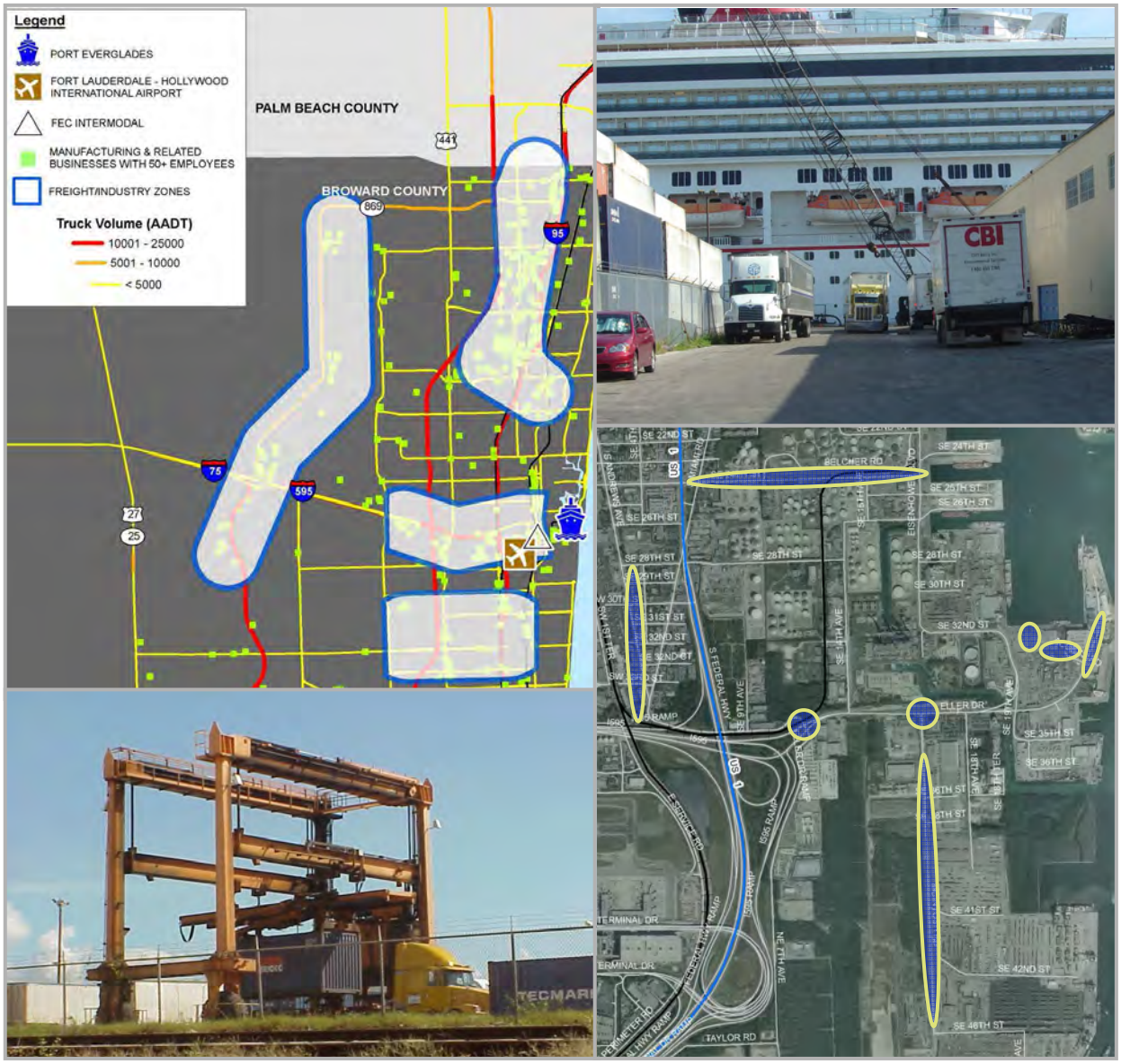
BROWARD METROPOLITAN MPO PLANNING ORGANIZATION

BROWARD COUNTY FLORIDA

Broward County
Urban Freight/Intermodal Mobility Study

Final Report



2007/08

final report

Urban Freight/Intermodal Mobility Study

prepared for

Broward MPO

prepared by

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2007/08

Table of Contents

List of Tables

List of Figures

List of Figures
(continued)

Executive Summary

Background

Over the last decade, the incorporation of freight issues into the transportation planning activities of metropolitan planning organizations (MPO) has received significant focus from Federal, state, and local transportation agencies and entities; business and industry leaders; and other key stakeholders. The Broward MPO has been actively working to incorporate freight into its transportation program since the late 1990s. Work began with identification and analysis of specific areas of need (the Commercial Vehicle Driver Survey, the Truck Stop Terminal Facility Research Project), moved into a more comprehensive planning effort (the Freight and Goods Movement Study and the Intelligent Transportation Systems (ITS) Intermodal Plan)), and ultimately freight projects were developed and programmed as part of the 2025 and 2030 Long-Range Transportation Plan (LRTP) Updates. The Broward MPO has continued to demonstrate its commitment to the safe and efficient movement of freight and goods for several years, as evidenced by its current plans and programs. The MPO's Unified Planning Work Program (UPWP), Transportation Improvement Program (TIP), LRTP each have freight specific elements defined.

While these initiatives have helped the MPO identify and begin to address key local freight issues, freight transportation planning and programming activities must continue to evolve over time to remain an active ingredient in the overall transportation program. This is especially critical for the Broward MPO and its counterparts in South Florida, given the significant number of local, regional, and state initiatives underway and/or under consideration. Potential development of an inland port in South Florida could shift distribution patterns and provide additional logistics capacity; redevelopment of the FEC rail line to accommodate passenger service could change commuting patterns and impact regional traffic flows; development of an ICTF at Port Everglades could improve the handling and distribution of growing international trade, and the development of a new aggregate facility at Port Everglades could serve the growing demand for foreign aggregate. Each of these possible or planned developments has the potential to improve overall freight mobility and capacity throughout South Florida.

At the programmatic level, development of the Strategic Intermodal System (SIS) and the Transportation Regional Incentive Program (TRIP) represent two changes to transportation funding programs that have dramatically impacted Broward County. In addition, operational restrictions, such as the new left lane restrictions for trucks implemented along Florida's Turnpike between the Golden Glades interchange to the Lantana toll plaza, highlight the importance of a balanced transportation program that serves all system users.

At the international level, continued globalization and shifts in international trade patterns are providing South Florida with a variety of opportunities and challenges. Port Everglades, the largest single freight hub in Broward County, is positioning itself to take advantage of these new and growing market opportunities through its current master plan

development. In response to this dynamic environment, the Broward MPO is taking the next step in its freight program development, with a specific focus on Port Everglades. The objectives of this study were to identify and summarize key initiatives impacting freight transportation in Broward County; update key freight trends, to supplement the 2003 Freight and Goods Movement Study; analyze Port Everglades' landside access conditions, including truck driver surveys; and develop recommendations for freight transportation system improvements, specifically focusing on Port Everglades. The material presented in this report complements the Port Everglades Master Plan. Both this document and the Master Plan will serve as key inputs to the freight element of the 2035 LRTP Update as well as the overall Broward County transportation program.

Findings and Recommendations

Broward County possesses a strong, efficient freight transportation system that facilitates the growth of the local and regional economy. Broward County and South Florida continue to experience significant population increases – nearly double the growth rate of the rest of the nation – which drive consumption of consumer goods and stimulate construction activities. The County is correspondingly experiencing significant growth in goods movement, with freight traffic increasing or at least stable across all modes. As recognized through the establishment of the SIS, this growth in freight traffic must be addressed not only through highway improvements (which constitute about 70 percent of current goods movements), but also through improvements to seaports, rail, airports and intermodal connections.

Port Everglades is a critical component of this freight transportation system. It stands out nationally for its excellent waterside and landside access: a short channel provides easy access to Atlantic shipping lanes, and direct connections to the Interstate Highway System and national intermodal rail network lie just outside the Port. Even with these strong qualities, further improvements are needed to increase efficiency and allow for the continued growth of the Port, Broward County and the South Florida region. A number of other freight-intensive areas also exist in Broward County. While also generally well-connected to the regional freight transportation network, a number of improvements have been identified that can facilitate goods movements for these zones and for the county as a whole.

Port Everglades

Within the Port, its own success and growth have led to strains on the capacity and efficiency of trucking access to Port cargoes. These strains have arisen from both physical capacity and operational issues. While these issues have been identified in the course of the Port's master planning program, and are addressed in the recently completed master plan, it is beneficial to discuss these and related topics here to integrate them and place them within the context of the broader county freight-related strategies. Figure ES.1 illustrates the general areas at and adjacent to the Port where improvements are recommended. In many cases, the port has already identified the issues and begun to take corrective actions through their capital improvement program and through improvements included in the new Port Master Plan. Recommendations are summarized below.

Figure ES.1 Key Improvement Areas at and adjacent to Port Everglades

Source: Cambridge Systematics, Inc. and Port Everglades Master Plan.

- **Construct Eller Drive overpass.** This project is funded and in the State's work program and represents a major landside improvement for both highway and rail access to the Port.

- **Develop queue management system for cruise operations/provisioning deliveries.** In the Midport area there is limited queuing and maneuvering space. A more formal staging area for cruise ship service vehicles is recommended. This should be coordinated with the port's On-Demand Dispatch System pilot.

- **Develop improved queue management system for Southport container terminals.** For the Southport container terminals, McIntosh Road can become crowded and confused. Staging areas should be better established for trucks waiting for the cruise berths,

awaiting dispatch, or that represent overflow from the individual container terminal's queuing lanes. Port Everglades' Master Plan includes the development of a loop road along McIntosh Road to help improve traffic flow and queuing.

- **Improve the physical lane and queue demarcation in the spaces immediately near the individual berths and terminals.** Improved staging areas should be developed to reduce congestion immediately near to berths and terminals. This can be accomplished through improved signage, physical expansion, and streamlined traffic management activities. A Midport expansion project will create additional vehicle queuing space and serve to alleviate roadway congestion in this area. In addition, a Port-wide way-finding signage program will help users find their way.

- **Develop a port terminal working group to discuss terminal delay improvements.** Truck drivers consistently reported excessive delays for entry into the private container terminals. An incentive-based system that encourages terminal operators to address broader Port efficiency issues outside their own gates should be discussed.

- **Continue to improve and upgrade SIS connectors to Port Everglades.** Continued improvements along Spangler Road/State Route 84 near the Port, in coordination with improvements on the west side of U.S. 1, are warranted. Traffic signal timing, road and lane widths, and turning radii on Eller Drive, especially at the intersections with McIntosh Road and with I-595, should be improved.

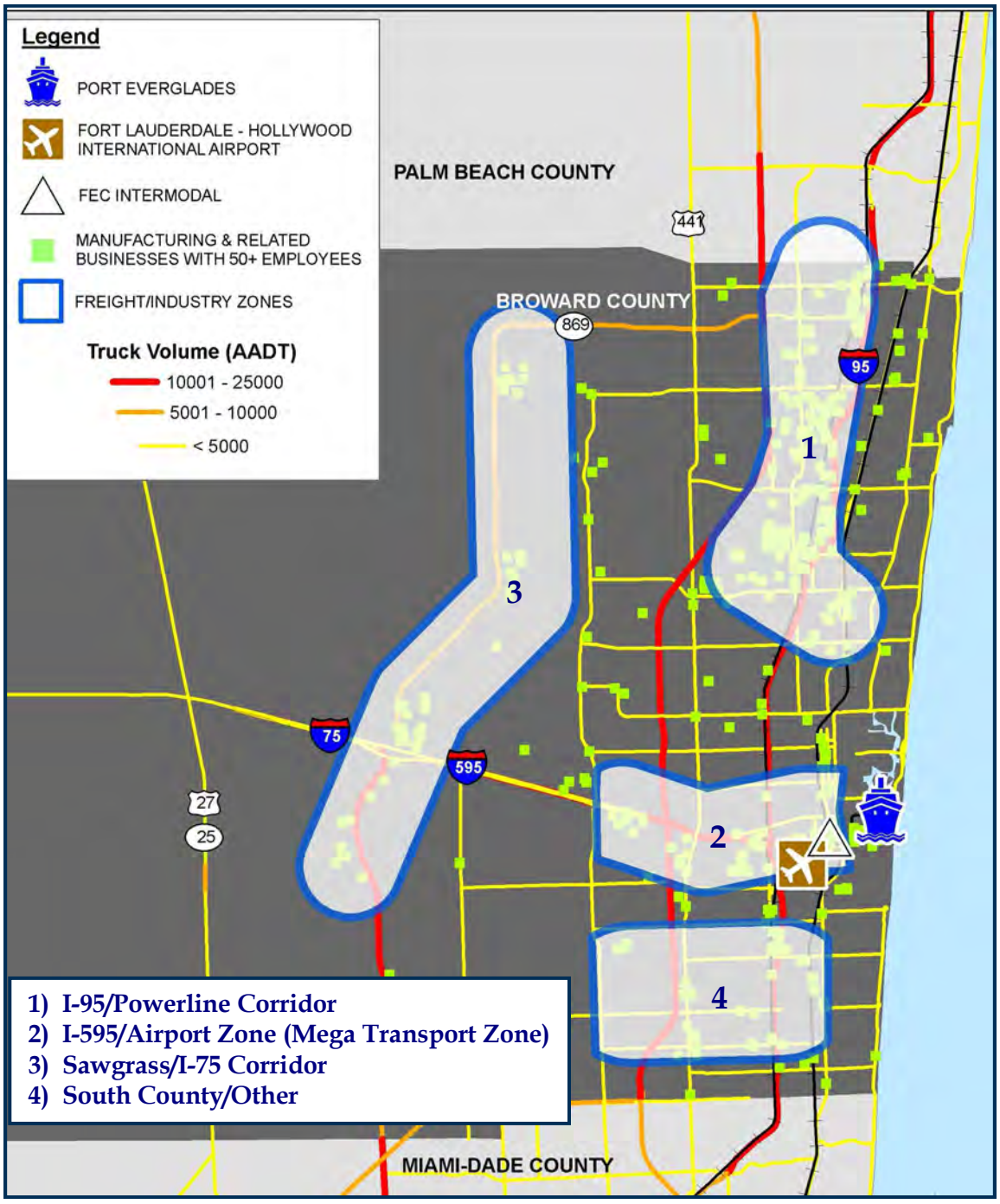
Other Broward County Freight Areas

Outside of Port Everglades and its immediate environs, there are a number of freight-oriented areas that are home to the County's largest clusters of truck-trip producing facilities. These tend to be located near major transportation corridors such as I-95. These areas have been grouped into four zones (as illustrated in Figure ES.2). To identify potential needs for freight-related improvements, each zone was analyzed from the perspective of truck and rail access, with potential improvements identified and noted.

I-95/Powerline Road Corridor. This cluster is generally located between Florida's Turnpike and I-95, south of Hillsboro Boulevard and north of Commercial Boulevard. The businesses are centered around Powerline Road, and to a lesser extent Dixie Highway in the south of the zone. Generally excellent roadway access is provided to I-95 and Florida's Turnpike. At-grade crossings of the South Florida (CSX) Rail Corridor impact the east/west arterials serving the area. The MPO has programmed a number of improvements that will serve trucks in the area. A number of additional improvements have been identified, including:

- Andrews Avenue Extension/Copans Intersection – intersection improvements: curb reconstruction, improved turning radius, signal and signing improvements;
- Andrews Avenue Extension: NW 18th Street to Copans Road – roadway improvements. Curb and drainage, median and access enhancements, drainage; and
- Powerline Road/NW 15th Street - install a new traffic signal to provide safe truck access.

Figure ES.2 Illustration of Key Freight/Industrial Zones



Source: Cambridge Systematics, Inc. Note: Truck AADT is 2006 data.

I-595/Airport Zone (Mega Transport Zone). The area is well served by I-95, I-595, Florida's Turnpike and US 1. This zone contains both Port Everglades and Fort Lauderdale – Hollywood International Airport, and sees a great deal of truck traffic. Recent improvements have included the loop ramp from Eller Drive to US 1 southbound and safety enhancements at State Road 84 and I-95. Primary rail access within this zone is

provided via the FEC Intermodal yard on Andrews Avenue south of SR 84. State Road 84 continues to constitute a major constraint to port access, due largely to the inherent conflict between port traffic and the local community and neighborhoods. The City of Fort Lauderdale and FDOT have been working on a comprehensive corridor action plan to address conflicts, enhance safety and continue to provide viable port access. Additional improvements identified include:

- Eller Drive Extension/I-595 – intersection improvements: signal timing modifications to provide improved left-turn phase access to Port Everglades.

I-75 / Sawgrass Corridor. This linear cluster of industries stretches from approximately Griffin Road north to Wiles Road. Most of the transportation infrastructure serving these businesses was developed within the last three decades and is, therefore, more consistent with current standards. Roadway lane widths and turning radii accommodate modern trucks, and good drainage is generally provided. The western part of Broward County is not served by rail, and these businesses all rely on truck transportation. The main obstacles to trucks within these areas stem from an incomplete roadway grid – for example where future connections have not yet been built – and high volumes of traffic, particularly at commuter times, which stem from the same network deficiencies. The MPO has programmed a number of improvements that will serve trucks in the area. Additional improvements identified in this zone include:

- Signal installation at Sawgrass/Commercial Boulevard. This would provide safe truck access at this interchange.

South County/Other. This zone is well served by I-95 and Florida's Turnpike via interchanges at Pines Boulevard and Griffin Road. Similar to the Powerline Road corridor, the roadway infrastructure in this area tends to be older, with narrower lanes, less access control and poor drainage. The railroad crossings add delay and danger for truck traffic. A limited number of rail spurs and sidings along the SFRC continue to serve businesses in this zone, although there are fewer than in the northern part of the county. The MPO has programmed a number of improvements within this area. Additional projects identified in this area include:

- Hollywood Boulevard/Florida's Turnpike interchange improvements: this is an area of significant congestion and improvements would benefit truck traffic by reducing delay.

Other Recommendations

- **Improve content and dissemination of traffic information services.** Traffic information services are recommended as a cost-effective means to reduce the impacts of non-recurring congestion on goods movements. It is critical that real time traffic information is accurate, in a form that is useful to truck drivers, and available at key venues convenient to truckers. In addition, drivers and dispatchers must be aware of these services.
- **Incorporate SAFETEA-LU's revised set of planning factors distinctly into freight planning**. It is recommended that Broward County make a distinct effort to apply

these factors to planning for the freight transportation system, and not just at the level of the overall LRTP. This will insure that important concerns receiving increased recent emphasis, including safety, security, and the environment (notably increasing climate concerns), will receive and be integrated with freight-specific considerations in the planning process.

- **Form a regular Freight Advisory Committee and use annually to guide transportation program investment decisions**. This Committee should include public sector, shipper, and carrier perspectives, and possibly other stakeholders. This group's establishment with some continuity and periodic meetings would provide insights that will allow freight to receive proactive consideration with regard to future improvements, rather than merely having *ad hoc* committees formed in reaction to situations that have already begun to deteriorate. This should be coordinated, as appropriate, with the Miami-Dade MPO's Freight Transportation Advisory Committee (FTAC).
- **Monitor and attend critical regional meetings.** FDOT sponsors a regional freight summit annually. Broward MPO staff should attend and participate. In addition, staff should participate in other specific project meetings (e.g., Inland Port Study) and state and regional activities that can improve Broward freight planning.
- **Participate in key regional initiatives.** As documented in this report, there are many initiatives underway that impact freight mobility. It is important that the Broward MPO formally participate in these initiatives and serve as the voice for all Broward County freight stakeholders. Examples include the Florida East Coast Corridor Study, the Atlantic Commerce Corridor/HPC #49 Initiative, and the South Florida Inland Port Feasibility Study.
- **Ensure freight remains a focus area of Broward's LRTP and is incorporated into the regional LRTP.** Staff should continue to include freight projects in the LRTP and promote a larger freight element in the regional LRTP.

1.0 Introduction

1.1 Background

Over the last decade, the incorporation of freight issues into the transportation planning activities of metropolitan planning organizations (MPO) has received significant focus from Federal, state, and local transportation agencies and entities; business and industry leaders; and other key stakeholders. The Broward MPO has been actively working to incorporate freight into its transportation program since the late 1990s. Work began with identification and analysis of specific areas of need (the Commercial Vehicle Driver Survey, the Truck Stop Terminal Facility Research Project), moved into a more comprehensive planning effort (the Freight and Goods Movement Study and the Intelligent Transportation Systems (ITS) Intermodal Plan)), and ultimately freight projects were developed and programmed as part of the 2025 and 2030 Long-Range Transportation Plan (LRTP) Updates.

In addition to these freight planning activities, the Broward MPO has demonstrated its commitment to the safe and efficient movement of freight and goods for several years, as evidenced by its current plans and programs. For example, the MPO's Unified Planning Work Program (UPWP), Transportation Improvement Program (TIP), LRTP each have freight specific elements defined. While these initiatives have helped the MPO identify and begin to address key local freight issues, freight transportation planning and programming activities must continue to evolve over time to remain an active ingredient in the overall transportation program. This is especially critical for the Broward MPO and its counterparts in South Florida, given the significant number of local, regional, and state initiatives underway and/or under consideration. Development of the Strategic Intermodal System (SIS) and the Transportation Regional Incentive Program (TRIP) are two examples of changes to transportation funding programs that have dramatically impacted Broward County.

Operational restrictions also impact freight operations. For example, left lane restrictions for trucks were implemented along Florida's Turnpike over a 40-mile stretch from Golden Glades interchange to the Lantana toll plaza as of February 1, 2008. This program was implemented to "promote safety and keep slower-moving trucks in the right two lanes" according to Turnpike officials. However, industry representatives believe the "rules will create more congestion and cause more vehicles to tailgate and pass in an unsafe manner".[1] These types of programs stress the importance of a transportation program that is balanced to serve all system users.

[1] *"Trucks to be banned in left lane of Florida's Turnpike stretch: To clear left lane for passing, new rule requires rigs to stay right on turnpike."* Trading Markets.com, January 19, 2008. http://www.tradingmarkets.com/.site/news/Stock%20News/1006785

In addition, continued globalization and shifts in international trade patterns are providing South Florida with a variety of opportunities and challenges. Port Everglades, the largest single freight hub in Broward County, is positioning itself to take advantage of these new and growing market opportunities through its current master plan development. In response to this dynamic environment, the Broward MPO is taking the next step in its freight program development, with a specific focus on Port Everglades. The purpose of this study was to develop specific recommendations to improve access to Port Everglades as well as to regional freight hubs in preparation for the impending 2035 LRTP Update.

1.2 Project Approach

This study consisted of four primary tasks designed to identify and summarize key initiatives impacting freight transportation in Broward County; update key freight trends, to supplement the 2003 Freight and Goods Movement Study; analyze Port Everglades' landside access conditions, including truck driver surveys; and develop recommendations for freight transportation system improvements, specifically focusing on Port Everglades. It is the intention of the Broward MPO that the material presented in this report complement and be consistent with the Port Everglades Master Plan scheduled for completion in Fall 2007. Both this document and the Master Plan will serve as key inputs to the freight element of the 2035 LRTP Update as well as the overall Broward County transportation program.

The following describes the four tasks completed as part of this study:

- **Task 1. Summarize Key Regional, State, and National Freight Initiatives.** The objective of this task was to identify and describe key freight initiatives that impact the Broward County transportation system. This included local, regional, state, and national efforts that drive freight system investment decisions in Broward County.

- **Task 2. Identify and Describe Key Freight Flows Impacting Broward County.** The objective of this task was to identify and describe the local, regional, state, national, and international freight flows impacting Broward County. This included review and integration of multiple data sources to illustrate the impact of national and international trends on the local transportation network.

- **Task 3. Identify and Evaluate Key Freight Corridors Serving Port Everglades.** The objectives of this task were to describe existing access routes to/from Port Everglades and quantify their use for market penetration. This included analysis of available port traffic data as well as origin/destination surveys.

- **Task 4. Recommend Freight Infrastructure Improvements to Support Port Everglades.** The objective of this task was to develop a set of landside improvement recommendations to help support current and future economic development opportunities for Port Everglades. This included infrastructure and operational (e.g.,

safety and ITS) improvements for roadway and railway connections as well as policy-driven activities.

1.3 Organization of Report

The remainder of this report is organized as follows:

- **Section 2, Overview of Freight Planning Activities.** This section describes freight elements of Broward County's transportation program, identifies and discusses key freight initiatives impacting South Florida, and describes existing opportunities for ongoing freight activities.

- **Section 3, Highlights of the Broward County Freight System.** This section presents an overview of the Broward County freight system, including a commodity flow analysis. In addition, it highlights state and national trends.

- **Section 4, Port Everglades Landside Access Operations and Needs.** This section provides a detailed description of Port Everglades' truck traffic, including analysis and presentation of truck driver surveys completed at Port Everglades and the Florida East Coast Railway (FEC) intermodal ramp. Driver perceptions of needs are also included.

- **Section 5, Freight Financing Opportunities.** This section describes a variety of programs and resources available for freight transportation projects. In addition, it discusses both public and private elements.

- **Section 6, Findings and Recommendations.** This section summarizes the key findings of this study and presents recommendations for infrastructure, operational, and institutional improvements.

- **Appendices**. Appendix A provides a list of acronyms. Appendix B provides a list of freight glossary references. Appendix C provides the truck driver survey forms and survey database. Appendix D provides a list of key freight resource websites.

2.0 Overview of Freight Planning Activities

Although Broward County and its residents are impacted each day by localized freight activities, the activities themselves typically are the result of regional, national, and international supply chains. Continued globalization and its impact on the transportation system has encouraged, and in many instances required, all levels of government to become increasingly involved in freight transportation activities. This has led to multiple parties being involved in the development and implementation of solutions. Within this environment, it is critical that all involved stakeholders acknowledge appropriate roles and responsibilities to ensure each element of the freight system is adequately addressed. While the U.S. Department of Transportation (USDOT) provides overall guidance through plan reviews, establishing program requirements, and providing some level of funding, specific improvements are identified and implemented by state, regional, and local stakeholders. With multiple parties involved in this process, it is important that each party focus on the appropriate system elements to help maximize investment opportunities and ensure all aspects of the system are addressed.

Over the last several years, the Florida Department of Transportation (FDOT) has significantly modified its transportation program, primarily through the creation of the SIS. The SIS has both focused state investments on key infrastructure elements as well as opened the door for increased investments in rail, seaport, and airport systems. In addition, the Growth Management legislation passed in 2006 increased the importance of regionally significant investments, creating the TRIP. The TRIP program allocates funding to projects on facilities designated as regionally significant. In addition, as part of the 2000 Census, the tri-county region was designated as the Miami UZA/TMA Miami-Dade. This led to a discussion of consolidating the region's MPOs into one. In response to this request by FDOT, Miami-Dade, Broward, and Palm Beach County MPOs agreed to engage in a more formalized regional planning program in return for remaining separate. This led to the development of the Southeast Florida Transportation Council (SEFTC). The Broward MPO is a member of the SEFTC and works regularly with the other members to allocate regional funds. Figure 2.1 illustrates elements of the SIS and TRIP system designations.

The Broward MPO is responsible for local investment program elements, that is, for identifying and funding improvements on system elements not covered by the SIS and TRIP. This requires close coordination with local communities as well as the FDOT District Office. In addition, the MPO works to integrate and include all transportation system investments in Broward County, regardless of program funding source, into one comprehensive transportation program through creation of the LRTP and TIP. In addition, key components are provided for inclusion in the regional LRTP. It is critical that these relationships be recognized as they directly impact the definition of roles and responsibilities for establishing investment priorities for Broward County's freight transportation system.

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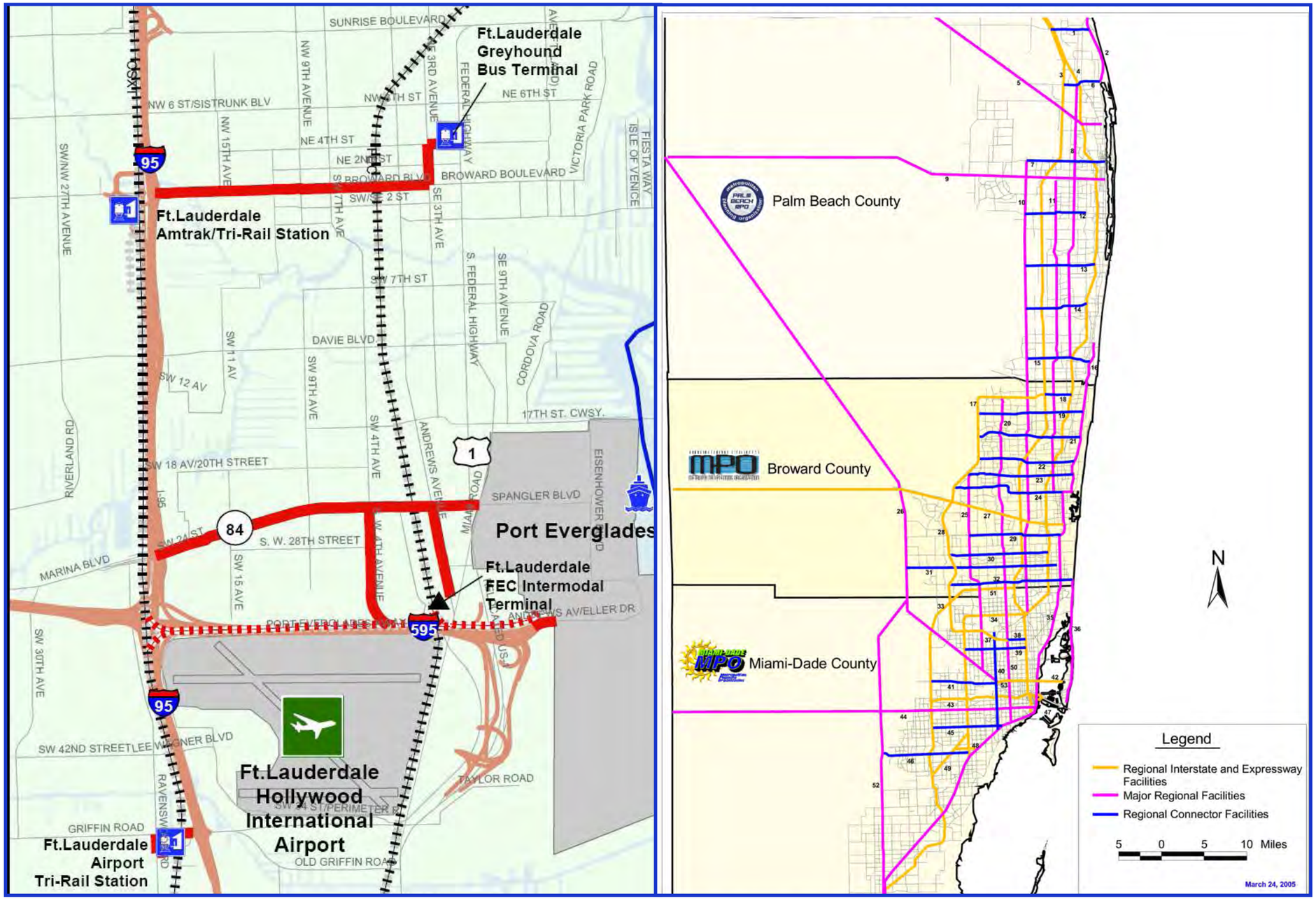
Figure 2.1 Illustration of Regional and State Transportation Systems



This section reviews Broward's existing freight program, identifies and describes key freight-related initiatives impacting current and future county actions, and describes potential opportunities for enhanced freight system development activities.

2.1 Review of Broward County's Freight Program

The Broward MPO has demonstrated its commitment to the safe and efficient movement of freight and goods for several years, as evidenced by its current plans and programs. They are reviewed in further detail below.

The Unified Planning Work Program (UPWP) for 2007-2008 identifies the short-term work activities of the MPO and includes five ongoing work activities that will contribute improvements to the freight network in the immediate future. The project list demonstrates the MPO's commitment to integrating freight into the transportation planning process. Projects are listed in Table 2.1.

The Transportation Improvement Program (TIP) for FY 2007/08 – FY 2011/12 lays out the MPO's funding commitments over the next five years and identifies ten projects that will have a positive impact on freight and goods movement in Broward County within this horizon. They are shown in Table 2.2. Note that the projects listed in Tables 2.1 and 2.2 reflect the latest documents available from the Broward MPO. These lists illustrate examples of the incorporation of freight into the MPO's program. However, the lists do not reflect ongoing amendments and modifications resulting from activities such as the Port Everglades Master Plan, which was approved in December 2007.

Table 2.1 Short-Term Freight Initiatives (07/08 UPWP)

Task	Description	Funds	Relevance
2.1	Highway and Traffic Data	$438,647	Includes vehicle classification counts identifying truck trips.
3.5	Freight & Goods Intermodal Planning	$282,910	Studies, coordination and follow up activities promoting freight movement.
3.8	Seaport Planning	$200,000	Coordination activities, studies and impact analysis for right-of-way.
3.10	Intelligent Transportation System (ITS)	$39,039	Identify ITS strategies for key freight corridors; identify funding sources.
3.11	Safety & Security	$51,568	Strategic security planning and monitoring.

Table 2.2 Freight Projects in the TIP (FY 07/08 – 11/12)

TIP#	Description	Funds ($000)
1410	Port Everglades Security Improvements	$1,555
1502	Everglades Northport Security Improvements	$9,000
524	Port Everglades Information Technology Systems	$1,485
1265	Intermodal Container Transfer Facility(ICTF) (rail spur)	$2,946
163	Eller Drive/ICTF Overpass	$72,773
1364	ICTF	$675
1368	McIntosh Road Realignment	$2,000
120	Eller Drive SB Ramp (completed in Summer 2007)	$6,000
1264	New Bridge over FPL Canal (Underway)	$1,035
1351	McIntosh Road Realignment	$1,265

Broward County's 2030 Long Range Transportation Plan (LRTP) provides a comprehensive list of longer term transportation system needs to ensure safe and efficient mobility is maintained for residents and businesses. Several of the freight-related projects in the TIP originated in the LRTP which indicates that the planning "pipeline" is working, and the MPO is successfully working with its partners, like Port Everglades, to achieve project implementation consistent with the priorities identified by the community in the planning process. Table 2.3 lists the freight projects included in the 2030 LRTP, and indicates which of those projects, identified in 2005, have been addressed by 2007 or included in the TIP. As indicated in Table 2.3 in the TIP#/Status column, the majority of the LRTP freight projects have been addressed in the short-term programs. This is shown by either a number indicating the project is included in the TIP, or a UPWP number indicating it is addressed within the UPWP. There are opportunities to incorporate several of the other lower-cost projects in plans as they are updated on an annual basis. This list will be modified as appropriate as part of the 2035 LRTP Update.

Table 2.3 2030 LRTP Freight Projects

Project ID	Project Name	Limits / Description	TIP #/Status
Airport/Seaport Infrastructure Expansion Projects			
1.	FPL Canal Bridge	Construct new bridge over FPL canal	1264
2.	Southport rail connector	Rail Connector between Southport and FEC mainline	1364
3.	On-Port circulation Improvements		1351, 1368
4.	Advanced baggage transfer system	Between Port & Airport	-

5.	ICTF	Southport	1265
6.	Roadway capacity expansion	At Eller Drive; Port Entrance.	1410
7.	Access Improvements	At Eisenhower Blvd; Port Entrance.	1410
8.	Access Improvements	At SW 24/ Spangler Blvd; Port Entrance	1410
9.	Operational improvement - turn radius	Andrews Ave./SR 84 southbound	925
Intelligent Transportation System (ITS) projects - Operational & Technology Improvements			
10.	Directional Dynamic Message Signs (DMS)	Within Port Limits	524
11.	Optimize Signal Timing	Seven East-West Arterials	1443
12.	Inventory Clearance Equipment	FDOT and FTPK accessible	1031
13.	Traveler Information via DMS	Port exit: inform on major incidents; security	524
14.	Real Time Train Locations	Upgrade/expand current FEC program; add SFRC.	-
15.	Delivery appointment system for cruise ships	Web-based appointment system	-
16.	Database integration	Integrate Available Databases into centralized System	-
17.	Additional vehicle classification counts.	Key freight highways, annually	UPWP 2.1
18.	Outreach & Education	Each freight project includes outreach, public relations, and education purposes.	
Studies - Freight Program Enhancements			
19.	Freight origin/destination surveys	Commodity type, pick-up and drop-off facility types, key highways, trip frequency	UPWP 3.5
20.	Economic impact study	Economic impact study to evaluate the impact of the industry based in Broward County.	-
21.	Freight modeling tools	Integrate statewide freight model with local	-
22.	Freight operations data.	Surveys carriers & shippers	-
23.	Train volume data set	Number of Freight trains, length, type of equipment, etc.	-
24.	Revise ranking/prioritization methodology	Develop freight-specific project evaluation criteria to evaluate and prioritize freight improvement projects.	UPWP 3.5
25.	Regional freight plan	With Palm Beach and Miami-Dade MPOs.	-
26.	Commodity flow forecasts for the region	Utilize the statewide truck freight model to forecast truck trips for internal/external and external/internal trips.	-
27.	Develop freight performance measures.	The MPOs should develop a comprehensive set of performance measures to evaluate the Tri-County freight transportation system on an ongoing basis	UPWP 3.5

In addition to the program elements presented above, FDOT District 4 has continued to evaluate and identify improvement projects throughout the district for SIS connectors, that is, the highway and rail links that connect SIS corridors and SIS hubs. From the perspective of this study, it is important to recognize any identified and/or planned improvements on the SIS connectors that serve Port Everglades, Fort Lauderdale-Hollywood International Airport, and FEC Intermodal Ramp. The ***SIS Connector Study***, completed by FDOT District 4 in February 2007, is not currently reflected in the MPO's LRTP, but should be considered as part of this study and the next update, in coordination with FDOT staff. The following excerpts (*shown in italics*) from that study describe potential investments on the county's freight SIS connectors.

The purpose of the SIS connector study was to perform a multi-modal inventory of each roadway connector in the District, identifying access and connectivity improvements, capacity improvements and improvements to Transportation Systems Management (TSM), Transportation Demand Management (TDM) and ITS. In addition, cost estimates for proposed improvements were developed; improvements were prioritized; and conceptual design plans for a select number of top-ranked improvements were developed under Phase Four of this contract. The remaining improvements identified should be included in the SIS work plan, District Safety project plans and local agency improvement plans.

Port Everglades – State Road 84

There are several areas along this corridor that have deficient drainage and curb radii too tight for truck movements. Several signals are span-wire rather than mast arms. No pedestrian signal is provided at Andrews Avenue/SR 84 and left-turn storage at this intersection is deficient. There are areas at the intersection of SR84/US 1 and near the Port security gate where the pavement is deficient.

State Road 84 is a 6-8 lane facility carrying over 55,000 Annual Average Daily Traffic (AADT). The Broward LRTP indicates no improvements in the vicinity of this connector.

A corridor study by the City of Fort Lauderdale has proposed reducing two lanes from the cross section where it is eight lanes. FDOT has a 3-R job in design for SR 84, and right-turn curb radius improvements are under design in-house at FDOT.

Improvements

a. *Conduct congestion mitigation study on SR 84; provide ITS installations informing trucks of issues on I-95/I-595 or at port entrance; signal progression improvements; improved turn radius at SW 2nd Avenue.*

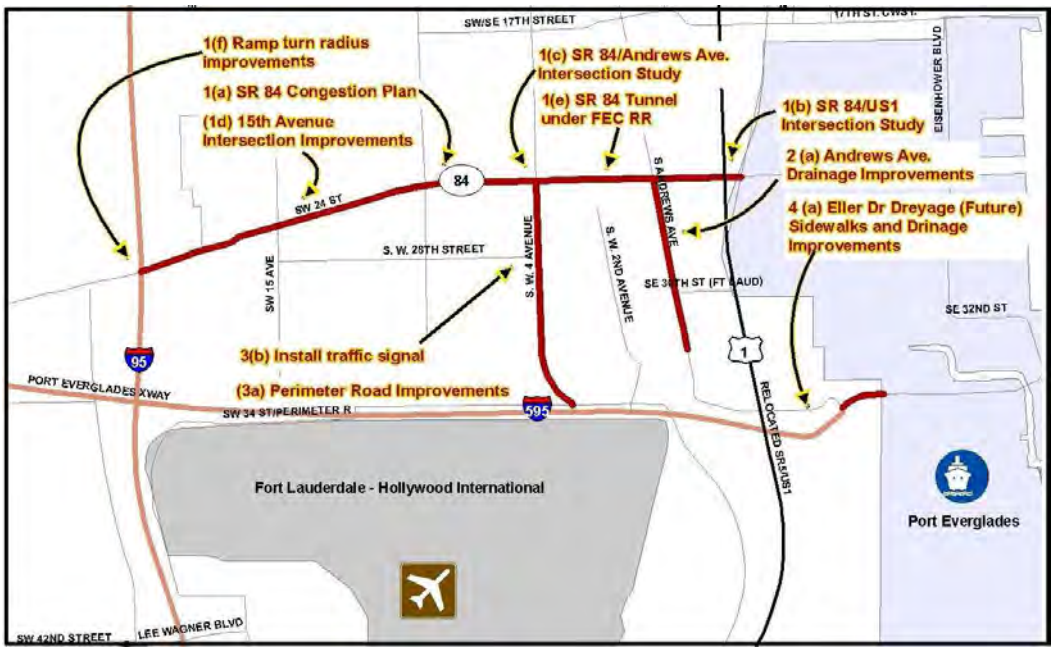
b. *Conduct intersection improvement study at SR 84/US 1 to include pedestrian access improvements.*

c. *Conduct intersection improvement study at SR 84/ Andrews Ave to include drainage and pedestrian access improvements.*

d. *Construct intersection improvements at SW 15th Avenue to make this location accessible for pedestrians. The current vehicle paths are broadly separated, increasing crossing distances unnecessarily.*

e. *Evaluate a roadway tunnel under the FEC Railroad west of Andrews Avenue. Initial calculations indicate that the tunnel could return to grade prior to Andrews Avenue, although the left-turn storage would be accommodate on the ramp. This would provide a significant savings in delay, and safety improvement related to tanker trucks crossing the railroad.*

f. *Provide improved turning radii at the ramps connecting to I-95. These ramps are designed for a very low speed, incongruous with the actual speeds of vehicles exiting the freeway, and the side of freight trucks. This has led to several fatal crashes. Improvements to these ramps at high altitude would be very costly.*



Port Everglades – FEC Intermodal Ramp

Poor drainage exists on Andrews Avenue due to a constrained outfall system. Inadequate lane width is provided along Andrews Avenue south of SR 84 . Trucks entering the FEC facility from the Port via Eller Drive are required to make a u-turn in constrained conditions. Trucks exiting the facility require an enhanced turning radius to go northbound to access SR 84. Inadequate signage is provided to the intermodal terminal.

Andrews Avenue is a 4-lane roadway with a volume of 10,800 AADT.

Turning radius improvements at the intersection of Andrews Avenue and SR 84 are in design.

Improvements

a. *Construct improvements on Andrews Avenue: turn radius at intermodal terminal entrance and exit; improve truck signage; construct drainage improvements.*

Port Everglades – Eller Drive

There are several areas along Eller Drive where drainage problems exist and no sidewalks are provided. Eller Drive is a 2-lane roadway carrying 35,000 AADT.

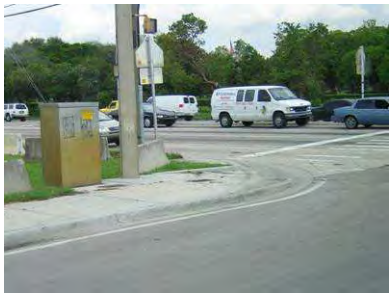
Plans have been developed for an overpass to take 7th Avenue over Eller Drive, reducing congestion and a safety problem. The Broward Greenway will traverse along Eller Drive to get around the airport.

Improvements

a. Improve sidewalks and drainage on Eller Drive – route of future Greenway connection.

b. Add Eller Drive as drayage route on SIS.

Fort Lauderdale-Hollywood International Airport – Freight Access



SW 4th Avenue is a 4-lane roadway which carries 12,400 AADT. Perimeter Road is a 2-lane roadway. Drainage on Perimeter Road is open and unsightly. The four-way stop on SW 4th Avenue at SW 28th Street is unsuitable and unsafe for the current level of truck traffic and for a 4-lane roadway. The SIS map designation should include Perimeter Road eastbound and westbound from SW 4th Avenue providing access to all freight operations located under the I-595 viaduct.

There are several inaccessible and unsigned bus stops on Perimeter Road. Bicycle lanes on Perimeter Road are unadvisable with the levels of truck traffic present.

Turning radius improvements at SW 4th Ave/SR 84 are in design.

Improvements

a. Perimeter Road: Improve open drainage; install bus pads and sidewalks

b. Replace 4-way stop at 4th Ave/28th Street with signal.

2.2 Key Initiatives Impacting Broward's Freight System

There are many initiatives that have been completed, are underway, or are planned that impact Broward County's freight transportation program. Table 2.4 summarizes examples of key initiatives and provides general recommendations on how MPO staff should incorporate them into their daily activities. In many cases, MPO staff are already engaged as recommended. Ultimately, the primary purpose of this section is to illustrate the types of initiatives at the local, regional, state, and national levels that impact local and regional freight mobility. This may be in the form of a study that documents the freight bottlenecks at the national level, a peer MPO that is working to develop a designated truck route system, or the master planning activities of Port Everglades.

There are a significant number of initiatives underway that provides challenges and opportunities for Broward County. Potential development of an inland port in South Florida could shift distribution patterns and provide additional logistics capacity; redevelopment of the FEC rail line to accommodate passenger service could change commuting patterns and impact regional traffic flows; development of an ICTF at Port Everglades could improve the handling and distribution of growing international trade, and the development of a new aggregate facility at Port Everglades could serve the growing demand for foreign aggregate. Each of these possible or planned developments has the potential to improve overall freight mobility and capacity throughout South Florida. The county is further impacted by regional and state funding allocations. The ability to compete for and maximize use of SIS and TRIP funds requires ongoing coordination with public and private partners. Finally, research and data sources at all levels, such as American Association of State Highway and Transportation Officials' (AASHTO's) Bottom Line report series or Federal Highway Administration's (FHWA's) Freight Analysis Framework (FAF), could provide staff with key data and state of the art solutions for application to local and regional needs.

2.3 Summary of Key Opportunities

Several opportunities should be considered by MPO staff to use available information:

- **Maximize use of availability data.** Substantial freight-related data exists throughout the country. MPO staff should review the initiatives/resources and incorporate relevant sources into local and regional planning activities.

- **Identify state-of-the art solutions.** Many of the resources available represent new ideas and/or best practices. Monitoring of these resources will help MPO staff identify opportunities for new program elements in Broward County.

- **Integrate/incorporate regional initiatives into county plans.** Freight transportation does not recognize county lines; therefore, it is important that the MPO acknowledge and plan for investments of regional significance.

- **Represent Broward County in regional, state, and federal programs.** Key research areas and/or program enhancements/developments at various levels can have

impacts on MPO programs. Staff should participate, as appropriate, in all levels of transportation program development to best position Broward County for ongoing program development and funding opportunities.

- **Ensure appropriate MPO priorities.** Each stakeholder (local, regional, state, federal) has specific roles and responsibilities. MPO staff should ensure that their focus is on the priorities led by the MPO, while acknowledging the impact larger programs can have on Broward County.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives

Name	Summary	Relevance to Broward County
FDOT District 4 Regional Freight Initiatives **Status:** Ongoing	The Florida DOT District 4 Office of Modal Development has worked continuously over the last several years to develop a district-wide freight program. To date, activities have included a variety of initiatives designed to provide the necessary policies, plans, procedures, and tools to support the freight transportation program. In addition, significant effort has been expended to engage the region's freight transportation partners. Highlights from the District's freight initiatives include the following: • Sponsorship of the Atlantic Commerce Corridor Study, with subsequent designation as a High Priority Corridor; • Development of a GIS-based highway truck volume mapping and data management tool; • Conduct of several regional freight summit meetings designed to reinforce the importance of freight transportation planning and build support for a southeast Florida regional freight program; • Development of a District freight transportation procedure to guide the development of a district-wide freight program; • Development of an initial regional freight element to support the Southeast Florida Regional Long Range Transportation Plan (LRTP); and • Preparation of a district-wide SIS Connector Study to identify connector needs and advance a select number of connector improvement projects. Currently, the Department is developing a strategy for further developing the Atlantic Commerce Corridor, identifying freight funding program opportunities at the federal level, and preparing for its annual freight stakeholders' summit.	Broward County is one of five counties located in District 4. It is the most urban county and is home to an international airport, major deepwater seaport, intermodal container transfer facility, and numerous freight related businesses. The regional freight program developed by FDOT directly impacts Broward County by providing data collection and analysis activities, promoting the importance of freight considerations within established transportation planning activities, and encouraging regional partners to work together to identify needs and develop solutions. Broward County's continued participation is critical to promote regional freight mobility.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Port Everglades Master Plan **Status:** Completed	The Broward County Board of County Commissioners (the Board) have engaged in updating the Port Everglades Master Plan (the Plan) which began August 2006. In preparing the Plan, an assessment of the changes that have occurred regionally, nationally, and internationally since 2001 was completed as part of the 2020 Vision Master Plan. The adoption was interrupted by the events of 9/11. The goal of this Plan is to maximize market share and revenue through a realistic 5-year facility development program within a framework of 10 and 20 year vision plans. Once the Plan is approved by the Board, an update of the Deepwater Port Component of the Broward County Comprehensive Plan will be developed consistent with the mandated requirements of Chapter 163, Florida Statutes. A guiding principle of this Plan is that it should consistently reflect the Port's mission statement: *The mission of Port Everglades is to manage the County's Port related assets to maximize the economic benefits to the citizens and businesses of Broward County and of the State of Florida. The Port will manage the County's assets in a financially responsible, environmentally sound manner, consistent with local, state, and federal rules and regulations which govern international and domestic trade, transportation and the Port industry.* http://www.portevergladesmasterplanupdate.com	Port Everglades is the single largest load center and one of the largest economic engines in Broward County. The services provided at the port have significant impacts on the region. Adopted recommendations from this initiative will directly impact the county's transportation system. MPO staff must remain regular participants in the development of the Plan to ensure consistency throughout the county's transportation program, including enhanced landside access to the port.
Broward County Freight and Goods Movement Industry Outreach Initiative **Status:** Completed	Broward MPO's first freight activities began in the late 1990s with its industry outreach initiative. This consisted of a commercial vehicle driver survey and a truck stop terminal facility research project. These initiatives were undertaken to capture the pulse of the freight community and begin to identify areas of concern. Drivers were asked to provide input on the freight transportation system while the truck stop research project documented the lack of infrastructure in South Florida. The findings from these activities were used to frame a more comprehensive freight and goods movement study. http://www.broward.org/transportationplanning/tpi02900.htm	Input provided by these activities helped develop the framework for the freight program in place today.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Broward County Freight and Goods Movement Study **Status:** Completed	The Broward MPO initiated the Freight and Goods Movement Study to develop a framework for an integrated freight program for Broward County. The Broward MPO has become increasingly focused on freight transportation planning over the last several years, undertaking several freight specific studies and research efforts. The Freight and Goods Movement Study was undertaken to more formally incorporate freight transportation issues into the traditional MPO planning process. The primary objectives of this initiative consisted of the following: • Identification and collection of existing data and information resources; • Collection of viewpoints from select regional freight stakeholders; • Development of a comprehensive profile of the freight transportation system in Broward County; • Identification of key physical and operational constraints limiting the effectiveness of the freight system; • Development of key findings, conclusions, and recommendations for the region; and • Development of the initial freight component of the Long-Range Transportation Plan. http://www.broward.org/transportationplanning/tpi02900.htm	The initiative provided a comprehensive freight system profile and developed recommendations for ongoing program development. The first freight element was prepared for the 2025 LRTP. The freight needs were updated as part of the 2030 LRTP Update.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Broward County ITS Intermodal Plan **Status:** Completed	Following completion of the Freight and Goods Movement Study, it became clear that there was a need for further work in the freight arena. Specifically, the application of ITS to freight security and mobility was identified as a key focus point. The development of the Broward County ITS Intermodal Plan was initiated to address this need. This was a logical next step, given the extensive ITS program under development in southeast Florida and the State, and given the new focus on security following September 11, 2001. The initial activities of the ITS Intermodal Plan consisted of summarizing the existing ITS components in the region and identifying best practices of ITS for freight in the U.S. This was followed by the development of a detailed needs and deficiencies statement. Based on the region's needs, specific ITS project concepts were developed as potential mitigating strategies. These project concepts were evaluated as part of an alternatives analysis. Specific benefit/cost calculations were completed where data were available. Based on the results, a preferred alternative was developed, based on the most successful components of each alternative. Finally, an implementation plan was developed for the recommended alternative. http://www.broward.org/transportationplanning/tpi02900.htm	The ITS Intermodal Plan provided an opportunity for the MPO to work with key local partners to explore ways to use ITS to benefit freight operations. Port Everglades and FDOT were key partners, contributing to discussions on ITS applications for secure and efficient port access.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
South Florida Regional Long Range Transportation Plan **Status:** Planned	The importance of regionalism was highlighted in January 2002 at the South Florida Regional Transportation Summit, One Community—One Voice. The region's transportation leaders from the public and private sectors worked together to promote one economic region and one community. The concept of one region was further promoted in December 2003 when the Office of Management and Budget designated the tri-county region as a single metropolitan statistical area. Following this reclassification, FDOT Central Office approached southeast Florida's three MPOs (Broward, Miami-Dade, and Palm Beach) to discuss opportunities for expanded regionalism. Formation of one southeastern Florida MPO was one of the options identified by FDOT for consideration. The three MPOs preferred to address regional issues through the development of one regional component to be included in each of their long range transportation plans. SEFTC was formed to drive the development of a Regional LRTP. To date, regionally significant highways have been identified and regional goals and objectives have been developed. Each MPO included regional language in their 2030 LRTP updates. The first comprehensive Regional LRTP will be developed in close coordination with each MPO's 2035 LRTP updates.	The development of the Regional LRTP represents an ongoing opportunity to invest in projects that will improve regional mobility. This will streamline TRIP applications and ultimately provide better service to the south Florida regional community. The Broward MPO will be a major partner in this process and should work to effectively integrate freight projects into the project selection process.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Broward County MPO Long Range Transportation Plan **Status:** 2035 planned	The LRTP is a model-based inventory of proposed financially feasible transportation improvement projects needed to meet the future travel demand of people and goods in the Broward County urban area. Improvements may include pedestrian, bicycle, transit, waterborne, greenways, and roadway facilities. The most current LRTP (2030) was adopted in 2004 and serves as a guide for expenditure of transportation dollars. http://www.broward.org/transportationplanning/tpi02800.htm	The LRTP directly impacts freight improvement prioritization, programming and funding throughout the region. The LRTP specifically addresses future freight demands (via FSUTMS modeling), which can be used as a baseline assessment of pending freight improvement needs.
Palm Beach County MPO Long Range Transportation Plan **Status:** 2035 planned	The 2030 LRTP for Palm Beach County is a 25-year forecast based on regional needs identified through the process of forecasting travel demand, evaluating system alternatives, and selecting those options which best meet the mobility needs of the county considering financial, environmental and social constraints. It includes a multi-modal approach, integrating all transportation modes within the area, including highway, bicycle and pedestrian facilities, public transportation (i.e. PalmTran and Tri-Rail) and intermodal facilities such as airport and seaport sites. http://www.pbcgov.com/mpo/library/2030lrtp.htm	Transportation is a regional issue, especially in South Florida, where a unique geography presents multiple access constraints. To maximize effectiveness, Long Range Transportation Plans from neighboring counties should align and strive to complement one another. The regional LRTP will provide the three MPOs with an enhanced ability to develop a regional strategy for south Florida.
Miami-Dade County MPO Long Range Transportation Plan **Status:** 2035 underway	The Miami-Dade County MPO's LRTP identifies long-range multi-modal strategies for major roadways, airport and seaport surface access, transit, and intermodal facilities (while attempting to preserve the existing transportation infrastructure and improve citizen travel choices to enhance mobility), for a 20-year planning horizon. The Miami-Dade LRTP (2030) identifies the following goals: 1) Improve Transportation Systems and Travel; 2) Support Economic Vitality; 3) Enhance Social Benefits; 4) Mitigate Environmental and Energy Impacts; 5) Integrate Transportation with Land Use and Development Considerations; 6) Optimize Sound Investment Strategies. http://www.miamidade.gov/mpo/m10-plans-lrtp.htm	

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Port of Miami Freight Access Study **Status:** Completed	The purpose of the *Port of Miami Freight Access Study* was to explore the feasibility of developing a rail-only tunnel connection to the Port of Miami. Study motivation grew out of local interest in the success of the Alameda Corridor in Southern California. This is a 20-mile rail corridor developed specifically to provide the Ports of Long Beach and Los Angeles with inland connections while eliminating over 200 at-grade conflicts with congested city streets. This corridor serves the largest seaport container facilities in the United States. The Ports of Los Angeles and Long Beach function as a gate-way to the entire U.S. market for foreign trade. The capacity and service of the Alameda Corridor is predicated on this type of service and volumes. The *Port of Miami Freight Access Study* ultimately was initiated to evaluate the potential for a similar facility in Miami-Dade County. Currently, the Port of Miami handles a small fraction of the volume and primarily serves a Southeast Florida regional market. This study explores the potential application of this type of infrastructure project within these parameters. http://www.miamidade.gov/mpo/m10-study-freight.htm	Providing improved access to the Port of Miami could significantly impact freight flows throughout south Florida. The majority of cargo moving through the port originates/terminates in the greater south Florida region. Improved access to the port would increase the efficiencies of the existing regional transportation system as well as increase port competitiveness and growth potential. The Broward MPO should continue to monitor Port of Miami access improvements.
Port of Miami Tunnel Project **Status:** Ongoing	The idea for a Port of Miami tunnel has been circulating for decades, and has made recent progress in terms of political and funding support. The majority of funding commitments are in place today. The goals of the project are to construct a highway tunnel from Watson Island to Dodge Island and achieve the following goals: "provide direct access between the Seaport, I-395 and I-95; create an alternative to the Port Bridge, now the only connection to the mainland; keep the Port of Miami competitive, at the same time maintaining its importance as Miami-Dade County's second largest economic generator; improve traffic safety in downtown Miami by removing cargo trucks and cruise line buses from already-congested streets; and facilitate ongoing and future development plans in and around downtown Miami". http://www.portofmiamitunnel.com	

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Miami-Dade Trends in Heavy Truck Traffic Management Study **Status:** Completed	Trucks are a daily fact of life on American streets and highways. Trucks, especially heavy trucks and tractor-trailers, are the mode of choice for the majority of local regional distribution and delivery activity across the United States, in Florida, and especially in Miami-Dade County. As such, the effective management of truck traffic is a common goal throughout the industrialized nations of the world, and unsurprisingly, across most urbanized areas of the United States. Trucks (especially large or heavy ones), because of their size, weight, and subsequent operating characteristics, can disrupt traffic flows, exacerbating already congested roadways. Accidents involving trucks have a higher tendency to be severe and are more apt to result in injuries and/or fatalities. The Trends in Heavy Truck Traffic Management Study was undertaken to identify opportunities for improved truck operations in Miami-Dade County. The impetus for the study was borne out of a political will to better manage safety issues associated with passenger vehicle-truck conflicts. The primary objective of the project was to develop recommendations for a heavy truck management program for Miami-Dade County that facilitates efficient and reliable movement of freight while maximizing passenger safety and security. http://www.miamidade.gov/mpo/m10-study-freight.htm	The efficient management of truck traffic in an urbanized setting is critical to maintain the quality of life for the south Florida community. The work completed and underway by the Miami-Dade MPO provides lessons learned and recommendations for improvements that could benefit the entire region. In addition, trucks tend to operate regionally, making a coordinated truck traffic management program preferable. The Broward MPO should continue to monitor the truck route work underway in Miami-Dade County.
Miami-Dade Truck Route Study **Status:** Completed	As a follow-up to the Trends in Heavy Truck Traffic Management Study, the Miami-Dade MPO has taken the next step in developing a more comprehensive truck route program. This study provided truck routing policy recommendations and truck route designation recommendations. In addition, the study addressed the design requirements for designated truck routes. Ultimately, the purpose of this initiative was to increase the efficiency of truck movements throughout the county while minimizing community impacts.	

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Palm Beach Freight and Goods Movement Study **Status:** Completed	The Palm Beach MPO is responsible for the development and implementation of a balanced, integrated, and multimodal transportation program that efficiently moves passenger and freight traffic. To ensure they are positioned to do this to the greatest effect, the MPO initiated a freight and goods movement study. The objectives of the Study were to: 1) establish an ongoing freight program for Palm Beach County; 2) enhance the integration of freight into the existing transportation program; and 3) promote the development of key partnerships. In order to achieve these objectives, it was necessary to develop a regional freight profile that described the County's freight flows, presented key economic and demographic trends that impact freight movements, identified key freight needs and regional developments impacting freight supply and demand, and developed recommendations for an ongoing freight program. http://www.co.palm-beach.fl.us/mpo/library/	It is critical that all three MPOs in south Florida review the work completed by each other as freight service providers do not distinguish one county from another, but rather they serve south Florida as one region. As the regional LRTP is prepared, lessons learned and identified needs from the freight studies should be used to promote regional investments.
Palm Beach County Industrial Land Use Study **Status:** Completed	With dramatic growth in the residential sector and rapid population growth over the last decade or more, Palm Beach County has been faced with a continuing loss of non-residential land; primarily land zoned industrial. As a response to this trend, a subcommittee was created to analyze the impact of continuing loss of industrial land throughout the county, and identify development trends and future needs for industrial and light industrial land. This study provides an inventory and analysis of available land, and strongly suggests that steps be taken to increase industrial land stock and to attract light industrial businesses to the county. http://www.edri-research.org/clientuploads/documents/Requests_For_Bids/finalindustrialreport.pdf	Available and affordable land is a major concern in south Florida. Work completed in Palm Beach County describes limited expansion capacity for industrial-based businesses. Lessons learned should be reviewed and used as appropriate throughout the region.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
South Florida Inland Port Feasibility Study **Status:** Phase II underway	The Port of Palm Beach has taken a comprehensive look at its long-term growth potential. Currently, it is a landlocked facility without adequate physical expansion opportunities. In an attempt to address this situation, port staff developed a concept for an inland port facility in western Palm Beach County. This facility would serve the Port as a direct extension of its waterside terminal. It would require improved highway and rail connections. The Florida Department of Transportation agreed to conduct a study to explore the feasibility of an inland port facility that would be located at a centralized location in South Florida, providing a hub of port-related operations and storage facilities, with truck and rail connections to the region's seaports, with truck access to regional markets. The goal was to explore the ability to increase seaport capacity, promote industrial development, and divert freight traffic from highly congested transportation corridors. A second phase of the analysis is underway and will be completed in Spring 2008. http://www.dot.state.fl.us/seaport/	The development of a new freight and industrial hub in south Florida would have a significant impact on freight mobility throughout the region. Broward County would need to position itself to connect to and benefit from the new and/or relocated services. MPO staff should remain involved as a key stakeholder as the project enters the second phase.
South Florida East Coast Corridor Study **Status:** Ongoing	The Florida East Coast Railway provides one of two north/south rail corridors serving South Florida. This corridor currently provides a mix of intermodal and carload freight service. The Corridor Transit Analysis Study is examining new regional passenger transit services in eastern Palm Beach, Broward and Miami-Dade Counties along the existing FEC Rail Corridor. It is a partnership of the Florida DOT, Palm Beach, Broward County, and Miami-Dade MPOs; as well as PalmTran, Broward County Transit, Miami-Dade County Transit, and the South Florida Regional Transportation Authority. To date, several alternatives have been developed and are under study to determine the best option for passenger service given the regional demand. One of the key factors of the analysis is developing passenger service scenarios that do not negatively impact existing and future freight operations. http://www.sfeccstudy.com/	This study could potentially result in the development of a significant new transit system element in south Florida. In addition, it would use the same corridor currently providing the majority of rail freight service. Broward County is positioned to benefit from both new passenger service as well as preserved freight service. MPO staff should remain active participants in the study advocating for a mixed use corridor that protects freight service.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Atlantic Commerce Corridor Study and Update **Status:** Ongoing	The Atlantic Commerce Corridor (ACC) Study was undertaken by FDOT and its partner agencies to address freight access and mobility issues in Southeast Florida, with specific emphasis on the I-95 corridor and the major hubs located in close proximity. Specific facilities identified within this Commerce Corridor included I-95, Florida's Turnpike, other regional highways, three seaports, three airports, two railroads, and the intermodal connectors that linked them all together. The study provided a detailed profile of the regional economy and transportation system, including corridors, hubs, and connectors for all modes. In addition, it focused on needs identification through the creation of a projects database derived primarily from the region's long range plans and improvement programs. Since this study was completed, there have been significant developments in the region and state as well as nationally. The SIS has continued to evolve through implementation activities and work program development. In addition, the TRIP program was developed, the Florida Transportation Plan (FTP) was updated, I-95 was designated as High Priority Corridor (HPC) 49, and the federal surface transportation legislation was reauthorized. All of these developments have impacted the multi-modal needs of the ACC. In addition, shifts in global logistics trends, regional growth, and worsening congestion have created new challenges. To help face these challenges, FDOT is working to develop new strategies to promote freight mobility throughout the ACC.	Designation as HPC 49 has created new opportunities for the ACC. This designation is anticipated to increase eligibility for federal funds; it also has expanded the corridor from the tri-county region to the entire Atlantic Coast of Florida. As the FDOT moves forward with development of a strategy to enhance the corridor, MPO staff should actively participate as a key stakeholder.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Strategic Seaport Investment Framework **Status:** Ongoing	Over the last year, significant work has been undertaken by the Florida DOT's Seaport Office to lay the groundwork for a more comprehensive seaport program. Work has focused on documenting current seaport conditions, measuring state benefits in seaport investments, and exploring the implications of changing trends in global trade. Continuing this work, Florida DOT leadership called for the development of a consistent, equitable, and strategic approach to guide the Department's investments in Florida's seaport system. In response, the Seaport Office is developing the Strategic Seaport Investment Framework which will help build a more analytical seaport investment process by providing guidelines and tools to enhance the project identification and evaluation processes, focusing on statewide and regional public benefits. The Strategic Seaport Investment Framework provides a set of analytical tools to support FDOT's investment decisions for all state-funded seaport projects. In the most basic terms, the Framework provides FDOT the ability to evaluate the benefits and costs associated with a particular seaport or seaport-related improvement project, which can be used by FDOT and its partners to support funding allocation activities. http://www.dot.state.fl.us/seaport/	FDOT has enhanced its ability to evaluate its seaport investments. It is important for the MPO staff to understand the impact and implications of the new tools that have been developed. This will facilitate coordination with Port Everglades to help promote state investments in Broward County.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Global Trade Trends: Challenges and Opportunities for Florida's Ports **Status:** Completed	The objective of this research project, undertaken by FDOT, was to evaluate current trends in the movements of global trade, especially waterborne shipments, and how they effect Florida's trade markets regarding national and/or international competitors, thus challenging Florida's economic future and position as the "Gateway to the Americas." This research is intended to help Florida refine and delineate its competitive trade issues with respect to seaports. The research concept was to review existing studies (by FDOT, Florida Ports Council, and others), collect new data (from databases and interviews), and summarize key findings. Key findings address trade and logistics trends, competitiveness for seaport trade activity, logistics and technology issues, shifts in global trading partners, and other factors. The synthesis of research leads to high-level statewide policy recommendations for seaport initiatives. http://www.dot.state.fl.us/seaport/	Port Everglades is a major economic and transportation hub in Broward County and south Florida. Work completed by FDOT that identifies global opportunities and challenges, documents the positive ROI of seaport investments, and identifies key seaport conditions that should be reviewed by MPO staff to provide enhanced understanding of seaport operations and needs.
Evaluate Florida's 14 Deepwater Seaports' Economic Performance & the Return on Investment of State Funds **Status:** Completed	This research project, undertaken by FDOT, completes two new, related areas of economic research regarding seaports in Florida: 1) analytical comparison of Florida to other southeastern states in terms of seaport activity (tonnage, containers, cruise ships) and state-level funding; and 2) economic impact and benefit/cost analysis of seaport investments in the Florida Department of Transportation work program of expenditures over the next five years. Previous studies have focused on the overall economic impact of existing seaport activities rather than the incremental return on new, proposed investments. It was found that Florida is the leading state in the Southeast for cruise passengers, vehicles handled, and containers (TEUs), and third of nine states for tonnage (including bulk cargo). Though Florida has increased the level of state funding available for seaports with the Strategic Intermodal System (SIS) and Growth Management initiatives, other Southeast states are funding seaports at similar or higher levels, especially when compared to port size or number of deepwater ports.	

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Continued…	**State-level seaport investments are estimated to yield $6.90 worth of economic and transportation benefits to Florida for every $1.00 in expenditures,** resulting in a net present value (NPV) of $3.6 billion. Florida DOT seaport investments over the next five years are estimated to generate an additional $1.6 billion in business output and 15,650 permanent jobs in the Florida economy, and $491 million in personal income for Florida residents by the year 2020. http://www.dot.state.fl.us/seaport/	
Florida's Seaports: Conditions, Competitiveness, and Statewide Policies **Status:** Completed	This work addressed Florida's seaports with respect to three main issue areas: Condition and Performance; Competitiveness; and State Financing and Policy Issues. The goals were to provide an informed discussion of seaport issues and funding opportunities, and to lay the groundwork for a more comprehensive Statewide Seaports Strategic Plan. The main message is: Florida's ports have significant strengths to build on, and are highly competitive with other U.S. and regional ports, but require major investment in their water assets, terminals, landside access systems, and market connections to remain competitive; and while the State provides extensive funding, there is a significant shortfall. Additional State funding will help bridge the gap, but a shortfall will remain. Therefore, it is critical that new funding be applied within a rational return-on-investment framework that ensures and maximizes statewide benefits in the areas of economy, transportation, safety and security, and conformity with other adopted transportation system goals. http://www.dot.state.fl.us/seaport/	

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Strategic Intermodal System **Status:** Ongoing updates underway	Florida's SIS was established in 2003 to enhance Florida's economic competitiveness by focusing limited state resources on those transportation facilities that are critical to Florida's economy and quality of life. Florida's SIS is a transportation system that: Is made up of statewide and regionally significant facilities and services (strategic); Contains all forms of transportation for moving both people and goods, including linkages that provide for smooth and efficient transfers between modes and major facilities (intermodal); Integrates individual facilities, services, forms of transportation (modes) and linkages into a single, integrated transportation network (system) http://www.dot.state.fl.us/planning/sis/	Broward County is home to a number of SIS-designated facilities. These facilities will be the state's priorities for investments in Broward County. MPO staff should continue to work with FDOT District staff to ensure local SIS facility investment opportunities are maximized.
Transportation Regional Incentive Program **Status:** Ongoing	TRIP was created as part of the Growth Management legislation to stimulate investments in transportation infrastructure of regional significance. This legislation has compelled Florida MPOs to begin to cooperate with adjacent MPOs to form partnerships that promote regional transportation improvements. This funding program may provide additional opportunities for South Florida ports. Florida DOT District 4 has been working with South Florida's ports and SEFTC to explore the eligibility of port-related improvement projects. Preliminary discussions suggest that some seaport projects may be able to compete along with other regional projects. http://www.dot.state.fl.us/planning/trip/	TRIP funds are available at a 50/50 match for projects on regionally significant facilities. Broward County should continue working with its counterparts to identify eligible projects and apply for TRIP funds.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
AASHTO's Freight Rail Bottom Line Project **Status:** Completed	The Freight-Rail Bottom Line Report describes the freight-rail industry, its importance to the national economy, the need for investment, and the risks of not taking action now. Unless there is coordinated public and private action, congestion and capacity constraints on the nation's freight-rail system will weaken the freight industry, the economy, communities, and the environment. http://www.camsys.com/kb_cases_freightrail.htm	The movement of freight is impacted by local, state, national, and international transportation system elements. MPO staff should be familiar with national freight system conditions, needs, and growth forecasts. This will help frame local freight system needs and investment priorities.
AASHTO's Water Transportation Bottom Line Report **Status:** Completed	The Water Transportation Bottom Line Report describes the nation's water transportation system, its importance to the national economy, and the roles played by individual states. It also provides an analysis of conditions and performance, and identifies critical issues facing water transportation, including an explanation of investment needs.	
AASHTO's America's Freight Challenge **Status:** Completed	This report identifies the expected growth in international and domestic trade and the resulting needs of U.S. highways, rails, and water freight transportation, as well as critical intermodal connections to accommodate this anticipated growth. http://www.transportation1.org/tif3report/TIF3-1.pdf	
I-95 Corridor Coalition's Intermodal Program Track Initiatives **Status:** Ongoing	The I-95 Corridor Coalition is a partnership composed of the primary transportation facility operators throughout the length of the I-95 corridor, including state DOTs, MPOs, port authorities, law enforcement, and more. Florida recently joined the coalition and will be eligible to participate in a variety of activities. The broad goals of the coalition focus around three concepts: "learning and information sharing, information management, and facilitating deployments across jurisdictions and modes." http://www.i95coalition.org/	The I-95 Corridor Coalition has been around for over a decade during which it has successfully worked to promote regional transportation improvements. MPO staff should coordinate with counterparts in south Florida and their state liaison to identify opportunities for corridor initiatives.

Table 2.4. Summary of Key Regional, State and National Freight Initiatives (continued)

Name	Summary	Relevance to Broward County
Florida Seaports' Five-Year Mission Plan **Status:** 2006 plan completed; 2007 update underway	The Florida Ports Council prepares a five-year mission plan annually that identifies strategies for freight mobility improvements, serves as a port data repository, and provides a profile for each of the 14 deep water ports in Florida. In addition, it documents the anticipated capital needs. Data are provided to the Ports Council from each of the seaports. In the summer of 2006, the Florida Ports Council also engaged in a visioning exercise that identified eight key elements for Florida's seaport system, including: strategic port planning – locally, regionally, and statewide; deepwater access; efficient landside access; capacity for port growth – locally and regionally; balance between user needs and the cost of maritime operations; ability to build and sustain key partnerships; value of investing in Florida seaports and serving Florida's population; and enhanced public understanding and support for Florida's seaports. http://www.flaports.org/mission.asp	Port Everglades provides the Ports Council with its relevant data. MPO staff should coordinate with Port Everglades for local port data; staff should review the Mission Plan to understand how Port Everglades relates to its sister ports throughout the state. This will help staff understand the specific role each port plays in Florida.
FHWA Freight Analysis Framework **Status:** Completed	The Freight Analysis Framework was developed to provide a national picture of freight flows. The original framework (FAF1) provided state level summaries for 1998 and forecasts for 2010 and 2020. The framework was updated (FAF2) and now provides data for 114 geographic regions for 2002 and forecasts in five year increments through 2035. http://ops.fhwa.dot.gov/freight/freight_analysis/faf/index.htm	While the FAF does not provide the MPO with county level data, it does describe commodity flows by mode for Florida and at a more disaggregated regional level. MPO staff should use FAF data to understand how south Florida and Florida relate to the U.S.
US DOT National Freight Program Framework **Status:** Ongoing	Over the last decade as freight transportation planning has become more mainstream and accepted there has been an ongoing discussion at the national level about the need for a national freight policy or program. Over the last few years this has become more of a reality with the creation of the National Freight Program Framework. This initiative is led by the U.S. DOT and relies on successful partnerships with a broad range of public and private stakeholders. Ultimately, the framework focuses on the creation of a national freight policy that is implemented through ongoing collaboration among public and private interests, and with the flexibility to grow and change to meet industry demands. http://ostpxweb.dot.gov/freight_policy_framework.html	As MPO staff continue to develop and implement Broward's freight program, it is important that they remain current and involved in national program developments.

3.0 Highlights of the Broward County Freight System

3.1 Overview of Freight System

Pressures on freight transportation systems to meet consumer demand at every level—global, national, regional, and local—are continuing to increase, often at a rate that outpaces the transportation industry's ability to provide services. This reality is perhaps nowhere more true than in South Florida, where natural geographic barriers, lack of available land for infrastructure improvement, teamed with a rapidly expanding population base have combined to produce multiple obstacles for the freight industry. The purpose of this section is to briefly diagram regional, state, national, and global freight flow patterns to set the context for freight issues in South Florida and more specifically Broward County.

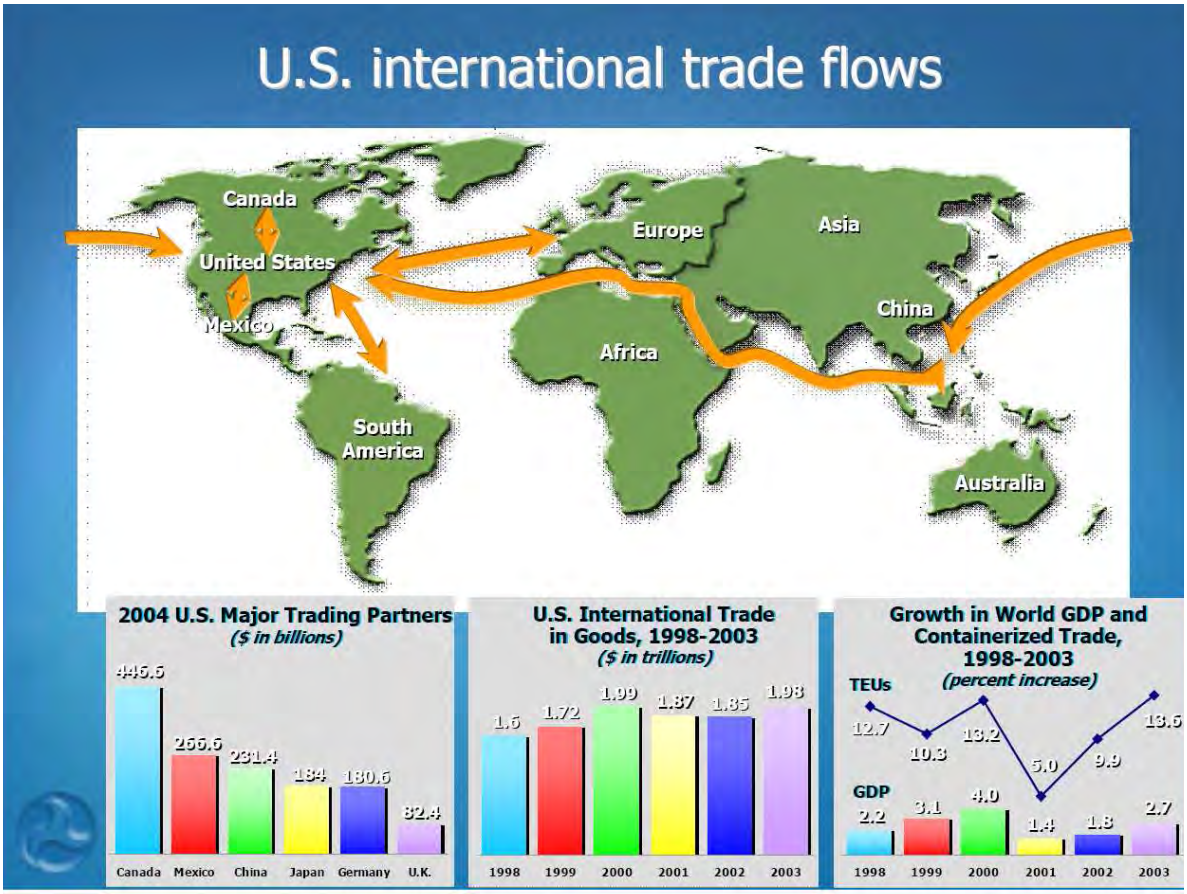
Global Trends

Major manufacturing operations are continuing to shift to third world countries; domestic investments are focused on service industries; competitive transportation services are becoming more and more available; technology is driving production efficiencies and transportation service guarantees. All of these trends are generating significant growth in demand for freight transportation capacity throughout the U.S. As the economy continues to become more and more global, the freight transportation system, and in particular the global gateways into and out of the U.S., will increase in importance. Today, the nation's airports and seaports provide these gateways.

FHWA, based on recent six-year trend lines, is projecting continued strong growth in international trade value through the year 2020 at the national level. For the Atlantic coast, between 2003 and 2025, the value of imports is projected to increase from 223.5 billion dollars to 941.9 billion, although exports are projected to decrease from 83.9 billion to 73.2 billion. This corresponds to a Compound Annual Growth Rate (CAGR) of around 7.3 percent. Much of this trade is moving by container through seaports. In 2005, world container traffic (as measured in twenty-foot equivalent units (TEUs)) grew at the rapid pace of 8.5 percent. World trade in containerized goods has grown substantially faster than world gross domestic product (GDP). This reflects the rapid globalization of supply and distribution chains – the movement of raw materials, intermediate products, and finished goods across international borders.

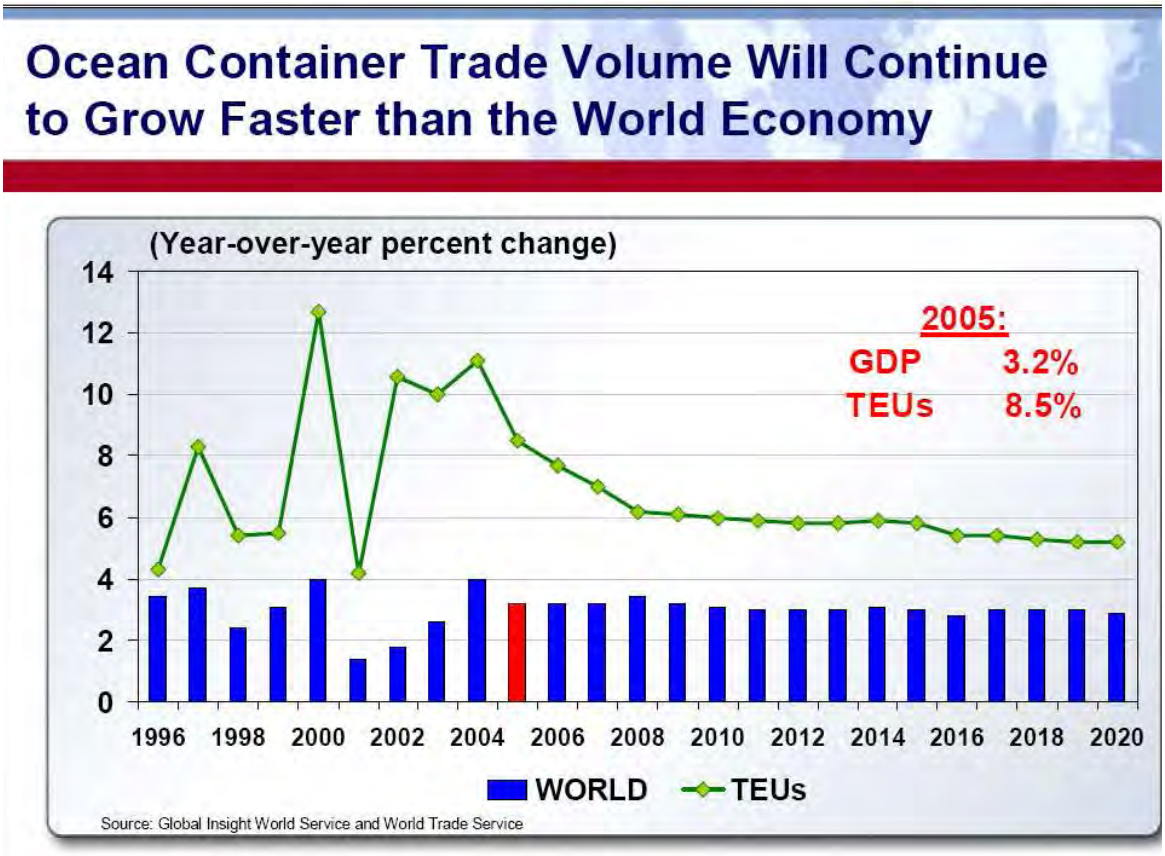
Figures 3.1 through 3.4 highlight the impacts of existing and future international trade. One of the key illustrations is the significant shift in our trading partners. Asia, and particularly China, is expected to emerge as our dominant trading partner, while some that have historically been strong partners continue to decrease, such as Europe. Figure 3.1 illustrates major U.S.-based trade flows. Note it does not illustrate the growing importance of the Panama Canal, which will handle an increasing volume of Asian trade following completion of its expansion.

Figure 3.1 U.S. International Trade Flows



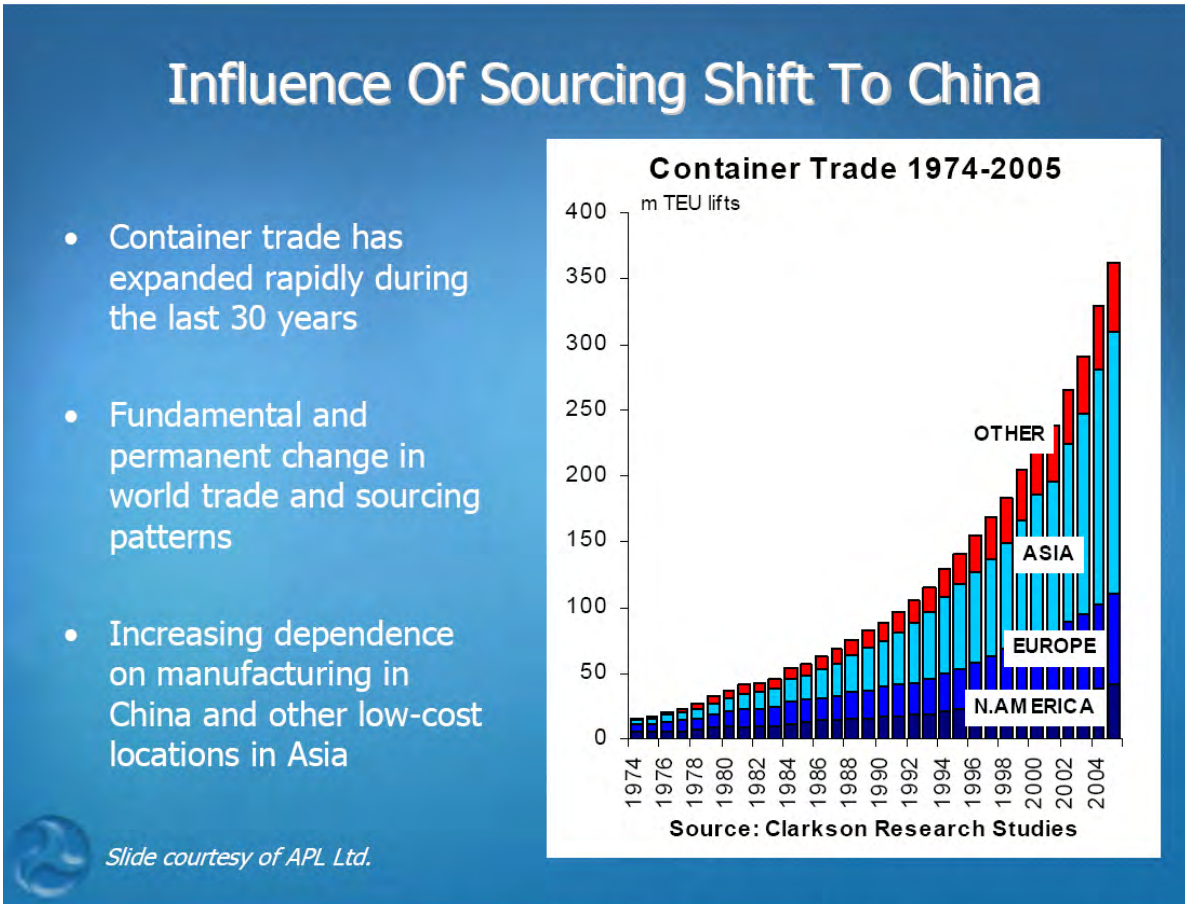
Source: Presentation on "The State of the U.S. Freight System" by Jeffrey Shane, FHWA, June 26, 2006.

Figure 3.2 Growth in Ocean Container Trade and the World Economy



Source: Presentation on "The Global Economy and the Water Transportation Challenge" by Paul Bingham of Global Insight, Inc. to AASHTO, November 15, 2005.

Figure 3.3 Growth in World Container Trade by Region



Source: Presentation on "The State of the U.S. Freight System" by Jeffrey Shane, FHWA, June 26, 2006.

Figure 3.4 Anticipated Growth of China's Economy Through 2050

Growth is Not Uniform: Market Shifts are Coming and Will Affect U.S. Trade and Transportation

(Country GDP Rank in Billions of Real (2003) U.S. Dollars)

2000	2010	2020	2030	2040	2050
U.S.	U.S.	U.S.	U.S.	U.S.	China
Japan	Japan	China	China	China	U.S.
Germany	Germany	Japan	Japan	India	India
U.K.	U.K.	Germany	India	Japan	Japan
France	China	U.K.	Russia	Russia	Brazil
Italy	France	India	U.K.	Brazil	Russia
China	Italy	France	Germany	U.K.	U.K.
Brazil	India	Russia	France	Germany	Germany
India	Russia	Italy	Brazil	France	France
Russia	Brazil	Brazil	Italy	Italy	Italy

Source: Global Insight World Service

Source: Presentation of "The Global Economy and the Water Transportation Challenge" by Paul Bingham of Global Insight, Inc. to AASHTO, November 15, 2005.

National and State Trends

The past two decades have brought about phenomenal changes in various arenas of freight transportation: increased globalization and drastically improved intermodal freight logistics, expanding base of trading partners and services, ability to process substantially larger trade volumes through more sophisticated equipment, throughput capacity, and cargo handling types – all of which impact the movement of freight throughout the U.S. Each mode of transportation is impacted—with seaports and airports functioning as the primary international gateways—and all modes playing critical roles in the domestic movement and distribution of freight. Identifying historical trends and future projections by mode provides critical indicators as to how the transportation system will be used in the coming years.

To aid the U.S. in positioning itself for future freight transportation demands, AASHTO has developed the "Bottom Line" series of reports to document and evaluate freight transportation at the national level. These consist of: Freight Demand and Logistics

Bottom Line Report; Highway Freight Bottom Line Report; Rail Freight Bottom Line Report; and Waterborne Freight Bottom Line Report. Each report is designed to document trends and anticipated growth, identify demand and system capacity, and identify bottlenecks. Work to date suggests that total freight tons will grow from 15 billion tons in 2005 to 26 billion tons by 2035 (see Figure 3.5). Evidence suggests that truck freight will continue to be the primary mode of transport, yet all modes are expected to grow and challenge system capacities.

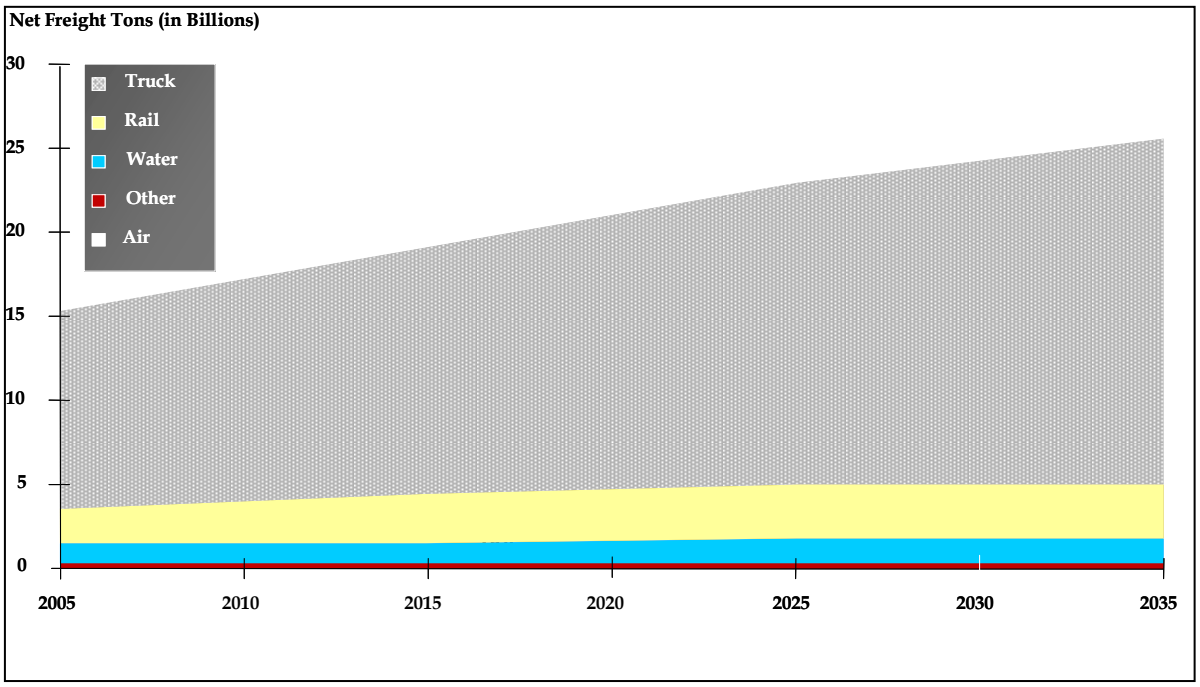
Like all of the US' major population centers, Florida continues to experience significant growth in freight. This is in large part due to increases in the state's population which drive consumption of consumer goods and stimulates construction activities. Agriculture and mining activities remain a strong but declining contributor. Traffic is stable or up across all modes. FHWA, through the creation of the FAF, provides state-level commodity flow estimates and forecasts. The original Freight Analysis Framework was a tool devised by the FHWA in coordination with the Bureau of Transportation Statistics as a means of tracking current commodity flows, estimating future flows, and identifying related freight activity among "states, regions, and major international gateways", via an origin-destination commodity flow database. FAF version 1 (original) estimated 1998 data, as well as supplying forecasts for the years 2010 and 2020. An updated and significantly modified version, FAF2, has been recently released and estimates the aforementioned freight flows for the base year 2002, with forecasts in 5-year increments through 2035.

Detailed estimates and projections created by FAF2, shown in Tables 3.1 and 3.2 below, identify modal trends measured both by volume and value of shipments for the State of Florida. Notable increases can be seen in truck freight "Within State" and "To State"; with intrastate shipments nearly doubling to more than 927 million tons, and shipments to the state via truck nearly quadrupling to 300 million tons. Rail remains fairly constant, while a significant increase is projected for "Pipeline & unknown" in the next 30 years.

In terms of shipment value (Table 3.2), total shipment values for the state are projected to triple by 2035 to more than $1 trillion. It can be seen from this table as well that trucks will be relied upon to continue to carry the majority of shipment *value* for all shipments; within (89 percent), to Florida (63 percent), and from Florida (63 percent).

As described above, FDOT has responded to the looming pressures facing Florida's transportation system by creating the SIS, which has expanded state investments across all modes. Figure 3.6 below provides an overview of SIS facilities for each mode. Of particular relevance for freight improvements are the airport, seaport, and rail intermodal hubs, as well as each of the corridors and connectors (SIS and Emerging SIS) that have been identified and designated.

Figure 3.5 US Freight Trends by Mode



Source: Global Insight, Inc., TRANSEARCH 2004.

Table 3.1 FAF2 Freight Projections, by Mode for Florida

Shipments by Weight: 2002 and 2035 (Millions of Tons)

	2002						2035					
	Within State		From State		To State		Within State		From State		To State	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	575.2	100	74.1	100	201.5	100	1,048.5	100	93.5	100	537.5	100
Truck	487.0	85	50.3	68	85.4	42	927.6	88	67.4	72	300.0	56
Rail	60.4	11	16.9	23	36.8	18	55.7	5	14.2	15	113.1	21
Water	<0.1	<1	0.6	<1	36.5	18	<0.1	<1	0.4	<1	18.1	3
Air, air & truck	<0.1	<1	0.2	<1	0.4	<1	<0.1	<1	0.4	<1	1.3	<1
Truck & rail	<0.1	<1	0.2	<1	0.9	<1	0.2	<1	0.2	<1	3.2	<1
Other intermodal[1]	0.4	<1	0.8	1	5.1	3	0.9	0	1.1	1	17.1	3
Pipeline & unknown[2]	27.3	5	5.1	7	36.5	18	64.0	6	9.8	10	84.6	16

[1] Other intermodal includes U.S. Postal Service and courier shipments and all intermodal combinations except air and truck.

[2] Pipeline and unknown shipments are combined because data on region-to-region flows by pipeline are statistically uncertain.

Source: FHWA FAF2, available at: http://ops.fhwa.dot.gov/freight/freight_analysis/faf/state_info/faf2/pdfs/fl.pdf

Table 3.2 FAF2 Freight Value Projection, by Mode for Florida

Shipments by Value: 2002 and 2035 ($ Millions)

	2002						2035					
	Within State		From State		To State		Within State		From State		To State	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	316,315.8	100	123,481.2	100	256,007.1	100	820,042.2	100	247,723.3	100	1,059,539.0	100
Truck	287,580.1	91	83,197.4	67	169,732.3	66	729,467.8	89	156,447.0	63	662,441.7	63
Rail	2,257.5	<1	4,615.1	4	7,105.2	3	1,089.2	<1	4,158.8	2	19,139.5	2
Water	53.9	<1	171.5	<1	7,262.2	3	82.4	<1	213.0	<1	2,964.5	<1
Air, air & truck	1,408.3	<1	5,911.2	5	8,067.6	3	2,270.9	<1	8,225.0	3	60,379.6	6
Truck & rail	27.4	<1	135.7	<1	3,027.2	1	60.6	<1	129.2	<1	11,989.1	1
Other intermodal[1]	11,363.2	4	25,416.8	21	45,694.1	18	50,332.5	6	72,099.7	29	250,066.4	24
Pipeline & unknown[2]	13,625.3	4	4,033.7	3	15,118.5	6	36,738.8	4	6,450.7	3	52,558.3	5

[1] Other intermodal includes U.S. Postal Service and courier shipments and all intermodal combinations except air and truck.

[2] Pipeline and unknown shipments are combined because data on region-to-region flows by pipeline are statistically uncertain.

Source: FHWA FAF2, available at: http://ops.fhwa.dot.gov/freight/freight_analysis/faf/state_info/faf2/pdfs/fl.pdf

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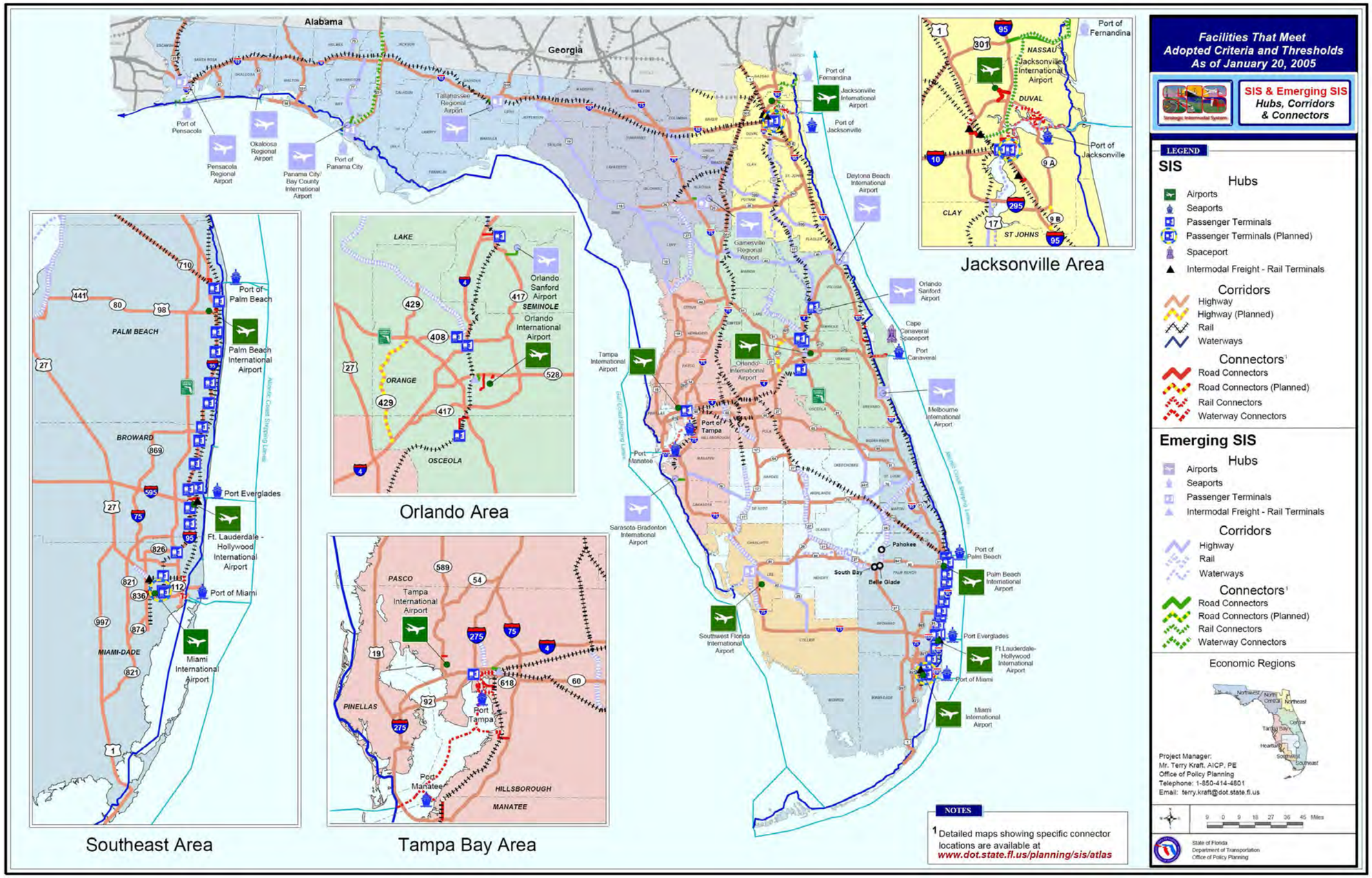
Figure 3.6 Overview of Statewide SIS Facilities



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The SIS promotes intermodal connectivity among all modes throughout the state. This directly impacts the efficient flow and distribution of freight. With the exception of Jacksonville, the major distribution infrastructure is based in the southern half of Florida. Figure 3.7 displays the major distribution areas (highlighted in orange), along with all freight-reliant businesses with 50 employees or more in South Florida.[2] Taking into consideration the hubs, corridors, and connectors in the above figure, along with the major distribution hubs/areas in Figure 3.7 below, it is clear that each of the major distribution areas has access to all modes of transportation (truck, rail, seaport, air).

Florida has an established planning program for each mode. The following provides a brief synopsis of statewide air cargo, rail freight, and seaport facilities:[3]

- **Air Cargo.** The Florida Air Cargo System Plan, recently released by FDOT's Aviation Office, summarizes air cargo trends in Florida. Goods that are time-sensitive, higher value, and lower volume tend to be shipped via air. Sixteen of the eighteen airports in Florida that have scheduled air cargo service are SIS-designated (7 SIS, 9 emerging SIS). Miami International Airport (MIA) handles 74 percent of the state's air cargo, followed by Orlando International (MCO), Fort Lauderdale-Hollywood International (FLL), Tampa International (TPA), and Palm Beach International (PBI); which each handle modest amounts of air cargo (tonnage and value). Some of the key commodities dominating the imports include: live trees and other plants, fish and other seafood, and edible vegetables.[4] Integrated express carriers such as FedEx, UPS, and DHL also carry a notable amount of air cargo traffic in the state. Further information regarding air passenger and cargo statistics is included in the following pages.

- **Rail Freight.** The 2006 Florida Freight and Passenger Rail Plan,[5] released in February 2007 by FDOT's Rail Office, provides a snapshot of the current freight and passenger rail system (shown in Figure 3.8). It analyzes the drivers of future rail demand, outlines the impact of freight rail issues from a public policy standpoint, and develops policy options and recommendations. It includes identification of seven specific industries that are and will be especially sensitive to Florida's rail system performance, including: phosphates and fertilizers, distribution and retail (consumer products), food and agriculture, paper and fiber, automotive distribution, energy, and construction. Though released in 1999, the map in Figure 3.9 provides a general characterization of rail freight flows generated in and attracted to Florida. The majority of cargo moves north/south on either CSXT of FEC.

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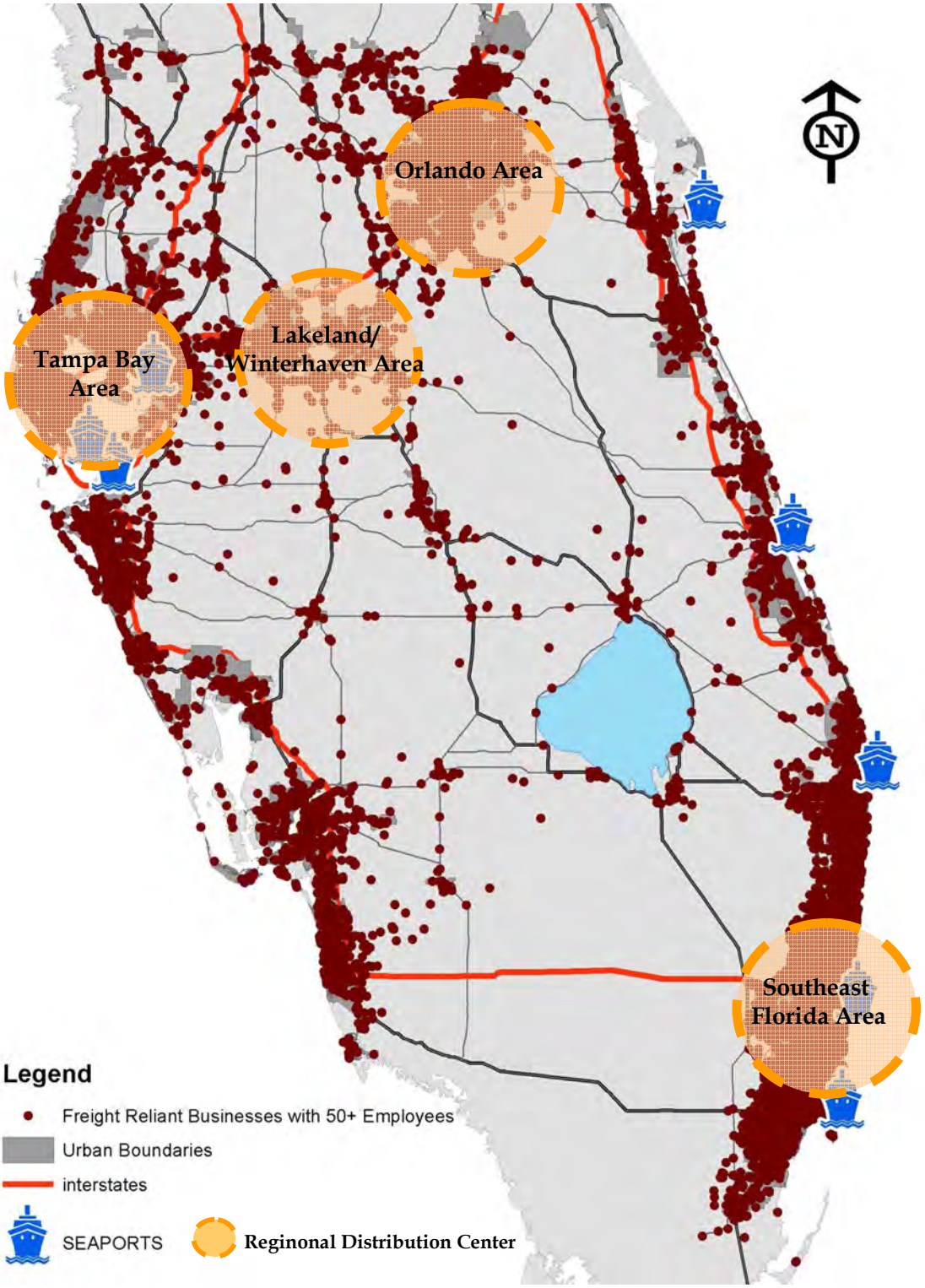
[2] Industry sector information obtained from InfoUSA database, 2006 version.

[3] Note: For additional information, each Florida DOT Modal Office (Air, Rail, Seaport) prepares a statewide plan, which is updated regularly.

[4] Florida DOT. "Aviation Office, Florida Air Cargo System Plan". Prepared by Wilbur Smith Associates, September 2006

[5] Florida Department of Transportation. "2006 Florida Freight & Passenger Rail Plan Final Report". Prepared by Cambridge Systematics, February 2007

Figure 3.7 Major Distribution Hubs in Southern Florida



Source: Cambridge Systematics, Inc.

Figure 3.8 Overview of Florida Rail Network

Source: FDOT Rail Office.

Figure 3.9 Florida Rail Freight Flow (1999)

Source: USDOT Federal Railroad Administration, 1999.

- **Seaports**. FDOT's Seaport Office has taken the initiative over the course of the past year to establish a framework for a more comprehensive seaport program. Work-to-date has focused on documenting current seaport conditions, measuring state benefits in seaport investments, and exploring the implications of changing trends in global trade. In recent years, Florida seaport growth has mirrored that of global increases of waterborne cargo and cruise statistics. Florida seaports, particularly Jacksonville, Miami, Port Everglades and Tampa have consistently ranked in the top 20 nationally in categories such as ports of call (all vessel types), container ports of call, and annual tonnage.[6] Statewide, Florida's combination of airborne and waterborne international trade totaled $109.7 billion in 2006; an increase of 15.1 percent over 2005. Of this total, nearly $73.5 billion moved through the 14 seaports of the state.[7]

  At the state level, Florida's ports are estimated to move between 7.2 million and 8.5 million TEUs by the year 2025, up from almost 3 million TEUs in 2005. In addition, Florida's ports are estimated to move between 155 million and 207 million tons by the

[6] US DOT Maritime Administration (MARAD)

[7] Florida Seaport Transportation and Economic Development Council (FSTED). "A Five-Year Plan to Achieve the Mission of Florida's Seaports: 2006/2007-2010/2011". March 2007.

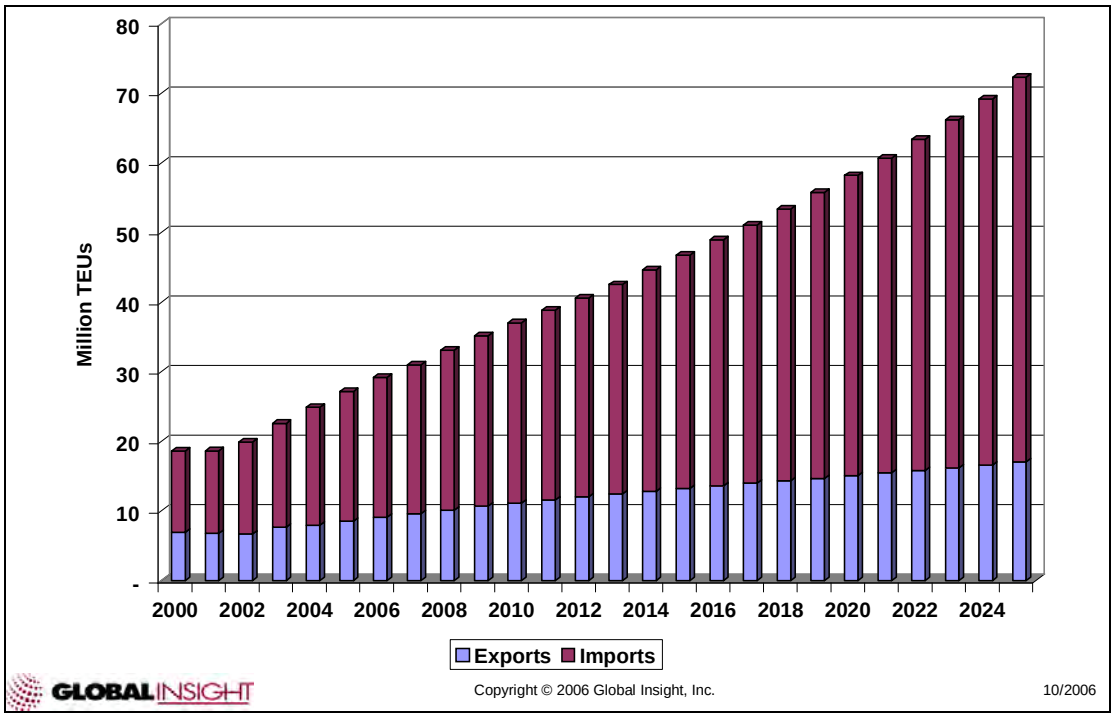
year 2025, up from 127 million tons in 2005.[8] To accommodate substantial increases in the cargo traffic, it is imperative that Florida's seaports expand and improve the four key elements of their operations: waterside access, terminal capacity, landside access, and market access. Of the 14 Florida ports, the Port of Tampa handles the highest volume, in tons, by a large margin, followed by Port Everglades and the Port of Jacksonville. Domestic cargo makes up more than fifty percent of the cargo handled at the Ports of Jacksonville, Tampa, and Palm Beach, while the Ports of Canaveral, Manatee, and Miami handle almost exclusively international cargo – with the majority of their cargo being imports. Southeast Florida and the other Atlantic Coast ports dominate the container market in Florida, although most of the deep water ports in Florida are experiencing growth in this market segment.

Florida's seaports and airports handle a significant percentage of Florida's international trade. With increasing globalization and growing trade volumes, these "gateways" will continue to grow in importance. For seaports, this will include new trading partners, larger vessels, and the potential to serve growing domestic markets. It is projected that seaports will face significant waterside and landside pressures. Forecasts in seaport traffic have been developed based on these ongoing effects of globalization and intermodalism on trade, and on projected growth in U.S. and world economies. Forecasts developed by Global Insight Inc. and presented in the AASHTO Freight Bottom Line Report on Waterborne Transportation predict:

- The fastest growth will be in higher-value goods that generally move via container. U.S. international container traffic is forecast to grow from around 24 million loaded containers in 2004 to around 72 million loaded containers by 2025. In other words, U.S. international container traffic will triple over the next 20 years. The imbalance between loaded import containers and loaded export containers is also forecast to grow. If total international container moves are estimated to be twice the number of imports, which allows for export loads plus the return of the import container as an empty box – the total number of international TEUs would be 110 million in the year 2025. This is versus the current figure of around 42 million TEUs in 2005, which includes all types of moves – international, domestic, loaded, and empty (see Figure 3.10).

[8] Although Florida's seaports provide an aggregate 5-year forecast, longer term statewide forecasts for cargo demand through Florida's seaports are not currently available. However, useful projections can be developed from three sources: (1) trendline analysis of historic Florida port growth; (2) application of South Atlantic and Gulf Coast "port range" forecasts (source: Global Insight Inc.) to current Florida traffic; and (3) application of national average forecasts (source: Global Insight Inc.) to current Florida traffic. All of these methods are approximations and should be supported by more detailed study in the future, particularly with respect to different commodity classes and handling types.

Figure 3.10 Forecast Growth in U.S. International Container Trade
(Millions of loaded TEUs)



- Overall international waterborne tonnage is forecast to increase from more than 1.5 billion tons in 2004 to almost 2.5 billion tons in 2025. Roughly half of this increase will be associated with containerized commodities, and around half with non-containerized commodities. In total, the Marine Transportation System (MTS) will need to add around half a billion tons of capacity in both the container and non-container trades to accommodate international demand (see Figure 3.11).

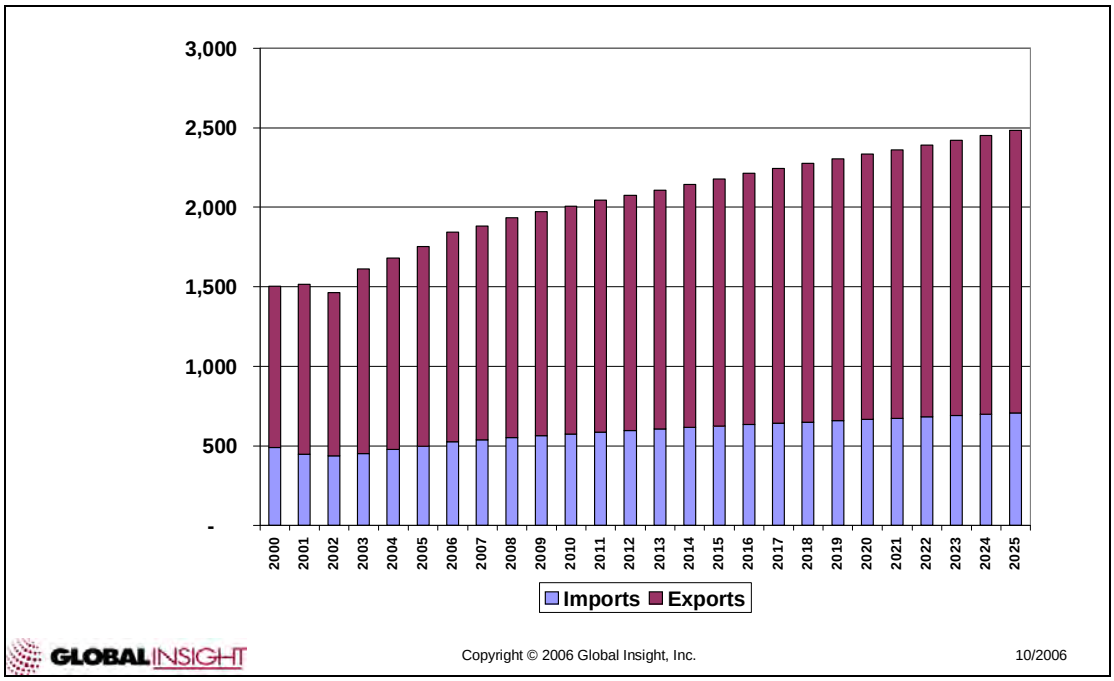
Regional/Broward Trends

Over the last several decades, South Florida's three core counties have sustained significant population growth, and forecasts call for continued increases. Broward County, with a 2006 population estimate of 1.78 million, has mirrored the trend of the region, with an increase of 42 percent since 1990 and a 78 percent increase since the 1980 census.[9] In the same time-span, Broward has grown at a slightly lower rate than Palm Beach County, and at a faster pace than Miami-Dade County (120 percent and 47 percent growth since 1980, respectively). To gain perspective, more than 30 percent of the entire state's estimated 18 million residents are currently living in the tri-county area.[10]

[9] US Census Bureau, Accessed July 25, 2007. Available at: http://quickfacts.census.gov/qfd/states/

[10] US Census Bureau, July 2005 Annual Population Estimate of Metropolitan and Micropolitan Statistical Areas. Available at: http://www.census.gov

Figure 3.11 Forecast Growth in U.S. International Waterborne Tonnage
(Millions of Metric Tons)



It appears as though recent population trends are unlikely to change. Results from the recent Demographic Estimating Conference, hosted by the Florida State Office of Economic and Demographic Research indicate that the forecasted population for the 2030 census is more than 26 million residents, which is an increase of 60 percent from the most recent census in 2000. In addition, 1000 Friends of Florida also recently released the results of an extensive study which analyzed population trends and produced more aggressive projected growth trends into the year 2060. For freight to serve the estimated 2060 population of nearly 36 million, significant transportation improvements must be planned and initiated in the present while land is still available. The South Florida region is home to a network of major freight facilities that work as a system to serve this significant consuming population. This makes the interconnectivity of the regional transportation systems critical to economic prosperity and mobility. In particular, north-south mobility through the three South Florida counties has become critical to the regional freight supply chain.

As discussed above, the SIS and TRIP programs have changed business as usual and have challenged local and regional communities to think and invest strategically. Implementation of these two programs will continue to encourage a strong regional transportation program, as it will help local communities speak with a one voice. A network of regionally significant transportation corridors have been developed throughout South Florida. All major MPOs in the region have completed freight studies or have one underway. The integration of freight transportation into regional planning programs has been promoted and supported by FDOT and other regional freight partners. Freight mobility was identified and held up as a critical factor to effective transportation in South Florida by a variety of entities.

As the region positions itself for the freight and mobility challenges of tomorrow, it is important to understand how the logistics community perceives South Florida. *Logistics Today* compiles an annual ranking of logistics infrastructure for more than 350 metropolitan areas in the U.S. In the recent 2005 version, the Palm Beach-Miami-Fort Lauderdale (P-M-F) region placed 16th on its list of 362 "logistics friendly" metropolitan regions—based on scores in 10 major categories.[11] Table 3.3 shows the scores for each category for P-M-F and six southern Florida metropolitan regions. Jacksonville (10th) was the only Florida city that out-ranked the P-M-F region. Strengths of the P-M-F system are in the areas of transportation/warehousing/distribution industry (5th), work force labor cost (4th) and air cargo (5th), while notable weaknesses came in road density/congestion/safety (355th)/taxes and fees (251st). Tampa had the next highest rank (45th).

Truck Volume Trends

Figure 3.12 below depicts truck AADT for Broward County based on 2006 data available from FDOT. The highest volumes of truck traffic are recorded on the primary interstate roadways in the region, followed by primary access routes to/from the interstates. The clusters of manufacturing and related businesses with 50 or more employees correlate with routes that have significant truck volumes. The businesses shown are based on the most current InfoUSA Database and include manufacturing, distribution, and essentially all other industry sectors that are reliant on freight/truck service in some way.

In addition to identifying levels of truck volume on major roadways, it is also useful to determine what percentage of the overall volume is truck traffic. For instance, multiple roadway segments in Broward County manage more than 10,000 in truck AADT, yet this happens to be only a minor percentage of the *total* AADT. As illustrated by Figure 3.13, trucks represent significant percentages of total traffic on many of the Interstate highways in the northern part of Florida, representing their function as domestic gateways. The total volume of vehicles on these roadways is, however, significantly less than on the roadways in South Florida. Figure 3.14 presents the roadway network in Broward County, which typically experiences less than 15 percent truck traffic volume, consistent with national levels. As can be seen below, US 27 is the only major thoroughfare with truck traffic composing more than 15 percent of its overall traffic volume.

[11] King, Bill and Michael Keating. "The Top 50 Logistics-Friendly Cities in the U.S., 2005". October 2006. Full list available at: http://logisticstoday.com/siteselection/SiteSelector-top362cities.pdf

Table 3.3 Logistics "Friendly" Ranking for Key Florida Cities (2005)

	P-M-F	Tampa	Orlando	Lakeland	Port St. Lucie	Fort Myers	Naples
1. T&D Industry Metro Rank	5	31	36	84	188	151	230
2. Work Force Labor Metro Rank	4	16	135	82	265	182	336
3. Road Infrastructure Metro Rank	17	17	17	17	17	17	17
4. Road Congestion Metro Rank	355	362	352	193	278	361	280
5. Road Condition State Rank	24	24	24	24	24	24	24
6. Interstate Highways Metro Rank	36	23	157	157	157	157	157
7. Taxes & Fees State Rank	251	251	251	251	251	251	251
8. Railroad Rank	151	310	151	225	151	310	310
9. Waterborne Commerce Metro Rank	19	12	178	178	80	178	178
10. Air Cargo Metro Rank	5	20	14	156	237	81	202
National Rank	16	45	80	113	160	186	281

1) **Transportation and Distribution Industry.** Depth and strength of the metrowide T&D industry including the number of companies in the metro area that are engaged in T&D industry sector, along with the annual revenue generated. Data from *U.S. DOC.*

2) **Transportation and Distribution Work Force.** Depth and cost of the metrowide T&D work force including the total annual payroll, the total number of employees, the average salary and the T&D revenue per employee. Data from US DOC.

3) **Road Infrastructure.** Attempts to look into the future in terms of keeping up with an adequate road infrastructure. It includes public roads mileage, capital outlay for roads and bridges, highway maintenance per mile and spending for highway law enforcement.

4) **Road Congestion.** Includes such things as roadway miles per capita, total miles of freeways, average daily freeway traffic and average daily traffic per freeway lane. Data from FHWA.

5) **Road Conditions.** Includes the average roughness of the metro area's roads, as well as the percentage of bridges that are obsolete or structurally deficient, including five-year trends, according to FHWA information.

6) **Interstate Highway Access.** Focuses on the interstate highway infrastructure and includes the number of interstate highways that pass through the metro area, as well as the number of interstate auxiliary routes. Information comes from FHWA.

7) **Vehicle Taxes and Fees.** Includes highway user taxes and fees, as well as motor fuel excise taxes. Data from *Wisconsin Motor Carriers Association*, and the *Federation of Tax Administrators*.

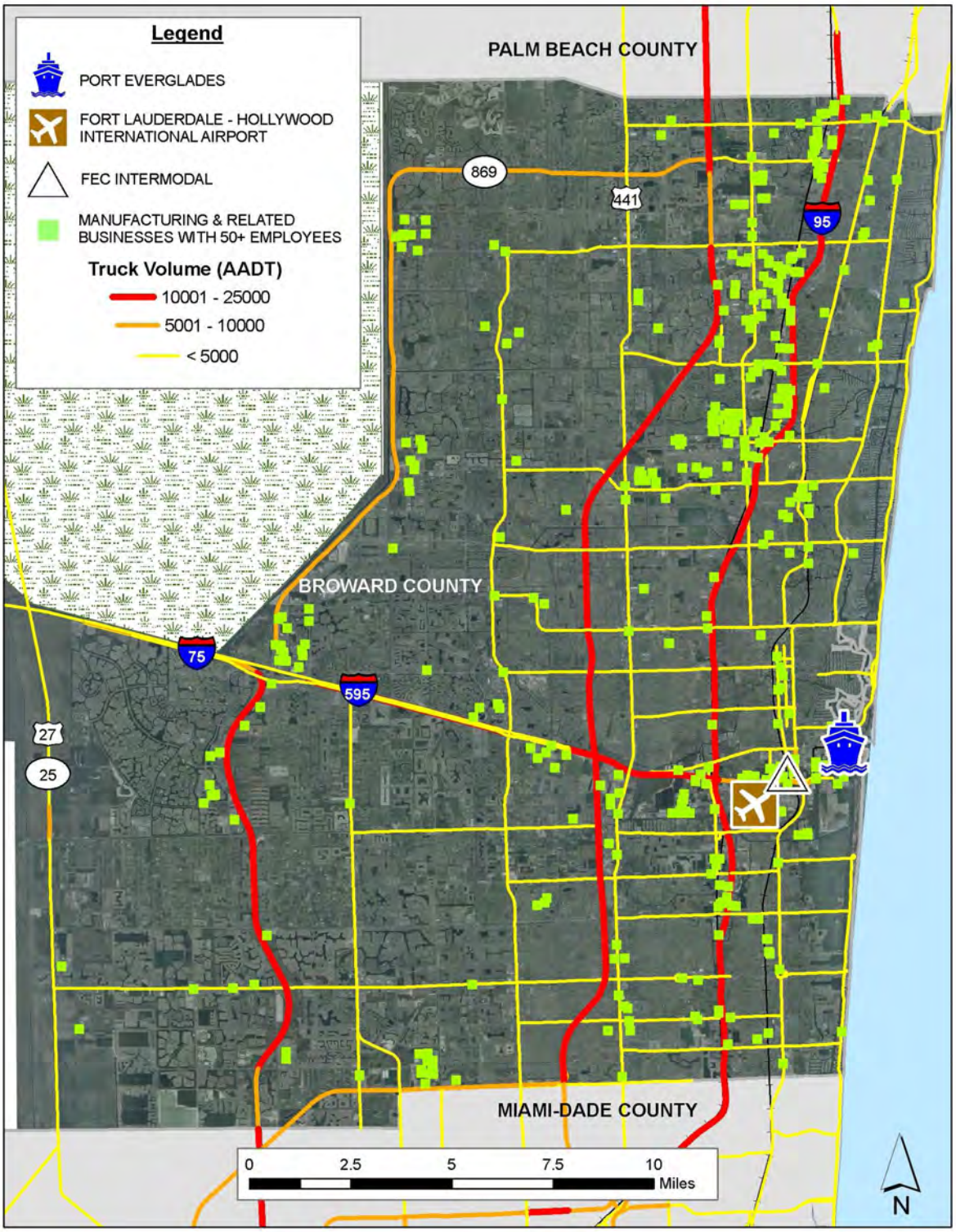
8) **Railroad Access.** Includes the number of railroad carriers that service a metro. Data comes from *ALK Technologies Inc.*

9) **Water Port Access.** Includes total tonnage for all ports located within the confines of the metro area. Data from USACE.

10) **Air Cargo Access.** Includes the number of air courier companies, and total air cargo tonnage for the metro. Data from FAA and BTS.

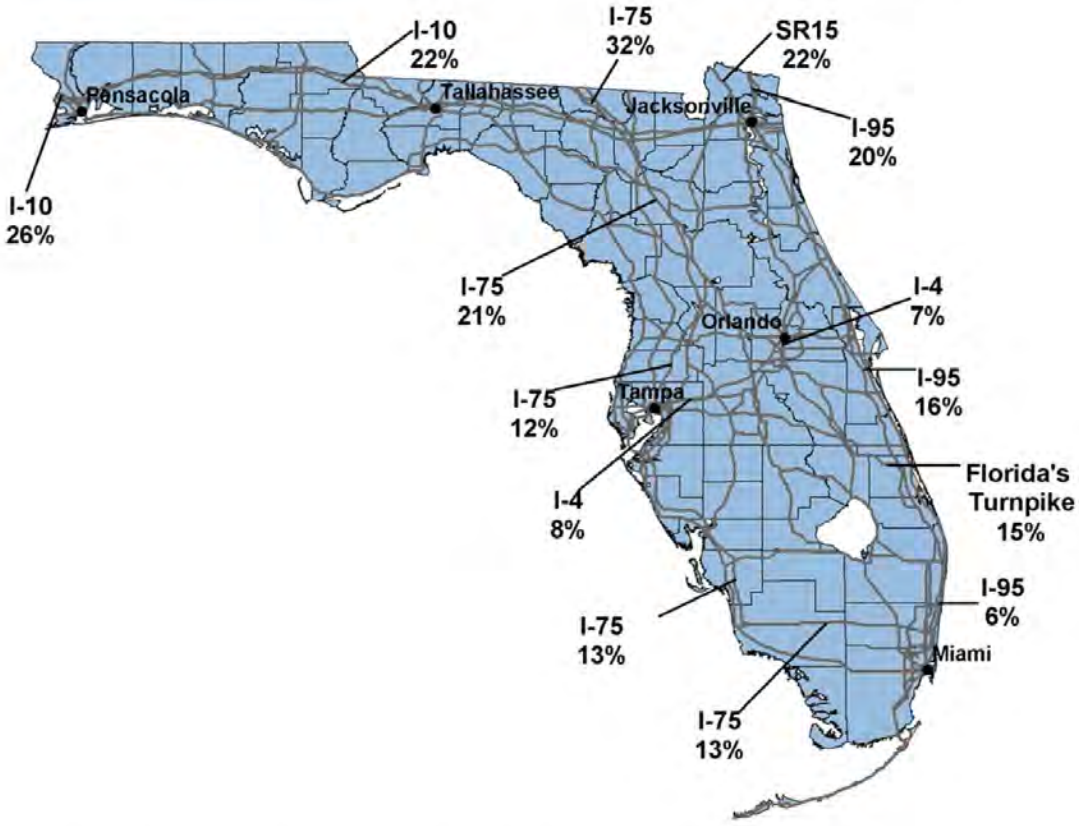
Source: http://logisticstoday.com/siteselection/SiteSelector-top362cities.pdf

Figure 3.12 2006 Broward County Truck AADT



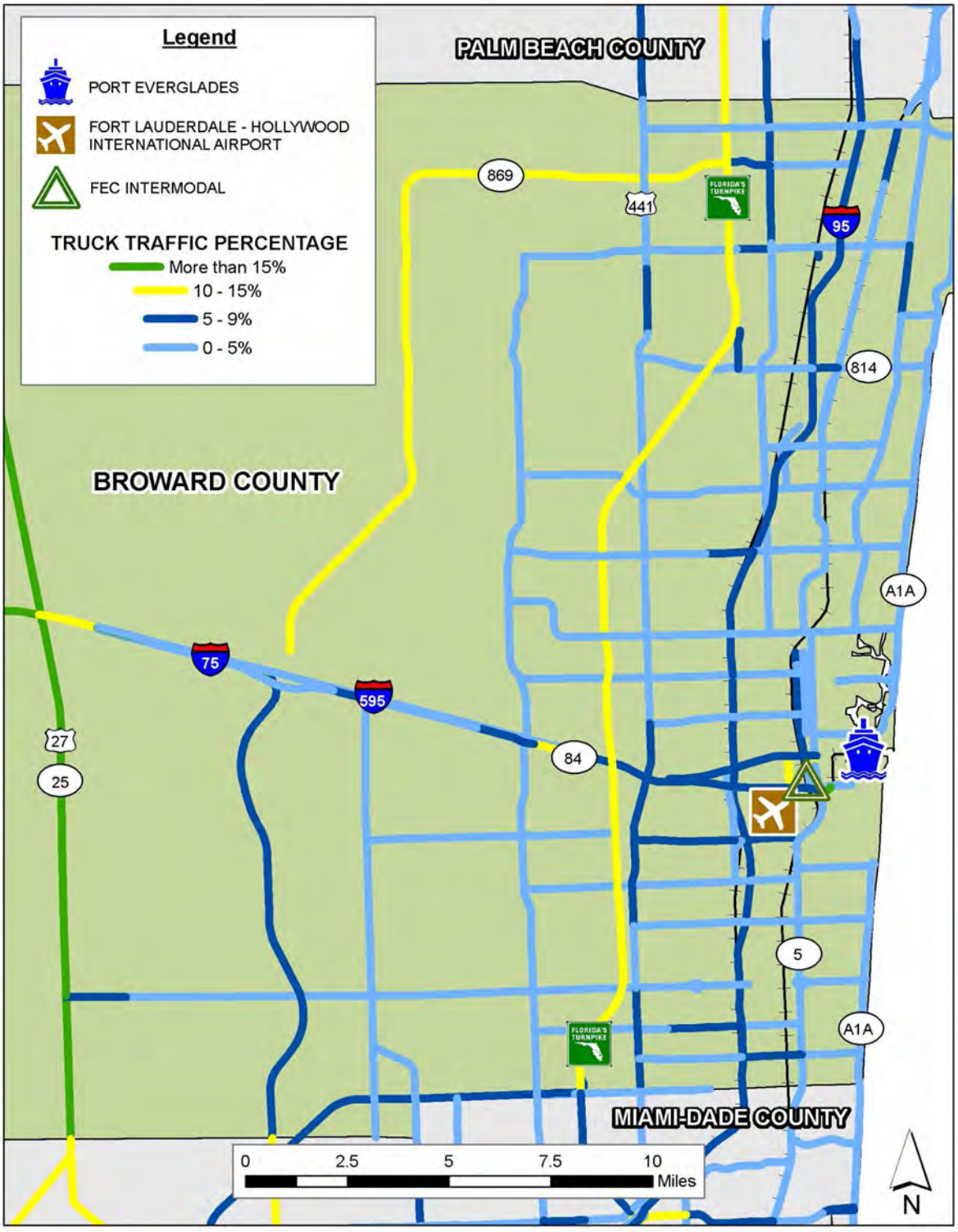
Source: FDOT and Cambridge Systematics, Inc.

Figure 3.13 Percent Truck Traffic in Florida, 2004



Source: Florida Department of Transportation, Florida Traffic Information, 2004. http://www.dot.state.fl.us/planning/policy/trends/tc-report/freight032706.pdf

Figure 3.14 Percent Truck Traffic in Broward County



Source: FDOT.

Air Cargo Growth Trends

Fort Lauderdale-Hollywood International (FLL) is the sole provider of air cargo services in Broward County. Air cargo providers in neighboring counties include Palm Beach International (PBI) to the north, and Miami International (MIA) to the south. Figure 3.15 provides a perspective of relative growth and tonnage for the three South Florida airports. As can be seen FLL has failed to revisit 2001 totals, yet has maintained fairly steady for the past four years in the 180,000 ton range; while MIA has seen a net increase of nearly 150,000 tons in the same time frame. FLL typically processes the third highest tonnage behind Orlando and MIA. Interestingly, as shown in Figure 3.16, in the same time period, the number of passengers at FLL has increased by about 2.5 million, while PBI rose more than 400,000, as MIA saw only a marginal increase.

Seaport Growth Trends

Figures 3.15 and 3.16 below also display seaport cargo and passenger activity for the three seaports in South Florida: Port of Palm Beach; Port Everglades; and Port of Miami. Referring to Figure 3.15, it is clear that Port Everglades far exceeds the volumes of the neighboring seaports when measured by tonnage. A substantial portion of this tonnage is the petroleum that serves a 12-county region of Southern Florida. Further, Port Everglades has also seen a significantly higher net increase since 2001; nearly 3 million tons as compared to approximately 500,000 ton gains by Miami and Palm Beach. This is a trend that will likely continue, given that of the three seaports, Port Everglades has land availability and defined expansion and capital improvement plans to meet market demand. While Miami and Palm Beach have little land availability adjacent to the port property, they both continue to explore options to increase capacity through operational improvements and development of off-port facilities. Port Everglades also has operational improvements planned through yard densification and increased berth utilization. The balance of foreign and domestic trade at South Florida seaports between 2001 and 2005 can be seen in Figure 3.17. The Port of Palm Beach and Port Everglades have a fairly balanced flow of foreign and domestic trade, while the Port of Miami is overwhelmingly weighted toward foreign imports and exports.

From a cruise passenger perspective, Figure 3.16 demonstrates that Port Everglades has witnessed the most growth since 2001, surpassing the Port of Miami in 2005. Port of Palm Beach, which specializes in day-cruises, saw growth of approximately 14 percent, to over 500 thousand annual passengers. Growth in freight and cruise passenger flows are just one side of the equation, as other freight trends are anticipated to impact system operations. As an example, the average size of container vessels at U.S. ports is gradually increasing as a result of larger, post-Panamax container ships. From 2000 to 2005, average deadweight tons increased from 38,000 to 45,000.[12] More importantly, the vessel length (which impacts berthing requirements), container capacity (which impacts crane and terminal requirements), and water requirements (which impact channel, turning basin,

[12] US DOT. "America's Container Ports: Delivering the Goods." March 2007

and berth depths) are challenging ports, creating the need for significant waterside terminal investments. Larger vessels are forcing seaports to continue to make waterside and landside improvements to remain competitive. Moreover, changes in trading partners and shifts in shipping lanes create new opportunities. The Panama Canal widening project expected to be completed in 2014 will increase competitiveness of East Coast ports pursuing Asian carriers. New trade agreements, such as CAFTA-DR[13], or the anticipated opening up of Cuba's economy, also create shifts in trade patterns and create new opportunities.

Rail Growth Trends

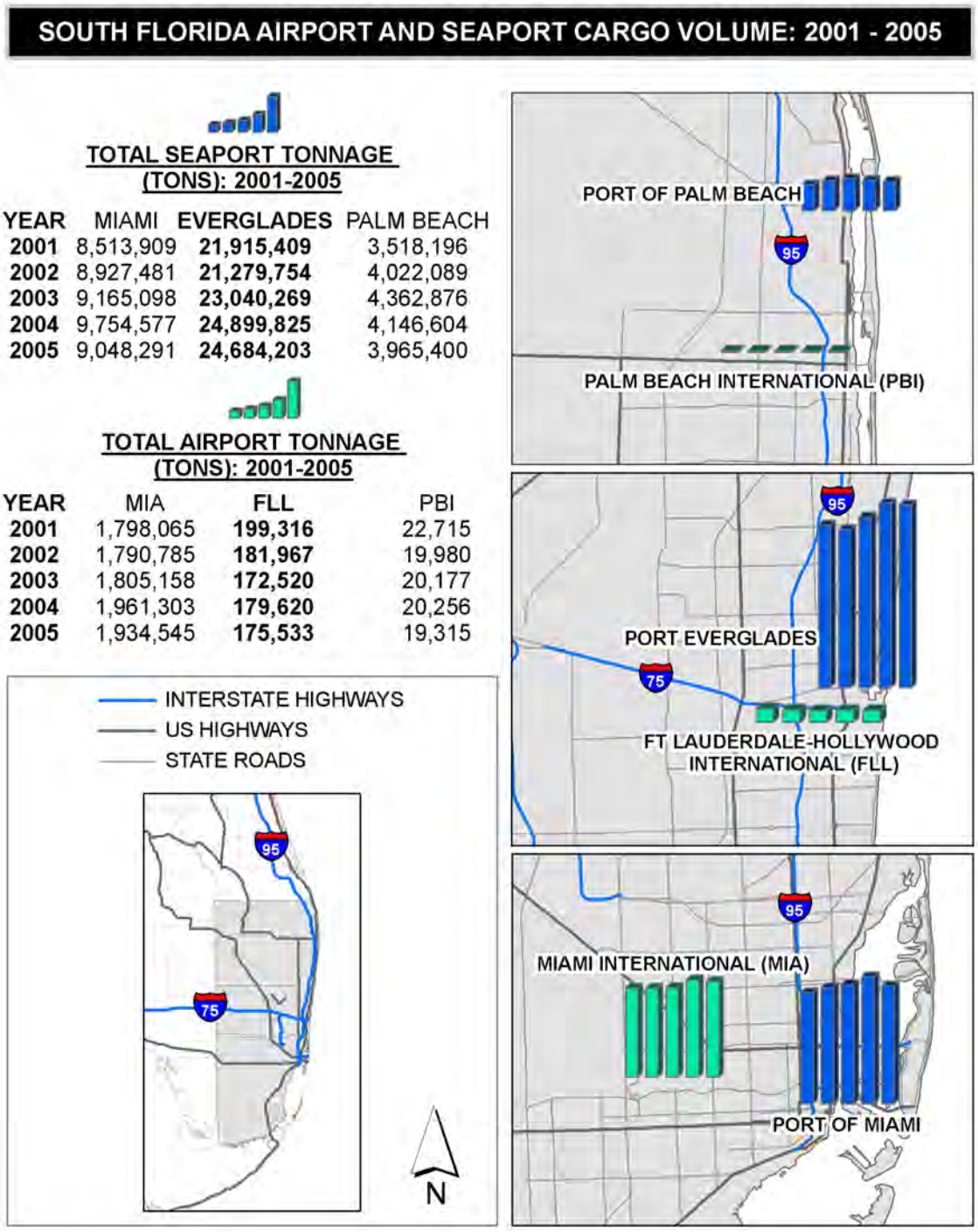
Broward County, located within FDOT District 4, has not historically moved significant freight tonnage by rail, although District 1 to the west and District 6 to the south both have established rail markets due to phosphate and aggregate shipments. Over the last decade or more, District 4 has experienced limited growth. Current volumes of originating and terminating traffic for all FDOT Districts are shown in Figure 3.18.[14] Future rail growth in Broward County (excluding through moves to/from Miami-Dade) will likely be driven by growth in hinterland trade at Port Everglades.

In Broward County, rail service is provided by CSXT (a Class I railroad) and Florida East Coast Railway (a Class II regional railroad). CSXT provides carload service along the South Florida Rail Corridor (SFRC), operating cooperatively with Amtrak and Tri-Rail. FEC operates on its own right of way, which runs the entire Atlantic Coast of Florida, providing carload and intermodal services. Both are SIS corridors. CSXT operations are challenged by increasing headways of Tri-Rail service. In addition, the ongoing FEC Corridor Study is analyzing the potential for passenger service along the corridor, which could impact rail freight flows through South Florida, including Broward County.

[13] The Central America-Dominican Republic-United States Free Trade Agreement, which was signed on August 5, 2004, is designed to eliminate tariffs and trade barriers and expand regional opportunities for the workers, manufacturers, consumers, farmers, ranchers and service providers of all the countries. CAFTA-DR will immediately eliminate tariffs on more than 80 percent of U.S. exports of consumer and industrial products, phasing out the rest over 10 years. http://www.ustr.gov/Trade_Agreements/Bilateral/CAFTA/CAFTA-DR_Final_Texts/Section_Index.html

[14] Florida Department of Transportation, Rail Office. "Florida Rail Plan 2006." Available at: http://www.dot.state.fl.us/RAIL/Publications/2006Plan/flrail06.pdf

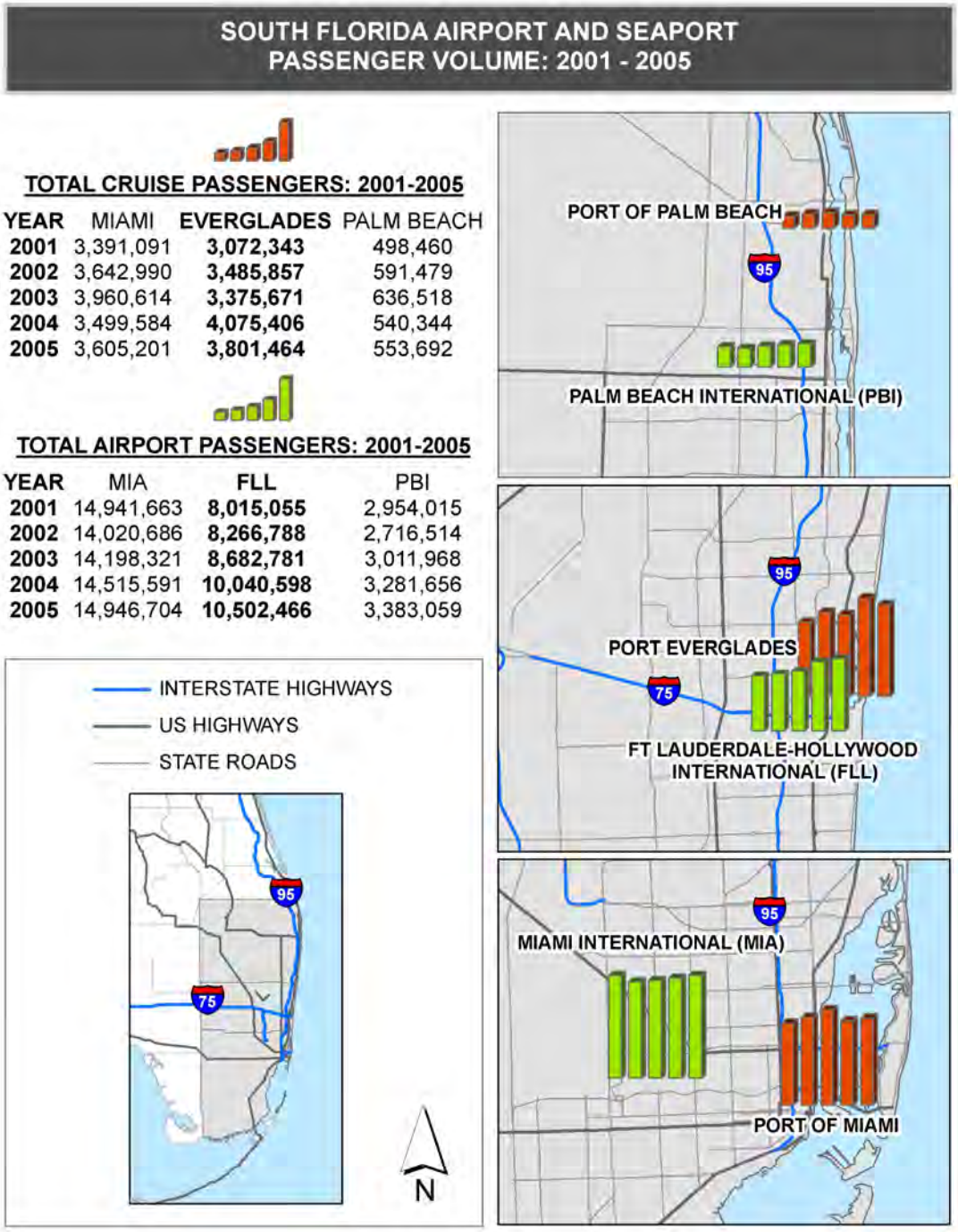
Figure 3.15 South Florida Airport & Seaport Historical Cargo Volume[15]



Source: U.S. Army Corps of Engineers Waterborne Commerce Statistics.

[15] Port Everglades handled a total of 26.6 million tons, Port of Miami handled 8.7 million tons, and Port of Palm Beach handled 4.3 million tons in 2006 per the "A Five Year Plan to Achieve the Mission of Florida's Seaports, FY2006/2007 through FY2010/2011".

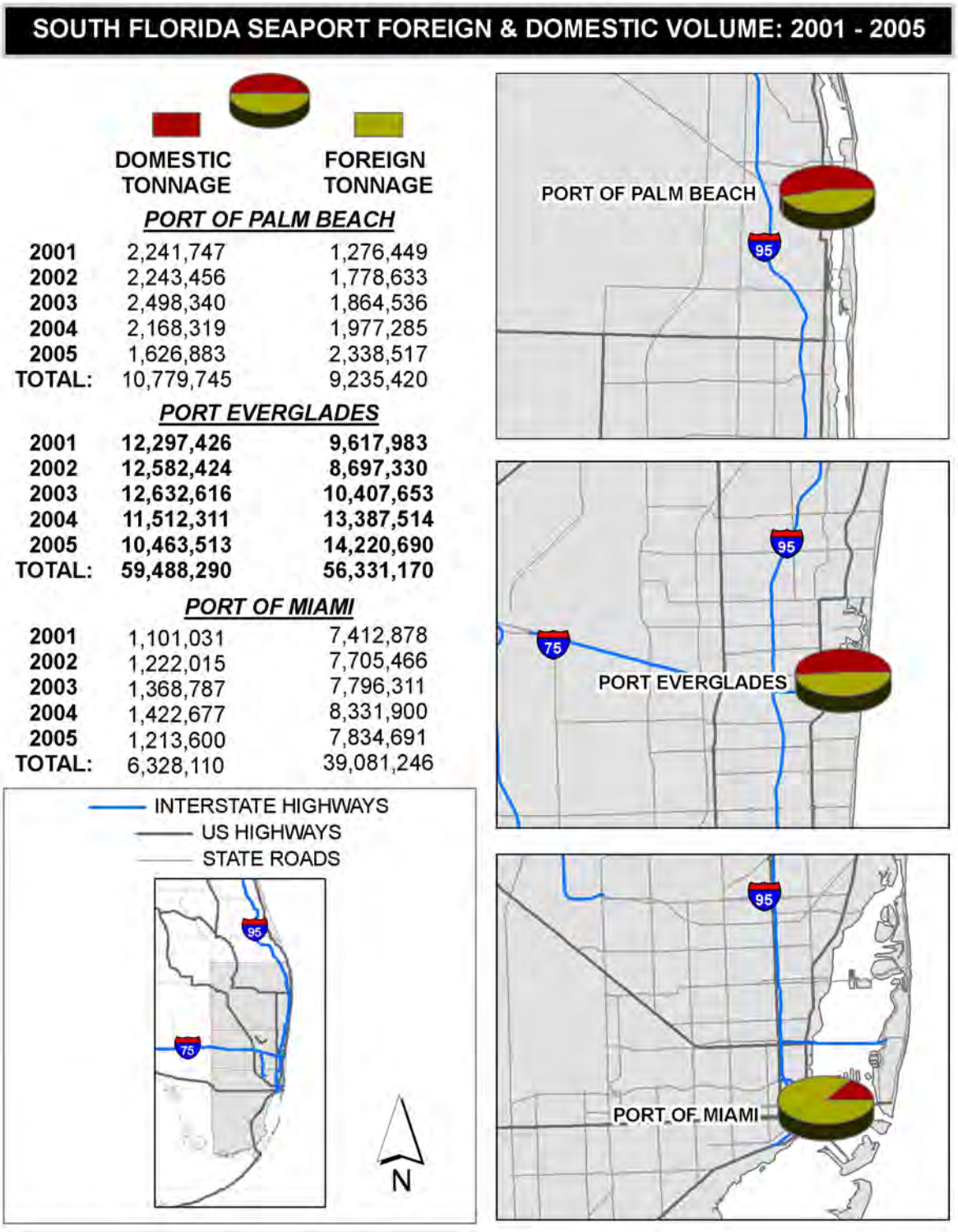
Figure 3.16 South Florida Airport & Seaport Historical Passenger Counts[16]



Sources: Florida Air Cargo System Plan" prepared for FDOT Aviation Office, by Wilbur Smith Associates, 2006; Port of Palm Beach; Port Everglades; and Port of Miami.

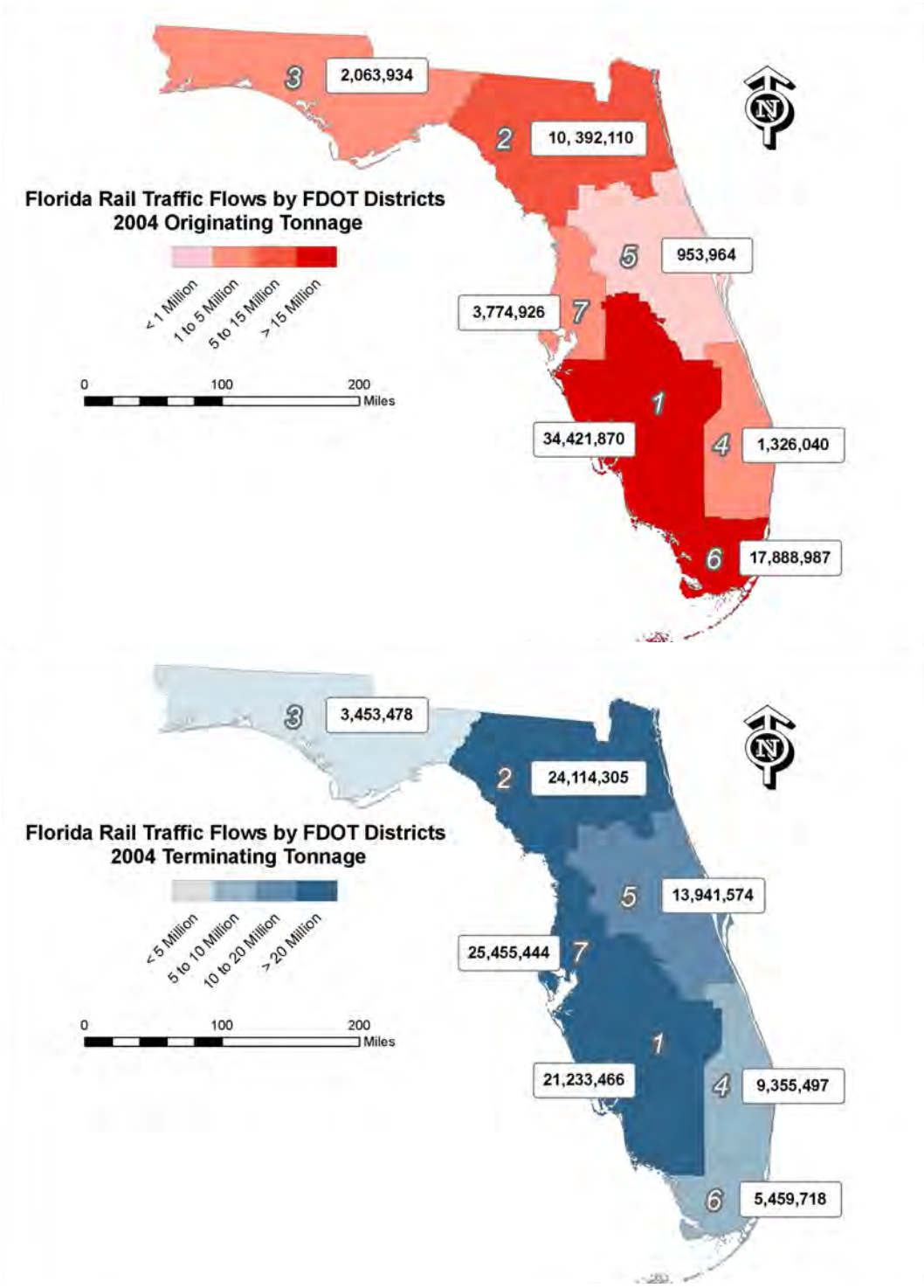
[16] Port Everglades handled 3.2 million cruise passengers, Port of Miami handled 3.7 million cruise passengers, and Port of Palm Beach handled 520 thousand cruise passengers in 2006 per the "A Five Year Plan to Achieve the Mission of Florida's Seaports, FY2006/2007 through FY2010/2011".

Figure 3.17 South Florida Seaport Historical Foreign & Domestic Volume



Source: U.S. Army Corps of Engineers Waterborne Commerce Statistics.

Figure 3.18 Florida Rail Traffic per FDOT District



Source: FDOT, Rail Office, "Florida Rail Plan 2006."

3.2 Commodity Flow Analysis

Commodity flow data are valuable tools for freight transportation planning activities, as they provide detailed information on mode split, origin/destination pairs, and key commodities. Through a commodity flow analysis, these data can be synthesized into a comprehensive profile that describes how freight moves within Broward County. The commodity flow data utilized in this project were derived from a 2003 TRANSEARCH database developed by Global Insight (GI) and Waterborne Data from the Army Corps of Engineers. FDOT purchased this dataset and made it available to its partners. Although dated, this is the latest data available to the Broward MPO at this time. This combined database contains commodity flow information from existing proprietary, commercial, and publicly available data sources. This countywide database has been organized and analyzed to describe commodity flows moving into, out of, within, and through Broward County.

Data Characteristics

While TRANSEARCH is generally accepted as the best available commodity flow data, there are some limitations in how this database should be used and interpreted. Many practitioners ask questions relating to volume, intermodal trip reporting, specific corridors, and point–to-point shipments. In responding to these questions, commodity flow analysts are left to explain the idiosyncrasies of the data. Unfortunately, often times the only answers available to many of these questions are statements such as "the data are only as good as the source," or "it depends on how industry representatives responded to surveys," or "some information was withheld for reasons of confidentiality."

In some cases, data are not available for certain types of flows. The Rail Waybill data used by Global Insight, for example, are based on data collected from Class I railroads. The waybill data contain some data for regional and short-line railroads, but only in regards to interline service associated with a Class I railroad. As the FEC Railway is a Class II regional railroad, the rail volumes in areas served by FEC will be conservative. The rail tonnage movements provided by the TRANSEARCH database, therefore, are a conservative estimate, particularly considering the services provided by FEC Railway.

The following provides examples of some of the limitations.

- **Use of Multiple Data Sources –** The commodity flow data developed by Global Insight consist of a national database built from company-specific data and other available databases. To customize the data for a given region and project, local, and regional data sources often need to be incorporated. This requires the development of assumptions that sometimes compromise individual databases. Different data sources use different classification systems. While most economic forecasts are based on SIC codes, commodity data are typically organized by STCC codes. For example, the U.S. Census Bureau's Vehicle Inventory and Use Surveys has its own product codes that have to be assigned to STCCs to convert truck commodity flows to truck trips.

- **Data Collection and Reporting –** In most available databases that are based on industry surveys, as the geographic regions become smaller, the data accuracy decreases. For example, the Commodity Flow Survey (CFS) conducted by the Bureau of Transportation Statistics aggregates its data for a specific region in such a way so as to protect the confidentiality of the industry participants. This is also a common practice for socioeconomic data on employment. In addition, the validity of some data is limited by the reporting variances. For example, the level of detail provided from specific companies limits the commodity flow data generated by Global Insight. If a shipper moves cargo intermodally, one mode must be identified as the primary method of movement. If a shipper ships from the Midwest to Europe and uses rail to New York and water to Europe, the resulting data record reflects the flows in the way in which a company records the data. Therefore, the data is only as good as the source.

- **Limitations of International Movements –** TRANSEARCH does not report international air shipments through regional gateways. Specific origin and destination information is not available for overseas waterborne traffic through maritime ports. Overseas ports are not reported and GI estimates the domestic distribution of maritime imports and exports. The GI dataset also does not completely report international petroleum and oil imports through maritime ports, a particular concern for Port Everglades, a major petroleum-importing facility. Global Insight assigns commodity data only to truck, rail, air, and water movements, but a large percentage of all foreign imports by weight are oil and petroleum, which frequently travel by pipeline to storage and distribution points.

Although the data are at times limited, a detailed commodity flow analysis would not be possible without this type of information. This data set has been validated and used to provide Broward County with a better understanding of freight flows to, from, and within its boundaries.

Overview of Freight Flows

As shown in Figures 3.19, 3.20, and 3.21, 114 million tons of freight, worth over $252 billion were transported to, from, within, and through Broward County via truck, rail, air, and water modes in 2003. The following summarizes commodity flows by type of movement:

- *Outbound* movements accounted for 14 percent, or 16.0 million tons, by weight; 33 percent, or $82.1 billion, by value; and 18 percent of the truck movements, or approximately 1.2 million trucks.

- *Inbound* movements accounted for 21 percent, or 23.9 million tons, by weight; 15 percent, or $38.8 billion, by value; and nearly 1.2 million trucks, amounting to 18 percent of total truck movements.

- *Internal County* movements accounted for 2 percent, or 2.1 million tons, by weight; 0.11 percent, or $284.6 million, by value; and 5 percent of the truck movements, or approximately 310 thousand trucks.

- *Through* movements accounted for 63 percent, or 71.9 million tons, by weight; 52 percent, or $131.6 billion, by value; and over 3.7 million trucks, amounting to 59 percent of total truck movements.

Figure 3.19 Broward County Freight Flows by Type of Movement, 2003 (in Millions of Tons)

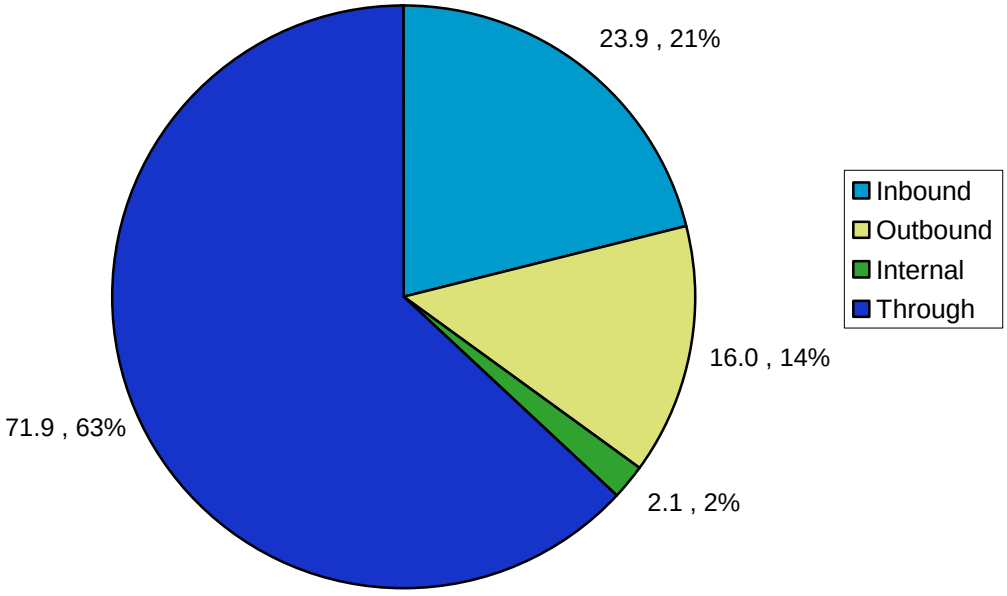


Figure 3.20 Broward County Freight Flows by Type of Movement, 2003 (in Millions of Dollars)

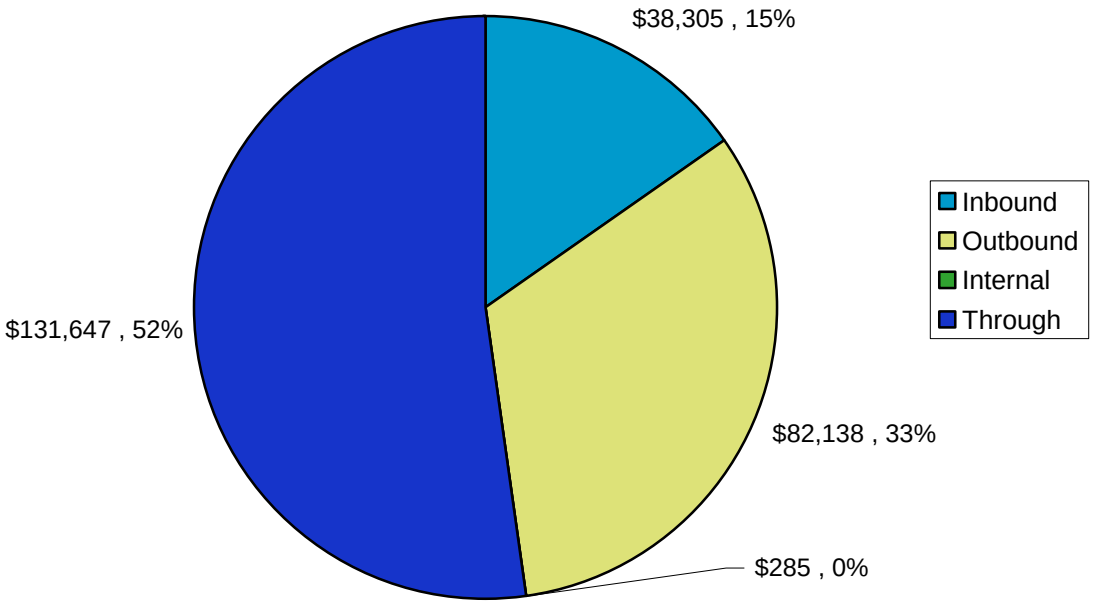
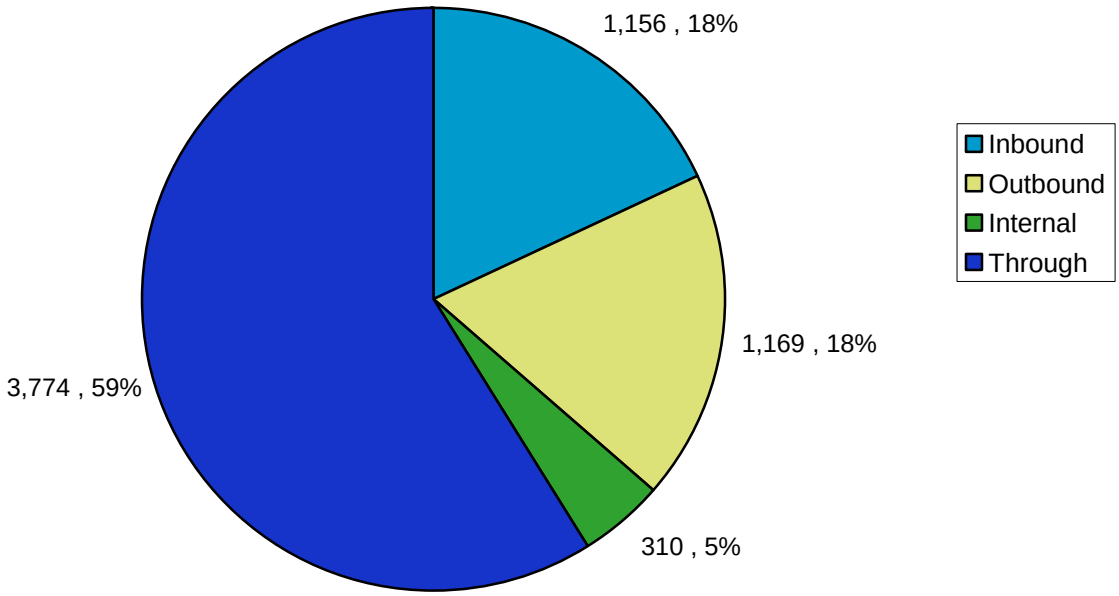


Figure 3.21 Broward County Freight Flows by Type of Movement, 2003 (in Thousands of Trucks)



As expected, through movements make up the most significant portion of the overall freight shipments in the county (63 percent by weight and 52 percent by value). This high volume is attributed mostly to shipments headed to/from the Miami region and traveling on I-95 through Broward County. In fact, over two-thirds of through shipments by weight were transported by truck, and when shipment value is considered, this figure increases to 87 percent. Nearly two thirds of Broward's through traffic by weight (63 percent, or 29.7 million tons) is actually transported from other counties inside Florida to/from Miami-Dade and Monroe Counties. The remaining through traffic is originated/destined for the nearby regions of the country such as the East South Central (AL, MS, TN, and KY) and the South Atlantic (GA, SC, NC, VA, WV, DC, MD, and DE).

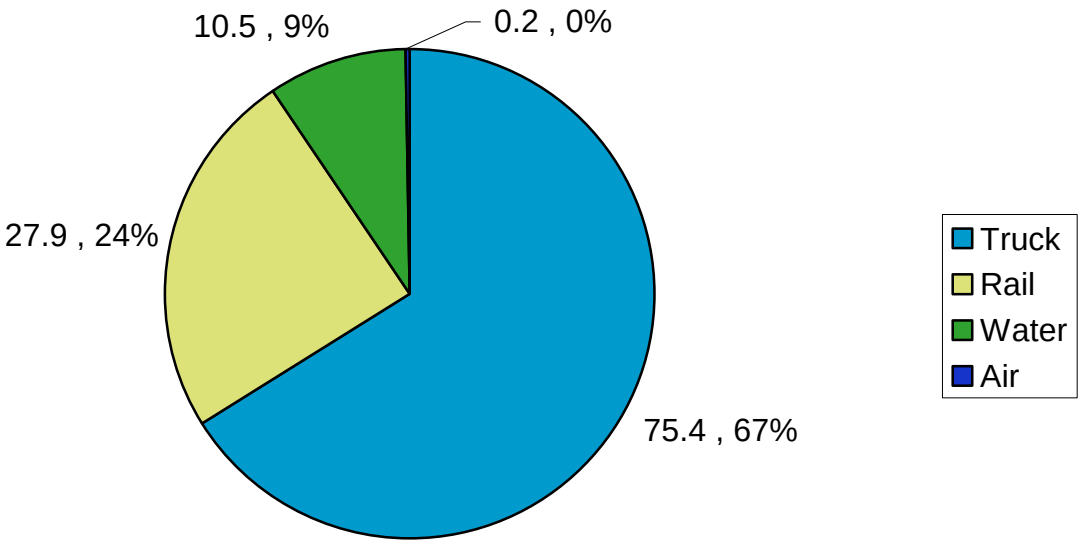
Inbound shipments by weight make up a larger percentage of the tonnage transported than outbound movements (21 percent vs. 14 percent). However the trend is reversed for the value of shipments, with outbound shipments accounting for 33 percent of the value vs. only 15 percent for inbound moves. This difference is mainly due to the large amount of petroleum imports moving from Alabama and Texas through Port Everglades. Broward County imports 10 million tons of petroleum, making it the third highest traded commodity in terms of tons, yet it falls out of the top 10 traded commodities by value.

As illustrated in Figures 3.19 through 3.21, intra-county movements make up the smallest share of the movement in all three categories (2.1 million tons or 2 percent, $85 million or less than 1 percent, and 310,000 trucks or 5 percent). A large portion of these moves are related to secondary moves, that is, commodities transported to/from distribution centers or warehouses to their final destination or from their point of production. These moves represent short trip distances and use of a more diverse infrastructure to access delivery and pick up points. As such, these movements have a more dramatic impact on local roadways than longer haul (inbound/outbound shipments).

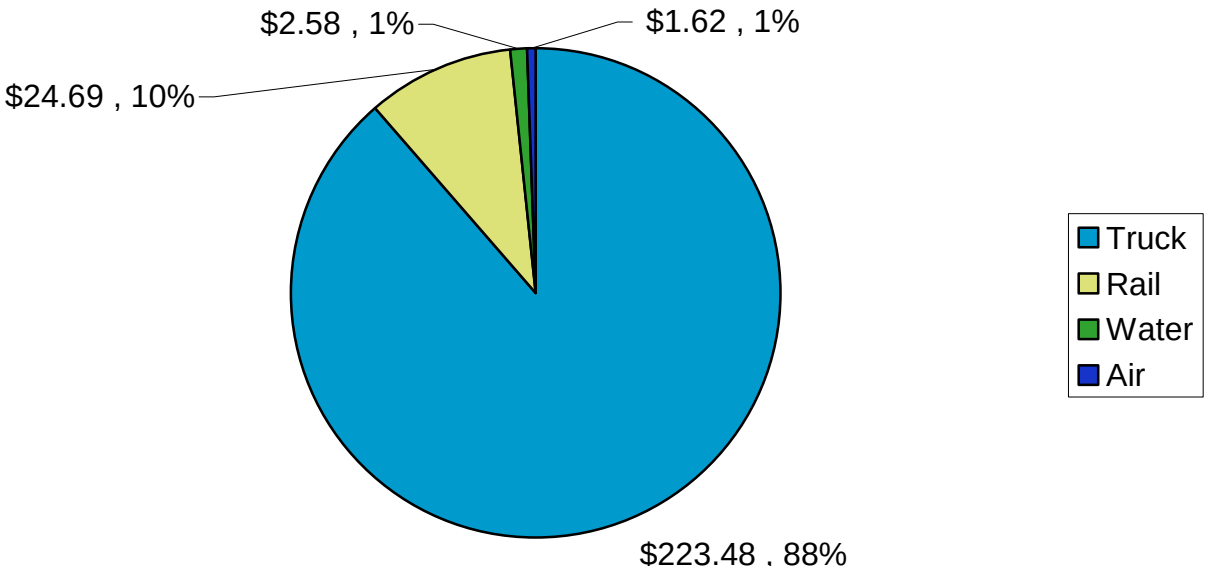
Mode Split Analysis

It is important to analyze how freight is moving in order to understand traffic patterns and modal dependence. Figures 3.22 and 3.23 show the mode shares for all movements into, out of, within, and through Broward County in 2003 by weight and value. Of all the freight, two-thirds, or approximately 75 million tons, moved by truck. When shipment value is considered, truck movements represent a significantly higher portion of the overall movements in Broward County, accounting for 89 percent of all flows, or approximately $223 billion. Like most places, Broward County is dependent upon trucks for the movement of much of its freight, particularly high-value, low-weight commodities, such as electronics or other consumer goods. In addition, trucks normally provide the last link in the transportation chain, transporting all types of commodities from their intermediate destinations, such as seaports or rail terminals, to their final destinations. Thus, the fact that truck is the dominant mode of transportation for freight moving within the county is not surprising.

Figures 3.22 Broward County Freight Mode Split by Weight, 2003 (in Millions of Tons)



Figures 3.23 Broward County Freight Mode Split by Value, 2003 (in Billions of Dollars)



The presence of Port Everglades makes waterborne movements an important mode for freight shipments in Broward County. In fact, freight movements by water account for 9.2 percent, or approximately 10.5 million tons, of all domestic freight shipments, by weight, in Broward County. The relatively high share of freight movements by water highlights the importance of Port Everglades to Broward's freight transportation system. When shipment value is considered, the relative share of water shipments declines significantly. This is mostly due to the low value per ton attributed to coal and petroleum products, which combine to make up over 97 percent of the domestic shipments moving through Port Everglades (10.2 million tons), yet only account for 76 percent of the value transported by water ($1.95 billion). Again, the disparity between freight shipment weight and value emphasizes the need to consider both characteristics when conducting a comprehensive commodity flow analysis.

Rail movements in 2003 accounted for approximately 25 percent of all the freight moving into, out of, within, and through the county, nearly 28 million tons. As is the case with water shipments, there is also a steep decline in value vs. tonnage; Rail movements make up only 9.8 percent, or $24.7 billion of the value transported. This is due to the fact that most rail systems handle low-value, high-weight product; in the case of Broward County this includes non-metallic minerals, coal, stones, clay and concrete, which make up over two thirds of the tonnage transported by rail (18.8 million tons), yet only 2 percent of the value ($385 million).

Air movements currently account for 0.1 percent, or 166 thousand tons, of all the domestic freight moving in the County by weight, yet over 0.6 percent, or $1.6 billion, by value. This disparity between shipment weight and shipment value highlights the high-value, low-weight nature of air freight shipments within Broward County, which consist primarily of mail and express traffic, motor vehicle parts and accessories, and electronics and data processing equipment. As the service sector of the County's economy continues to evolve, the share of air shipments relative to other types of movements in Broward County will likely expand.

The mode split analysis reveals that Broward County's freight by value moves in a similar fashion to the overall national freight. As shown in Figures 3.24 and 3.25 below, FAF2 2002 estimates indicate that the United States, as a whole, is very reliant on trucks for most of its tonnage movements (as is the case with Broward County), and it is even more reliant on this mode for movement of higher valued goods. The results also show that, although rail and water manage to combine for over 19 percent of the tonnage transported nationally, they moved only 14 percent of the value. Finally, Broward County seems to be more efficient at spreading freight tonnage throughout the modes than the country as a whole. Rail moves in the County account for nearly 25 percent of the tonnage (vs. 14 percent for the US), and waterborne moves make up 9 percent of the freight (compared to 4 percent for the country as a whole). This indicates an efficient use of the intermodal transportation network available to the County. This comparison is shown in Table 3.4.

Figure 3.24 National Freight Mode Split by Weight, 2002 (from FAF2)

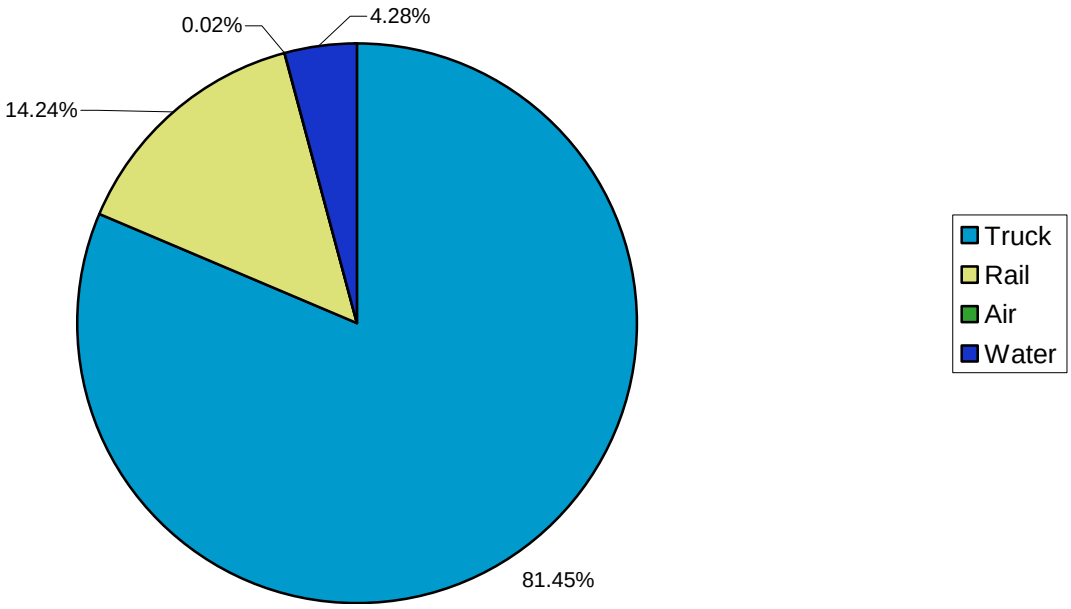


Figure 3.25 National Freight Mode Split by Value, 2002 (from FAF2)

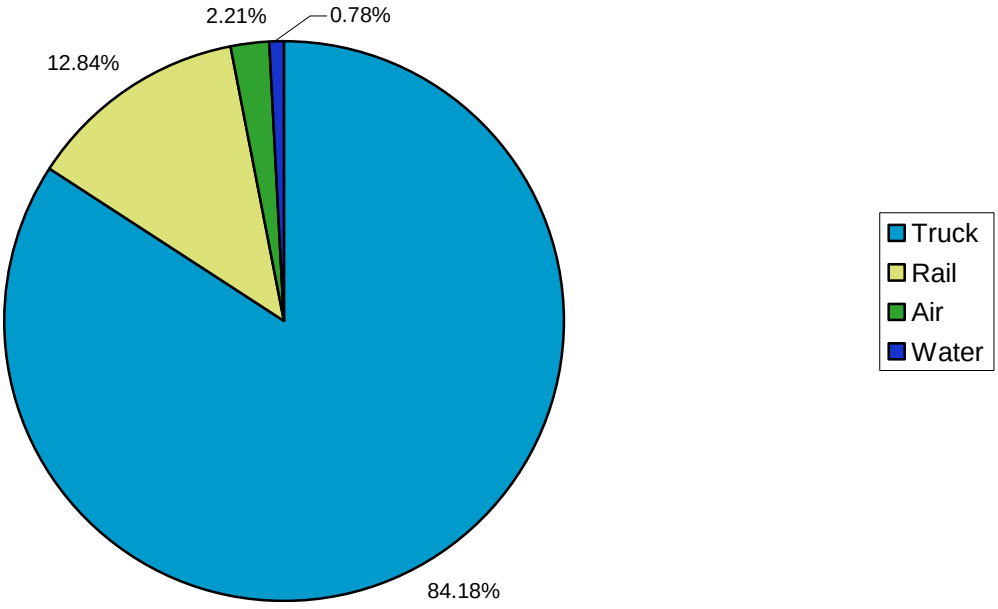


Table 3.4 Comparison of Mode Splits, in Percent

Region	Truck		Rail		Water		Air	
	Weight	Value	Weight	Value	Weight	Value	Weight	Value
Broward	67	88	24	10	9	1	<1	1
Florida	70	80	14	9	16	11	<1	<1
U.S	81	84	14	13	4	<1	<1	2

Source: 2003 Transearch and FAF2.

Identification of Top Commodities

It is also important to understand the types of commodities being moved along Broward's freight transportation infrastructure. While the TRANSEARCH database provided commodity information at the four-digit STCC level, commodities were grouped and analyzed by two-digit STCC.

Tables 3.5 and 3.6 show the top commodities moving into, out of, within, and through the County in 2003 by both weight and value. The top five commodity groups in 2003 accounted for 81 percent of the total flows, or 92 million tons, by weight. These commodity groups consisted of non-metallic minerals (28 percent); secondary moves (27 percent); petroleum and coal products (11 percent); clay, concrete, glass, or stone (10 percent); and food (4 percent). Again, secondary moves typically consist of short-haul dray trips from a port or rail yard to a warehouse or distribution center. Each of these commodities accounted for over 5 million tons, while the top two accounted for over 30 million tons each.

When shipment value is considered, the top commodity groups change significantly. The value transported is concentrated on different commodities than the weight. In fact, while the top 5 commodities by weight account for 81 percent of the volume transported, they only account for 7 percent of the value, and only one of these (food) appears in the top 10 list by value. The top five commodity groups, when analyzed by shipment value, accounted for 70 percent of the total flows by value, or $178 billion. These commodity groups consisted of apparel and other textile products (26 percent); transportation equipment, including vehicles (24 percent); electrical machinery (8 percent); freight all kinds (6 percent); and non-electrical machinery (6 percent).

Table 3.5 Broward County Top Commodities by Weight, 2003 (in millions of tons)

STCC2	Commodity	Tons	% Share
14	Non-Metallic Minerals	31.6	28%
50	Secondary Moves	30.4	27%
29	Petroleum or Coal Products	12.7	11%
32	Clay, Concrete, Glass, or Stone Products	11.4	10%
20	Food and Kindred Products	5.7	5%
46	Freight All Kind	4.4	4%
28	Chemicals or Allied Products	2.5	2%
26	Pulp, Paper, or Allied Products	2.3	2%
24	Lumber or Wood Products	2.0	2%
	All Others	10.9	10%
	Total Tons	**113.9**	**100%**

Table 3.6 Broward County Top Commodities by Value, 2003 (in billions of dollars)

STCC2	Commodity	Dollars	% Share
23	Apparel or Other Finished Textile Products	$ 66.56	26%
37	Transportation Equipment	$ 60.97	24%
36	Electrical Machinery, Equipment, or Supplies	$ 19.29	8%
46	Freight All Kind	$ 15.78	6%
35	Machinery, Excluding Electrical	$ 15.15	6%
28	Chemicals or Allied Products	$ 8.44	3%
20	Food and Kindred Products	$ 8.31	3%
38	Instruments/Optical/Watches/Clocks	$ 7.93	3%
34	Fabricated Metal Products	$ 6.33	3%
0	All Others	$ 43.62	17%
	Total Dollars	**$ 252.37**	**100%**

The top commodity analysis highlights several key points for Broward County. First, although the top two commodities make up half of the freight transported (by weight or value), Broward transports a wide array of goods. In fact, each of the top 10 commodities (by weight) accounted for over 2 million tons, and each of the top 10 by value accounted for $6 billion or more. That said, particular attention must be paid to non-metallic minerals, secondary moves, petroleum/coal products, and clay, concrete, glass and stone products, which combine to make up over three quarters of all commodities transported (by weight), and can have a significant impact on the County's transportation infrastructure.

Top Domestic Trading Partners

In addition to the commodity flow data reported above, it is also important to identify Broward's key domestic trading partners. In this context, key trading partners represent geographic regions that represent key origin or destinations for freight moving into and out of Broward County. Knowing where the County's shipments are originating and terminating is a critical step to understanding length of haul, market penetration, and modal preference.

In 2003, Broward exported 16 million tons, valued at $82 billion. As can be seen in Table 3.7, the County's outbound shipments (by weight) are largely destined for the other counties in Florida, and the State's neighboring regions. When combined, shipments destined for Florida, the South Atlantic (D.C., DE, GA, MD, NC, SC, VA, and WV) and East South Central (AL, KY, MS, and TE) regions make up 85 percent of all the tonnage exported from Broward County, a figure equivalent to 13.6 million tons. These shipments accounted for 56 percent, or $46 billion, of the total value of outbound shipments. Other significant trading partners include the West South Central Region (AR, LA, OK, and TX) and the East North Central Region (IL, IN, MI, OH, and WI).

The largest outbound domestic trading partner inside Florida for Broward County is Palm Beach County, which receives over 1.8 million tons, 12 percent of Broward's outbound trade. Broward also exported over 1.2 million tons to Miami-Dade County, and 800 thousand tons to Duval county, representing 8 percent and 5 percent respectively.

In 2003, Broward County imported nearly 24 million tons of freight valued at $38.3 billion. Unlike outbound shipments, the top inbound trading partner was the West South Central Region, primarily Louisiana, which accounted for over 8 million tons of petroleum transported by barge to Port Everglades (see Table 3.8). In total the West South Central region accounts for 40 percent of Broward's inbound trade by weight (9.5 million tons) and 12 percent by value ($4.8 billion). As mentioned earlier, the large discrepancy between shipment weight and value for petroleum is reflected in the relatively low total of dollars imported compared to outbound shipments ($39 billion for inbound vs. $82 billion for outbound).

Florida is the second largest inbound trading partner for Broward County, accounting for 38 percent of shipments by weight (9.2 million tons), and 35 percent by value ($13.3 billion). The primary partners within Florida include Miami-Dade County (13 percent of inbound shipments, or 3.1 million tons), Palm Beach County (8 percent, 1.9 million tons), and Duval County (5 percent, 1.1 million tons). However, in terms of value, Duval county makes up over 20 percent of inbound trade, representing $7.8 billion, while the rest of the counties each falls below 1.5 percent.

Table 3.7 Broward County Top Domestic Trading Partners – Outbound by Weight, 2003 (in thousands of tons)

Destination	Tons	% Share
Florida	11,486	72%
South Atlantic	1,720	11%
West South Central	924	6%
East North Central	596	4%
East South Central	428	3%
Mid Atlantic	254	2%
West North Central	178	1%
New England	167	1%
Pacific	114	1%
All Others	179	1%
Total	**16,046**	**100%**

Table 3.8 Broward County Top Trading Partners – Inbound by Weight, 2003 (in thousands of tons)

Origin	Tons	% Share
West South Central	9,478	40%
Florida	9,214	38%
South Atlantic	2,311	10%
East South Central	1,407	6%
Mid Atlantic	451	2%
East North Central	415	2%
Pacific	188	1%
New England	140	1%
Canada	116	0%
All Others	213	1%
Total	**23,933**	**100%**

An analysis of Broward County's domestic trading partners reveals several important points.

- Broward is a consuming County, given that it imports 1.5 times the amount of freight it exports (in terms of value).
- Broward's primary trading partner is Florida. Over 50 percent of Broward's trade by weight is destined for or originating in other Florida counties, particularly, Miami-Dade, Palm Beach, and Duval counties.
- Miami-Dade and Monroe counties also have a significant impact on Broward's highway and railroad infrastructure since nearly 72 million tons of freight are originated/destined for these counties from regions north of Broward. In particular highways such as I-95 and Florida's Turnpike are significantly used for this trade.
- Broward imports a large amount of petroleum from Louisiana and Texas (nearly 10 million tons) through Port Everglades, which is later distributed within the County and across South Florida. The Port also handles a large amount of international container traffic. The importance of these commodities to South Florida makes efficient access to an intermodal landside transportation system critical.

4.0 Port Everglades Landside Access Operations and Needs

4.1 Freight Activities and Traffic Patterns

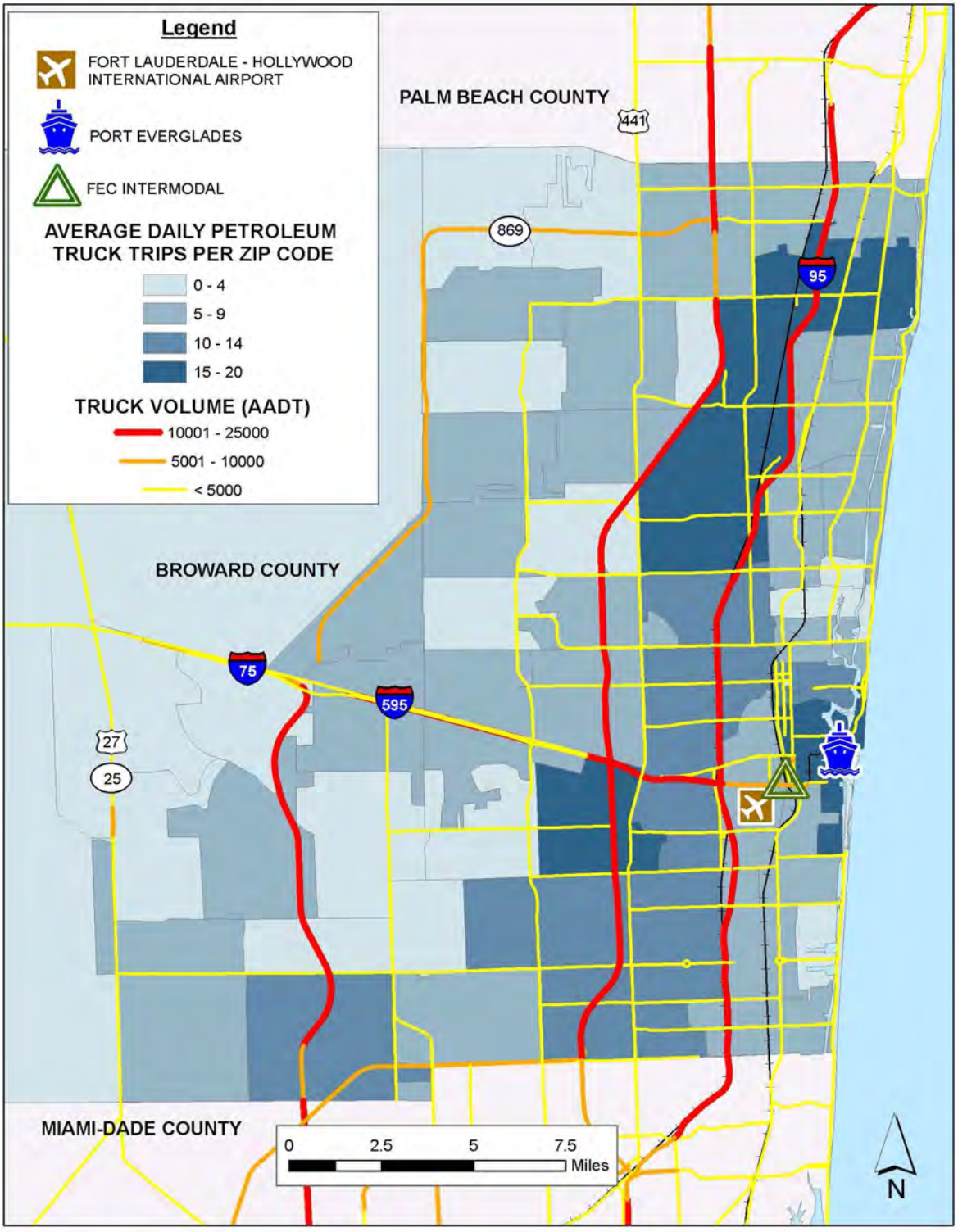
Port Everglades plays a major role in generating and attracting truck trips in Broward County. Over 1.3 million loaded truck trips are generated by the Port annually, corresponding to more than 4,300 loaded daily truck trips, based on 303 working days per year. Because of the very strong import orientation of the Port (e.g., petroleum products, cement/clinkers/aggregate, and containers), total truck trips, including empties to and from the Port, are nearly double these figures at approximately 8,200. Petroleum products (nearly 3,900 total full and empty daily trips) and containers (around 3,200 full and empty trips) comprise the great majority of truck trips related to the Port, with cement/clinkers and aggregate (800 trips) and all other commodities (400 trips) representing the remainder[17].

Petroleum products are mostly comprised of gasoline (54 percent of total petroleum imports) and diesel (14 percent), which are transported by tanker trucks throughout the South Florida region and beyond. These gasoline and diesel trips include approximately 1,600 loaded outbound and the same number of empty inbound trips daily, and they are widely distributed throughout the region proportionally to gasoline sales from service stations, i.e., consistent with population and commercial activity. Almost all of the tanker truck trips use State Road 84 to access the Port, in addition to the major highways and local roads used to reach their destinations in and out of the County. Just over one-quarter of these trips are made to Broward County's 1,300 filling stations; these approximately 400 daily trips are thus distributed across the County using both major highways and local roads. Out of county trips are distributed such that 500 daily trips go south primarily on I-95, over 400 north on I-95, and nearly 200 west on I-75 and U.S. 27.

Jet fuel (21 percent of imports, three-quarters of which goes by pipeline), fuel oil (8 percent), and other petroleum products (3 percent) together comprise approximately 350 loaded outbound and the same number of empty inbound trips daily. They have less widespread distribution across the region (i.e., trips are mainly targeted to the airports and to industrial and commercial facilities). Figure 4.1 illustrates petroleum truck trip distribution in Broward County by zip code.

[17] Truck trip estimates are based on data available from port tenants, port data, and analysis by Cambridge Systematics. The purpose is to provide a basic understanding of the types of movements generated by the Port. For detailed traffic data, readers are referred to Port Everglades' "Broward County Intermodal Center and People Mover – Traffic Data Collection Summary", 2006.

Figure 4.1 Distribution of Petroleum Tanker Truck Trips in Broward County



Note: Truck AADT is 2006 data.

Source: Cambridge Systematics, Inc. analysis of Broward MPO and Port Everglades data.

Container traffic from Port Everglades also is distributed widely across South Florida, with only a small portion of traffic traveling out of state or on an otherwise long-haul basis. Because ships do not call at both ports, the distribution of Port Everglades containers within the South Florida region is only nominally affected by the presence of the Port of Miami. Correspondingly, Miami-Dade County is the single largest destination for containers, although Broward, Palm Beach and other counties in the region are also important destinations. Virtually all of these trips use Eller Drive and I-595 to access the regional highway network, before diverting mainly to I-95 (North and South), but also to I-75, Florida's Turnpike and other major roadways such as the Sawgrass Expressway, US 1, and US 441.

Intermodal rail service also serves the container market in South Florida. FEC provides intermodal service to all three South Florida ports. Intermodal container and trailer traffic from Port Everglades is drayed by truck to/from the FEC intermodal ramp located on South Andrews Avenue. The facility handles domestic and international shipments. In general, the service area is Broward and points north. The FEC Miami intermodal ramp, which is much larger, handles the majority of the region's intermodal rail market.

More limited data on bulk (including petroleum products), break-bulk, and other non-containerized port traffic revealed similar reliance on I-95 (North and South) after accessing the Port, mainly via State Road 84. To an even greater extent than container trucks, these vehicles rely on the interstate highways. Figure 4.2 describes the distribution of all non-container truck trips at the county level.

Figure 4.2 Distribution of Non-container Truck Trips from Port Everglades across South Florida

County	Daily loaded truck trips
Broward	694
Dade	936
Palm Beach	465
Lee	175
Collier	90
St. Lucie	75
Martin	54
Indian River	43
Monroe	42
Okechobee	18
Hendry	12
Glades	4
Total trucks	**2,611**

Source: Cambridge Systematics, Inc. analysis of telephone interviews, driver surveys, and Port Everglades data.

Travel trends thus show very strong reliance on very few facilities. I-95 (North and South combined) carries well over half of the Port's truck traffic, with the other freeways accounting for most of the rest. For immediate access to the Port, Eller Drive/I-595 and State Road 84 carry virtually the entire load. Within the Port, container traffic is naturally focused on McIntosh Road, while Spangler Road is the most important facility for petroleum tankers.

4.2 Port Everglades Truck Driver Survey

In addition to discussions with terminal operators, port officials, and other port users, it was determined that direct interviews with drayage and long-haul truck drivers would provide useful insights into highway transportation issues related to Port Everglades and Broward County. Based on telephone interviews and discussions, arrangements were made for truck driver surveys to be conducted on Thursday June 21 to Saturday June 23, 2007 at Port Everglades and at the FEC Intermodal Ramp in Fort Lauderdale. Interviews were conducted on McIntosh Road for Southport's Crowley, MSC and Maersk container terminals on the 21st from 9:00 am to 4:10 pm and on the 22nd from 10:45 am to 3:15 pm. At the FEC Intermodal Ramp interviews were conducted on the 21st from 7:15 to 9:30 am and 3:00 to 4:30 pm and on the 22nd from 12:00 to 2:30 pm. At the Midport cruise terminals, berths 19 and 25, interviews were conducted on the 23rd from 7:00 to 9:45 am.

A total of 121 successful, completed interviews were conducted: 84 at the Southport container terminals, 25 at the FEC Intermodal Ramp, and 12 at the Midport cruise terminals. The number of interviews was significantly constrained by the logistics of speaking to each driver without impeding their operations. Because access inside the seaport terminals was prohibited for security and safety reasons, at Southport this necessitated that all interviews occurred only when enough trucks were queued on McIntosh Road outside of the terminal gates that the drivers could be spoken with as their vehicle slowly progressed toward the gate.

Similarly, at the FEC Intermodal Ramp drivers were spoken with only when there was a wait at the gate. At the Midport cruise terminals, the wait outside the terminal gates were due to limited dockside space for trucks. In addition to drivers being available only when a queue was present, the off-season timing at the cruise terminals significantly reduced the number of trucks servicing the ships. At FEC's facility, the majority of trucks were either making shuttle trips between the railyard and Southport, or FEC Highway Services trucks for which data was independently obtained from FEC. Only independent drayage operators were candidates for interviews at this location.

Overall, drivers were extremely cooperative, with only about a 20 percent refusal rate for interview requests and with only about 10 percent of interviews truncated because the driver had reached the front of the queue and had to proceed through the gate. All drivers who were approached were given a water bottle, regardless of interview refusal or non-completion. About 60 percent of interviews were conducted primarily in Spanish and 40 percent in English; three of the four interviewers were bi-lingual and the interview forms were available in both English and Spanish.

4.3 Key Findings

Overall, drivers and other respondents provided a positive description of goods movement in Broward County, although a number of issues were highlighted for attention. Given that highway congestion is a significant issue in virtually every major urban area, the criticism that was given to this topic was relatively mild. Only about one-third of drivers complained about congestion and another ten percent about other road issues. At the same time, approximately one-quarter of drivers stated that they thought that the highways were fine and/or that they had no issues with highway access in Broward County. The other road issues brought up were highway construction, incidents and incident clearance, lane restrictions and at-grade rail crossing delays.

The other main issue that arose involved access within Port Everglades, with three-quarters of the drivers at the cruise terminal and nearly half of the drivers at Southport complaining about delays or confusion inside the Port gates. At Southport the most important issue was the wait to enter the terminals, while other topics including staging issues (queuing locations and operations regarding: infrastructure, communications, taxis, maintaining order), security, maintenance and inspection. There was only one similar complaint out of 25 interviews at the FEC Intermodal Ramp.

Nearly all of the truck drivers interviewed at the cruise terminals were traveling to and from Miami, as were just over half the drivers at the Southport container terminals. Of the remaining reporting trucks at Southport, about half were to or from elsewhere in Florida north of Broward, one-third were to or from out-of-state, and the remainder within the County. Even excluding the Crowley shuttle drayage to Port Everglades, over half the trucks at the FEC facility were traveling to or from Port Everglades, with Miami the next most popular single destination for independent drayage operators.

Southport Container Terminals

While congestion was the largest driver complaint, two-thirds of those mentioning the issue were focused primarily on I-95, with several specifically citing congestion in Miami, Golden Glades, the Palmetto Expressway or on Route 27. There was only one specific mention of congestion in Broward County (I-595) out of 84 drivers interviewed at Southport. Construction, road tolls, and accidents were cited as issues by six drivers. The waits at the terminal gates were the other most important complaint, supplemented by issues with delays at the security gates and problems with the staging areas/procedures. About 20 percent of the drivers said they had no issues or complaints, with about half of these answering they did not have an issue with the congestion levels (i.e., that both the highway congestion and terminal waits were reasonable and within expectations). One driver volunteered that he thought Port Everglades scores an overall 7 out of 10 for drayage drivers, whereas the Port of Miami is only a 4 or 5; upon prompting several other drivers all agreed they preferred conditions at Port Everglades over those at the Port of Miami.

Virtually all of the drivers from Southport exited via Eller Drive and I-595. Over half then took I-95, followed in frequency by SR 826, I-75, Florida's Turnpike and US 1. Miami was by far the most common origin/destination. Elsewhere in Florida to the north (mostly in the region from West Palm Beach to Orlando) was the next most common. Surprisingly, out of the drivers surveyed, slightly more were going to or from out-of-state locations than were remaining within Broward County. Because this was not a statistically representative sample (for example, it reflected only a few containership calls), some caution is warranted in interpreting all of these results. These data points provide valuable insights into port generated truck trips, but must be taken as one of several data sources. For example, these trip origin/destination patterns do not specifically correlate to the county-level commodity flow analysis presented in Section 3. However, both provide important input to the county analysis.

Local road conditions (including at-grade crossings), tolls, and other drivers also were mentioned. The impacts of security procedures and, especially, queues at port terminals were also very prominent. These latter two issues, of course, significantly involve outside institutions (private terminal operators, police, TSA and Customs, etc.).

Table 4.1 summarizes the issues raised at this location.

Table 4.1 Issues Identified at Southport Container Terminals along McIntosh Road

Issue Area	Frequency of comment	Issue
Terminals	21	• Delays at terminal
	5	• Terminal waits; Long delays at Crowley terminal
	2	• Delays at terminal; not enough personnel
		• Delays at terminal/paperwork
		• Terminal waits; slow process at gates
		• Reach stackers too slow
		• Time inside terminal
Highways	10	• Congestion on I-95
	9	• Congestion (general)
	2	• Congestion on 826
	2	• Construction
		• Congestion on I-95, 826
		• Congestion on I-95, I-595
		• Congestion on I-95 at Golden Glades
		• Congestion on Palmetto (4-6PM)
		• Crazy drivers on I-95
		• Miami Congestion
		• Route 27 is the worst route
Incidents	2	• Incidents - Traffic accidents
		• Incidents - Lots of accidents on I-95
		• Incidents - Traffic on I-95 when there are accidents
Local roads		• Local roads - construction
		• Local roads - Traffic
Other		• Poor roads in the Carolinas
		• Turnpike tolls are too expensive
		• Port Everglades ranks a 7/10, Miami a 5/10
Port facilities		• If tires need to be changed, it takes 2-3 hours
		• Lack of infrastructure to accommodate waiting trucks
		• Port should be expanded
		• Port traffic
		• Trucks cutting the line
Security		• Customs
		• Delays caused by security; sometimes they take driver's licenses away
		• Escort in terminal
		• Issues w/ police at port
No problems	7	• No issues/complaints
	4	• Highways are fine
		• Florida's roads are much better than elsewhere
		• I-595 is good
		• Roads are good

Midport Cruise Terminals

Drivers provisioning the cruise ships at the cruise terminal berths were quite concerned about staging issues within the Port. In particular, the presence of taxi queues during high season, and especially the rerouting to McIntosh Road where communication and access were described quite negatively, dominated the issues raised by drivers. As many drivers thought that highway congestion was no problem as thought it was a problem (perhaps because of the prevalence of early weekend morning trips). The full list of issues identified by drivers at the cruise berths is provided in Table 4.2 below.

Table 4.2 Issues Identified at Midport Cruise Terminals

Highways	• Congestion • Heavy traffic on I-95 • Lane restrictions on highways • Highways are fine • Highways are fine
Other	• Senior drivers
Port facilities	• Congestion in port. • During busy season, trucks have to move around port • During heavy season queue is shared with cabs and we're sent to McIntosh Rd.; communication is not very good. • During high season, trucks idle at McIntosh road, and then are notified by people at gate to go to terminal • Limited capacity at cruise terminal to accommodate trucks • Most problems during peak season; there is no coordination among cruise ships, police and drivers; when the terminal is empty drivers don't get notified (lack of communication) • No control of line during busy season • No staging area for cruise terminals • Some drivers decline to drive to Pier 21 to avoid issues • Taxi queues at port interfere with truck access • Trucks have to circle around during busy season, wait at McIntosh Road or by Customs Building, sometime conflicts with Crowley trucks
Security	• Conflicts with police/sheriffs • Delays
Terminals/ Berths	• Terminal waits • Terminal waits
No problems	• No issues during low season

While a small sample due to the off-peak season, ten of the 12 drivers interviewed were going to and from Miami or the Port of Miami, with one each to Pompano and Hollywood. Because of this destination mix, I-595 and I-95 South are dominant in the truck routings, with Florida's Turnpike seeing about one-third of the present traffic to Dade County and with SR 84 cited as an additional route used during busier periods.

FEC Intermodal Ramp

Most of the trucks serving the FEC Intermodal Ramp on the interview days were either FEC Highway Services or Crowley vehicles. The former extensively serve Broward County, with Palm Beach County the second most important market. Crowley primarily provides a drayage shuttle service between Port Everglades and FEC. The interviews were directed towards the independent drayage drivers. Of these, approximately half were also providing drayage to Port Everglades (for other shipping lines), and one-third going to Miami-Dade County. The remaining respondents included two to Broward County, one to Ft. Myers and one to Jacksonville. Given these destinations, trips were primarily routed on Andrews Avenue, Eller Drive, and I-95.

These drivers raised the fewest complaints, notably. Only one of the 25 respondents had an issue with the railyard (security delays). Congestion and roadway issues included I-95 South and the Palmetto Expressway, at-grade rail crossings on SR 84, construction activity, traffic signal timing on Eller Drive, road width for turns, and the narrow lanes on Andrews Avenue. These are summarized below in Table 4.3.

Table 4.3 Issues Identified at FEC Intermodal Ramp *Andrews Avenue Facility*

Highways	• Construction activity everywhere • Heavy traffic on I-95 • I-95 Traffic near Miami • Other drivers don't understand what it takes to drive a truck. They cut trucks off. • Palmetto Traffic SB • Traffic • Traffic is a nightmare • Traffic on I-95 • Traffic on I-95 • Traffic on Palmetto (4-6PM)
Local Roads	• More turn area at intersection would help. • Narrow lanes on Andrews Ave. • Railroad Tracks • Traffic light at the end of I-595 on the way to port does not stay on long enough. • Train delays on SR 84 • Turning light on Eller Drive going to the port does not last long enough
Other	• Port traffic • Congestion at check points • Tolls - Tolls are too expensive
No problems	• 7 responses of no problems

5.0 Freight Financing Opportunities

Over the last fifteen years, freight transportation system needs have received growing attention at local, regional, state, and national levels. Many agencies have successfully completed freight planning studies, which has helped integrate freight-specific considerations into mainstream planning activities. This has created a greater understanding of freight transportation and the importance of freight mobility to our nation's economic strength. However, many agencies still struggle with the ability to implement freight projects, in large part due to the limited available funding programs.

Government sponsored improvement programs historically have been focused on publicly owned infrastructure. Many of our freight transportation facilities are privately owned and operated. While the trucking industry directly benefits from public investments in highways; ports, airports, railroads, and pipelines have had less opportunities to take advantage of public funding, relying more on private investments and self funding. In recent years, with increased levels of congestion and an increasingly global economy, there has been a recognition that private industry cannot meet the demands for increased capacity alone. As a result, the public and private sectors are working together to develop new and innovative financing programs to support an intermodal transportation system that efficiently moves the nation's people and freight.

As the Broward MPO continues to develop and implement its freight program, it is important to understand the options available for financing freight improvements. This section provides an overview of existing freight financing options.

5.1 Federal Programs

At the federal level, a variety of funding tools and programs are available for freight projects. The federal transportation bill, beginning with ISTEA in 1991, has placed an increasing emphasis on freight transportation. Specific earmarks, new programs, as well as creative uses of established programs have been successfully used to fund freight projects. Funding programs are implemented through a variety of tools including: loans; credit enhancements; and tax-exempt financing programs. A full range of these programs and tools is described in detail in a recent FHWA publication entitled "Financing Freight Improvements."

Federal funding programs that can be used to fund freight projects are often distributed by formula, such as the National Highway System (NHS); Surface Transportation

Program (STP); Interstate Maintenance (IM); and Coordinated Border Infrastructure Program. While these programs typically fund highway projects, there is some flexibility. There are also special funding programs and discretionary programs. Special funding programs have specific eligibility requirements based upon the program's goals and objectives. Examples include: Congestion Mitigation and Air Quality Improvement Program (CMAQ); Railway-Highway Bridge Crossings; and Truck Parking Facilities. Discretionary programs, which often consist of earmarked projects, provide additional opportunities for freight projects. Examples include: Projects of National and Regional Significance (PNRS) and Freight Intermodal Distribution Grant Program. Tables 5.1 and 5.2 describe these programs and tools.

5.2 State Programs

Over the last several years, Florida has undertaken an aggressive restructuring of its transportation program. This restructuring has been driven by the creation of the Strategic Intermodal System (SIS). This system consists of a network of designated corridors, hubs, and connectors of statewide significance. It includes highways, railroads, seaports, and airports. All new capacity dollars are allocated to these designated facilities. The development of this new program has increased the funding available for freight projects, primarily through the assurance that state dollars will be allocated to all modes for capacity improvement projects. Currently, approximately 20 percent of the state's capacity dollars are allocated to non-highway projects. In addition, these dollars require a match by the private sector partner. The Broward MPO coordinates with FDOT District 4 staff to program these funds.

In addition to the SIS, Florida has several other programs that fund freight projects. These are led by modal offices and tend to address a specific mode. FDOT's Seaport Office works with the Florida Seaport Transportation and Economic Development (FSTED) Council and the respective 14 deepwater seaports to fund a variety of seaport improvement projects. FSTED, created in 1990, allocates an annual budget of $15 million to projects at Florida's fourteen deepwater seaports. State dollars are further leveraged by a required match in funding from the seaport. The Rail Office also has several programs designed to reduce conflicts between the rail system and highway system. These include the Grade Crossing Hazard Elimination Program and the Grade Crossing Opening and Closing Program. While these two programs are focused on safety, they do result in increased efficiencies for the railroads. There are other funding programs as well as loan programs, like the State Infrastructure Bank, available to the state and its freight partners. The Broward MPO works with FDOT District 4 staff and local partners to coordinate applications for these funds.

Table 5.1 Federal Funding Programs

Funding Program	Eligibility	SAFETEA-LU Funding Level (FY 2005-2009)	Freight Application	Project Size	Who Approves Funding?
Interstate Maintenance (IM) 23 USC 119	Provides funding for resurfacing, restoration, rehabilitation, and reconstruction (4R) of Interstate facilities.	$25.2 billion	Ativities improve freight mobility.	Any size depending on funds available to state DOT; may require combination with other funding sources for very large projects.	State DOTs http://www.transportation.org/?siteid=37&pageid=332
National Highway System (NHS) 23 USC 103	Provides funding on designated highway intermodal connectors to intermodal facilities also NHS.	$30.5 billion	Funds can be applied for construction, reconstruction, resurfacing, and rehabilitation on a roadway connecting the NHS with a truck-rail transfer facility or an airport.	Any size; may require combination with other funding sources for very large projects.	State DOTs http://www.transportation.org/?siteid=37&pageid=332
Surface Transportation Program (STP) 23 USC 133	Funds projects on any Federal aid highway, bridge projects on any public road, transit capital projects, and other state or local projects. Can be used for improvements to accommodate rail freight.	$32.6 billion	Rail freight improvements include: • Lengthening or increasing vertical clearance of bridges; • Adjusting drainage facilities; • Lightning; • Signage; • Minor adjustments to highway alignment.	Any size; may require combination with other funding sources for very large projects.	State DOTs/MPOs http://www.transportation.org/?siteid=37&pageid=332 http://www.ampo.org/directory/index.php
Coordinated Border Infrastructure Program SAFETEA-LU Section 1303	Provides funding to border states for projects that improve the safe movement of motor vehicles and cargo at or across the U.S. border with Canada and Mexico.	$710 million	Projects that facilitate/expedite cross border crossing, such as: Operational improvements related to electronic data interchange and use of telecommunications Safety enforcement facilities related to international trade.	Small projects; requires combination with other funding sources for very large projects.	State DOTs http://www.transportation.org/?siteid=37&pageid=332
CMAQ Improvement Program 23 USC 149	Funds transportation projects in nonattainment and maintenance areas that improve air quality. Can be used for start up costs associated with operations (for up to three years).	$8.6 billion	Freight-related eligible projects include: • Advanced truck stop electrification systems; • Construction of intermodal freight facilities that result in air quality improvements; • On-road and nonroad diesel engine retrofits; • Cost-effective congestion mitigation activities.	Any size.	State DOTs/MPOs http://www.transportation.org/?siteid=37&pageid=332 http://www.ampo.org/directory/index.php

Source: "Financing Freight Improvements," U.S. Department of Transportation, FHWA, January 2007.
http://ops.fhwa.dot.gov/freight/publications/freightfinancing/index.htm

Table 5.1 Federal Funding Programs (continued)

Funding Program	Eligibility	SAFETEA-LU Funding Level (FY 2005-2009)	Freight Application	Project Size	Who Approves Funding?
Bridge 23 USC 144	Provides funding for replacement, rehabilitation, and systematic preventive maintenance of bridges.	$21.6 billion	Bridge rehabilitation and replacement with freight-related components or serving high truck volumes. In some cases bridge replacements or rehabilitation can benefit freight by increasing height of ships that can pass under a bridge.	Any size; may require combination with other funding sources for very large projects.	State DOTs http://www.transportation.org/?siteid=37&pageid=332
Rail Grade Crossings 23 USC 130	Provides funding to eliminate rail-highway crossing hazards.	$880 million	Eligible uses include: • Separation or protection of at-grade crossings; • Reconstruction of at-grade crossings; • Highway relocation to eliminate crossing; • Rail relocation to eliminate crossing (where most cost-effective).	Small projects; requires combination with other funding sources for very large projects.	State DOTs/MPOs http://www.transportation.org/?siteid=37&pageid=332 http://www.ampo.org/directory/index.php
Truck Parking Facilities SAFETEA-LU Section 1305	New funding program; provides funds for projects addressing the shortage of long-term parking for commercial vehicles on the NHS.	$25 million	Eligible projects include: • Construction of commercial vehicle parking facilities adjacent to truck stops and travel plazas; • Constructing turnouts for commercial vehicles; • Improving geometric design of interchanges to improve truck access to parking facilities; • Advanced truck electrification systems.	Small project; requires combination with other funding sources for very large projects.	U.S. DOT/FHWA
Capital Grants for Rail Relocation Projects SAFETEA-LU Section 9002	New program that provides grants for local rail line relocation and improvement projects. Projects should improve vehicle traffic flow, quality of life, and economic development.	$1.4 billion authorized, subject to appropriations	Relocation of a rail line, such that rail crossing impacts are mitigated.	Any size, although legislation requires that at least half of the funding is used for projects that are $20 million or less.	U.S. DOT/FHWA
FTA Rail Modernization 49 USC 5309	Funds for capital improvements on "fixed guideway" systems that have been operating for at least seven years.	$6.07 billion	Rehabilitation of tracks, structures, signals and communications, power equipment and substations, and preventive maintenance. Rail freight benefits from capital improvements on shared commuter rail lines.	Any size; may require combination with other funding sources for very large projects.	Transit Agencies http://www.fta.dot.gov/35_ENG_HTML.htm
USACE Harbor Maintenance	Funding for operations and maintenance of federally authorized channels for commercial navigation	N/A	Port O&M costs (e.g., dredging)	Small projects; requires combination with other funding sources for very large projects.	USACE http://www.usace.army.mil/

Source: "Financing Freight Improvements," U.S. Department of Transportation, FHWA, January 2007. http://ops.fhwa.dot.gov/freight/publications/freightfinancing/index.htm

Table 5.1 Federal Funding Programs (continued)

Funding Program	Eligibility	SAFETEA-LU Funding Level (FY 2005-2009)	Freight Application	Project Size	Who Approves Funding?
U.S. Department of Commerce – Economic Development Administration Funds	Grants for projects sites that promote job creation and/or retention in economically distressed industrial. Eligible projects should be located within an EDA-designated redevelopment area or economic development center.	N/A	Industrial access roads, port development and expansion, and railroad sidings.	Small projects; requires combination with other funding sources for very large projects.	U.S. Department of Commerce – EDA http://www.eda.gov
U.S. Department of Agriculture – Community Facility Program	Grants and loans to fund construction, enlargement, extension or improvement of community facilities in rural areas (population less than 20,000).	N/A	Roads, transportation infrastructure for industrial parks, and airports.	Small projects; requires combination with other funding sources for very large projects.	USDA– Rural Development http://www.rurdev.usda.gov/rhs/cf/cp.htm
Environmental Protection Agency – Brownfield Redevelopment Program	Provides grants and loans for brownfield site cleanup.	N/A	Brownfield sites could be redeveloped for commercial, residential, and/or industrial uses, including intermodal facilities (e.g., rail-truck transfer facilities).	Small projects; requires combination with other funding sources for very large projects.	USEPA http://www.epa.gov/brownfields/

Note: Earmarked programs have not been included in this table, since funds are committed to specific projects through 2009.

Source: "Financing Freight Improvements," U.S. Department of Transportation, FHWA, January 2007. http://ops.fhwa.dot.gov/freight/publications/freightfinancing/index.htm

Table 5.2 Federal Financing Tools

Funding Program	Eligibility	SAFETEA-LU Funding Level (FY 2005-2009)	Application	Project Size	Who Approves Funding?
Transportation Infrastructure Finance and Innovation Act (TIFIA) SAFETEA-LU Section 1601	Provides loans and credit assistance for major transportation investments of national or regional significance, including public intermodal freight facilities. SAFETEA-LU expanded TIFIA eligibility to private rail projects. Private sponsors are eligible.	SAFETEA-LU authorizes $122 million per year to pay the subsidy costs of supporting federal credit under TIFIA. This level of funding can support loans with a total value of more than $2 billion annually.	Any project eligible for federal funding under Title 23 and Chapter 53 of Title 49. International bridge or tunnel Intercity passenger bus and rail facilities and vehicles (including Amtrak and magnetic levitation systems) Freight-specific projects eligible for TIFIA include: • Public or private rail facilities providing benefits to highway users; • Intermodal freight transfer facilities; • Access to freight facilities and service improvements, including ITS; • Surface transportation infrastructure modifications to facilitate intermodal interchange, transfer, and access into and out of ports.	$50 million minimum, no specific maximum, but credit assistance under TIFIA can only support 33% of eligible project costs.	U.S. DOT http://tifia.fhwa.dot.gov
State Infrastructure Banks (SIB) SAFETEA-LU Section 1602	SAFETEA-LU authorizes all 50 states, the District of Columbia, Puerto Rico, and U.S. territories to establish infrastructure revolving funds that can be capitalized with federal transportation funds authorized through FY 2009. Current legislation allows for the creation of rail accounts. Private sponsors are eligible.	Highway Account – up to 10% of NHS, STP, Bridge, and Equity Bonus programs, at the discretion of the state DOT. Rail Account – funds made available for capital projects under Subtitle V (Rail Programs) of Title 49.	Any project eligible for federal funding under Title 23 and Section 5302 of Title 49.	Any size; depends on state capitalization. Generally small projects are funded.	State DOT (and/or SIB Board established). http://www.transportation.org/?siteid=37&pageid=332
Rail Rehabilitation and Improvement Financing (RRIF) SAFETEA-LU Section 9003	Loans and credit assistance to both public and private sponsors of rail and intermodal projects. Private sponsors are eligible.	$35 billion; $7 billion is directed to short line and regional railroads.	Acquisition, development, improvement, or rehabilitation of intermodal or rail equipment and facilities.	Any size; generally small projects.	U.S. DOT/FRA http://www.fra.dot.gov

Source: "Financing Freight Improvements," U.S. Department of Transportation, FHWA, January 2007. http://ops.fhwa.dot.gov/freight/publications/freightfinancing/index.htm

Table 5.2 Federal Financing Tools (continued)

Funding Program	Eligibility	SAFETEA-LU Funding Level (FY 2005-2009)	Application	Project Size	Who Approves Funding?
Private Activity Bonds SAFETEA-LU Section 11143	Title XI Section 1143 of SAFETEA-LU amends Section 142(a) of the IRS code to allow the issuance of tax-exempt private activity bonds for highway and freight transfer facilities. Private sponsors are eligible.	Up to $15 billion.	Surface transportation projects (including highways, toll roads and truck only lanes), international bridges and tunnels receiving federal assistance under Title 23. Rail-truck transfer facilities receiving federal assistance under Title 23 or 49.	Any size; potential for large infrastructure projects.	U.S. DOT http://www.fhwa.dot.gov/ppp/private_activity_bonds.htm
GARVEE Bonds 23 USC 122	Financing instrument that allows state to issue debt backed by future federal-aid highway revenues. Eligibility for freight projects is constrained by the underlying federal-aid programs that will be used for debt service. 63-20 Corporation may be eligible.	N/A	All Title 23 eligible projects. Intermodal facilities that are eligible for federal assistance under Title 23 or 49; NHS-eligible intermodal connectors.	Typically large projects or groups of projects ($10 million or larger).	State DOT/Local Government must be willing to dedicate future revenue. http://www.transportation.org/?siteid=37&pageid=332

Source: "Financing Freight Improvements," U.S. Department of Transportation, FHWA, January 2007. http://ops.fhwa.dot.gov/freight/publications/freightfinancing/index.htm

5.3 Local/Regional Programs

The MPO is responsible for identifying and prioritizing all improvement projects at the local and regional levels. This is done through an established process as part of the long range plan development. Historically, project eligibility has focused on highway, transit, and bike/pedestrian programs. Freight was first incorporated as a formal element in the 2025 LRTP. As described in Section 2, several identified freight projects have been programmed and implemented. The majority of funding at the MPO's disposal consists of federal and state funds that come with their own eligibility requirements. In 2006, Broward County attempted to pass a 1 cent sales tax referendum to support additional transportation improvements. While it did not pass, future efforts may be more successful. Should this initiative move forward, project eligibility criteria should be reviewed for applicability to freight system needs. For the present, the MPO will continue to fund its freight program within the parameters of the established funding sources.

At the regional level, the TRIP has created new opportunities for freight system improvements. This program is led by the SEFTC, which is made up of the three MPOs. This program, developed by the state, is designed to promote projects of regional significance. To date, TRIP projects have consisted of highway and transit improvements. The inclusion of freight projects (rail, sea, and air) has been discussed. Existing project criteria look at benefit/cost ratios, project readiness, safety, multi-modal/intermodal factors, and other qualitative measures. SEFTC is preparing to develop the first regional LRTP for South Florida. This plan will drive future TRIP funding allocations. It will be important to include a freight element in the regional LRTP to promote funding eligibility in future years.

6.0 Findings and Recommendations

Broward County possesses a strong, efficient freight transportation system that facilitates the growth of the local and regional economy. Broward County and South Florida continue to experience significant population increases – nearly double the growth rate of the rest of the nation – which drive consumption of consumer goods and stimulate construction activities. The County is correspondingly experiencing significant growth in goods movement, with freight traffic increasing or at least stable across all modes. As recognized through the establishment of the SIS, this growth in freight traffic must be addressed not only through highway improvements (which constitute about 70 percent of current goods movements), but also through improvements to seaports, rail, airports and intermodal connections.

Port Everglades is a critical component of this freight transportation system. It stands out nationally for its excellent waterside and landside access: a short channel provides easy access to Atlantic shipping lanes, and direct connections to the Interstate Highway System and national intermodal rail network lie just outside the Port. Even with these strong qualities, further improvements are needed to increase efficiency and allow for the continued growth of the Port, Broward County and the South Florida region.

A number of other freight-intensive areas also exist in Broward County. While also generally well-connected to the regional freight transportation network, a number of improvements have been identified that can facilitate goods movements for these zones and for the county as a whole.

Congestion is virtually always a significant issue in major urban areas and is no exception in Broward County and South Florida. It is not surprising that I-95, as the main backbone of the regional highway system, was the focus of the greatest concern identified by Port users. While addressing I-95 congestion more broadly is beyond the scope of freight-related planning, the focal areas of incident response and construction management can be raised. Because the stop-and-go conditions and often repeated lane changes associated with these conditions (relative to recurring, volume-related delays) disproportionately affect heavy vehicles, these should be the focus of freight-related efforts to improve these conditions. Similarly, additional improvements to traffic information services – and increasing driver and dispatcher awareness of them – is a recommended cost-effective means to reduce the impacts of non-recurring congestion on goods movements.

A strong planning framework for goods movement and freight-related issues is critical to an effective, efficient transportation system. The Broward MPO has already demonstrated commitment to industry outreach and to participation in regional and state freight initiatives/activities. Continued public sector involvement in freight in a pro-active manner, multiple stakeholder perspectives, multi-modal thinking, and the incorporation of a broad range of planning factors will be important in further enhancing this planning framework.

6.1 Port Everglades

Within the Port, its own success and growth have led to strains on the capacity and efficiency of trucking access to Port cargoes. These strains have arisen from both physical capacity and operational issues. While these issues have been identified in the course of the Port's master planning program, and are addressed in the recently completed master plan, it is beneficial to discuss these and related topics here to integrate them and place them within the context of the broader county freight-related strategies. Figure 6.1 illustrates the general areas at and adjacent to the Port where improvements are recommended. Key recommendations to address these issues are discussed below. In many cases, the port has already identified the issues and begun to take corrective actions through their capital improvement program and through improvements included in the new Port Master Plan.

- **Construct Eller Drive overpass.** Port Everglades and FDOT District 4 have been working together for several years to move forward with a grade separation project that would facilitate a near dock rail operation in Southport without impacting the Port's primary access route. It also should provide improved safety for the highway operation. This project is funded and in the State's work program. In addition, the new Master Plan calls for the build out of the ICTF in Southport. While this project has been moving through the process for a few years, it is important to call it out as it represents a major landside improvement project for both highway and rail access to the Port.

- **Develop queue management system for cruise operations/provisioning deliveries.** Current conditions regarding physical space and the layout of roads create significant inefficiencies for port users. In the Midport area, from Berth 19 to Berth 25 in particular, there is limited queuing and maneuvering space (see Figure 6.1), not always well demarcated, that at times is significantly oversubscribed by taxicabs, private vehicles, trucks servicing the cruise and other vessels, and official vehicles. Truck drivers also describe that their staging on McIntosh Road for cruise ship access is subject to poor communications and queue adherence, resulting in wasted driver and vehicle time and Port inefficiencies.

  This recommendation includes a more formal staging area, likely on McIntosh Road, for cruise ship service vehicles. An improved communication system for this area can insure the timely and efficient flow of vehicles to each berth/terminal or its immediate queuing location. Improved demarcation of queuing and parking areas, and associated enforcement to maintain through lanes, is also recommended, for example on the approaches to Berths 19 and 20 (see Figures 6.2 and 6.3). Port Everglades recently implemented a pilot project to test a On-Demand Dispatch System for limousines and transport vans that serve the cruise business at the Port. These vehicles are queued at specific locations away from the terminal and are dispatched on an as needed basis. This is helping to alleviate congestion problems at Midport.

Figure 6.1 Key Improvement Areas at and adjacent to Port Everglades

Source: Cambridge Systematics, Inc. and Port Everglades Master Plan.

Figure 6.2 Restricted Maneuvering Room at Midport.

Figure 6.3 Access Route to Berths 19 and 20.

- **Develop improved queue management system for Southport container terminals.** Similarly, for the Southport container terminals, McIntosh Road can become crowded and confused, especially when more than one containership port call is in progress. Staging areas, queue adherence and communication all have room for improvement. Queues for the various container terminals, staging areas for the cruise berths (trucks waiting for access to the cruise berths are queued on McIntosh during peak season), for trucks awaiting assignment to a container terminal for pick-up, and even trucks stopping at the food vendors, exiting the Port, or otherwise awaiting dispatch instruction can become jumbled.

  Staging areas should be better established for trucks waiting for the cruise berths, awaiting dispatch, or that represent overflow from the individual container terminal's queuing lanes. An improved communication system for these staging areas would insure the timely and efficient flow of vehicles to each berth/terminal or its immediate queuing location. Port Everglades' Master Plan includes the development of a loop road along McIntosh Road to help improve traffic flow and queuing outside the terminal gates.

- **Improve the physical lane and queue demarcation in the spaces immediately near the individual berths and terminals.** The present queuing lanes function well, but more clear signage and demarcation would be especially helpful for drivers (typically long-haul) unfamiliar with the Port. Widening of some access, turning and queuing spots – partially through enforcement/removal of informal roadside parking and through possible relocation of some non-vital designated cargo/equipment/parking areas to further from the berths – would facilitate this goal. Improved staging areas should be developed to reduce congestion immediately near to berths and terminals. A Midport expansion project, currently in design phase, will create additional vehicle queuing space and serve to alleviate roadway congestion in this area. In addition, a Port-wide way-finding signage program utilizing digital message signs (DMS) is currently in design to help users find their way throughout the Port.

- **Develop a port terminal working group to discuss terminal delay improvements.** Truck drivers consistently reported excessive delays for entry into the private container terminals. There is of course a tension between the interests of these parties and the efficiencies of their respective operations. Unfortunately, terminal operators optimizing their own operating efficiencies (e.g., by limiting vehicles within the terminal) may impose externalities on other terminals and the Port as a whole through the stacking of vehicles far back into shared space, etc. The introduction of an incentive system that encourages terminal operators to also account for broader Port efficiency issues outside their own gates would prove beneficial.

- **Continue to improve and upgrade SIS connectors to Port Everglades.** Although the Port is recognized for its excellent highway access, some areas of improvement have been identified. Continued improvements by the County along Spangler Road/State Route 84 near the Port, in coordination with improvements on the west side of U.S. 1, are warranted. Traffic signal timing, road and lane widths, and turning radii on Eller Drive, especially at the intersections with McIntosh Road and with I-595, are additional areas that were identified and would benefit from further improvements.

The SIS is scheduled to undergo its first major update. The update will begin in late 2008 and will be completed by 2010. Port Everglades and the Broward MPO should work in coordination with FDOT District 4 to promote their interests. As part of the major update, designation criteria and project eligibility will be reviewed. This will provide an opportunity to discuss issues like hub to hub connectors.

6.2 Other Broward County Freight Areas

Outside of Port Everglades and its immediate environs, there are a number of freight-oriented areas that are home to the County's largest clusters of truck-trip producing facilities. These tend to be located near major transportation corridors such as I-95. For the purposes of this analysis, they have been grouped into the following four zones (as illustrated in Figure 6.4):

- I-95/Powerline Corridor;
- I-595/Airport Zone (Mega Transport Zone);
- Sawgrass/I-75 Corridor; and
- South County/Other.

To identify potential needs for freight-related improvements, each zone was analyzed from the perspective of truck and rail access, with potential improvements identified and noted.

I-95/Powerline Road Corridor

This cluster is generally located between Florida's Turnpike and I-95, south of Hillsborough Boulevard and north of Commercial Boulevard. The businesses are centered around Powerline Road, and to a lesser extent Dixie Highway in the south of the zone.

Freeway Access: Generally excellent roadway access is provided to I-95 via numerous east-west arterial streets and interchanges, and to Florida's Turnpike through four accesses located at Commercial Boulevard, Hammondville Road, Sample Road and SW 10th Street. All east-west arterial streets apart from Hillsborough Boulevard have at-grade crossings of the South Florida (CSX) Rail Corridor which can be the cause of significant delay to trucks, especially following increased Tri-Rail service since May 2007. Safety is another consideration at these crossings.

Rail Access: Several properties located along the South Florida Rail Corridor have direct rail access via spurs and sidings. These properties tend to serve heavy industry – including construction and heavy materials – and are located both east and west of the rail corridor. The most active of these facilities are located between McNab Road and Sample Road, and north of Hillsboro Boulevard. Many of the rail sidings south of Cypress Creek Road appear to have been abandoned in recent years.

Potential Projects: The transportation network serving this cluster of businesses was generally developed over 50 years ago, and roadway geometrics are often insufficient to meet today's standards. Roadway drainage is also sub-standard in many locations. In recent years, there have been many roadway improvements serving this area and its truck traffic, for example the resurfacing of Powerline Road between Atlantic Boulevard and NE 30th Street, improvements to Hammondville Road, and improvements on NW 15th Avenue/Andrews Avenue Extension north of Hammondville Road.

The MPO has programmed a number of improvements that will serve trucks in the area. They include:

- Andrews Avenue Extension: improvement from south of Atlantic Boulevard to north of Hammondville Road with bridge over CSX Railroad;
- Copans Road: widening from Blount Road to Powerline Road; and
- Wiles Road: widening from Florida's Turnpike to Powerline Road.

A number of additional improvements have been identified in this zone:

- Andrews Avenue Extension/Copans Intersection – intersection improvements: curb reconstruction, improved turning radius, signal and signing improvements;
- Andrews Avenue Extension: NW 18th Street to Copans Road – roadway improvements. Curb and drainage, median and access enhancements, drainage; and
- Powerline Road/NW 15th Street - install a new traffic signal to provide safe truck access.

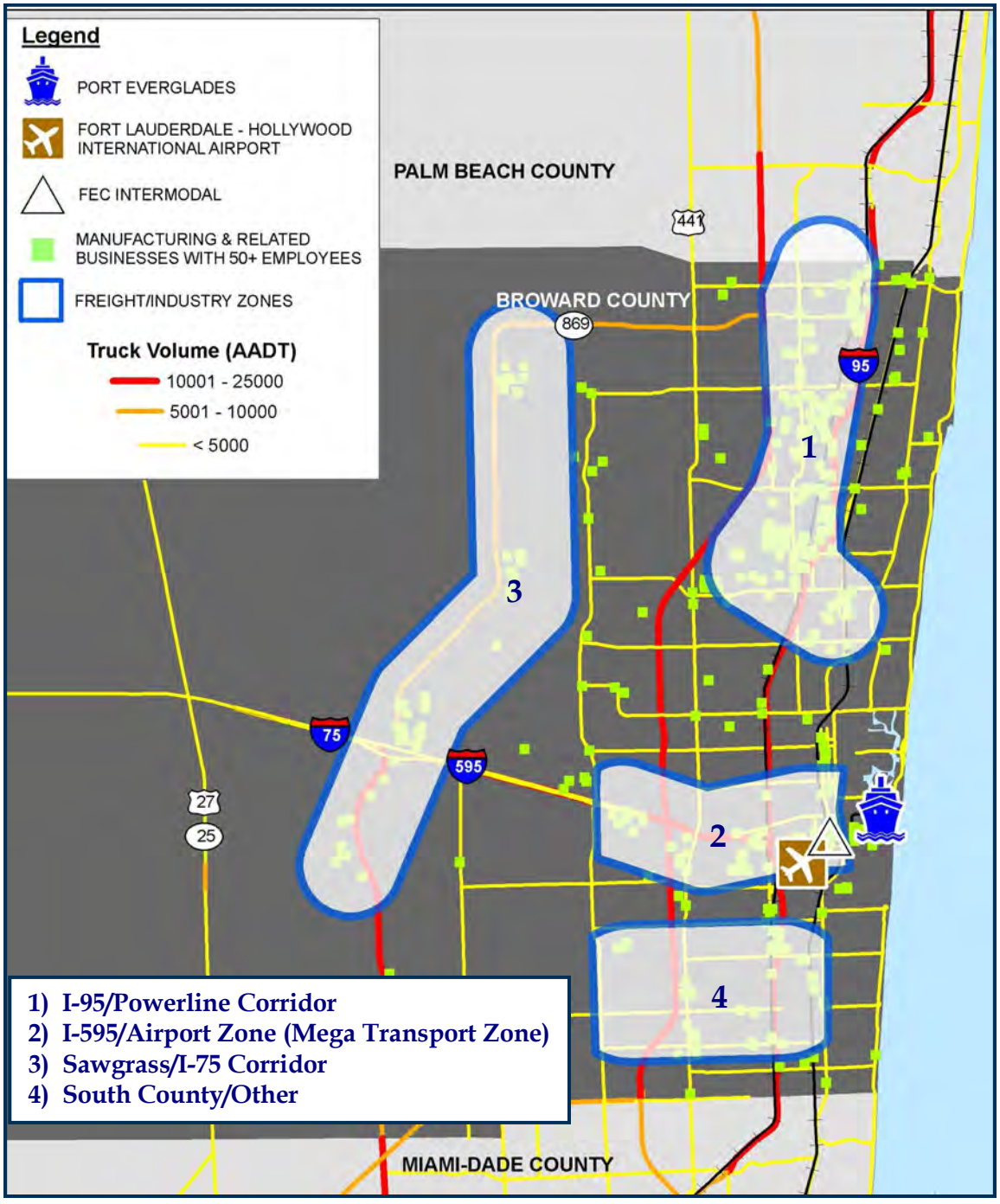
I-595/Airport Zone (Mega Transport Zone)

Freeway Access: The area is well served by I-95, I-595, Florida's Turnpike and US 1. This zone contains both Port Everglades and Fort Lauderdale – Hollywood International Airport, and sees a great deal of truck traffic, notably fuel trucks serving all of South Florida. Recent improvements have included the loop ramp from Eller Drive to US 1 southbound and safety enhancements at State Road 84 and I-95.

Rail Access: Primary rail access within this zone is provided via the FEC Intermodal yard on Andrews Avenue south of SR 84.

Potential Projects: State Road 84 continues to constitute a major constraint to port access, due largely to the inherent conflict between port traffic and the local community and neighborhoods. The City of Fort Lauderdale and FDOT have been working on a comprehensive corridor action plan to address conflicts, enhance safety and continue to provide viable port access. Other projects programmed include:

Figure 6.4 Illustration of Key Freight/Industrial Zones



Note: Truck AADT is 2006 data.

Source: Cambridge Systematics, Inc.

- Florida's Turnpike widening from Griffin Road to Atlantic Boulevard;
- New interchange at I-595 and Florida's Turnpike;
- New rail overpass on Eller Drive; and
- State Road 84 enhancements.

Additional improvements identified include:

- Eller Drive Extension/I-595 – intersection improvements: signal timing modifications to provide improved left-turn phase access to Port Everglades.

I-75 / Sawgrass Corridor

Freeway Access: This linear cluster of industries stretches from approximately Griffin Road north to Wiles Road. Most of the transportation infrastructure serving these businesses was developed within the last three decades and is, therefore, more consistent with current standards. Roadway lane widths and turning radii accommodate modern trucks, and good drainage is generally provided.

Rail Access: The western part of Broward County is not served by rail, and these businesses all rely on truck transportation.

Potential Projects: The main obstacles to trucks within these areas stem from an incomplete roadway grid – for example where future connections have not yet been built – and high volumes of traffic, particularly at commuter times, which stem from the same network deficiencies.

The MPO has programmed a number of improvements that will serve trucks in the area. They include:

- Sawgrass Expressway widening north of Atlantic Boulevard;
- Griffin Road widening east of I-75;
- Miramar Parkway interchange improvement; and
- Pines Boulevard interchange improvement.

Additional improvements identified in this zone include:

- Signal installation at Sawgrass/Commercial Boulevard. This would provide safe truck access at this interchange.

South County/Other

Freeway Access: This zone is well served by I-95 and Florida's Turnpike via interchanges at Pines Boulevard and Griffin Road. Similar to the Powerline Road corridor, the roadway

infrastructure in this area tends to be older, with narrower lanes, less access control and poor drainage. The railroad crossings add delay and danger for truck traffic.

Rail Access: A limited number of rail spurs and sidings along the SFRC continue to serve businesses in this zone, although there are fewer than in the northern part of the county.

Potential Projects: MPO projects programmed within this area include:

- Widening of Ravenswood Road north and south of Griffin Road which will serve a number of freight-oriented businesses; and.
- State Road 7 widening south of Stirling Road.

Additional projects identified in this area include:

- Hollywood Boulevard/Florida's Turnpike interchange improvements: this is an area of significant congestion and improvements would benefit truck traffic by reducing delay.

County-wide

In addition to the area-specific improvements described above, it is recommended that the full range of SIS connector improvements identified by FDOT staff be reviewed and incorporated as appropriate into the upcoming LRTP update. These improvements are defined in Section 2.

6.3 Other Recommendations

- **Improve content and dissemination of traffic information services.** Traffic information services are recommended as a cost-effective means to reduce the impacts of non-recurring congestion on goods movements. It is critical that real time traffic information is accurate, in a form that is useful to truck drivers, and available at key venues convenient to truckers. In addition, drivers and dispatchers must be aware of these services.
- **Incorporate SAFETEA-LU's revised set of planning factors distinctly into freight planning**. It is recommended that Broward County make a distinct effort to apply these factors to planning for the freight transportation system, and not just at the level of the overall LRTP. This will insure that important concerns receiving increased recent emphasis, including safety, security, and the environment (notably increasing climate concerns), will receive and be integrated with freight-specific considerations in the planning process.
- **Form a regular Freight Advisory Committee and use annually to guide transportation program investment decisions**. This Committee should include public sector, shipper, and carrier perspectives, and possibly other stakeholders. This

group's establishment with some continuity and periodic meetings would provide insights that will allow freight to receive proactive consideration with regard to future improvements, rather than merely having *ad hoc* committees formed in reaction to situations that have already begun to deteriorate. This should be coordinated, as appropriate, with the Miami-Dade MPO's Freight Transportation Advisory Committee (FTAC).

- **Monitor and attend critical regional meetings.** FDOT sponsors a regional freight summit annually. Broward MPO staff should attend and participate. In addition, staff should participate in other specific project meetings (e.g., Inland Port Study) and state and regional activities that can improve Broward freight planning.
- **Participate in key regional initiatives.** As documented in this report, there are many initiatives underway that impact freight mobility. It is important that the Broward MPO formally participate in these initiatives and serve as the voice for all Broward County freight stakeholders. Examples include the Florida East Coast Corridor Study, the Atlantic Commerce Corridor/HPC #49 Initiative, and the South Florida Inland Port Feasibility Study.
- **Ensure freight remains a focus area of Broward's LRTP and is incorporated into the regional LRTP.** Staff should continue to include freight projects in the LRTP and promote a larger freight element in the regional LRTP.

Appendix A

Acronym List

AADT	Annual Average Daily Traffic
BTS	Bureau of Transportation Statistics
CFS	Commodity Flow Survey
CMAQ	Congestion Mitigation and Air Quality Improvement Program
DMS	Dynamic Message Signs
FAA	Federal Aviation Administration
FAF	Freight Analysis Framework
FDOT	Florida Department of Transportation
FEC	Florida East Coast Railway
FHWA	Federal Highway Administration
FSTED	Florida Seaport Transportation and Economic Development
FTAC	Freight Transportation Advisory Committee
FTP	Florida Transportation Plan
GDP	Gross Domestic Product
GI	Global Insight
HPC	High Priority Corridor
ICTF	Intermodal Container Transfer Facility
IM	Interstate Maintenance
ITS	Intelligent Transportation Systems
LRTP	Long-Range Transportation Plan
MPO	Metropolitan Planning Organizations
MTS	Marine Transportation System
NHS	National Highway System
NPV	Net Present Value
PNRS	Projects of National and Regional Significance
SEFTC	Southeast Florida Transportation Council
SFRC	South Florida Rail Corridor
SIC	Standard Industrial Classification
SIS	Strategic Intermodal System
STCC	Standard Transportation Commodity Code
STP	Surface Transportation Program
TDM	Transportation Demand Management
TEU	Twenty-foot Equivalent Unit
TIP	Transportation Improvement Program
TRIP	Transportation Regional Incentive Program
TSM	Transportation Systems Management
UPWP	Unified Planning Work Program
USACE	U.S. Army Corps of Engineers
USDOC	U.S. Department of Commerce
USDOT	U.S. Department of Transportation

Appendix B

Freight Glossary References

There are several freight and freight planning glossaries available to MPO freight planning staff. Table B.1 provides links to several of these resources.

Table B.1 Freight and Intermodal Glossaries

Glossary Name	Link
FHWA Freight Professional Development Program Freight Glossary	http://ops.fhwa.dot.gov/freight/fpd/glossary/
Intermodal Association of North America Intermodal Glossary	http://www.intermodal.org/Intermodal%20Glossary.html
Council of Supply Chain Management Professionals Supply Chain and Logistics Glossary	http://www.cscmp.org/Downloads/Resources/glossary03.pdf
American Association of Port Authorities Glossary of Maritime Terms	http://www.aapa-ports.org/industryinfo/glossary.html

Appendix C

Encuesta a Camioneros - Condado de Broward

1) Lugar de Encuesta:_____ 3) Fecha:_____

2) Nombre de Entrevistador:_____ 4) Hora:_____

5) **Número de ejes**: 2 3 4 5 6

6) **Configuración del Camión**:
   - *a) Tractor y Remolque*
   - *b) Tractor Solo / Bobtail*
   - *c) Tractor con armazón de contenedor vacío*
   - *d) Straight Truck*
   - *e) Straight Truck y Remolque*
   - *f) Tractor con Dos Remolques*

7) **Tipo de Remolque** (Circule todas las que apliquen):
   - *a) Contenedor 20 40 Otro*
   - *b) Camioneta*
   - *c) Plataforma*
   - *d) Remolque de autos*
   - *e) Hopper*
   - *f) Tanque*
   - *g) Otro (especifique)_____*

8) **Es este camión** (elija todas las que apliquen):
   - *a) for-hire truckload (carga por contrato?)*
   - *b) dueño-operado*
   - *c) for hire less-than-truckload (LTL)*
   - *d) parte de una flota privada*

9) Esta el vehículo **cargado o vacío**: Cargado Vacío

10) ¿Dónde dejó la última carga o recogió la carga actual?
   a) Dejar _____ ¿ Se originó esta carga en el Puerto Everglades? **Sí No**
   b) Recojer _____

11) ¿Qué carreteras tomó en este viaje al puerto?
   - *a) I-595/ Eller Drive*
   - *b) 17th Street Causeway / Eisenhower Blvd.*
   - *c) State Road 84 - Spangler Boulevard*
   - *d) U.S. 1*
   - *e) I-95*
   - *f) State Road 7 (U.S. 441),*
   - *g) Florida Turnpike*
   - *h) Sawgrass Expressway*
   - *i) Otra_____*
   - *j) Otra_____*
   - *k) Otra_____*

12) ¿Qué carreteras piensa tomar para llegar a su próximo destino?

   a) _____ b) _____ c) _____ d) _____

13) ¿Quién tomo la decision de que ruta tomar para este viaje al Puerto:
   - *a) Conductor*
   - *b) Dispatch*
   - *c) Otro: _____*

14) ¿Qué actividades estará realizando en el puerto? (Seleccione todas las que apliquen)

a) Recojer Remolque/Contenedor Cargado
b) Recojer Remolque/Contenedor Vacío
c) Dejar Remolque/Contenedor Vacío
d) Dejar Remolque/Contenedor Cargado
e) Otro: _____
f) Otro:_____

15) ¿A qué terminal(es) en el puerto se dirige para dejar o recojer carga?

a) Dejar: _____
b) Recojer: _____

16) ¿Qué tipo de carga esta dejando o recojiendo en el puerto?

a) Dejar:_____
b) Recojer:_____

17) ¿Cuál es su próximo destino al salir del Puerto Everglades?

a) _____
b) _____

18) ¿Quién hará la decision de que ruta tomar para su viaje de salida fuera del puerto:

a) Conductor
b) Dispatch
c) Otro: _____

19) ¿Cuántas veces piensa viajer al puerto durante el día de hoy (incluyendo viajes anteriores)?
_____

20) ¿Está usted hacienda entregas al mismo lugar(es)? **Sí** **No** **A veces**

21) ¿Cuál es el problema/queja más grande con respecto al acceso al puerto? ¿Podría dar un ejemplo en específico? (congestión, infrastructura, conectividad, etc.)

22) ¿Cuánto le tomo recojer o dejar carga en el Puerto Port Everglades?

a) Entrada _____
b) Tiempo en terminal _____
c) Salida _____
d) Total _____

23) ¿Usted utiliza información de tráfico a tiempo real?

a) Informes de tráfico
b) 511
c) Otros camioneros
d) Otro_____

Broward County Truck Driver Survey

1) Survey Location:_____
2) Surveyor Name:_____
3) Date:_____
4) Time:_____

5) **Number of axles**: 2 3 4 5 6

6) **Truck Configuration**:
   - *a) Tractor and Trailer*
   - *b) Tractor Only / Bobtail*
   - *c) Tractor with empty container chassis*
   - *d) Straight Truck*
   - *e) Straight Truck and Trailer*
   - *f) Tractor with Two Trailers*

7) **Trailer Style** (Circle all that apply):
   - *a) Container 20 40 Other*
   - *b) Van*
   - *c) Flatbed*
   - *d) Car Carrier*
   - *e) Hopper*
   - *f) Tanker*
   - *g) Other (specify)_____*

8) **Is this truck** (select all that apply):
   - *a) for-hire truckload*
   - *b) owner-operator*
   - *c) for hire less-than-truckload (LTL)*
   - *d) part of a private fleet*

9) Is the vehicle **loaded or unloaded**: Loaded Unloaded

10) Where did you drop your last load or pick up your current load?
   - a) Drop Off_____ Did this load originate at Port Everglades? **Yes No**
   - b) Pick Up_____

11) Which roadway(s) did you take on your current trip into the port?

a) _____ Eller Drive
b) _____ Route 84 - Spangler Blvd
c) _____ 17th St. / Eisenhower Blvd.
d) _____ I-595
e) _____ U.S. 1 North
f) _____ U.S. 1 South
g) _____ I-95 North
h) _____ I-95 South
i) _____ Route 7 (U.S. 441), North
j) _____ Route 7 (U.S. 441), South
k) _____ Florida's Turnpike North
l) _____ Florida's Turnpike South
m) _____ I-75 West
n) _____ I-75 South
o) _____ Sawgrass Expressway
p) _____ Route 27 North

12) Which of the above roadway(s) will you take to reach your next destination (fill in letter from above listing of highways)?

1) _____ 2) _____ 3) _____ 4) _____

13) Who made the routing decision for this trip into the port:
   - *a) Driver*
   - *b) Dispatch*
   - *c) Other: _____*

14) What activities will you be performing at the port? (Select all that apply)

a) Pick-up Loaded Trailer/Container
b) Pick-up Empty Trailer/Container
c) Drop off Empty Trailer/Container
d) Drop off Loaded Trailer/Container
e) Other: _____
f) Other:_____

15) Which terminal(s) will you be going to at the port for drop-off and/or pick-up?

a) Drop-off: _____
b) Pick-up: _____

16) What type of cargo are you dropping off or picking up at the port?

a) Drop Off:_____
b) Pick Up:_____

17) What will be your next destination(s) upon leaving Port Everglades?

a) _____
b) _____

18) Who will make the routing decision for your trip out of the port:

a) Driver
b) Dispatch
c) Other: _____

19) How many total times do you expect to travel to the port today (including trips earlier today)? _____

20) Are you making deliveries to the same location(s)? **Yes** **No** **Sometimes**

21) What is your biggest issue/complaint regarding port access? Can you provide a specific example? (congestion, infrastructure, connectivity, etc.)

22) How long does it typically take to drop off and/or pick up at Port Everglades?

a) Gate Access_____
b) Terminal Time_____
c) Exit_____
d) Total _____

23) Do you use any real time traffic information?

a) Traffic reports
b) 511
c) Other drivers
d) Other_____

Survey ID 1 Location 2) Surveyor 3) Date 4) Time 6) Truck Config 7) Trailer Style 7A) Length 5) Axles 8A) Reefer 8) Type of Operation 9) Loaded? 22) Time at Port (hours)

Vehicle characteristics and port activity - trucks at cruise terminals

Survey ID	Location	2) Surveyor	3) Date	4) Time	Truck Configuration	Trailer Style	Trailer Length	Axles	Reefer?	Type of Operation	Loaded?	Average time spent at Port (hours)	Activities at Port
95	Cruise Terminals	MTW	23-Jun	7:25 AM	Trailer and Tractor	Trailer		4	yes	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container;
120	Cruise Terminals	WAC	23-Jun	7:25 AM	Trailer and Tractor	Container	40	5	no	Owner-operator	Loaded	3.00	Unload cargo;
59	Cruise Terminals	INO	23-Jun	7:25 AM	Trailer and Tractor	Trailer		4	Yes	For-hire truckload	Loaded	0.70	Unload cargo; Load cargo
98	Cruise Terminals	WAC	23-Jun	7:30 AM	Trailer and Tractor	Van	45	5	No	Private fleet	Loaded	2.25	Unload cargo;
60	Cruise Terminals	INO	23-Jun	7:40 AM	Straight truck	Straight truck		2	No	part of Private fleet	Loaded	5.00	Unload cargo;
96	Cruise Terminals	MTW	23-Jun	7:50 AM	Trailer and Tractor	Trailer	53	5	no	For-hire truckload	Loaded	0.70	Drop-off Loaded Trailer/Container;
121	Cruise Terminals	WAC	23-Jun	7:50 AM	Trailer and Tractor	Van		5	no	Private fleet	Loaded	3.00	Unload cargo;
61	Cruise Terminals	INO	23-Jun	8:00 AM	Trailer and Tractor	Trailer		5	Yes	For-hire truckload	Loaded	1.00	Unload cargo;
97	Cruise Terminals	MTW	23-Jun	8:20 AM	Trailer and Tractor	Trailer	48	5	yes	Private fleet	Loaded	4.00	Drop-off Loaded Trailer/Container;
62	Cruise Terminals	INO	23-Jun	8:45 AM	Straight truck	Flatbed w/ railings		3	No	For-hire truckload	Loaded	4.50	Unload cargo; Load cargo
63	Cruise Terminals	INO	23-Jun	9:30 AM	Trailer and Tractor	Trailer	53	5	No	For-hire truckload	Loaded	4.50	Unload cargo; Leave empty
1	Cruise Terminals	JCZ	23-Jun	7-9 AM	Trailer and Tractor	Trailer	53	5	Yes	Private fleet	Loaded	3.00	Unload cargo;

Vehicle characteristics and port activity - trucks at FEC intermodal terminal

Survey ID	Location	2) Surveyor	3) Date	4) Time	Truck Configuration	Trailer Style	Trailer Length	Axles	Reefer?	Type of Operation	Loaded?	Average time spent at Port (hours)	Activities at Port
64	FEC	MTW	21-Jun	3:15 PM	Trailer and Tractor	Container		5	No	For-hire truckload	Loaded		Drop-off Loaded Trailer/Container; Leave empty
66	FEC	MTW	21-Jun	7:40 AM	Trailer and Tractor	Trailer	53	5	no	Private fleet	Unloaded	0.25	Pick-up Loaded Trailer/Container;
67	FEC	MTW	21-Jun	7:50 AM	Trailer and Tractor	trailer	48	4	no	For-hire truckload	Unloaded	0.25	Drop-off empty Trailer/Container;
68	FEC	MTW	21-Jun	8:40 AM	Trailer and Tractor	Chassis		5	no	For-hire truckload	Unloaded	0.25	Pick-up Loaded Trailer/Container;
69	FEC	MTW	21-Jun	8:50 AM	Trailer and Tractor	Chassis		5	no	For-hire truckload	Unloaded	0.20	Drop-off empty Trailer/Container;
70	FEC	MTW	21-Jun	8:55 AM	Bobtail	Bobtail		5		For-hire truckload	Unloaded	0.20	Pick-up Loaded Trailer/Container;
27	FEC	JCZ	21-Jun	3:10 PM	Trailer and Tractor	Container	45	5	Yes	For-hire truckload	Loaded	0.13	Drop Off Loaded Container;
21	FEC	JCZ	21-Jun	3:50 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	0.29	Drop Off Loaded Container;
65	FEC	MTW	21-Jun	4:00 PM	Trailer and Tractor	Trailer	53	4	no	For-hire truckload	Unloaded	0.40	drop-off Unload cargoed trailer/container;
28	FEC	JCZ	21-Jun	4:00 PM	Trailer and Tractor	Trailer	53	4	No	Private fleet	Loaded	0.25	Drop Off Loaded Trailer;
4	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	No	For-hire truckload	(Bobtail)	0.25	Pick Up Loaded Trailer/Cont;
2	FEC	JCZ	21-Jun	7-9 AM	Trailer and Tractor	Flatbed		5	No	Private fleet	Unloaded	0.25	Load cargo;
26	FEC	JCZ	21-Jun	7-9 AM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Unloaded	0.25	Drop Off Empty Container; Pick Up Loaded Trailer/Cont
3	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	Yes	Private fleet	(Bobtail)	0.33	Pick Up Loaded Trailer/Cont;
9	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	No	For-hire truckload	(Bobtail)	0.13	Pick Up Loaded Trailer/Cont;
10	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	No	For-hire truckload	(Bobtail)	0.17	Pick Up Loaded Trailer/Cont;
5	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	No	Private fleet	(Bobtail)	0.29	Pick Up Loaded Trailer/Cont;
6	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	No	Private fleet	(Bobtail)	0.25	Pick Up Loaded Trailer/Cont;
8	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	No	Private fleet	(Bobtail)	0.29	Pick Up Loaded Trailer/Cont;
7	FEC	JCZ	21-Jun	7-9 AM	Bobtail	Bobtail		5	No	Private fleet	(Bobtail)	0.17	Pick Up Loaded Trailer/Cont;
30	FEC	JCZ	22-Jun	12:00 PM	Trailer and Tractor	Trailer	53	4	No	Private fleet	Loaded	0.25	Drop Off Loaded Trailer; Pick Up Loaded Trailer/Cont
31	FEC	JCZ	22-Jun	1:40 PM	Trailer and Tractor	Flatbed		5	No	For-hire truckload	Unloaded	0.25	Drop Off Empty Flatbed;
32	FEC	JCZ	22-Jun	1:45 PM	Trailer and Tractor	Chassis		5	No	For-hire truckload	Unloaded	0.29	Drop Off Empty Chassis;
33	FEC	JCZ	22-Jun	1:55 PM	Trailer and Tractor	Chassis	45	5	No	For-hire truckload	Unloaded	0.29	Drop Off Empty Chassis; Pick Up Loaded Trailer/Cont
29	FEC	JCZ	22-Jun	2:00 PM	Trailer and Tractor	Trailer	53	4	No	Private fleet	Unloaded	0.33	Drop Off Empty Trailer;

Vehicle characteristics and port activity - trucks at container terminals

Survey ID	Location	2) Surveyor	3) Date	4) Time	Truck Configuration	Trailer Style	Trailer Length	Axles	Reefer?	Type of Operation	Loaded?	Average time spent at Port (hours)	Activities at Port
100	McIntosh Road	WAC	21-Jun	9:45 AM	Bobtail	Bobtail		3	No	Owner-operator	Unloaded	1.50	Drop-off Loaded Trailer/Container; Pick-up Loaded Trailer/Container
101	McIntosh Road	WAC	21-Jun	10:00 AM	Bobtail	Bobtail		3	No	Owner-operator	Unloaded	0.58	Drop-off empty Trailer/Container;
102	McIntosh Road	WAC	21-Jun	10:00 AM	Trailer and Tractor	Container	40	5	No	Owner-operator	Loaded	2.50	Pick-up Loaded Trailer/Container;
103	McIntosh Road	WAC	21-Jun	10:15 AM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Unloaded	2.25	Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
104	McIntosh Road	WAC	21-Jun	10:20 AM	Trailer and Tractor	Container	20	5	No	Owner-operator	Loaded	4.00	Pick-up Loaded Trailer/Container;
12	McIntosh Road	JCZ	21-Jun	10:30 AM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Loaded	3.00	Unload cargo;
105	McIntosh Road	WAC	21-Jun	10:30 AM	Bobtail	Bobtail		3	No	Owner-operator	Unloaded	3.00	Pick-up Loaded Trailer/Container;
13	McIntosh Road	JCZ	21-Jun	10:45 AM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Unloaded	2.00	Drop Off Empty Container; Pick Up Loaded Trailer/Cont
71	McIntosh Road	MTW	21-Jun	10:50 AM	Trailer and Tractor	Container	40	5	no	For-hire truckload	Loaded	1.50	Drop-off Loaded Trailer/Container;
99	McIntosh Road	WAC	21-Jun	11:00 AM	Trailer and Tractor	Container	40	5		Owner-operator	Loaded	3.00	Drop-off Loaded Trailer/Container; Pick-up Loaded Trailer/Container
14	McIntosh Road	JCZ	21-Jun	11:00 AM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Unloaded	0.58	Drop Off Empty Container; Pick Up Loaded Trailer/Cont
73	McIntosh Road	MTW	21-Jun	11:00 AM	Trailer and Tractor	Container	48	5	no	For-hire truckload	Loaded	1.50	Drop-off Loaded Trailer/Container; Pick-up Loaded Trailer/Container
106	McIntosh Road	WAC	21-Jun	11:00 AM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Unloaded	2.25	Drop-off empty Trailer/Container; Pick-up empty Trailer/Container
72	McIntosh Road	MTW	21-Jun	11:00 AM	Trailer and Tractor	Container	48	5	no	For-hire truckload	Unloaded		Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
15	McIntosh Road	JCZ	21-Jun	11:05 AM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	1.50	Drop Off Loaded Container;
74	McIntosh Road	MTW	21-Jun	11:05 AM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Unloaded	2.50	Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
16	McIntosh Road	JCZ	21-Jun	11:10 AM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	1.50	Drop Off Loaded Container;
109	McIntosh Road	WAC	21-Jun	11:10 AM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Unloaded	2.50	Drop-off empty Trailer/Container;
75	McIntosh Road	MTW	21-Jun	11:10 AM	Trailer and Tractor	flatbed		5	no	For-hire truckload	Loaded		Drop-off Loaded Trailer/Container;
76	McIntosh Road	MTW	21-Jun	11:10 AM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded		Drop-off Loaded Trailer/Container;
17	McIntosh Road	JCZ	21-Jun	11:15 AM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Loaded	4.00	Drop Off Loaded Container; Pick Up Loaded Trailer/Cont
77	McIntosh Road	MTW	21-Jun	11:15 AM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded		Drop-off Loaded Trailer/Container;
107	McIntosh Road	WAC	21-Jun	11:20 AM	Bobtail	Bobtail		3	No	For-hire truckload	Unloaded	4.00	Drop-off empty Trailer/Container;
78	McIntosh Road	MTW	21-Jun	11:20 AM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Unloaded		Drop-off empty Trailer/Container;
79	McIntosh Road	MTW	21-Jun	11:25 AM	Trailer and Tractor	Container	45	5	yes	For-hire truckload	Unloaded	2.50	Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
108	McIntosh Road	WAC	21-Jun	11:30 AM	Trailer and Tractor	Container	40	5	No	Owner-operator	Unloaded	1.00	Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
18	McIntosh Road	JCZ	21-Jun	11:30 AM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Loaded	2.00	Drop Off Loaded Container; Pick Up Loaded Trailer/Cont
80	McIntosh Road	MTW	21-Jun	11:30 AM	Trailer and Tractor	Container	45	5	yes	For-hire truckload	Unloaded	2.00	Drop-off empty Trailer/Container; Pick-up empty Trailer/Container
81	McIntosh Road	MTW	21-Jun	11:34 AM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
19	McIntosh Road	JCZ	21-Jun	11:40 AM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Loaded	0.50	Drop Off Loaded Container;
22	McIntosh Road	JCZ	21-Jun	11:45 AM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	2.00	Drop Off Loaded Container; Pick Up Loaded Trailer/Cont
82	McIntosh Road	MTW	21-Jun	11:45 AM	Trailer and Tractor	Container	45	5	yes	For-hire truckload	Unloaded	1.00	Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
84	McIntosh Road	MTW	21-Jun	11:50 AM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	3.00	Drop-off Loaded Trailer/Container; Pick-up Loaded Trailer/Container
83	McIntosh Road	MTW	21-Jun	11:50 AM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container;
110	McIntosh Road	WAC	21-Jun	12:00 PM	Trailer and Tractor	Container	20	5	no	For-hire truckload	Loaded	7.00	Drop-off Loaded Trailer/Container;
20	McIntosh Road	JCZ	21-Jun	12:00 PM	Trailer and Tractor	Container	40	5	Yes	For-hire truckload	Unloaded	1.00	Drop Off Empty Container;
11	McIntosh Road	JCZ	21-Jun	12:10 PM	Straight Truck	Flatbed		3	No	For-hire truckload	Unloaded	1.00	Load cargo;
85	McIntosh Road	MTW	21-Jun	2:35 PM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container;
35	McIntosh Road	INO	21-Jun	2:40 PM	Chassis and Tractor	Chassis		5	No	For-hire truckload	Unloaded	3.50	Pick-up Loaded Trailer/Container;
23	McIntosh Road	JCZ	21-Jun	2:45 PM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Loaded	1.50	Drop Off Loaded Container; Pick Up Loaded Trailer/Cont
115	McIntosh Road	WAC	21-Jun	2:45 PM	Chassis and Tractor	Chassis	40	5	No	Owner-operator	Unloaded	1.00	Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
112	McIntosh Road	WAC	21-Jun	2:45 PM	Trailer and Tractor	Flatbed		5	No	For-hire truckload	Loaded	3.00	Drop-off Loaded Trailer/Container;
86	McIntosh Road	MTW	21-Jun	2:45 PM	Trailer and Tractor	Chassis		5	no	For-hire truckload	Unloaded	1.50	Drop-off chassis;
24	McIntosh Road	JCZ	21-Jun	2:50 PM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Unloaded	2.00	Drop Off Loaded Container;
87	McIntosh Road	MTW	21-Jun	2:50 PM	Trailer and Tractor	Chassis		5	no	For-hire truckload	Unloaded	0.75	Drop-off chassis;
36	McIntosh Road	INO	21-Jun	2:50 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	8.00	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
25	McIntosh Road	JCZ	21-Jun	2:55 PM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Loaded	3.00	Drop Off Loaded Container; Pick Up Loaded Trailer/Cont
114	McIntosh Road	WAC	21-Jun	3:00 PM	Trailer and Tractor	Container	40	5	no	Owner-operator	Unloaded	2.50	Drop-off empty Trailer/Container;
37	McIntosh Road	INO	21-Jun	3:00 PM	Trailer and Tractor	Container	20	5	No	Owner-operator	Unloaded	4.50	Drop-off empty Trailer/Container; Pick-up empty Trailer/Container
116	McIntosh Road	WAC	21-Jun	3:05 PM	Bobtail	Bobtail		3	no	For-hire truckload	Unloaded	2.50	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
38	McIntosh Road	INO	21-Jun	3:05 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Unloaded	5.00	Drop-off empty Trailer/Container;
39	McIntosh Road	INO	21-Jun	3:10 PM	Chassis and Tractor	Chassis		5	No	For-hire truckload	Unloaded	3.75	Pick-up Trailer/Container;
113	McIntosh Road	WAC	21-Jun	3:15 PM	Trailer and Tractor	Container	20	5	Yes	Owner-operator	Loaded	1.00	Drop-off Loaded Trailer/Container; Pick-up Loaded Trailer/Container
40	McIntosh Road	INO	21-Jun	3:15 PM	Bobtail	Bobtail		3	No	For-hire truckload	Unloaded	2.00	Pick-up Loaded Trailer/Container;

41	McIntosh Road	INO	21-Jun	3:20 PM	Trailer and Tractor	Container	40	5	No	part of Private fleet	Loaded	0.30	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
42	McIntosh Road	INO	21-Jun	3:25 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	4.50	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
117	McIntosh Road	WAC	21-Jun	3:30 PM	Trailer and Tractor	Container	40	5	Yes	For-hire truckload	Unloaded	3.00	Drop-off empty Trailer/Container;
43	McIntosh Road	INO	21-Jun	3:30 PM	Bobtail	Bobtail		3	No	For-hire truckload	Unloaded	3.00	Pick-up Loaded Trailer/Container;
111	McIntosh Road	WAC	21-Jun	3:40 PM	Towed Tractor	Tractor (towed)		4	no	For-hire truckload	Loaded	0.75	Drop-off Loaded Trailer/Container;
44	McIntosh Road	INO	21-Jun	3:40 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	2.25	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
45	McIntosh Road	INO	21-Jun	3:42 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	4.00	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
46	McIntosh Road	INO	21-Jun	3:45 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	7.50	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
118	McIntosh Road	WAC	21-Jun	3:50 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	1.50	Drop-off Loaded Trailer/Container;
47	McIntosh Road	INO	21-Jun	3:55 PM	Chassis and Tractor	Chassis		5	No	For-hire truckload	Unloaded		Drop-off chassis;
119	McIntosh Road	WAC	21-Jun	4:00 PM	Trailer and Tractor	Container	40	5	no	Owner-operator	Loaded		Drop-off Loaded Trailer/Container; Pick-up Loaded Trailer/Container
48	McIntosh Road	INO	22-Jun	10:45 AM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Loaded	1.00	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
88	McIntosh Road	MTW	22-Jun	1:15 PM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
49	McIntosh Road	INO	22-Jun	1:15 PM	Trailer and Tractor	Container	20	5	No	Owner-operator	Loaded	2.00	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
89	McIntosh Road	MTW	22-Jun	1:20 PM	Trailer and Tractor	Container	20	5	no	For-hire truckload	Unloaded		Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
50	McIntosh Road	INO	22-Jun	1:25 PM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Unloaded	0.60	Drop-off empty Trailer/Container; Pick-up Loaded Trailer/Container
90	McIntosh Road	MTW	22-Jun	1:25 PM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	2.50	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
92	McIntosh Road	MTW	22-Jun	1:30 PM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container; Leave empty
51	McIntosh Road	INO	22-Jun	1:30 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	2.50	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
91	McIntosh Road	MTW	22-Jun	1:30 PM	Trailer and Tractor	Chassis		5	no	For-hire truckload	Unloaded	1.00	Drop-off chassis; Pick-up empty Trailer/Container
52	McIntosh Road	INO	22-Jun	1:40 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	7.00	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
93	McIntosh Road	MTW	22-Jun	1:40 PM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	1.50	Drop-off Loaded Trailer/Container; Pick-up chassis
53	McIntosh Road	INO	22-Jun	1:50 PM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Loaded	3.00	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
54	McIntosh Road	INO	22-Jun	1:55 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container; Pick-up chassis
55	McIntosh Road	INO	22-Jun	2:05 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	2.00	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
56	McIntosh Road	INO	22-Jun	2:15 PM	Trailer and Tractor	Container	40	5	No	For-hire truckload	Loaded	4.00	Drop-off Loaded Trailer/Container; Pick-up Trailer/Container
94	McIntosh Road	MTW	22-Jun	2:45 PM	Trailer and Tractor	Container	45	5	no	For-hire truckload	Loaded	1.00	Drop-off Loaded Trailer/Container; Pick-up empty Trailer/Container
57	McIntosh Road	INO	22-Jun	2:55 PM	Trailer and Tractor	Container	45	5	No	For-hire truckload	Unloaded	5.00	Drop-off empty Trailer/Container;
34	McIntosh Road	JCZ	22-Jun	3:05 PM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Loaded	4.00	Drop Off Loaded Container;
58	McIntosh Road	INO	22-Jun	3:05 PM	Trailer and Tractor	Container	20	5	No	For-hire truckload	Loaded		Drop-off Loaded Trailer/Container; Pick-up Trailer/Container

Survey ID 1 Location

13) IB Routing Deci:requency) Same Location?

Trip characteristics - trucks at cruise terminals

Survey ID	Location	Pick-up and drop-off locations, as known	Roads used / to be used	Routing decision responsibility	Daily trips to Port	Makes repeat trips to same location?	Traffic info sources
95	Cruise Terminals	Miami; Miami	I-95; I-95; ; ; ; ; ;	Driver	1	no	None;
120	Cruise Terminals	Berth 25; Miami; Port of Miami;	I-595; I-95 S; Eller Drive; ; I-595; I-95 S; Eller Drive;	Dispatch	1	Yes	Other Drivers; Traffic reports
59	Cruise Terminals	Miami; Miami	I-595; Florida Turnpike; ; ; I-95; ; ;	Driver	2	No	None;
98	Cruise Terminals	Hollywood; Hollywood	SR 84-Spangler; US 1S; ; ; SR 84-Spangler; US 1 S; ;	Driver	1	Yes	other drivers;
60	Cruise Terminals	Miami; Miami	I-595; I-95; SR 836; ; I-595; ; ;	Driver	1	Yes	Other drivers; Dispatcher
96	Cruise Terminals	Miami; Miami	Florida Turnpike; I-595; ; ; I-595; Florida Turnpike; ;	Driver	1	yes	None;
121	Cruise Terminals	Miami; Miami; Berth 25;	I-595; I-95 S; Eller Drive; ; I-595; I-95 S; Eller Drive;	Dispatch	1	no	Other Drivers;
61	Cruise Terminals	Miami; Miami	I-95; ; ; ; I-95; SR 836; ;	Driver	1	No	Radio; Traffic reports
97	Cruise Terminals	Miami; Miami	I-95; I-595; ; ; I-595; I-95; ;	driver	1	yes	None;
62	Cruise Terminals	Miami; Miami	SR 84-Spangler; Florida Turnpike; ; ; SR 84-Spangler; Florida Turnpike; ;	Driver	2	Yes	Radio; Traffic reports
63	Cruise Terminals	Miami; Miami	I-95; Florida Turnpike; ; ; Florida Turnpike; ; ;	Driver	1	Yes	Other Drivers; Traffic reports
1	Cruise Terminals	Pompano Beach; Pompano Beach	I-595; I-95; ; Eller Drive; I-595; I-95; ; Eller Drive	Driver	2	No	Other Drivers;

Trip characteristics - trucks at FEC intermodal terminal

Survey ID	Location	Pick-up and drop-off locations, as known	Roads used / to be used	Routing decision responsibility	Daily trips to Port	Makes repeat trips to same location?	Traffic info sources
64	FEC	Miami;	I-595; I-95; ; ; Eller Drive; ; ;	Driver	6	Yes	Traffic reports;
66	FEC	Local; find out from dispatch;	I-595; I-95; ; ; I-595; ; ;	driver	2	Sometimes	Traffic reports;
67	FEC	Lauderhill;	I-595; US 1; SR 441; ; US 1; I-595; SR 441;	Dispatch	2	yes	None;
68	FEC	FEC; Crowley; FEC;	Eller Drive; ; ; ; Eller Drive; ; ;	driver	12	yes	None;
69	FEC	FEC; Crowley; Crowley; FEC	Eller Drive; ; ; ; ; Eller Drive; ;	driver	17	yes	None;
70	FEC	Crowley; Crowley; FEC; Crowley	Andrews Ave; Eller Drive; ; ; ; Eller Drive; Andrews Ave;	driver	5	Sometimes	None;
27	FEC	Pompano Beach;	I-95; I-595; ; Eller Drive; ; ; ;	Driver	7	No	None;
21	FEC	Miami;	I-95; I-595; ; Eller Drive; ; ; ;	Driver	4.5	Yes	Radio;
65	FEC	FEC; Miami; Miami;	I-595; Florida Turnpike; ; ; I-595; Florida Turnpike; ;	driver	1	yes	Traffic reports;
28	FEC	MedleyMedley;	I-75; I-595; ; Eller Drive; I-75; I-595; ; Eller Drive	Driver	1	Yes	None;
4	FEC	Miami; Miami	I-595; I-95; ; Eller Drive; I-595; I-95; ;	Driver	1.5	No	None;
2	FEC	Dania FL ;	US 1; ; ; ; US 1; ; ;	Driver	3	Yes	Teletrac;
26	FEC	Port EvergladesPort Everglades;	I-595; ; ; Eller Drive; I-595; ; ; Eller Drive	Driver	4.5	Yes	None;
3	FEC	Port Everglades; Port Everglades	I-595; ; ; Eller Drive; I-595; ; ; Eller Drive	Driver	4.5	Yes	Other Drivers;
9	FEC	Port Everglades; Port Everglades	I-595; ; Andrews Ave; Eller Drive; I-595; ; Andrews Ave; Eller Drive	Driver	6	Yes	None;
10	FEC	Port Everglades; Port Everglades	I-595; ; Andrews Ave; Eller Drive; I-595; ; Andrews Ave; Eller Drive	Driver	8	Yes	None;
5	FEC	Port Everglades; Port Everglades	I-595; ; Andrews Ave; Eller Drive; I-595; ; Andrews Ave; Eller Drive	Driver	10	Yes	None;
6	FEC	Port Everglades; Port Everglades	I-595; ; Andrews Ave; Eller Drive; I-595; ; Andrews Ave; Eller Drive	Driver	10	Yes	None;
8	FEC	Port Everglades; Port Everglades	I-595; ; Andrews Ave; Eller Drive; I-595; ; Andrews Ave; Eller Drive	Driver	12.5	Yes	None;
7	FEC	Port Everglades; Port Everglades	I-595; ; Andrews Ave; Eller Drive; I-595; ; Andrews Ave; Eller Drive	Driver	15	Yes	None;
30	FEC	Key West; Jacksonville; Fort Myers;	I-95; I-595; ; Eller Drive; I-95; I-595; ; Eller Drive	Dispatch	2	No	None;
31	FEC	Miami;	I-95; I-595; ; Eller Drive; ; ; ;	Driver	5.5	No	None;
32	FEC	Port Everglades; Port Everglades	I-595; ; ; Eller Drive; I-595; ; ; Eller Drive	Driver	3	No	None;
33	FEC	Port Everglades; Port Everglades	I-595; ; ; Eller Drive; I-595; ; ; Eller Drive	Driver	3	No	Other Drivers;
29	FEC	Medley; Miami	Florida Turnpike; SR 826-Palmetto; I-595; Eller Drive; I-75; I-595; ; Eller Driv	Dispatch	2	No	Other Drivers; Traffic reports

Trip characteristics - trucks at container terminals

Survey ID	Location	Pick-up and drop-off locations, as known	Roads used / to be used	Routing decision responsibility	Daily trips to Port	Makes repeat trips to same location?	Traffic info sources
100	McIntosh Road	Port Everglades;	I-595; US 1; Eller Drive; ; ; ; ;	Dispatch	1		Other Drivers;
101	McIntosh Road	Crowley; Crowley; Miami;	I-595; US 1N; Eller Drive; ; Eller Drive; I-595; I-95S;	Dispatch	3.5	No	Traffic reports; other drivers
102	McIntosh Road	Okechobee; Crowley	I-595; I-95 S; Eller Drive; ; SR 826-Palmetto; ; ;	Driver	1.5	No	Traffic reports; other drivers
103	McIntosh Road	Miami; Miami; Miami;	I-595; I-95 S; SR 826-Palmetto; ; ; ; ;	Driver	2	No	None;
104	McIntosh Road	Miami; Maersk; Miami;	I-595; I-95 S; Eller Drive; ; I-595; I-95 S; ;	Driver	1	no	None;
12	McIntosh Road	North Carolina; North Carolina	I-95; ; ; ; I-95; ; ;	Driver	1	Yes	Other Drivers; Dispatcher
105	McIntosh Road	Holiday Beach;	I-595; I-95 S; Eller Drive; ; ; ; ;	Driver	3.5	No	Traffic reports; other drivers
13	McIntosh Road	Miami; Miami	I-95; 112; SR 826-Palmetto; ; I-95; 112; SR 826-Palmetto;	Driver	3	Sometimes	Other Drivers; 511
71	McIntosh Road	Miami;	SR 826-Palmetto; I-95; I-595; ; ; ; ;	Driver			None;
99	McIntosh Road	Miami; Miami; Miami;	I-595; Eller Drive; ; ; I-595; Florida Turnpike; ;	Driver	3	Sometimes	None;
14	McIntosh Road	Miami;	I-95; ; ; ; ; ; ;	Driver	4	Sometimes	Other Drivers;
73	McIntosh Road	Miami; Miami	I-95; I-595; ; ; ; ; ;	Driver	2.5		None;
106	McIntosh Road	Sunrise; Sunrise; Sunrise;	I-595; Eller Drive; 136th Avenue; ; I-595; Eller Drive; 136th Avenue;	Dispatch	3	Yes	Traffic reports;
72	McIntosh Road	Miami; Miami	I-75; I-95; I-595; ; I-595; I-95; ;	Driver	4	yes	None;
15	McIntosh Road	Miami;	I-95; I-595; ; Eller Drive; ; ; ;	Driver	1.7	No	Other Drivers; Traffic reports
74	McIntosh Road	Miami; West Palm Beach	I-595; I-95; ; ; I-595; I-95; ;	Driver	2	no	None;
16	McIntosh Road	Miami;	I-95; SR 826-Palmetto; I-595; Eller Drive; ; ; ;	Driver	3	Sometimes	Other Drivers;
109	McIntosh Road	Ft. Lauderdale;	I-595; I-95 N; Eller Drive; ; ; ; ;	Dispatch	3.5	no	Other Drivers;
75	McIntosh Road	Oklahoma; South Carolina	I-95; I-595; I-10; ; I-95; ; ;	Driver	1	no	None;
76	McIntosh Road	Lakeland	US 27; ; ; ; ; ; ;	Driver	2	no	None;
17	McIntosh Road	New York; North Carolina	I-95; I-91; I-595; Eller Drive; I-95; I-91; I-595; Eller Drive	Driver	1	No	Other Drivers; Traffic reports
77	McIntosh Road	North Carolina;	I-95; I-595; ; ; ; ; ;	Driver	1	no	None;
107	McIntosh Road	Crowley; Crowley	I-595; I-95 S; Eller Drive; ; ; ; ;	Driver	3	No	Traffic reports; other drivers
78	McIntosh Road	Miami; Miami	I-75; I-95; I-595; ; I-595; I-95; I-75;	Driver	1		None;
79	McIntosh Road	Miami; West Palm Beach	I-95; I-595; ; ; I-95; ; ;	driver	4.5	no	None;
108	McIntosh Road	Jacksonville; Jacksonville; Jacksonvil	I-595; I-95 N; Eller Drive; ; I-595; I-95 N; Eller Drive;	Driver	1	Yes	Traffic reports; other drivers
18	McIntosh Road	Miami; Miami	Florida Turnpike; I-595; ; Eller Drive; SR 826-Palmetto; I-595; ; Eller Drive	Driver	3.5	No	Other Drivers; Traffic reports
80	McIntosh Road	Miami; Miami	I-95; I-595; ; ; ; ; ;	Driver	3	yes	None;
81	McIntosh Road	Miami; Miami	I-75; I-595; ; ; ; ; ;	Driver	3	no	None;
19	McIntosh Road	South Carolina; South Carolina	I-95; I-595; ; Eller Drive; I-95; I-595; ; Eller Drive	Driver	1	Yes	GPS;
22	McIntosh Road	Miami;	I-595; I-75; I-195; Eller Drive; ; ; ;	Dispatch	2	No	None;
82	McIntosh Road	Miami; Miami	I-95; I-595; ; ; ; ; ;	Driver	4	yes	Traffic reports;
84	McIntosh Road	New York; north carolina	I-95; I-595; ; ; I-95; I-595; ;	Dispatch	1	no	None;
83	McIntosh Road	Miami; Miami	I-595; Florida Turnpike; ; ; ; ; ;	Driver	2.5	Sometimes	Traffic reports;
110	McIntosh Road	Miami; Miami	I-595; ; ; ; ; ; ;	Driver	2	No	Other Drivers;
20	McIntosh Road	Miami;	I-95; SR 826-Palmetto; I-595; Eller Drive; ; ; ;	Driver	4	No	Other Drivers; Traffic reports
11	McIntosh Road	Miami; Miami	I-95; 112; ; ; I-95; 112; ;	Driver	1	Yes	Other Drivers;
85	McIntosh Road	Virginia; TN or VA	I-95; I-595; ; ; ; ; ;	Driver	1	no	None;
35	McIntosh Road	Miami; High Shipping	US 1 N; I-595; ; ; I-595; ; ;	Driver	2	No	Traffic reports;
23	McIntosh Road	North Carolina; North Carolina	I-95; I-595; ; Eller Drive; I-95; ; ;	Driver	1	Yes	Traffic reports;
115	McIntosh Road	APM terminal; Weston, FL	I-595; I-95 S; Eller Drive; ; ; ; ;	Dispatch	2.5	no	Other Drivers; 511
112	McIntosh Road	Miami;	I-595; US 1S; ; ; ; ; ;	Dispatch	3	No	Traffic reports;
86	McIntosh Road	Miami; Miami	SR 826-Palmetto; I-95; I-595; ; I-595; I-95; SR 826-Palmetto;	driver	4	yes	Traffic reports;
24	McIntosh Road	Miami;	I-95; I-595; ; Eller Drive; ; ; ;	Dispatch	2.5	Yes	Other Drivers; Traffic reports
87	McIntosh Road	West Palm Beach; waiting for dispatc	I-95; I-595; ; ; ; ; ;	Driver	1	no	None;
36	McIntosh Road	Hialeah;	SR 826-Palmetto; I-95; ; ; ; ; ;	Driver	5	No	Dispatcher;
25	McIntosh Road	Miami; Miami	I-95; I-595; ; Eller Drive; I-95; I-595; ; Eller Drive	Dispatch	2	No	Other Drivers; Traffic reports
114	McIntosh Road	Apopka; Maersk	I-595; I-95 N; Eller Drive; ; I-595; I-95 S; Eller Drive;	Driver	1	No	Other Drivers;
37	McIntosh Road	Tampa; Miami	I-75 S; ; ; ; I-595; I-75; ;	Driver	2	No	None;
116	McIntosh Road	North Carolina; Maersk; North Carolir	I-595; I-95 N; Eller Drive; ; I-595; I-95 N; Eller Drive;	Dispatch	1	Yes	Traffic reports; 511
38	McIntosh Road	Pompano Beach;	I-95; ; ; ; I-95; ; ;	Dispatch	8	No	Other Drivers; Traffic reports
39	McIntosh Road	West Palm Beach;	I-95; ; ; ; ; ; ;	Driver	7	Sometimes	Dispatch; Traffic reports
113	McIntosh Road	Crowley; Port Everglades	Eller Drive; ; ; ; ; ; ;	Driver	10	Yes	None;
40	McIntosh Road	Virginia; Miami; Georgia;	I-95; ; ; ; I-95; ; ;	Driver	1	No	Other Drivers; Traffic reports

41	McIntosh Road	FEC; FEC	; ; ; ; ; ; ;	Driver	4.5	Yes	None;
42	McIntosh Road	Miami; Miami	SR 826-Palmetto; ; ; ; I-95; ; ;	Driver	4	No	Other Drivers; Traffic reports
117	McIntosh Road	Crowley; Pompano	I-595; I-95 N; Eller Drive; ; ; ; ;	Driver	4	no	Other Drivers; 511
43	McIntosh Road	Lakeland; APM	I-595; I-75 S; ; ; I-595; ; ;	Driver	2	No	Dispatcher;
111	McIntosh Road	Crowley; Montreal; Montreal;	I-595; I-95 N; Eller Drive; ; ; ; ;	Driver		no	Other Drivers;
44	McIntosh Road	Jacksonville;	I-95; ; ; ; ; ; ;	Driver	1	No	None;
45	McIntosh Road	West Palm Beach; Miami	Florida Turnpike; ; ; ; I-95; ; ;	Driver	5	Yes	Dispatcher; other drivers
46	McIntosh Road	Price Smart; Fort Lauderdale	Florida Turnpike; ; ; ; Florida Turnpike; ; ;	Driver	2	Yes	Other drivers; 511
118	McIntosh Road	Crowley; Medley	I-595; I-95 N; Eller Drive; ; ; ; ;	Driver	2	No	Other Drivers; Traffic reports
47	McIntosh Road	West Palm Beach;	I-95; ; ; ; ; ; ;	Driver	2	No	None;
119	McIntosh Road	Crowley; Medley; Medley;	I-595; Florida Turnpike S; Eller Drive; ; I-595; Florida Turnpike S; Eller Drive;	Driver	2.5	Sometimes	None;
48	McIntosh Road	Kansas;	Route 3; ; ; ; ; ; ;	Dispatch	2	No	None;
88	McIntosh Road	Miami; Miami	SR 826-Palmetto; I-95; I-595; ; I-595; I-95; SR 826-Palmetto;	driver	2	yes	None;
49	McIntosh Road	Miami;	I-95; SR 826-Palmetto; ; ; I-95; SR 826-Palmetto; ;	Driver	2	No	Other drivers;
89	McIntosh Road	Lake Worth; Miami	I-95; I-595; ; ; I-595; I-95; ;	driver	2.5	no	Traffic reports;
50	McIntosh Road	Melbourne; Miami	I-95; ; ; ; SR 826-Palmetto; I-95; ;	Dispatch	1	No	Other drivers;
90	McIntosh Road	Miami; Miami	I-95; I-595; ; ; I-595; I-95; ;	Driver	3	yes	other drivers;
92	McIntosh Road	Miami; Miami	SR 826-Palmetto; I-95; I-595; ; I-95; I-595; ;	Driver	2		None;
51	McIntosh Road	Miami; Miami	I-95; ; ; ; I-95; ; ;	Driver	2	No	Other drivers;
91	McIntosh Road	Miami; Miami	I-95; I-595; SR 826-Palmetto; ; I-95; I-595; ;	Driver	3.5	no	Traffic reports; 511
52	McIntosh Road	Miami;	SR 826-Palmetto; I-75; I-595; ; ; ; ;	Driver	2	No	Other drivers;
93	McIntosh Road	Miami; Miami	I-75; I-95; I-595; ; I-595; I-95; I-75;	Driver	2.5	no	Traffic reports;
53	McIntosh Road	Boynton Beach;	I-95; ; ; ; ; ; ;	Driver	3	No	GPS;
54	McIntosh Road	Miami; Miami	I-95; SR 826-Palmetto; ; ; I-95; ; ;	Driver	3	No	Other drivers;
55	McIntosh Road	Miami;	I-95; SR 826-Palmetto; ; ; ; ; ;	Driver	2	No	Other drivers; Traffic reports
56	McIntosh Road	Miami; Miami	I-95; ; ; ; I-95; ; ;	Driver	2	No	Other drivers; Traffic reports
94	McIntosh Road	Miami; Miami	Florida Turnpike; I-595; ; ; ; ; ;	Driver	4	Sometimes	None;
57	McIntosh Road	Virginia; Hialeah	I-95; ; ; ; I-595; SR 826-Palmetto; I-75;	Driver	1	Yes	Other drivers; Traffic reports
34	McIntosh Road	Medley;	I-95; I-595; SR 826-Palmetto; Eller Drive; ; ; ;	Dispatch	3.5	No	Other Drivers;
58	McIntosh Road	Tampa; Tampa	I-75; ; ; ; I-75; ; ;	Driver	1	No	Other drivers;

Appendix D

Freight Resources

There are several freight and freight planning resources available to MPO freight planning staff. Table B.1 provides links to several of these resources.

Table D.1 Freight and Intermodal Resources

Resource Name	Link
Florida's Freight Data Clearinghouse	http://webservices.camsys.com/fdot/index.htm
FHWA Freight Management and Operations	http://ops.fhwa.dot.gov/freight/
FHWA Freight Planning	http://www.fhwa.dot.gov/freightplanning/index.htm
AASHTO Freight Transportation Network	http://freight.transportation.org/
National Cooperative Freight Research Program	http://www.trb.org/CRP/NCFRP/NCFRP.asp
Intermodal Association of North America	http://www.intermodal.org/