

South Florida Regional Freight Plan

A collaboration between:



Prepared by:



Kimley-Horn
and Associates, Inc.

In conjunction with:



March 2010

Table of Contents

INTRODUCTION	1
ORGANIZATION OF REGIONAL FREIGHT PLAN REPORT.....	1
GOALS, OBJECTIVES, AND POLICIES.....	4
DATA COLLECTION AND ANALYSIS.....	6
REGIONAL FREIGHT NETWORK	6
<i>Strategic Intermodal System (SIS) Network</i>	<i>6</i>
<i>Corridors of Regional Significance.....</i>	<i>7</i>
FREIGHT FLOW TRENDS AND STATISTICS.....	10
<i>Truck Traffic.....</i>	<i>10</i>
<i>Rail Freight.....</i>	<i>13</i>
<i>Airport Cargo</i>	<i>14</i>
<i>Seaport Freight Statistics.....</i>	<i>15</i>
RAILROAD CROSSING DELAY ANALYSIS	17
<i>Data Collection.....</i>	<i>18</i>
<i>Results</i>	<i>18</i>
TRUCK ACTIVITY CENTERS.....	20
IDENTIFICATION, PRIORITIZATION, AND FUNDING OF FREIGHT PROJECTS	22
NEEDS PROJECTS	22
<i>Roadway Needs Projects.....</i>	<i>22</i>
<i>Seaport Needs Projects.....</i>	<i>23</i>
<i>Rail Needs Projects.....</i>	<i>23</i>
<i>Airport Needs Projects.....</i>	<i>23</i>
PROJECT PRIORITIZATION.....	24
<i>Roadway Project Prioritization.....</i>	<i>24</i>
<i>Seaport Project Prioritization.....</i>	<i>30</i>
<i>Rail Project Prioritization</i>	<i>32</i>
<i>Airport Project Prioritization</i>	<i>35</i>
TECHNOLOGY ADVANCES.....	37
<i>VACIS Technology.....</i>	<i>38</i>
<i>Electrified Truck Stops (ETS).....</i>	<i>39</i>
<i>PrePass</i>	<i>40</i>
<i>Virtual Container Yards.....</i>	<i>41</i>
<i>Container Tracking Systems.....</i>	<i>41</i>
IMPLEMENTATION	42
FUNDING OPPORTUNITIES	42
SUMMARY AND RECOMMENDATIONS	43
RECOMMENDATIONS.....	44

Appendices (Separate Cover)

- Appendix A: Literature Review
- Appendix B: Visioning Session
- Appendix C: Data Collection and Analysis
- Appendix D: Identification, Prioritization, and Funding of Needs Projects
- Appendix E: Freight Roadway, Seaport, Rail, and Airport Needs Projects
- Appendix F: Prioritized Freight Needs Projects
- Appendix G: Prioritized Freight Needs Projects by County/Facility

List of Tables

Table 1: Freight Policy Language Included in RL RTP.....	5
Table 2: Major SIS Facilities in South Florida.....	7
Table 3: Railroad Crossing Median Peak Direction Delay per Gate Closing (vehicle-minutes).....	19
Table 4: Vehicle Delay per Gate Closing by Railroad Corridor (vehicle-minutes)	19
Table 5: Vehicle Delay per Gate Closing by County (vehicle-minutes)	19
Table 6: Top 25 Roadway Freight Needs Projects in South Florida	25
Table 7: Top 10 Roadway Freight Needs Projects in Broward County	27
Table 8: Top 10 Roadway Freight Needs Projects in Miami-Dade County	28
Table 9: Top 10 Roadway Freight Needs Projects in Palm Beach County	29
Table 10: Top 25 Seaport Needs Projects in South Florida	31
Table 11: Rail Needs Projects in South Florida	33
Table 12: Top 25 Airport Needs Projects in South Florida	36

List of Figures

Figure 1: SIS Facilities	8
Figure 2: Corridors of Regional Significance	9
Figure 3: Annual Average Daily Truck Traffic.....	11
Figure 4: Percent of Truck Traffic.....	12
Figure 5: Air Cargo Movement	14
Figure 6: Seaport Cargo Movement.....	16
Figure 7: Truck Activity Centers	21
Figure 8: Top 100 Prioritized Roadway Freight Needs Projects	26
Figure 9: Prioritized Rail Freight Needs Projects	34

INTRODUCTION

Freight transportation continues to play a crucial role in the sustained economic viability of the South Florida region. The South Florida urbanized area, which consists of urban portions of Miami-Dade, Broward, and Palm Beach Counties, is the 5th largest urbanized area in the United States according to the 2000 Census. South Florida has experienced significant economic and population growth during recent years. To maintain the region's competitive edge in the freight industry, the need for increased regional coordination among public and private sector stakeholders and planning entities has been recognized.

The Florida Department of Transportation (FDOT) has strived to promote regional coordination within the urbanized area. FDOT, along with its local partners in Miami-Dade, Broward, and Palm Beach Counties, has conducted a variety of freight planning initiatives to maintain and enhance mobility in the region. Prior initiatives include policy planning studies, corridor studies, freight movement studies, intelligent transportation systems (ITS)/freight studies, countywide freight plans, and Strategic Intermodal System (SIS) studies.

The purpose of the South Florida Regional Freight Plan (SFRFP) is to develop a formalized regional freight planning and implementation strategy that is inclusive of individual planning efforts that have been conducted within the area and prioritize critical freight transportation projects for the South Florida region. The SFRFP was developed in coordination with the Regional Long Range Transportation Plan (RLRTP), as the regional freight element of RLRTP. The successful integration of freight planning goals, objectives, and needs to the RLRTP paves the way for consistency, consensus, and coordination within the region for freight planning efforts and to help maximize funding opportunities for planned improvements. This freight plan, which identifies regional priorities, also enhances the region's ability to compete for federal funding sources. However, the SFRFP does not intend to present an alternative approach for individual agencies such as MPOs, seaports, and airports to prioritize freight projects. Instead, the SFRFP presents an assessment of the projects from a regional perspective.

Organization of Regional Freight Plan Report

The development of the first SFRFP involved extensive interagency and stakeholder coordination, literature research, data analysis, and freight needs identification and prioritization. As a result, a wealth of freight information is contained in this report. However, to make the document user friendly, the report was organized into two parts. The first part (report) summarizes key results of the SFRFP and the second part (appendices) presents detailed analysis, literature research,

stakeholder coordination, and needs plan development process. The appendices are presented under separate cover.

The **report** consists of the following chapters that summarize the SFRFP:

- Goals, Objectives, and Policies
- Data Collection and Analysis
- Identification, Prioritization, and Funding of Needs Projects
- Summary and Recommendations

Appendices A-D present detailed analysis, research, and stakeholder input gathered as part of the SFRFP:

- The **Literature Review** documents best practices of regional freight planning. A literature review was conducted to learn key considerations of freight plans developed by other regions and lessons learned. Further, statewide and local plans were reviewed to identify needs and freight improvement strategies. The literature review is presented in **Appendix A**.
- A **Visioning Session** was conducted with the participation of key public and private sector freight stakeholders. The objective of this collaborative effort was to develop a regional freight strategy and ensure consistency of the regional plan with goals established in individual local freight plans and programs. A summary of key issues, challenges, visions, and strategies discussed during the visioning session is presented in **Appendix B**.
- **Data Collection and Analysis**. To further support the development the SFRFP, freight transportation data were analyzed to identify existing conditions and needs. Data analysis included freight flow trends and statistics for roadways, rail corridors, ports, and airports; identification of regionally significant freight corridors; and major truck activity centers and facilities. In addition, a commodity flow data analysis is presented for the South Florida region. A summary of the data analysis is presented in the report and a detailed analysis is included in **Appendix C**.
- **Identification, Prioritization, and Funding of Needs Projects**. A set of freight transportation needs projects were identified based on prior freight planning studies, work programs, Long Range Transportation Plans (L RTPs), and input received during the visioning session. Transportation projects include roadway, rail, seaport, airport, and intermodal terminal projects designed to facilitate freight transportation mobility and sustainability in the South Florida region. The needs projects were evaluated and ranked using a project prioritization process. The high priority freight projects were identified both regionally and by county. The report also presents the results of the prioritization

process. Detailed needs analysis approach, prioritized projects, and a discussion of potential funding sources for freight projects is included in **Appendix D**.

Appendices E-G present comprehensive lists of freight needs projects and prioritized rankings of freight projects using regional criteria. Project lists are organized both regionally and by county for ease of use.



An artist's rendering depicting the South Florida urban region on the Atlantic Coast, from *Southeast Florida 2060*, South Florida Regional Resource Center et. al. (January 2008)

GOALS, OBJECTIVES, AND POLICIES

A key objective of developing the South Florida Regional Freight Plan (SFRFP) is to integrate freight planning into the regional planning process. That is, to make the SFRFP the regional freight element of the RL RTP. This objective was achieved through effective coordination with the RL RTP.

To facilitate integration of the two planning documents, freight specific goals, objectives, and measures of effectiveness were developed and incorporated into the RL RTP (see Table 1). Several meetings were held with the RL RTP team to refine the goals and objectives and to ensure freight specific goals are seamlessly integrated with RL RTP planning goals and objectives. In addition, the regional freight prioritization results were added to the RL RTP project evaluation process to successfully incorporate a freight element to the regional prioritization process.

The successful integration of freight planning goals, objectives, needs, and prioritization to the RL RTP paved the way for consistency, consensus, and coordination within the region for freight planning efforts and to help maximize funding opportunities for planned improvements.

Table 1: Freight Policy Language Included in RL RTP

Theme		Goal	Objective	Potential Measure of Effectiveness (MOE)			
Sustainability	Economic Vitality	1 Provide an Efficient and Reliable Transportation System for Regional Passenger and Freight Operations	1.1 Preserve and expand the existing regional transportation system capacity to support passenger and freight operations	1.1.1 Miles of new highway capacity, new transit revenue hours of service, increased capacity of freight hubs			
			1.2 Maximize existing system capacity through increased highway and/or transit capacity, tolling, implementation of TSM, and ITS strategies and technologies	1.2.1 % decrease of auto-transit travel in congestion 1.2.2 % decrease in person hours of delay per capita (by mode)			
	Accessibility	2 Provide Multimodal Access to Major Regional Passenger and Freight Activity Centers	2.1 Provide competitive travel times	2.1.1 Comparison to similar cities			
			2.2 Increase mode choice for regional travel	2.2.1 Increase transit coverage to TSA's			
			2.3 Provide efficient regional routes for freight goods movement to and from regional freight hubs and destinations	2.3.1 % decrease in travel time from regional corridor to freight destinations			
	Connectivity	3 Provide an Integrated Multimodal Transportation	3.1 Increase multimodal connections between regional Origin-Destination (O-D) pairs	3.1.1 Increase in the # of multimodal connections between O-D pairs			
	Environment	4 Protect the Region's Environment	4.1 Improve air quality and minimize air pollution (via alternative vehicle technologies, increased mode split, decreased travel delay time, etc.)	4.1.1 % decrease in emissions			
			4.2 Reduce greenhouse gas emissions	4.2.1 % decrease in CO ₂ emissions			
			4.3 Protect the natural environment and historic areas	4.3.1 ROW impact to the protected natural environment and/or historic areas			
	Safety and Security	5 Provide for a Safer and More Secure Transportation System for the Regions Residents, Businesses and Visitors	5.1 Preserve and enhance the capacity of regional evacuation corridors (security)	5.1.1 % increase in capacity			
			5.2 Reduce fatal and injury crashes on regional roads (safety)	5.2.1 Decrease in fatal crashes 5.2.2 Decrease in injury crashes			
	Quality of Life	6 Preserve and Enhance the Quality of Life and Promote Energy Conservation	6.1 Promote projects that support urban infill and densification	6.1.1 Geographic location			
			6.2 Prioritize funding to favor intra-urban (within UDB) improvements	6.2.1 Geographic location			
			6.3 Promote the use of alternative vehicle technologies	6.3.1 SECO annual meeting attendance			
	<i>Total Objectives</i>			14	<i>Total MOE's</i>		16

NOTES: Pedestrian/bicycle modes are not included in the Regional Long Range Transportation Plan (LRTP). These modes are assessed at the local LRTP level.

ACRONYMS

TSM=Transportation System Management

ITS=Intelligent Transportation Systems

TSA=Transit Supportive Area, Areas where mixed-use development occurs and thr development is served by transit station or stop within 1/4 mile walk for bus and 1/2 mile for rail from development

SECO=State Energy Conservation Office

DATA COLLECTION AND ANALYSIS

The objective of the data analysis is to better understand the regional freight network and freight movement in South Florida from a regional perspective and provide a basis for developing strategies for the SFRFP. A detailed analysis of the regional freight network, which includes roadways, rail corridors, seaports, and airports; freight statistics and trends; major truck activity centers; and regional commodity flow data was performed. A detailed description of data analysis is presented in **Appendix C** and a summary is presented below.

Regional Freight Network

Two system networks of importance for analyzing regional freight movement are:

- Strategic Intermodal System (SIS) Network
- Southeast Florida Transportation Council's Regionally Significant Network

Strategic Intermodal System (SIS) Network

Florida's SIS was established in 2003 to enhance the state's economic competitiveness by focusing limited resources on transportation facilities that are critical to the state's economy and quality of life. The SIS network is made up of the state's most significant airports, deepwater seaports, freight and intercity passenger rail terminals, intercity bus terminals, rail corridors, waterways, and highways. These facilities carry more than 99 percent of all commercial air passengers, almost all waterborne freight tonnage and rail freight, more than 68 percent of all truck traffic, and 54 percent of total traffic on the State Highway System (Source: FDOT). Figure 1 illustrates designated SIS facilities in South Florida. The major South Florida SIS facilities that are of significance for freight movement are summarized in Table 2.

Table 2: Major SIS Facilities in South Florida

SIS Facility Type	Facilities
Airports	Fort Lauderdale-Hollywood International Miami International Palm Beach International
Deepwater Seaports	Port Everglades Port of Miami Port of Palm Beach
Freight Rail Terminals	Fort Lauderdale Miami/Hialeah
Freight Rail Corridors	Florida East Coast South Florida Rail Corridor (owned by FDOT; operated by CSX) CSX corridor (north of Mangonia Park station)
Waterways	Atlantic Intracoastal Waterway and shipping lanes
Highways	Interstates Turnpike and Expressways Other Florida Intrastate Highway System (FIHS) facilities

Corridors of Regional Significance

To facilitate regional long range transportation planning, the Southeast Florida Transportation Council (SEFTC) designated Corridors of Regional Significance (Figure 2), which consists of 66 roadways that are of significance to Broward, Miami-Dade, and Palm Beach Counties and for the South Florida region. SEFTC defined regionally significant roadways based on the following criteria:

- Interstates and expressways
- Urban and rural principal arterials
- Minor arterials that provide connections to two or more interstates or expressways
- Roadways that cross county lines

Figure 1: SIS Facilities

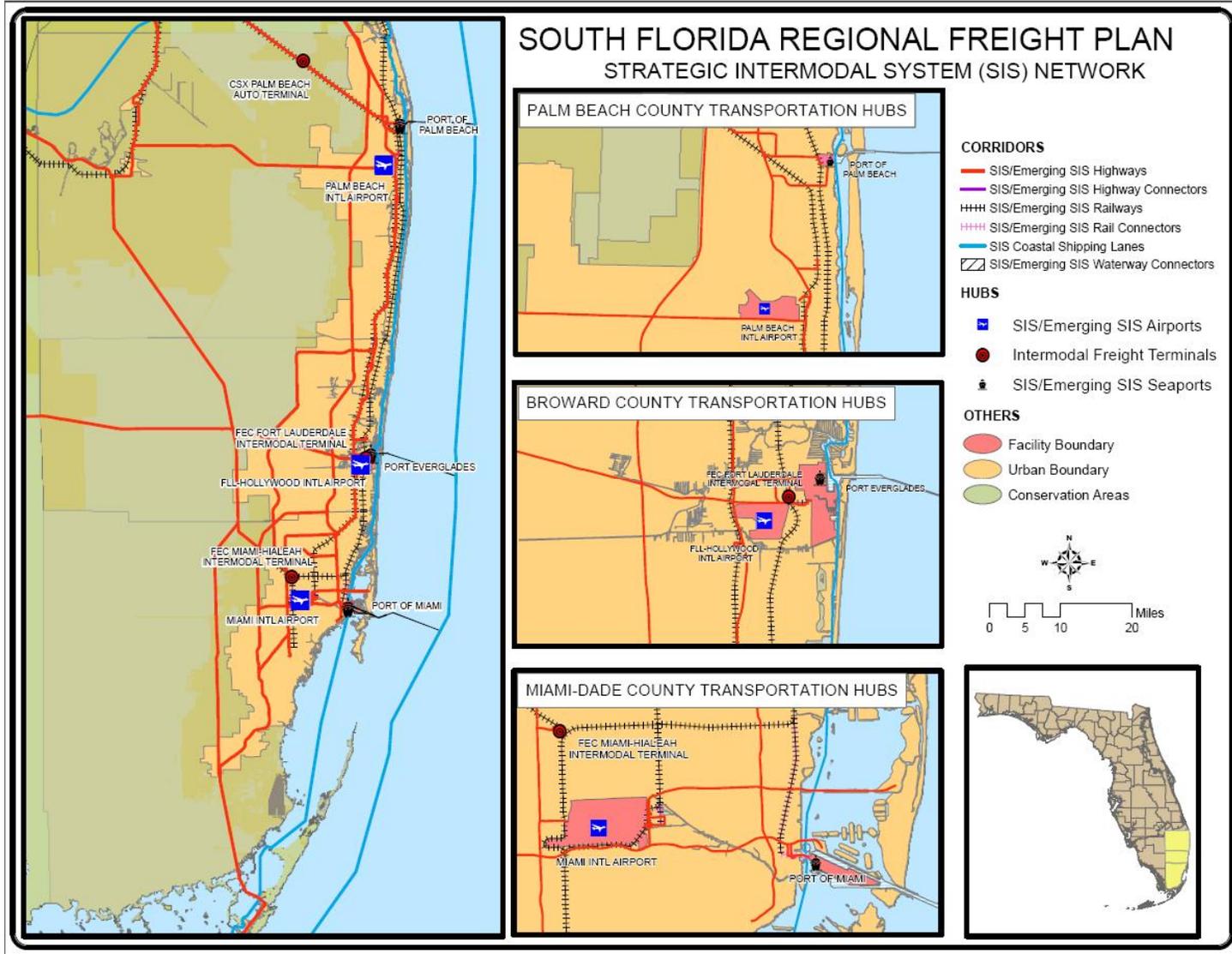
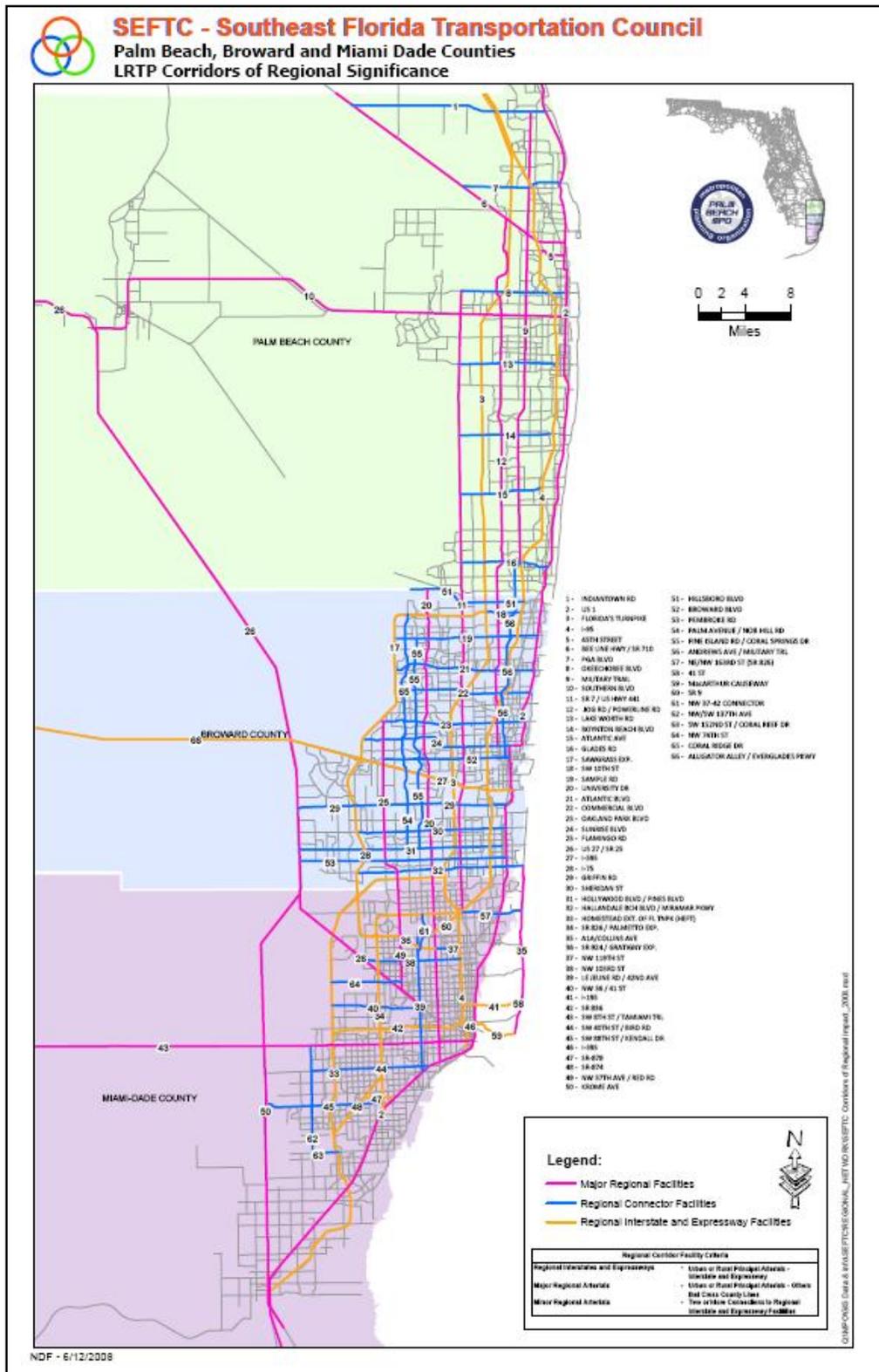


Figure 2: Corridors of Regional Significance



Freight Flow Trends and Statistics

Truck Traffic

Figure 3 illustrates annual average daily truck traffic (AADTT) on major highways. The traffic data were obtained from FDOT's 2007 Florida Traffic Information database. High volume truck corridors include Interstate 95, north-south portion of the Palmetto Expressway, Florida's Turnpike mainline, the Homestead Extension of Florida's Turnpike (HEFT), I-75, and Okeechobee Road. Figure 4 illustrates truck traffic as a percent of AADT. The purpose of this analysis is to identify highways with a high modal share of trucks. Overall, the percent of trucks on expressways and interstates is less than 10 percent. The majority of highways that experience a high percent of trucks (10 percent or more) are located outside of the urbanized area and are characterized by moderate AADT. A high percentage of trucks is evident on roadways in the vicinity of the U.S. Sugar Corporation, located near Lake Okeechobee.

Figure 3: Annual Average Daily Truck Traffic

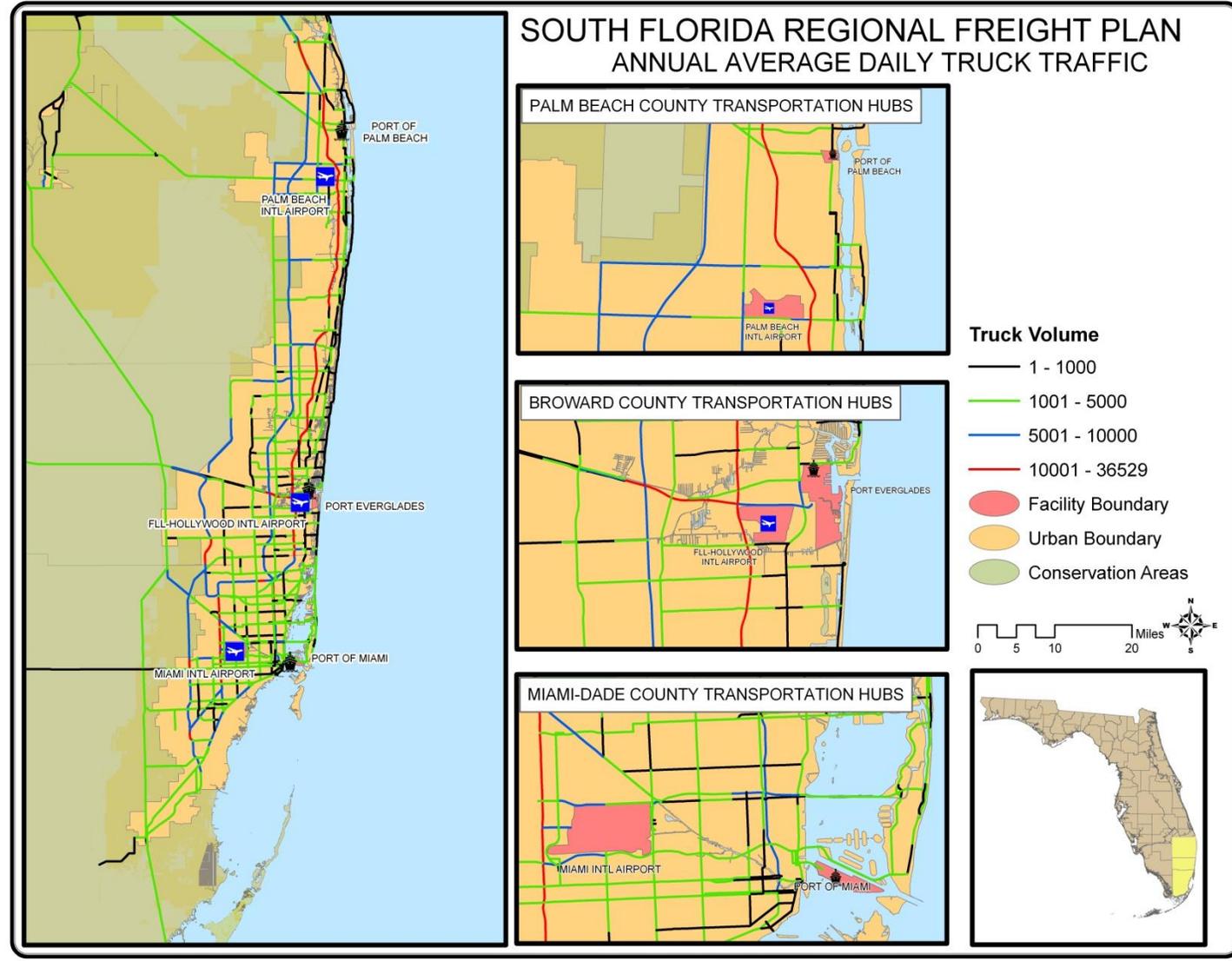
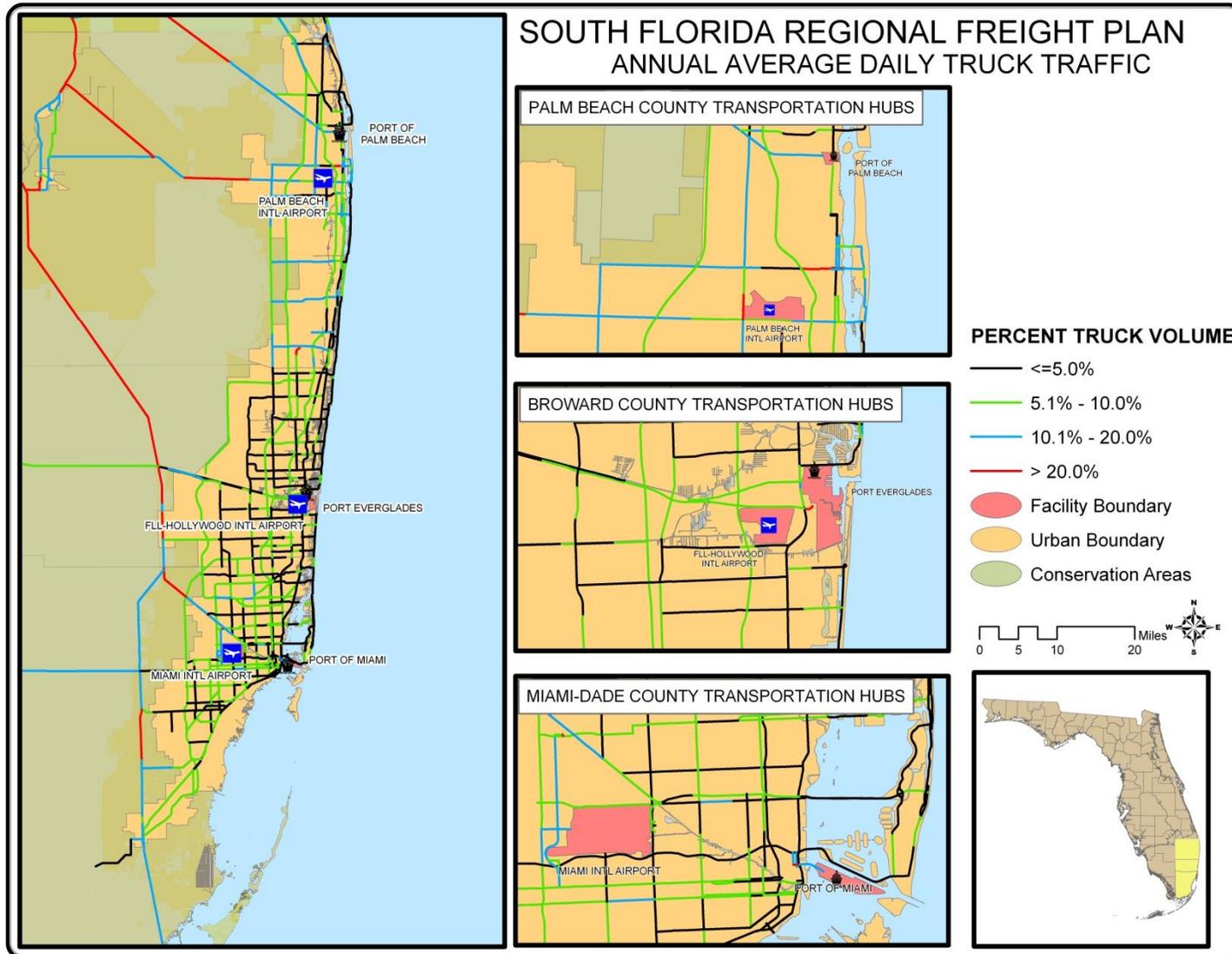


Figure 4: Percent of Truck Traffic



Rail Freight

Two major north-south rail corridors are located in the eastern part of South Florida: the Florida East Coast (FEC) railroad and the South Florida Rail Corridor (SFRC). FEC is an exclusive freight corridor that extends from Miami to Jacksonville. However, FDOT District Four is performing a major study to integrate passenger transit with freight transport within the FEC Corridor in Broward, Miami-Dade, and Palm Beach Counties. Currently, the FEC Study is developing a Master Plan that would result in a locally preferred alternative (LPA) defining modes and services for the entire 85-mile study corridor. Thereafter, FDOT plans to evaluate the corridor by defining several smaller segments to develop a staged implementation plan. At this stage, it is not clear how the proposed passenger transport system would impact the freight movement in the FEC corridor.

SFRC, which is the former CSX corridor south of Mangonia Park in Palm Beach County, is used by both freight and passenger trains. SFRC is currently owned by FDOT, but its dispatching operations are managed by CSX. North of Mangonia Park, the corridor is owned and operated by CSX and is used for freight operations. In addition to the main corridors, there are several rail spurs (short line railroads) in the region, including connections to the three ports and the Lake Belt area rock mines. The U.S. Sugar Corporation owns and operates a private rail corridor near Lake Okeechobee to transport sugar cane.

There are two freight rail intermodal terminals located along the FEC corridor: (1) Fort Lauderdale Intermodal Terminal, which is located in proximity to the Fort Lauderdale-Hollywood International Airport and Port Everglades, and (2) Miami Intermodal Terminal. Along the CSX corridor, an auto terminal is located in the West Palm Beach area. FEC provides direct rail service to Port Everglades, serving the Northport and Midport transit sheds, the petroleum terminals along Spangler Drive, and the Midport cement silos. The Miami Intermodal Terminal is mainly used for outbound long-distance transport of containers originating from the Port of Miami and aggregates from the Lake Belt area, and inbound shipment of automobiles for the local market. In addition to the two intermodal facilities, FEC also operates a transload and lumber reload facility in Pompano Beach.

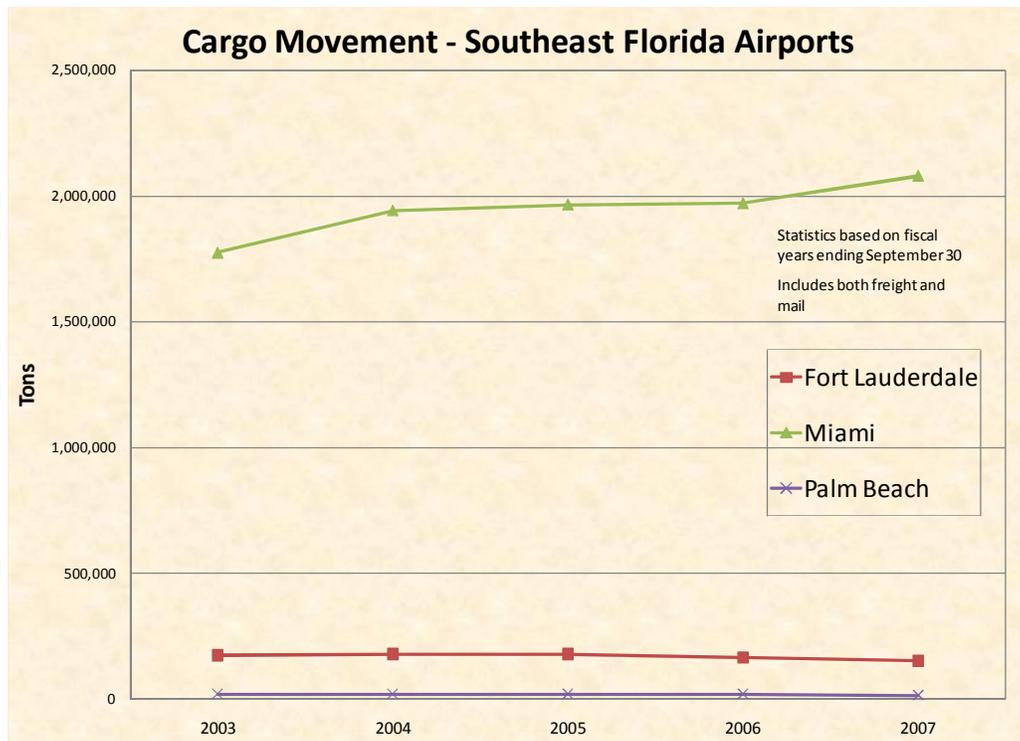
An analysis of rail-based freight tonnage originated from and destined to South Florida (FDOT Districts 4 and 6) indicated that the Lake Belt area rock mines are a major contributor to the approximately 18 million tons originated in District 6 (Source: *2006 Florida Rail Plan*). In comparison, a relatively modest 1.3 million tons of rail cargo originated from District 4. However, District 4 receives a higher tonnage than District 6. Please refer to Appendix C for additional rail freight data and mapping.

Airport Cargo

Miami International Airport (MIA), Fort Lauderdale-Hollywood International Airport (FLL), and Palm Beach International Airport (PBI) provide cargo (freight and mail) services to varying degrees. As Figure 5 indicates, MIA is the dominant airport in the region for cargo movement. In fact, MIA was the number one airport in the U.S. for international freight according to 2007 data, and the number three airport for total freight. The majority of import cargo comprises perishable products including seafood, flowers, fruits, and vegetables. Approximately 70 percent of all U.S. perishable air imports were handled by MIA. Export cargo from MIA includes computers, machinery, medical equipment, telecommunications equipment, agricultural machinery, apparel articles, and aircraft parts. MIA has an on-airport Cargo Clearance Center to centralize the federal agency inspection process.

In 2007, FLL handled about 151,000 tons of freight. PBI handled the lowest volume of cargo among the three airports in 2007, with approximately 16,000 tons. Data show a slight decline in cargo volumes at FLL and PBI, whereas cargo volume has increased at MIA.

Figure 5: Air Cargo Movement



Seaport Freight Statistics

South Florida has three of the state's 14 deepwater seaports. Both Port Everglades (PEV) and the Port of Miami (POM) are major cargo and cruise ports, whereas the Port of Palm Beach (PPB) is an important distributor port in the region.

Port of Miami is primarily a container port that is almost exclusively involved in foreign trade. In 2007 POM handled approximately 880,000 TEUs (20-foot equivalent units – the industry's standard for measuring containerized cargo) representing nearly 7.84 million tons of cargo. Several infrastructure projects such as the deepening of the South Channel to accommodate larger cargo vessels and the Port Tunnel project are expected to enhance the POM's capacity and growth.

Port Everglades is a rapidly growing port that is known for petroleum imports and containerized and bulk cargo. In 2007, Port Everglades surpassed POM as the leading container port in Florida handling nearly 950,000 TEU. Port Everglades is the petroleum product supplier for South Florida and accounts for nearly 40 percent of all of Florida's transportation fuels (Port Everglades Annual Commerce Report, 2007). Port Everglades is also a hub for break bulk and dry bulk cargo shipments. The planned construction of a Southport Intermodal Complex, which includes an Intermodal Container Transfer Facility (ICTF) to provide near-dock intermodal lift capability, would significantly increase the Port's container handling capacity. Upon completion of the ICTF facility, FEC will most likely consolidate its Fort Lauderdale based intermodal operations at this new facility.

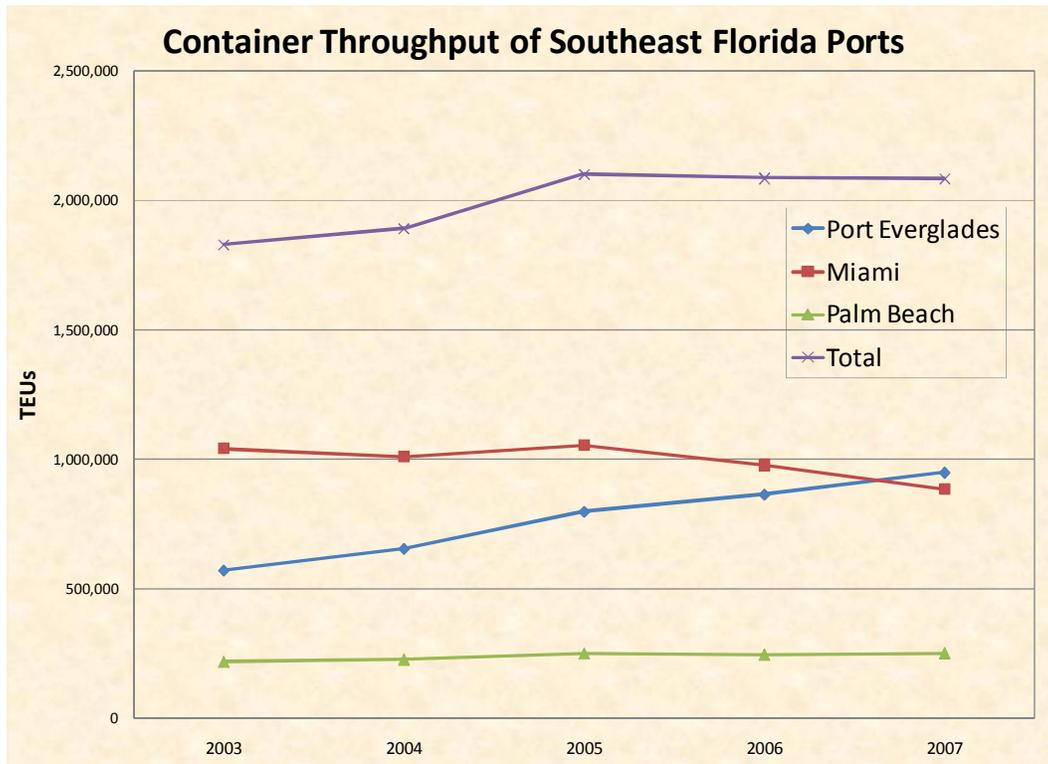
Port of Palm Beach is the fourth busiest container port in Florida. In addition to intermodal capacity, PPB is a major nodal point for the shipment of bulk sugar (domestic), cement, utility fuels, produce, and break bulk items. In 2007, PPB handled approximately 250,000 TEUs amounting to 1.5 million short tons. Palm Beach is the only port facility in Southeast Florida operating a rail system with pier-side box, hopper, and intermodal cars. Approximately three miles of trackage are located within the port premises for intermodal transfers and handling.

Summary of Seaports

South Florida's seaports are key economic engines for the region and the state. Port Everglades estimates its economic impacts to be \$18 billion in economic activity, including 200,000 direct and indirect jobs and \$625 million in state and local taxes (Source: *A Five-Year Plan to Achieve the Mission of Florida's Seaports: 2008/2009-2012-2013*, Florida Seaport Transportation and Economic Development Council, March 2009). Port of Miami has similar numbers with over

\$17 billion in economic activity and 176,000 direct and indirect jobs. The Port of Palm Beach, although on a smaller scale, generates over \$261 million in economic activity, including over 2,500 direct and indirect jobs and more than \$12 million in local and state taxes. At the state level, the Florida Ports Council sponsored an analysis that showed the cargo activity associated with Florida’s seaports accounts for nearly 100,000 port-related jobs, supports more than 454,000 user jobs, and supports \$24 billion in personal income and \$66 billion in business output (Source: *The Statewide Economic Impacts of Maritime Cargo Handled at Florida’s Public Seaports, 2008*. Martin Associates, 2009). Furthermore, an FDOT study found that every \$1 in state funds spent for seaports results in \$6.90 in economic benefits to the state (Source: *Evaluate Florida’s 14 Deepwater Seaports’ Economic Performance and Return on Investment of State Funds*, prepared for Florida DOT, prepared by Cambridge Systematics, Inc., 2006).

Figure 6: Seaport Cargo Movement



Other Key Regional Waterways

South Florida is home to several other key waterways, as documented in the *Florida Waterway System Plan*, last updated in 2008. South Florida has three major waterway components: the Atlantic Intracoastal Waterway (AIWW), the Miami River, and the New River. Each is

summarized below (Source: *Florida Waterway System Plan*, prepared for Florida DOT, prepared by Cambridge Systematics, Inc., 2008).

- The AIWW in Florida is a total of 540 miles. The authorized depth for the AIWW in South Florida is 10 feet as far South as Miami and less than 8 feet from Miami to Key West. In 2006, 234,000 tons of cargo moved along the waterway between Jacksonville and Miami and 276,000 tons moved South of Miami. While the AIWW carries relatively low volumes of a few commodities, it does provide key access to niche industrial operations, like power plants and water-related industries. Note the AIWW encompasses the deepwater harbors and channels that serve South Florida's three seaports.
- The Miami River extends from the Miami International Airport to Biscayne Bay. It has 32 private terminals – “the Port of Miami River” – and is separated into three distinct zones: the Upper River, the Middle River, and the Lower River. The Upper River is typically known for its industrial business centers, primarily marine and shipping. Many of the shipping terminals are located here. The river is 5.5 miles long and has an authorized depth of 15 feet. In 2006, it carried 557,000 tons of cargo and the top commodity was manufacturing equipment, machinery, and products. From its beginning in the 1960s, the majority of cargo shipments from the POMR have been to Caribbean destinations. Exports to foreign countries account for approximately 75 percent of the POMR's trade. The *Biscayne Bay Economic Study* (Hazen and Sawyer) estimated the economic impact of the Miami River shipping industry on Miami-Dade County (2004) to be \$682.5 million, with 6,106 jobs and earnings of \$338.9 million.
- The New River is part of a system of canals in Fort Lauderdale located in Broward County. Fort Lauderdale is a major yachting center where mega yachts and other pleasure craft use the New River. It is six miles long and has an authorized depth of eight feet. For 2006, the recorded tonnage for this canal is included as part of the tonnage reported for Port Everglades Harbor.

Railroad Crossing Delay Analysis

South Florida has two primary railroad corridors passing through developed urbanized areas:

- South Florida Rail Corridor (SFRC) / CSX corridor
- Florida East Coast (FEC) railroad

The purpose of the railroad crossing delay analysis is to update a similar analysis conducted in 2006 and to use the results in additional analysis to estimate the potential reduction in delay that would occur if crossing events were reduced or eliminated through improvements such as

re-routing freight trains to a new western rail corridor alignment or grade-separated crossing improvements. When comparing the 2006 data with the 2009 data, it is important to recognize (1) the increase in the number of daily Tri-Rail train operations from 40 to 50, and (2) the potential decrease in traffic volumes in 2009 due to economic recession.

Data Collection

Field surveys of each of the fourteen (14) data collection sites within the SFRFP region were conducted during a 12-hour period (6:00 AM to 6:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday) using video cameras. Information collected from the video data at each crossing included the number of times the cross bar lowered to close automobile traffic; the maximum, median, and minimum total queue lengths in each direction of travel; the maximum, median, and minimum duration of time that the cross bar was lowered; and the maximum, median, and minimum total delay (in vehicle-minutes) experience by motorists in each direction of travel due to the closure.

Results

Results indicate that of the two railroads, the SFRC (CSX) is more heavily utilized, primarily because of the number of Tri-Rail passenger trains that utilize the corridor. However, because FEC trains are primarily long-haul freight trains, the number of train cars per train is generally greater and the speed is typically slower on the FEC. Table 3 presents the median result of the vehicle delay experienced per gate closure in the peak direction. Delay for railroad crossing closures is expressed in vehicle-minutes, which accounts for both the volume of vehicular traffic that is delayed and the duration of the delay. Table 4 demonstrates that the duration of the gate closure is generally twice as long at FEC crossings than CSX crossings. Table 5 demonstrates that Broward County typically experiences greater impact from railroad gate closures than Miami-Dade or Palm Beach Counties.

On average, the median result of the vehicle delay experienced per gate closure is equivalent to a level of service (LOS) F intersection for vehicles that are impacted.

Table 3: Railroad Crossing Median Peak Direction Delay per Gate Closing (vehicle-minutes)

Roadway Crossing Location	County	Railroad	Vehicle Delay 2006	Vehicle Delay 2009
NW 36 th Street	Miami-Dade	CSX	(a)	14
NW 27 th Avenue	Miami-Dade	FEC	(a)	51
NE 79 th Street	Miami-Dade	FEC	(a)	68
NE 125 th Street	Miami-Dade	FEC	(a)	48
NW 135 th Street	Miami-Dade	CSX	(a)	25
Sunny Isles Boulevard	Miami-Dade	FEC	(a)	70
Hollywood Boulevard	Broward	FEC	41	58
Hollywood Boulevard	Broward	CSX	123	78
Commercial Boulevard	Broward	FEC	145	86
Commercial Boulevard	Broward	CSX	17	40
Atlantic Avenue	Palm Beach	FEC	20	36
Atlantic Avenue	Palm Beach	CSX	10	15
Blue Heron Boulevard	Palm Beach	FEC	74	61
Haverhill Road	Palm Beach	CSX	2	2

Note:

(a) – Data for Miami-Dade County Railroad Crossings were not collected in 2006.

Table 4: Vehicle Delay per Gate Closing by Railroad Corridor (vehicle-minutes)

Railroad Corridor	Vehicle Delay 2006	Vehicle Delay 2009
FEC	70	60
CSX	38	29

Table 5: Vehicle Delay per Gate Closing by County (vehicle-minutes)

County	Vehicle Delay 2006	Vehicle Delay 2009
Miami-Dade	(a)	46
Broward	82	66
Palm Beach	27	29

Note:

(a) – Data for Miami-Dade County Railroad Crossings were not collected in 2006.

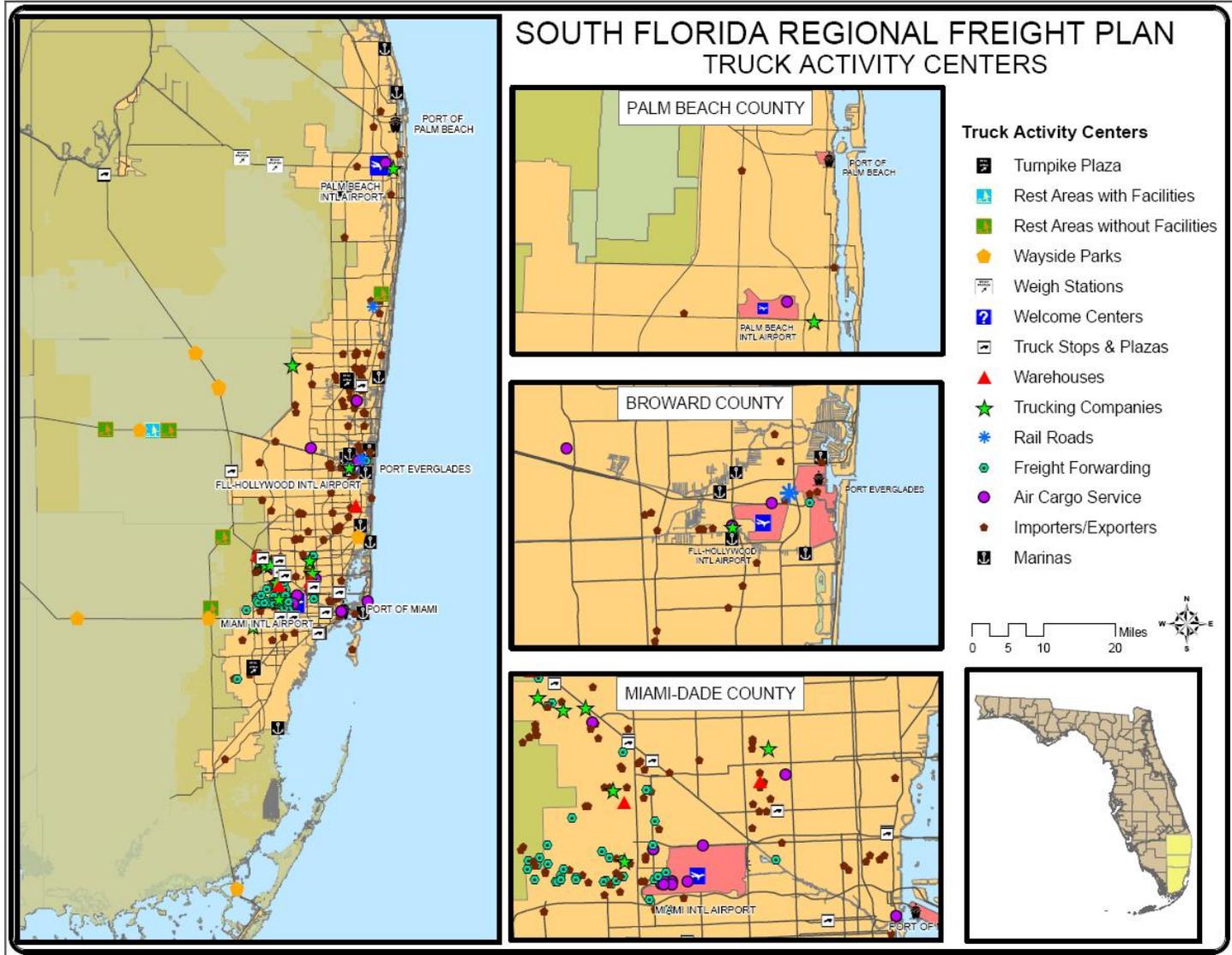
Truck Activity Centers

The 2006 *InfoUSA* database of businesses was obtained from FDOT to identify establishments in South Florida that are involved in the freight industry. *InfoUSA* is a national database that maintains information on businesses and residents. Figure 7 was prepared using *InfoUSA* data, which depict geographic distribution of freight related establishments with 20 or more employees. Figure 7 also presents other truck activity centers such as truck stops and public rest areas.

The highest concentration of freight establishments is observed in the Free Trade Zone and the Doral and Hialeah areas. Several import/export companies are located along Okeechobee Road, a major freight corridor in Miami-Dade County. In Broward and Palm Beach Counties there are no high industrial activity zones of similar magnitude to the Doral Warehouse District in Miami-Dade County. However, several import/export firms are located in the vicinity of Port Everglades/Fort Lauderdale-Hollywood International Airport and northeast Broward County.

FDOT maintained rest areas, welcome centers, and wayside parks are located along Krome Avenue, US 27, and I-75 along the western periphery of Broward and Miami-Dade Counties. In addition, three service plazas are located along Florida's Turnpike, where significant night-time truck parking is observed. In Miami-Dade County, there are several small-scale private truck stops and plazas, which provide overnight parking.

Figure 7: Truck Activity Centers



IDENTIFICATION, PRIORITIZATION, AND FUNDING OF FREIGHT PROJECTS

Identification and prioritization of freight needs is a key component of the SFRFP, particularly with the completion of the first ever Regional LRTP. While previous regional freight planning activities have provided detailed profiles of South Florida’s freight transportation system, this is the first time that regional freight needs will be identified and included as part of the overall regional transportation plan. Needs have been identified for roadway and non-roadway modes of freight transportation based on individual county needs plans developed as part of the 2035 LRTPs and the master plans and capital improvement programs of freight hubs and corridors. For non-roadway needs, the regional facilities primarily focus on SIS hubs and corridors, reflecting those facilities that have been identified as regionally significant. The freight needs identified and prioritized as part of this effort have not been constrained to “cost feasible” projects; rather they reflect all regional freight needs at this point in time.

Needs Projects

The freight needs for South Florida included in this report are based on the existing mechanisms in place for identification and development of improvement programs. This ensures the projects are consistent with local plans and programs. Freight needs for each mode (truck, water, rail, and air) have been identified using the following sources:

- Broward, Miami-Dade, and Palm Beach MPO’s 2035 Needs Plans
- Port Everglades, Port of Miami, and Port of Palm Beach Capital Improvement Programs (CIPs) and master plans (as available)
- Miami International Airport, Fort Lauderdale International Airport, and Palm Beach International Airport CIPs and master plans
- Freight Plans of Broward, Miami-Dade, and Palm Beach counties
- South Florida Regional Freight Plan Visioning Session
- Florida’s Statewide Rail System Plan
- Florida’s Statewide Seaport System Plan

Roadway Needs Projects

A set of roadway needs projects were identified based on prior freight planning studies, work programs, Long Range Transportation Plans (LRTPs), and input received during the visioning session. The roadway needs projects for each county are presented in **Appendix E**.

Seaport Needs Projects

Seaport related needs projects were identified for each of the three deepwater seaports based on a review of available CIPs, master plans, and stakeholder interviews. Identified needs range from funded and unfunded five year CIPS to comprehensive master plans. The seaport needs projects are listed in **Appendix E**.

Rail Needs Projects

Rail related needs projects were identified for each of the three railroads based on data provided from the Florida Rail System Plan On-Line Survey and stakeholder interviews. Identified needs consist of freight projects for which the railroads are requesting public funds. The rail needs projects are listed in **Appendix E**.

Airport Needs Projects

Airport related needs projects were identified for each of the three international airports based on a review of available CIPs, master plans, and stakeholder interviews. Identified needs range from active funded project lists to long term master plan needs. **Appendix E** provides a list of needs projects for the three airports.

Project Prioritization

Once the freight needs have been identified, it is necessary to prioritize them to ensure that limited resources are invested in the projects that provide the greatest public benefit. Current practices by each MPO were reviewed to help ensure consistency and compatibility, as appropriate. In addition, the RL RTP has developed a project prioritization process to focus on regional needs. As part of the SFRFP, project prioritization methodologies were developed and/or recommended for each mode (roadway, seaport, railroad, and airport). Please note that the project prioritization criteria developed for the SFRFP may be different from the criteria used by MPOs, seaports, airports, and rail companies to prioritize the same projects within their individual plans and programs. Therefore, the prioritized rankings in the SFRFP may not conform to the prioritized rankings of individual agencies. These results should not be viewed as contradictory to individual agencies' implementation priorities; rather, the prioritization results represent an assessment of projects from a regional perspective. The specific approach used for each mode is summarized below.

Roadway Project Prioritization

The roadway project prioritization methodology was developed based on five elements. The five elements include truck traffic, truck activity, type of project, facility type, and intermodal connectivity. The criteria and its resulting total point allocation are summarized below:

- Truck Traffic (40 total points)
- Truck Activity Centers (25 total points)
- Type of Project (15 total points)
- Facility Type (10 total points)
- Intermodal Connectivity (10 total points)

Please refer to **Appendix F** for a comprehensive regional list of prioritized roadway projects for freight transportation.

The top 25 ranked roadway projects are listed in Table 6 and the top 100 ranked roadway projects are mapped in Figure 8.

Furthermore, the top 10 ranked roadway projects in each county are listed in Tables 7, 8, and 9. **Appendix G** presents a list of prioritized roadway projects by county.

Table 6: Top 25 Roadway Freight Needs Projects in South Florida

Rank	Name of Project	Description	Score
1	I-95 Managed Lanes	Four managed lanes between Broward Boulevard and Linton Boulevard in Palm Beach County	80
2	25 th Street Viaduct – Phase 2	Widen NW 25 th Street and construct elevated bridge between SR 826 and NW 87 th Court	76
3	SR 836/I-195/MacArthur Causeway	Managed lanes between NW 137 th Ave and Port of Miami; implement E-W Rail Line to reduce passenger traffic	75
4	US 27/Okeechobee Rd	Construct grade separated overpasses at major intersections between NW 79 th Avenue and Krome Ave.	75
5	I-95 Managed Lanes	Four managed lanes between Broward Boulevard and Golden Glades	75
6	Eller Drive/ICTF Overpass	To facilitate near dock rail operation in Southport without impacting the Port's primary access route	70
7	Seaport Tunnel	Tunnel (port alternative access)	68
8	Integrate Truck Route System and Regional ITS Network	ITS improvements geared toward trucks and data collection/analysis/reporting subsystem for performance measurement	68
9	Way-Finding Sign Improvement Program	Improve countywide for movements to/from regional freight hubs	68
10	HEFT	All-electronic toll conversion from US 1 to Turnpike Mainline	68
11	Okeechobee Rd Operations/ Access Improvements	Signal timing, access, and signing improvements to provide better flow along Okeechobee Road and access from side roads and access by trucks to and from Medley	65
12	HEFT	Widen to 8 lanes from SR 836 to I-75	65
13	Truck Parking Facility	Provide a location near HEFT and Okeechobee Road for truck parking with amenities for overnight truck parking	65
14	I-595 Causeway	From US 441 to I-95 – ultimate plan	64
15	I-595 Causeway	From I-95 to US 1 – ultimate plan	64
16	Downtown/Port Access	Construct I-95 NB Slip Ramp on NW 6th St; Improve 5th/6th Sts/Port Blvd for access between POM and I-95 slip ramp	63
17	I-595 Causeway	From I-75 to US 441 – ultimate plan	60
18	SR 710	Widen from 2 to 4 lanes between Moroso Motorsports Park and County Line	60
19	SR 80	Widen from 4 to 6 lanes between Seminole Pratt-Whitney Road and Crestwood Boulevard	60
20	HEFT	Widen to 10 lanes from Kendall Drive to SR 836	60
21	Krome Ave/SR 997	Widen to 4 lanes from US 1 to Okeechobee Road	60
22	Florida's Turnpike	Widen between Griffin Road and Atlantic Blvd	60
23	SR 836/SR 112	Managed lanes from SR 826 to I-95/I-395	60
24	SR 836	Managed lanes in median of SR 836 from HEFT To SR 826/SR 836 interchange	60
25	Truck Staging Area	Develop a truck staging area near Port of Miami River	59

Figure 8: Top 100 Prioritized Roadway Freight Needs Projects

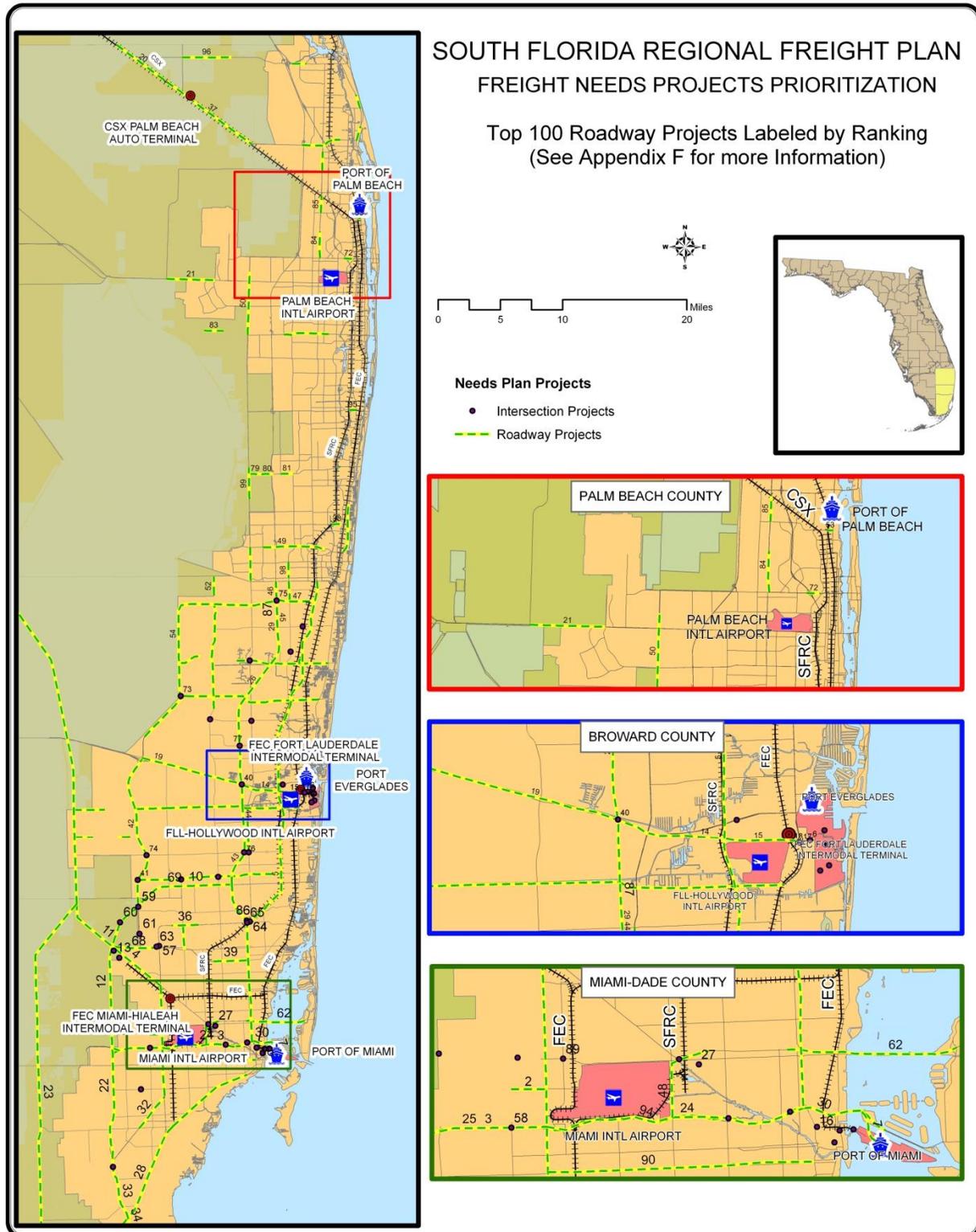


Table 7: Top 10 Roadway Freight Needs Projects in Broward County

Name of Project	Description	Score	Rank (Regional)
I-95 Managed Lanes	Four managed lanes between Broward Boulevard and Linton Boulevard in Palm Beach County	80	1
I-95 Managed Lanes	Four managed lanes between Broward Boulevard and Golden Glades	75	5
Eller Drive/ICTF Overpass	To facilitate near dock rail operation in Southport without impacting the Port's primary access route.	70	6
I-595 Causeway	From US 441 to I-95 – ultimate plan	64	14
I-595 Causeway	From I-95 to US 1 – ultimate plan	64	15
I-595 Causeway	From I-75 to US 441 – ultimate plan	60	17
Florida's Turnpike widening	Widen from Griffin Road to Atlantic Boulevard	60	22
Florida's Turnpike	Open road tolling between Griffin Road and the Palm Beach County Line	58	27
I-595 & Florida's Turnpike	Interchange modifications	55	29
I-595 & Miramar Parkway	Interchange modifications	55	30

Table 8: Top 10 Roadway Freight Needs Projects in Miami-Dade County

Name of Project	Description	Score	Rank (Regional)
25 th Street Viaduct – Phase 2	Widen NW 25 th Street and construct elevated bridge between SR 826 and NW 87 th Court	76	2
SR 836/I-195/MacArthur Causeway	Elevated express lanes; implement E-W Rail Line to reduce passenger traffic	75	3
US 27/Okeechobee Rd	Construct grade separated overpasses at major intersections between NW 79 th Avenue and Krome Ave.	75	4
Seaport Tunnel	Tunnel (port alternative access)	68	7
Integration of Truck Route System and Regional ITS Network	ITS improvements geared toward trucks and data collection/analysis/reporting subsystem for performance measurement	68	8
Way-Finding Sign Improvement Program	Improve countywide for movements to/from regional freight hub	68	9
HEFT	All-electronic toll conversion from US 1 to Turnpike Mainline	68	10
Okeechobee Rd Operations/ Access Improvements	Signal timing, access, and signage improvements to provide better flow along Okeechobee and access from side roads; and access by trucks to and from Medley	65	11
HEFT	Widen to 8 lanes from SR 836 to I-75	65	12
Truck Parking Facility	Provide a location near HEFT and Okeechobee Road for truck parking with amenities for overnight truck parking	65	13

Table 9: Top 10 Roadway Freight Needs Projects in Palm Beach County

Name of Project	Description	Score	Rank (Regional)
SR 710	Widen from 2 to 4 lanes between Moroso Motorsports Park and County Line	60	18
SR 80	Widen from 4 to 6 lanes between Seminole Pratt-Whitney Road and Crestwood Boulevard	60	19
SR 710	Widen from 4 to 6 lanes between Moroso Motorsports Park and PGA Boulevard	55	37
Yamato Road	Widen from 6 to 8 lanes between Boca Raton Blvd and west ramp of I-95	55	38
Glades Road	Widen from 6 to 8 lanes between Lyons Road and FAU Boulevard	54	47
SR 7	Widen from 8 to 10 lanes between Lake Worth Road and Belvedere Road	54	48
SR 7	New 4-lane facility between N 60 th Street and Northlake Boulevard	54	49
SR 710	New 4-lane facility between Old Dixie Highway and Broadway	53	51
SR 704	Widen from 8 to 10 lanes between west ramp of I-95 and west ramp of Australian Boulevard	50	75
Atlantic Avenue	Widen from 2 to 4 lanes between SR 7 and Lyons Road	49	77

Seaport Project Prioritization

Each seaport is responsible for developing an improvement program and setting investment priorities based on business opportunities. While individual county or facility priorities may differ, the priorities presented below represent regional priorities. The SFRFP used the following criteria to evaluate the projects.

- Type of Project (25 total points)
- Type of Traffic (15 total points)
- Project in Established Plan (10 total points)
- Intermodal Connectivity (30 total points)
- Implementation Timeframe (20 total points)

Please refer to **Appendix F** for a comprehensive regional list of prioritized seaport projects.

The top 25 ranked seaport projects are listed in Table 10.

Appendix G presents a list of prioritized seaport projects by facility.

Table 10: Top 25 Seaport Needs Projects in South Florida

Rank	Seaport	Project	Score
1	PEV	Aggregate Terminal & Rail Yard Facility	100
2	PEV	Eller Drive/ICTF Overpass	100
3	POM	Intermodal Container Transfer Facility	100
4	PEV	Intermodal Rail Spur & Storage Yard	100
5	PPB	Off Port Intermodal Rail Improvements	100
6	PPB	On Port Intermodal Rail Improvements	100
7	PPB	Port of Palm Beach Railroad Switching Project	100
8	POM	Railroad Bridge Improvement	100
9	POM	Railroad Cargo Shuttle Service	100
10	POM	Railroad Track to Serve Pomtoc and Maersk	100
11	PEV	ACOE Dredging Project 03	90
12	PEV	Construct ICTF Track and Storage Yard	90
13	POM	Dredging- Phase III	90
14	PPB	Harbor and Channel Improvements	90
15	PEV	Southport Turning Notch Expansion- Phase I	90
16	PPB	SR 27/ Intermodal Logistics Center Rail Project	90
17	PEV	McIntosh Loop Road	80
18	PEV	Phase 2 Turning Notch Expansion	80
19	PPB	South Port Complex	80
20	POM	South Wharf Access Road	80
21	PEV	DCC Ro/Ro Development	75
22	PPB	Cargo Storage of FP&L	70
23	POM	Container Yard Improvements- Seaboard	70
24	POM	Container Yard Improvements-A.P. Moeller-Maersk	70
25	POM	Customs Cargo Inspection Facility	70

Note: Seaport projects are ranked first by total score and second alphabetically. The full list of projects is provided in Appendix F.

Rail Project Prioritization

FDOT has used the Florida Freight Rail Investment Calculator to measure the benefits of state investments in the rail system. This methodology currently is being enhanced as part of the Rail System Plan Update. It will be used in the FDOT short and long term planning and programming process to support the Strategic Intermodal System cost-feasible plans, decisions regarding rail program funding allocations in the Program and Resource Plan, specific project funding decisions in the 5-year work program, and more general rail investment guidelines through 2035. In addition to this state level project evaluation tool, as part of the SFRFP, the following project prioritization process was developed to guide regional priorities.

- Type of Project (25 total points)
- Type of Traffic (15 total points)
- Public Funding (15 total points)
- Intermodal Connectivity (25 total points)
- Implementation Timeframe (20 total points)

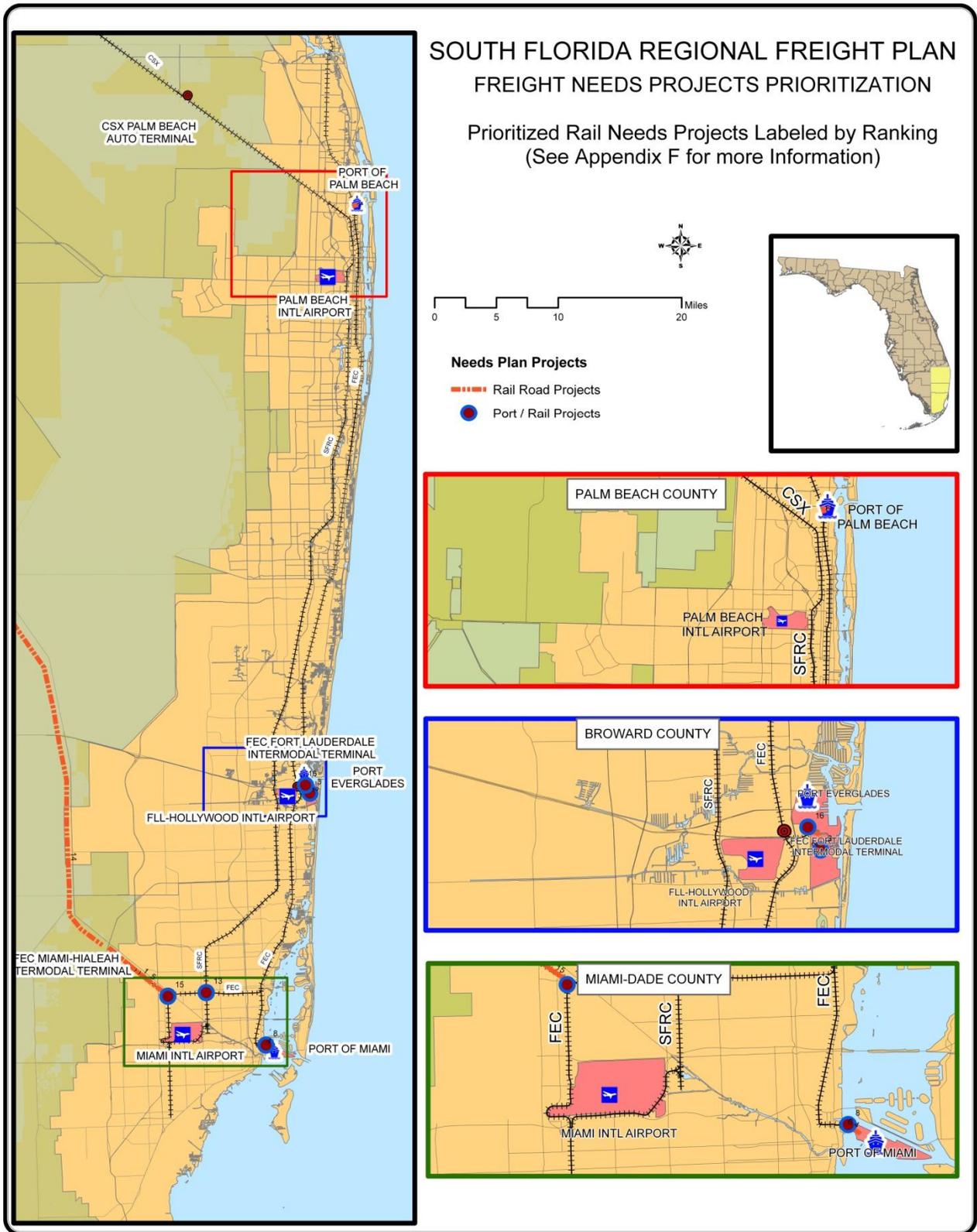
Table 11 and **Appendix F** present a regional list of prioritized rail projects. These projects are mapped in Figure 9.

Appendix G presents a list of prioritized rail projects by facility.

Table 11: Rail Needs Projects in South Florida

Rank	Railroad	Project	Score
1	FEC	Medley Lead Double Tracking	90
2	PEV	Intermodal Rail Spur & Storage Yard	90
3	PEV	Rail Storage Tracks for ICTF	90
4	FEC	Port Lead Rehabilitation	80
5	FEC	Upgrade Medley Lead	80
6	FEC	Port Lead	80
7	FEC	Port of Palm Beach Railroad Switching Project	75
8	FEC	Bascule Bridge / Rail Connection	65
9	New	US 27 / Intermodal Logistics Center Rail Project	65
10	SCFE	Bryant Rail Project	60
11	SCFE	Cane Block Project	60
12	CSX	Mission Spur (Dyer)	60
13	CSX	Hialeah / Iris Connection	60
14	New	South Florida US 27 Rail Link	60
15	FEC	Relocation of Hialeah Yard to Medley “area”	55
16	PEV	Eller Drive Overpass	55
17	SCFE	286 Bridge Upgrades	40
18	FEC	Repair Bolt / Fastening System	40
19	FEC	Upgrade and Replace Light Weight Rail	40
20	FEC	Install Signal Control Point Upgrades	40
21	FEC	Install Motion Detectors at Grade Crossings	40

Figure 9: Prioritized Rail Freight Needs Projects



Airport Project Prioritization

FDOT currently is considering the possibility of developing an investment evaluation tool similar to those developed for seaport and rail investments to help evaluate the benefits of airport projects requesting state funding. The SFRFP should incorporate any such tool, as appropriate, as part of future updates. As part of the SFRFP, the following project prioritization process was developed to guide regional priorities.

- Type of Project (30 total points)
- Type of Traffic (30 total points)
- Included in State Work Program (20 total points)
- Implementation Timeframe (20 total points)

Please refer to **Appendix F** for a comprehensive regional list of prioritized airport projects.

The top 25 ranked airport projects are listed in Table 12.

Appendix G presents a list of prioritized airport projects by facility.

Table 12: Top 25 Airport Needs Projects in South Florida

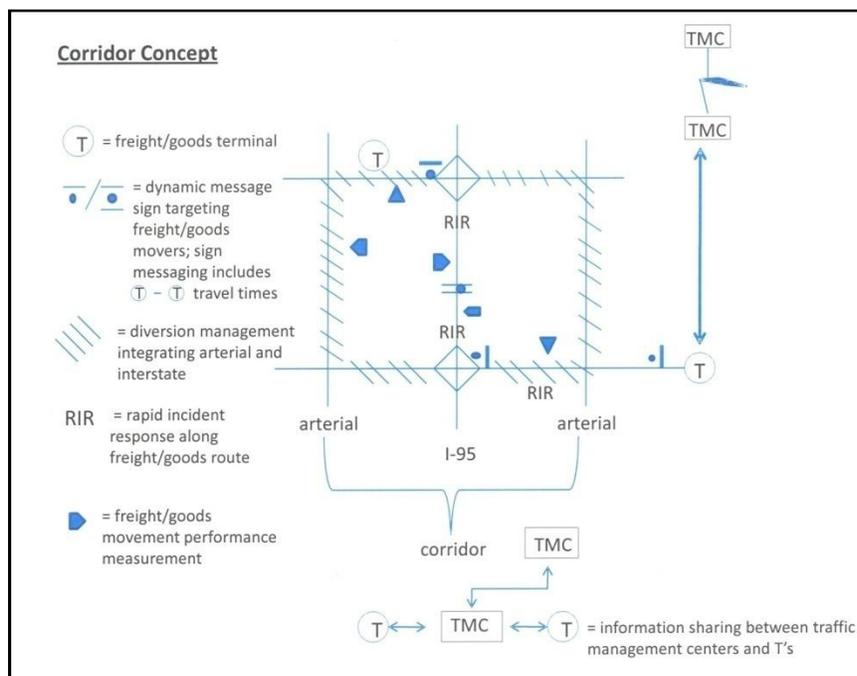
Rank	Airport	Project	Score
1	FLL	Cargo Customs Facility (Westside)	80
2	PBI	New Cargo Apron	80
3	MIA	Improvements 67 th and Perimeter Road North	75
4	FLL	Runway 9R/27L Extension	75
5	PBI	Cargo Apron Expansion	70
6	PBI	New Belly Cargo / All Cargo Facility	70
7	PBI	Runway 13-31, Taxiway F, and Taxiway B Extensions	65
8	MIA	South Terminal Dual Taxiway	55
9	MIA	USDA / APHIS Facility	55
10	MIA	Airside Improvement Projects	55
11	FLL	SW 42 nd Street Widening and ROW	55
12	FLL	Ravenswood Road Widening and Land Acquisition	55
13	FLL	Westside Infrastructure Improvements	55
14	FLL	Taxiway C and Infrastructure Improvements	55
15	PBI	Acquire Land Runway 9L-27R	55
16	PBI	Construct Apron Golfview 2	55
17	PBI	Extend Runway 9R-27L Environmental & Design	55
18	PBI	Extend, Relocate, and Upgrade Runway 9R-27L	55
19	PBI	Extension of Taxiway F to Runway 13	55
20	PBI	Extension of Taxiway L Lima	55
21	PBI	Golfview Apron, Taxilanes/Taxiways, & Infrastructure	55
22	PBI	Taxiway Charlie (East) Improvements	50
23	MIA	Runway 8R-26L Resurfacing	50
24	PBI	Rehabilitate Taxiway C	50
25	PBI	Runway 13-31 Maintenance and Repair/Rehabilitation	50

Technology Advances

This section discusses technology advances that are expected to benefit freight transportation throughout the planning horizon covered in this Plan.

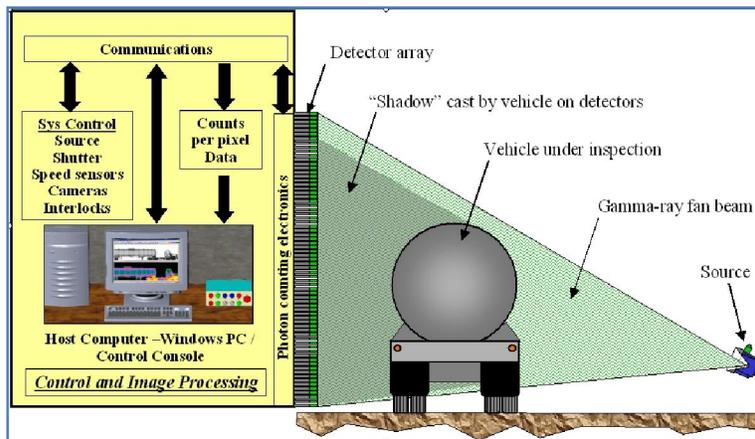
South Florida Virtual Freight Network

As part of FDOT D4’s Transportation System Management and Operations (TSM&O) program, a Virtual Freight Network (VFN) is being developed. An VFN is an integrated system of public- and private-sector information systems and technologies linked via information sharing protocols in order to improve freight mobility in South Florida. The VFN will include corridor-specific applications, system-wide applications, and hub access operations. The VFN will build off of the established regional freight program. Initial work will focus on the development and evaluation of a pilot test. There will be close coordination among regional ITS stakeholders to ensure compatibility with the established and planned ITS architecture. Development of the VFN is being led by a FDOT D4 and D6 team. Initial activities are focused on the definition of goals and objectives, definition of the geographic scope of the project, identification of available ITS infrastructure, an assessment of available applications, development of industry-relevant system information, identification of funding opportunities, and ultimately the development and deployment of a pilot project. The below figure illustrates one possible corridor application along I-95.



VACIS Technology

Vehicle and Cargo Inspection Systems (VACIS) are high-sensitive non-intrusive image processing detectors that utilize mono-energetic gamma-ray technology to inspect trucks, railway cars, containers, and air cargo pallets. Gamma-ray systems utilize less radiation than X-ray systems and hence are safer, simple in design, smaller in size, low maintenance cost, lower in price, and very reliable. VACIS are capable of detecting false compartments, hidden contraband, weapons, drugs, and hazardous materials. Since cargo does not have to be opened, VACIS improves the efficiency at vehicle/cargo inspection locations such as ports and international border crossings.



Operational concept of VACIS (Source: Science Applications and International Corporation)



Electrified Truck Stops (ETS)

The U.S. Department of Transportation mandates that truck drivers rest 10 hours for every 14 hours of driving. Truck drivers usually rest and sleep in the cab of the truck. The goods transported by trucks sometimes require operating heating or cooling systems at all times. As a consequence, long-haul truck drivers idle their vehicles to operate heating systems and air conditioners, generate electricity, charge their vehicle's batteries, and warm up the engines. In addition to emissions, extended idling can also result in a considerable waste of fuel and can cause wear on the truck engines.

Electrified truck stops (ETS) have been located along major long-haul truck corridors to reduce extended truck idling. An ETS typically consists of an external heating, ventilation, and air conditioning (HVAC) unit at each truck parking space. HVAC is delivered to the truck by a microprocessor-controlled system that mounts in a window on either side of the truck. The unit contains temperature controls, credit card reader, display, and keypad (Source: *National Deployment Strategy for Truck Stop Electrification*, Texas Transportation Institute). The above study evaluated 15 major truck corridors and developed a methodology for identifying optimum locations for installing ETS. The following three freeways that serve South Florida are part of the 15 truck corridors evaluated in the study: I-95 (Boston-Miami), I-75 (Detroit-Miami, and Chicago-Miami), and Florida's Turnpike (Chicago-Miami).

Factors recommended for consideration when selecting locations for ETS include length of the corridor, truck volume and potential growth, truck activity centers, distance to nearest ETS, number of truck stops, and temperature (hot and cold days). Since ETS are operated by private companies, the study recommends locations selected for ETS to have a minimum of 75 truck parking spaces. The only location in South Florida recommended for an ETS is the Seminole Truck Stop at 4690 U.S. 27 in Weston.

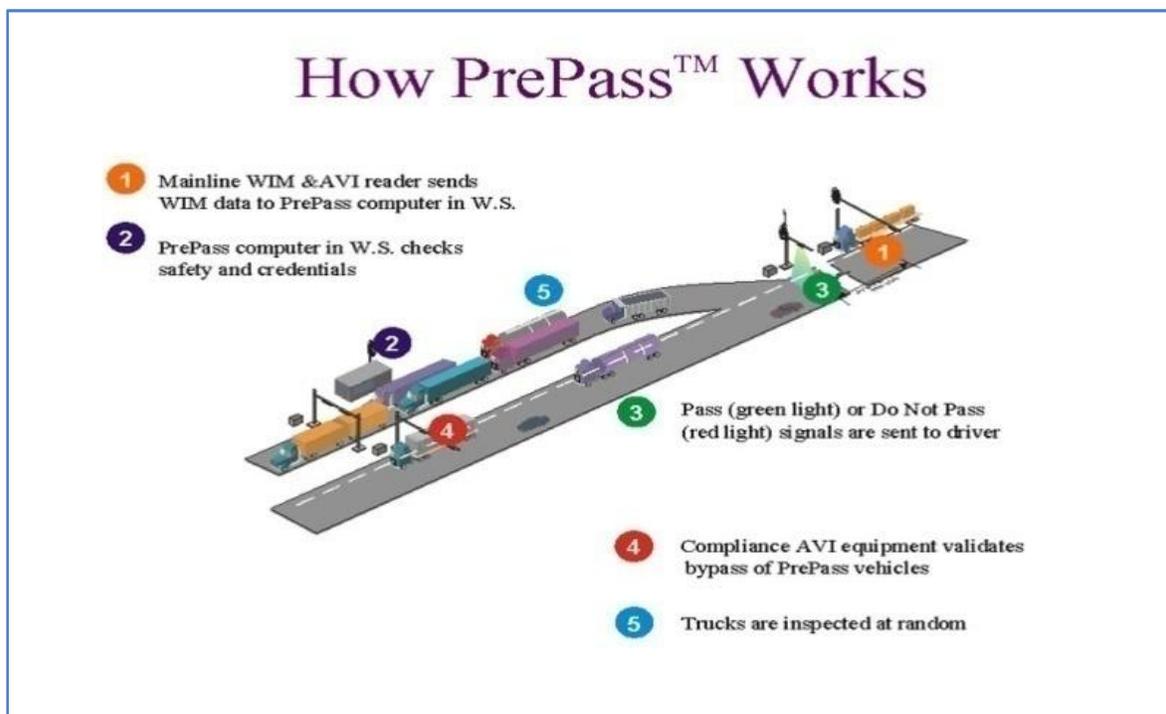


PrePass

PrePass is an automatic vehicle identification (AVI) system that enables transponder-equipped commercial vehicles to be pre-screened at weigh stations, port-of-entry facilities, and agricultural interdiction facilities. Cleared vehicles are able to "bypass" the facility while traveling at highway speed, eliminating the need to stop. Vehicles participating in the PrePass program are pre-certified. Customers' safety records and credentials are verified with state & federal agencies to ensure adherence to the safety and bypass criteria established by PrePass and member states. If an approaching PrePass-equipped vehicle's weight and credentials are found to be satisfactory, a green light and audible signal from the windshield mounted PrePass transponder advise the driver to bypass the weigh station. Otherwise a red light and audible signal advise the driver to pull into the weigh station for regular processing. Currently PrePass systems are used in 29 States, including Florida. However, there are no PrePass facilities in South Florida. (Above information was excerpted from www.prepass.com.)

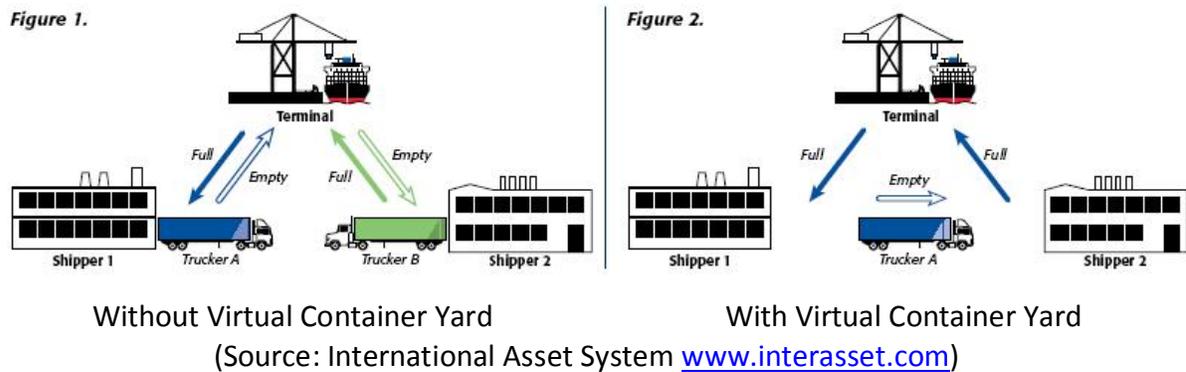


PrePass Facilities in Florida



Virtual Container Yards

Southern California has taken many steps to keep goods moving through the region. In 2006, the ports and the Alameda Corridor Transportation Authority in southern California implemented a virtual container yard (VCY), an internet-based matching service for empty containers, which reduces the number of empty containers being transported back to the port after goods have been delivered to a destination. VCY enables the delivery of empty containers to an exporter who needs empty containers for goods taken to the port for shipment overseas. This reduces truck trips to and from the port area. In addition, gate and storage fees, congestion at port gates, suboptimum fleet usage, and emission could be reduced through VCY. It has been estimated that approximately 2 percent of the import containers are currently taken directly to exporters. The goal of the virtual container yard is to increase that percentage to at least 10 percent. (Source: *National Policy and Strategies Can Help Improve Freight Mobility*, Government Accountability Office, 2008)



Container Tracking Systems

Containers can be tracked using technologies such as radio frequency identification (RFID), global positioning systems (GPS), and satellites. Tracking of containers while in transit has several benefits:

- Ability to provide real time information on location and schedule adherence.
- Facilitate the flow of accurate and timely information across supply chain partners and government agencies.
- Deter theft, diversion and counterfeiting.
- Timely response in emergency situations.
- Improve supply chain efficiency and reduce costs.
- Provide highway agencies the ability to monitor truck route systems by gathering speed, delay, and safety data, thereby determine the need for roadway enhancements.
- Reduce face to face intervention, thereby reducing opportunities for corrupt practices.

Implementation

This section discusses the implementation of freight needs projects within the LRTP process. The SFRFP was designed to complement the RL RTP; while freight priorities are provided for all projects falling on the regional network, it was not the intent of the SFRFP to set or recommend county specific priorities. Within each county, freight priorities were established within the LRTP process, and in all cases freight projects were included in the cost feasible plans (CFPs). The CFPs for each MPO will be finalized in the fall of 2009. These CFPs will then be used in the RL RTP as the universe of projects. Based on regional criteria, priorities will be established for regionally significant projects. The SFRFP, as noted earlier, includes all freight needs identified – not just those included in the CFPs. As such, the regional freight needs documented in the SFRFP are more comprehensive than the RL RTP. The RL RTP will use the prioritization results for the roadway freight projects as input to the regional priorities.

For non-roadway freight needs, the system owners (ports, airports, railroads) will drive the priorities through the development of CIPs and master plans, and the application requirements to pursue public investments. FDOT, through established and evolving evaluation tools, will fund those projects that provide the best rate of return for the state. Since the funding sources for these projects are typically different from roadway projects, they are not included in the county LRTP prioritization processes.

Funding Opportunities

Potential funding mechanisms available for freight improvements were examined. In general, funding opportunities available for freight improvements are limited. The existing and potential future funding programs available through SAFETEA-LU and other sources were reviewed and an assessment of their applicability to Southeast Florida freight planning and programming activities was made. **Appendix D** provides an assessment of the following funding options:

- Public/private partnerships
- State funding programs
- Existing Federal/SAFETEA-LU funding programs
- Economic Stimulus programs
- New Federal transportation bill

SUMMARY AND RECOMMENDATIONS

The SFRFP was developed in an effort to introduce a regional approach to identify and prioritize freight projects in Broward, Miami-Dade, and Palm Beach counties. Another objective of the SFRFP is to integrate freight planning into the mainstream planning process. The identification and documentation of regional freight needs could lead to enhanced coordination among the three counties, better utilization of available resources, increased benefits to the freight industry, and ability to compete for funding sources available at national level.

The major steps of the development of SFRFP included an extensive review of literature, analysis of freight data, a visioning session to obtain stakeholder input, coordination with MPOs to identify and prioritize freight needs projects in a manner consistent to the LRTP process, and identify potential freight funding opportunities. Input for the development of the SFRFP was received from several freight stakeholders, including seaports, airports, FDOT Districts 4 and 6, MPOs, and other public and private sector entities. A well-attended visioning session conducted on September 10, 2008, generated a lot of discussion on the regional freight needs, challenges, opportunities, goals, and vision. The literature review focused on identifying best practices in freight planning and local freight initiatives. The three counties have conducted several local freight studies and identified a number of freight needs projects; this study evaluated the individual projects from a regional perspective.

A series of meetings was conducted with MPO staff and consultants involved in the development of 2035 LRTPs and RL RTP to ensure that the SFRFP was developed in consistent with those transportation plans. The Needs Plan projects of the LRTPs were evaluated using the SFRFP prioritization criteria and the evaluation results were summarized by county. The needs analysis included non-roadway modes as well. The seaport, airport, and rail projects were identified by reviewing CIPs, master plans, and statewide plans. The RL RTP will reference the SFRFP as its freight planning element.

Finally, the SFRFP identifies several potential funding opportunities for implementing freight projects. These funding sources include public-private partnerships, State funding programs, SAFETEA-LU based federal programs, and recently initiated economic stimulus funding opportunities. In addition, a brief discussion is presented on the next federal transportation bill in relation to the freight planning.

Recommendations

Update SFRFP on same schedule as RL RTP. The SFRFP is a living document and should be updated on a regular basis to provide input to regional transportation planning activities. At a minimum this should include LRTP and RL RTP update.

Coordinate with modal system plans. Florida's modal system plans are updated regularly. They provide a statewide systems perspective that illustrates how Florida connects to national and international markets. These updates should always be used as a foundation and starting point for SFRFP updates.

Incorporate/use modal prioritization tools. The state has developed or is developing tools to support the evaluation and prioritization of non-roadway freight projects. These tools can provide valuable insights to project priorities for public investments; adoption of these tools will ensure consistency, even if local factors are also integrated into the evaluation.

Advance major system developments (US 27 Rail and Intermodal Logistic Center). Over the next few years, study will continue on major infrastructure projects that have the potential to significantly enhance freight mobility in South Florida. It is critical that these developments continue to be studied and developed into freight transportation enhancements. Future regional freight plan updates should monitor and evaluate these projects.

Coordinate with Hub Master Plans and CIPs. South Florida's freight hubs (seaports, airports, rail yards) conduct regular capital improvement planning. They operate like a business and make real-time decisions regarding threats and opportunities. It is critical that the SFRFP accurately reflect their needs and priorities.

Standardize needs database within each mode. As a first regional freight plan, it is understandable that there be differences in the level of detail for project needs within and across modes. However, over time these differences should be minimized to help ensure a thorough understanding of short and long term needs across modes for South Florida.

Monitor and position region for new federal funding authorization. Over the next year there will be significant developments at the federal level. It is important that South Florida understand the implications of a federal freight program as it relates to planning requirements and funding eligibility.

Monitor and position region for ongoing economic stimulus funding. It is unclear at this point what the future of the economic stimulus program will be. As the economy continues to recover, South Florida should continue to monitor recovery-based opportunities.

Conduct routine outreach and maintain/revise regional freight vision. South Florida should continue to conduct outreach to the region's freight stakeholders to keep a finger on the freight pulse and ensure the freight vision evolves as necessary over time.

Implement technology advances that will result in more efficient freight systems and may potentially reduce the burden on the built transportation network. Freight technology advances identified in this Plan that appear to have applications in South Florida include the VACIS technology, electrified truck stops, PrePass, and virtual container yards. One effective way to improve freight mobility in South Florida is to deploy and integrate key technologies into a coordinated system. The VFN under development by FDOT D4 will help create and test such a system and should be supported as part of the Plan.