend of building larger ships, which must fit into existing channels and port infrastructure. These waterway capacity projects have a downstream effect on terminal and landside operations. Larger vessels lead to the need for larger cranes, longer berths, additional terminal laydown areas, and efficient road and rail access.

Stakeholders in District 1 brought up the need for widening and deepening Port Everglades, as well as a need for connectivity from Port Everglades to US27.

Operational Inefficiencies

Florida's seaports have experienced increases in waterway traffic but are constrained by operational inefficiencies. Port hours of operation conflict with consumer demand, creating inefficient hours when truckers wait to pick-up their loads. The time needed to get in/out of the ports puts pressure on the port-side infrastructure, particularly short sea trade operations. Short-haul rail is preferred to help mitigate truck traffic moving into and out of a seaport, reducing congestion and wait times. 24/7 service can also create greater operational flexibility for shippers, though the workforce shortages have made it difficult to supply workers around the clock. Technology such as truck reservation systems integrated with mapping technology ("assistive intelligence") can also help provide the ports the ability to move goods quicker and easier (and therefore at less cost) to inland markets and destinations.

Inland Ports

Most of Florida's ports are located in urban areas. As such, truck trips generated at/near the port are impacted by and create increasing levels of congestion. To help alleviate these issues that were exacerbated by the pandemic, stakeholders have identified the need for increased inland distribution options – including the development of inland ports. Inland ports are specialized locations developed to serve the intermodal freight transportation network, often with a direct connection to a seaport, that provide off-port terminal capacity.[15] They allow containers to be shuttled between the ports and an area of the state with less highway congestion and lower land/operating costs.

Florida has one Intermodal Logistics Center (ILC), in Winter Haven, and several other locations have developed extensive master plans to determine future buildouts. The Winter Haven ILC is strategically located in Polk County in the central region of Florida near the major consuming

[15] FDOT's Intermodal Logistics Centers Serving Florida Seaports, 2023.

markets of Orlando and Tampa. The development of additional inland ports could provide improved intermodal connectivity and relieve congestion. There is a need for policy direction to provide funding for new ILCs.

Panama Canal Water Issues

Low water levels have hampered the Panama Canal operations in recent years, impacting an estimated 5 percent of seaborne trade. El Niño has caused hotter and drier weather in Panama, but scientists believe that climate change may be prolonging dry spells and raising temperatures in the region. Fewer passages being allowed through the canal has deprived Panama's government of tens of millions of dollars in annual revenue, pushing up the cost of shipping as ships travel longer routes to avoid the shortcut altogether. The canal authority is also limiting how far a ship's hull can go below the water, which significantly reduces the weight it can carry.[16]

Before the water problems, as many as 38 ships a day moved through the canal. In July 2023 the canal authority cut the average to 32 vessels. In November 2023, the canal's managing authority announced increasingly drastic restrictions for the depleted thoroughfare, including holding auctions for those wishing to jump to the front of the line. One ship owner paid a record $4 million to skip to the front of the line.[17]

Rail

Florida's 3,858-mile rail network facilitates movement of people and goods within the state as well as to and from other regions of North America and around the world, through links with seaports and airports. Rail transportation continues to expand its role as a mode in Florida, though it faces the challenges of shared use passenger and freight tracks, limited space, and high costs to lay new tracks, and safety at crossings.

Passenger vs Freight Conflicts

Most of Florida's rail mileage is owned and maintained by freight railroads. The freight rail network provides interstate and intrastate transportation of goods, as well as intermodal connections for water and highway transfers, allowing the state's businesses to reach markets across the world. However, Florida's passenger rail system plays an increasingly important role in addressing the mobility needs of a growing state. It moves large numbers of people while also reducing roadway congestion and pollution, providing safer travel options, and promoting

[16] "Drought Saps the Panama Canal, Disrupting Global Trade", 2023
[17] "The Panama Canal is so congested that one ship owner just paid a record $4 million to skip to the front of the line", 2023

economic development.[18] As the desire for passenger rail rises along with a decreasing availability of land/infrastructure, there is mounting pressure on the existing and privately owned freight rail tracks to consider co-location options. As communities outline passenger rail desires and potential funding opportunities, FDOT and communities must facilitate conversations with freight railroads to determine if co-location and increased use of tracks is an option. In most cases, freight railroad infrastructure would need to be improved to ensure rail lines are an economic option for the movement of goods and people, both now and in the future.

Blocked Crossings

Stakeholders in District 3 brought up blocked crossings in Escambia County.

Just as ship size has increased, train length and train frequency has also increased to handle more cargo. Longer trains can block traffic at railroad-grade crossings, impede emergency responders and trucks, and prompt unsafe pedestrian behavior, such as climbing through stopped trains.[19] It is critical for planners to ensure the correct crossings are closed to ensure a safe environment for both train and traffic, and where a crossing cannot be closed further interdiction systems are installed where grade separation is not feasible.

Railroad Crossing Safety

According to Federal Railroad Administration (FRA) inventory statistics, Florida has 4,990 highway railroad at-grade crossings, making up 2.4 percent of the at-grade crossings on the U.S. railroad system.[20] Florida had the fourth highest number of highway-rail grade crossing collisions in 2022. There were 117 collisions with 21 fatalities and 51 injuries.[21] Stakeholders across the Districts expressed the need for grade-separated crossings to reduce delays and safety challenges but understand the high cost of such investments. Other technologies such as positive train control and smart apps that can redirect traffic are needed to ensure that the systems can stay efficient and safe.

Stakeholders in District 4 brought up a rail crossing at SR84 and Andrews. Stakeholders across the state stressed the need for grade-separated crossings.

[18] FDOT Rail System Plan, 2022.
[19] Government Accountability Office. "Rail Safety: Freight Trains Are Getting Longer, and Additional Information Is Needed to Assess Their Impact", 2019.
[20] 8.05 - Crossing Inventory By State (dot.gov)
[21] Collisions & Fatalities by State | Operation Lifesaver (oli.org)

Aviation

Florida relies on an extensive, robust, and evolving airport system to support the state's economy and drive economic growth. The airports support access for millions of out-of-state visitors each year as well as immense air cargo volumes flowing through the airports and the military's aviation activities at several installations across the state. As the gateway to the South, it is imperative that air freight remain a primary consideration of Florida's airport growth needs, particularly in the face of fuel challenges and technological advances.

Fuel Resilience

There have been significant fluctuations in aviation fuel costs due to a lack of refinery infrastructure nationally. In Florida, limited pipeline infrastructure carries aviation fuel to the state's airports. During emergencies, the reliance on trucks/highways to bring in fuel to the airports creates a resilience issue. If the highways are cut off or inaccessible, getting fuel into and out of airports becomes a hindrance to critical response and recovery efforts. By increasing pipeline and other redundant fueling infrastructure to Florida's airports and staying ahead of the curve with alternative fuels such as Sustainable Aviation Fuel (SAF) and electric options, these issues can be addressed.

Drone Delivery Policies and Procedures

In 2023, the FAA released an implementation plan providing the steps it will need to take to safely enable advanced air mobility (AAM) operations in the near term.[22] As these technologies evolve, Florida should develop and refine policies and procedures to accommodate advancements in drone delivery services.

Space

Florida's space industry is booming. Tech Memo 2 highlights the 279 percent increase in Space Coast launches between 2017 and 2023. To maximize efficiency with this increased tempo, Space Florida has promoted and incentivized manufacturing and refurbishing in closer proximity to the Cape Canaveral spaceport. Over the next three years, the project is expected to bring 2,100 spacecraft manufacturing jobs to Brevard County in a new $300 million manufacturing facility near the Orlando-Melbourne International Airport.[23] While space freight brings excellent opportunities to the state, issues such as congestion during launch days and transporting oversize and overweight cargo have become correspondingly more prominent and demanding of solutions.

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[22] Advanced Air Mobility Implementation Plan | Federal Aviation Administration (faa.gov)

[23] "Space Florida aims to bring 2,100 manufacturing jobs to Brevard County,"; "'Project Griffin' seeks to invest $300 million into Melbourne spacecraft facility,"

Congestion/Oversized Cargo

As the private sector of space travel continues to grow, launches become more frequent, and with larger launch vehicles, the necessity of freight avenues capable of supporting an annually expanding launch tempo become more significant. Projects in proximity to launch sites include dredging nearby ports and development of intermodal connections for larger vessels, or for near-source manufacturing assembly. On public highways around spaceports already congested, investment is required for revision of existing infrastructure and for new construction to ensure that oversized and overweight launch equipment and cargo can move safely and securely. Florida must incorporate Intelligent Transportation System (ITS) solutions such as freight signal priority, dynamic message signage, capacity improvements, and designate super haul routes with enhanced infrastructure.

Pipelines

While FDOT has no formal role in pipeline governance, stakeholders suggested that pipelines should play a greater role in the movement of Florida's liquid and natural gas. As discussed in the aviation section, pipelines provide a lifeline during times of emergency. Hurricane Ian left many of the railways in South Florida destroyed, leaving areas such as Ft. Myers without a heavy freight connection. Rail lines are significant movers of certain fuels such as Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG) as well as many of the aggregates that are required in the recovery from a disaster. Many of these commodities can also be moved by pipeline (including aggregates), which can be buried and can provide a cheap and consistent method of delivering needed supplies.

Capacity

Florida's main issue with pipelines is a lack of capacity. Pipeline infrastructure can be difficult to establish as it requires expensive right of way as well as a large distribution point to other modes to be effective. In areas such as South Florida, the geology of the drainage system makes pipeline capacity specifically challenging. However, Florida should consider pipelines as an alternative delivery method for fuels, particularly in areas where other infrastructure can be difficult.

SWOT Analysis

A Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was conducted based on stakeholder input, technical analysis, and trends identification in the previous tech memos.

Strengths	Weaknesses	Opportunities	Threats
Location	Trade imbalance	Fuel choice	User conflicts
Diverse & versatile freight assets	Congestion	Automation	Cybersecurity
Strong market demand	Lack of available land	Inland ports	Geopolitics
Culture of public & private sector collaboration	Truck parking availability	Grade separations	Weather impacts
	Workforce availability	Aerospace industry	Increasing logistics costs
		Public transit	
		Policy and outreach	

Strengths

- **Location**
  - Florida is the primary gateway to South America and the Caribbean. Air cargo and maritime shipping utilize Florida's airports and seaports as transfer facilities to supply the U.S.
    - During the pandemic, delays to offload prompted some vessels to change their port of call, and international shipping companies increased their presence in Florida to avoid the overcrowded West Coast ports
  - Florida benefits from good highway and freight rail access to the Midwest

- **Diverse and versatile freight assets**
  - Florida is versatile in having multimodal options and being able to accommodate a variety of issues
    - Prominence of good railway and highway access in rural areas to promote growth
    - Many deep-water ports that are diverse and have their own areas of focus
    - An air cargo global gateway to the Americas
  - Florida is the only state to have legislatively designated a "Strategic Intermodal System," supporting critical facilities on the multimodal system

- **Strong market demand**
  - Florida is the third most populous state and growing
  - Diverse economic industries include tourism, agriculture, international trade, aerospace and aviation, life sciences (e.g., pharmaceuticals and R&D), and financial services
- **State culture of public & private sector collaboration**
  - The state has a proactive approach to goods movement issues that involve all modes - seaports, highway, freight rail, aviation, and spaceports
  - Florida has been proactive with funding infrastructure projects to increase capacity and resiliency at intermodal hubs across the state

Weaknesses

- **Trade imbalance**
  - As a high-consumption state, inbound goods movement volume outweighs outbound goods movement volume, and empty backhaul is a by-product
  - Truck drivers are choosing to leave Florida empty and pick up loads from other states for better pay
- **Congestion**
  - The population in Florida has grown quickly, and the cost of infrastructure has risen even faster
  - Roadway congestion has a significant impact on cargo movement in the form of hours of wasted time in traffic and increased cost
- **Lack of available land**
  - As the state grows, land has become extremely valuable and the competition for development is tight
- **Truck parking availability**
  - Truck parking demand exceeds supply, particularly along the I-4, I-10, I-75, and I-95 corridors
- **Workforce availability**
  - Florida's logistics industry is facing a workforce shortfall throughout the supply chain – pilots, mechanics, railroads workers, and truck drivers
  - Many members of this workforce are older than in other industries and getting aged out, with younger generations not filling in the gaps
  - Truck drivers in particular face wage and work culture issues that lead to high turnover

Opportunities

- **Fuel choice**
  - Growth of biodiesel fuels and continued research in hydrogen cells and electricity provide alternative fuels and show promise for freight modes
- **Automation**
  - Connected and automated vehicles and systems have the potential to reduce crashes, and alleviate aspects of the workforce shortage
  - ITS solutions have the potential to increase the operational capacity and safety of the transportation network
  - Technology can assist in some of the more time-based shipping of the supply chain
    - AI can help truckers route around congestion
    - Automation and use of machine learning to schedule appointments can reduce queue times so trucks do not waste time, money, and burn fuel
- **Inland ports**
  - The development of inland ports and similar facilities could provide improved intermodal connectivity and relieve congestion
- **Grade separations**
  - Grade-separated crossings could improve safety and provide congestion relief
- **Aerospace industry**
  - Florida's leadership in space launch activity offers a strong opportunity to further develop the aerospace industry
    - Florida has the infrastructure and the expertise to support and test early-phase developments within aerospace
- **Public transit**
  - Public transit can reduce congestion and relieve freight movement
    - Florida's population has grown and aged faster than the national average
- **Policy and outreach**
  - Several areas would benefit from the development of policy or increased outreach, like manufacturing, land use, truck parking, and freight education/messaging

Threats

- **User conflicts**
  - Florida has experienced increasingly frequent conflicts between users (railroad, highway, bike, pedestrian) as well as between passenger and freight movement
- **Cybersecurity**
  - The threat of cyberattacks continues to increase in supply chain processes
- **Geopolitics**
  - World geopolitical impacts may continue affecting the industry
- **Weather impacts**
  - Weather events, such as hurricanes, can be disruptive to Florida's operations at ports, highways, railroads, warehouses, and manufacturing facilities
- **Increasing logistics costs**
  - Florida consumers have felt the trickle-down impacts of increased costs for fuel, labor/wages, insurance, maintenance, and equipment prices

Top Challenges

The SWOT analysis provides an overview of Florida's strengths, weaknesses, opportunities, and threats based on the stakeholder input, technical analysis, and trends identification. The weaknesses and threats specifically provide insight into the state's top challenges. Congestion, truck parking, trade imbalance, and on-going supply chain disruptions will be the focuses of the implementation effort coming out of this planning document. These topics will be a fundamental component of the strategies laid out in the following Tech Memo, as well as the action items broken out in Tech Memo 8.

FMTP24

FREIGHT MOBILITY AND TRADE PLAN

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Florida Department of Transportation
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FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY AND TRADE PLAN

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FDOT

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List of Acronyms

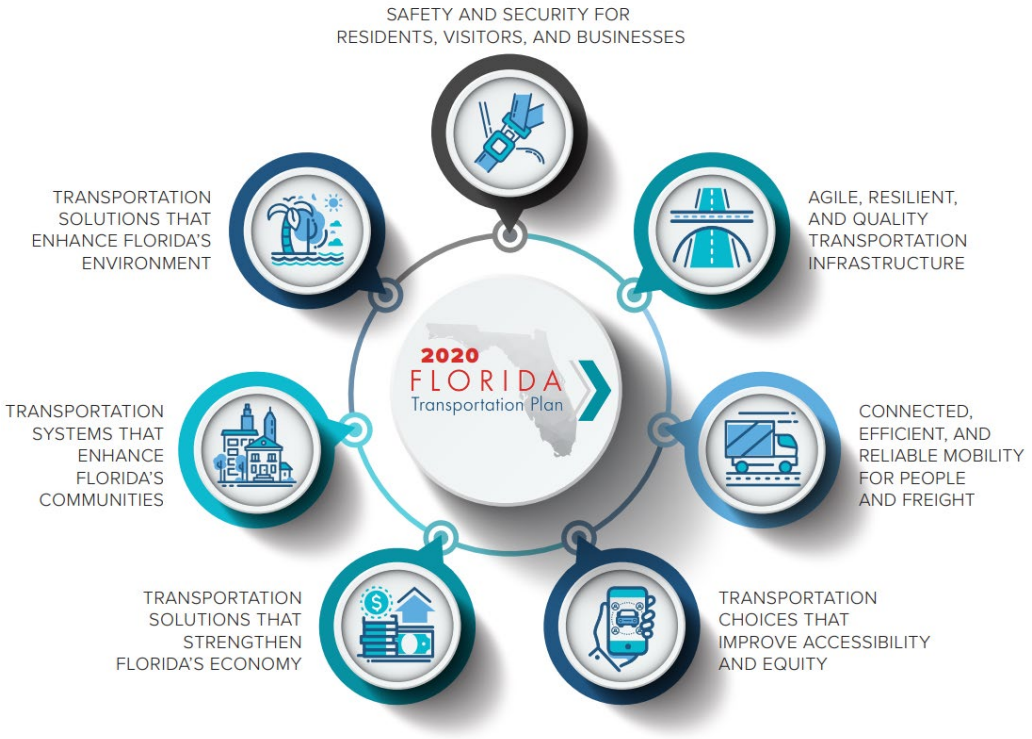
AEIS	Aviation Economic Impact Study
CMV	Commercial Motor Vehicle
CNG	Compressed Natural Gas
EV	Electric Vehicle
EVMP	Electric Vehicle Master Plan
FAST	Fixing America's Surface Transportation
FDOT	Florida Department of Transportation
FLFAC	Florida Freight Advisory Committee
FLP	Freight, Logistics and Passenger Operations
FMO	Freight and Multimodal Operations
FMTP	Freight and Mobility Trade Plan
FRO	Freight & Rail Office
FTP	Florida Transportation Plan
IIJA	Infrastructure Investment and Jobs Act
LNG	Liquefied Natural Gas
MAP-21	Moving Ahead for Progress in the 21st Century
NEVI	National Electric Vehicle Infrastructure
NHFP	National Highway Freight Program
NHFN	National Highway Freight Network
NMFN	National Multimodal Freight Network
PAC	Project Advisory Committee
RAP	Resilience Action Plan
SHS	State Highway System

Plan Vision

Freight transportation is the economy in motion - the efficient movement of goods to, from, and through Florida supports the economic well-being of the state. The Florida Department of Transportation (FDOT) recognizes this in both its mission and vision: FDOT's mission is to provide a safe statewide transportation system that promotes the efficient movement of people and goods, supports the state's economic competitiveness, prioritizes Florida's environment and natural resources, and preserves the quality of life and connectedness of the state's communities; its vision is to serve the people of Florida by providing a transportation network that is well planned, supports economic growth, and has the goal of being congestion and fatality free.

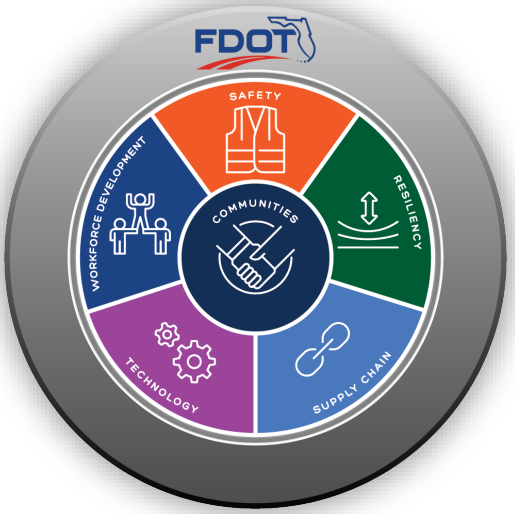
The Florida Transportation Plan (FTP), the state's overarching plan guiding Florida's transportation future, lays out seven interrelated goals that guide Florida's transportation system to meet the changing needs of the state. With continued economic growth, changing demographics, shifting development patterns, evolving trade flows, emerging technologies, and growing risks, the FTP calls upon Florida's transportation partners to embrace forward-looking planning for how transportation supports a more competitive, resilient, and sustainable state. The plan's seven goals are:

Figure 1 | FTP Goals



The FDOT Compass helps tell the Department's story in a way that resonates with communities. The Compass highlights the need to deliver a well-rounded, cutting-edge transportation system. Safety remains our true north and is the top priority in all activities, and community is at the center of the five elements. The purpose of the Freight Mobility and Trade Plan is to:

Figure 2 | FDOT Compass



1. Tell the story of freight in Florida
2. Support the seven Florida Transportation Plan goals
3. Implement strategies to achieve freight-related goals that align with FDOT's vision and mission and the FDOT Compass
4. Fulfill the continued requirements of the Fixing America's Surface Transportation (FAST) Act through the Infrastructure Investment and Jobs Act (IIJA)

Evolution of Florida's Freight Policy

The past decade has seen an evolution of Florida's strategic planning and legislative initiatives that has reshaped the state's approach to freight transportation. The development of freight policy has helped build a world-class transportation network that supports the dynamic needs of Florida's residents and businesses and positions the state as a national leader in freight innovation.

In 2011, FDOT unveiled the Florida Transportation Vision for the 21st Century. The Plan implemented the state's goals to spur private sector job creation and economic growth by having the best transportation and infrastructure system in the nation. The Transportation Vision plan uses creative financing alternatives, offers transportation choices, places strong emphasis on port development, reduces bureaucracy and streamlines decision making, plans and develops future corridors, and provides faster project delivery. To facilitate the greater focus on freight, the FDOT established the Office of Freight, Logistics and Passenger Operations (FLP).

In 2012, the Florida House Bill 599 required the FDOT to develop the Freight Mobility & Trade Plan to assist in making freight mobility investments that contribute to the economic growth of the state, encoded as Florida Statute 334.044.[1] The Policy Element of the 2013 Freight and Mobility Trade Plan (FMTP) addressed all requirements of the HB 599 legislation. The four specific goals are:

- Increasing the flow of domestic and international trade through the state's seaports and airports, including specific policies and investments that will recapture cargo currently shipped through seaports and airports located outside the state.
- Increasing the development of ILCs in the state, including specific strategies, policies, and investments that capitalize on the empty backhaul trucking and rail market in the state.
- Increasing the development of manufacturing industries in the state, including specific policies and investments in transportation facilities that will promote the successful development and expansion of manufacturing facilities.
- Increasing the implementation of compressed natural gas (CNG), liquefied natural gas (LNG), and propane energy policies that reduce transportation costs for businesses and residents located in the state.

The federal reauthorization bill, Moving Ahead for Progress in the 21st Century (MAP-21), directed the creation of state freight plans, acknowledging the importance of freight

[1] http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&URL=0300-0399/0334/0334.html

transportation planning at the national level. With a state freight plan, Florida freight projects could qualify for a higher federal share of funds.

Superseding MAP-21, on December 4, 2015, the FAST Act was signed into law. The FAST Act included several provisions to improve the condition and performance of the national freight network and to support investment in freight-related surface transportation projects. To receive funding under the National Highway Freight Program (23 U.S.C 167), the FAST Act required each state to develop a state freight plan that comprehensively addressed the state's freight planning activities and investments both immediate and long-range. State freight plans had to, among other requirements:

- Cover a five-year forecast period
- Be fiscally constrained
- Include a "freight investment plan" with a list of priority projects
- Describe how the state will invest and match its National Highway Freight Program (NHFP) funds

In 2016, the Freight and Multimodal Operations (FMO) Office, currently called the Freight & Rail Office (FRO), was established within FDOT. The FRO was created to institutionalize freight planning in the Department. It combined the multimodal freight functional area with the rail and motor carrier functional areas to form a team ready to address freight mobility needs statewide along with the other modal office.

In 2017, the state developed a Florida Freight Advisory Committee (FLFAC) in accordance with guidance provided in federal transportation legislation, including both the MAP-21 and FAST Act. The FLFAC was charged with:

- Advising the state on freight-related priorities, issues, projects, and funding needs;
- Serving as a forum for discussion of state decisions affecting freight transportation;
- Communicating and coordinating regional priorities with other organizations;
- Promoting the sharing of information between the private and public sectors on freight issues; and
- Participating in the development of the state's freight plan.

In 2017 the state also went through the process of designating and prioritizing the Florida Highway Freight Network.

The Infrastructure Investment and Jobs Act (IIJA), enacted in November 2021, continued the requirements laid out under the FAST Act. The IIJA provides new opportunities for funding and

outlines seven new requirements for state freight plans which must be updated every four years. The new requirements include:

- A description of the state's supply chain cargo flows
- Inventory of commercial ports
- Impacts of e-commerce on freight infrastructure
- Consideration of military freight
- Consideration of the findings or recommendations made by any multi-state freight compact
- Assessment of truck parking facilities in the state
- Strategies and goals to decrease:
    - The severity of impacts of extreme weather and natural disasters on freight mobility
    - The impacts of freight movement on local air pollution
    - The impacts of freight movement on flooding and stormwater runoff
    - The impacts of freight movement on wildlife habitat loss

By updating to IIJA compliance, the version of Florida's statewide freight plan (FMTP24) will align with the National Strategic Freight Plan and the National Freight Policy goals (see Appendix A), enabling Florida to fund projects through the NHFP.

Existing Plans

It is important to recognize that the FMTP is just one component of the larger FDOT family of freight related and transportation plans. It supports the FTP, which is Florida's keystone transportation plan, and complements and supports the other Modal Transportation Plans.

Modal Plans

FDOT has a series of modal specific freight plans. The FMTP leverages the lessons learned from each modal plan to ensure that the complete set of plans represent an integrated approach to improve freight mobility and trade in Florida. Since the last FMTP was published in 2020, the following modal plans have been updated:

Florida Aviation System Plan/Economic Impact Study (2022)

The 2022 Florida Aviation Economic Impact Study (2022 AEIS) is a multi-faceted and interrelated analysis that measured the contribution of Florida's airport system on the state's economy. The 2022 AEIS quantified industry's reliance on Florida's airports through a surveying effort completed among businesses that either base an aircraft at a Florida airport or frequently use airports to access the state. The data collection effort included data gathering related to airport employees, tenant employees, capital expenditures, and out-of-state visitors. The 2022 AEIS determined that Florida's aviation system contributed $336 billion in total economic impacts to the state's economy. These impacts supported over two million jobs, $109 billion in payroll and $170 billion in economic value added.

Florida's airports can accommodate the demands from tourism, business, air cargo, and military activities and contribute multiple impacts to the state's economy. Airports provide transportation services for visitors and residents and employment and economic development opportunities for Florida's businesses.

Specific impacts include:

- Employment and capital spending from airports and on-airport business tenants.
- Visitor spending on goods, services, accommodations, food, and entertainment.
- Air cargo services which connect both long-distance domestic and international markets to companies within Florida. Florida's airports also provide a global gateway for air cargo activity with Latin America and the Caribbean.
- Military Aviation Impacts from Florida's 11 military aviation installations which serve a critical role in supporting the United States national defense system as well as active military troops both at home and abroad.
- Industrial reliance impacts by using Florida's airports as a key resource to businesses by enabling quick transportation of company personnel for Florida-based businesses.

Rail System Plan (2023)

Updated in 2023, the Rail System Plan describes the role of rail in the Statewide Transportation Plan and was developed to guide the state's rail freight and passenger transportation planning activities and project development. The plan details state funding for rail and gives trends and forecasts for the key factors which influence traffic movement on the state's passenger and freight rail system. Florida's rail vision is to provide safe, equitable, and reliable mobility solutions for people and freight. An integrated and resilient rail system will enhance transportation options and modal connections, promote sustainable communities, and strengthen Florida's economy.

Florida Seaport/Waterways System Plan (2022)

The 2022 Seaport and Waterways System Plan provides an updated roadmap for the state's seaport program. FDOT partners with Florida's seaports on infrastructure projects and planning efforts to ensure the state has the necessary cargo and cruise capacity to serve Florida's residents, visitors, and businesses. The plan introduces the seaport and waterways system; discusses cargo and passenger trends and forecasts; summarizes seaport needs, priorities, and advantages; and presents key focus areas, themes, and strategies to ensure the continued success of Florida's seaports.

Strategic investments at Florida's seaports have focused on positioning the state for future growth. The plan has identified the following types of investments necessary to support seaport growth:

- Dredging to allow for larger and deeper draft ships
- Larger container cranes to reach across the wider-spanned ships
- Longer and or/rehabbed berths to accommodate larger ships
- Increased cargo laydown areas to process bulk cargo
- Technology implementation to optimize existing systems
- Workforce development to handle additional cargo processing and goods movement
- Landside access improvements to road and rail to handle increased traffic

FDOT's Seaport Office has engaged in the advancement of projects through a defined list of strategies. The plan identifies these strategies as:

- Use state resources to leverage investments in Florida's seaports.
- Collaborate with seaports and industry stakeholders to identify and fund projects.
- Monitor industry events, issues, and trends to ensure Florida's seaports are positioned for success.

- Monitor seaport system performance to track the effectiveness of investments to guide future investments.
- Partner with seaports to pursue opportunities to enhance seaport efficiencies, capabilities, resilience, and capacities.
- Coordinate with seaports and intermodal industry to promote efficient multimodal connectivity.
- Facilitate public sector responsiveness to seaport needs and opportunities and support competitive grant applications.

Other Relevant Plans

Resilience Action Plan (2023)

The Resilience Action Plan examines the vulnerabilities of the State Highway System (SHS) to flooding, storm surge, and other outside forces and identifies areas Florida can prioritize for investments. This plan also identifies strategies for enhancing resilience in all aspects of how the state will plan, develop, design, construct, operate, and maintain the SHS.

FDOT developed the action plan in collaboration with local governments, metropolitan planning organizations, state and federal agencies, and other partners. The planning process included a review of existing policies, procedures, and guidance documents and an assessment of the SHS's vulnerability to certain water-related hazards.

The objectives of the plan aimed to improve the SHS resilience are to:

- Recommend strategies to enhance infrastructure and the operational resilience of the SHS that may be incorporated into the transportation asset management plan;
- Recommend design changes to retrofit existing state highway facilities and to construct new state highway facilities; and
- Enhance partnerships to address multijurisdictional resilience needs.

The plan focused on the SHS using 2021 data, and determined that of the 12,121 centerline miles and 4,850 bridges on the SHS:

- 1,820 (15%) are located in a 100-year floodplain, including 2,156 bridges;
- 1,412 (12%) are located in a Category 3 storm surge zone including 1,334 bridges; and
- 138 (1%) are located in areas that could experience two feet of sea level rise by 2070, including 967 bridges.

While the focus of the plan was on the SHS, it was understood that county and local facilities are critical links in the transportation system as a whole, and that these facilities may also be

affected by hazards. The FMTP uses the Resilience Action Plan's (RAP) vulnerability assessment in its quantitative prioritization metrics.

FDOT EV Master Plan (EVMP) *(2021)*

The FDOT, under state law, was directed to coordinate, develop, and recommend a Master Plan for the development of electric vehicle (EV) charging station infrastructure along the SHS to support the following goals and objectives pursuant to F.S. 339.287:

- Support both short-range and long-range electric vehicle travel
- Encourage the expansion of electric vehicle use in the state
- Adequately serve evacuation routes in the state

The EVMP delivers a comprehensive course of action to provide for EV charging infrastructure efficiently and effectively. The document serves as a starting point for both public and private entities to become familiar with the challenges and opportunities associated with EV charging infrastructure. It also serves as a guide for future legislative, agency-level and public engagement efforts.

Florida Trade and Logistics Study 3.0 *(2023)*

The Florida Trade & Logistics Study 2023 is the third trade and logistics research report published by the Florida Chamber Foundation over the past 12 years. The two previously published research studies are the "Florida Trade and Logistics Study" and the "Florida Trade and Logistics Study 2.0: Made for Trade." The task force responsible for recalibrating the opportunities and strategies for Florida included 14 private and public sector organizations which guided the study and collaborated with a larger stakeholder group comprised of over 80 organizations.

The Florida Trade and Logistics Study 3.0 contains a series of target outcomes that support the Florida 2023 Blueprint's mission to grow Florida to a top 10 global economy. The study identifies trade, logistics, and manufacturing as key components of achieving the goal.

The 2023 Florida Trade and Logistics Study 3.0 identified six key strategies that Florida's public and private leaders can use to take the next step in the state's economic transformation:

- Reaffirm the statewide priority for trade, logistics, and manufacturing
- Establish a statewide manufacturing initiative
- Close essential workforce gaps and strengthen the talent pipeline
- Continue to strengthen trade gateways and corridors
- Establish a comprehensive site development program with emphasis on rural areas
- Redesign Florida's economic development toolkit

National Freight Goals

The FAST Act required state freight plans to describe how they will improve the ability of the state to meet the National Multimodal Freight Policy goals (section 70101(b) of Title 49) and National Highway Freight Program goals (section 167 of title 23). FDOT's FTP goals and supporting FMTP objectives outline how Florida works towards meeting those goals. A matrix connecting the national goals with the FMTP objectives can be found in Appendix A.

National Multimodal Freight Policy

It is the policy of the United States to maintain and improve the condition and performance of the National Multimodal Freight Network established under section 70103 to ensure that the Network provides a foundation for the United States to compete in the global economy and achieve the goals described in Table 1.

Table 1 | National Multimodal Freight Policy Goals

National Multimodal Freight Policy Goals
1. Identifying infrastructure improvements, policies, and operational innovations that— a. Strengthen the contribution of the National Multimodal Freight Network to the economic competitiveness of the United States b. Reduce congestion and eliminate bottlenecks on the National Multimodal Freight Network c. Increase productivity, particularly for domestic industries and businesses that create high-value jobs
2. Improving the safety, security, efficiency, and resiliency of multimodal freight transportation
3. Achieving and maintaining a state of good repair on the National Multimodal Freight Network
4. Using innovation and advanced technology to improve the safety, efficiency, and reliability of the National Multimodal Freight Network
5. Improving the economic efficiency and productivity of the National Multimodal Freight Network
6. Improving the reliability of freight transportation
7. Improving the short- and long-distance movement of goods that: a. Travel across rural areas between population centers b. Travel between rural areas and population centers c. Travel from the nation's ports, airports, and gateways to the National Multimodal Freight Network
8. Improving the flexibility of states to support multistate corridor planning and the creation of multi-state organizations to increase the ability of states to address multimodal freight connectivity
9. Reducing the adverse environmental impacts of freight movement on the National Multimodal Freight Network
10. Pursuing the goals described in this subsection in a manner that is not burdensome to state and local governments

It is the policy of the United States to improve the condition and performance of the National Highway Freight Network established under section 167 to ensure that the Network provides the foundation for the United States to compete in the global economy and achieve the goals described in Table 2.

Table 2 | National Highway Freight Program Goals

National Highway Freight Program Goals
1. To invest in infrastructure improvements and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity
2. To improve the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas
3. To improve the state of good repair of the National Highway Freight Network
4. To use innovation and advanced technology to improve the safety, efficiency, and reliability of the National Highway Freight Network
5. To improve the efficiency and productivity of the National Highway Freight Network
6. To improve the flexibility of states to support multi-state corridor planning and the creation of multi-state organizations to increase the ability of states to address highway freight connectivity
7. To reduce the environmental impacts of freight movement on the National Highway Freight Network

FMTP24 Goals & Objectives

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

Table 3 | FMTP24 Goals and Objectives

FTP Goal	FMTP24 Objective
Safety and security for residents, visitors, and businesses	1. Leverage data and technology to improve freight system safety and security
Agile, resilient, and quality transportation infrastructure	2. Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption
	3. Ensure the Florida Freight system is in a state of good repair
Connected, efficient, and reliable mobility for people and freight	4. Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning
Transportation choices that improve accessibility and equity	5. Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains
	6. Improve first and last mile connectivity for all freight modes
Transportation solutions that strengthen Florida's economy	7. Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development
	8. Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture
Transportation systems that enhance Florida's communities	9. Increase freight-related regional and local transportation planning and land use coordination
Transportation solutions that enhance Florida's environment	10. Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats

FMTP24 Strategies

The FMTP24 strategies came from the analysis, outreach, and research into emerging trends. Many of the strategies have ties to the plans referenced above. Action items to complement each strategy can be found in Technical Memorandum 8: Implementation.

1. Leverage data and technology to improve freight system safety and security

Improvements in transportation technology are increasing opportunities. Smart corridors, infrastructure sensors, automated systems, and analyzing enormous amounts of data for trends/challenges are solution options for optimizing conditions and increasing safety.

1.1. Continue to analyze truck parking needs, identify appropriate solutions, and provide more safe and secure truck parking facilities where needed
1.2. Identify commercial vehicle high crash segments and intersections, analyze causal factors, and implement effective countermeasures
1.3. Identify high incident rail-highway grade crossings, analyze causal factors, and implement countermeasures
1.4. Identify disruptions and areas for improvement in critical supply chains through data and system security
1.5. Utilize emerging technologies to improve safety, mobility, and reliability of freight corridors

2. Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption

Disruptions from shocks (individual events) and stresses (longer-term shifts) threaten Florida's freight infrastructure and operations. Florida should leverage analysis, partnerships, and investments to create redundancies in the system and improve its supply chain resilience.

2.1. Leverage the FDOT Resilience Action Plan (RAP) to better incorporate resilience into freight planning
2.2. Improve weather resiliency of freight transportation by hardening infrastructure and building redundancies into the system
2.3. Ensure freight-related projects evaluate measures to reduce vulnerability to disruptions
2.4. Support private sector and military freight mobility continuance of operations and disaster relief logistics operations
2.5. Improve supply chain resiliency of critical commodities considering all four phases of emergency management (prepare, respond, recover, and mitigate)

3. **Ensure the Florida Freight system is in a state of good repair**

   A growing population, economy, and demand for freight in Florida takes a toll on freight infrastructure. Florida should ensure that it is preserving the existing system and that new investments are made strategically.

   3.1. Utilize data-driven asset management approach to guide multimodal freight investments
   3.2. Optimize the functionality, efficiency, and reliability of existing freight systems
   3.3. Incorporate resilience into re-builds and infrastructure improvements
   3.4. Preserve and maintain the existing State Highway System (SHS)
   3.5. Maximize use of existing and unused facilities and properties for freight development

4. **Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning**

   Congestion is one of Florida's top freight mobility issues. Strategic infrastructure investments such as inland ports and increased truck parking can relieve congestion and improve supply chain flows. Along with capacity increases, technology and innovation help improve throughput and decrease congestion utilizing the infrastructure that is already in place.

   4.1. Support development of intermodal logistics centers/inland ports to increase seaport throughput and improve supply chain efficiencies
   4.2. Increase infrastructure capacity at modal hubs as well as to and from key freight clusters around the state
   4.3. Improve the convenience and efficiency of connecting between multiple freight modes

5. **Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains**

   Institutional, policy, and funding bottlenecks create operational inefficiencies. Florida should work to streamline federal, state, and local processes to accelerate priority investments. Freight and logistics projects must be dynamic and responsive to current market realities and future trends.

   5.1. Reduce financial, institutional, data, statutory, and regulatory barriers
   5.2. Streamline FDOT processes to support supply chain projects that are more dynamic and responsive
   5.3. Enhance intergovernmental partnerships for supply chain projects
   5.4. Drive strategic investments that support state's multimodal/intermodal freight system vision

6. **Improve first and last mile connectivity for all freight modes**

   The rise in e-commerce has led to an increased strain on the existing freight system, notably on local first/last-mile routes near warehousing and distribution centers in and around residential areas. Investments in optimization through new technologies will reduce gaps between modes and destinations and benefit Florida's freight system.

   6.1. Prepare the freight system for emerging urban freight delivery patterns
   6.2. Improve freight mobility through operations solutions

7. **Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development**

   Partnerships across the public and private sectors are critical for implementing ideas, expanding access, and building awareness. Florida can benefit from continued public private coordination to support workforce development solutions, pursue manufacturing industries, and strengthen its supply chains within and beyond the state.

   7.1. Collaborate with public and private sector partners to address workforce development needs, facility conditions, training, and recruitment
   7.2. Incorporate freight and logistics planning and engineering into academic curricula of schools, colleges, and universities
   7.3. Work with partners to support a statewide manufacturing initiative
   7.4. Expand Florida supply chain partnerships

8. **Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture**

   As a high consumption state, Florida can reaffirm its priority for trade, logistics, and manufacturing through marketing and incentives for new industry, and influence innovation by staying on the cutting edge of emerging freight technology.

   8.1. Support manufacturing activities to strengthen domestic supply chain
   8.2. Ensure strategic representation of Florida at the national level to help shape federal decisions on trade and logistics
   8.3. Develop next-generation freight corridors and intermodal facilities leveraging latest technology and considering multimodal freight demand
   8.4. Promote Florida as a freight-friendly state that's open for business

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

Florida is poised to take advantage of available federal funding for transportation, research, workforce, and economic development, which will support the state's strategic freight interests. Local transportation planning and land use coordination is critical to pursuing the best policies, programs, and projects for needs from communities to the national level.

9.1. Provide transportation and land use planning guidance to local and regional agencies for economic development and freight efficiencies that support community goals
9.2. Create pipeline of freight projects that are ready immediately upon funding availability
9.3. Preserve corridors for flexible use
9.4. Identify freight impacts on communities and pursue solutions
9.5. Coordinate freight-related plans and programs of the private sector, local agencies, and FDOT Districts for integrated and informed decision-making

10. Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats

Florida's environment is one reason that it has millions of visitors annually. To preserve its natural beauty and the health of its ecosystems, multiple factors should be considered in project planning.

10.1. Support transportation solutions that enhance Florida's natural resources and wildlife
10.2. Support the development of alternative fuel infrastructure at seaports and intermodal logistics centers, and along major trade corridors
10.3. Ensure freight-related infrastructure projects evaluate measures to reduce the impact on wildlife habitats
10.4. Invest in wildlife protection measures surrounding freight infrastructure

FMTP24 Performance Measures for Project Prioritization

Performance measures can be used as a guide for decision-making in freight-related transportation investments. The performance measures listed below are consistent with the FTP goals and FMTP objectives. It is important to note that there are different freight and freight-related project types. For example, proposed highway rail-grade crossing projects, truck parking projects, and highway improvement projects all have different criteria that should be assessed using the applicable performance measures. Table 4 depicts performance measures and criteria that have been identified to assess highway improvement projects. The quantitative and qualitative metrics are not intended to align directly with one another, but together provide relevant context to help achieve each objective. The quantitative metrics denoted with an asterisk are taken directly from the performance and conditions assessment in TM 2. Several of the objectives do not have readily accessible quantitative metrics with which to assess them, denoted with a "Not Applicable." More information on the project prioritization process can be found in TM 6.

Table 4 | Highway Improvement Project Performance Measures

FMTP24 Objectives	Quantitative Metrics	Qualitative Metrics
Leverage data and technology to improve freight system safety and security	*Commercial Vehicle Safety ((Truck Injuries/Truck VMT) x 1000 (Truck fatalities/ Truck VMT) x 1000)	Does this project measurably improve freight safety?
		Is this a technology driven or TSM&O project?
Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption	RAP Low - High Tier Vulnerability Area	Does this project enhance the reliability or redundancy of the freight transportation system?
		Does this project improve the durability of freight infrastructure in a vulnerable coastal region? If it is in a RAP Vulnerable Area (low, medium, or high), this metric is required.
		Does this project support evacuation and recovery efforts?
Ensure the Florida freight system is in a state of good repair	*Bridge Conditions (Presence of structurally deficient bridges)	Does this project relieve congestion?
	*Highway Pavement (Presence of poor pavement conditions)	Does this project incorporate the ability to rapidly restore access and mobility after an emergency?

FMTP24 Objectives	Quantitative Metrics	Qualitative Metrics
Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning	*Truck Miles Traveled (Annual Average Daily Truck Traffic)	Does this project address a truck parking need?
	*Truck Bottlenecks (Roadways with top bottlenecks)	Is this a grade separation project?
Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains	Not Applicable	Is this project the result of a legislative/policy effort to improve supply chain efficiency?
Improve first and last mile connectivity for all freight modes	Vicinity of Hubs	Does this project improve first/last mile connectivity?
	Roadways within freight intensive areas	
Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development	Not Applicable	Does this project include stakeholder involvement?
Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture	Labor force (ratio of county labor force by county total population relative to average statewide ratio)	Does this project incorporate an innovative freight concept?
	County GRP Level (compared to state average)	
	Freight industry (by share of employment)	Does this project address points of friction between local communities and freight?
	Population Density (compared to state average)	
Increase freight-related regional and local transportation planning and land use coordination	Not Applicable	Is this project on the MPOAC freight project list or in a local freight planning document?
Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats	On designated alternative fuel corridor	Does this project reduce air pollution?
	Number of alternative fuel stations within 5 miles of corridor	Does this project incorporate protections for wildlife before/during/after project lifecycle?

Appendix A: National Goals Matrix

FTP Goals / FMTP24 Objectives / National Multimodal Freight Policy Goals	Safety and Security	Agile, Resilient, Quality		Efficient & Reliable Mobility	Transportation Choices		Economic Competitiveness		Quality Places	Environment & Energy Conservation
	Leverage data and technology to improve freight system safety and security	Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption	Ensure the Florida freight system is in a State of Good Repair	Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning	Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains	Improve last mile connectivity for all freight modes	Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development	Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture	Increase freight-related regional and local transportation planning and land use coordination	Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats
To identify infrastructure improvements, policies, and operational innovations that: o Strengthen the contribution of the National Multimodal Freight Network (NMFN) to the economic competitiveness of the United States o Reduce congestion and eliminate bottlenecks on the NMFN o Increase productivity, particularly for domestic industries and businesses that create high-value jobs			✓	✓	✓		✓	✓	✓	
To improve the safety, security, efficiency, and resiliency of multimodal freight transportation	✓	✓		✓	✓	✓				
To achieve and maintain a state of good repair on the NMFN			✓							
To use innovation and advanced technology to improve the safety, efficiency, and reliability of the NMFN	✓	✓						✓		✓
To improve the economic efficiency and productivity of the NMFN				✓	✓	✓	✓			
To improve the reliability of freight transportation		✓		✓	✓	✓				
To improve the short- and long-distance movement of goods that: o Travel across rural areas between population centers o Travel between rural areas and population centers o Travel from the Nation's ports, airports, and gateways to the NMFN	✓	✓	✓	✓	✓	✓	✓	✓	✓	
To improve the flexibility of States to support multi-State corridor planning and the creation of multi-State organizations to increase the ability of States to address multimodal freight connectivity					✓	✓	✓	✓	✓	
To reduce the adverse environmental impacts of freight movement on the NMFN		✓		✓						✓
To pursue the goals described in this subsection in a manner that is not burdensome to State and local governments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

FTP Goals	Safety and Security	Agile, Resilient, Quality		Efficient & Reliable Mobility	Transportation Choices		Economic Competitiveness		Quality Places	Environment & Conserve Energy
FMTP24 Objectives	Leverage data and technology to improve freight system safety and security	Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption	Ensure the Florida freight system is in a state of good repair	Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning	Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains	Improve last mile connectivity for all freight modes	Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development	Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture	Increase freight-related regional and local transportation planning and land use coordination	Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats
National Highway Freight Program Goals										
To invest in infrastructure improvements and to implement operational improvements on the highways of the United States that: ○ Strengthen the contribution of the National Highway Freight Network (NHFN) to the economic competitiveness of the United States ○ Reduce congestion and bottlenecks on the NHFN; ○ Reduce the cost of freight transportation ○ Improve the year-round reliability of freight transportation ○ Increase productivity, particularly for domestic industries and businesses that create high-value jobs	✓	✓	✓	✓	✓	✓	✓	✓		
To improve the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas	✓	✓	✓	✓	✓	✓				
To improve the state of good repair of the NHFN			✓							
To use innovation and advanced technology to improve the safety, efficiency, and reliability of the NHFN	✓	✓		✓	✓	✓				
To improve the efficiency and productivity of the NHFN				✓	✓	✓	✓			
To improve the flexibility of States to support multi-State corridor planning and the creation of multi-State organizations to increase the ability of States to address highway freight connectivity					✓	✓	✓		✓	
To reduce the environmental impacts of freight movement on the NHFN		✓		✓						✓

FMTP24

FREIGHT MOBILITY AND TRADE PLAN

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FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

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Technical Memorandum 6
Project Prioritization

FDOT

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List of Acronyms

CMAQ	Congestion Mitigation and Air Quality Improvement program
CRFCs	Critical Rural Freight Corridors
CUFCs	Critical Urban Freight Corridors
DFCs	District Freight Coordinators
FAST	Fixing America's Surface Transportation Act
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
FLFAC	Florida Freight Advisory Committee
FMTP	Freight and Mobility Trade Plan
FRO	Freight & Rail Office
FTP	Florida Transportation Plan
IIJA	Infrastructure Investment and Jobs Act
MAP-21	Moving Ahead for Progress in the 21st Century Act
MPOs	Metropolitan Planning Organizations
MPOAC	Metropolitan Planning Organization Advisory Council
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHFP	National Highway Freight Program
PHFS	Primary Highway Freight System
TSM&O	Transportation Systems Management and Operations
U.S.	United States

Introduction

This technical memorandum provides an overview of National Highway Freight Program (NHFP) and its significance to funding freight transportation projects in Florida. The document provides insight to the Call for Projects process as well as the quantitative and qualitative scoring methods for prioritization of projects submitted for NHFP funding.

NHFP Overview

Federal Overview

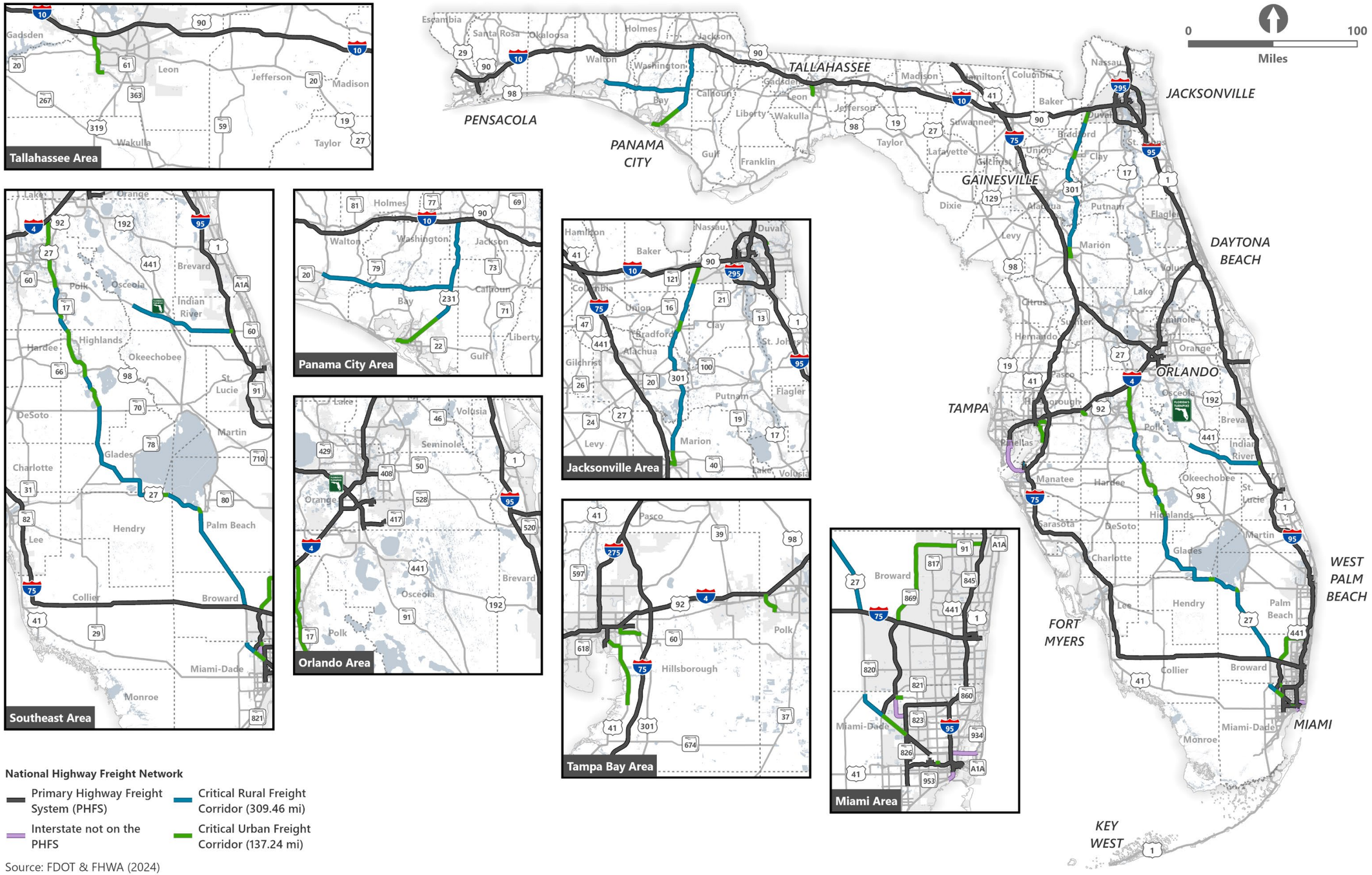
The Fixing America's Surface Transportation (FAST) Act required the establishment of a National Highway Freight Network, consisting of:

- **Primary Highway Freight System (PHFS):** This is a network of highways identified as the most critical highway portions of the United States (U.S.) freight transportation system determined by measurable and objective national data.
- **Other Interstate portions not on the PHFS:** These highways consist of the remaining portion of interstate roads not included in the PHFS. These routes provide important continuity and access to freight transportation facilities. These portions will fluctuate with additions and deletions to the Interstate Highway System.
- **Critical Rural Freight Corridors (CRFCs):** These are public roads not in an urbanized area that provide access and connection to the PHFS and the interstate with other important ports, public transportation facilities, or other intermodal freight facilities.
- **Critical Urban Freight Corridors (CUFCs):** These are public roads in urbanized areas that provide access and connection to the PHFS and the interstate with other ports, public transportation facilities, or other intermodal transportation facilities.

The Infrastructure Investment and Jobs Act (IIJA) maintains this network requirement for funding through the NHFP. All projects submitted for funding through the NHFP are required to be located on the National Highway Freight Network (NHFN) for eligibility. States, and in certain cases Metropolitan Planning Organizations (MPOs), are responsible for designating public roads for the CRFCs and CUFCs, respectively. State designation of the CRFCs is limited to a maximum of 320.14 miles of highway or 20 percent of the PHFS mileage in the state, whichever is greater. State and MPO designation of the CUFC is limited to a maximum of 160.07 miles of highway or 10 percent of the PHFS mileage in the state, whichever is greater.

Florida's centerline system mileage as of October 2023 is summarized in Table 1. A map of the routes can be seen in Figure 1.

Figure 1 | Florida's National Highway Freight Network



Source: FDOT & FHWA (2024)

Table 1 | Florida's NHFN Mileage

Subsystem of Roadways	Statewide Mileage*
Primary Highway Freight System (PHFS) Routes	1,644.71
Interstate Not on the PHFS	36.19
Critical Urban Freight Corridors (CUFC)	137.24 (Maximum Limit = 160.07)
Critical Rural Freight Corridors (CRFC)	309.46 (Maximum Limit = 320.14)
Total	2,127.6

**Centerline miles, not lane miles*

A more detailed look at Florida's NHFN can be found at:
https://hdr.maps.arcgis.com/apps/webappviewer/index.html?id=8116929137d54ff19f43bf97ca947f59

Funding

The IIJA directs the Federal Highway Administration (FHWA) to apportion over $1B in freight funding nationally per annum starting in 2022. This total increases every year to meet rising costs. A specified portion of that NHFP national apportionment is set as the states' base allotment. These totals are representative of the before post-apportionment set asides before penalties and before sequestration.

Table 2 shows the authorization and estimated funding for the National Highway Freight Program (NHFP) through 2026. A more detailed look at the funding available through this program can be found in Technical Memorandum 7.

Table 2 | Estimated Yearly NHFP Funding

Fiscal Year	2022	2023	2024	2025	2026
Estimated National Funding	$1,373,932,519	$1,401,411,169	$1,429,439,392	$1,458,028,180	$1,487,188,740
Florida Apportionment	$65,707,643	$67,021,795	$68,362,231	$69,729,476	$71,124,065

Source: FHWA, 2023

Federal Eligibility

NHFP funds must contribute to the efficient movement of freight on the NHFN and be identified in a freight investment plan included in the state's freight plan to be updated every four years. In addition, a state may use not more than 30 percent of its total NHFP apportionment each year for freight intermodal or freight rail projects. Eligible uses of program funds are as follows:

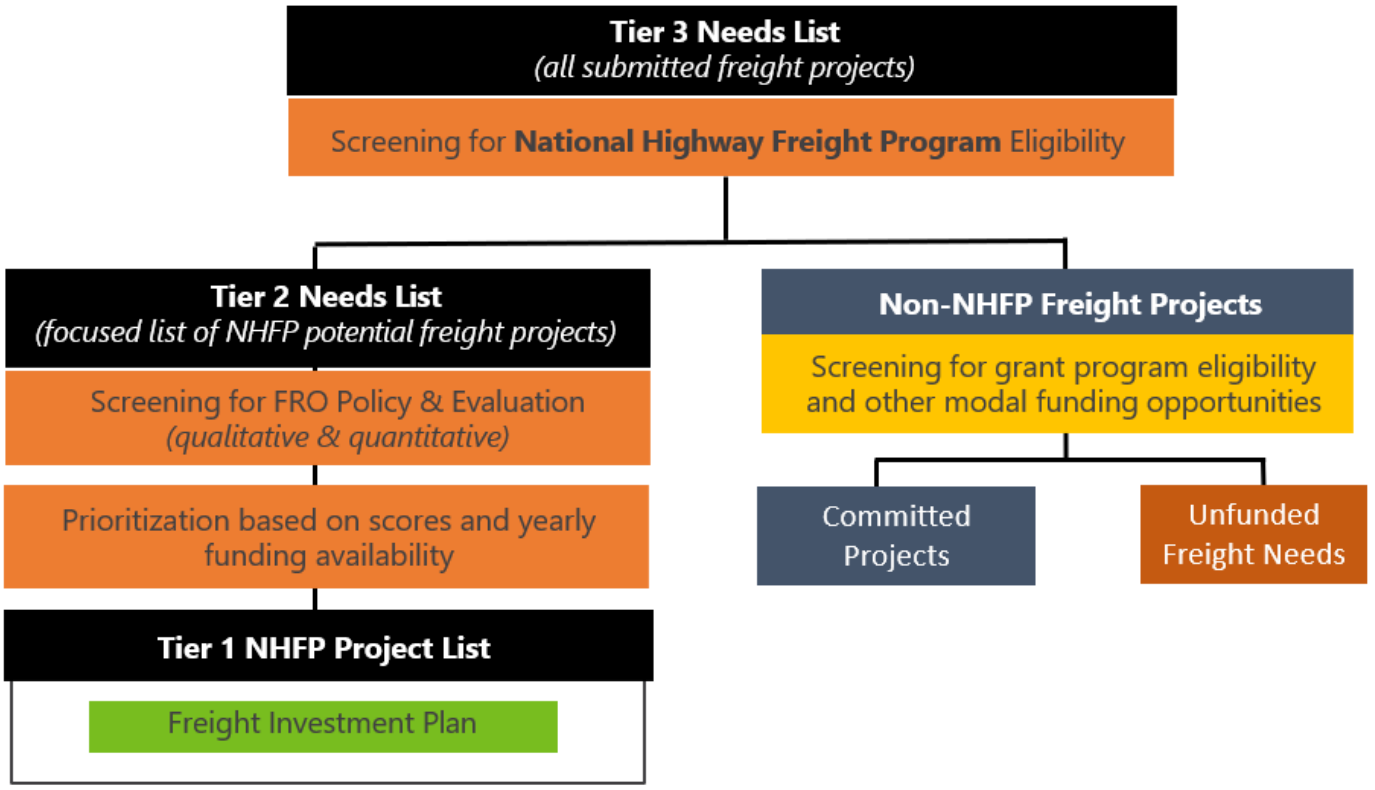
- Development phase activities, including planning, feasibility analysis, revenue forecasting, environmental review, preliminary engineering and design work, and other preconstruction activities
- Construction, reconstruction, rehabilitation, acquisition of real property (including land relating to the project and improvements to land), construction contingencies, acquisition of equipment, and operational improvements directly relating to improving system performance
- Intelligent transportation systems and other technology to improve the flow of freight, including intelligent freight transportation systems
- Efforts to reduce the environmental impacts of freight movement
- Environmental and community mitigation for freight movement
- Railway-highway grade separation
- Geometric improvements to interchanges and ramps
- Truck-only lanes
- Climbing and runaway truck lanes
- Adding or widening of shoulders
- Truck parking facilities eligible for funding under section 1401 (Jason's Law) of Moving Ahead for Progress in the 21st Century Act (MAP-21)
- Real-time traffic, truck parking, roadway condition, and multimodal transportation information systems
- Electronic screening and credentialing systems for vehicles, including weigh-in-motion truck inspection technologies
- Traffic signal optimization, including synchronized and adaptive signals
- Work zone management and information systems
- Highway ramp metering
- Electronic cargo and border security technologies that improve truck freight movement
- Intelligent transportation systems that would increase truck freight efficiencies inside the boundaries of intermodal facilities
- Additional road capacity to address highway freight bottlenecks
- Physical separation of passenger vehicles from commercial motor freight
- Enhancement of the resiliency of critical highway infrastructure, including highway infrastructure that supports national energy security, to improve the flow of freight
- A highway or bridge project, other than a project described above, to improve the flow of freight on the NHFN
- Any other surface transportation project to improve the flow of freight into and out of an eligible intermodal freight facility
- Diesel retrofit or alternative fuel projects under the Congestion Mitigation and Air Quality Improvement program (CMAQ) for class 8 vehicles

- Conducting analyses and data collection related to the NHFP, developing, and updating freight performance targets to carry out Section 167 of Title 23, and reporting to the Administrator to comply with the freight performance target under Section 150 of Title 23

Freight Project Prioritization Methodology

The freight project selection and prioritization processes are the foundation of the Freight and Mobility Trade Plan (FMTP) Investment Element (Technical Memorandum 7). The Florida Department of Transportation (FDOT) Freight & Rail Office (FRO) process for selecting, prioritizing, and programming freight projects for funding adheres to two guiding principles. First, the methodology needs to be objective, consistent, data-driven, and transparent. Second, the methodology needs to have the flexibility to align with several facets and tenets that characterize freight mobility and freight system user needs. The FMTP freight project methodology is defined in several steps as shown in Figure 2. This methodology allows FRO and other FDOT modal offices to retain control in determining how and when to program and implement specific freight projects pursuant to federal and state funding programs. The complete process provides structure, flexibility, and integrity which equips FRO and the other FDOT modal offices with a decision-making process that ensures projects with the greatest benefit to the state freight system are advanced.

Figure 2 | Visualization of Prioritization Process



The freight project selection and prioritization process was developed in late 2019 as part of the 2020 FMTP. The FRO has made iterative changes to the process over the years, but this flow chart remains the guiding strategy in project submissions and selection.

Step 1: Identification of Projects

The process begins with a call for freight projects by the FRO. This request is disseminated to the FDOT Districts, MPOs, local jurisdictions, the Florida Freight Advisory Committee (FLFAC), and other freight stakeholders. The FRO also conducts a statewide data-driven analysis of issues and needs to identify projects. A Tier 3 Needs List is compiled based on statewide analysis and input from all parties involved. The Tier 3 Needs List can be found in Appendix A.

Step 2: Project Classification and Funding Eligibility Screening

The FRO screens the Tier 3 Needs List for NHFP funding eligibility, resulting in a Tier 2 Needs List. The Tier 2 List can be found in Appendix B. Remaining projects are screened for potential as federal discretionary grant contenders as well as for alternate funding sources within the Work Program.

Step 3: Qualitative and Quantitative Evaluation

The next step focuses on an evaluation of the qualitative and quantitative aspects of the freight projects in the Tier 2 Needs List. A freight project eligible for NHFP funding must support one or more of the state's freight objectives as identified in the FMTP. The prioritization methodology is designed to select projects that solve freight system needs, and uses multiple data sources, freight performance metrics, and input from the freight industry. This process results in a Tier 1 NHFP Project List.

The FRO undertakes a process to quantify the potential effectiveness of submitted projects in achieving the FMTP objectives. With every FMTP update, FDOT may opt to reconsider the weights of the freight objectives based on input from the FLFAC.

The quantitative prioritization methodology has been developed to be consistent with the Florida Transportation Plan (FTP) goals and the corresponding FMTP objectives. This methodological framework determines locational prioritization for highway projects based on criteria outlined in the 'Conditions and Performance' and 'Systems and Assets' technical memorandums. This methodology is applicable only to evaluating the existing conditions of the given roadway project limits. Criteria are identified for measuring each of the FMTP objectives based on the most recent available data.

The other half of the project prioritization is the qualitative data analysis. The qualitative scoring sheet is part of the NHFP Project Request Form. The sheet covers the same FTP and FMTP

objectives as the quantitative section ensuring that both scoring criteria meet the needs of the FMTP. Each objective includes a series of questions that ensure the project meets the qualitative needs of the FDOT and future freight planning in Florida.

As seen in Table 3 below, there are weights assigned to each FMTP objective that factor into the scores for both the qualitative and quantitative sides. These weights were established through an analysis of Florida freight systems and discussions with the freight stakeholders in the FLFAC. They are intended to be re-evaluated cyclically based on the shifting needs of the freight industry. To maintain transparency and to allow local analysis of the funding submission, the Call for Projects tool provides a qualitative score that is updated as this section is completed, which includes the weighted totals.

The qualitative score is then tallied with the quantitative score, as is discussed in the next section. These scores will be redistributed to the submission teams later in the process. The output of Step 3 is a Tier 1 list of projects selected for NHFP funding, which can be found in Appendix C.

Yearly Call for Projects

The NHFP funding process is predicated upon a successful "Call for Projects." Success is determined by the quality of the project submissions, the proper delivery of the data points listed in the initial call, and on time delivery. This allows the FRO to complete the prioritization process and submit a list of projects in accordance with FHWA requirements.

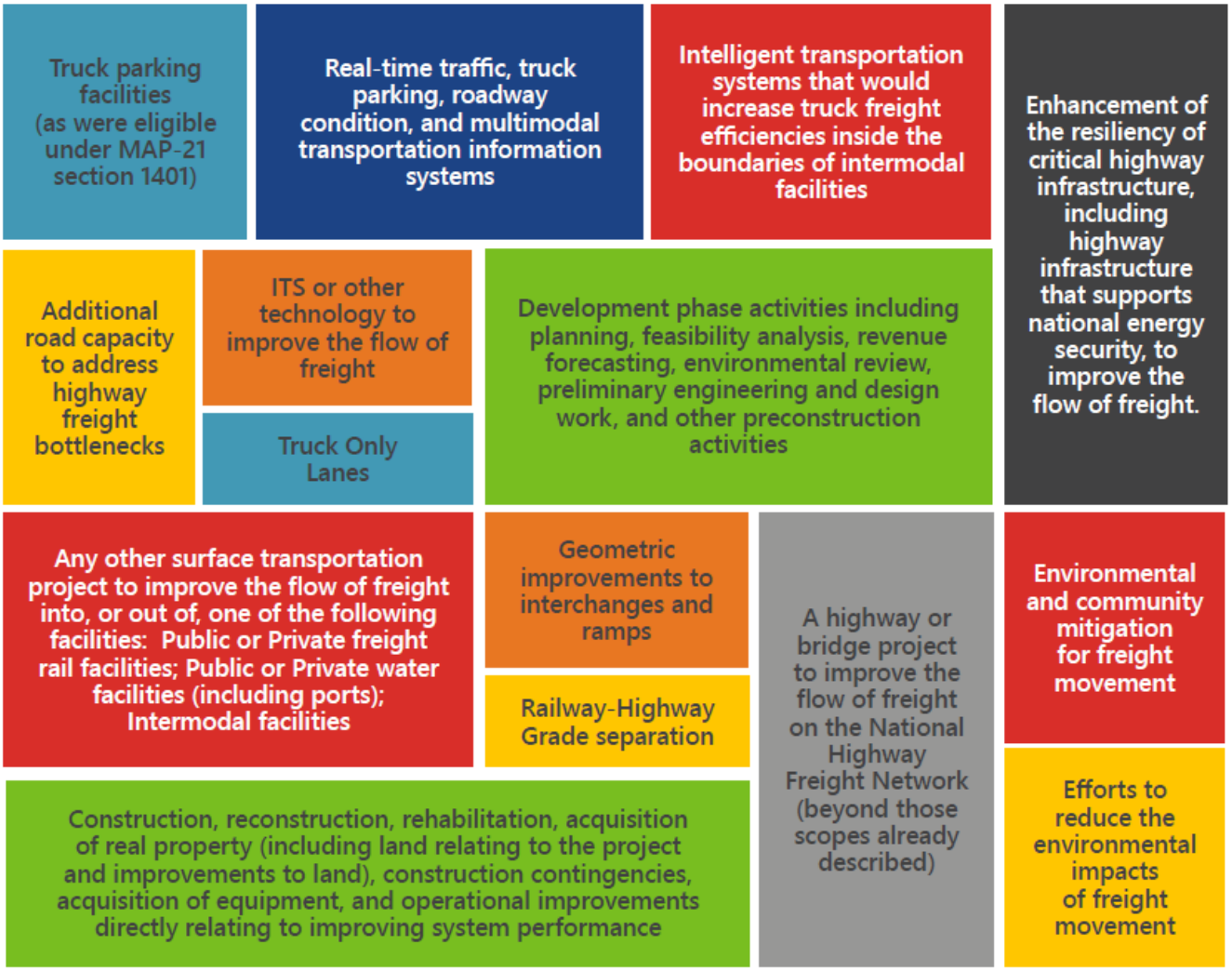
The Call for Projects process begins early in the calendar year with a request to the FDOT Districts and their partners for freight projects to be submitted to the FRO and requires completion of the 'NHFP Project Request Form.' This is a MS Excel sheet with line items for all needed data points. It includes three main topic areas that assist in the eventual ranking, scoring, and submission of the project to FHWA; these topics are eligibility requirements, qualitative data collection, and the funding phase submission. All sections are to be completed to support an accurate and objective project prioritization process.

FRO Priorities

The FMTP helps to determine which projects submitted from around the state will receive funding from the NHFP. The FRO has seen success in the targeting of critical freight issues in the state through the project identification process established in the previous FMTP. The purpose of the iterative update to this process is to ensure that the prioritization remains aligned with local and state needs while maintaining a defined method of capturing the NHFP criteria that aligns with the FRO and FDOT priorities.

All project types listed in the Federal Eligibility section are viable. Figure 3 shows the specific project types that align with the FRO priorities. These project types are likely to receive higher scores on the qualitative scoring of the updated FMTP prioritization process based on the latest FMTP objectives. With this update, projects that enhance resilience of the freight system and reduce environmental impacts have been added to the FRO priorities.

Figure 3 | FRO Priorities



Beyond the federal eligibility requirements and preferences for specific project types, the FRO has established a set of internal criteria to ensure projects submitted are ready for production:

- Projects must be located on the National Highway Freight Network
- Projects should be ready for implementation in the fiscal year for which funding was received

- Projects must clearly identify the need(s) and develop the business case to justify project selection:
    - A project need must support the freight needs of the state
    - The project should include information and data that describes what problem and issue the project will solve

These guidelines were created through conversation with Florida freight stakeholders, an analysis of funding availability, and iteration on previous years' processes.

Qualitative and Quantitative Process and Scoring

Qualitative Data Collection

One pillar of project prioritization is the qualitative data analysis. The qualitative scoring sheet is part of the NHFP Project Request Form. The sheet covers the ten FMTP objectives, and each objective includes questions pertaining to the objective that ensure the project meets the qualitative needs of the FDOT and future freight planning in Florida. As the DFCs fill out the Project Request Form, their score will be tallied in real time, forming the first half of their final score. The other half of the score is completed utilizing GIS tools and data from the submission, as discussed below in the Overview of the Quantitative Process.

1. **Leverage data and technology to improve freight system safety and security**
    - Does this project measurably improve freight safety? If so, how?
    - Is this a technology driven or a Transportation Systems Management and Operations (TSM&O) project? If so, describe the technology that will be implemented.
2. **Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption**
    - Does this project enhance the reliability or redundancy of the freight transportation system? Please describe.
    - Does this project improve the durability of freight infrastructure in a vulnerable coastal region? If it is in a RAP Vulnerable Area (low, medium, or high), this metric is required.
    - Does this project support evacuation and recovery efforts?
3. **Ensure the Florida freight system is in a state of good repair**
    - Does this project have a bridge repair/maintenance component?
    - Does this project improve pavement conditions?
4. **Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning**
    - Does this project relieve congestion? How so?

- Does this project address a truck parking need or create staging areas for loading as part of a safety and logistics need? Please describe (i.e., number of spaces to be created, technology being utilized).
- Is this a grade separation project? If so, please provide the crossing number or nearest mile-marker.

5. **Remove institutional, policy and funding bottlenecks to improve operational efficiencies in supply chains**
   - Is this project the result of a legislative/policy effort to improve supply chain efficiency? Please describe.
6. **Improve first and last mile connectivity for all freight modes**
   - Does this project improve first/last mile connectivity? Which modes are impacted? Please describe.
7. **Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development**
   - Does this project include stakeholder involvement? Please include specifics on partnerships and outreach efforts.
8. **Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic posture**
   - Does this project incorporate an innovative freight concept? Please describe.
   - Does this project address points of friction between local communities and freight? Please describe.
9. **Increase freight-related regional and local transportation planning and land-use coordination**
   - Is this project on the Metropolitan Planning Organization Advisory Council (MPOAC) freight project list or in a local freight planning document? Please include a reference.
10. **Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats**
    - Does this project reduce air pollution? How so?
    - Does this project incorporate protections for wildlife before/during/after project lifecycle?

These metrics were established through analysis of Florida freight systems and discussion with the freight stakeholders in the FLFAC. They are intended to be re-evaluated cyclically based on shifting needs of the freight industry.

Overview of Quantitative Process

The quantitative prioritization methodology has been developed to be consistent with the FTP goals and the corresponding FMTP objectives. When a project is proposed it receives a score based on the quantitative measures deemed most appropriate by project type. The types of projects considered are highway projects, highway-rail grade separation projects, and truck parking projects.

Highway Projects

The methodology for highway projects has been developed to determine their locational prioritization based on the same data sets and analysis utilized in the first two technical memorandums of the FMTP. This methodology is applicable only to evaluating the existing conditions of the given roadway project limits. Criteria are identified for measuring each of the FMTP objectives based on the most recent available data. Input data is required so that the GIS-based procedure for scoring freight-related highway projects has Roadway ID and Begin/End Mile points. This process provides the FRO with locational quantitative scores that can be further evaluated to determine prioritization for funding.

1. **Leverage data and technology to improve freight system and security**
    - **Measure:** (Truck Injuries/Truck Vehicle Miles Traveled (VMT))*1000
    - **Description:** This measure is the number of truck crashes resulting in injury divided by the truck vehicle miles traveled for a given roadway segment. This measure is an indicator of a safety issue involving trucks at a given location. A higher score is given to projects located in areas with a higher concentration of truck crashes resulting in injuries relative to truck traffic.
    - **Measure Categorization and Scoring**

(Truck Injuries/Truck VMT)*1000	Score
0-35	0
35-150	10
150-500	20
500-1250	30
1250+	40

Data Source: Truck Crashes-FDOT Safety Office; Truck VMT-FDOT Transportation Data and Analytics Office

- **Measure:** (Truck Fatalities/Truck VMT)*1000
- **Description:** This measure is the number of truck crashes resulting in fatalities divided by the truck vehicle miles traveled for a given roadway segment. This

measure is an indicator of a safety issue involving trucks at a given location. A higher score is given to projects located in areas with a higher concentration of truck crashes resulting in fatalities relative to truck traffic.

- **Measure Categorization and Scoring**

(Truck Fatalities/Truck VMT)*1000	Score
0-5	0
5-10	10
10-40	20
40-85	30
85+	40

Data Source: Truck Crashes-FDOT Safety Office; Truck VMT-FDOT Transportation Data and Analytics Office

2. **Create a more resilient multimodal freight system to prepare for, respond to, and recover from disruption**

- **Measure:** Infrastructure within a FDOT Resilience Action Plan (RAP) Vulnerability Area
- **Description:** This measure identifies projects that occur within vulnerable coastal areas, designated as high, medium, or low vulnerability by the RAP. The prioritization is based on the number of hazards affecting a location. The more hazards a geographic area is expected to be exposed to, the higher the importance that a project located in that area incorporates durability into its outcomes.
- The specific hazards and thresholds used and the rationale for using them are:
    - One percent (1%) flood return interval (100-year floodplain) – Shows the extent of inland, riverine, and coastal flooding.
    - Storm surge for a Category 3 hurricane – Reflects a moderate scenario for resilience purposes.
    - Two feet of sea level rise – Based on long-range transportation planning horizons.
- **Measure Categorization and Scoring**

Infrastructure within a FDOT Resilience Action Plan (RAP) Vulnerability Area	Score
Not within vulnerable coastal area	0
Low vulnerability	5
Medium vulnerability	10
High vulnerability	20

Data Source: FDOT Resilience Action Plan

3. Ensure the Florida freight system is in a state of good repair

- **Measure:** Presence of structurally deficient bridges
- **Description:** The presence of structurally deficient bridges is used to measure the state of Florida's freight system. If a bridge has been classified as structurally deficient, they are posted as necessary for load or closed. Identifying projects with the presence of a structurally deficient bridge prioritizes the goal of ensuring that Florida's freight system is in a state of good repair by maintaining and preserving the existing system.
- **Measure Categorization and Scoring**

Presence of structurally deficient bridges	Score
No Structurally deficient bridges within Project limits	0
Structurally deficient bridge within Project limits	40

Data Source: FDOT Bridge Maintenance Office

- **Measure:** Presence of poor pavement conditions segments
- **Description:** The presence of poor pavement conditions segments is used to measure the state of Florida's freight system. Pavement conditions are rated by FDOT and FHWA using two different methods of criteria. For the FMTP objective, this measure utilizes the FHWA pavement condition criteria. Pavement segments rated as poor must fall under the following criteria listed in the table below:

Rating Factors	Poor
International Roughness Index (in/mile)	>170
Cracking Percent	>15 (JPCP) >20 (Asphalt)
Rutting	>0.4

- Two of the three metrics must be rated as Poor for the interval to be considered Poor. Identifying projects with the presence of poor pavement conditions prioritizes the goal of ensuring that Florida's freight system is in a state of good repair by maintaining and preserving the existing system.
- **Measure Categorization and Scoring**

Presence of poor pavement conditions segments	Score
No poor pavement conditions within project limits	0
Poor pavement conditions within project limits	40

Data Source: FDOT Pavement Office

4. **Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning**

- **Measure:** Truck AADT
- **Description:** Truck Average Annual Daily Traffic (AADT) is a measure of the number of trucks traveling on a given roadway segment in both directions on an average day. Truck AADT is used as a measure of mobility to indicate whether a roadway has more truck traffic than other roadways. Distinguishing project locations with higher volumes of truck traffic will help to address the mobility by appointing higher prioritization scores for these projects.
- **Measure Categorization and Scoring**

Truck AADT	Score
0-1000	0
1000-3000	10
3000-6000	20
6000-12000	30
12000+	40

Data Source: FDOT Transportation Data and Analytics Office

- **Measure**: Roadways with top bottlenecks
- **Description:** This measure employs identified truck bottlenecks on the National Highway System (NHS). Bottlenecks are locations on roadways where the flow of traffic has decreased or has been delayed. The methodology for identifying truck bottlenecks in the state of Florida was developed for the FMTP. The roadway segments which rank highest in recurring or non-recurring congestion are defined as truck bottlenecks in the state of Florida. Identifying the projects with top bottlenecks facilitates the higher prioritization of these projects thus allowing FDOT to address the congestion issue.
- **Measure Categorization and Scoring**

Roadways with top bottlenecks	Score
No Bottlenecks present within project limits	0
Bottleneck present within project limits	60

Data Source: FHWA National Performance Measurement Research Data Set (NPMRDS)

5. **Remove institutional, policy and funding bottlenecks to improve operational efficiencies in supply chains**
   - N/A – This objective relies on a qualitative metric for scoring.
6. **Improve first and last mile connectivity for all freight modes**
   - **Measure:** Vicinity to Hubs
   - **Description:** This measure computes the distance from a roadway segment to the nearest major transportation hub identified by the Systems Intermodal Office (SIO). This measure identifies links between roadways and other transportation modes, including seaport and aviation. The closer a given roadway is to a major transportation hub the higher the prioritization score. Prioritizing roadways that connect to other modes supports the FMTP objective to improve last-mile connectivity for all freight modes.
   - **Measure Categorization and Scoring**

Vicinity to Hubs	Score
5+ Miles	0
2-5 Miles	20
1-2 Miles	40
1 Mile	60

Data Source: FDOT Systems Implementation Office

   - **Measure:** Roadways within freight intensive areas
   - **Description:** The FDOT SIO in coordination with the FDOT Transportation Data and Analytics Office conducted a study to identify major freight intensive areas in the state of Florida. A Freight Intensive Area is a cluster or group of freight facilities that generates, distributes or attracts large amounts of freight activities and has a significant impact on Florida's transportation system and economy. This measure identifies roadways that fall within the boundaries of a freight intensive area. Prioritizing roadways that are located in freight intensive areas supports the FMTP objective to improve last-mile connectivity for all freight modes.
   - **Measure Categorization and Scoring**

Roadways within freight intensive areas	Score
Project limit not within freight intensive area	0
Project limit within freight intensive area	40

Data Source: FDOT Systems Implementation Office and FDOT Transportation Data and Analytics Office

7. **Continue to forge/strengthen partnerships with public and private sectors to improve trade, logistics, and workforce development**
   - N/A – This objective relies on a qualitative metric for scoring.

8. **Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic posture**

   - **Measure:** Labor Force Size (Ratio of labor force by county population relative to average statewide ratio)
   - **Description:** This measure identifies the size of a county's labor force relative to the rest of the state. When this measure equals or is greater than 100, it indicates that the ratio of workforce to population in a county is the same as (or higher than) the corresponding ratio in the state. A higher labor force indicates a more accessible workforce in an area.
   - **Measure Categorization and Scoring**

Labor Force Size	Score
0-50	0
50-100	5
100-150	10
150-200	15
200+	20

Data Source: Florida Department of Commerce

   - **Measure:** County Gross Regional Product (GRP) level (relative to the average county GRP level in Florida)
   - **Description:** Gross Regional Product (GRP) level is the total value of goods and services produced annually within a county. This measure identifies the county level GRP relative to the rest of the state. When this measure equals or is greater than 100, it indicates that the GRP level in a county is the same as (or higher than) the corresponding GRP level in the state. A higher GRP level indicates a more robust economy in the area.
   - **Measure Categorization and Scoring**

County GRP Level	Score
0-50	0
50-100	5
100-150	10
150-200	15
200+	20

Data Source: Bureau of Economic Analysis

- **Measure:** Transportation and Warehousing Industry Share of Total Employment
- **Description:** This measure identifies counties with higher shares of transportation and warehousing industry employment. A higher share of transportation and warehousing employment indicates more freight related industries in the area.
- **Measure Categorization and Scoring**

Transportation and Warehousing Industry Share of Total Employment	Score
0-2%	0
2-4%	10
4-6%	20
6-8%	30
8%+	40

Data Source: Florida Department of Commerce

- **Measure:** County Population Density
- **Description:** This measure identifies counties with higher population densities relative to the state. The value of this measure indicates the relative size of population density in a county when comparing it to the state's average population density. When the value of this measure equals (or is greater than) 100, it indicates that the population density in a census tract is the same as (or higher) than the state average. Areas with higher population densities receive higher prioritization due to the fact that they are typically in need of additional transportation investment due to the higher levels of economic activity.
- **Measure Categorization and Scoring**

Population Density	Score
0-50	0
50-100	5
100-150	10
150-200	15
200+	20

Data Source: Florida Department of Economic Activity

9. **Increase freight-related regional and local transportation planning and land-use coordination**
   - N/A – This objective relies on a qualitative metric for scoring.

10. Reduce freight impacts on Florida's environment by prioritizing natural resources and wildlife habitats

- **Measure:** On designated Alternative Fuels Corridors
- **Description:** The U.S. Department of Transportation has designated national plug-in electric vehicle charging and hydrogen, propane, and natural gas fueling corridors in strategic locations along major highways to improve the mobility of alternative fuel vehicles. Identifying roadways designated as alternative fuel corridors will facilitate the prioritization and investment in supporting the shift to alternatively fueled freight vehicles.
- **Measure Categorization and Scoring**

On Designated Alternative Fuel Corridors	Score
Project limits are not within a designated Alternative Fuels Corridor	0
Project limits are within a designated Alternative Fuels Corridor	40

Data Source: United States Department of Energy

- **Measure:** Number of alternative fueling stations within five miles of roadway
- **Description:** This measure identifies the number of alternative fuels stations within one mile of project's roadway limits. Higher concentrations of alternative fuel stations within the vicinity of a roadway offer more accessibility to alternative fuel sources.
- **Measure Categorization and Scoring**

Number of alternative fueling stations within five miles of roadway	Score
0-4	0
5-9	15
10-14	30
15-20	45
20+	60

Data Source: United States Department of Energy

Highway-Rail Grade Separation Projects

Highway-rail grade separation projects are evaluated using a GIS-based prioritization scoring methodology, 'Systematic Evaluation and Prioritization of Rail-Highway Grade Separation' (April 2019).

Truck Parking Projects

Truck parking projects are evaluated using a prioritization scoring methodology based on the outcomes of the Statewide Truck Parking Study. This study identified the top 20 truck parking areas of concern and developed a prioritization process by applying truck parking criteria and creating a prioritized list of truck parking needs. This prioritization process identified the top five priority areas of concern and noted where proposed truck parking projects are located within these geographic areas to ultimately receive the highest quantitative prioritization score.

Table 3 provides an overview of both the quantitative and qualitative metrics used in project scoring. Keep in mind that the quantitative and qualitative metrics are not necessarily tied together. In some cases, the qualitative questions are used to round out part of an objective where there is no available dataset to use. Table 3 also shows the weight assigned to each of the objectives, as determined by the FLFAC.

Table 3 | Quantitative and Qualitative Scoring

FTP Goals	Objectives	Quantitative Metrics	Qualitative Metrics	Weight
Safety and security for residents, visitors, and businesses	Leverage data and technology to improve freight system safety and security	(Truck Injuries/Truck VMT) x 1000 (Truck fatalities/ Truck VMT) x 1000	Does this project measurably improve freight safety? If so, how? Is this a technology driven or TSM&O project? If so, describe the technology that will be implemented.	15%
Agile, resilient, and quality transportation infrastructure	Create a more resilient multimodal freight system to prepare for, withstand, and recover from disruption	RAP Low - High Tier Vulnerability Area	Does this project enhance the reliability or redundancy of the freight transportation system? Please describe.	20%
			Does this project improve the durability of freight infrastructure in a vulnerable coastal region? If it is in a RAP Vulnerable Area (low, medium, or high), this metric is required.	
			Does this project support evacuation and recovery efforts?	
	Ensure the Florida freight system is in a state of good repair	Presence of structurally deficient bridges	Does this project have a bridge repair/maintenance component?	
		Presence of poor pavement conditions	Does this project improve pavement conditions?	

Connected, efficient, and reliable mobility for people and freight	Reduce congestion, improve reliability, and prepare for shifts in cargo flows with proactive and innovative planning	Annual Average Daily Truck Traffic	Does this project relieve congestion? How so?	25%
			Does this project address a truck parking need or create staging areas for loading as part of a safety and logistics need? Please describe (i.e., number of spaces to be created, technology being utilized).	
		Roadways with top bottlenecks	Is this a grade separation project? If so, please provide the crossing number or nearest MM.	
Transportation choices that improve accessibility and equity	Remove institutional, policy, and funding bottlenecks to improve operational efficiencies in supply chains	Not Applicable	Is this project the result of a legislative/policy effort to improve supply chain efficiency? Please describe.	10%
	Improve first and last mile connectivity for all freight modes	Vicinity to freight hubs	Does this project improve first/last mile connectivity? Which modes are impacted? Please describe.	
		Roadways within freight intensive areas		
Transportation solutions that strengthen Florida's economy	Continue to forge partnerships between the public and private sectors to improve trade, logistics, and workforce development	Not Applicable	Does this project include stakeholder involvement? Please include specifics on partnerships and outreach efforts.	15%
	Capitalize on emerging freight trends to benefit Florida's communities while maintaining a strategic global posture	Labor force	Does this project incorporate an innovative freight concept? Please describe.	
		County GRP Level		
		Freight industry share of employment	Does this project address points of friction between local communities and freight? Please describe.	
		Pop Density		
Transportation systems that enhance Florida's communities	Increase freight-related regional and local transportation planning and land use coordination	Not Applicable	Is this project on the MPOAC freight project list or in a local freight planning document? Please include a reference.	7.5%
Transportation solutions that	Reduce freight impacts on Florida's	On alternative fuel corridor	Does this project reduce air pollution? How so?	7.5%

enhance Florida's environment	environment by prioritizing natural resources and wildlife habitats	Number of alternative fuel stations within 5 miles of corridor	Does this project incorporate protections for wildlife before/during/after project lifecycle?	

Summary

Identifying and prioritizing projects that improve the function and safety of the Florida freight network is a critical task of the FMTP. Through this qualitative and quantitative prioritization methodology, FDOT has been able to direct funding towards the areas of most significant need in the state. Whether it be for truck parking, safety, or ITS improvements, this process has ensured that each project makes a difference in the statewide system. Tech Memo 7 will highlight the types of projects that this process has funded and how they have supported the statewide freight system.

Appendix A: Tier 3 Freight Projects Screening List

Item #	Item Description	2020-2023	2024	2025	2026	2027	2028	2029	2030	Grand Total
193898-2	US 17 FROM CR 760A (NOCATEE) TO HEARD STREET	$514								$514
201032-2	I-75 AT SR 70 INTERCHANGE	$5,501,904	$751,477							$6,253,381
201032-6	I-75 AT SR 64	$15,743	$600,500							$616,243
201217-8	I-4 (SR 400) AT CSX RAILROAD	$43,948,220	$3,286,089							$47,234,309
209301-3	I-295 (SR 9A) FROM SR 202 JTB BLVD TO SR 9B (MANAGED LANES)	$40,936,219	$506,008	$450,000	$415,000	$415,000	$490,000	$612,440	$522,165	$44,346,832
209301-4	I-295(SR9A) FROM SOUTHSIDE CONNECTOR(SR113) TO SR202 JTB	$7,936,443	$11,477,518	$5,289,424						$24,703,385
209658-4	I-295(SR9A) FROM: S OF SR105(HECKSCHER DR.) TO N OF PULASKI RD	$761,254	$1,040,618	$5,153,354	$2,172,063					$9,127,289
209659-3	I-10 (SR 8) INTERCHANGE AT SR 10 (US 90) AND SR 23	$489								$489
210711-2	SR200(A1A) FROM I-95 TO W OF STILL QUARTERS RD/INCLUDES I95 LIGHTING	$3,725,863								$3,725,863
210712-3	SR 200 (A1A) FROM W OF STILL QUARTERS ROAD TO WEST OF RUBIN LANE	$776								$776
210712-4	SR 200 (A1A) FROM WEST OF RUBIN RD TO EAST OF CR 107/SCOTT RD	$6,765,159								$6,765,159
213323-1	I-95(SR9) @ NORTH I-295 INTERCHANGE	$21,133,104	$4,099,325							$25,232,429
213345-7	I-295 (SR 9A) FROM BUCKMAN BRIDGE TO I-95 MANAGED LANES	$9,314,228	$415,295	$590,295	$380,295	$460,119	$481,421	$504,309	$499,886	$12,645,848
214011-1	PLANNING STUDIES - VARIOUS	$0	$726,856	$626,856	$726,856	$50,000	$726,856	$726,856		$3,584,280
217910-3	SR 75 (US 231) FROM NORTH OF PIPE LINE RD TO NORTH OF PENNY ROAD	$2,820,241	$1,909,402							$4,729,643
217910-4	SR 75 (US 231) FROM SR 30A (US 98) 15TH ST TO SOUTH OF PIPE LINE RD	$9,786,448	$325,718							$10,112,166
217910-7	SR 75 (US 231) FROM SR 30A (US 98) 15TH ST TO SR 368 23RD STREET	$48,068,227	$60,005,899	$30,235,806	$21,000,000	$200,000	$28,612,280			$188,122,212
217976-3	SR 30 (US 98) @ SR 368 23RD STREET INTERSECTION PHASE I & II	$3,164,295								$3,164,295
218603-1	SR 95 (US 29) FROM SR 8 (I-10) TO N OF SR 10 (US 90A) 9 MILE ROAD	$5,118,714	$43,000							$5,161,714
220635-2	SR 20 FROM OKALOOSA COUNTY LINE TO WASHINGTON COUNTY LINE	$100,800	$1,101							$101,901
220635-5	SR 20 FROM SR 79 TO BAY COUNTY LINE	$3,370,454	$694,438							$4,064,892
220635-6	SR 20 FROM WASHINGTON COUNTY LINE TO SR 75 (US 231)	$2,916,585	$151,181							$3,067,766
220635-8	SR 20 FROM W OF CITY HALL EXIT TO BLACK CREEK BLVD	$4,263,081	$436,504							$4,699,585
220663-7	SR 83 (US 331) FROM NORTH OF SR 20 TO SR 8 (I-10)	$7,541								$7,541
222476-1	SR 8 (I-10) @ SR 95 (US 29) INTERCHANGE	$24,735,524	$266,973,663							$291,709,187
222476-2	SR 8 (I-10) @ SR 95 (US 29) PH I IMPROVEMENTS	$0	$2							$2
222530-5	SR 8 (I-10) FROM W OF SR 10 (US 90) TO LEON CO LINE/OCHLOCKONEE RIVER	$60,157	$1,342							$61,499
222530-6	SR 8 (I-10) FROM GADSDEN CO LINE TO WEST OF SR 263 CAPITAL CIRCLE	$3,086,512	$197,085							$3,283,597
226781-6	TALLAHASSEE INTERNATIONAL AIRPORT TERMINAL REHAB IMPROVEMENTS	$3,402,806								$3,402,806
236079-1	DISTRICTWIDE AVIATION BOX	$0	$59,963	$1,721,078	$815,238	$1,441,927				$4,038,206
237024-1	D/W SEAPORTS BOX	$0	$129,926	$50,000						$179,926
238275-7	SR429/46(WEKIVA PKW) FROM W OF OLD MCDONALD RD TO E OF WEKIVA RIVER RD	$21,547,159	$433,131							$21,980,290
238422-1	SR 25 (US27) FROM N OF BOGGY MARSH RD TO N OF LAKE LOUISA RD	$227,026								$227,026
240200-2	SR429/46 (WEKIVA PKWY) FROM E OF OSPREY HAMMOCK TRAIL TO ORANGE BLVD	$17,603,517	$454,262							$18,057,779
242626-2	I-75 FROM HERNANDO CO LINE TO CR 470	$17,085	$13,894							$30,979
242626-3	I-75 FROM CR 470 TO SR91(FLORIDA TURNPIKE)	$10,808								$10,808
249614-7	SR 997/KROME AVENUE FROM S. OF SW 136TH ST. TO S. OF SR 94/KENDALL DR.	$122,760	$200,000							$322,760
251688-1	SR 836/I-395 FROM WEST OF I-95 TO MACARTHUR CSWY BRIDGE	$80,958,321	$53,031,973	$14,047,918	$12,695,800	$561,802				$161,295,814
252094-1	METROPOLITAN PLANNING ORGANIZATION (MPO) SUPPORT	$1,125,000								$1,125,000
256995-3	SR 688 (ULMERTON RD) FM E OF 49TH STREET TO W OF 38TH STREET NORTH	$393								$393
256997-1	SR 686 (ROOSEVELT) FROM 49TH ST BRIDGE TO N OF SR 688(ULMERTON)	$1,728	$5,953							$7,681
258736-2	I-75 (SR 93) FROM NORTH OF SR/CR 54 TO NORTH OF SR 52	$1,465								$1,465
259122-1	DISTRICT WIDE STRATEGIC INTERMODAL SYSTEMS (SIS) STUDIES - CONTINUING	$2,494,922	$600,000	$600,000	$600,000	$600,000	$600,000	$600,000		$6,094,922

406585-3	SR 8 (I-10) FROM E OF SR 261 CAPITAL CIRCLE TO SR 59 GAMBLE RD	$118,959	$39,619							$158,578
406869-3	I-95 (SR 9) FROM SR 406 TO SR 46	$38	$1,768							$1,806
406869-5	I-95 FROM 0.5 MILE N OF SR 46 TO VOLUSIA CO LINE	$5,803	$3,254							$9,057
407402-3	SR 528 FROM E OF SR524(INDUSTRY) TO EAST OF SR 3	$1,032,026	$5,866,850	$3,119,555	$2,183,320	$200,240				$12,401,991
407402-4	SR 528 FROM EAST OF SR 3 TO PORT CANAVERAL INTERCHANGE	$155,377	$7,023,912	$514,060	$38,480					$7,731,829
407918-5	SR 8 (I-10) INTERCHANGE WEST OF CRESTVIEW	$88,513,558	$16,787,522	$190,000	$20,503,933	$28,390,000	$22,450,000	$8,980,000	$3,986,947	$189,801,960
410674-2	SR 40 FROM END OF 4 LANES TO EAST OF CR 314	$7,143,777	$34,860						$133,525,133	$140,703,770
411011-4	I-75 (SR 93) FM S OF US98/SR50/CORTEZ TO N OF US98/SR50/CORTEZ	$68,132								$68,132
411012-2	I-75 (SR 93) FROM N OF SR 50 TO HERNANDO/SUMTER CO/L	$35,504								$35,504
411014-2	I-75 (SR 93) FROM N OF SR 52 TO PASCO/HERNANDO CO/L	$650,353	$1,214							$651,567
411959-2	I-95/MATANZAS WOODS INTERCHANGE	$4,885	$64							$4,949
412210-3	TALLAHASSEE INTERNATIONAL AIRPORT RUNWAY 18/36 RE-CONSTRUCTION	$8,494,890								$8,494,890
412420-3	SR-9/I-95 FROM NORTH OF GLADES ROAD TO SOUTH OF CONGRESS AVE	$128,453								$128,453
413048-2	SR-9/I-95 @ OSLO ROAD INTERCHANGE	$83,704,054	$7,606,647		$6,200					$91,316,901
413062-4	SR 8 (I-10) FROM SR 281 AVALON BLVD TO OKALOOSA COUNTY LINE	$610,472	$159,107							$769,579
413062-5	SR 8 (I-10) FROM SANTA ROSA COUNTY TO W OF CR 189 LOG LAKE ROAD	$1,534,803	$370,795							$1,905,598
413062-8	SR 8 (I-10) FROM EAST OF SR 87 TO MILLER BLUFF ROAD	$0				$4,950,000				$4,950,000
414964-1	SR 9/I-95 FROM S OF MIAMI GARDENS DRIVE TO BROWARD COUNTY LINE	$27,679,656	$2,364,713							$30,044,369
414964-7	SR 9A/I-95 FROM US-1/SOUTH DIXIE HIGHWAY TO SOUTH OF NW 62ND STREET	$0		$6,700,000			$10,340,000			$17,040,000
414964-8	SR 9A/I-95 FROM SOUTH OF NW 62ND STREET TO NORTH OF NW 143RD STREET	$85,061	$6,200,000			$5,730,000				$12,015,061
414964-9	SR 9A/I-95 FROM NORTH OF NW 143 STREET TO SOUTH OF SR 860/MIA GDNS DR	$0					$5,500,000			$5,500,000
415152-1	SR-93/I-75 INTRCHG@SR-820/PINESBLVD F N OF MIRAMARPKWY T N OF PINESBLV	$3,770,433	$459,654						$190,403,235	$194,633,322
415782-8	SR 263 CAPITAL CIR. FROM N SR 371 ORANGE AVE TO N OF SR 20 B-TOWN HWY	$219								$219
416010-4	TALLAHASSEE REGIONAL AIRPORT ACCESS & ROADWAY REALIGNMENT, SIS	$0	$349,716							$349,716
418321-1	SR 500 (US 17-92) 2 INTERSECTIONS VINE ST AND DONEGAN AVE	$2,140	$6,856							$8,996
418423-5	SR 826/PALMETTO EXPY FROM I-75 TO GOLDEN GLADES INTERCHANGE	$0	$1,157,807							$1,157,807
419243-2	SR 25 (US 27) FROM HIGHLANDS COUNTY LINE TO CR 630A	$367,046	$74,832	$100,000						$541,878
419243-3	SR 25 (US 27) FROM CR 630A TO PRESIDENTS DRIVE	$225,754	$22,816	$50,000				$500,000		$798,570
419345-2	SR-80 FROM W OF LION COUNTRY SAFARI RD TO FOREST HILL/CRESTWOOD BLVD.	$1,832,867	$64,590							$1,897,457
420652-1	SOUTHWEST FLORIDA INT'L ARP - PARALLEL RUNWAY 6R/24L PHASE I	$24,136,615	$2,435,165	$2,627,879	$2,013,068					$31,212,727
421707-8	SR 93/I-75 ML SYSTEM FR S. OF HEFT INTCH. TO MIAMI/DADE COUNTYLINE	$2,848								$2,848
422827-1	PORT OF PALM BEACH PORT-WIDE SLIP REDEVELOPMENT	$1,327,039		$13,000,000						$14,327,039
422904-2	I-275 (HOWARD FRKL) FROM N OF SR687(4TH ST N) TO N OF HOWARD FRANKLAND	$888,870,323	$62,075,674	$9,961,266	$9,961,266	$9,961,266	$9,961,266	$9,961,266	$9,961,266	$1,010,713,593
423071-4	I-75(SR93)@ SR24(ARCHER RD)	$1,167,561	$1,536							$1,169,097
423126-1	SR 836/I-95 INTERCHANGE RAMPS FROM NW 17 AVE TO I-95 (MDX)	$1,297,550	$4,834,546							$6,132,096
423251-1	SR 25/OKEECHOBEE RD. FROM SR 997/KROME AVENUE TO NW 79TH AVENUE	$4,606								$4,606
423251-3	SR 25/OKEECHOBEE RD FROM EAST OF NW 87 AVE TO NW 79 AVE (CONCRETE)	$21,569,363	$55,925,934	$5,780,501			$1,968,000			$85,243,798
423599-2	NORTHWEST FL BEACHES INTERNATIONAL AIRPORT NORTH CONCOURSE EXPANSION	$1,470,000								$1,470,000
423599-3	NORTHWEST FL BEACHES INTERNATIONAL AIRPORT BAGGAGE SYSTEM EXPANSION	$483,499								$483,499
423781-2	DISTRICTWIDE BDI PROJECTS	$1,182,423								$1,182,423
425615-4	DESTIN EXECUTIVE AIRPORT REPAINT/RESTRIPE	$601,231								$601,231
425616-4	BOB SIKES AIRPORT TREE REMOVAL	$300,000								$300,000
425617-2	BOB SIKES AIRPORT CONSTRUCT ACCESS ROADWAY	$621,223								$621,223
425751-1	VERO BEACH REGIONAL AIRPORT REHAB/MARK TAXIWAY B /DESIGN ONLY	$300,000								$300,000
426904-3	I-95 INT @ ST JOHNS HERITAGE PKWY/PALM BAY PK WY N OF MICCO RD	$135,387								$135,387

427369-1	SR 997/KROME AVENUE FROM SW 296 STREET TO S OF SW 232 STREET	$8,702,366	$921,421							$9,623,787
427369-2	SR 997/KROME AVENUE FROM SW 232 STREET TO S OF SW 184TH ST/EUREKA DR.	$6,369,153								$6,369,153
427369-3	SR 997/KROME AVENUE FROM SW 184 STREET TO SOUTH OF SW 136 STREET	$1,348,206								$1,348,206
427454-3	I-75 NB ON RAMP FROM NB US 301 TO I-75 NB	$4,266,805	$60,575							$4,327,380
428358-1	SR 826/PALMETTO EXPY - SR 826 EASTBOUND RAMP TO SR 9A/I-95 NORTHBOUND	$7,222,223	$114,126,167		$10,309,007	$10,309,007	$10,309,007	$10,309,007	$11,363,134	$173,947,552
428364-6	PORT OF PANAMA CITY BERTH 3 DREDGING	$299,999								$299,999
428865-1	I-10 (SR 8) / SR 200 (US 301) INTERCHANGE OPERATIONAL IMPROVEMENTS	$52,572,756	$1,715,047							$54,287,803
428865-2	SR200(US301) @ I-10 IMPROVEMENTS	$941,206	$1,123,436					$15,856,741		$17,921,383
428954-1	I-75(SR93A)NB ON-RAMP FROM EB/WB I-4 TO SOUTH OF BYPASS CANAL	$1,035								$1,035
429251-1	I-75 (SR 93A) FM S OF CSX/BROADWAY AVE TO EB/WB I-4 EXIT RAMP	$106,987,911	$2,119,523							$109,107,434
429271-5	MIAMI INT'L AIRPORT PERIMETER ROAD BRIDGE REPLACEMENT	$0		$961,570	$21,000,000					$21,961,570
429710-1	BOCA RATON AIRPORT SECURITY ENHANCEMENTS PHASE 4	$1,300,000								$1,300,000
430123-1	PORT EVERGLADES NEW BULKHEAD AT BERTHS 9 AND 10	$33,533,333	$31,867,993							$65,401,326
430335-1	I-4 (SR 400) FM E OF I-75 (SR 93A) TO EAST OF WILLIAMS RD	$113,304								$113,304
430596-1	PORT EVERGLADES SOUTHPORT TURNING NOTCH EXPANSION	$27,188,395								$27,188,395
431024-1	FT. LAUDERDALE EXEC. AIRPORT CONSTR. RELOC. OF TAXIWAY FOXTROT-EAST	$326,868								$326,868
431229-2	MIAMI INT'L AIRPORT CENTRAL BASE PAVEMENT REHABILITATION	$14,738,098								$14,738,098
431300-1	TAMPA INTERNATIONAL AIRPORT - TAXIWAY W IMPROVEMENT	$20								$20
431302-1	PORT TAMPA BAY - BIG BEND CHANNEL IMPROVEMENTS	$1,176,898								$1,176,898
432193-1	I-4 MANAGED LANES FROM KIRKMAN TO SR 434	$554,070,044	$81,771,210	$80,354,464	$83,786,087	$84,573,510	$85,369,119	$86,297,578	$87,251,567	$1,143,473,579
432687-1	SR 826 FROM FLAGLER ST TO NW 154 ST. & I-75 FROM SR 826 TO NW 170 ST.	$11,144,173	$18,550							$11,162,723
432969-1	TAMPA INTERNATIONAL AIRPORT - RAMP FEDEX/EMORY AND TAXIWAY K	$0			$970,000					$970,000
433071-2	N 62ND STREET FROM CSX INTRMD ENTRANCE TO NORTH OF E COLUMBUS DRIVE	$11,636,806	$55,251							$11,692,057
433240-1	PORT TAMPA BAY - EASTPORT BERTH DEVELOPMENT	$6,000,000								$6,000,000
433320-1	TAMPA PORT AUTHORITY DREDGING	$8,573,871								$8,573,871
433363-1	PORT OF MIAMI CRUISE TERMINAL IMPROVEMENTS	$39,800,000	$7,554,844	$6,390,526						$53,745,370
433414-1	PORT EVERGLADES DREDGING AND WIDENING	$108,811,413	$6,821							$108,818,234
433511-2	NE 203 STREET INTERSECTION IMPROVEMENTS BETWN SR 5/US-1 & W. DIXIE HWY	$93,025,881	$1,249,336	$2,429,761						$96,704,978
433651-1	CR 484 FROM SW 20TH AVENUE TO CR 475A	$17,904,005	$488,348							$18,392,353
433796-1	US 19 (SR 55) FROM S OF TIMBERLANE RD TO S OF LAKE ST	$19,009	$154			$220,000				$239,163
433880-1	GATEWAY EXPRESSWAY FM SR690 @ US19 & SR686 EXT @ CR611 TO W OF I-275	$19,630,084	$13,052,364							$32,682,448
433899-2	I-95(SR9) @ SR115(US1)/ML KING/20TH STREET	$90,483,232	$1,629,306							$92,112,538
434828-1	PORT OF PANAMA CITY BERTH IMPROVEMENTS/BULKHEAD CAPACITY EXPANSION	$1,682,793	$2,800,000							$4,482,793
434828-3	PORT OF PANAMA CITY BULK STORAGE EXPANSION	$8,875,984								$8,875,984
434833-1	PORT OF PALM BEACH BERTH 1 EXPANSION	$1,250,000								$1,250,000
435130-1	PORT TAMPA BAY - HOOKERS POINT IMPROVEMENTS	$27,175,224	$13,860,000	$6,690,526	$19,428,644	$17,745,606				$84,900,000
435140-2	DISTRICTWIDE FREIGHT CONSULTANT SERVICES	$993,170								$993,170
435226-1	TAMPA INTERNATIONAL AIRPORT - AIRFIELD SLAB REPLACEMENT.	$550,000								$550,000
435575-1	I-295(SR9A) @ US17 TO SOUTH OF WELLS ROAD	$29,143,392	$1,676,052							$30,819,444
435659-2	SR 200 @ I-75/W OF I-75 TO E OF I-75 ADDING LEFT & RIGHT TURN LANES	$1,318,287	$6,214							$1,324,501
435745-1	I-10(SR8) @ SR121 OPERATIONAL IMPROVEMENTS	$10,550,996	$3,268,035							$13,819,031
435754-2	CITY OF MEDLEY FREIGHT PLAN	$78								$78
436122-1	SR 405 SPACEPORT CONNECTOR SIS INTERSECTION IMPROVEMENTS	$4,741,841	$3,585							$4,745,426
436123-1	SR 405 AT SISSON RD SPACEPORT CONNECTOR SIS INTERSECTION IMPROVEMENTS	$1,267,522								$1,267,522
436125-1	WICKHAM RD AT I-95 RAMP IMPROVEMENTS AND MAST ARMS	$5,204,395	$114,477							$5,318,872

436292-1	I-95 INTERCHANGE AT PIONEER TRAIL	$28,735,725	$120,436,570	$27,500						$149,199,795
436397-1	FT. LAUDERDALE/HOLLYWOOD INT'L AIRPORT REHABILITATION OF TAXIWAY T	$3,075,000	$38,000							$3,113,000
436426-1	SR 948/NW 36 ST FROM SR 826/PALMETTO EXPY TO SR 5/ US1	$1,756,180								$1,756,180
436565-1	SR 25/OKEECHOBEE RD. & SR 826/PALMETTO EXPRESSWAY INTERCHANGE	$5,924,301	$164,866,570	$20,378,088			$3,400,000			$194,568,959
436692-1	MIAMI INT'L AIRPORT OPERATIONS AND COMMUNICATIONS CENTER (AOCC)	$4,112,000	$900,000	$4,787,820						$9,799,820
436693-1	MIAMI INT'L AIRPORT TERMINAL HARDSTAND & GSE FACILITY	$5,509,746	$11,000,000	$10,980,508						$27,490,254
436794-1	ST PETE-CLEARWATER INTERNATIONAL AIRPORT - APRON EXPANSION SEPARATION	$9,000,000								$9,000,000
436832-1	TAMPA INTERNATIONAL AIRPORT - REHAB RUNWAY 10/28 E OF RUNWAY 19L	$5,145,880								$5,145,880
437061-1	SARASOTA-BRADENTON INT'L APT N QUAD PUBLIC ASSESS RD-DESIGN AND CONST	$2,014,179								$2,014,179
437650-2	I-75/SR 93A AT GIBSONTON DRIVE	$128,359	$6,284,611	$3,000,000						$9,412,970
437905-1	SR 8 (I-10) E OF ALABAMA STATE LINE TO W OF SR 95 (US 29)	$152,735	$109,809							$262,544
437905-2	SR 8 (I-10) FROM E OF EB WEIGH STATION TO E OF SR 10 (US 90A) 9MI ROAD	$0		$5,500,000	$615,000				$203,215,897	$209,330,897
437905-3	SR 8 (I-10) FROM E OF SR 10 (US 90A) 9 MILE RD TO W OF SR 95 (US 29)	$0		$7,700,000						$7,700,000
437947-1	FREIGHT VILLAGE ANALYSIS STUDY COUNTYWIDE	$700,000	$200,000							$900,000
437949-1	HIALEAH FREIGHT ACCESSIBILITY IMPROVEMENT STUDY	$4,848	$417							$5,265
437999-1	HOMESTEAD FREIGHT IMPROVEMENT PLAN STUDY	$499,181	$148							$499,329
438823-1	NW 25TH STREET VIADUCT TRUCKING IMPACTS	$0		$450,000						$450,000
438842-1	PORTMIAMI TUNNEL FREIGHT MOBILITY EVALUATION STUDY	$3,218								$3,218
438928-2	SR202(JTB) FM EAST OF I-95 TO US1 & US1 FM S OF JTB TO N OF MUSTANG RD	$2,315,611	$1,408,292	$250,056	$29,920,873					$33,894,832
439123-1	SR 519/FISKE BLVD FROM PROSPERITY PLACE TO I-95 NB RAMPS/BARNES BLVD	$10,186,954	$566,889							$10,753,843
439484-1	I-295 INTERCHANGE @ COLLINS ROAD	$8,958,438	$21,911							$8,980,349
439758-1	SR-9/I-95 NORTHBOUND OFF-RAMP AT INDIANTOWN ROAD	$22,534,430	$2,986,482	$120,000						$25,640,912
439761-1	SR-9/I-95 NORTHBOUND AND SOUTHBOUND OFF-RAMPS AT GATLIN BLVD.	$5,634,086	$161,548							$5,795,634
439778-1	SR518/W EAU GALLIE BLVD - E OF I-95 NB OFF RAMP TO W OF INT @ SARNO RD	$2,853,358	$9,560							$2,862,918
439779-1	SR518/W EAU GALLIE BLVD-JONES ROAD TO 200FT E OF I-95 INTERCHG RAMPS	$4,967,879	$9,862							$4,977,741
440225-1	ADAPTIVE SYSTEM ON US 27 FROM HIGHLANDS AVE TO SEBRING PKWY	$2,878,170	$14,836							$2,893,006
440323-1	BREVARD-PORT CANAVERAL NORTH CARGO BERTH IMPROVEMENTS	$56,687,527	$17,788,155		$9,000,000	$9,310,000				$92,785,682
440749-1	US 41/SR 45 AT CSX GRADE SEPARATION FR S OF SR 676 TO N OF SR 676	$6,623,233	$396,038							$7,019,271
440877-1	SITE FEASIBILTY STUDY FOR TRUCK PARKING FACILITIES PHASE II	$500,000								$500,000
440898-1	INSTALLATION OF VARIOUS ITS DEVICES IN ALACHUA COUNTY	$1,603,860								$1,603,860
440900-1	I-75 FRAME ON SYSTEM	$276,232								$276,232
440900-2	I-75 FRAME - ARTERIALS	$258,229								$258,229
441038-1	SR 8 (I-10) FROM W OF CR 189 LOG LAKE RD TO E OF SR 85 FERDON BLVD	$326,368	$17,966							$344,334
441038-2	SR 8 (I-10) FROM W OF CR 189 LOG LAKE RD TO 2MI W WILKERSON BLUFF RD	$3,053,330	$399,782							$3,453,112
441038-3	SR 8 (I-10) FROM 2 MILES W OF WILKERSON BLUFF RD TO E OF YELLOW RIVER	$4,794,472	$1,326,991							$6,121,463
441038-4	SR 8 (I-10) FROM EAST OF YELLOW RIVER TO EAST OF SR 85 FERDON BLVD	$4,966,381	$448,213							$5,414,594
441083-2	I-75/SR 93A SB REST AREA FROM BEG OF SB RAMP TO END OF SB RAMP	$11,896,391	$72,508							$11,968,899
442065-1	CENTRAL FL COMMUTER RAIL SYS POSITIVE TRAIN CONTROL (PTC) MAINTENANCE	$27,870,909	$12,599,847	$5,049,775						$45,520,531
442932-1	SR 44 FROM SOUTHBOUND I-95 TO MEMORIAL MEDICAL PARKWAY	$2,372,453	$8,220							$2,380,673
443316-1	I-4/SR 400 FROM PARK ROAD/WB EXIT RAMP INTERSECTION TO E OF PARK ROAD	$436,663	$1,685,631							$2,122,294
443317-1	I-4/SR 400 FROM WEST OF THONOTOSASSA RD TO EAST OF THONOTOSASSA RD	$793,822	$3,207,604							$4,001,426
443318-1	I-4/SR 400 FROM WEST OF BRANCH FORBES RD TO EAST OF BRANCH FORBES RD	$907,107	$3,841,487							$4,748,594
443319-1	I-4/SR 400 FROM EAST OF EB WEIGH STATION TO EAST OF MCINTOSH ROAD	$894,108	$4,368,753							$5,262,861
443320-1	I-4/SR 400 FROM EAST OF MANGO RD TO W OF WB WEIGH STATION ON-RAMP	$1,864,070	$254,626							$2,118,696
443321-1	I-4/SR 400 FROM WEST OF MANGO RD TO MANGO RD	$676,168	$3,098,569							$3,774,737

443589-1	SR-5/US-1 SOUTH BOUND ON RAMP TO WEST BOUND I-595	$2,819,226	$103,999	$165,582				$800,000	$11,064,558	$14,953,365
443590-1	SR-9/I-95 SOUTH BOUND ON-RAMP FROM PGA BLVD - ADD AUXILIARY LANE	$11,616,697	$603,607							$12,220,304
443702-1	SR 60 EB & WB PASSING LANES FROM BLANKET BAY SLOUGH TO PEAVINE TRAIL	$1,460,390	$2,052,388	$22,324,652						$25,837,430
444434-1	I-4/SR 400 FROM W OF COUNTY LINE ROAD TO COUNTY LINE ROAD	$0		$1,000						$1,000
444623-1	JAXPORT BLOUNT ISLAND UPLAND IMPROVEMENTS	$37,668,914	$6,560,000							$44,228,914
445984-1	GOLDEN GLADES TRUCK TRAVEL CENTER	$2,034,422	$255,234							$2,289,656
446131-1	I-4/SR 400 WB AUXILIARY LANE FROM E OF 50TH ST T W OF MLK JR BLVD	$900,788	$86,093	$4,873,757						$5,860,638
446168-1	SR-68/ORANGE AVE FROM SR-713/KINGS HWY TO E OF SR-9/I-95 SB RAMP	$46,355	$758,659	$462,809	$195,368			$7,362,043		$8,825,234
446325-1	MONROE COUNTY FREIGHT PLAN STUDY	$81,219	$1,799							$83,018
447724-1	TRUCK AND FREIGHT ALTERNATIVE SITE ANALYSIS	$1,995,747	$5,000				$17,500	$17,500		$2,035,747
448123-1	DISTRICTWIDE FREIGHT CONSULTANT SERVICES	$453,001	$200,178	$160,000	$200,000					$1,013,179
448123-2	DISTRICTWIDE FREIGHT CONSULTANT SERVICES					$150,000	$190,000	$150,000		$490,000
449763-1	SR 423 / JOHN YOUNG PARKWAY FROM SR 408 TO SHADER ROAD	$140,523	$893,082							$1,033,605
449764-1	I-75 MILE MARKER 322 TO MILE MARKER 349	$1,136,805	$9,218							$1,146,023
449765-1	I-95 FROM MILE MARKER 274 TO MILE MARKER 294	$815,177	$49,308							$864,485
449961-1	SR-9 (I-95) ST LUCIE SOUTHBOUND REST AREA				$3,683,750	$1,200,000		$28,995,439		$33,879,189
452068-1	SR-9/I-95 AT CONGRESS AVE & PENINSULA CORPORATE DRIVE TRUCK PARKING						$1,755,000			$1,755,000
452069-1	SR-9/I-95 TRUCK MOBILITY & SAFETY ENHANCEMENTS IN BROWARD & PALM BCH.						$1,755,000			$1,755,000
453423-1	PEDESTRIAN SAFETY IMPROVEMENTS TO AIRFIELD DR AND DON EMERSON			$550,000						$550,000
447724-1	Seminole County truck parking facility with 166 proposed parking spots in Seminole			$16,917,708.00	$16,568,643.59		$0.00			$33,486,352
447724-1	Westbound I-4 truck parking facility with 253 proposed parking spots in Volusia County,						$90,430,438.56	$14,473,410.00		$104,903,849
447724-1	Eastbound I-4 truck parking facility with 275 proposed parking spots in Volusia County,							$91,585,603.20		$91,585,603
447724-1	Sand Lake Rd. truck parking facility with 109 proposed parking spots in Orange County,			$4,937,716.20		$40,879,849.92				$45,817,566
447724-1	Osceola County truck parking facility with 257 proposed parking spots in Osceola County,			$1,033,546.20	$7,289,800.00		$75,458,597.76			$83,781,944
72145000	This Truck Parking Project proposes to construct a truck parking facility at the intersection			$6,553,460.48						$6,553,460
70225000	PD&E for the SR 46 Interchange. Recommended alternative will improve operations and					$2,308,000.00				$2,308,000
58002000	Design of the SR 524 Interchange. Recommended alternative (DDI) will improve operations					$3,462,000.00				$3,462,000
79002000	PD&E for the SR 40 (Granada Boulevard) Interchange. Recommended alternative will				$3,916,500.00					$3,916,500
436565-1	SR 25/OKEECHOBEE RD. & SR 826/PALMETTO EXPRESSWAY INTERCHANGE			$149,682,052.91				$3,198,000.00		$152,880,053
447645-2	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT			$5,305,110.00	$55,950.00					$5,361,060
447645-3	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT						$101,235.00	$5,965,500.00		$6,066,735
70220000	PD&E for the US 192 Interchange. Recommended alternative will improve operations and				$2,797,500.00					$2,797,500
72070000	Florida East Coast Railway's (FECRs) Bowden Yard in Jacksonville, FL is currently		$1,168,000.00		$1,601,451.26					$2,769,451
48260000	PD&E for the SR 421 (Dunlawton Avenue) Interchange. Recommended alternative will					$3,462,000.00				$3,462,000
70220000	PD&E for the SR 514 (Malabar Road) Interchange. Recommended alternative will improve				$2,797,500.00					$2,797,500
87260000	SR 953/NW 42 AVENUE WITH SR 948/NW 36 STREET AND SR 25/OKEECHOBEE						$19,651,500.00			$19,651,500
87270000	SR 9A/I-95 FROM S OF MIAMI GARDENS DRIVE TO BROWARD COUNTY LINE		$10,000.00	$114,030.00	$8,756,175.00	$7,189,789.28	$1,969,568.61			$18,039,563
87090000	SR 25/OKEECHOBEE RD FROM EAST OF NW 87 AVE TO NW 79 AVE (CONCRETE);		$27,659,000.00		$283,454,788.56					$311,113,789
72140000	FDOT is proposing to implement a series of median access management controls to US							$15,856,741.80		$15,856,742
87260000	SR 826/PALMETTO EXPY FROM US-1/S. DIXIE HWY TO NW 25TH ST;			$46,812,030.00	$3,468,900.00	$76,923,397.78	$17,440,730.07			$144,645,058
87260000	SR 826/PALMETTO EXPY FROM SR 968/W FLAGLER ST TO S OF NW 154 STREET		$6,600,066.00			$93,248,970.00	$30,996,000.00			$130,845,036
86014000	SR 9A/I-95 FROM NORTH OF NW 143 STREET TO SOUTH OF SR 860/MIA GDNS DR;						$6,550,500.00			$6,550,500
	This project consists of a sidewalk connection and roadway extension to provide pedestrian		-	$597,300.00	$2,845,983.99					$3,443,284
87270000	SR 9A/I-95 FROM SOUTH OF NW 62ND STREET TO NORTH OF NW 143RD STREET;		$3,700,000.00			$6,600,880.00				$10,300,880
10060000	US 41 from south of Pendola Point to Denver Street is a Critical Urban Freight Corridor.		$1,400,000.00	-	-	$5,654,600.00		$23,227,108.44		$30,281,708
87026005	SR 860/MIAMI GDNS/NW 186 ST FROM E OF I-75/SR 93 TO NW 79TH PL; ADD LANES		$2,028,600.00	$18,116,289.28			$595,000.00			$20,739,889
87240000	SR 9/NW 27TH AVENUE OVER MIAMI RIVER - BRIDGE # 870731 & 870763; BRIDGE-		-	$1,040,388.00				$14,031,789.57		$15,072,178

14120000	This project involves widening SR 52 (Schrader Hwy) from the existing two-lane road to a		-			$102,056,130.67				$102,056,131
87090000	SR 25/OKEECHOBEE RD FROM EAST OF NW 87 AVE TO NW 79 AVE (CONCRETE);		$482,598.00	$46,252,028.67				$1,968,000.00		$48,702,627
	This project consists of a sidewalk connection and roadway extension to provide pedestrian							$4,575,642.36		$4,575,642
	US-17 from Copley Ave. to CR-74 (BermontRd.)									$3,050,000
414506-1	SR-70 from Jefferson Ave. to CR-29									$104,430,000
414511-2	US-98 from US-27 to East of Airport Rd.									$36,120,000
419344-3	SR-710 Additional Lanes from US-441 to Martin Co. Line, New Road from SR-70 to US-441									$203,700,000
431334-1	Metro Pkwy. Widening from Daniels Pkwy. to Winkler Ave									$95,000,000
441942-1	SR-31 from SR-80 to SR-78									$142,030,000
436559-1	SR-60 at CSX S-Line Rail Crossing Grade Separation									$58,000,000
	SR-60 Widening from CR 630 to Osceola County Line									$7.830,000
438610-1	I-95 (SR-206) Rest Area Truck Parking									$20,000,000
217910-8	SR-75 (US-231) from SR-368 (23rd St.) to South of Pipeline Rd.									$115,780,000
428058-5	Traffic Management Center/Fiber Deployment									$20,950,000
433113-1	SR-8 (I-10) from Alabama State Line to Weigh Station									$155,850,000
220171-4	SR-85 from SR-123 to I-10									$12,430,000
435513-1	I-95 (SR-9) at SR-842 (Broward Blvd.)									$111,190,000
441693-1	SR-5 (US-1) at Aviation Blvd. FEC Railroad Grade Separation									$51,250,000
431334-1	SR-714 (Monterey Rd.) at FEC Railroad Grade Separation									$2,210,000
440575-2	Atlantic Ave. from East of Lyons Rd. to Turnpike									$5,570,000
440575-4	Atlantic Ave. from Turnpike to Jog Rd.									$28,040,000
231440-3	Midway Rd. Multimodal/Freight Improvements and Florida's Turnpike Connection (M-FITC)									$50,040,000
418403-3	US-17 (SR-600, John Young Pkwy.) Widening and Intersection Improvements									$41,380,000
407402-4	SR-528 from East of SR-3 to Port Canaveral Interchange									$143,500,000
426905-2	St. Johns Heritage Pkwy (Ellis Rd.) from John Rodes Blvd. to West of Wickham Rd.									$43,300,000
437983-1	SR-524 from Friday Rd. to Industry Rd.									$7,400,000
407402-3	SR-528 from East of SR-524 (Industry Rd.) to East of SR-3									$266,300,000
423251-4	SR-25 (Okeechobee Rd.) East of NW 116 Way to East of NW 87 Ave.									$311,720,000
Grand Total		**$3,180,687,054**	**$1,275,087,007**	**$581,778,046**	**$586,173,440**	**$518,254,095**	**$427,119,019**	**$346,554,974**	**$651,793,788**	**$9,596,687,424**

Appendix B: Tier 2 Freight Projects Screening List

Item #	Item Description	2020-2023	2024	2025	2026	2027	2028	2029	2030	Grand Total
447724-1	Seminole County truck parking facility with 166 proposed parking spots in Seminole			$16,917,708.00	$16,568,643.59					$33,486,351.59
447724-1	Westbound I-4 truck parking facility with 253 proposed parking spots in Volusia County,						$90,430,438.56	$14,473,410.00		$104,903,848.56
447724-1	Eastbound I-4 truck parking facility with 275 proposed parking spots in Volusia County,							$91,585,603.20		$91,585,603.20
447724-1	Sand Lake Rd. truck parking facility with 109 proposed parking spots in Orange County,			$4,937,716.20		$40,879,849.92				$45,817,566.12
447724-1	Osceola County truck parking facility with 257 proposed parking spots in Osceola County,			$1,033,546.20	$7,289,800.00		$75,458,597.76			$83,781,943.96
72145000	This Truck Parking Project proposes to construct a truck parking facility at the intersection			$6,553,460.48						$6,553,460.48
70225000	PD&E for the SR 46 Interchange. Recommended alternative will improve operations and					$2,308,000.00				$2,308,000.00
58002000	Design of the SR 524 Interchange. Recommended alternative (DDI) will improve operations					$3,462,000.00				$3,462,000.00
79002000	PD&E for the SR 40 (Granada Boulevard) Interchange. Recommended alternative will				$3,916,500.00					$3,916,500.00
436565-1	SR 25/OKEECHOBEE RD. & SR 826/PALMETTO EXPRESSWAY INTERCHANGE			$149,682,052.91				$3,198,000.00		$152,880,052.91
447645-2	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT			$5,305,110.00	$55,950.00					$5,361,060.00
447645-3	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT						$101,235.00	$5,965,500.00		$6,066,735.00
70220000	PD&E for the US 192 Interchange. Recommended alternative will improve operations and				$2,797,500.00					$2,797,500.00
72070000	Florida East Coast Railway's (FECRs) Bowden Yard in Jacksonville, FL is currently		$1,168,000.00		$1,601,451.26					$2,769,451.26
48260000	PD&E for the SR 421 (Dunlawton Avenue) Interchange. Recommended alternative will					$3,462,000.00				$3,462,000.00
70220000	PD&E for the SR 514 (Malabar Road) Interchange. Recommended alternative will improve		-		$2,797,500.00					$2,797,500.00
87260000	SR 953/NW 42 AVENUE WITH SR 948/NW 36 STREET AND SR 25/OKEECHOBEE		-				$19,651,500.00			$19,651,500.00
87270000	SR 9A/I-95 FROM S OF MIAMI GARDENS DRIVE TO BROWARD COUNTY LINE		$10,000.00	$114,030.00	$8,756,175.00	$7,189,789.28	$1,969,568.61			$18,039,562.89
87090000	SR 25/OKEECHOBEE RD FROM EAST OF NW 87 AVE TO NW 79 AVE (CONCRETE);		$27,659,000.00		$283,454,788.56					$311,113,788.56
72140000	FDOT is proposing to implement a series of median access management controls to US							$15,856,741.80		$15,856,741.80
87260000	SR 826/PALMETTO EXPY FROM US-1/S. DIXIE HWY TO NW 25TH ST;			$46,812,030.00	$3,468,900.00	$76,923,397.78	$17,440,730.07			$144,645,057.85
87260000	SR 826/PALMETTO EXPY FROM SR 968/W FLAGLER ST TO S OF NW 154 STREET		$6,600,066.00			$93,248,970.00	$30,996,000.00			$130,845,036.00
86014000	SR 9A/I-95 FROM NORTH OF NW 143 STREET TO SOUTH OF SR 860/MIA GDNS DR;						$6,550,500.00			$6,550,500.00
	This project consists of a sidewalk connection and roadway extension to provide pedestrian		-	$597,300.00	$2,845,983.99		-			$3,443,283.99
87270000	SR 9A/I-95 FROM SOUTH OF NW 62ND STREET TO NORTH OF NW 143RD STREET;		$3,700,000.00			$6,600,880.00				$10,300,880.00
10060000	US 41 from south of Pendola Point to Denver Street is a Critical Urban Freight Corridor.		$1,400,000.00	-	-	$5,654,600.00		$23,227,108.44		$30,281,708.44
87026005	SR 860/MIAMI GDNS/NW 186 ST FROM E OF I-75/SR 93 TO NW 79TH PL; ADD LANES		$2,028,600.00	$18,116,289.28			$595,000.00			$20,739,889.28
87240000	SR 9/NW 27TH AVENUE OVER MIAMI RIVER - BRIDGE # 870731 & 870763; BRIDGE-		-	$1,040,388.00				$14,031,789.57		$15,072,177.57
14120000	This project involves widening SR 52 (Schrader Hwy) from the existing two-lane road to a		-			$102,056,130.67				$102,056,130.67
87090000	SR 25/OKEECHOBEE RD FROM EAST OF NW 87 AVE TO NW 79 AVE (CONCRETE);		$482,598.00	$46,252,028.67				$1,968,000.00		$48,702,626.67
	This project consists of a sidewalk connection and roadway extension to provide pedestrian							$4,575,642.36		$4,575,642.36
Grand Total			$43,048,264.00	$297,361,659.74	$333,553,192.40	$341,785,617.65	$243,193,570.00	$174,881,795.37	$0.00	$1,433,824,099.16

Appendix C: Tier 1 Freight Projects List (Selected NHFP Projects)

FM	Project	FY25	FY26	FY27	FY28	FY282	FY30	Total
456009-1	Railroad Grade Crossing Separation Study to identify grade separation candidate crossings to be pursued by the District Rail Office. This study will allow us to prioritize projects and allocate funding accordingly. Our District does not have a current listing of grade separation needs and this would be the first step in that process.		$265,000.00					$265,000.00
449737-1	This project will add approximately 25 spaces to the EB and WB rest areas. These additional spaces will alleviate the need for trucks to park along the ramp and shoulder in the area.	$724,720.00		$8,077,335.00				$8,802,055.00
452154-1	Redesign and construct a truck parking facility and driver support facilities at the Jones Loop Road Exit (I-75, Exit 161). Estimated between 125-200 new spaces. Since the intial request, 3 additional distribution centers have been constructed on Piper Rd (less than 1 mile) from the proposed facility.				$20,811,746.00			$20,811,746.00
456008-1	There is approximately an 80-mile stretch along US27 between Lake Wales and Moore Haven that does not have truck parking. The intent of this PD&E is to determine the overall need, size, and location for future truck parking in the area. US27/US98 in Sebring was identified as poential location in D1s Truck Parking White Paper.						$2,045,100.00	$2,045,100.00
210253-7	This project proposes to install a one sided DDI at the I-95 / SR-207 interchange in St Johns County to create a safer and more efficient interchange. Existing interchange experiences backups and projected 2045 LOS is an E. Proposed improvement would improve 2045 LOS to a B. Existing interchange configuration has three phases at each signal with 10 signal-controlled conflict points. The one sided DDI has two phases at each signal with 7 signal-controlled conflict points. SR-207 serves as a key east / west route connecting I-95 to areas west of the St Johns River, adjacent bridges are over 30 miles north & south of SR207. In the northwest quadrant of the interchange there is approximately 1M sqft of warehousing space housing KeHe distributors, 84 lumber, Conagra, and Q-Pack. Additionally SR207 serves as a key route for freight in the northeast Florida region, serving the agricultural communities of Hastings, Elkton, and Spuds. These communities largely grow potatoes & provides a large percentage of raw product used by Lays potato chips.		$3,811,828.45					$3,811,828.45
437905-2	SR-8 (I-10) from EB Weigh Station to Nine Mile Rd.	$5,500,000.00						$5,500,000.00
437905-3	SR-8 (I-10) from Nine Mile Rd. to US-29	$7,700,000.00						$7,700,000.00
422681-5	This project will fund a PD&E/EMO study to evaluate reconstruction and adding lanes on SR-9/I-95 , increasing it from six lanes to eight lanes, from south of High Meadows Avenue to the Martin/St. Lucie County Line. The length of this project is approximately 10.918 miles. Truck parking scope is being proposed to include in PD&E scope. Item Segment Comments: R/W NOT NEEDED A PROJECT DEVELOPMENT AND		$500,000.00					$500,000.00

	ENVIRONMENT (PD&E) STUDY THAT WILL EVALUATE THE NEED TO WIDEN SR-9/I-95 AND ADD MANAGED LANES FROM SOUTH OF HIGH MEADOW AVENUE IN MARTIN COUNTY TO THE MARTIN COUNTY/ ST. LUCIE COUNTY LINE. THE PURPOSE OF THE STUDY IS TO IMPROVE TRAFFIC FLOW AND SAFETY IN THE AREA.			
422681-6	This project will fund a PD&E/EMO study for evaluating the reconstruction and addition of 2 managed lanes and bridge widening/replacement on I-95, increasing /Okeechobee Rd from 6 lanes to 8 lanes, from the Martin/St. Lucie County line to SR-70. According to the SR-9/I-95 Multimodal Master Plan, the I-95 PD&E Study (422681-6) will include improvements on the following facilities: I-95 NB and SB Braided Ramps, St. Lucie West Boulevard, Gatlin Boulevard, Crosstown Parkway, SR-70/Okeechobee Road, Becker Road, and Midway Road. Truck parking scope is being proposed to include in PD&E scope.	$2,680,000.00		$2,680,000.00
435808-1	For this project, phase 32 funds can be earliest utilized in FY 25 (District 4 priority), or moved to FY 26. This project is not for construction but encompasses design funds under the contract FM# 435808-1, which includes five separate construction projects. Resurface Commercial Blvd from CL I-95 to NW 12th Ave (Seq 2, 3, 6). Resurface Powerline Road from NW 47th Street to north of NW 53rd Ct (Seq 10, 12). Widen Commercial Blvd EB from Powerline Road to Railroad with one thru lane (Seq 4). Widen Commercial Blvd WB to NW 12th Ave with one right turn lane and from Powerline Road to east of NW 12th Ave with one thru lane (Seq 5, 8). Widen Cypress Creek Road EB to Powerline Road with one right turn lane (Seq 7). Widen Powerline Road NB to Commercial Blvd EB with one right turn lane and from Commercial Blvd to NW 51st Pl with one thru lane (Seq 11, 13). Construct 7’ bike lanes on Commercial Blvd WB and EB, and Powerline Rd NB and SB (Seq 9, 14).	$1,492,050.00		$1,492,050.00
436519-1	Project will widen and resurface 45th Street, including four cantilever signs, one ADMS pole, and replacing ADMS cantilever (Seq 1, 2, and 3), along with I-95 off-ramps at 45th Street, encompassing one span sign structure at each ramp, as well as resurfacing and widening N Congress Ave (Seq 5) and Corporate Way (Seq 6). Item Segment Comments: PD&E WHICH RESULT IN WIDENING THE I-95 EXIT RAMPS & 45TH STREET FROM VILLAGE BLVD. TO SOUTH PLACE. DDI - PD&E ALTERNATIVE 22-01 TRAFFIC PROJECTIONS, SURVEYS, ETDM ACTIVITIES 22-02 PRIMARY PD&E CONSULTANT (SEE WP45 SCREEN) 22-02(CONT) PROJECT CONSISTS OF CONSTRUCTING A 8-LANE TUD INTERCHANGE TO IMPROVE CAPACITY ON 45TH STREET FROM NORTHPORT BLVD TO N CONGRESS AVENUE. OTHER WORK INCLUDES LIGHTING, BIKE LANES, SIDEWALKS, AND ITS.32-02 VE STUDY 32-02 VE STUDY 8/24/2022: PROJECT IS IN DESIGN AND RIGHT OF WAY ACTIVITIES TO SUPPORT THIS CAPACITY PROJECT.		$18,596,928.00	$18,596,928.00
443589-1	SR-5/US-1 Southbound On-Ramp to Westbound I-595		$9,869,580.00	$9,869,580.00
449819-1	This funding request is to address freight safety and capacity. This project includes resurfacing and widening of SR-25/US-27 north of SR-818/Griffin Rd to north of Sawgrass Recreation Park. Sequence 1 includes resurfacing and outside shoulder widening to 10' paved and 2' unpaved as well as chevron signs in curves. Sequence 2 includes 950' SB left turn lane into the truck stop north of Griffin Rd. Sequence 3	$205,800.00		$205,800.00

	includes NB right turn lane into the truck stop and widening of bridge 860303 north of Griffin Rd.			
452068-1	For this project, phase 52, 61, and 62 funds can be earliest utilized in FY 28 (District 4 priority), or moved to FY 29 or FY 30. SR-9/I-95 AT Congress Ave & Peninsula Corporate Drive Truck Parking. Construct new truck parking spots in what is currently a paved Park-and-Ride lot. Proposed minimum site criteria includes a pavilion, seating areas, restroom facilities, and Truck Parking Availability System (TPAS). This project was identified by the FDOT D4 Truck Parking Assessment Memorandum 2023.	$599,771.32	$3,806,805.00	$4,406,576.32
452661-1	This funding will support advancing the design phase of a project that expands truck parking at the SR-9/I-95 St Lucie Northbound Rest Area.		$3,453,060.00	$3,453,060.00
454279-1	For this project, phase 52, 61, and 62 funds can be earliest utilized in FY 28 (District 4 priority), or moved to FY 29 or FY 30. This project will provide a new truck parking location at the Broward Boulevard Park-and-Ride lot. Proposed minimum site criteria includes a pavilion, seating areas, restroom facilities, and Truck Parking Availability System (TPAS). This project addresses Jason's Law by providing safe and secure parking facilities for commercial motor vehicles on the NAtional Highway System. Additionally, it aligns with the objectives set forth in the FDOT's Freight Mobility and Trade Plan (FMTP) 2020.		$10,904,400.00	$10,904,400.00
446445-2	I-4 EB Rest Area [Cost Increase] The purpose of this project is to build a new designated truck parking facility on I-4 about 4.8 miles west of I-95 at the location of the former rest area. Due to economic growth and the resulting increase in the demand for the delivery of goods, the need for safe parking facilities along our Interstates has become a critical issue for all drivers and our I-4 communities. This project will provide needed truck parking space to serve regional freight parking demand and enhance safety and mobility. The Volusia County eastbound facility will be accessed using entrance and exit ramps on I-4. The eastbound I-4 facility in Volusia County would cover about 73.3 acres and have room for an estimated 275 truck parking spaces. A restroom facility is proposed at the truck parking site. Wildlife fencing and wildlife sensitive lighting will be provided due to the proximity of the existing wildlife crossing. Landscaping will also be included. The site is one of five potential sites identified along the I-4 corridor from Osceola County to Volusia County. The preferred locations were determined during a Project Development and Environment (PD&E) Study, which is expected to finish in Summer 2024.	$7,535,230.00		$7,535,230.00
446445-3	PRIORITY ----- Sand Lake Rd. truck parking facility with 93 proposed parking spots in Orange County, Florida. Site identified per Jason's law and as a part of D5 Truck Parking PD&E (447724-1) to increase truck parking on I-4 within D5. This Orange county site needs Design funding to complete the PDE (planning consistency) and		$4,500,000.00	$4,500,000.00

	fund the Design Phase. It is the last site to be funded in the 5 site I-4 truck parking site program. Design and Construction needed only, ROW already owned.							
440877-1	PLANNING STUDY FOR THE DEVELOPMENT AND EVALUATION FOR A TRUCK PARKING FACILITY ON PARCELS OF LAND UNDER THE CONTROL OF THE FDOT			$1,378,808.61	$1,465,649.59	$2,813,375.43	$29,793,299.96	$35,451,133.59
449665-1	SR 9A/I-95 OVER MIAMI RIVER, BRIDGES 870356		$704,970.00					$704,970.00
446132-1	This project involves intersection improvements to 6-lane dived roadway, raised median with curb and improved sidewalk. This tract is considered disadvantaged because it meets more than 1 burden threshold AND the associated socioeconomic threshold. Requesting $1.00 million to cover cost increase in FY27.		$6,400,267.00					$6,400,267.00
		$15,622,570.00	$21,897,295.45	$10,055,914.93	$45,374,323.59	$20,977,640.43	$41,707,979.96	$155,635,724.36

FMTP24

FREIGHT MOBILITY AND TRADE PLAN

Freight & Rail Office
Florida Department of Transportation
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FDOT

FMTP24
FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY AND TRADE PLAN

Technical Memorandum 7
Investments

FDOT

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TABLES

List of Acronyms

AWP	Adopted Work Program
BIL	Bipartisan Infrastructure Law
CFP	Cost Feasible Plan
CRFC	Critical Rural Freight Corridors
CUFC	Critical Urban Freight Corridors
FAST	Fixing America's Surface Transportation Act
FDOT	Florida Department of Transportation
FMTP	Freight and Mobility Trade Plan
FRO	Freight & Rail Office
FTP	Florida Transportation Plan
IIJA	Infrastructure Investment and Jobs Act
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
SIS	Strategic Intermodal System
STIP	State Transportation Improvement Program
VICC	Vertically Integrated Cargo Community

Fiscally Constrained Funding Plan

The Freight and Mobility Trade Plan (FMTP) is the dedicated funding document for Florida's National Highway Freight Program (NHFP) funds; it establishes a 5-Year Fiscally Constrained Freight Investment Plan. This technical memorandum is meant to guide near future investments while ensuring compliance with Infrastructure Investment and Jobs Act (IIJA) requirements. The IIJA's increased focus on intermodal projects is a critical update to this plan and an important aspect of future NHFP project selection and will provide the lens by which this FMTP investment element is organized. The NHFP projects represented in this chapter were all selected utilizing the FMTP prioritization process which was outlined in Tech Memo 6.

Current Investments

Florida leverages discretionary grant opportunities, the NHFP, and the Florida Department of Transportation (FDOT) funds to deliver its freight projects. Florida has historically been apportioned $65 million per year in NHFP funds, which incrementally rises every year and is expected to be over $70 million yearly from 2025 forward. Between 2017 and 2025, there has been $513 million provided for 85 NHFP projects with a further $289 million expected between 2026 and 2030. A further set of freight-focused projects within FDOT's Adopted Work Program totaling just over $6 billion between 2020 and 2030 provides funding for 204 projects supportive of the FDOT freight objectives as established in the FMTP. These projects have wide-ranging implications on the Florida freight network and the Florida Transportation Plan (FTP) strategic goals. FDOT's Strategic Intermodal System (SIS) also plays a vital role in meeting immediate and long-term freight needs. Between 2024 and 2028, SIS has dedicated $16.9 billion to programming projects that potentially affect freight.

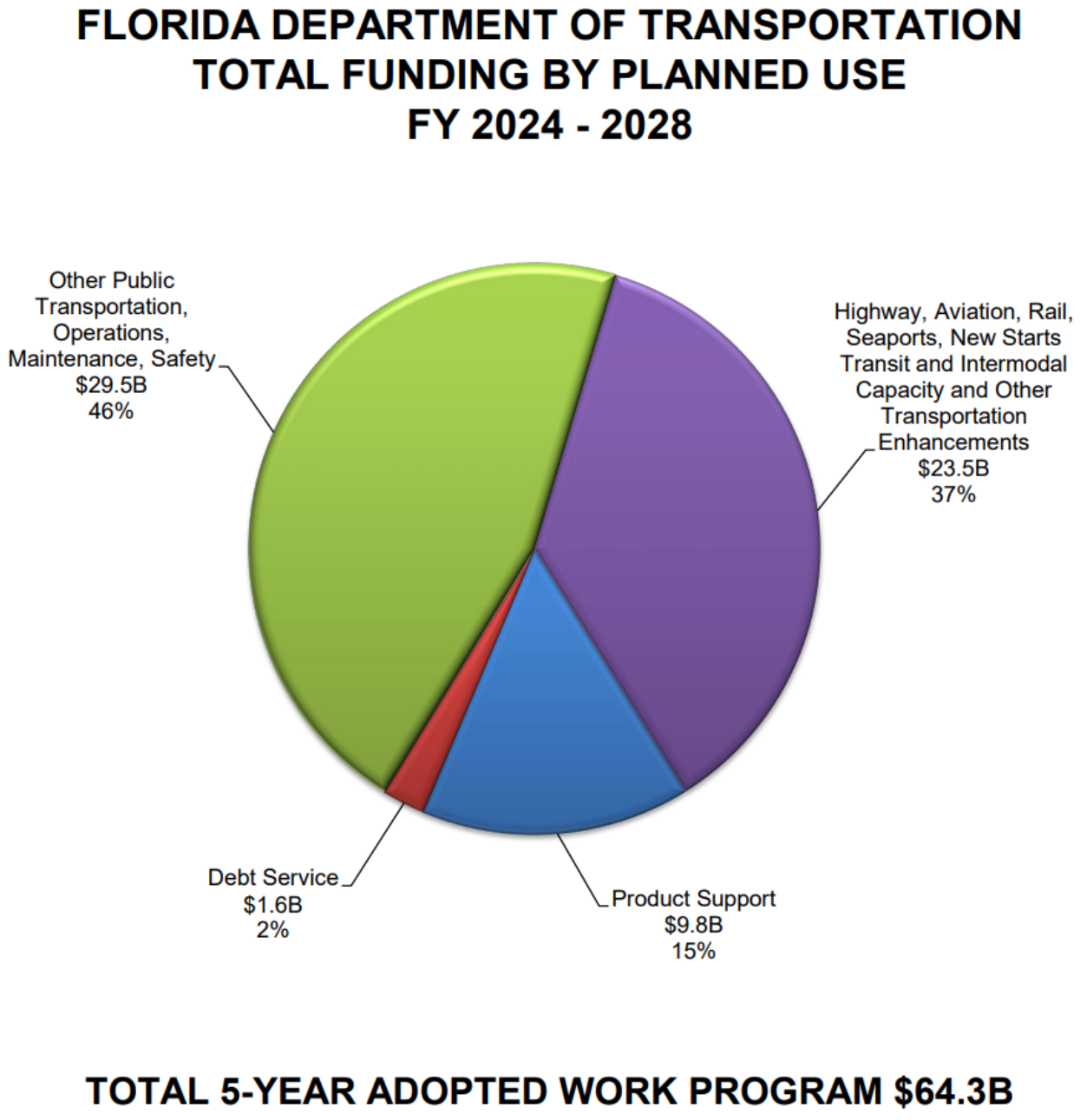
Adopted Work Program – All FDOT Funds

FDOT utilizes a series of investment systems to support freight across Florida. The Adopted Work Program (AWP) is a catch-all funding document that catalogues all the funds collected by the state for the express purpose of funding FDOT projects.

The AWP covers projects over the next five years at a value of $64 billion.[1] As shown in Figure 1, $23.5 billion, or 37 percent of the $64 billion, are utilized specifically for projects such as Highway, Aviation, Spaceports, Rail, Seaports, Transit and Intermodal Capacity, and Other Transportation Enhancements. These projects span the variety of systems supporting all FDOT offices inclusive of freight, safety, and capacity.

[1] FiveYearWorkProgramCharts.pdf (state.fl.us)

Figure 1 | Adopted Work Program Totals



Freight Funding in Adopted Work Program

Within the AWP there is a significant set of freight-focused projects (204) that are of strategic importance to achieving FMTP objectives. Totaling $6 billion from 2020-2030 (Table 1), these projects are designated with the group identifier FRGT (freight). The projects have been designated due to their impact on the Florida freight system. The projects utilize multiple funding sources from across FDOT. Table 2 shows FRGT identified projects by total investment in each work mix type.

Table 1 | AWP FRGT Identified Estimated Project Funding

Fiscal Year	Estimated Funding
2020	$1,459,876,499
2021	$685,605,800
2022	$405,979,311
2023	$629,225,444
2024	$1,232,038,743
2025	$284,416,386
2026	$252,620,248
2027	$176,468,477
2028	$183,925,449
2029	$171,673,179
2030	$651,793,788
Total	**$6,133,623,324**

Table 2 | AWP FRGT Identified Project Types and Funding 2020-2030

Project Type	Estimated Funding total
Capacity	$3,906,941,024
Airport Expansion	$147,683,987
Bridge Maintenance	$1,226,262,987
Rail Capacity	$96,704,978
ITS	$41,753,529
ILC	$45,520,531
Seaport Expansion	$522,234,431
Truck Parking	$45,848,088
Studies	$100,673,769

Strategic Intermodal Systems

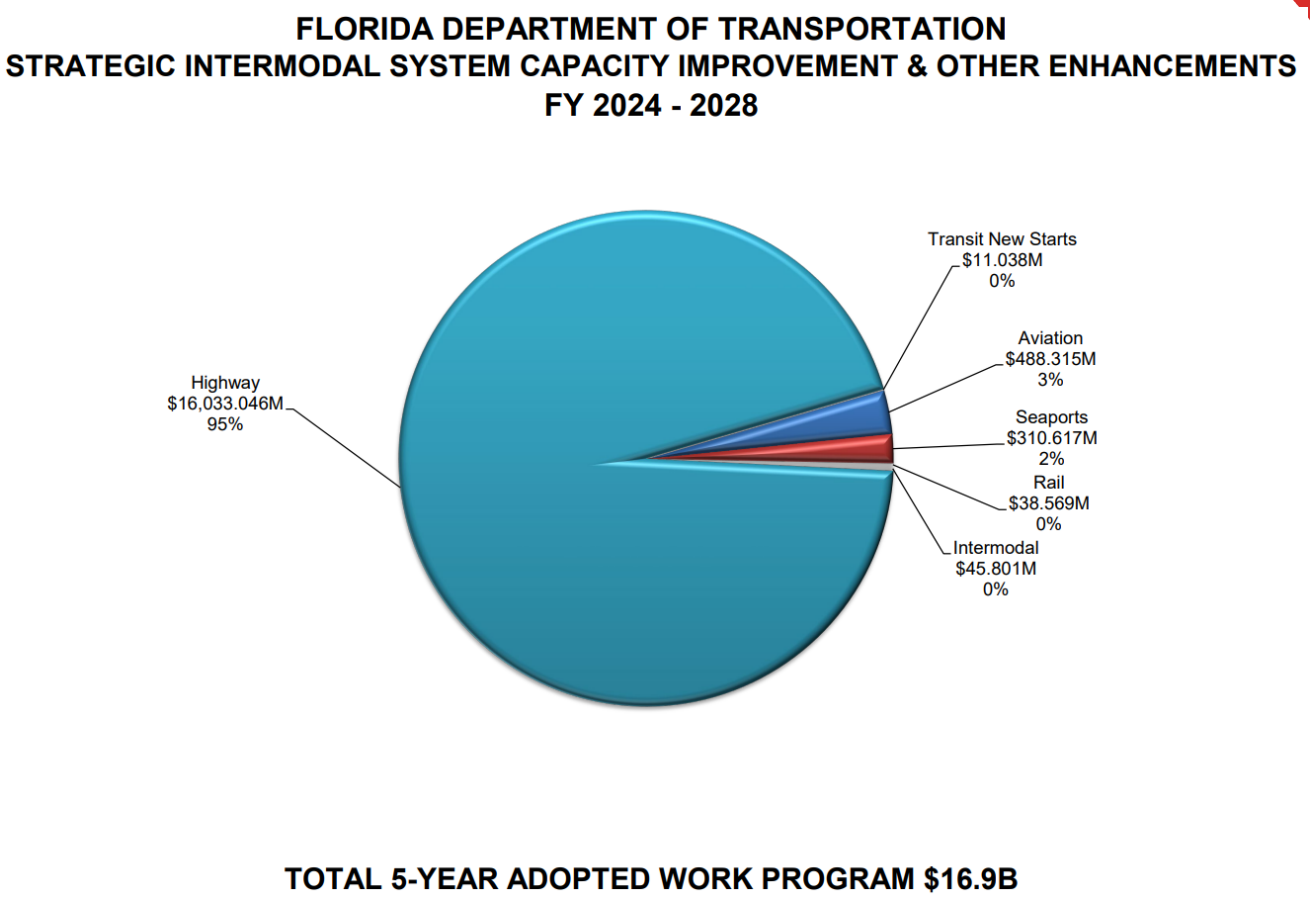
Certain programs listed within the AWP support freight more directly than others, with the SIS network affecting highway freight the most. All highway projects in the SIS First Five Year Plan are of strategic significance to Florida freight networks. With over 70 percent of Florida truck traffic travelling through the SIS network, all SIS highway investments promote freight efficiency.[2]

The SIS plans are an important tool for FDOT in meeting existing and immediate freight needs. Their effectiveness hinges on how well the projects align with freight needs and priorities. Due to the expansive nature of the SIS network and its overlap with the National Highway Freight Network (NHFN), even those projects that are not directly managed by the Freight & Rail Office (FRO) influence freight movement on Florida's highways and seaports. Analysis of the project types and priorities show that reliability and safety are the two most important goal areas to stakeholders and to the SIS network. This aligns with the FMTP goals.

Within the AWP is the SIS First Five Year Plan, a major set of encumbered funds totaling $16.9 billion for supporting freight and transit systems (Figure 2). Beyond this five-year horizon are the SIS Second Five-Year Plan which sets funding for years 6-10 and the SIS Cost Feasible Plan (CFP) which sets funding from 2035-2050. The CFP has a much broader vision which includes over $30 billion in funds over that period.[3] The SIS First Five Year Plan represents the projects that are funded by the legislature in the Work Program (Year 1) and projects that are programmed for proposed funding in the next two to five years.

[2] https://www.fdot.gov/planning/systems/programs/mspi/plans/
[3] ibid

Figure 2 | SIS Totals by Mode



NHFP Funding

Florida is estimated to be apportioned an average of $70 million in NHFP funds per year through 2030 (Table 3). Appendix A lists all the projects with existing or planned NHFP funding pursuant to the IIJA. Figure 3 shows the locations of these projects.

Table 3 | NHFP Funding and Spending Summary

Fiscal Year	Estimated NHFP Funding* **	Estimated NHFP Project Cost ***	Estimated Cumulative Spending
2016	$53,926,568	$-	
2017	$51,581,934	$38,711,324	$38,711,324
2018	$56,271,202	$78,797,882	$117,509,206
2019	$63,305,102	$39,008,237	$156,517,443
2020	$70,339,002	$62,081,026	$218,598,469
2021	$69,530,857	$18,809,853	$237,408,322
2022	$65,707,643	$66,443,413	$303,851,735
2023	$67,021,795	$92,316,941	$396,168,676
2024	$68,362,231	$53,061,209	$449,229,885
2025	$69,729,476	$64,176,837	$513,274,597
2026	$70,000,000	$71,601,285	$584,875,882
2027	$70,000,000	$57,649,882	$642,525,764
2028	$70,000,000	$58,050,446	$700,576,210
2029	$70,000,000	$60,581,243	$761,157,453
2030	$70,000,000	$41,707,980	$802,865,433
Total	$985,775,810	$802,997,558	

* FY 2016-2024 based on Highway Apportionments under the FAST Act, Bipartisan Infrastructure Law. FY 2025 and beyond estimated at similar funding levels

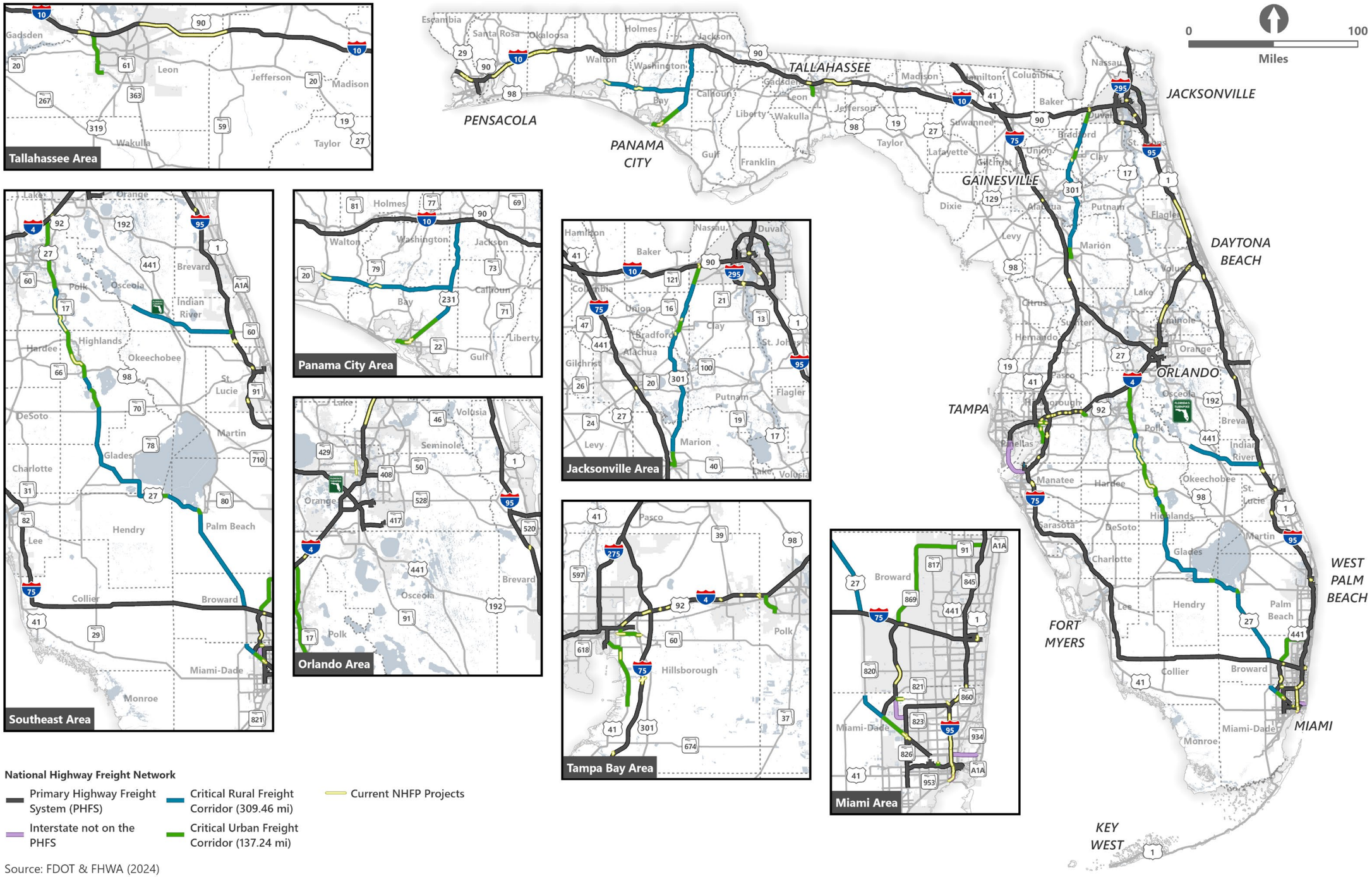
** These values represent totals before post-apportionment set asides; before penalties; and before sequestration as directed by FHWA and IIJA

*** Some totals roll over from year to year leading to higher cost estimates than NHFP estimates

https://www.fhwa.dot.gov/fastact/funding.cfm

https://www.fhwa.dot.gov/bipartisan-infrastructure-law/funding.cfm

Figure 3 | NHFP Project Map



Source: FDOT & FHWA (2024)

NHFP Funding by Type

The NHFP funded projects are selected based on their priority, cost, and ability to improve freight bottlenecks, congestion, level of service, and other factors in freight mobility. Projects with anticipated NHFP funding include truck parking, operational improvements, roadway widening, and interchange construction. Table 3 summarizes Florida's yearly allotment of NHFP funds. Table 4 shows project types and investment totals for the NHFP. Those projects anticipated to receive NHFP funds can be found in Appendix A.

Table 4 | 2017-2030 Total NHFP Funding by Project Type

Project Type	Estimated Funding
Capacity	$465,519,461
ITS	$34,993,853
Pre-Planning	$114,946,266
Truck Parking	$149,018,540
Bridge	$38,519,438
Total	**$802,997,558**

NHFP Match

NHFP investments are supported by a significant match of state and local funds pursuant to IIJA/Fixing America's Surface Transportation (FAST) Act requirements. Totaling over $1 billion, these matching funds are utilized in conjunction with NHFP funding to ensure project needs are met from the local to state level. Appendix B provides more detail on matching funds.

Freight Projects Across the Modes

The NHFN and its supporting systems are a critical asset by which the growing Florida economy is supported. The nature of the NHFN directs funding mainly toward highway projects; however, to maintain the ability of the freight highway system to support this growth, intermodal systems will need to be utilized as a higher mode share. FDOT has a Modal Development Work Program total of $6.4 billion between FY2024 and FY2028 allocated for aviation, transit, seaports, intermodal access, rail, and transportation disadvantaged communities.[4] While FDOT maintains plans and investment portfolios for these mode shares, the FMTP will relate to those as the increased need for intermodal connectivity has become a critical aspect of both Florida and the IIJA. The following snapshots show a closer look at FDOT modal investments.

Seaport Investments

Florida is the gateway to the Southern Hemisphere and that is no more evident than in the network of deepwater seaports supporting domestic and international trade. Strategic investments at Florida's seaports have focused on positioning the state for future growth. As ships around the world are being built bigger, Florida is continuing to invest in channel and harbor dredging and deepening to accommodate them, as well as additional intermodal access to improve the throughput of additional cargo. With $0.6 billion in total funding through FY28 across multiple funding sources, the extra 30 percent in intermodal additions from the NHFP will be a critical asset to reducing the costs of transition between seaport and highway freight. Figure 4 highlights a few of the recent port projects as well as the funding sources that are used for seaport investments.

Railroad Investments

Florida's railroads carried 39.5M originated rail tons and 57.2M rail terminated tons across 3,858 miles of track in 2021, moving everything from general merchandise and construction aggregates to specialized goods such as compressed fuels and natural gasses, and providing an alternative to highway freight movement. Rail service is critical to everything from South Florida crops moving out of state to Jacksonville's roll-on/roll-off cargo. With $0.8 billion in funding across multiple funding sources from FY24-28, investment in freight rail will continue as a critical mode of freight movement in the state. Figure 5 highlights a few of the recent FDOT freight rail investments as well as the funding sources that can be used for them.

[4] FiveYearWorkProgramCharts.pdf (state.fl.us)

Figure 3 | Seaport Investments

Example Seaport Investments

- Port Panama City Master Plan, Bulkhead Capacity & Bulk Storage Infrastructure
- Seaport Manatee Intermodal Cargo Yard Expansion Berth 4 Rehab & Expansion
- Port Canaveral North Cargo Berths 3 & 4 Mobile Harbor Crane
- JAXPORT Channel Deepening & Widening Blount Island Berth Improvements

Funding

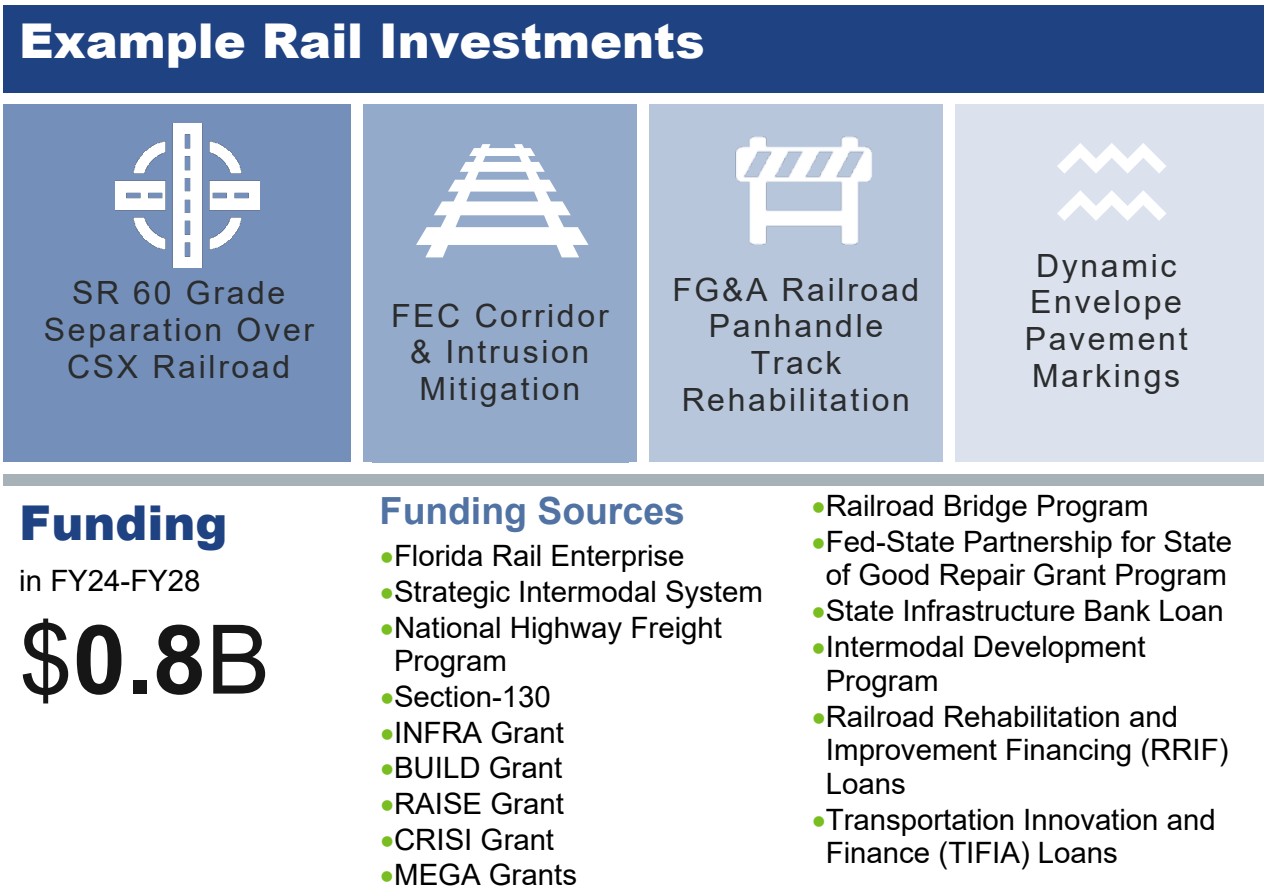
in FY24-FY28

$0.6B

Funding Sources

- FSTED Funds
- Strategic Port Investment Initiative (SPII)
- The Seaport Investment Program Bond Funds
- Strategic Intermodal System
- State Infrastructure Bank (SIB) Loans
- FDOT District Intermodal Funds
- Seaport Operations
- Local or Federal Government Programs
- Public Private Partnerships

Figure 4 | Freight Rail Investments

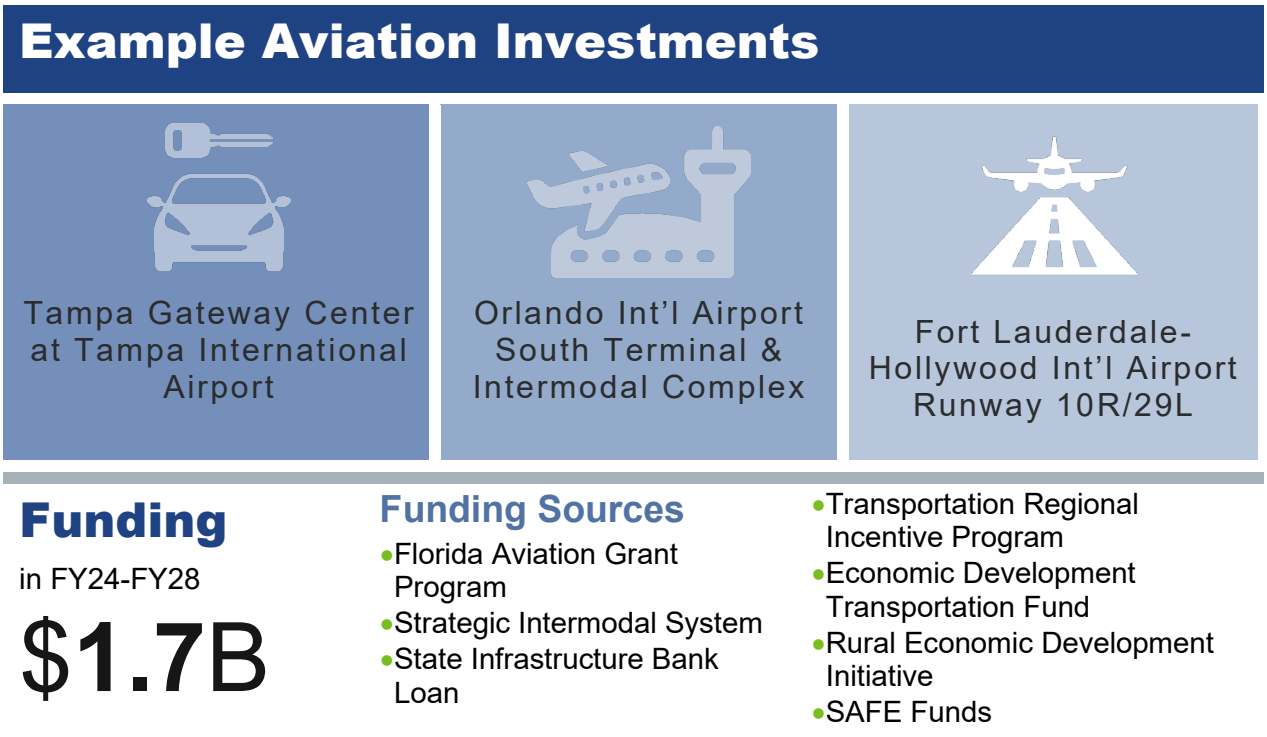


Airport Investments

Florida's airports are a cornerstone of the state's global economy. In particular, Florida's international airports handle significant and increasing air cargo volumes, with Miami International Airport leading the way as America's busiest airport for international freight.[5] To combat land availability issues, MIA is investing in a Vertically Integrated Cargo Community (VICC) that would stack cargo vertically and create capacity to process 4.95 million tons of cargo per year – nearly double what the entire airport handles now.[6] Investments made into Florida's airports ensure that they remain a viable alternative for critical need and high value freight. With $1.7 billion in investments through FY28, airports are poised to remain a lynchpin of Florida's intermodal freight systems. Example projects and funding sources are shown in Figure 6.

[5] https://miami-airport.com/about_us.asp
[6] https://miamiairportwarehouses.com/miami-dade-to-consider-proposal-for-1-1b-cargo-hub-at-mia/

Figure 5 | Airport Investments

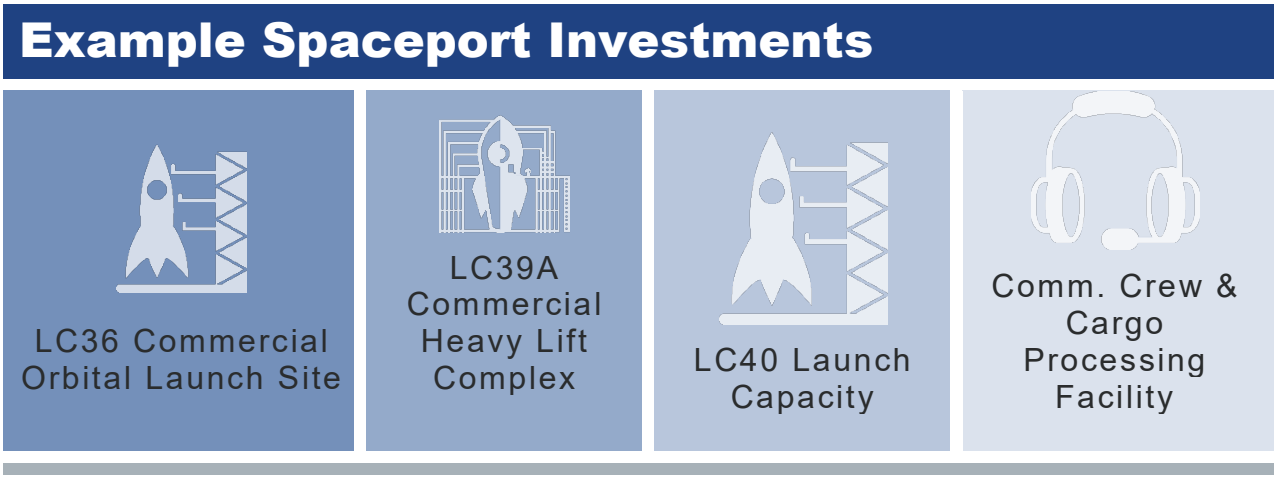


Spaceport Investments

The space industry in Florida is a growing economic and freight generator with unique funding mechanisms. As launches become more frequent with increases in private sector investments, it is critical to ensure that the freight needs of this high-value industry are met. Through 2028, approximately $600 million is programed in the 5-Year Work Program for Spaceport Improvement Program (SIP) projects. Most of the program funds are used for capital improvements and a small percentage is used to support program implementation.[7] Continued funding made through commercial investment, the SIP, as well as the SIS network and NHFN, will ensure that connections to Florida's spaceports are safe and secure for increased space flight capacity. Figure 7 shows example investments and funding sources.

[7] Spaceport Improvement Program, 2023-2024

Figure 6 | Spaceport Investments



Summary

This technical memorandum outlines the currently allocated fiscally constrained funding for the next five years. This fiscally constrained funding plan meets FAST ACT and Bipartisan Infrastructure Law (BIL)/IIJA requirements and represents an important implementation tool for FDOT. Implementation of these projects and the FMTP strategies are necessary to solve critical freight mobility needs as identified by analysis and stakeholder input.

Appendix A: NHFP Funded Projects Yearly Totals

District	Item	Item Description	2017-2024	2025	2026	2027	2028	2029	2030	Total NHFP
Cont.	**439240-1**	NATIONAL FREIGHT PROGRAM - HIGHWAYS		**$15,749,176**	**$1,335,465**	**$6,727,405**	**$7,387,663**	**$3,943,981**	**$23,229,330**	**$58,373,020**
1	419243-2	SR 25 (US 27) FROM HIGHLANDS COUNTY LINE TO CR 630A	$350,000	$100,000						$450,000
	440225-1	ADAPTIVE SYSTEM ON US 27 FROM HIGHLANDS AVE TO SEBRING PKWY	$525,999	$207						$526,206
	449737-1	I-4 REST AREAS IN POLK COUNTY - ADDITIONAL TRUCK PARKING		$724,720		$8,077,335				$8,802,055
	452154-1	I-75 AT JONES LOOP TRUCK PARKING	$1,750,000				$20,811,746			$22,561,746
	453423-1	PEDESTRIAN SAFETY IMPROVEMENTS TO AIRFIELD DR AND DON EMERSON		$550,000						$550,000
	456007-1	PORT MANATEE TRUCK PARKING				$2,732,500				$2,732,500
	456008-1	US27 TRUCK PARKING SITE PD&E							$2,045,100	$2,045,100
	456009-1	RAILROAD GRADE CROSSING SEPARATION STUDY			$265,000					$265,000
2	209537-9	SR201(US301A)BALDWIN BYPASS AT BRANDY BRANCH RD TRUCK PARKING						$6,683,134		$6,683,134
	210253-7	I-95(SR9) AT SR207			$3,811,828					$3,811,828
	428865-2	SR200(US301) @ I-10 IMPROVEMENTS	$867,532	$281,154				$17,715,393		$18,864,079
	433899-2	I-95(SR9) @ SR115(US1)/ML KING/20TH STREET	$54,639,179	$1,271,263						$55,910,442
	435575-1	I-295(SR9A) @ US17 TO SOUTH OF WELLS ROAD	$24,279,440	$949,093						$25,228,533
	438928-2	SR202(JTB) FM EAST OF I-95 TO US1 & US1 FM S OF JTB TO N OF MUSTANG RD	$3,281,292	$240,186	$20,796,173					$24,317,651
	447199-1	SR200(US301) @ SR223(US301A) SOUTH OF STARKE	$758,100	$41,977						$800,077
3	217615-1	DISTRICTWIDE CEI IN HOUSE BOX PGM 6100 CONTINGENCY		$11,924						$11,924
	217910-7	SR 75 (US 231) FROM SR 30A (US 98) 15TH ST TO SR 368 23RD STREET	$12,862,625	$177,459						$13,040,084
	220635-8	SR 20 FROM W OF CITY HALL EXIT TO BLACK CREEK BLVD	$4,290,051	$384,949						$4,675,000
	222530-6	SR 8 (I-10) FROM GADSDEN CO LINE TO WEST OF SR 263 CAPITAL CIRCLE	$2,697,090	$39,751						$2,736,841
	406585-3	SR 8 (I-10) FROM E OF SR 261 CAPITAL CIRCLE TO SR 59 GAMBLE RD	$2,065,993	$34,007						$2,100,000
	413062-4	SR 8 (I-10) FROM SR 281 AVALON BLVD TO OKALOOSA COUNTY LINE	$2,943,641	$138,335						$3,081,976
	413062-5	SR 8 (I-10) FROM SANTA ROSA COUNTY TO W OF CR 189 LOG LAKE ROAD	$1,662,135	$176,192						$1,838,327
	413062-8	SR 8 (I-10) FROM EAST OF SR 87 TO MILLER BLUFF ROAD				$4,950,000				$4,950,000
	437905-2	SR 8 (I-10) FROM E OF EB WEIGH STATION TO E OF SR 10 (US 90A) 9MI ROAD		$5,500,000						$5,500,000
	437905-3	SR 8 (I-10) FROM E OF SR 10 (US 90A) 9 MILE RD TO W OF SR 95 (US 29)		$7,700,000						$7,700,000
	440300-6	EAST AVE FROM PORT ENTRANCE TO S OF SR 30 (US 98B) 5TH STREET			$1,265,000					$1,265,000
	441038-2	SR 8 (I-10) FROM W OF CR 189 LOG LAKE RD TO 2MI W WILKERSON BLUFF RD	$3,054,807	$266,254						$3,321,061
	441038-3	SR 8 (I-10) FROM 2 MILES W OF WILKERSON BLUFF RD TO E OF YELLOW RIVER	$3,182,619	$469,210						$3,651,829
	441038-4	SR 8 (I-10) FROM EAST OF YELLOW RIVER TO EAST OF SR 85 FERDON BLVD	$3,668,084	$357,321						$4,025,405
4	413048-2	SR-9/I-95 @ OSLO ROAD INTERCHANGE	$7,460,663	$600						$7,461,263
	415152-1	SR-93/I-75 INTRCHG@SR-820/PINESBLVD F N OF MIRAMARPKWY T N OF PINESBLV	$4,259,852	$107,545						$4,367,397
	422681-5	SR-9/I-95 FROM HIGH MEADOWS TO MARTIN/ST. LUCIE COUNTY LINE			$500,000					$500,000
	422681-6	I-95 FROM MARTIN/ST. LUCIE COUNTY LINE TO SR-70			$2,680,000					$2,680,000
	435808-1	SR-9/I-95 FROM S. OF SR-870/COMMERCIAL BLVD. TO N. OF CYPRESS CREEK RD		$1,492,050						$1,492,050
	436519-1	SR-9/I-95 FROM S OF 45TH STREET TO N OF 45TH ST					$18,596,928			$18,596,928
	439761-1	SR-9/I-95 NORTHBOUND AND SOUTHBOUND OFF-RAMPS AT GATLIN BLVD.	$3,648,807	$1,961						$3,650,768
	443589-1	SR-5/US-1 SOUTH BOUND ON RAMP TO WEST BOUND I-595	$1,175,167	$347					$9,869,580	$11,045,094
	446168-1	SR-68/ORANGE AVE FROM SR-713/KINGS HWY TO E OF SR-9/I-95 SB RAMP	$662,266	$49,803						$712,069
	449819-1	SR-25/US-27 FR N OF SR-818/GRIFFIN RD TO N OF SAWGRASS RECREATION PK		$205,800						$205,800
	449961-1	SR-9 (I-95) ST LUCIE SOUTHBOUND REST AREA						$4,845,075		$4,845,075
	452068-1	SR-9/I-95 AT CONGRESS AVE & PENINSULA CORPORATE DRIVE TRUCK PARKING				$599,771		$3,806,806		$4,406,577
	452069-1	SR-9/I-95 TRUCK MOBILITY & SAFETY ENHANCEMENTS IN BROWARD & PALM BCH.					$1,755,000			$1,755,000

	452661-1	SR-9/I-95 ST. LUCIE NORTHBOUND REST AREA RECONSTRUCTION						$3,453,060		$3,453,060
	454279-1	BROWARD BLVD TRUCK PARKING EXPANSION BROWARD BLVD AT I-95				$1,000,640		$10,904,400		$11,905,040
	454759-1	TRUCK PARKING FACILITY						$1,692,000		$1,692,000
5	242592-4	SR 400 (I-4) 1 MILE E OF SR 434 TO E OF SR 15/600 (US 17/92)	$14,570,000	$430,000						$15,000,000
	433651-1	CR 484 FROM SW 20TH AVENUE TO CR 475A	$9,303,454	$46,260						$9,349,714
	436292-1	I-95 INTERCHANGE AT PIONEER TRAIL	$7,266,669	$1,503,372						$8,770,041
	443702-1	SR 60 EB & WB PASSING LANES FROM BLANKET BAY SLOUGH TO PEAVINE TRAIL		$14,944,573						$14,944,573
	446445-1	TRUCK PARKING CENTRAL FLORIDA CORRIDOR - SEMINOLE COUNTY SITE			$22,164,513					$22,164,513
	446445-2	TRUCK PARKING CENTRAL FLORIDA CORRIDOR - EASTBOUND VOLUSIA COUNTY	$3,158,000	$132,125	$7,535,230					$10,825,355
	446445-3	TRUCK PARKING - CENTRAL FLORIDA CORRIDOR: SAND LAKE RD SITE				$4,500,000				$4,500,000
	446445-4	TRUCK PARKING CENTRAL FLORIDA CORRIDOR - WESTBOUND VOLUSIA COUNTY	$2,900,000							$2,900,000
	446445-5	TRUCK PARKING - CENTRAL FLORIDA CORRIDOR: OSCEOLA COUNTY SITE		$10,303,264		$24,427,839				$34,731,103
	453587-1	I-95 IMPROVEMENTS FROM S ST JOHNS HERITAGE PARKWAY TO N OF SR 519		$3,529,500						$3,529,500
	453588-1	I-95 IMPROVEMENTS FROM S OF SR 421 TO N OF US-1 (SR 5)		$3,529,500						$3,529,500
6	414964-1	SR 9/I-95 FROM S OF MIAMI GARDENS DRIVE TO BROWARD COUNTY LINE	$23,020,100	$1,820,472						$24,840,572
	414964-7	SR 9A/I-95 FROM US-1/SOUTH DIXIE HIGHWAY TO SOUTH OF NW 62ND STREET						$6,700,000		$6,700,000
	414964-8	SR 9A/I-95 FROM SOUTH OF NW 62ND STREET TO NORTH OF NW 143RD STREET	$6,938,356	$197,541			$5,720,000			$12,855,897
	423251-3	SR 25/OKEECHOBEE RD FROM EAST OF NW 87 AVE TO NW 79 AVE (CONCRETE)						$1,968,000		$1,968,000
	438864-2	SR 860/MIAMI GDNS/NW 186 ST FROM E OF I-75/SR 93 TO NW 79TH PL					$595,000			$595,000
	440877-2	SITE FEASIBILTY STUDY FOR TRUCK PARKING FACILITIES PHASE II				$1,378,809	$1,465,650	$2,813,375	$29,793,300	$35,451,134
	445984-1	GOLDEN GLADES TRUCK TRAVEL CENTER	$1,940,728	$255,234						$2,195,962
	446190-1	SR 9/NW 27TH AVENUE OVER MIAMI RIVER - BRIDGE # 870731 & 870763		$1,040,388						$1,040,388
	447645-2	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT		$50,000	$4,800,000					$4,850,000
	447645-3	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT					$80,000			$80,000
	449665-1	SR 9A/I-95 OVER MIAMI RIVER, BRIDGES 870356			$704,970					$704,970
7	430056-2	US 41 FROM S OF DOVER ST TO AUSTIN ST				$5,654,600				$5,654,600
	443316-1	I-4/SR 400 FROM PARK ROAD/WB EXIT RAMP INTERSECTION TO E OF PARK ROAD	$1,712,062	$18,112						$1,730,174
	443317-1	I-4/SR 400 FROM WEST OF THONOTOSASSA RD TO EAST OF THONOTOSASSA RD	$3,586,167	$36,858						$3,623,025
	443318-1	I-4/SR 400 FROM WEST OF BRANCH FORBES RD TO EAST OF BRANCH FORBES RD	$3,385,874	$35,984						$3,421,858
	443319-1	I-4/SR 400 FROM EAST OF EB WEIGH STATION TO EAST OF MCINTOSH ROAD	$4,559,844	$51,633						$4,611,477
	443321-1	I-4/SR 400 FROM WEST OF MANGO RD TO MANGO RD	$2,813,067	$30,315						$2,843,382
	444434-1	I-4/SR 400 FROM W OF COUNTY LINE ROAD TO COUNTY LINE ROAD		$1,000						$1,000
	445362-2	I-4/SR 400 FROM DOWNTOWN TAMPA TO POLK COUNTY LINE	$959,223	$756,937						$1,716,160
	446131-1	I-4/SR 400 WB AUXILIARY LANE FROM E OF 50TH ST T W OF MLK JR BLVD	$715,444	$4,167,796						$4,883,240
	446132-1	I-4 EB EXIT RAMP TO I-75 FROM E OF TAMPA BYPASS CANAL TO W OF I-75	$762,155		$6,400,267					$7,162,422
	446133-1	I-4 WB AUXILIARY LANE FROM E OF WEIGH STATION TO W OF MCINTOSH RD	$539,048							$539,048
	446135-1	I-4 EB AUXILARY LANE FROM W OF BETHLEHEM RD TO W OF BRANCH FORBES RD	$386,158							$386,158
	448698-1	I-4 TRUCK PARKING FACILITY	$1,363,851	$23,865						$1,387,716
	450768-1	SR 60/ADAMO DR FROM W OF 45TH ST TO W OF YEOMAN ST					$9,026,122			$9,026,122
	450828-1	SR 60/ADAMO DR FROM W OF KELSEY LN TO W OF WAYNE PL			$678,304	$4,328,388				$5,006,692
Grand Total			**$229,965,542**	**$64,176,832**	**$71,601,285**	**$57,649,882**	**$58,050,446**	**$60,581,243**	**$41,707,980**	**$583,733,215**

These funds do not reflect NHFP funded projects which have been completed as of 2024
Fiscal years beyond 2024 include projects tentatively programmed based on anticipated future NHFP funding
*These projects are being funded through the BIL intermodal language under 23 U.S.C. 167(h)(5)(B) and are under the 30% yearly limit

Appendix B: NHFP Funding Match Totals and Project Types (2015-2030)

District	Item #	Item Description	NHFP Funding	Federal Funding	Local Match	State Match	Project Total	Federal Share	State/Local Share	Project Type
01	**419243-2**	SR 25 (US 27) FROM HIGHLANDS COUNTY LINE TO CR 630A	$450,000.00	$0.00	$0.00	$6,801,347.00	$7,251,347.00	6%	94%	**2,7**
	440225-1	ADAPTIVE SYSTEM ON US 27 FROM HIGHLANDS AVE TO SEBRING PKWY	$526,206.00	$2,640,054.00	$0.00	$35,971.00	$3,202,231.00	99%	1%	**2,7**
	449737-1	I-4 REST AREAS IN POLK COUNTY - ADDITIONAL TRUCK PARKING	$8,802,055.00	$0.00	$0.00	$2,701.00	$8,804,756.00	100%	0%	**2, 19**
	452154-1	I-75 AT JONES LOOP TRUCK PARKING	$22,561,746.00	$25,000.00	$0.00	$0.00	$22,586,746.00	100%	0%	**2, 19**
	453423-1	PEDESTRIAN SAFETY IMPROVEMENTS TO AIRFIELD DR AND DON EMERSON	$550,000.00	$0.00	$0.00	$0.00	$550,000.00	100%	0%	**1, 2 ,11**
	456007-1	PORT MANATEE TRUCK PARKING	$2,732,500.00	$0.00	$0.00	$0.00	$2,732,500.00	100%	0%	**1, 2 ,11**
	456008-1	US27 TRUCK PARKING SITE PD&E	$2,045,100.00	$0.00	$0.00	$0.00	$2,045,100.00	100%	0%	**1, 2 ,11**
	456009-1	RAILROAD GRADE CROSSING SEPARATION STUDY	$265,000.00	$0.00	$0.00	$0.00	$265,000.00	100%	0%	**2, 19**
02	**209537-9**	SR201(US301A)BALDWIN BYPASS AT BRANDY BRANCH RD TRUCK PARKING	$6,683,134.00	$574,749.00	$0.00	$968.00	$7,258,851.00	100%	0%	**1, 2 ,11**
	210253-7	I-95(SR9) AT SR207	$3,811,828.00	$0.00	$0.00	$0.00	$3,811,828.00	100%	0%	**2,7**
	428865-2	SR200(US301) @ I-10 IMPROVEMENTS	$18,864,079.00	$40,321.00	$0.00	$1,105,668.00	$20,010,068.00	94%	6%	**2,7**
	433899-2	I-95(SR9) @ SR115(US1)/ML KING/20TH STREET	$55,910,442.00	$29,208,416.00	$3,821,928.00	$7,013,731.00	$95,954,517.00	89%	11%	**2,7**
	435575-1	I-295(SR9A) @ US17 TO SOUTH OF WELLS ROAD	$25,228,533.00	$3,909,421.00	$0.00	$4,768,502.00	$33,906,456.00	86%	14%	**2,7**
	438928-2	SR202(JTB) FM EAST OF I-95 TO US1 & US1 FM S OF JTB TO N OF MUSTANG RD	$24,317,651.00	$0.00	$2,875,168.00	$6,232,598.00	$33,425,417.00	73%	27%	**2, 19**
	447199-1	SR200(US301) @ SR223(US301A) SOUTH OF STARKE	$800,077.00	$0.00	$0.00	$41,977.00	$842,054.00	95%	5%	**2,7**
03	**217615-1**	DISTRICTWIDE CEI IN HOUSE BOX PGM 6100 CONTINGENCY	$11,924.00	$207,763.00	$0.00	$35,561,577.00	$35,781,264.00	1%	99%	**2, 7, 12**
	217910-7	SR 75 (US 231) FROM SR 30A (US 98) 15TH ST TO SR 368 23RD STREET	$13,040,084.00	$53,442,680.00	$0.00	$152,184,673.00	$218,667,437.00	30%	70%	**2,7**
	220635-8	SR 20 FROM W OF CITY HALL EXIT TO BLACK CREEK BLVD	$4,675,000.00	$0.00	$0.00	$101,152.00	$4,776,152.00	98%	2%	**2,7**
	222530-6	SR 8 (I-10) FROM GADSDEN CO LINE TO WEST OF SR 263 CAPITAL CIRCLE	$2,736,841.00	$1,021,783.00	$0.00	$105,662.00	$3,864,286.00	97%	3%	**2, 7**
	406585-3	SR 8 (I-10) FROM E OF SR 261 CAPITAL CIRCLE TO SR 59 GAMBLE RD	$2,100,000.00	$0.00	$0.00	$32,718.00	$2,132,718.00	98%	2%	**2, 19**
	413062-4	SR 8 (I-10) FROM SR 281 AVALON BLVD TO OKALOOSA COUNTY LINE	$3,081,976.00	$0.00	$0.00	$3,453.00	$3,085,429.00	100%	0%	**1, 2 ,11**
	413062-5	SR 8 (I-10) FROM SANTA ROSA COUNTY TO W OF CR 189 LOG LAKE ROAD	$1,838,327.00	$0.00	$0.00	$96,086.00	$1,934,413.00	95%	5%	**1, 2 ,11**
	413062-8	SR 8 (I-10) FROM EAST OF SR 87 TO MILLER BLUFF ROAD	$4,950,000.00	$0.00	$0.00	$0.00	$4,950,000.00	100%	0%	**2, 19**
	437905-2	SR 8 (I-10) FROM E OF EB WEIGH STATION TO E OF SR 10 (US 90A) 9MI ROAD	$5,500,000.00	$139,824,449.00	$0.00	$128,510,493.00	$273,834,942.00	53%	47%	**1, 2 ,11**
	437905-3	SR 8 (I-10) FROM E OF SR 10 (US 90A) 9 MILE RD TO W OF SR 95 (US 29)	$7,700,000.00	$0.00	$0.00	$2,830.00	$7,702,830.00	100%	0%	**2, 19**
	440300-6	EAST AVE FROM PORT ENTRANCE TO S OF SR 30 (US 98B) 5TH STREET	$1,265,000.00	$0.00	$0.00	$0.00	$1,265,000.00	100%	0%	**1, 2 ,11**

	441038-2	SR 8 (I-10) FROM W OF CR 189 LOG LAKE RD TO 2MI W WILKERSON BLUFF RD	$3,321,061.00	$93,562.00	$0.00	$180,982.00	$3,595,605.00	97%	3%	**2,7**
	441038-3	SR 8 (I-10) FROM 2 MILES W OF WILKERSON BLUFF RD TO E OF YELLOW RIVER	$3,651,829.00	$0.00	$0.00	$2,469,753.00	$6,121,582.00	60%	40%	**1, 2 ,11**
	441038-4	SR 8 (I-10) FROM EAST OF YELLOW RIVER TO EAST OF SR 85 FERDON BLVD	$4,025,405.00	$0.00	$0.00	$1,306,689.00	$5,332,094.00	75%	25%	**1, 2 ,11**
04	**413048-2**	SR-9/I-95 @ OSLO ROAD INTERCHANGE	$7,461,263.00	$55,692,865.00	$0.00	$34,343,489.00	$97,497,617.00	65%	35%	**2, 19**
	415152-1	SR-93/I-75 INTRCHG@SR-820/PINESBLVD F N OF MIRAMARPKWY T N OF PINESBLV	$4,367,397.00	$3,644,162.00	$0.00	$245,752.00	$8,257,311.00	97%	3%	**2, 19**
	422681-5	SR-9/I-95 FROM HIGH MEADOWS TO MARTIN/ST. LUCIE COUNTY LINE	$500,000.00	$4,860,638.00	$0.00	$0.00	$5,360,638.00	100%	0%	**2, 19**
	422681-6	I-95 FROM MARTIN/ST. LUCIE COUNTY LINE TO SR-70	$2,680,000.00	$6,061,367.00	$0.00	$0.00	$8,741,367.00	100%	0%	**1, 2 ,11**
	435808-1	SR-9/I-95 FROM S. OF SR-870/COMMERCIAL BLVD. TO N. OF CYPRESS CREEK RD	$1,492,050.00	$1,339,773.00	$0.00	$16,940,220.00	$19,772,043.00	14%	86%	**2, 19**
	436519-1	SR-9/I-95 FROM S OF 45TH STREET TO N OF 45TH ST	$18,596,928.00	$7,094,433.00	$3,214,814.00	$4,911,082.00	$33,817,257.00	76%	24%	**2, 19**
	439761-1	SR-9/I-95 NORTHBOUND AND SOUTHBOUND OFF-RAMPS AT GATLIN BLVD.	$3,650,768.00	$139,413.00	$63,051.00	$2,701,941.00	$6,555,173.00	58%	42%	**2, 19**
	443589-1	SR-5/US-1 SOUTH BOUND ON RAMP TO WEST BOUND I-595	$11,045,094.00	$866,301.00	$0.00	$7,156,693.00	$19,068,088.00	62%	38%	**2,7**
	446168-1	SR-68/ORANGE AVE FROM SR-713/KINGS HWY TO E OF SR-9/I-95 SB RAMP	$712,069.00	$7,287,785.00	$0.00	$0.00	$7,999,854.00	100%	0%	**2,7**
	449819-1	SR-25/US-27 FR N OF SR-818/GRIFFIN RD TO N OF SAWGRASS RECREATION PK	$205,800.00	$8,161,222.00	$0.00	$20,234,088.00	$28,601,110.00	29%	71%	**2,7**
	449961-1	SR-9 (I-95) ST LUCIE SOUTHBOUND REST AREA	$4,845,075.00	$0.00	$0.00	$40,979,338.00	$45,824,413.00	11%	89%	**2,7**
	452068-1	SR-9/I-95 AT CONGRESS AVE & PENINSULA CORPORATE DRIVE TRUCK PARKING	$4,406,577.00	$754,129.00	$0.00	$0.00	$5,160,706.00	100%	0%	**2, 19**
	452069-1	SR-9/I-95 TRUCK MOBILITY & SAFETY ENHANCEMENTS IN BROWARD & PALM BCH.	$1,755,000.00	$0.00	$0.00	$0.00	$1,755,000.00	100%	0%	**2,7**
	452661-1	SR-9/I-95 ST. LUCIE NORTHBOUND REST AREA RECONSTRUCTION	$3,453,060.00	$0.00	$0.00	$2,964,000.00	$6,417,060.00	54%	46%	**1, 2 ,11**
	454279-1	BROWARD BLVD TRUCK PARKING EXPANSION BROWARD BLVD AT I-95	$11,905,040.00	$0.00	$1,856,567.00	$74,062.00	$13,835,669.00	86%	14%	**1, 2 ,11**
	454759-1	TRUCK PARKING FACILITY	$1,692,000.00	$0.00	$0.00	$0.00	$1,692,000.00	100%	0%	**2, 19**
05	**242592-4**	SR 400 (I-4) 1 MILE E OF SR 434 TO E OF SR 15/600 (US 17/92)	$15,000,000.00	$30,069,461.00	$6,240,871.00	$33,009,481.00	$84,319,813.00	53%	47%	**2,7**
	433651-1	CR 484 FROM SW 20TH AVENUE TO CR 475A	$9,349,714.00	$11,471,854.00	$21,958.00	$415.00	$20,843,941.00	100%	0%	**2,7**
	436292-1	I-95 INTERCHANGE AT PIONEER TRAIL	$8,770,041.00	$72,815,093.00	$975,325.00	$69,870,268.00	$152,430,727.00	54%	46%	**2,7**
	443702-1	SR 60 EB & WB PASSING LANES FROM BLANKET BAY SLOUGH TO PEAVINE TRAIL	$14,944,573.00	$19,723,919.00	$0.00	$2,424,770.00	$37,093,262.00	93%	7%	**2,7**
	446445-1	TRUCK PARKING CENTRAL FLORIDA CORRIDOR - SEMINOLE COUNTY SITE	$22,164,513.00	$14,861,925.00	$0.00	$3,941,429.00	$40,967,867.00	90%	10%	**2, 3, 12**
	446445-2	TRUCK PARKING CENTRAL FLORIDA CORRIDOR - EASTBOUND VOLUSIA COUNTY SITE	$10,825,355.00	$48,599,067.00	$0.00	$22,910,907.00	$82,335,329.00	72%	28%	**2, 3, 12**
	446445-3	TRUCK PARKING - CENTRAL FLORIDA CORRIDOR: SAND LAKE RD SITE	$4,500,000.00	$0.00	$0.00	$0.00	$4,500,000.00	100%	0%	**2, 7**
	446445-4	TRUCK PARKING CENTRAL FLORIDA CORRIDOR - WESTBOUND VOLUSIA COUNTY SITE	$2,900,000.00	$84,785,646.00	$0.00	$25,763,453.00	$113,449,099.00	77%	23%	**2, 7, 12**
	446445-5	TRUCK PARKING - CENTRAL FLORIDA CORRIDOR: OSCEOLA COUNTY SITE	$34,731,103.00	$27,806,060.00	$0.00	$14,756,266.00	$77,293,429.00	81%	19%	**1, 2 ,11**
	453587-1	I-95 IMPROVEMENTS FROM S ST JOHNS HERITAGE PARKWAY TO N OF SR 519	$3,529,500.00	$0.00	$0.00	$0.00	$3,529,500.00	100%	0%	**1, 2 ,11**

	453588-1	I-95 IMPROVEMENTS FROM S OF SR 421 TO N OF US-1 (SR 5)	$3,529,500.00	$0.00	$0.00	$0.00	$3,529,500.00	100%	0%	**1, 2 ,11**
06	**414964-1**	SR 9/I-95 FROM S OF MIAMI GARDENS DRIVE TO BROWARD COUNTY LINE	$24,840,572.00	$5,468,314.00	$0.00	$347,527.00	$30,656,413.00	99%	1%	**1, 2 ,11**
	414964-7	SR 9A/I-95 FROM US-1/SOUTH DIXIE HIGHWAY TO SOUTH OF NW 62ND STREET	$6,700,000.00	$0.00	$0.00	$0.00	$6,700,000.00	100%	0%	**1, 2 ,11**
	414964-8	SR 9A/I-95 FROM SOUTH OF NW 62ND STREET TO NORTH OF NW 143RD STREET	$12,855,897.00	$50,000.00	$0.00	$85,965.00	$12,991,862.00	99%	1%	**2, 3, 12**
	423251-3	SR 25/OKEECHOBEE RD FROM EAST OF NW 87 AVE TO NW 79 AVE (CONCRETE)	$1,968,000.00	$51,846,356.00	$3,470,253.00	$54,961,689.00	$112,246,298.00	48%	52%	**2, 3, 12**
	438864-2	SR 860/MIAMI GDNS/NW 186 ST FROM E OF I-75/SR 93 TO NW 79TH PL	$595,000.00	$42,925,105.00	$0.00	$3,356,180.00	$46,876,285.00	93%	7%	**2, 3, 12**
	440877-2	SR-826/SR-836 TRUCK TRAVEL CENTER (ALONG NW 7TH STREET, BETWEEN NW 74T	$35,451,134.00	$0.00	$0.00	$158,450.00	$35,609,584.00	100%	0%	**2,7**
	445984-1	GOLDEN GLADES TRUCK TRAVEL CENTER	$2,195,962.00	$0.00	$0.00	$93,694.00	$2,289,656.00	96%	4%	**2,7**
	446190-1	SR 9/NW 27TH AVENUE OVER MIAMI RIVER - BRIDGE # 870731 & 870763	$1,040,388.00	$0.00	$0.00	$10,917,582.00	$11,957,970.00	9%	91%	**1, 2 ,11**
	447645-2	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT PROJECTS	$4,850,000.00	$5,000.00	$0.00	$0.00	$4,855,000.00	100%	0%	**1, 2 ,11**
	447645-3	SMART WORK ZONE MANAGEMENT FOR OKEECHOBEE ROAD IMPROVEMENT PROJECTS	$80,000.00	$4,855,000.00	$0.00	$0.00	$4,935,000.00	100%	0%	**1, 2 ,11**
	449665-1	SR 9A/I-95 OVER MIAMI RIVER, BRIDGES 870356	$704,970.00	$0.00	$0.00	$5,729,991.00	$6,434,961.00	11%	89%	**2, 19**
07	**430056-2**	US 41 FROM S OF DOVER ST TO AUSTIN ST	$5,654,600.00	$1,520,491.00	$0.00	$239,106.00	$7,414,197.00	97%	3%	**1, 2 ,11**
	443316-1	I-4/SR 400 FROM PARK ROAD/WB EXIT RAMP INTERSECTION TO E OF PARK ROAD	$1,730,174.00	$300,844.00	$0.00	$1,113,039.00	$3,144,057.00	65%	35%	**2, 7, 12**
	443317-1	I-4/SR 400 FROM WEST OF THONOTOSASSA RD TO EAST OF THONOTOSASSA RD	$3,623,025.00	$67,479.00	$0.00	$1,138,045.00	$4,828,549.00	76%	24%	**2, 19**
	443318-1	I-4/SR 400 FROM WEST OF BRANCH FORBES RD TO EAST OF BRANCH FORBES RD	$3,421,858.00	$0.00	$0.00	$2,250,174.00	$5,672,032.00	60%	40%	**1, 2 ,11**
	443319-1	I-4/SR 400 FROM EAST OF EB WEIGH STATION TO EAST OF MCINTOSH ROAD	$4,611,477.00	$106,702.00	$0.00	$1,703,526.00	$6,421,705.00	73%	27%	**1, 2 ,11**
	443321-1	I-4/SR 400 FROM WEST OF MANGO RD TO MANGO RD	$2,843,382.00	$581,632.00	$0.00	$1,635,222.00	$5,060,236.00	68%	32%	**2, 7**
	444434-1	I-4/SR 400 FROM W OF COUNTY LINE ROAD TO COUNTY LINE ROAD	$1,000.00	$0.00	$0.00	$0.00	$1,000.00	100%	0%	**2, 3, 12**
	445362-2	I-4/SR 400 FROM DOWNTOWN TAMPA TO POLK COUNTY LINE	$1,716,160.00	$10,071,600.00	$0.00	$2,091,491.00	$13,879,251.00	85%	15%	**2, 3, 12**
	446131-1	I-4/SR 400 WB AUXILIARY LANE FROM E OF 50TH ST T W OF MLK JR BLVD	$4,883,240.00	$1,609,580.00	$0.00	$922,762.00	$7,415,582.00	88%	12%	**2,7**
	446132-1	I-4 EB EXIT RAMP TO I-75 FROM E OF TAMPA BYPASS CANAL TO W OF I-75	$7,162,422.00	$262,712.00	$0.00	$150,808.00	$7,575,942.00	98%	2%	**1, 19**
	446133-1	I-4 WB AUXILIARY LANE FROM E OF WEIGH STATION TO W OF MCINTOSH RD	$539,048.00	$6,587,527.00	$0.00	$47,348.00	$7,173,923.00	99%	1%	**2, 19**
	446135-1	I-4 EB AUXILARY LANE FROM W OF BETHLEHEM RD TO W OF BRANCH FORBES RD	$386,158.00	$5,653,999.00	$0.00	$75,258.00	$6,115,415.00	99%	1%	**2, 19**
	448698-1	I-4 TRUCK PARKING FACILITY	$1,387,716.00	$15,000,000.00	$0.00	$24,319,876.00	$40,707,592.00	40%	60%	**2,7**
	450768-1	SR 60/ADAMO DR FROM W OF 45TH ST TO W OF YEOMAN ST	$9,026,122.00	$0.00	$0.00	$0.00	$9,026,122.00	100%	0%	**2,7**
	450828-1	SR 60/ADAMO DR FROM W OF KELSEY LN TO W OF WAYNE PL	$5,006,692.00	$0.00	$0.00	$83,038.00	$5,089,730.00	99%	1%	**1, 2 ,11**
Total Funds by Source			$583,733,215.00	$783,935,652.00	$22,539,935.00	$761,207,956.00	$2,151,416,758.00	64%	36%	

FMTP24

FREIGHT MOBILITY AND TRADE PLAN

Freight & Rail Office
Florida Department of Transportation
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FDOT

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FREIGHT MOBILITY AND TRADE PLAN

FREIGHT MOBILITY AND TRADE PLAN

Technical Memorandum 8
Implementation

FDOT

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FIGURES

TABLES

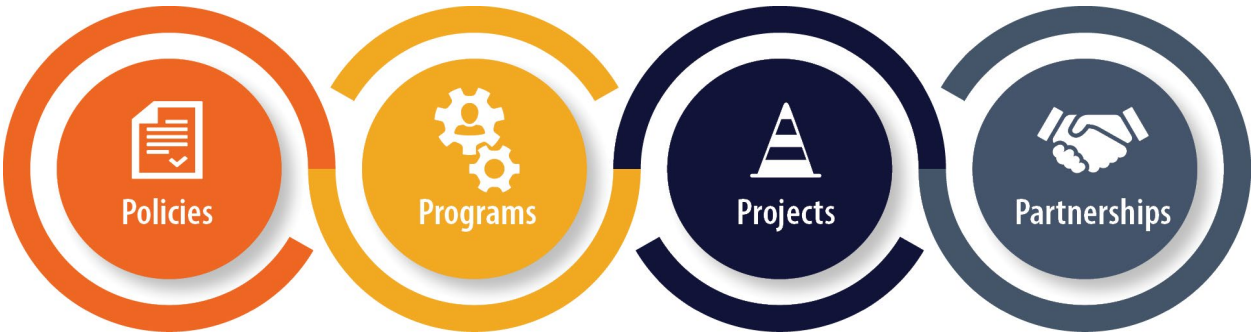
List of Acronyms

ACES	Automated Connected Electric Shared
ADAS	Advanced Driver-Assistance Technology System
ATTIMD	Advanced Transportation Technologies and Innovative Mobility Deployment
BIP	Bridge Investment Program
CMAQ	Congestion Mitigation and Air Quality Program
CRISI	Consolidated Rail Infrastructure and Safety Improvements Program
ETAT	Environmental Technical Advisory Teams
ETDM	Efficient Transportation Decision Making
FAST	Fixing America's Surface Transportation Act
FDOT	Florida Department of Transportation
FLFAC	Florida Freight Advisory Committee
FLOW	Freight Logistics Optimization Works
FLTP	Federal Lands Transportation Program
FRO	Freight & Rail Office
FTP	Florida Transportation Plan
HOS	Hours of Service
HSIP	Highway Safety Improvement Program
IIJA	Infrastructure Investment and Jobs Act
ILC	Intermodal Logistics Center
INFRA	Nationally Significant Multimodal Freight and Highway Projects
ITS	Intelligent Transportation System
MEGA	National Infrastructure Project Assistance
MPO	Metropolitan Planning Organization
MPP	Metropolitan Planning Program
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHS	National Highway System
P3s	Public-Private Partnerships
PAC	Project Advisory Committee
PROTECT	Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation
RAISE	Rebuilding American Infrastructure with Sustainability & Equity
RAP	Resilience Action Plan
RCE	Railroad Crossing Elimination Program
RIF	Rural Infrastructure Fund
RIP	Resilience Implementation Plan
RTEPF	Reduction of Truck Emissions at Port Facilities Grant Program
RURAL	Rural Surface Transportation Grant Program
SIS	Strategic Intermodal System
STBG	Surface Transportation Block Grant Program
STTF	Surface Transportation Trust Fund
TPAS	Truck Parking Availability System
USDOT	U.S. Department of Transportation
USMHP	United States Marine Highway Program

Introduction

The strategies established in Technical Memorandum 5 were created based on the goals, objectives, and needs of Florida's freight transportation system. This technical memorandum provides the implementation tools in the form of funding sources and a framework of policies, programs, projects, and partnerships. Action items for each strategy, along with internal/external partners and suggested time frames, can be found in Appendix A. These action items will help pave the path for the implementation of FMTP24.

Florida's needs are expected to change periodically based on the dynamic nature of the economy, political environment, socio-economic needs, and regulatory framework. FMTP24 is designed to be flexible, facilitate updates and revisions as needed, and support regular updates to project lists.



Policies

Policies can set conditions for an efficient regulatory environment or create undue constraints. Changing policy often requires legislative action and organizational changes but can be important in improving the state's long-term supply chain resiliency. Examples of policy changes that would improve Florida's freight system include:

- Funding: Dedicated freight funding is the most critical tool to support Florida's freight needs. Historically, inflation and revenue fluctuations have prompted periodic disruptions to the state's project delivery plan. Provide additional freight funding and allow for more multimodal freight projects across more programs.
- Support truck drivers: Hours of Service (HOS) regulations, driver compensation, and lack of truck parking/amenities hamper an already overburdened industry. Industry demands and consumer expectations exacerbate the issue, requiring a policy shift.
- Streamline priority investments: Prioritize and fund projects responsive to current market realities and future trends.

- Guidance: Streamline processes, policies, and other materials to provide guidance for both FDOT Districts and local governments. Develop freight corridor design guidelines to incorporate truck routes within complete streets.
- Loosen restrictions between private and public investments: Regulations placed on Public-Private Partnerships (P3s) hamper the ability to drive innovation in conjunction with industry partners.

Programs

The implementation of a program can create the framework to achieve a broader goal. Florida could establish a statewide Intermodal Logistics Center Enterprise or Inland Port Authority to think beyond individual facility interests and promote a One Florida approach. Truck parking also needs a dedicated funding mechanism and programmatic initiatives. Florida should support programmatic innovation and cybersecurity initiatives.

- Intermodal Logistics Center (ILC) and Aggregate Programs: New and revived legislative programs that benefit freight movement need support through policy direction and awareness.
- Truck Parking Improvement Program: Truck parking needs a dedicated funding mechanism and programmatic initiatives.
- Programs that support innovation: Florida's transportation networks and hubs must be modernized to accommodate the forecasted freight (and passenger) movements. Programs incorporating Automated Connected Electric Shared (ACES) technologies, advanced telecommunications, and resilient energy supplies will be an important part of the larger infrastructure investment to modernize freight movements.
- Cybersecurity programs: The threat of cyberattacks is ever-increasing, and Florida should establish a program to combat threats and secure its supply chains from digital malice.

Projects

Projects are planned actions and work that result in a tangible solution that solves a freight mobility issue. Projects that provide opportunities to move truck cargo to/from rail/ships safely and efficiently at facilities and ports provide significant value to supply chain fluidity. High-priority projects that target Florida's documented needs should be initiated immediately to facilitate freight mobility improvements. These include:

- Truck Parking: Revamp existing rest areas to add truck parking capacity and reconfigure the existing ROW to increase the number of truck parking spaces.
- Bottlenecks: Use technology, Intelligent Transportation System (ITS), and innovative techniques to enhance fluidity, throughput, and efficiency.

- Freight Hubs: Develop inland ports to increase seaport capacity, promote economic development, and increase infrastructure capacity at modal hubs as well as to and from key freight clusters around the state including, e-commerce facilities.
- Safety: Improve warning devices and protection at rail-highway grade crossings and implement countermeasures in high truck crash locations.
- Congestion: Add truck-only lanes, improve truck route signage, and enhance platforms for truck driver information on roadway conditions.

Partnerships

Partnerships within the Florida Department of Transportation (FDOT), with Florida agencies, and across the public/private sector divide are critical for implementing ideas, expanding access, and building awareness. Florida will benefit from continued coordination to meet its freight needs and support workforce development solutions, pursue discretionary funding, and strengthen its supply chains within and beyond the state.

- Trade, logistics, and workforce development: Florida should leverage partnerships to advocate for the state's workforce development needs, including pay, conditions, training, and recruitment.
- Local partnership in grant applications: A significant portion of revenue for transportation projects comes from federal aid. Work to support local partners in funding their improvements to the transportation network. Streamline outreach and systemic submissions to keep the project pipeline open.
- Multistate Freight Corridors: Improve coordination with adjacent states to facilitate seamless multistate freight corridors.

Intra-Agency Collaboration

Intra-agency collaboration and coordination are necessary to implement some policies, programs, and projects, as much of the action lies beyond the purview and authority of the Freight & Rail Office (FRO). The other FDOT offices needed to support the FRO in freight mobility-related issues include those in Table 1.

Table 1 | Freight-Supporting FDOT Offices

Modal Development	Emerging Technologies	Motor Carrier Size and Weight
Systems Implementation	GIS	Asset Maintenance/Rest Areas
Policy Planning	Transportation Data & Analytics	Design
Forecasting & Trends	Commercial Vehicle Operations	Safety
Emergency Management	Traffic Operations	Environmental Management
Federal Programs	State Materials	District Freight Coordinators

Members from each of these offices comprised the Project Advisory Committee (PAC) for the creation of this plan.

Florida Inter-Agency Collaboration

While freight projects will be actioned within the FDOT, not all policy and program strategies outlined in the FMTP fall under the jurisdiction of FDOT. Implementation of some strategies will be the responsibility of other state and federal agencies, Metropolitan Planning Organizations (MPOs), local governments, private-sector entities, such as railroads, and other organizations. Some may require legislative action. Therefore, a strong partnership and collaboration among all agencies and stakeholders is necessary to effectively and successfully implement the FMTP. State agencies possess specific authorities, oversee various issues and processes, and enact requirements and policies that may have unintended consequences. Other agencies and stakeholders possess knowledge and experience on freight issues. Inter-agency collaboration can facilitate coordination on matters that affect freight mobility holistically.

FLFAC

The Florida Freight Advisory Committee (FLFAC) provides a unique opportunity for collaborative freight efforts. The committee comprises industry experts and community leaders who helped identify and validate this plan's multimodal needs and will be instrumental in the implementation phase. Currently, the members serving on the committee represent the groups shown in Table 2.

Table 2 | Florida Freight Advisory Committee

PortMiami	CSX	Southwest Florida Regional Planning Council
Florida East Coast Railway	Southwest Florida International Airport (RSW)	Broward Metropolitan Planning Organization
Genesee Wyoming Railroad	Always Fresh Farms LLC	Space Coast Regional Airport, Titusville
Winter Haven Economic Development Council	University of South Florida	MetroPlan Orlando
SpaceFlorida	Canaveral Port Authority	Florida Commerce
Walmart	Jacksonville Port Authority (JAXPORT)	Miami-Dade Transportation Planning Organization
Florida TransAtlantic Holdings	Kenan Advantage Group	Florida Ports Council
Florida Harbor Pilots Association	REAL Women in Trucking	Loves Travel Stops

Funding

Florida has one of the most unique freight systems in the nation due to its geography, environment, population, and commerce networks. Residents, visitors, businesses, and state and federal governments all invest direct and indirect resources into Florida's transportation system. This consistent, ongoing investment is critical to Florida's economic competitiveness and viability by providing superior transportation infrastructure and associated services for all transportation modes. Investment in Florida's freight system requires both the ability to finance the planning, design, and construction of projects, as well as identifying sources of funds for operating and maintenance expenditures.

State & Federal Funding

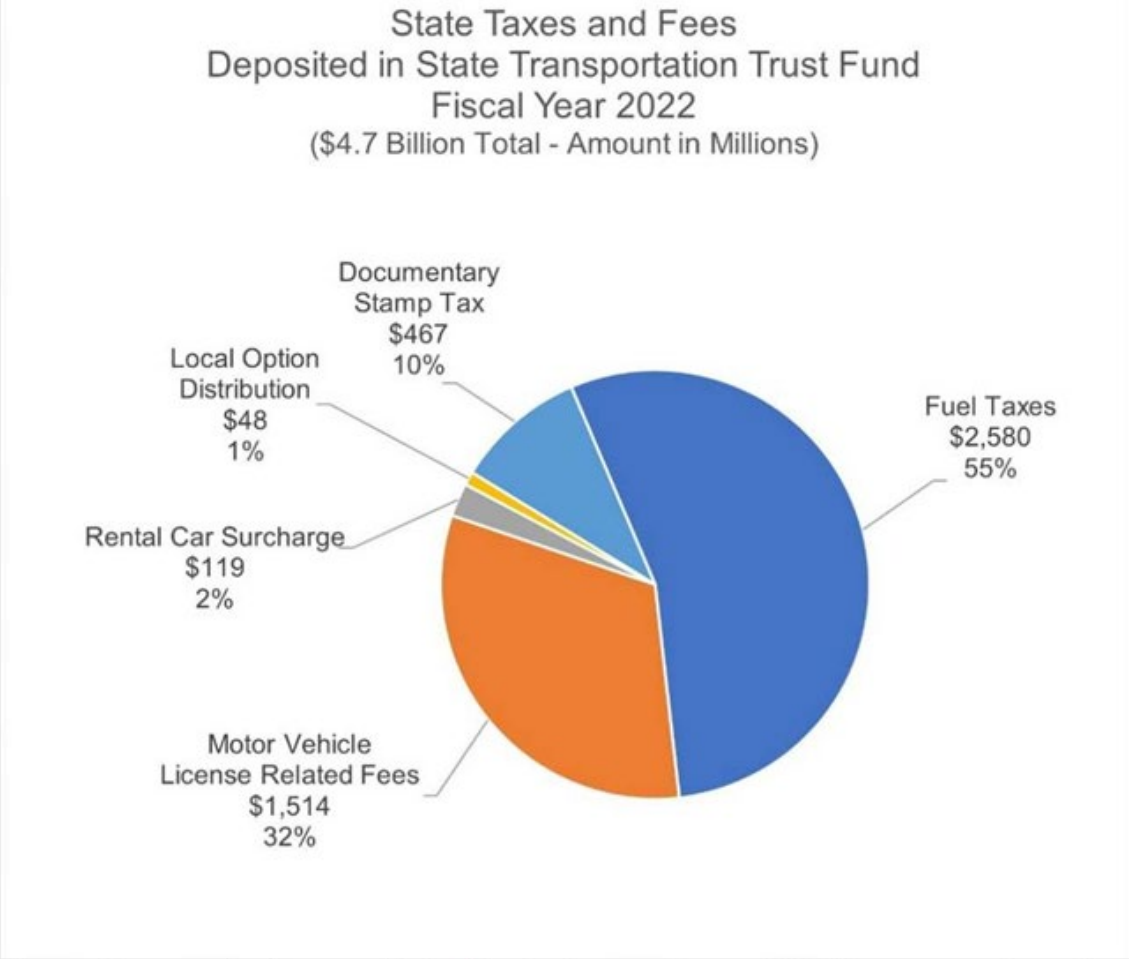
Florida has a multitude of funding options available from the private, local, state, and federal levels. These funding opportunities are connected to the respective level of government, which provides the funding and the respective government agency investment requirements. Federal funding requires that state investments abide by federal investment guidelines and nationwide freight objectives such as the National Highway Freight Network (NHFN) and Fixing America's Surface Transportation (FAST) Act. State investments require similar investment qualifications on the state level, such as the Strategic Intermodal System (SIS) or the Florida Transportation Plan (FTP).

The following subsections will cover freight funding opportunities at both state and federal levels. Investments at a local level (MPO/County/City/Municipality) will be managed by local organizations or the District Freight Coordinators. Most federal funding grants, such as National Highway Freight Program (NHFP) or Infrastructure Investment and Jobs Act (IIJA) funds and opportunities, require that the project be on the NHFN or a similar system.

Florida's Transportation Trust Funds

The FDOT uses state trust funds and related accounts to manage its financial resources. Significant trust funds include the Surface Transportation Trust Fund (STTF), the Right-of-Way Acquisition and Bridge Construction Trust Fund, and the Transportation Disadvantaged Trust Fund. State funding for transportation projects in Florida originates from the STTF. The STTF is funded through several revenue sources that include, but are not limited to, the statewide fuel sales tax, state motor fuel excise tax, state comprehensive enhanced transportation tax, aviation fuel tax, initial vehicle registration fees, vehicle title fees, documentary stamps, and rental car fees.

Figure 1 | Surface Transportation Trust Fund Breakdown, 2022



Source: Transportation Revenue Estimating Conference (August 2022), Documentary Stamp Tax receipts (Fiscal Year 2022).

Another revenue stream comes from toll collections. Florida has a long history of toll finance for specific transportation facilities such as Florida's Turnpike. The state has a Turnpike Enterprise Finance Plan,[1] with potential for expansion of toll facilities in the future. Generally, these revenues support bridges and improvements within the local area in which the toll monies are collected. Most tolling is in Central and South Florida with a few others scattered throughout the state (Orchard Pond in Leon County). Tolling is calculated by axle (vehicle type), but with the adoption of further technologies to make tolling more streamlined, new pricing models may

[1] Work Program – Florida's Turnpike (floridasturnpike.com)

become available based on the vehicle registered to the toll pass system. Congestion pricing is a model that is further being explored through the state.

Florida uses these funding sources, and others, to support its freight system. Table 3 highlights funds and programs that are utilized in various capacities to direct funding toward statewide transportation needs.

Table 3 | Florida Funding Programs

Program	Agency	Type	Authority	Purpose
Right of Way Acquisition and Bridge Construction Trust Fund/ Bonds	**ROWTF**	**Trust Fund**	Section 215.605, F.S.	The purpose is to finance or refinance the cost of acquiring real property or the rights to real property for state roads as defined by law, or to finance or refinance the cost of state bridge construction, and purposes incidental to such property acquisition or state bridge construction.
Surface Transportation Trust Fund	**FDOT**	**Trust Fund**	Section 206.46, F.S.	The purpose is to provide an adequate, sustainable, and long-term source of revenue to maintain and improve conditions and meet Florida's mobility needs. The STTF is a consolidated transportation fund that includes all major revenue sources. Revenue sources include state fuel tax revenues, federal aid reimbursements, local funds, toll operation reimbursements, and miscellaneous revenues and fees.
Turnpike Enterprise Trust Fund	**FDOT**	**Trust Fund**	Sections 338.165 and 338.22, F.S.	The purpose of the fund is to appropriately account for revenues, operating and maintenance costs, renewal and replacement costs, general reserves, and various bond construction funds. This means the fund manages Florida Turnpike Enterprise expenditures for every toll road and bridge (a total of 483 miles) owned by the state.
Space Transportation Infrastructure Matching Fund	**Spaceport Grant Program**	**Trust Fund**	Section 331, F.S.	The purpose is to continue the development of space transportation infrastructure that supports Space Florida's legislative intent and Florida spaceport territory master plans.

Program	Agency	Type	Authority	Purpose
Florida Aviation Grant Program		**Discretionary**	Section 332.003 – 332.007, F.S..	The purpose is to provide for a safe, cost-effective, and efficient statewide aviation transportation system. The Aviation Grant Program provides financial assistance to Florida's airports in the areas of safety, security, preservation, capacity improvement, land acquisition, planning, and economic development. Program funds assist local governments and airport authorities in planning, designing, constructing, and maintaining public-use aviation facilities.
FL Seaport Transp. and Econ. Dev. Funding Program	**FDOT**	**Discretionary**	311.07 & 311.09, Florida Statutes	The purpose is to finance port transportation projects on a 50-50 matching basis, with recognition of the importance of Florida's international trade to the state's economic progress and job creation and transportation capacity building to satisfy the consumer demands of Florida's growing population. This program provides $25 million dollars annually in grants, in addition to the $35 million allocated by FDOT annually to support bonded state revenues, for a total of $60 million dollars in combined annual state support for the Seaports. State funding is matched by the local port, usually on a 50/50 basis.
Intermodal Development Program	**FDOT**	**Formula**	Section 341.053, Florida Statutes	The purpose is to provide for major capital investments in fixed-guideway transportation systems, access to seaports, airports, and other transportation terminals for the construction of intermodal or multimodal terminals; as well as to facilitate the intermodal or multimodal movement of people and goods. Program funding ended in FY15.

Program	Agency	Type	Authority	Purpose
Public-Private Partnerships	**FDOT Financing Corporation**	**Discretionary**	Section 339.0809 and 334.30, Florida Statutes	The purpose is to finance and refinance projects approved in FDOT's Work Program. Private sector entities contributing capital in partnership with the government, in exchange for rights to share or capture future revenue generated from the facilities.
Strategic Intermodal System Program	**FDOT**	**Formula**	339.61 – 339.65, Florida Statutes	The purpose is to focus the state's limited transportation resources on the facilities most significant for interregional, interstate, and international travel. Funding for SIS projects originates from a number of different sources.
Strategic Port Investment Initiative Program	**FDOT**	**Discretionary**	311.10, Florida Statutes	Projects will meet the state's economic development goal of becoming a hub for trade, logistics, and export-oriented activities by: 1. Providing important access and major on-port capacity improvements; 2. Providing capital improvements to strategically position the state to maximize opportunities in international trade, logistics, or the cruise industry; 3. Achieving state goals of an integrated intermodal transportation system; and 4. Demonstrating the feasibility and availability of matching funds through local or private partners.
Transportation Regional Incent. Program	**FDOT**	**Formula**	339.2819, Florida Statutes	The purpose is to improve growth management planning and the provision of transportation infrastructure to help accomplish that objective.
State Infrastructure Bank	**FDOT**	**Discretionary**	Section 339.55, F.S. – FL State Infrastructure Bank; also, Section 215.617, F.S. - Bonds for Florida SIB	The purpose is to leverage funds to improve project feasibility by providing loans and other assistance to public or private entities carrying out or proposing to carry out projects eligible for assistance under federal and state law. Further, the SIB cannot provide assistance in the form of a grant.
Florida Job Growth Grant Fund	**Florida Dept. of Commerce**	**Formula**	Section 288.101, Florida Statutes	An economic development program designed to promote public infrastructure and workforce training across the state.

Program	Agency	Type	Authority	Purpose
Rural Economic Development Initiative	**Florida Dept. of Commerce**	**Formula**	Section 288.0656, Florida Statutes	The purpose is to better serve Florida's rural communities by providing a more focused and coordinated effort among state and regional agencies that provide programs and services for rural areas. Various programs with varying structures and amounts - some are loans, tax credits, or grants that require a match.
Rural Infrastructure Fund (RIF)	**Florida Dept. of Commerce**	**Formula**		The fund facilitates planning, preparing, and financing of infrastructure projects in rural communities to encourage job creation, capital investment and the strengthening and diversification of rural economies.

Overarching Federal Funding for Freight

The federal government offers several opportunities for financing and funding freight transportation projects. Through the passage of the IIJA, the U.S. Department of Transportation (USDOT) has brought a stronger focus to supply chain issues and has provided additional funding and financing options concentrated on enhancing freight movements throughout the nation.

Table 4 | Federal Grants

Program	Agency	Amount	Type	Focus
Advanced Transportation Technologies and Innovative Mobility Deployment (ATTIMD)	FHWA	$300 million	Discretionary	Deployment of advanced transportation and congestion management technologies.
Bridge Investment Program (BIP)	FHWA	$12.5 billion	Discretionary	Replacement or rehabilitation of nationally significant bridges.
Congestion Mitigation and Air Quality Program (CMAQ)	FHWA	$13.2 billion	Formula	Reducing congestion and improving air quality.
Consolidated Rail Infrastructure and Safety Improvements Program (CRISI)	FRA	$5 billion	Discretionary	Improving railroad safety.
Federal Lands Access Program	FHWA	$1.5 billion	Discretionary	Improving federal land access facilities.
Federal Lands Transportation Program (FLTP)	FHWA	$2.2 billion	Discretionary	Improving federal land transportation facilities.

Program	Agency	Amount	Type	Focus
Highway Safety Improvement Program (HSIP)	FHWA	$16 billion	Formula	Improving highway safety.
United States Marine Highway Program (USMHP)	MARAD	$25 million	Discretionary	Projects that provide a coordinated and capable alternative to landside transportation or that promote marine highway transportation.
Metropolitan Planning Program (MPP)	FTA, FHWA	$799.0 million	Formula	Provide funding for state and metropolitan planning related to transportation.
National Highway Freight Program (NHFP)	FHWA	$7.2 billion	Formula	Improving highway freight corridors.
National Highway Performance Program	FHWA	$148.0 billion	Formula	Funding for construction and maintenance on the National Highway System (NHS).
Nationally Significant Multimodal Freight and Highway Projects (INFRA)	OMFIP	$8.0 billion	Discretionary	Nationally Significant Infrastructure.
National Infrastructure Project Assistance (MEGA)	OMFIP	$5.0 billion	Discretionary	Nationally Significant Infrastructure.
Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)	FHWA	$7.3 billion	Formula	Increase the resiliency of surface transportation to natural hazards.
	FHWA	$1.4 billion	Discretionary	Fund projects that improve the resilience of the surface transportation system, including highways, public transportation, ports, and intercity passenger rail.
Port Infrastructure Development Program	MARAD	$2.25 billion	Discretionary	Improve safety, efficiency, or reliability of the movement of goods through, as well as intermodal connections to ports.
Railroad Crossing Elimination Program (RCE)	FRA	$3.0 billion	Discretionary	Improving railroad safety through grade-crossing elimination.
Rebuilding American Infrastructure with Sustainability & Equity (RAISE)	OMFIP	$15.0 billion	Discretionary	Local or regional impact of infrastructure.
Reduction of Truck Emissions at Port Facilities Grant Program (RTEPF)	FHWA	$250 million	Discretionary	Reduce truck idling and emissions at ports, including through the advancement of port electrification.
Rural Surface Transportation Grant Program (RURAL)	OMFIP	$2.0 billion	Discretionary	Highway and freight infrastruc-ture that impacts rural communities.

Program	Agency	Amount	Type	Focus
Surface Transportation Block Grant Program (STBG)	FHWA	$72.0 billion	Formula	Improvement in road and rail infrastructure.

Public Private Partnerships

Florida has long been a key advocate in the utilization of P3s. Due to the funding match requirements attached to a significant number of grant and funding programs, the state has created specific statutes to ensure that these opportunities are pursued and utilized where feasible. Under statutes 334.30 and 339.2825, F.S., FDOT is allowed to enter into P3 agreements for the building, operation, ownership, or financing of transportation facilities. Also, pursuant to Sections 334.30(1), F.S., P3 projects must be: "… programmed into the adopted 5-year work program or projects increasing transportation capacity and greater than $500 million in the 10-year Strategic Intermodal Plan." A final agreement is based on a bid to ensure private parties have had an opportunity to provide input and a chance at the contract plan. Furthermore, FDOT is authorized under Chapter 337 of the Florida Statutes to issue long-term leases on department property or rights-of-way for leases up to 99 years in length for joint public-private transportation purposes to further economic development in this state and generate revenue for transportation.

Partnerships can be with any enterprise regardless of modality and are mainly utilized to meet the needs of the funding match requirements stated above. Other benefits are an increased partnership with stakeholders, which allows for deep outreach and public-facing opportunities to improve Florida's freight facilities. Specifics of the resultant work plan can vary in its use of funds and final utilization of earned revenue or utilization of the facility depending on the agreed-upon contract.

Cross-Organizational Funding Opportunities

There may be opportunities to supplement transportation funding with funding from other state agencies. As freight mobility supports economic development, it is considered good for society. There are opportunities to work with other state agencies or federal departments to create plans and encumber funds for freight projects. Departments such as HUD and Commerce, that focus on improving quality of life and job opportunities, may opt to support transportation investments that support community and public good.

Appendix A: Action Plan

The last piece of the FMTP24 should lead into the first steps for action. This appendix breaks down each strategy from the plan into specific action items for implementation. They are based on the following timeframe: 1-2 years (short, S), 3-5 years (mid-range, M), 5+ years (long, L), and ongoing (continuous, C), and have suggested offices and agencies for collaboration. Ensuring success requires constant monitoring and continuous planning. FDOT is poised to initiate the implementation action items to continue enhancing Florida's economy and communities.

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
1.1 Continue to analyze truck parking needs, identify appropriate solutions, and provide more safe and secure truck parking facilities where needed	1.1.1 Continue to invest in truck parking availability system (TPAS) to increase coverage and enhance parking information management	Commercial Vehicle Operations	Florida Trucking Association	C
	1.1.2 Utilize existing parking facilities and new sites (rest areas, publicly owned land, underutilized/vacant industrial/commercial properties, etc.) to provide additional truck parking	Commercial Vehicle Operations, Districts	Florida Trucking Association	M
	1.1.3 Increase lighting, camera coverage, and other security technology at truck parking sites	Commercial Vehicle Operations, Asset Maintenance/Rest Areas	Florida Trucking Association	S
	1.1.4 Continue to periodically assess truck parking needs utilizing truck GPS data and track progress	Transportation Data & Analytics	Florida Trucking Association	S
1.2 Identify commercial vehicle high crash segments and intersections, analyze causal factors, and implement effective countermeasures	1.2.1 Analyze CMV crash hot spots to identify safety issues and prioritize highest needs	Transportation Data & Analytics	Florida Trucking Association	S
	1.2.2 Implement targeted education and enforcement countermeasures to reduce driver error incidents	Safety	DHSMV, FDLE	M
	1.2.3 Implement targeted technology/ engineering countermeasures (i.e. camera systems, dynamic warning signs, rumble strips) to combat incidents caused by driver distraction/vision disruption	Traffic Operations, Emerging Technologies, Safety	DHSMV, FDLE, FTA	M
1.3 Identify high incident rail-highway grade crossings, analyze causal factors, and implement countermeasures	1.3.1 Analyze highway-rail grade crossing incident hot spots to identify safety issues and prioritize highest needs	Districts, Safety	Federal Railroad Administration	S
	1.3.2 Use GIS tool to prioritize grade separation projects for funding from a statewide perspective	Districts	Federal Railroad Administration	S
	1.3.3 Implement proven countermeasures to enhance safety	Safety, Emerging Technologies, Traffic Operations	Federal Railroad Administration	M

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
	1.3.4 Invest in deployment of train detection (preemption) technology to alert motorists for increased awareness	Safety, Emerging Technologies, Traffic Operations	Railroad Partners	M
1.4 Identify disruptions and areas for improvement in critical supply chains through data and system security	1.4.1 Work with data vendors to develop systems and dashboards that provide real-time visibility into supply chain flows and bottlenecks	Transportation Data & Analytics, Districts, Emerging Technologies	Private Vendors, Industry Stakeholders	M
	1.4.2 Support Florida industries in leveraging a blockchain for supply chain to minimize delays from Bill of Lading	Transportation Data & Analytics, Districts, Modal Development	Private Vendors, Industry Stakeholders, Department of Commerce	M
	1.4.3 Leverage data sharing through Freight Logistics Optimization Works (FLOW) to speed up delivery times and reduce consumer costs	Commercial Vehicle Operations, Motor Carrier Size and Weight, Traffic Operations	Private Vendors, Industry Stakeholders	M
	1.4.4 Establish a Truck Green Light/Pre-Clearance program (e.g., Oregon DOT)	Commercial Vehicle Operations, Motor Carrier Size and Weight, Traffic Operations	Private Vendors, Industry Stakeholders	L
	1.4.5 Incorporate cybersecurity measures throughout operations to ensure data system integrity and safety	Transportation Data & Analytics, OIT, Emerging Technologies	Federal Railroad Administration, Florida Trucking Association, Florida Department of Law Enforcement, Private Vendors, Industry Stakeholders	C
1.5 Utilize emerging technologies to improve safety, mobility, and reliability of freight corridors	1.5.1 Invest in automated freight-only corridors to connect major freight hubs (like ports) and surrounding freight facilities	Emerging Technologies, Modal Development	Department of Management Services Telecommunications Division	L
	1.5.2 Invest in upgrading signal systems, integrating connected vehicle technologies, and developing advance performance monitoring systems	Emerging Technologies, Traffic Operations, Transportation Data & Analytics	Private Vendors, Industry Stakeholders, Department of Commerce	C
	1.5.3 Leverage the SunTrax facility to test and advance emerging technology solutions and attract private investments	Emerging Technologies, Florida Turnpike	Department of Commerce	M

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
2.1 Leverage the FDOT Resilience Action Plan (RAP) to better incorporate resilience into freight planning	2.1.1 Continue cross-agency coalition meetings and build upon momentum	Policy Planning, Modal Offices	Florida Department of Emergency Management, Florida Department of Commerce, Florida Department of Environmental Protection	C
	2.1.2 Conduct technical analyses of future conditions, such as potential exposure to sea level rise, flooding, precipitation, storm surge, and other hazards as input to the PD&E process for freight projects	Modal Offices, Policy Planning, Districts, Environmental Management	Florida Department of Environmental Protection	S
	2.1.3 Coordinate with the Environmental Technical Advisory Teams (ETAT) to include resilience impacts as part of their review of projects in the Efficient Transportation Decision Making (ETDM) process of freight projects	Modal Offices, Policy Planning, Districts, Environmental Management	Florida Department of Environmental Protection	S
	2.1.4 Develop a risk management and decision-making framework to incorporate shocks, stresses, and other risks into decisions during all project phases of freight planning	Modal Offices, Policy Planning, Districts, Environmental Management	Florida Department of Emergency Management, Florida Department of Environmental Protection	S
	2.1.5 Expand the scope of freight planning studies and needs assessments to include retrofit or adaptation of existing infrastructure, development of new infrastructure to provide redundancy to at-risk facilities, and relocation of at-risk infrastructure	Modal Offices, Policy Planning, Districts, Environmental Management	Florida Department of Environmental Protection	M
2.2 Improve weather resiliency of freight transportation by hardening infrastructure and building redundancies into the system	2.2.1 Invest in projects that flood-proof and fire-proof vulnerable facilities to minimize weather-related disruptions to supply flows	Design, Safety, Emerging Technologies, Modal Offices	Florida Department of Environmental Protection	M
	2.2.2 Consider hazards and potential resilience strategies in developing right of way requirements for easements, acquisition, and permitting, including needs for surface water, stormwater, and higher road elevation	Design, Safety, Emerging Technologies, Modal Offices	Florida Department of Environmental Protection	S

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
	2.2.3 Harden infrastructure during the construction process, such as raising road bases to address rising groundwater levels or advancing saltwater intrusion, and strengthening bridge supports	Construction, Design, Safety, Emerging Technologies, Modal Offices, Environmental Management	Florida Department of Environmental Protection	L
	2.2.4 Use high-quality materials and well-constructed pavements, including concrete, reclaimed asphalt pavement, and warm and cold asphalts mixes that extend resurfacing cycles, increase fuel efficiency, and minimize motorist delays	Structures, Safety, Environmental Management, State Materials Office, MCSAW	Florida Department of Environmental Protection	C
2.3 Ensure freight-related projects evaluate measures to reduce vulnerability to disruptions	2.3.1 Adjust project designs to reflect potential hazards by decreasing vulnerabilities, mitigating risks, and reducing the overall life cycle cost of constructing, operating, and maintaining infrastructure	Modal Offices, Design, Safety, Environmental Management, State Materials Office	Department of Emergency Management	S
	2.3.2 Advance adaptive designs that allow for more flexible use of infrastructure and right of way; value engineering solutions that increase resilience and functionality while reducing cost; and nature-based solutions such as living shorelines, ecosystem restoration, landscaping, and combined natural and hardscaped design elements	Policy Planning, Design, Structures, Environmental Management	Department of Emergency Management, Department of Environmental Protection	M
	2.3.3 Expand use of sensors and warning devices for early detection, agency coordination, and communication of hazards and potential impacts	Emerging Technologies, Traffic Operations, Design, Safety, Environmental, Management, State Materials Office	Department of Emergency Management, Department of Environmental Protection	M

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
2.4 Support private sector and military freight mobility continuance of operations and disaster relief logistics operations	2.4.1 Expand scope of 'push button' contracts to quickly enact measures toward disaster relief	Emergency Management, Environmental Management, Design, Traffic Operations, Districts	Department of Emergency Management, Department of Commerce	S
	2.4.2 Establish emergency staging areas at strategic locations around the state so that emergency vehicles can deliver and respond in a timely manner with relief supplies	Modal Offices, Emergency Management	Department of Emergency Management	S
	2.4.3 In advance of a hurricane, move fuel to a safer part of the state using rail tanker cars with trucks staged nearby for fuel delivery	Modal Offices, Emergency Management	Department of Emergency Management	S
	2.4.4 Establish system of alternative routes to use during an emergency disruption	Systems Implementation, Policy Planning, Transportation Data & Analytics	Florida Highway Administration, Department of Commerce	S
2.5 Improve supply chain resiliency of critical commodities considering all four phases of emergency management (prepare, respond, recover, and mitigate)	2.5.1 Enhance planning for staging areas, fuel distribution sites, and similar locations and infrastructure during emergency events	Modal Offices, Systems Implementation, Policy Planning, Emergency Management, Districts	Industry Stakeholders	S
	2.5.2 Assist modal partners during emergencies to secure assets, suspend normal operations, and enhance emergency operations	Modal Offices, Policy Planning, Emergency Management, Districts	Department of Emergency Management	S
	2.5.3 Establish process to quickly provide food trucks and porta-potties at rest areas for truckers in preparation for another pandemic-type event	Emergency Management, Districts	Department of Emergency Management, Industry Stakeholders	S
3.1 Utilize data-driven asset management approach to guide multimodal freight investments	3.1.1 Coordinate with risk-based transportation asset management process to identify freight related maintenance issues	Policy Planning, Maintenance	Department of Highway Safety and Motor Vehicles	S
	3.1.2 Work with respective offices to improve freight asset condition data collection methods	Maintenance, Forecasting and Trends		S

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
3.2 Optimize the functionality, efficiency, and reliability of existing freight systems	3.2.1 Conduct assessment of local restricted and dedicated freight routes statewide	Districts, Transportation Data & Analytics	MPOACs	S
	3.2.2 Continue to monitor congestion bottlenecks and travel time reliability	Districts, Transportation Data & Analytics, Commercial Vehicle Operations	Florida Department of Law Enforcement	C
	3.2.3 Provide real-time information (like information provided by 511) to stakeholders for improved performance	Transportation Data & Analytics, Forecasting & Trends, Traffic Operations, Emerging Technologies	Industry Stakeholders	S
	3.2.4 Utilize technology (sensors, automated inspections, etc.) to optimize efficiency and reliability of systems	Transportation Data & Analytics, Traffic Operations, Emerging Technologies, Safety, Districts, Modal Offices	Industry Stakeholders	M
3.3 Incorporate resilience into re-builds and infrastructure improvements	3.3.1 When investments are made to rebuild, build with resilience in mind (e.g., materials, contingencies, consideration of changing environmental conditions, etc.) to account for future disruptions	Systems Implementation, Emerging Technologies, Traffic Operations, Structures, Safety, Environmental Management, State Materials Office	Department of Environmental Protection	C
	3.3.2 Coordinate maintenance and preservation efforts with capacity projects during program planning and Work Program development	Work Program		
3.4 Preserve and maintain the existing State Highway System (SHS)	3.4.1 Continue to assess needs and policies for including resurfacing, bridge, and maintenance funding in programs	Commercial Vehicle Operations, Transportation Data & Analytics	Florida Trucking Association	C
	3.4.2 Continue to monitor structurally deficient bridges and pavement conditions	Maintenance	MPOs, TPOs, Local Government Partners	C
	3.4.3 Coordinate with respective offices to address maintenance needs	Modal Offices, Maintenance		S

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
3.5 Maximize use of existing and unused facilities and properties for freight development	3.5.1 Continue to retrofit/redesign existing rest areas to add more capacity and improve third-party vendor operations for truck parking	Commercial Vehicle Operations, Transportation Data & Analytics, Traffic Operations	Florida Trucking Association, Industry Stakeholders	C
4.1 Support development of intermodal logistics centers/inland ports to increase seaport throughput and improve supply chain efficiencies	4.1.1 Partner with industry and modes to identify appropriate locations and fund inland facilities to improve cargo flows	Districts, GIS, Modal Offices, Legislative Programs	Railroad Partners, Department of Commerce	M
	4.1.2 Clearly define all facility types in statute and identify funding sources for intermodal infrastructure investments	Legislative Programs	Department of Commerce	M
	4.1.3 Partner with industry and modes to implement additional policy recommendations as identified	Modal Offices, Districts, Legislative Programs	Department of Commerce, FLFAC	M
4.2 Increase infrastructure capacity at modal hubs as well as to and from key freight clusters around the state	4.2.1 Analyze freight operations on facilities that provide last/first-mile access to major freight clusters and identify needed improvements	Right of Way	Industry Stakeholders, Department of Commerce	M
	4.2.2 Analyze the need to increase cold storage facilities to support Florida strategic supply chains	Modal Offices	Industry Stakeholders, Department of Commerce	S
	4.2.3 Revisit the Operational Quick Fix program to make sure freight goals are aligned	Systems Implementation, Policy Planning		S
	4.2.4 Continue to work with modal partners to understand the need for and implement infrastructure capacity projects	Modal Offices, Districts		C
4.3 Improve the convenience and efficiency of connecting between multiple freight modes	4.3.1 Identify off-system freight connectors for designation review based on funding need	Systems Implementation, Policy Planning		S
	4.3.2 Review land suitable to develop/preserve for freight uses statewide	Right of Way, Policy Planning		M
	4.3.3 Consider use of FDOT Right of Way for emerging freight uses, including potential lease by industry	Right of Way, Policy Planning, Emerging Technologies	Department of Environmental Protection	S

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
	4.3.4 Identify the need for additional transloading and other intermodal facilities across the state	Modal Offices, Districts		M
5.1 Reduce financial, institutional, data, statutory and regulatory barriers	5.1.1 Research and understand regulations that may impede efficiency and economic competitiveness	Modal Offices	Florida Economic Development Council	S
	5.1.2 Research innovative regulatory frameworks that have been successful outside of Florida	Modal Offices, Research Center, Legislative Programs		S
5.2 Streamline FDOT processes to support supply chain projects that are more dynamic and responsive	5.2.1 Continue to research P3s in the context of truck parking projects and coordinate with industry partners	Finance and Administration, Commercial Vehicle Operations	Florida Economic Development Council	S
5.3 Enhance intergovernmental partnerships for supply chain projects	5.3.1 Build trust with industry through awareness of state support/benefits FDOT can provide	Legislative Programs, Communications	Florida Economic Development Council, Florida Department of Commerce	C
	5.3.2 Continue to leverage and build on the Florida Freight Advisory Committee	Modal Offices, Legislative Programs		C
5.4 Drive strategic investments that support state's multimodal/ intermodal freight system vision	5.4.1 Prioritize projects that consistently yield greater return on investment	Modal Offices	Florida Economic Development Council	C
	5.4.2 Identify partner champions to support identified freight needs suitable for discretionary or new funding sources	Legislative Programs	Florida Economic Development Council	S
6.1 Prepare the freight system for emerging urban freight delivery patterns	6.1.1 Prepare for Advanced Air Mobility options (including UAM and eVTOL) for moving cargo between places underserved by traditional aviation	Modal Offices, Policy Planning, Forecasting & Trends	Florida Airports Council	M
	6.1.2 Continue to monitor and prepare for shifts in e-commerce and new last-mile delivery options, including flexible use of truck parking facilities and curbside management approaches	Modal Offices, Forecasting & Trends	Industry Stakeholders	C

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
6.2 Improve freight mobility through operations solutions	6.2.1 Utilize technology that detects, monitors, controls, and communicates traffic data and signal control to enable more efficient corridor and system management (e.g. V2X, SPaT, Freight Signal Priority, FRAME, etc.)	Traffic Operations, Emerging Technologies, Transportation Data & Analytics, Modal Offices	Industry Stakeholders	S
	6.2.2 Invest in freight research and deploy pilot projects	Research Center	Universities	M
7.1 Collaborate with public and private sector partners to address workforce development needs, facility conditions, training, and recruitment	7.1.1 Improve conditions and amenities for drivers	Commercial Vehicle Operations	CareerSource Florida, Florida Department of Commerce, Florida Economic Development Council	M
	7.1.2 Enhance truck driver educational and training opportunities	Modal Offices, Commercial Vehicle Operations	CareerSource Florida, Florida Department of Education, Florida Economic Development Council	S
	7.1.3 Encourage/promote truck driving careers	Legislative Programs, Communications	CareerSource Florida, Florida Department of Commerce, Florida Economic Development Council	S
	7.1.4 Incentivize advanced driver-assistance technology system (ADAS) for Class 8 truck (improve safety, attract more people to drive due to technology)	Modal Offices	CareerSource Florida, Florida Department of Commerce, Florida Economic Development Council	M
7.2 Incorporate freight and logistics planning and engineering into academic curricula of schools, colleges, and universities	7.2.1 Work with CareerSource to address workforce development challenges and opportunities in all freight sectors	Modal Offices	CareerSource Florida	M
	7.2.2 Encourage/promote logistics jobs - help tell the story of logistics and the importance of freight to daily lives	Communications, Modal Offices	CareerSource Florida, Florida Department of Commerce, Florida Economic Development Council	C
	7.2.3 Prepare materials that can be used to support education on supply chains at schools, technical colleges, and universities	Communications, Modal Offices	Florida Department of Education, Universities	S

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
7.3 Work with partners to support a statewide manufacturing initiative	7.3.1 Support regional economic development organizations, workforce development boards, and manufacturing associations in identifying regional priorities	Modal Offices, Legislative Programs	Florida Department of Commerce, Florida Economic Development Council	M
	7.3.2 Provide targeted support to rural and economically distressed areas of Florida	Policy Planning, Legislative Programs	Florida Economic Development Council	S
7.4 Expand Florida supply chain partnerships	7.4.1 Expand opportunities for locally based suppliers of goods and services to work with Florida-based manufacturers		Florida Airports Council, Florida Economic Development Council, FloridaMakes, Florida Ports Council, Florida Railroad Association, and Florida Trucking Association	M
	7.4.2 Streamline interstate policies/regulations and support multi-state investments	Legislative Programs	Florida Economic Development Council	M
	7.4.3 Evaluate synergies between FDOT and partner agency funding sources to achieve mutual supply chain goals and maximize return on investments		Florida Department of Commerce, Florida Economic Development Council	M
8.1 Support manufacturing activities to strengthen domestic supply chain	8.1.1 Encourage shifts of suppliers closer to consumers and diversity in operations to minimize risk of disruption		FloridaMakes, Enterprise Florida, CareerSource Florida, Florida Department of Commerce, Space Florida, Florida SBDC Network, GrowFL, Florida Economic Development Council, Florida Rural Economic Development Association, Florida Chamber of Commerce	L
	8.1.2 Incentivize high-tech manufacturing investments, in combination with R&D clusters	Emerging Technologies, Research Center, Modal Offices		M

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
8.2 Ensure strategic representation of Florida at the national level to help shape federal decisions on trade and logistics	8.2.1 Continue to maintain strategic partnerships between Florida seaports and facilities in Mexico, the Caribbean, Latin America, and Africa	Legislative Programs	Executive Office of the Governor, Florida Legislature, Enterprise Florida, CareerSource Florida, Florida Department of Commerce, Florida Department of Education, Florida Chamber of Commerce, Florida Economic Development Council, FloridaMakes	C
	8.2.2 Maintain Florida's premier status as the world's most capable spaceport state for commercial, civil, and military launch facilities	Modal Offices		C
	8.2.3 Promote air cargo growth at airports and e-commerce hubs across the state	Modal Offices		M
	8.2.4 Position Florida for available federal discretionary grant funding, while advocating for formula funding where appropriate	Modal Offices, Policy Planning		C
8.3 Develop next-generation freight corridors and intermodal facilities leveraging latest technology and considering multimodal freight demand	8.3.1 Develop concepts for transforming corridors to incorporate multiple modes; multiple uses, such as co-location of energy and broadband infrastructure; and emerging technologies, including infrastructure to support connected, electric, and alternative fueled vehicles	Emerging Technologies, Research Center	Industry Stakeholders, Florida Department of Commerce, Florida Economic Development Council, Universities	L
8.4 Promote Florida as a freight-friendly state that's open for business	8.4.1 Continue to research and implement freight & logistics policies that enhance Florida's business climate and economic competitiveness	Modal Offices	Executive Office of the Governor, Florida Legislature, Enterprise Florida, Florida Department of Commerce, Florida Department of Education, Florida Chamber of Commerce, Florida Economic Development Council	M

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
	8.4.2 Advocate for businesses to move cargo through Florida ports			M
9.1 Provide transportation and land use planning guidance to local and regional agencies for economic development and freight efficiencies that support community goals	9.1.1 Identify land use conflicts around seaports, airports, spaceports, intermodal logistics centers, and other freight hubs	Modal Offices, Districts	Modal and Industry Stakeholders	S
	9.1.2 Encourage adoption of ordinances compatible with freight needs and community vision	Districts	MPOs, TPOs, Local Government Partners	M
	9.1.3 Support Districts in identifying and addressing local freight needs and sharing best practices/successful projects (e.g., last-mile, truck parking, etc.)	Modal Offices, Commercial Vehicle Operations, Districts	MPOs, TPOs, Local Government Partners	S
9.2 Create pipeline of freight projects that are ready immediately upon funding availability	9.2.1 Create statewide list of unfunded freight needs	Modal Offices, Districts	MPOs, TPOs, Local Government Partners	S
	9.2.2 Create database of all funding sources that could be used for freight projects and assign to unfunded freight needs	Policy Planning, Modal Offices		S
	9.2.3 Create database of similar funding sources across agencies and where criteria/needs may overlap to allow for greater consistency in funding freight priorities	Policy Planning, Modal Offices	Florida Department of Emergency Management, Florida Department of Commerce, Florida Department of Environmental Protection	S
	9.2.4 Establish clearer guidelines for partners to submit requests to work together on discretionary grant applications for freight projects	Policy Planning, Modal Offices		M
9.3 Preserve corridors for flexible use	9.3.1 Preserve industrial land uses and promote compatible land uses around logistics and manufacturing facilities	Policy Planning, Modal Offices, Districts	MPOs, TPOs, Local Government Partners	M
	9.3.2 Anticipate future changes in the transportation network (e.g., passenger rail development) and link these to land use planning to create greater connectivity	Forecasting & Trends, Emerging Technologies, Modal Offices, Systems Implementation		M

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
9.4 Identify freight impacts on communities and pursue solutions	9.4.1 Utilize freight and economic data to identify areas of highest community/freight conflicts	Transportation Data & Analytics, Policy Planning, Modal Offices	Florida Department of Commerce	S
	9.4.2 Advocate for restrictions on incompatible development near freight/rail corridors	Right of Way, Policy Planning, Modal Offices		M
	9.4.3 Develop freight corridor design guidelines to incorporate truck routes within complete streets	Policy Planning, Modal Offices	Industry Stakeholders	M
	9.4.4 Advocate for investment in workforce housing, transportation options, and childcare for trade, logistics, and manufacturing workers		FloridaMakes, Enterprise Florida, CareerSource Florida, Florida Department of Commerce, GrowFL, Florida Economic Development Council, Florida Rural Economic Development Association, Florida Chamber of Commerce	M
9.5 Coordinate freight-related plans and programs of the private sector, local agencies, and FDOT Districts for integrated and informed decision-making	9.5.1 Improve accurate and timely data collection/information sharing among local freight stakeholders	Modal Offices, Districts	MPOs, TPOs, Local Government Partners	S
	9.5.2 Prioritize and support the implementation of projects recommended and identified in local plans and studies	Modal Offices, Districts	MPOs, TPOs, Local Government Partners	S
10.1 Support transportation solutions that enhance Florida's natural resources and wildlife	10.1.1 Continue to incentivize the submission of alternative fuel freight projects through the National Highway Freight Program	Modal Offices, Districts	Florida Trucking Association, Department of Environmental Protection	C
	10.1.2 Pursue federal, state, and local government funding and resources, as well as private entities, to progress mutual alternative fuel goals	Modal Offices, Districts, Policy Planning	MPOs, TPOs, Local Government Partners, Department of Environmental Protection	C

Strategies	Action Items	Partner Offices	Partner Agencies/ Private Stakeholders	Schedule
10.2 Support the development of alternative fuel infrastructure at seaports and intermodal logistics centers, and along major trade corridors	10.2.1 Invest in shore power and alternative energy capacity at port facilities	Modal Offices, Environmental Management	Florida Ports Council	S
	10.2.2 Invest in roadside technology to support connected and automated trucks and alternative fuel sources	Emerging Technologies, Policy Planning	Florida Trucking Association, Industry Stakeholders	S
10.3 Ensure freight-related infrastructure projects evaluate measures to reduce the impact on wildlife habitats	10.3.1 Develop additional methodologies and tools for analyzing the impact of freight movement on wildlife habitats	Research Center, Environmental Management, Policy Planning, Transportation Data & Analytics	Department of Environmental Protection	M
	10.3.2 Research innovative solutions to combat freight's adverse impacts on wildlife	Research Center, Environmental Management	Universities, Department of Environmental Protection	S
10.4 Invest in wildlife protection measures surrounding freight infrastructure	10.4.1 Invest in wildlife crossings where appropriate to function as a safe conduit for wildlife over or beneath roads, waters, and other barriers to wildlife movement	Environmental Management, Design, Policy Planning, Districts, Modal Offices	Department of Environmental Protection	M
	10.4.2 Invest in design elements such as reduced nighttime speed limits, species crossing signs, and roadside animal detection at wildlife crossing locations	Environmental Management, Design, Policy Planning, Districts, Modal Offices	Department of Environmental Protection	M
	10.4.3 Invest in shipping safety measures like informed mapping routes, vibration/noise reduction, and oil spill protocols to reduce impacts	Environmental Management, Policy Planning, Districts, Modal Offices	Department of Environmental Protection	M

Timeframe: 1-2 years (short, S), 3-5 years (mid-range, M), 5+ years (long, L), and ongoing (continuous, C)

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FREIGHT MOBILITY AND TRADE PLAN

Freight & Rail Office
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