CAMBRIDGE SYSTEMATICS

Florida Statewide Freight and Goods Mobility Plan – Freight Processes

final

report

Prepared as a resource document to support the Florida Transportation Plan and the Strategic Intermodal System Plan

prepared for

Florida Department of Transportation, Seaport Office

prepared by

Cambridge Systematics, Inc.

in association with

Reynolds, Smith and Hill, Inc.

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1.0 Introduction

The last several decades have witnessed significant growth in the demand for freight transportation in the United States. This has been driven by economic expansion and the globalization of the world economy. Over the same period, investments in the transportation system have not kept pace, particularly in the freight transportation system. This has resulted in a capacity crisis throughout the system. The effects of growing demand and limited capacity are felt as congestion, upward pressure on freight transportation prices, and less reliable trip times as freight carriers struggle to meet delivery windows. Higher transportation prices and lower reliability translate into increased supply costs for manufacturers, higher import prices, and a need for businesses to maintain more expensive inventory to prevent stock outs. These increased costs add up to a higher cost of doing business for firms, a higher cost of living for consumers, and a less productive and competitive economy.

There are several major limitations in addressing freight mobility challenges. The first relates to the limited visibility that freight projects receive in the process for planning and prioritizing how transportation dollars are spent due in part to the public's resistance to freight projects at the local level. The second relates to the limitations of Federal funding programs, which tend to dedicate funds to a single mode of transportation or a non-freight purpose. Finally, since freight projects do not respect jurisdictional boundaries, in a State as complex as Florida with 67 counties, of which 28 are rural, 11 Regional Planning Councils and 26 Metropolitan Planning Organizations (MPOs), achieving multi-jurisdictional consensus on statewide and regional freight priorities is very difficult.

In response to these challenges, the Federal government and the State of Florida both have continued to expand their transportation programs to better address freight transportation needs. At the highest level, freight has been integrated into federal and state legislation. Since 1991, the US Department of Transportation has specifically called out freight and intermodal transportation as a critical element in state and local transportation programs. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the latest federal transportation bill, continues to support and encourage investments in freight transportation. Several years ago, Florida further emphasized a comprehensive transportation program that met the needs of passenger and freight movements through creation of the Strategic Intermodal System (SIS). The recently adopted 2005 Growth Management Bill (Florida Senate Bill 360) provided further funding for state priorities, while the Transportation Regional Incentive Program (TRIP) has begun to formalize the importance of investments in regionally significant facilities.

1.1 Overview of Florida's Transportation Program

The Florida Department of Transportation (FDOT) is an executive agency whose primary duties are to assume the responsibility for coordinating the planning of a safe, viable, and balanced state transportation system serving all regions of the state, and to assure the compatibility of all components, including multimodal facilities.[1] FDOT is responsible for 41,000 lane-miles of highway and 6,381 bridges, and is partnered with 22 commercial service airports, 14 seaports, 2,707 railway miles, and 18 transit systems. Overall, FDOT has a workforce exceeding more than 7,500 employees. The Department has developed and maintained modal system plans for the highways, airports, railroads, and waterways. In addition, the Florida Ports Council (FPC) develops a seaport mission plan.

FDOT is led by the Florida Transportation Commission (FTC). In addition to serving as nominating committee in the selection of the state's Secretary of Transportation, the FTC serves as an oversight body for FDOT. FDOT is decentralized in accordance with legislative mandates and comprises seven districts and the Florida Turnpike. All districts report to the FDOT Central Office located in Tallahassee and are each managed by a District Secretary. The districts vary in organizational structure, but each generally includes major divisions for regional administration, planning, production, and operations. New legislation and the restructuring of transportation programs within FDOT are influencing the Department's investment policies and are likely to affect the amount of money that will be dedicated to fund freight-related projects throughout the state in future years. The following describes several major elements of the State's program.

2025 Florida Transportation Plan

The Florida Transportation Plan provides the overall guidance to the state's transportation program. The 2025 Florida Transportation Plan (FTP) strengthened the policy framework for looking at transportation in the context of broader economic, community, and environmental goals, and enhanced the emphasis on regional planning. The FTP also addresses how to ensure that our transportation system is safe and secure in a time of unprecedented public concerns. Finally, the FTP provides guidance on how transportation investments should be focused during a time of constrained funding, as well as how public and private transportation partners can most effectively work together to make these decisions. More specifically the State's Transportation Plan calls for the need to support the efficient flow of freight from origin to destination and relieve bottlenecks that impede the free movement of goods across all modes, with particular emphasis on urban traffic congestion.

[1] Senate Bill 334.044(1), Florida Statutes.

Strategic Intermodal System (SIS)

In 2003, Florida's Governor signed legislation that proposed the implementation of a Strategic Intermodal System (SIS). The development of the SIS was initially proposed in the 2020 Florida Transportation Plan, which "envisions a transportation system that will enhance Florida's economic competitiveness."[2] The SIS is a statewide network of high-priority transportation facilities - including the state's largest and most significant commercial service airports, spaceport, deepwater seaports, freight rail terminals, passenger rail and intercity bus terminals, rail corridors, waterways and highways – that promotes statewide and interregional mobility and enhances Florida's economy. Most importantly it increased the level of funding of investments in non-highway modes. The initial SIS Strategic Plan was adopted in January 2005. The plan is accompanied by several components that were officially adopted with the plan: an implementation guidance document, an atlas of maps, lists of designated SIS and Emerging SIS facilities (hubs, corridors, and connectors), and a list of resources used to develop and guide implementation of the SIS Strategic Plan.

Pursuant to 2004 Legislation, at least 50 percent of new flexible highway capacity funds must be allocated to the SIS/Emerging SIS facilities. This legislation also authorized FDOT to fund projects on SIS/Emerging SIS facilities, regardless of ownership (including roadways off the State Highway System and privately owned facilities such as railroads). Substantial funding for SIS/Emerging SIS facilities will also be available from traditional state transportation capacity programs for highways, aviation, rail, and seaports. In addition, the Department is moving towards implementing an investment policy that eventually allocates 75 percent of all flexible capacity funds to the SIS/Emerging SIS, excluding transit funds and Federal urban attributable funds to areas over 200,000 residents. Capacity and operational improvements to SIS/Emerging SIS corridors and connectors will be eligible for funding, with emphasis directed toward reducing bottlenecks and improving access to hubs. At SIS and Emerging SIS hubs, the emphasis will be on improving the functionality, not the size, of the hub. State funding will be available for projects that streamline movement of interregional, interstate, and international passengers and goods and provide substantial public benefit, such as ground transportation and terminal connections between the hubs and the SIS connectors just outside the fence (off-terminal/hub property).

Florida Senate Bill 360 – Growth Management

In July 2005, the Florida Legislature passed SB 360. This bill appropriates $1.5 billion in new money for transportation, water, and school infrastructure programs when certain planning standards are adopted; it also "promises" $750 million per year in recurring annual appropriations. The bill requires that by December 1, 2007, all Capital Improvement Elements must demonstrate through a "financial feasibility test" that

[2] Florida Department of Transportation. *Florida's Strategic Intermodal Plan*. January 2005.

adopted levels of service for required concurrency facilities can be met and maintained; thereafter an annual update by comprehensive plan amendment must be performed. In Fiscal Year (FY) 2007/2008 Transportation-related projects were originally anticipated to receive $740 million in statewide recurring money. Programs in the new bill that could help advance freight-related projects in Florida include the Strategic Intermodal System (SIS) and the Transportation Regional Incentive Program (TRIP). The new growth management bill resulted in approximately $3.9 billion programmed in the Fiscal Year 2007/2008 – Fiscal Year 2011/2012 Tentative Work Program.

Transportation Regional Incentive Program (TRIP)

Whereas the SIS was created to serve travel demand between regions, and between Florida and other states and nations, 2005 legislation (s. 339.2819, Florida Statutes) created the Transportation Regional Incentive Program (TRIP) to better meet the increasing demand for regional travel and commerce. State funds are available throughout Florida to provide incentives for local governments and the private sector to help pay for critically needed projects that benefit regional travel and commerce. FDOT will pay for 50 percent of project costs, or up to 50 percent of the non-Federal share of project costs for public transportation facility projects. To be eligible for funding through the TRIP program local governments should demonstrate that selected projects are included in their capital improvement programs, are consistent with the SIS, support facilities that serve national, statewide, or regional functions and function as an integrated transportation system, have commitments of local, regional, or private matching funds, and are part of regional transportation networks.

Metropolitan Planning Organizations Long Range Transportation Plans

Metropolitan Planning Organizations (MPOs) are responsible for the development and implementation of a balanced, integrated, and multimodal transportation program that efficiently moves passenger and freight traffic. With freight transportation becoming an increasingly important component of both Federal and state programs, MPOs have become increasingly aware of the need to maintain and improve the safety, security, reliability, and accessibility of the freight transportation system. This has stimulated local transportation planning agencies to focus attention and resources on developing and refining freight planning programs and on more effectively incorporating freight into existing transportation planning activities. In fact, all of the major urbanized areas in Florida, and many of the smaller communities, have undertaken freight policy, planning and programming activities, such as Miami-Dade's Freight Transportation Advisory Committee (FTAC), First Coast MPO's Freight Mobility program, and Collier County MPO's freight study.

1.2 Development of the FDOT Freight Plan

The Florida Statewide Freight and Goods Mobility Plan (Freight Plan) provides the primary freight element for Florida's transportation program by supporting and enhancing existing transportation program activities and creating a comprehensive summary of the state's freight system. The development of this plan has been an evolutionary process. The development and implementation of the Strategic Intermodal System (SIS) has dramatically influenced Florida's transportation policy, planning, and programming processes. In addition, Districts and local planning partners are becoming more and more engaged in the process of designating regionally significant transportation networks. The combination of the SIS and the regionally significant networks will be the focus of FDOT's investment strategy in the coming years. The primary objective of the Freight Plan is to ensure that freight is a robust, well represented component of the SIS and regional networks. This requires integration of freight into many of the state's processes. The Freight Plan works within the confines of the established programs to make this a reality.

The initial activities of the Freight Plan focused on four major areas. These activities lay the groundwork for a statewide freight program. The four areas include the following:

- **Establish a freight transportation policy statement.** A critical first step to this process was the development of a mission statement, goals, strategies, and key steps. This set of policy-related materials communicates the purpose of the Freight Plan to the stakeholders and partners. In addition, it provides ongoing guidance to the Seaport Office as the Freight Plan is developed and implemented.
- **Develop guidelines to support the identification of the statewide freight transportation system.** The definition of the freight system also is critical. The statewide freight system builds on the SIS by adding critical corridors, hubs, and connectors of regional significance. Work to date has focused on a review of existing freight system designations, and development of guidelines to support identification of local, regional, and state freight corridors, hubs, and connectors.
- **Identify available freight data resources.** The Freight Plan provides a comprehensive inventory of freight specific data and resources available at local, state, and national levels. These resources can be used to support freight program development. These data and resources are summarized in Florida's Freight Data Clearinghouse available at: http://webservices.camsys.com/fdot/index.htm. Next steps include necessary refinements to support development of enterprise SIS (e – SIS) efforts.
- **Conduct outreach and consensus building activities.** As described above, the most critical element of the Freight Plan is the concept that it will support and enhance existing transportation program activities. As such, it is important that the development of the Freight Plan allows for regular and frequent coordination and outreach to key partners. To date, significant effort has been expended to ensure key partners have been involved at the state level. Subsequent efforts will expand this outreach to include local and regional partners.

In order for this program to successfully promote freight transportation initiatives, several guiding principles must be called out and acknowledged, as follows:

- Coordinate with existing plans and programs;
- Commit to statewide and regional coordination with key players including freight stakeholders, public officials, MPOs, counties, and cities, the Department of Community Affair, The Department of Environmental Protection, as well as citizens;
- Ensure that freight transportation planning cuts across modes and individual jurisdictions;
- Provide reliable data and modeling tools and sound analytical approaches to compare the benefits of freight projects;
- Promote public awareness and involvement;
- Collaborate with the private sector; and
- Provide a multifaceted funding approach that includes improved access of freight projects to existing funding sources and support for programs that emphasize better use of existing infrastructure.

The Freight Plan was originally envisioned as a mechanism to guide freight policy, planning, and programming activities. However, with the parallel development of the SIS, the 2025 FTP update, and the ongoing updates of modal system plans, the purpose of the Freight Plan evolved throughout its creation to represent a clearinghouse of sorts to bring all the freight data and resources together under one umbrella, ensuring that the modal systems are viewed as one integrated intermodal/multimodal freight transportation, as well as fill in gaps that the individual modal plans did not adequately cover, such as a detailed analysis of freight flows. The creation of an approach for highway freight bottlenecks is another example of new functionality provided by this effort. In addition, through the overall freight planning process, specific attention has been given to Florida's seaports, which have historically been the only modal system in the state that do not have their own system-wide plan.

1.3 Organization

This remainder of this report is organized into the following sections:

- **Section 2.0, Florida Freight Program Goals.** This section describes the policy guidance established to guide the freight program. It also provides examples of a wide variety of freight initiatives that have been completed or are underway throughout Florida.

- **Section 3.0, Freight Transportation Planning Process.** This section provides a description of the established freight transportation planning activities undertaken by FDOT. It also describes how this Plan bring helps bring those activities together to form a comprehensive freight program.
- **Section 4.0, Recommendations.** This section presents recommendations for the ongoing development and maintenance of Florida's Freight Program. It includes the full range of recommendations, including process specific activities.

2.0 Florida Freight Program Goals

The Freight Plan is a dynamic and process oriented effort. The initial activities focused on the development of goals and strategies; documenting and understanding the existing freight planning initiatives and designation methodologies; identifying existing freight data sources and the development of recommendations for the development of a freight data clearinghouse; and the development of guidelines for the identification of the freight system. The specific activities required to develop the Freight Plan have continued to evolve and change based on the SIS implementation activities and the FTP update. The Freight Plan aspires to provide the comprehensive freight component of Florida's transportation program. This was accomplished by supporting a variety of freight initiatives that feed into the overall transportation program. It was critical to focus on value added activities and avoid duplicative efforts.

2.1 Philosophy

The mission of the 2025 Florida Transportation Plan states "Florida will provide and manage a safe transportation system that ensures the mobility of people and goods, while enhancing economic competitiveness and the quality of our environment and communities." The development of the freight plan relates directly to this overall mission of providing for the safe and efficient movement of goods. Current freight planning activities in the state are comprised of a series of independent initiatives undertaken by various modal groups, government agencies and interested partners. A critical component in the development of the Freight Plan is the close coordination and integration with the multitude of other freight related initiatives currently underway.

The Freight Plan is designed to enhance these existing initiatives and programs, and build upon and integrate with existing transportation planning efforts at the local, regional, state, and national levels. Specific accomplishments of this coordinated effort include the identification of a statewide freight system supporting the local and regional initiatives, the development of a clearinghouse for freight planning activities and resources, and the development of an advocacy role for the freight industry in the transportation planning process.

The Freight Plan is designed to achieve the following:

- Ensure consistency with the policy and technical framework developed by the SIS;
- Integrate existing local, regional, state, and national freight mobility planning activities;
- Link freight policy and planning activities to economic competitiveness strategies;

- Consider innovative solutions to improve freight safety, security, and productivity; and
- Accommodate changes to state and Federal transportation policies and finance strategies.

While this comprehensive approach should culminate in the development of an overall freight planning process and system, the success of this effort faces significant challenges. One of these challenges is the ability to integrate and coordinate the many freight initiatives and programs that are already underway into a comprehensive process that addresses freight movement needs at every level. Another challenge is the dynamic planning and programming environment that currently exists within the Department. The continuing implementation of the SIS is underway, with the first major update scheduled to be initiated in late 2008. The large number of freight stakeholders, each with varying needs, as well as the lack of detailed and available freight data needed to support the processes also presents challenges to the freight planning staff.

2.2 Specific Goals and Strategies

Given the conditions described above, a critical first step of the Freight Plan was the development of a mission statement and supporting goals. A freight transportation policy or mission statement, along with four major goals, has been developed to provide guidance for the freight planning process. These goals were developed based on significant input from a wide range of Department stakeholders, including Office of Policy Planning, Systems Planning, Transportation Statistics, and modal representatives from the Public Transportation Office. These stakeholders functioned as advisors to the policy development and had multiple opportunities to provide input. The resulting mission statement, goals and strategies developed in this effort are presented in Table 2-1.

Table 2.1 Florida Freight Mission, Goals, and Strategies

FREIGHT MISSION:

The Florida Statewide Freight and Goods Mobility Plan, through the establishment of a technical framework and process, will coordinate freight planning initiatives across modes to support and enhance the Strategic Intermodal System and other ongoing state, regional and local transportation programs.

	GOALS	OBJECTIVES	STRATEGIES
1.	Improve effectiveness and coordination of Florida's freight planning activities	• Establish a framework for Florida's freight planning process	• Integrate with and expand upon existing statewide, regional, and local freight planning • Provide the freight element for SIS, Emerging SIS, and non-SIS planning activities
2.	Improve efficiency of freight movement in key corridors statewide	• Identify freight significant corridors and facilities and opportunities to improve freight movement	• Identify freight corridors and facilities of statewide and regional significance • Identify and analyze bottlenecks and make recommendations for increasing the efficiency of freight movement • Develop a process/framework for updating corridors, facilities, and bottlenecks
3.	Improve the quality of, and access to, freight data	• Establish a freight data clearinghouse to support the SIS and other state and regional transportation programs	• Identify the modal data needs for planning and analysis of freight movement • Develop the conceptual architecture of the clearinghouse and document how the data will be accessed and maintained • Support the development and maintenance of the data clearinghouse
4.	Increase visibility of freight needs and issues	• Provide cross-modal coordination and advocacy for efficient freight and goods mobility	• Provide coordination among the various modal plans, statewide programs, and local and regional freight initiatives • Coordinate and facilitate multimodal public/private partnerships • Advocate for freight within regional and state transportation programs

There are many freight related initiatives that have been produced by a variety of transportation stakeholders at different levels, such as Metropolitan Planning Organizations (MPOs), modal agencies and partners, FDOT District offices and other transportation and economic partners. The coordination and integration with these efforts is critical for the statewide freight planning process. As such, a review of representative efforts and activities was conducted. The effort was not to be a comprehensive review of all existing initiatives; rather, the intent was to examine how freight issues were addressed in the planning process throughout Florida and whether these initiatives were consistent with the goals and objectives of the FTP and the SIS. Documents reviewed included statewide freight-specific efforts and MPOs local long-range transportation plans (LRTPs). Freight concerns were generally addressed from a policy perspective. Table 2.2 provides examples of freight initiatives undertaken by a variety of freight stakeholders.

Table 2.2 Examples of Freight Initiatives

State Initiatives
STRATEGIC INTERMODAL SYSTEM 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); and integrates individual facilities, services, forms of transportation (modes) and linkages into a single, integrated transportation network (system)
FLORIDA RAIL SYSTEM PLAN The Florida Rail Plan, updated every two years by the FDOT Rail Office staff, provides the necessary information in a policy framework through which strategic actions can be taken to achieve the best rail system for Florida's future. More specifically, the Plan provides a historical snapshot of the current freight and passenger rail system; examines the critical drivers of future rail demand; places information about freight rail issues, needs, choices, costs, and benefits within a larger public policy context; communicates these messages to a wide range of potential audiences; and develops policy options and recommendations for creating a strong rail system in Florida.
FLORIDA AIR CARGO SYSTEM PLAN 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).
FLORIDA SEAPORT MISSION PLAN 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.

FLORIDA SEAPORT SYSTEM PLAN [under development]

FDOT's Seaport Office has taken the initiative over the course of the past three years 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, developing initial framework model, and exploring the implications of changing trends in global trade. Following up on this work, FDOT's Seaport Office is initiating its first seaport system plan in 2008.

Regional Initiatives

SOUTH FLORIDA REGIONAL FREIGHT PROGRAM

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. Currently, the Department is initiating a regional freight and goods movement study in partnership with Broward, Miami-Dade, and Palm Beach MPOs.

SOUTHWEST FLORIDA FREIGHT AND GOODS MOBILITY STUDY

The SWF Freight Study provided a detailed and comprehensive set of data and analyses documenting system operational conditions, such as highway level-of-service (LOS); economic development opportunities, such as development of reliever cargo airports and foreign trade zones; and system infrastructure expansion, such as new rail spurs or highway connectors. Since the completion of this study, Collier and Lee County MPOs have undertaken their own freight studies to provide a more detailed analysis for their counties and the bi-county region.

INTERMODAL CONNECTIVITY IN THE ATLANTIC COMMERCE CORRIDOR

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, I-95 was designated as High Priority Corridor (HPC) 49, in large part as a result of South Florida leaders.

Local Initiatives

FIRST COAST FREIGHT MOBILITY STUDY

The Freight Mobility Study inventoried and surveyed major freight facilities and developed a freight facility database. The freight database helped to develop recommendations for freight improvements, relative to the highway system, in the First Coast MPO area. Results from this study will feed into the 2030 update of the First Coast MPO's Long Range Transportation Plan.

METROPLAN FREIGHT, GOODS AND SERVICES MOBILITY STRATEGY PLAN

The Freight, Goods and Services Mobility Strategy Plan focused on developing a freight program for the Orlando urban area. Key issues were identified, as well as projects and actions that affected facilities and freight carriers within the region. Specific projects, with timeframes and costs, were developed to address specific transportation system components for all modes.

COLLIER COUNTY MPO FREIGHT AND GOODS MOBILITY ANALYSIS

The Collier County MPO is undertaking a freight study to help enhance the level of attention given to the safe and efficient movement of freight in the region. Completion of the Freight and Goods Movement Analysis will allow the Collier County MPO to more effectively integrate freight issues into its transportation program by providing a better understanding of the type and volume of goods moving into, out of, through, and within the county.

BROWARD COUNTY MPO FREIGHT AND GOODS MOBILITY ANALYSIS

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. Its freight program has fed the 2025 and 2030 LRTP updates and recent work will support the 2035 LRTP update scheduled to begin 2008.

PALM BEACH COUNTY MPO FREIGHT AND GOODS MOBILITY ANALYSIS

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.

MIAMI-DADE TRENDS IN HEAVY TRUCK TRAFFIC MANAGEMENT STUDY

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.

3.0 Freight Transportation Planning Process

3.1 Overview of Florida's Existing Freight Planning Processes

Like all states, Florida has an established set of policy, planning, and programming activities that guide its investments in its highways, railroads, seaports, and airports. Starting at the statewide level, overall policies and goals are established by Florida's Transportation Plan. Through this process, legislative and agency leaders work together to identify a set of guidelines designed to meet the overall transportation needs of the state. As defined in Section 2.0, these policies provide for an altruistic approach focusing on mobility, safety, security, quality of life, and economic prosperity. This Plan is updated regularly to accommodate the ongoing challenges of transportation and incorporate regional, state, national, and international developments. All modes are represented in this process.

Beginning in 2003, the Strategic Intermodal System was developed to build upon this process by prioritizing limited new capacity funds on those corridors, hubs, and connectors that are most critical to the state. This was the first time that Florida took a step back to look at all modes together as one "strategic intermodal system". This process has refocused the state's priorities. It is updated annually to accommodate changes in the transportation system. In addition, a major update process is legislatively required periodically to ensure that existing designation criteria and thresholds are modified over time to best reflect Florida's transportation needs. The first major update is scheduled to begin in late 2008. This will be the first time since the SIS was created that the criteria and thresholds will be revisited. It will be a critical process, allowing transportation leaders to make necessary changes based on lessons learned over the last five years. It also provides the opportunity for several key facilities to reiterate their desire to be included in the program.

In addition to these statewide activities designed to integrate all modes, the modal offices within FDOT also develop and maintain modal system plans. These plans provide and identify needs for the entire modal system – not just the elements designated by the SIS. In addition, they provide the data required to feed the SIS process.

The Rail System Plan is updated every two years, as required by statute. The current update underway will expand the past process by providing a statewide rail policy perspective for passenger and freight system elements. Historically, greater emphasis has been given to the freight system. However, as more and more urbanized areas investigate

the feasibility of passenger rail, they are looking to FDOT for guidance. The 2008 Plan will provide that guidance.

The Aviation System Plan has typically consisted of two separate elements; one for passenger and one for cargo. The plan provides a detailed description of Florida's airports, summarizes key characteristics, and provides guidance on needs and priorities.

Florida's highways have typically been addressed through the State Highway System (SHS) and the Florida Intrastate Highway System (FIHS) plans. The Systems Planning Office has developed and maintained plans for these designated facilities. Their efforts were further focused with the creation of the SIS.

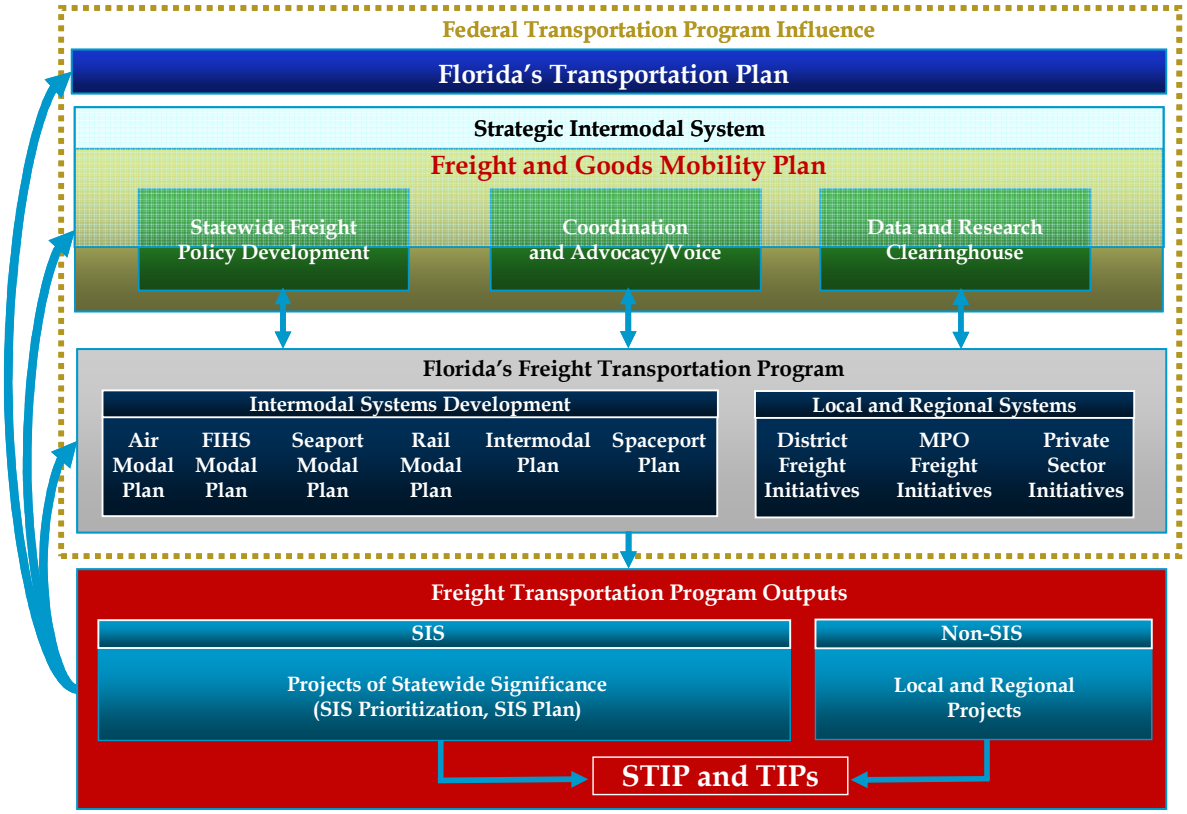
The Seaport System Plan currently is under development. The Florida Ports Council has developed and updated a seaport mission plan that provides profiles for each seaport and discusses the economic importance of waterborne domestic and international trade to Florida. However, until now, FDOT has not developed a Department-led seaport system plan. This plan, which will be completed in 2009, will provide strategic guidance designed to help prioritize state investments in seaports.

Each of these modal plans serves as the data repository for the SIS programming activities. District and private partners participate in their development, including the identification of needs and setting of priorities. Input from each modal office drives the development of the multimodal needs plan, which in turn feeds the multimodal cost feasible plan, which feeds the state's work program. As such, having accurate and comprehensive modal system plans that are updated regularly is critical for the ongoing enhancement of Florida's freight transportation system.

In addition to the state's modal system plans, the state's MPOs define their priorities through their long range transportation plans. Further, many of the MPOs in Florida have undertaken freight specific initiatives that have helped identify freight bottlenecks. While not all of these initiatives have been fully integrated into the long range planning process, each round of updates are resulting in the incorporation more and more freight specific elements, that over time will lead to more comprehensive transportation plans.

As illustrated by the above discussion, there are many elements at local, regional, and state levels that feed and impact the freight transportation system. The Freight Plan itself is not meant to replace or supersede these activities, but rather to act as a clearing house to bring all the elements together to ensure that leaders have access to a comprehensive description of the freight system for use in the development of funding priorities. Figure 3.1 illustrates the dynamic relationship of the state's freight system components.

Figure 3.1 Illustration of Freight Transportation Planning Elements



3.2 Description of Initial Freight Bottleneck Identification Methodology

One goal of the Freight Plan is to facilitate the identification and prioritization of freight bottlenecks and the successful allocation of resources to begin to address them. As part of the Freight Plan activities, initial work was completed on a methodology to identify freight specific highway bottlenecks throughout the state, focusing on access to major freight hubs. The following describes the process. Future work should focus on expanding this process to address all modes, including hubs, corridors, and connectors.

This is an important first step as the delay experienced by users of Florida's highway system will reach levels that could significantly reduce Florida's economic competitiveness and quality of life. Figure 3.2 shows the highway corridors that are included on the SIS that did not meet peak-period level of service standards in 2005, as well as those that are projected to fall below the standards in 2025, even after improvements included in the Department's 20-year cost-feasible plan are constructed. In 2005, highways that fall below the standards include large portions of the I-4, I-75, and I-95; multiple highways in all of Florida's major urban regions; and key corridors in emerging regions and rural areas. Without additional investments beyond those currently

scheduled, congestion is anticipated by 2025 to become a problem during peak periods along virtually all of Florida's major highway corridors, including segments in urban, emerging, and rural areas.

The most prevalent sources of congestion and perhaps the most avoidable are bottlenecks, which account for more than 50 percent of all cases in Florida. Congestion due to inclement weather, incidents, and work zone areas account for 10 percent, 25 percent, and 15 percent, but unlike bottlenecks, these are not freight related (Figure 3.3). The sources and patterns of freight bottlenecks along major statewide transportation corridors and at hubs are further investigated below.

Bottleneck Criteria and Analysis

Bottlenecks, by definition, are physical chokepoints on a given roadway segment that restrict the flow of incoming traffic from connecting roadway segments. Development of bottlenecks can be characterized by certain demand factors, and physical and operational attributes.

The goals of the bottleneck congestion analysis are to:

- Develop criteria for determining statewide freight bottlenecks;
- Assess the correlation between freight bottlenecks and contributing factors or attributes; and
- Assess the correlation between the activity levels of Freight Oriented Industries (FOI) and truck traffic.

Figure 3.2. Congestion on the SIS Highway Corridors – 2005 & 2025

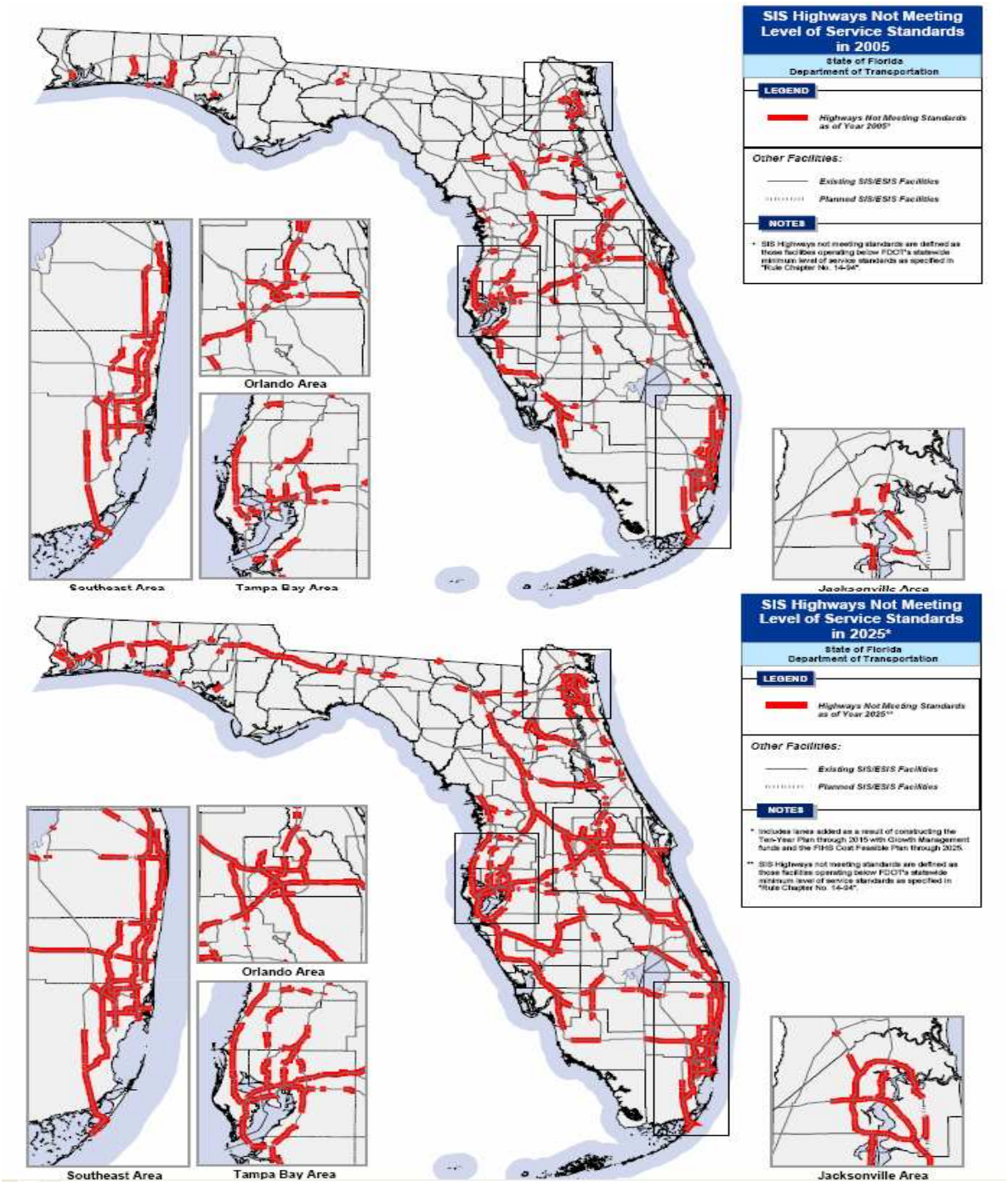
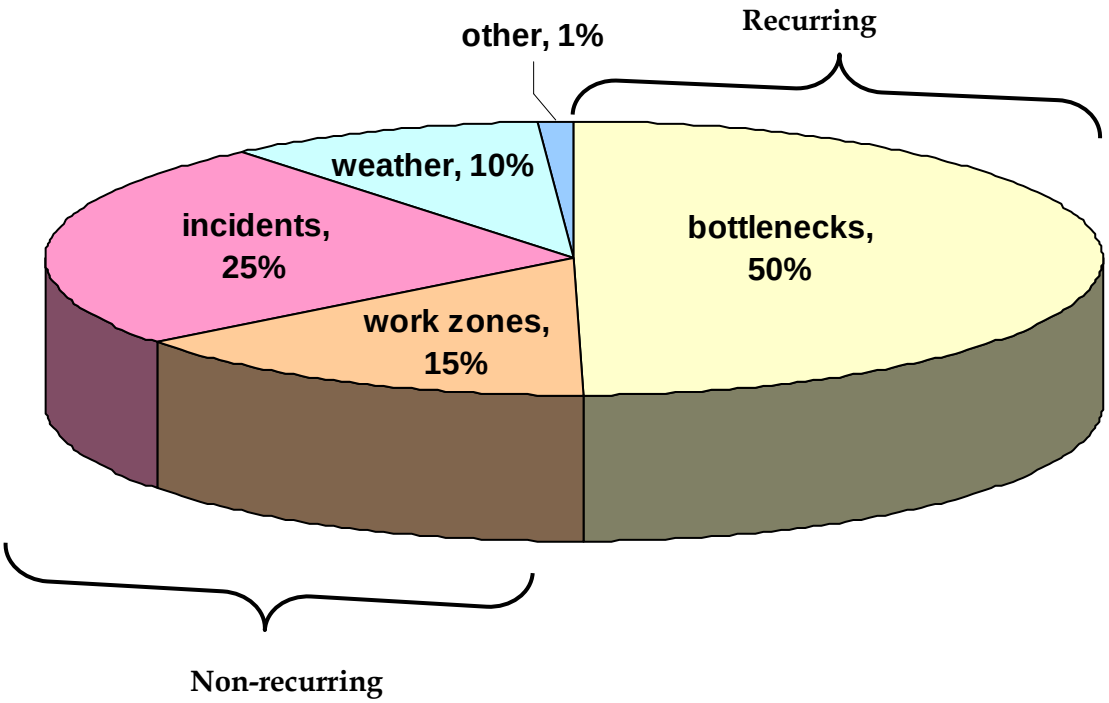


Figure 3.3. Sources of Congestion in Florida



Factors Influencing Bottlenecks

There are more than twenty factors[3] that influence the demand for freight, three of which have a direct impact on the development of bottlenecks:

- **Growth of Economy** – Increased demand for goods and services, both globally and locally, translate into greater dependency on freight transportation.
- **Industrial Location Patterns** – The location of major industries influences travel mode choices as well as the location of transportation facilities.
- **Congestion** – Both recurring and non–recurring congestion translate into significant delay for truck operators and freight movers leading to increased operating costs.

Attributes

Physical and operational attributes of highways can also play a key role in producing or avoiding bottlenecks. Physical attributes for highways include:

- Through Lane Width
- Corner Radii[4]

[3] Federal Highway Administration, Quick Response Manual, September 1996.

- Turn Lane

Operational attributes for highways include:

- Total Traffic (Average Annual Daily Truck)
- Percent Heavy Trucks
- Level of Service (LOS)

Methodology

Numerous studies conducted in the United States and in Florida in particular were researched on the topic of congestion, bottlenecks, and delay. The bottleneck analysis focused essentially on the Strategic Intermodal System (SIS). Study areas were centered around major SIS hubs and covered a five-mile radius which captured a significant number of connecting roadways (Interstate highways, Florida Turnpike, selected urban expressways, and major arterial highways), large concentrations of residents and jobs, and industrial facilities.

Demand factors and both physical and operational attributes were used to assess congestion levels or bottleneck conditions at various sites. The Gross State Product (GSP), Vehicle Inventory and Use Survey (VIUS), Facility Oriented Industries (FOI) location, and Level of Service (LOS) standards were used to measure the demand factors that influence freight. The GSP was used to analyze economic trends at the state and regional level. VIUS was used to correlate the GSP to transportation parameters. ESRI digital vector data were used to identify and analyze the location of FOIs. FOIs included various freight-dependent industries including agriculture; forestry, fishing, and hunting; mining; utilities; construction; manufacturing; wholesale; retail; transportation and warehousing; and accommodation and food services. LOS was used to measure congestion.

The FDOT Roadway Characteristic Inventory (RCI), FDOT Telemeter Traffic Monitoring Site (TTMS) database, FDOT Generalized Annual Average Daily Volumes Tables, and American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design were used to identify physical and operational attributes on major transportation facilities in Florida. The Roadway Characteristics Inventory (RCI) system is a database of physical and administrative data collected and maintained by the FDOT Transportation Statistics (TRANSTAT) office. The data are separated into features that list the type of roadway data and its defining characteristics. RCI was instrumental in identifying the following attributes:

- Turn lanes
- Through lanes

[4] Also known as the "turning curb radius", is the turning path of the front outer tire of a vehicle. Trucks require a greater radius, and sometime greater pavement width to prevent encroachment into adjacent lanes or the inside curb.

- Road type
- Corner radii

Annual Average Daily Traffic (AADT) and truck counts were obtained from the TTMS database. LOS was calculated for all identified roadways using AADT counts collected from the TTMS database and the FDOT Generalized Annual average Daily Volumes Tables.

A pass or fail grading system was first used to assess the impact of each attribute on the study areas. A numeric-based grading system was then developed to more accurately compare the overall performance of the various study areas. Passing conditions received a grade varying between 4 and 15 and failing conditions were assigned a value ranging between 0 and 3. Next, assigned values were grouped in packets and assigned a letter grade as follows (See Table 3.1):

- A= best condition - no bottlenecks exists;
- B= good condition - bottlenecks are not likely, but possible to exist at peak times;
- C= average condition – a minimum number of bottlenecks exists at peak times;
- D= poor condition – bottlenecks exist throughout peak times; and
- F= poorest condition – bottlenecks exist throughout peak and at times other than peak.

Table 3.1 Bottleneck Grading System

Aggregated Value	Grade
13 – 15	A
10 – 12	B
7 – 9	C
4 – 6	D
0 – 3	F

Source: Reynolds, Smith and Hill, Inc.

While both the physical and operational attributes affect the development of bottlenecks, they are not weighted equally when grading site performance. Physical attributes are linked primarily to congestion since these may be greatly influenced by delay. Operational attributes are linked to all demand factors. Changes in the economy, openings or closures of factories, congestion, the share of heavy trucks, and LOS all influence traffic volumes. As such, operational attributes had a significantly higher impact on bottlenecks. Physical attributes (through-lane width, corner radii, turn lane) were given and weight equal to 1 while operation attributes (total traffic, percent heavy truck, level of service) were given a weight equal to 4.

For example, assuming all attributes influence a study area, the overall bottleneck impact is as follows:

Through-lane (1) + corner radii (1) + turn lane (1) + total traffic (4) + percent truck (4) + LOS (4) = Overall Impact (15)

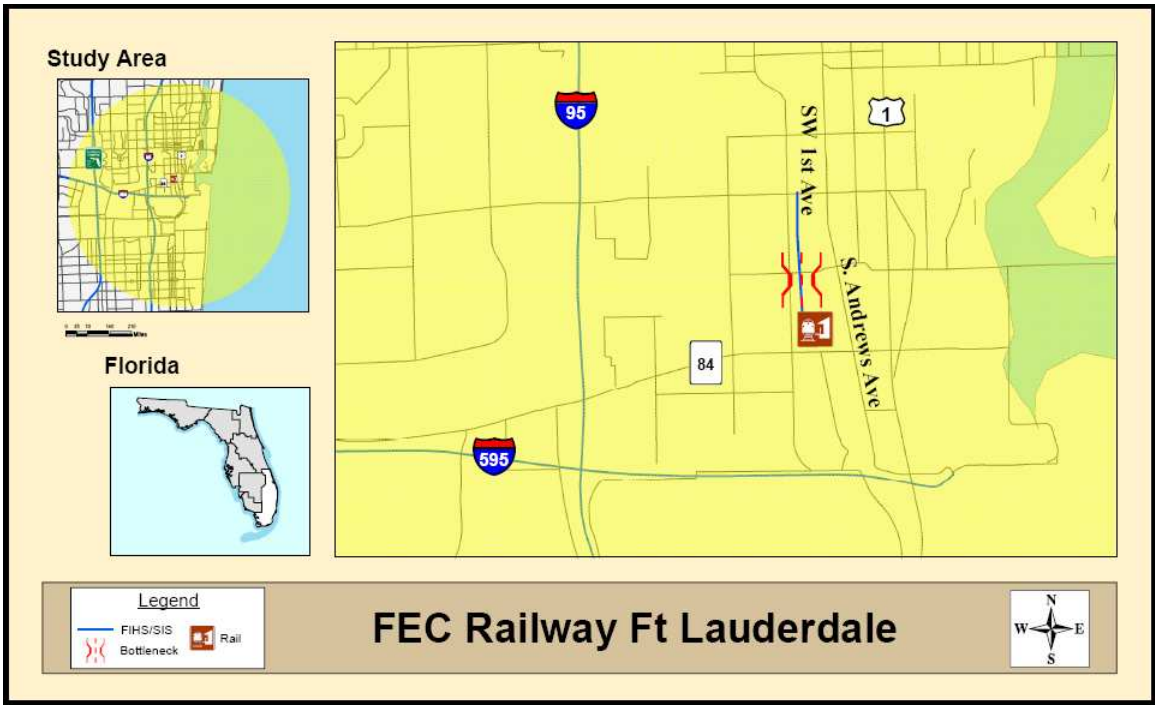
Attributes Numeric Value		Aggregated Value	Assigned Letter Grade
1+1+1+4+4+4	=	15	Grade A, best condition

Thirty-three potential bottleneck sites were identified in the analysis. The 10 sites with the worse bottleneck conditions in Florida were further analyzed and presented in this section. The top 10 bottlenecks include:

- FEC Railway Ft. Lauderdale
- Miami International Airport
- FEC Railway Miami-Hialeah
- Port of Miami
- Ft. Lauderdale-Hollywood International Airport
- Tampa International Airport
- Port Everglades
- Palm Beach International Airport
- CSXI Tampa
- Port of Palm Beach

Top Ten Bottleneck Sites

FEC Railway Fort Lauderdale



FEC Railway Fort Lauderdale is located north of Fort Lauderdale International Airport in the heart of Broward County. Primary accesses to the facility include South Andrews Avenue, Eller Drive, SR 84, US 1 and I-595. The route network surrounding the railway hub includes I-595, SR84, US 1, and Andrews Avenue.

While the FEC Railway Fort Lauderdale site includes an advanced roadway network with multiple lanes, ramps, and turn lanes, the insufficient physical characteristics of the most critical route (South Andrews Avenue) creates a negative impact for the entire network. In addition, the region's high dependence on trucks and large cluster of FOIs are anticipated to worsen LOS conditions around this railway hub. The FEC Railway Fort Lauderdale network was given the lowest failing grade of all 10 bottleneck sites (F, 1) as suggested in Table 3.2. There are more than 6,396 FOIs within a five-mile radius of this facility. The site generated more than 98.8 million truck vehicle miles traveled in 2000 and was expected to exceed 148.5 truck miles traveled in 2005.

Table 3.2 FEC Railway Ft Lauderdale Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 98,846,113 to 148,457,441
Industrial Location Patterns	There are 6396 FOIs within a 5 mile radius
Congestion	Network Fails Florida's LOS Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 2-8 lanes with minimum width of 10 ft. – most of the roadways contain multi-lanes	Pass	1
Corner Radii	The facility access roads are local streets with four 10 ft. lanes and a 90-degree intersection. This intersection requires a minimum of 23 ft. lane width to prevent encroachment.	Fail	0
Turn Lane	Network contains no turn lanes at the most critical area of the facility	Fail	0
Total Traffic	Total traffic increases 2000-2005 from 19,600 up to 111,500 AADT	Fail	0
Percent Heavy Truck	Truck traffic equals more than eight percent of total traffic	Fail	0
Level of Service	"F" poorest	Fail	0
Grade		**F**	**1**

Miami International Airport

Miami International Airport (MIA) is located five miles west of the Port of Miami and comprises a network of local Expressways (Palmetto Expressway to the West, Dolphin Expressway to the South, and Airport Expressway to the East) and state and Interstate roads (I-395, I-195, I-95, U.S. 41, U.S. 27) that connect with Florida's major corridors. The facility can be accessed through Lejeune Rd, NW 21st St, NW 25th St, Okeechobee Rd, and the Airport Expressway/I-195. Handling more than almost 15 million passengers (enplanements) and 1.9 million tons of freight in 2005, MIA is ranked first for international flights and 4th for total cargo (freight and mail) among US airports, and 11th for total freight among worldwide airports. Viewed as a vital contributor to South Florida's economy, the airport has contributed more that $19.1 billion for the tourism, cruise, international banking, and trade and commerce industries and helped produce more than 242,387 jobs for the region in 2005.

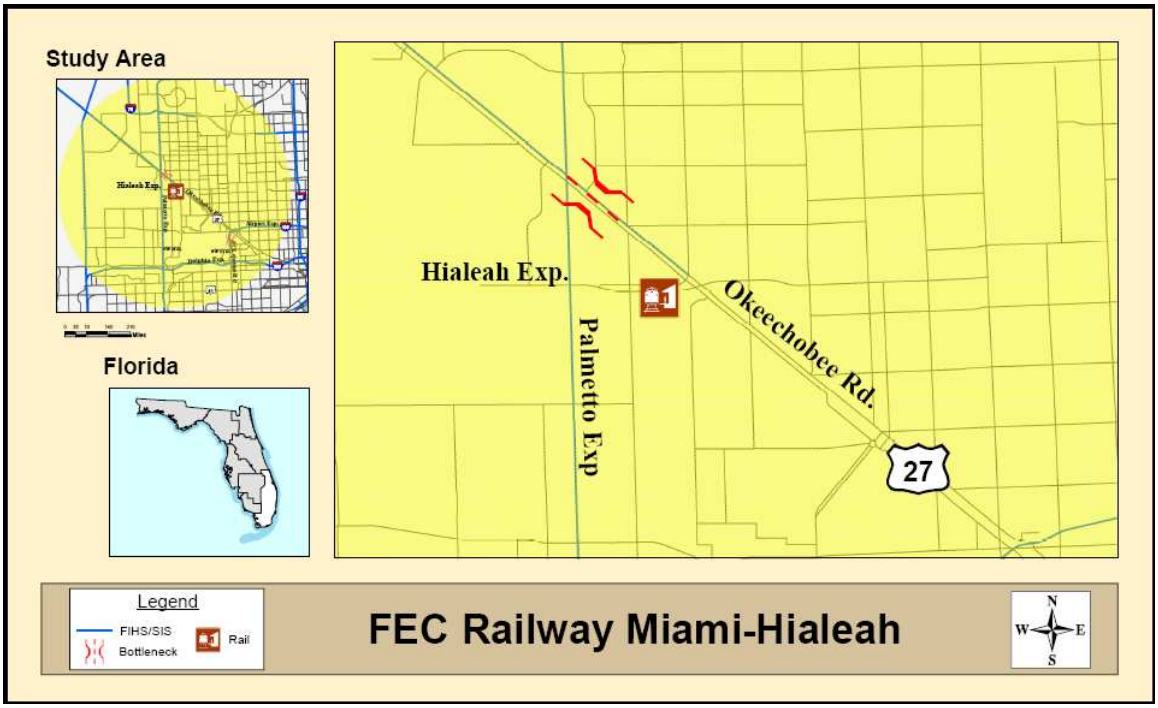
The advanced roadway network features including multiple lanes, ramps, and turn lanes have helped to reduce the occurrence of bottlenecks in the MIA region, however, continued economic growth, the high cluster of FOIs, and the significant dependence on trucks to move goods have contributed to the site's high level of congestion especially along the Airport Expressway and Okeechobee Road. The MIA site received a failing grade (F, 3) and was ranked second worst bottleneck site in Florida (Table 3.3). The region is home to 17,114 FOIs and has generated more that 479.7 million truck vehicle miles traveled in 2005, up from 327 million in 2000.

Table 3.3 Miami International Airport Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 326,999,306 to 479,733,760
Industrial Location Patterns	There are 17,114 FOIs within a 5 mile radius
Congestion	Network Fails Florida's LOS Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-8 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple lanes and ramp lanes.	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Total traffic increases 2000-2005 from 80,000 up to 190,000 AADT	Fail	0
Percent Heavy Truck	Truck traffic equals more than seven percent of total traffic	Fail	0
Level of Service	"F" poorest	Fail	0
Grade		**F**	**3**

FEC Railway Miami-Hialeah



Located approximately four miles north of Miami International Airport, the FEC Miami facility serves a large portion of South Florida' freight industry. The site is accessible through Okeechobee Rd, Hialeah Expressway, and Palmetto Expressway. FEC Miami handles more than 100,000 carloads per year. FEC Railroad is also a significant contributor to the South Florida construction industry providing most of its rock, sand, and building materials.

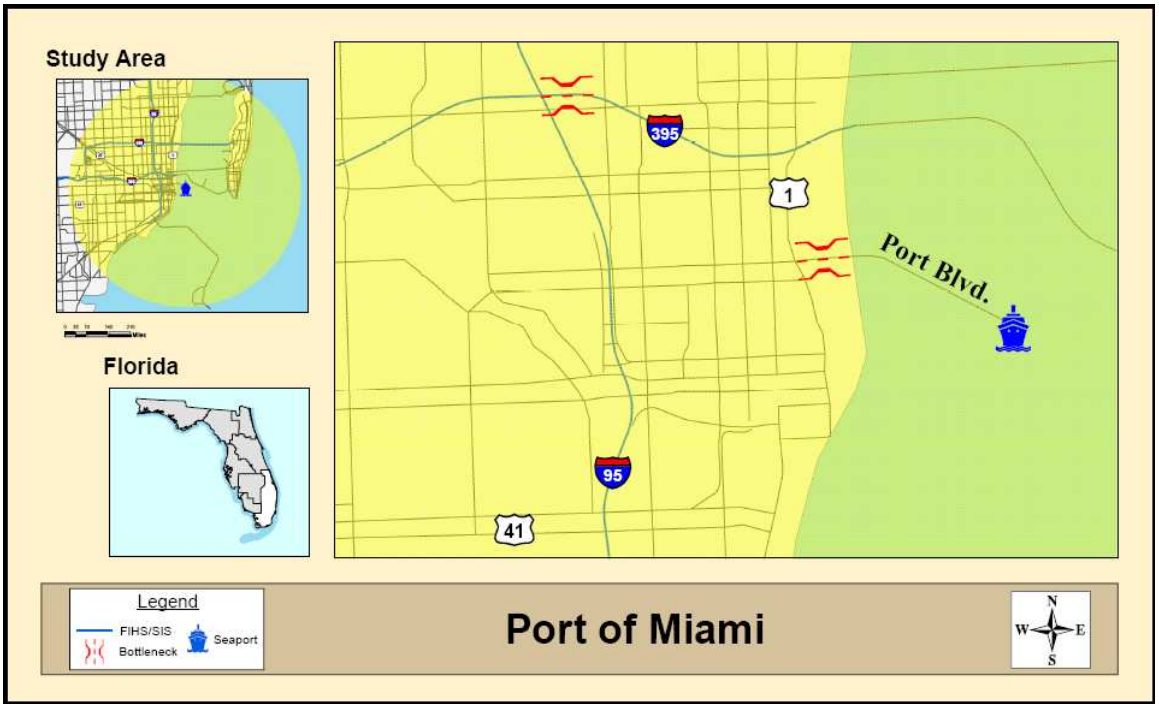
The FEC Railway Miami-Hialeah network is currently experiencing high demands due to economic growth and a large cluster of high congestion. This has resulted in recurring bottlenecks more especially along Okeechobee Rd and Palmetto Expressway. The FEC Railway Miami-Hialeah site received a failing grade (F, 3) and was ranked third worse bottleneck site in the state (Table 3.4). The site serves 15,357 FOIs located within five miles from the rail hub and will generate more than 479.7 million truck vehicle miles traveled in 2005, up from 322.2 million truck vehicle miles traveled in 2000.

Table 3.4 FEC Railway Miami-Hialeah Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 322,198,741 to 470,577,797
Industrial Location Patterns	There are 15,357 FOIs within a 5 mile radius
Congestion	Network Fails Florida's LOS Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-8 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple lanes and ramp lanes.	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Total traffic increases 2000-2005 from 45,000 up to 185,000	Fail	0
Percent Heavy Truck	Truck traffic equals more than seven percent of total traffic	Fail	0
Level of Service	"F" poorest	Fail	0
Grade		**F**	**3**

Port of Miami



The Port of Miami is located in the harbor surrounded by an urban buildup of hotels and attractions, business centers, corporations, and residential developments. Primary access to the port is via Port Boulevard. The Port handles more than 9 million tons of freight (it is Florida's largest container port) and more than 3.6 million cruise passengers (referred to by many as the cruise capital of the world) in 2005. In conjunction with Miami International Airport, it is viewed as a vital contributor to South Florida's economy.

Due to the large presence of FOIs in the Port of Miami area and the continued economic growth in the Miami area, the Port of Miami site is anticipated to continue to experience recurring bottlenecks along I-395/Dolphin Expressway, U.S. 1/Biscayne Road, and Port Boulevard. In addition, trucks must use local roads (1st/2nd Avenues and 5th/6th Streets) to access the port. The Port of Miami received a failing grade (F, 3) and was ranked fourth worse bottleneck site in Florida with more than 7,898 FOIs within five miles, and more than 106.4 million truck vehicle miles traveled in 2000. Total truck vehicle miles traveled are expected to reach 158.3 million in 2005 (Table 3.5).

Table 3.5 Port of Miami Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 106,356,339 to 158,293,465
Industrial Location Patterns	There are 7898 FOIs within a 5 mile radius
Congestion	Network Fails Florida's LOS Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-8 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple lanes and ramp lanes.	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Total traffic increases 2000-2005 from 95500 up to 134,500 AADT	Fail	0
Percent Heavy Truck	Truck traffic equals more than thirteen percent of total traffic	Fail	0
Level of Service	"F" poorest	Fail	0
Grade		**F**	**3**

Fort Lauderdale-Hollywood International Airport

Fort Lauderdale-Hollywood International Airport is located in the Southeast region of Florida two miles west of the beach in the heart of Broward County adjacent to Port Everglades. The facility is surrounded by a network of US highways and Interstates that are a part of Florida's major corridor system, and local streets that connect the airport to the major corridors. The airport can be accessed via Perimeter Rd., US 1, and I-595. The airport handled more than 175,533 tons of cargo (freight and mail), and served more than 10 million passengers (enplanements) in 2005.

The Fort Lauderdale-Hollywood International Airport network failed the bottleneck criteria test (F, 3) and is ranked fifth worse bottleneck site in Florida with more than 6,891 FOIs within a 5 miles range and more than 105.9 million truck vehicle miles traveled in 2000. By 2005, the region could generate more than 159.5 million truck vehicle miles traveled (Table 3.6). The network includes good physical attributes to help reduce delay, however the significant reliance on the highway network to move people and goods and the booming regional economy has contributed to the deterioration of traffic conditions and recurring bottlenecks especially along Perimeter Rd, I-595, and US 1.

Table 3.6 Ft. Lauderdale-Hollywood International Airport Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 106,356,339 to 158,293,465
Industrial Location Patterns	There are 7898 FOIs within a 5 mile radius
Congestion	Network Fails Florida's LOS Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-8 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple ramp lanes	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Total traffic increases 2000-2005 from 95500 up to 134,500 AADT	Fail	0
Percent Heavy Truck	Truck traffic equals more than thirteen percent of total traffic	Fail	0
Level of Service	"F" poorest	Fail	0
Grade		**F**	**3**

Tampa International Airport

Located in Central West Florida, Tampa International Airport sits in the heart of the Tampa Bay area less than a mile from harbor side and five miles west of downtown Tampa. In 2005, the airport served more than 9 million passengers and 98 thousand tons of freight. The airport is a major contributor to the economy of West Florida. The airport is connected to Florida's major corridors through SR 60/Memorial Hwy and Spruce St.

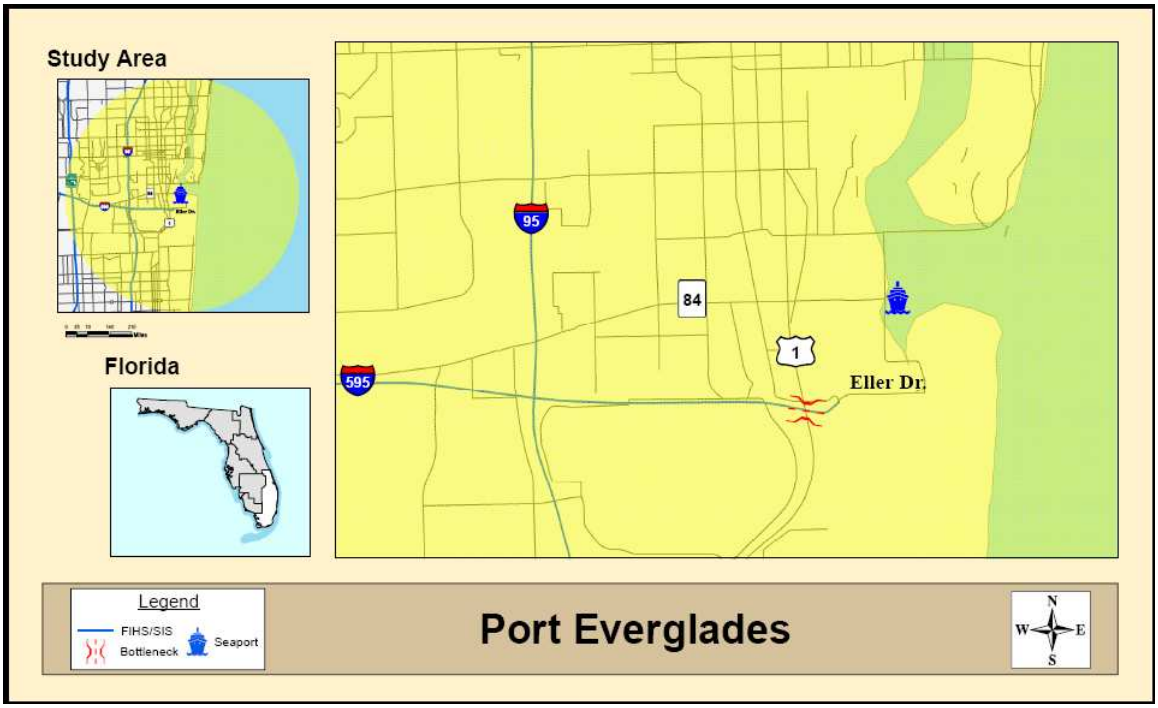
The Tampa International Airport network failed the bottleneck criteria test (F, 3) and was ranked the sixth worth bottleneck site in Florida with 4,811 FOIs within a five-mile radius, a total of 102.7 million truck vehicle miles traveled for 2005, up from 67.3 million in 2000 (Table 3.7). The network could support good freight mobility patterns, but it is heavily constrained by economic impacts, congestion, and negative physical and operational attributes. Bottlenecks and delays are expected to recur along SR 60/Memorial Hwy and Spruce St.

Table 3.7 Tampa International Airport Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 67,374,055 to 102,629,586
Industrial Location Patterns	There are 4,811 FOIs within a 5 mile radius
Congestion	Network LOS fails Florida's Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-8 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple ramp lanes	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Network total traffic 2000-2005 increases from 34,500 up to 140,000	Fail	0
Percent Heavy Truck	Truck traffic equals more than nine percent of total traffic	Fail	0
Level of Service	"F" poorest	Fail	0
Grade		**F**	**3**

Port Everglades



Known to be one of the world's finest cruise ports and Foreign-Trade Zones, Port Everglades is located near the Atlantic Ocean shipping lanes, the Florida East Coast Railway, and Fort Lauderdale International Airport. The port is also a vital contributor to the South Florida economy handling more than 24 million tons of cargo and 3.8 million cruise passengers in 2005. Principle accesses to the port include I-595/Eller Dr. and SR 84.

The Port Everglades network has received a grade C and currently experiences some delay at peak hours resulting from bottlenecks primarily due to high truck traffic along Eller Drive in the vicinity of the I-595 and US 1 interchanges. The network was ranked the seventh worse bottleneck site in Florida. More than 5,232 FOIs are located in the port's network with more than 121.9 million truck vehicle miles traveled generated in 2005 (Table 3.8).

Table 3.8 Port Everglades Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 81,510,942 to 121,952,972
Industrial Location Patterns	There are 5,232 FOIs within a 5 mile radius
Congestion	Network LOS is borderline to Florida's Standards 2005 and is decreasing;

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-8 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple ramp lanes	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Network total traffic 2000-2005 increases from 64,000 up to 111,500	Fail	0
Percent Heavy Truck	Truck traffic equals more than eight percent of total traffic	Fail	0
Level of Service	"D" poor, but meet FL standards	Pass	4
Grade		**C**	**7**

Palm Beach International Airport

Located in Southeast Florida four miles west of the beach, Palm Beach International Airport provides services to the southeastern to central eastern counties north of Broward and Miami-Dade. Handling more than 3.3 million passengers (enplanements) and 19 thousand tons of cargo in 2005, this airport is becoming a vital contributor to Southeast Florida's economy. The airport is strategically located near the Florida Turnpike and I-95. Principle access routes to Palm Beach International Airport include Australian Avenue, I-95, Belvedere Rd., Military Trail, and US 98.

The network offers good physical attributes including multiple lanes, ramps, and turn lanes throughout the network. It also provides alternative access routes with a direct connection from I-95 up to the entrance, and a facility road that surrounds the airport. The network does not experience major bottlenecks except at peak time and along sections of Military Trail, Belvedere Rd, and Australian Avenue. The site received a grade C and was ranked eighth worse bottleneck site in Florida. There are more than 5,110 FOIs located within a five-mile radius of the airport. In addition, the region generated more than 75.5 million truck vehicle miles traveled in 2005 (Table 3.9).

Table 3.9 Palm Beach International Airport Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 75,557,945 to 116,379,126
Industrial Location Patterns	There are 5,110 FOIs within a 5 mile radius
Congestion	Most roadways in the network LOS passes Florida's Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-8 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple ramp lanes	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Network total traffic 2000-2005 increases from 35,600 up to 151,000	Fail	0
Percent Heavy Truck	Truck traffic equals more than eleven percent of total traffic	Fail	0
Level of Service	6 out of 7 roadways passes FL LOS standards	Pass	4
Grade		**C**	**7**

CSXI Tampa

Located in the heart of the Tampa Bay area, CSXI Tampa sits fifteen miles east of downtown. Operating as Central West Florida's lead intermodal center, this facility handles more than 150,000 carloads a year and provides service to more than 700 industries throughout Florida. CSXI Tampa is also known for its rail-to-truck operations that promote integrated intermodal operations and offer one-stop door-to-door delivery. The terminal, along with Tampa International Airport, is a vital contributor to the Central West Florida economy. Principle access routes to CSXI Tampa include 62nd St. and Broadway Avenue.

The CSXI Tampa network earned a grade of "C". The network has good LOS with only one out five roadways failing Florida Standards, and the distribution of total traffic and truck traffic supports free flow throughout the network. However, the inefficient physical characteristics on the main facility access roads, the high volume of truck traffic, and the impact of growing economic demand are and will continue to create a negative effect on the network. Bottlenecks will occur along Broadway Avenue and 62nd St. The network is ranked ninth worse bottleneck network in Florida with a total of 3,748 FOIs within a five-mile radius and more than 92.3 million truck vehicle miles traveled in 2005, up from 61.5 million truck vehicle miles traveled in 2000 (Table 3.10).

Table 3.10 CSXI Tampa Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 61,501,268 to 92,256,018
Industrial Location Patterns	There are 3,748 FOIs within a 5 mile radius
Congestion	Most roadways in the network LOS passes Florida's Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 2-10 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple ramp lanes	Fail	0
Turn Lane	Network contains turn lanes	Fail	0
Total Traffic	Network total traffic 2000-2005 increases from 34,500 up to 140,000	Pass	4
Percent Heavy Truck	Truck traffic equals more than fourteen percent of total traffic	Fail	0
Level of Service	4 out of 5 roadways passes FL LOS standards	Pass	4
Grade		**C**	**9**

Port of Palm Beach

Located 80 miles north of Miami and 135 miles south of Port Canaveral, the Port of Palm Beach is the fourth ranking intermodal operations port in Florida. The port is also a major hub for bulk and break-bulk cargoes. The port handled almost 4 million tons of cargo and over 550,000 cruise passengers in 2005. The port has partnered with the Florida East Coast Railway to provide on-port rail operations and is the only port facility in South Florida with a pier-side intermodal car operation. Access to the Port of Palm Beach is via SR 710/8th St., Dixie Highway, US 1, and 11th St.

The Port of Palm Beach network does not experience major bottlenecks and congestion problems thanks to good physical attributes including multiple lanes, ramps, and turn lanes. However, due to high and growing economic demands and truck volumes in the area bottlenecks are expected to occur in specific locations within the network and along SR 710 and US 1 primarily. The port was ranked the 10th worse bottleneck site in Florida with more than 4,126 FOIs located within a five-mile radius and a total of 92.2 million truck vehicle miles traveled for 2005, up from 60.3 million truck vehicle miles traveled in 2000 (Table 3.11).

Table 3.11 Port of Palm Beach Site Bottleneck Criteria Profile

Demand Factor	Impact
Economic Growth	TVMT increases in 2000-2005 from 60,363,251 to 92,158,493
Industrial Location Patterns	There are 4,126 FOIs within a 5 mile radius
Congestion	Most roadways in the network LOS passes Florida's Standards

Freight Bottleneck Attribute	Impact	Condition	Score
Through-Lane Width	Network contains 4-10 lanes with minimum width of 10 ft.	Pass	1
Corner Radii	Network contains multiple ramp lanes	Pass	1
Turn Lane	Network contains turn lanes	Pass	1
Total Traffic	Network total traffic 2000-2005 ranges from 12,700 to 40,000 on most roadways	Pass	4
Percent Heavy Truck	Truck traffic equals more than twelve percent of total traffic	Fail	0
Level of Service	2 out of 5 roadways passes FL LOS standards	Pass	4
Grade		**B**	**11**

4.0 Recommendations

Florida's transportation system must adapt to keep pace with the changing communities and economy. The transportation system must support increasing demand for mobility of both people and freight resulting from a growing population and economy. This section focuses on providing a key set of recommendations to help FDOT continue to effectively include freight and goods movement in the overall transportation program. Each recommendation includes several key action items to support implementation.

Facilitate the freight component of the e-SIS

Ongoing development of the SIS will be driven by an effective data collection and analysis program. The Department currently is working to develop the e-SIS, which will provide an automated electronic data driven process to ensure that all necessary data are collected to support SIS designation updates as well as ongoing system performance evaluations. The Seaport Office will be responsible for the seaport specific data. This will be implemented through the SeaCIP update underway. SeaCIP is a program historically used to receive and process applications for seaport projects funded through the FSTED program. The updated version will be used to collect data on all seaport project requests, regardless of funding source. E-SIS data requirements will be included in this enhanced data collection activity. The Seaport Office should also support the collection of other modal data, as appropriate, through coordination with Systems Planning, the Aviation Office, and the Rail Office.

Action Items

- **Coordinate with the Office of Policy Planning, Systems Planning Office, Aviation Office, and Rail Office to identify the freight data needs to support the SIS program needs.** SIS data are collected to support future SIS designation updates, systemwide performance measurements, project needs and costs, as well as ranking projects. Data collection is crucial to support identification of freight needs to feed the SIS program and to secure additional funding through Federal and State resources.

- **Collaborate with the Office of Information Systems (OIS) to ensure freight data are included in the e-SIS.** E-SIS is a data repository used by the Department during the annual SIS designation updates.

- **Develop a user-friendly process to upload SIS-related seaports data into the SeaCIP program.** As part of the Framework, data requirements have been identified to support project evaluations. This process should be reviewed and expanded as necessary to ensure e-SIS requirements are also captured.

Continue to maintain and update freight data clearinghouse

As part of the Freight Plan development, a comprehensive freight data clearinghouse was developed. This is a web-based product that provides a comprehensive listing of local, regional, state, and national freight data and resources. It is important that these resources be maintained and updated regularly to ensure that the Department and its partners have access to the full range of data. In addition, this clearinghouse can be enhanced to serve as a freight data repository for Florida's freight transportation system. This will include all data collected and maintained as part of the e-SIS as well as all regularly maintained and updated system plans.

Action Items

- **Develop a schedule to insure inclusion of new freight data in formal updates to plans.** Florida's transportation program is driven by several key documents that are updated regularly, including the Florida Transportation Plan (FTP), SIS, Transportation Regional Incentive Program (TRIP), Trends and Conditions (T&C) Reports, modal plans, and other documents. Together with the statewide freight plan, these documents include a freight component. Seaport Office Staff should work with appropriate FDOT offices, partners, and hub operators to ensure that freight data are revised regularly and incorporated into the Department's plans, as appropriate.

- **Develop a user-friendly process to upload data to the Freight Data Clearinghouse.** The Seaport Office should define an appropriate upload process to ensure data are incorporated into the clearinghouse. A monitoring function should also be defined to track progress.

- **Develop outreach program to educate FDOT Staff and statewide, regional, and local partners about the Freight Data Clearinghouse.** Seaport Office Staff should ensure that staff and partners are fully aware of the purpose of the data clearinghouse. Staff and partners should also be educated on the process to upload new data to the Freight Data Clearing House online.

Use freight bottleneck identification process to identify and prioritize freight system improvements

A process was developed as part of the Freight Plan development to identify freight system bottlenecks. This process should be reviewed and enhanced as appropriate and used annually to identify and prioritize freight transportation system improvements. This will require coordination across offices and districts, as well as with other stakeholders including MPOs and freight system operators.

Action Items

- **Review the bottleneck identification process within the Department and revise as appropriate.** The process developed and used as part of the Freight Plan preparation should be vetted throughout the Department to build consensus for its use. Once this has been accomplished, it can be integrated and used as part of established processes to help better integrate freight into the needs identification process.

- **Incorporate the freight bottleneck identification process into modal system plans to guide the freight needs identification and project ranking processes.** The most prevalent and avoidable sources of congestion are bottlenecks accounting for 50 percent of all cases in Florida. Mainstream the bottleneck identification process across all modes to help guide freight investments in the State.

- **Review and update freight priorities and needs regularly.** Ensure that factors influencing bottlenecks including physical and operational attributes, economic growth, and industrial location patterns are updated annually where possible to accurately reflect freight congestion levels.

- **Investigate opportunities to expand the process to all modes.** The initial process was developed to look specifically at highway bottlenecks that impact major freight hubs. Consideration should be given to expanding this process to support non-highway bottlenecks.

Develop freight forecasts

2003 TRANSEARCH commodity flow data were purchased and analyzed as part of the development of the Freight Plan. Future year forecasts were not included with the data. Forecasts are available at a more aggregate level through the Federal Highway Administration's Freight Analysis Framework. In fact, the Department currently is working to disaggregate this data. In addition, 1998 TRANSEARCH data were used to develop the statewide truck freight model. Forecasts of truck trips were then developed using the state's sociodemographic forecasts. Each modal system plan also addresses forecasts at some level. As the usefulness of the available data becomes better understood, the Department should consider additional forecasting options, as necessary, to support medium- and long-term freight transportation system planning activities.

Action Items

- **Review the utility of available data sources.** The FAF database, the Statewide Freight Model, and available modal forecasts all should be reviewed to identify the best opportunity for developing a comprehensive set of freight forecasts. Adopted Florida economic and demographic forecasts should also be considered. In addition, the Department may want to consider purchasing forecasts from an outside vendor, although it is recommended that a reliable and cost effective ability to update the forecasts at a fixed time interval be a key factor in the evaluation.

- **Develop preferred forecasting technique.** Based upon the review and outreach to appropriate FDOT offices, select a preferred approach and develop the process. This will require the definition of data needs as well identification of the staff responsible for providing the data.

- **Implement the technique to develop freight forecasts.** Mode specific forecasts should be developed using the defined methodology.

Develop seaport system plan

As part of the Freight Plan development, a variety of seaport specific initiatives were completed, including an evaluation of global trends, a seaport conditions report, and an investment framework designed to support project specific evaluation activities. However, aside from the Seaport Mission Plan developed annually by the Florida Ports Council, there is not a comprehensive seaport system plan, similar to the rail and aviation system plans. The Seaport Office should develop and maintain such a system plan for seaports. This plan currently is scheduled to be completed in 2009.

Action Items

- **Develop a draft Seaport System Plan outline.** The Seaport System Plan will be driven by a specific set of goals, objectives, and strategies. The specific goals and objectives should be developed in response to consultation with the identified stakeholders and their identified freight needs. The draft outline will be reviewed by FDOT District staff, members of the executive board, the Florida Ports Council, and partners for input.

- **Designate one point of contact on the Seaport Office staff to work with Districts and partners to build support for and gather input on the development of a Seaport System Plan.** Developing and updating a Seaport System Plan requires ownership and leadership. In order to ensure that the members are receiving consistent support and commitment, one person should be designated to take ownership of this activity. This person will become the institutional knowledge bank of freight needs and initiatives.

- **Develop the seaport system plan.** A scope of work to develop the seaport system plan has been developed an initiated by the Department. It is scheduled for completion in late 2009.

Conduct regional outreach meetings

A process for reaching out to District staff and their partners on a regular basis should be defined as part of the overall Freight Plan. This will provide an ongoing process to update partners about freight program enhancements, including updates to the Freight Data Clearinghouse. It also will provide an opportunity for partners to provide input the state's freight program. It will be critical that this is seen as a regular (quarterly, annual)

outreach program; and equally important, it must ensure that each meeting provide an action oriented agenda that maximizes the time of participants.

Action Items

- **Identify an initial list of statewide freight stakeholders/partners.** The Department should identify a list of partners that covers Districts, MPOs, regional committees/groups, and private sector representatives. This list should be seen as a work in progress, designed to identify a mailing list for ongoing outreach activities. At a minimum, it should include a core group consisting of freight contacts from each modal office, each district, and each MPO.

- **Develop and implement regional freight meetings.** Develop an approach to the meetings. This should include format, frequency, and an invitee contact database. Agendas for the initial meeting/set of meetings should be prepared. This should include an overview of Florida's freight transportation program (work completed to date) and a set of action items for discussion. Action items could include validation of the freight system summary, identification of needs, and an open forum to discuss continued development of Florida's freight transportation investment strategy.

- **Integrate freight into major transportation program initiatives.** Updates to the FTP, SIS, and other key programs should be identified and an effort made to piggyback or enhance freight considerations into the activities. A freight discussion item should be presented to partners, community representatives, and the general public during public involvement activities.

- **Consider development of a formalized freight transportation advisory committee (FTAC).** Florida has effectively made use of a private sector freight advisory committee in the past to guide major transportation program initiatives. After several regional meetings the Department should discuss and consider the development of a statewide FTAC that would be used annually to validate freight system investment decisions.

Coordinate with and monitor modal system plans

It is not the intention of the Freight Plan to replace or duplicate the work completed by the other modal offices. Each office is responsible for modal plan updates – these fed the development of the Freight Plan, which aspires to serve as a repository of Florida's freight system. As such, ongoing coordination with these internal partners is critical. The Freight Plan must be seen and accepted by others as a value-added product.

Action Items

- **Coordinate with and support modal plan development and updates.** Work with modal offices to provide support as appropriate to their updates. This may include outreach support to stakeholders as well as providing freight forecasts.

- **Incorporate modal plan data into the established Freight Plan .** Ensure that the freight program/freight plan incorporates changes and/or updates to modal system plans.

Monitor and participate in major transportation initiatives and regional visioning exercises, as appropriate

Florida continues to grow and expand. This results in major projects and initiatives that have the potential to impact freight mobility. For example, many regions are beginning to consider visioning exercises to help "figure out what they want to be when they grow up". Land use, development patterns, growth management, and transportation are major factors in these efforts. The Department should identify and participate in these initiatives, as appropriate, to promote freight access and mobility needs. Other examples include major transportation projects, like the development of a 1250 acre integrated logistics center in Lakeland, or the consideration of passenger rail service along the FEC Corridor in South Florida.

Action Items

- **Identify key initiatives that could impact freight mobility.** Work with state and regional partners to identify and monitor key developments.

- **Work with district staff to promote local involvement.** Discuss initiatives and possible scenarios for state and/or regional participation and implement an agreed upon approach.

- **Ensure that statewide freight plan goals and objectives are consistent with the regional vision and action plan.** Review project parameters and provide input promoting established state freight goals and objectives.

- **Work with partners and citizens to ensure the proposed regional visions and action plans are consistent with freight mobility needs.** Encourage transportation decisions that are made in the context of an integrated transportation, economic development, and land use vision that reflects freight transportation needs.

Coordinate with sister agencies to promote freight transportation

The state of Florida has several agencies that impact the transportation system. FDOT should work with DEP, OTTED, and DCA to promote a coordinated approach to freight transportation planning and programming that maximizes mobility, promotes economic prosperity, unites community plans and visions, and minimizes the impacts on Florida's environment.

Action Items

- **Identify key staff from each agency.** While support from leadership is critical, it also is important to identify and work with agency staff responsible for developing and implementing strategies.

- **Develop and ongoing dialog to support a coordinated approach.** Establish an agreed upon process for communication and coordination designed to share information and support each other's initiatives.