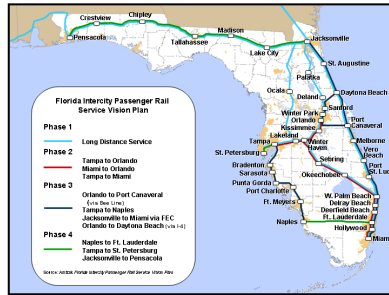


*final report*

# 2004 Passenger Rail Component of the Florida Rail Plan



*prepared for*

**Florida Department of Transportation**

*prepared by*

Cambridge Systematics, Inc.  
4445 Willard Avenue, Suite 300  
Chevy Chase, Maryland 20815

June 2005



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# Executive Summary

## ■ Purpose

Florida's population has increased six-fold over the past 50 years, jumping from 2.8 million in 1950 to 17 million in 2003. Since 1950, the very nature of Florida has changed as a result of this growth and the corresponding increases in population density. In 1950, Florida was largely rural and had a population density (51 people per square mile) similar to that of other agricultural and rural states including Iowa, Missouri, New Hampshire, and Vermont. By 2000, however, Florida's growing population density (296 people per square mile) had made it much more akin to the populous states in the Northeast. By 2030, Florida is likely to surpass Delaware and New York in population density and will be the sixth most densely populated state in the country.

This accelerated growth rate, twice the national average, is straining Florida's congested highways and airports. Despite careful planning and strategic investments in infrastructure, it is difficult to keep pace with the growing demand for both passenger and goods movement. The State's increasing population density also creates higher land acquisition and engineering costs for new transportation capacity.

This growth also provides opportunities to develop non-highway systems that effectively serve higher densities, including intercity and commuter rail. Florida's rail system is currently undergoing significant changes, and decisions made by Floridians today will impact how people and goods move in the future. Key changes include:

- CSX Transportation (CSXT) is developing a strategic plan for the new economy that will restructure its rail operations and have broad implications for rail services throughout Florida;
- The Florida East Coast Railway (FEC) plans to double track most of its network, providing increased capacity for both freight and passenger trains along the entire Florida eastern seaboard;
- Florida voters overturned the high-speed rail legislation, but there is still a strong demand and desire for intercity passenger rail services that could help mitigate congestion on the roads and at the airports;
- Florida's Strategic Intermodal System (SIS) program provides a stable, long-term source of funds, allowing the Florida Department of Transportation (FDOT) to make strategic investments that will enhance the rail network;

- The Federal government is debating legislation that will reauthorize the Federal surface transportation programs, and provide additional funding for passenger rail projects; and
- The Federal government continues to debate the future of Amtrak and intercity passenger rail service in the United States.

The purpose of this *2004 Passenger Rail Component of the Florida Rail Plan* is to provide the necessary information through which strategic actions can be taken to achieve the best transportation system for Florida's future.

## ■ Need for Passenger Rail Services

### Population Growth

Florida is currently the fourth largest state in the country. By 2015, Florida is expected to have about 18.5 million people and, by 2025, Florida is forecast to have 20.7 million people and could surpass New York to become the third most populous state (trailing only California and Texas). Most of this growth will be in migration; only 15 percent of Florida's population growth during the 1990s is due to natural increase (births minus deaths). Florida is expected to add population at a rate more than double the national average for the foreseeable future (Figure ES.1). Population growth is forecast for all regions of the State, with the Southwest (Naples, Fort Myers), Southeast (Miami), and Central (Orlando) regions exhibiting the greatest gains.

### Roadway Congestion

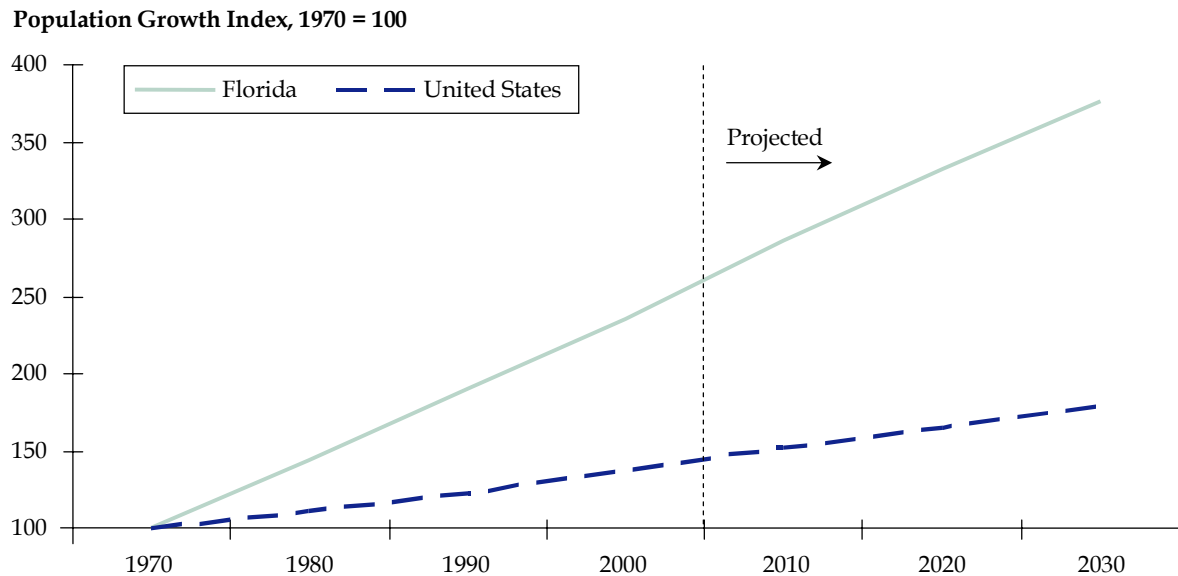
Roadway congestion accompanies population growth. Consequently, traffic congestion in Florida, especially in the State's booming urban areas, continues to worsen. The Texas Transportation Institute rates three of Florida's major metropolitan areas (Miami, Tampa-St. Petersburg, and Orlando) among the worst 30 U.S. cities for traffic congestion, measured as annual delay per traveler. Traffic congestion in Florida's urban areas costs drivers and businesses an estimated \$4.5 billion in lost productivity and excess fuel costs. Miami (which ranks sixth in the nation for delay) increased from 11 hours of delay per traveler in 1982 to 52 hours in 2002. Similarly, delay per traveler grew from 12 hours (1982) to 51 hours (2002) in Orlando and from 18 hours (1982) to 41 hours (2002) in the Tampa-St. Petersburg area. Annual traffic delay in Sarasota-Bradenton, Pensacola, and Cape Coral also exhibited growth.<sup>1</sup>

---

<sup>1</sup> Texas Transportation Institute's *2004 Urban Mobility Study*, National Congestion Tables.



**Figure ES.1** Projected Population Growth  
Florida versus United States



Source: U.S. Census Bureau and Florida Office of Economic and Demographic Research.

## Airport Congestion

Florida airports provide international, domestic, and intrastate service to residents, businesses, and visitors to the Sunshine State. FDOT estimates that more than half of Florida's visitors arrive by air and that, collectively, the State's airports serve 110 million passengers annually. However, Florida's commercial airports are becoming more congested. The number of residents and visitors using the State's airports continues to outpace any increase in terminal or runway capacity. The Miami International Airport, for example, has more takeoffs and landings per runway than any airport in the United States.<sup>2</sup> The Federal Aviation Administration (FAA) recently identified Fort Lauderdale and Palm Beach International Airports as two of 15 congested airports in the U.S. in need of additional capacity before 2013. The FAA, in the same report, identified South Florida as one of seven metropolitan areas in need of additional commercial airport capacity by 2013.<sup>3</sup>

<sup>2</sup> [www.airport-technology.com](http://www.airport-technology.com).

<sup>3</sup> U.S. Department of Transportation, Federal Aviation Administration, Mitre Corporation. June 2004. *Capacity Needs in the National Airspace System: An Analysis of Airport and Metropolitan Area Demand and Operational Capacity in the Future*.

The principal challenge in Florida air travel, however, is finding airport capacity to accommodate additional intrastate flights. Contributing to this problem is the fact that intrastate flights use a higher percentage of smaller, regional jets, which generate less revenue for the airports. As congestion increases, airports prefer to give the valuable takeoff and landing slots to larger airplanes.

## **Passenger Rail – Underutilized Alternative**

Florida’s population density is now similar to states like New Jersey, New York, Connecticut, and Massachusetts. These states also have congested roadways and airports, but they have invested in intercity and commuter passenger rail systems to help mitigate this congestion. Even less dense states like Maine and traditional single-occupancy automobile states like California are realizing the benefits of passenger rail service.

Trips of 75 to 300 miles are the most effective markets for intercity rail service. For trips of fewer than 75 miles, rail has difficulties competing with automobiles. For trips of greater than 300 miles, air has an advantage due to the faster travel speeds. Rail has also become much more time competitive as the time required for airport access, security, and transfers increases. Several regions of the country have efforts underway to serve markets of this distance with new intercity passenger rail service, freeing up slots for longer haul flights at hub airports. Early success stories include new rail service between Boston and Portland, Maine, (the Downeaster) compensating for a 26 percent reduction in airline seat capacity between 2000 and 2001. Another example where passenger rail is beginning to replace air and highway trips is the Capital Corridor service from San Jose to Sacramento, which has seen service grow to nine daily round trips, resulting in more than one million passengers.<sup>4</sup>

Both geographically (distance between major cities) and demographically (population density), Florida seems to be perfectly suited for passenger rail service.

## **■ Description of Existing Passenger Rail Services**

### **Amtrak**

The National Railroad Passenger Corporation (Amtrak) operates 43 intercity routes through 46 states. Its network covers 22,000 miles of track, most of which is owned by for-profit freight railroads. Amtrak owns approximately 730 route miles, representing three percent of its national network.

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<sup>4</sup> From Surface Transportation Policy Project’s *The State of the Nations’ Intercity Rail: How Federal Investment will Improve Travel Choice and Relieve Traffic Congestion*.

Amtrak has provided intercity and long-distance services to Florida for more than 35 years. It currently operates four distinct services, the *Auto Train*, *Silver Meteor*, *Silver Star*, and *Sunset Limited* over lines owned by CSXT and FDOT (South Florida Rail Corridor). Table ES.1 summarizes Amtrak's current passenger rail services in Florida.

**Table ES.1 Summary of Florida Amtrak Passenger Rail Service**

Route	Frequency	Origin/Destination	Type of Service
<i>Auto Train</i>	Daily, each direction	Washington, D.C. (Lorton, Virginia) to Sanford, Florida	Conventional and personal auto transport
<i>Silver Meteor</i>	Daily, each direction	New York City to Miami	Conventional
<i>Silver Star</i>	Daily, each direction	New York City to Miami (via Tampa)	Conventional
<i>Sunset Limited</i>	Three times per week	Los Angeles to Orlando (via Jacksonville)	Conventional

With 913,000 passengers in 2004, Florida is one of three states outside the Northeast Corridor with relatively high Amtrak ridership. Although Amtrak carries nearly one million annual passengers in Florida, most of this travel is interstate trips. As can be seen in Table ES.1, all four services originate or terminate outside of Florida. Currently there are no intercity passenger trains specifically designed for Florida intrastate travel.

### Commuter Services

Tri-Rail, Florida's only commuter rail system, is operated by the South Florida Regional Transportation Authority (SFRTA) and covers a 72-mile-long corridor (142.2 directional route miles) between West Palm Beach and Miami. It transported 2.7 million passengers in 2003, and daily ridership has peaked at more than 11,000 on several occasions.<sup>5</sup>

Tri-Rail operates 30 daily round trips on weekdays, seven on Saturday, and six on Sunday and major holidays. All trips cover the entire 72-mile Tri-Rail route between the Mangonia Park (West Palm Beach) and Miami Airport Stations. Tri-Rail operates over track owned by FDOT and dispatched by CSXT. Figure ES.2 shows the locations of commuter rail stations along the Tri-Rail line.

<sup>5</sup> <http://www.sfrta.fl.gov/press.html#press1>.

Figure ES.2 Tri-Rail Commuter Rail System Map



Source: Tri-Rail (South Florida Regional Transportation Authority).

In early 2004, FDOT received a grant from the Federal Railroad Administration (FRA) to procure a diesel multiple unit (DMU) trainset and demonstrate its viability in passenger revenue service on Tri-Rail. The DMU is an example of railcar technology that is easily deployable in markets where other types of rolling stock (e.g., conventional locomotive-coach trains) would be too costly or impractical to operate. On receiving the grant, FDOT contracted with SFRTA through a joint participation agreement and authorized the acquisition of three commuter railcars from Colorado Railcar Manufacturing. These include: one double-deck DMU, one single-level DMU, and one double-deck low-floor coach.

**Figure ES.3 Diesel Multiple Unit Pulling Two Bi-Level Commuter Coaches in Tri-Rail Test**



Source: Colorado Railcar Internet site at: <http://www.coloradorailcar.com/>.

## Other Rail-Based Transit Systems

In addition to Tri-Rail, which is a commuter railroad, there are several rail-based passenger transportation systems operating in the State of Florida. These include:

- **Metrorail**, operated by the Miami-Dade Transit Agency, is an electrically powered, elevated, rapid-transit heavy rail system extending from Kendall in South Miami-Dade to Medley in West Miami-Dade. Metrorail has 22 stations connecting a major portion of Miami-Dade County's businesses, cultural, and shopping centers. This system, opened in May 1984, had total ridership of 14.3 million in Fiscal Year 2003.<sup>6</sup>
- **TECO Line Streetcar System** (light rail), operated by the Hillsborough Area Regional Transit Authority (Tampa/Ybor City), offers 10 station stops along 4.6 directional route miles.
- **Metromover**, located in Miami, is the largest automated guideway in the United States. It is operated by the Miami-Dade Transit Agency, has more than 8.5 directional route miles, and serves 21 stations.
- **Sky Train** is a people mover system located in Jacksonville. Sky Train is operated by the Jacksonville Transportation Authority, has more than 5.4 directional route miles, and serves eight stations.

## ■ Status of Proposed Passenger Rail Systems

### Florida Intercity Passenger Rail Service

Florida intercity passenger rail service is synonymous with Florida interstate passenger rail service. While it is possible to ride Amtrak between selected city pairs within Florida, the service is part of longer movements designed to transport people between Florida and other states. In May 2000, Amtrak submitted to FDOT a document entitled "Florida Intercity Passenger Rail Service Vision Plan." Amtrak, under contract with FDOT, supplemented this with an August 2002 "Florida Intercity Passenger Rail Plan: Phase 2 Implementation Plan." This vision contains an assessment of potential intercity passenger rail corridors and a phased approach for developing a comprehensive passenger rail network to reliably move people within Florida's borders. The key to this strategy is development of a series of 75- to 300-mile service corridors.<sup>7</sup>

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<sup>6</sup> Miami-Dade County Metrorail Internet site at: <http://www.co.miami-dade.fl.us/transit/metrorail.asp>.

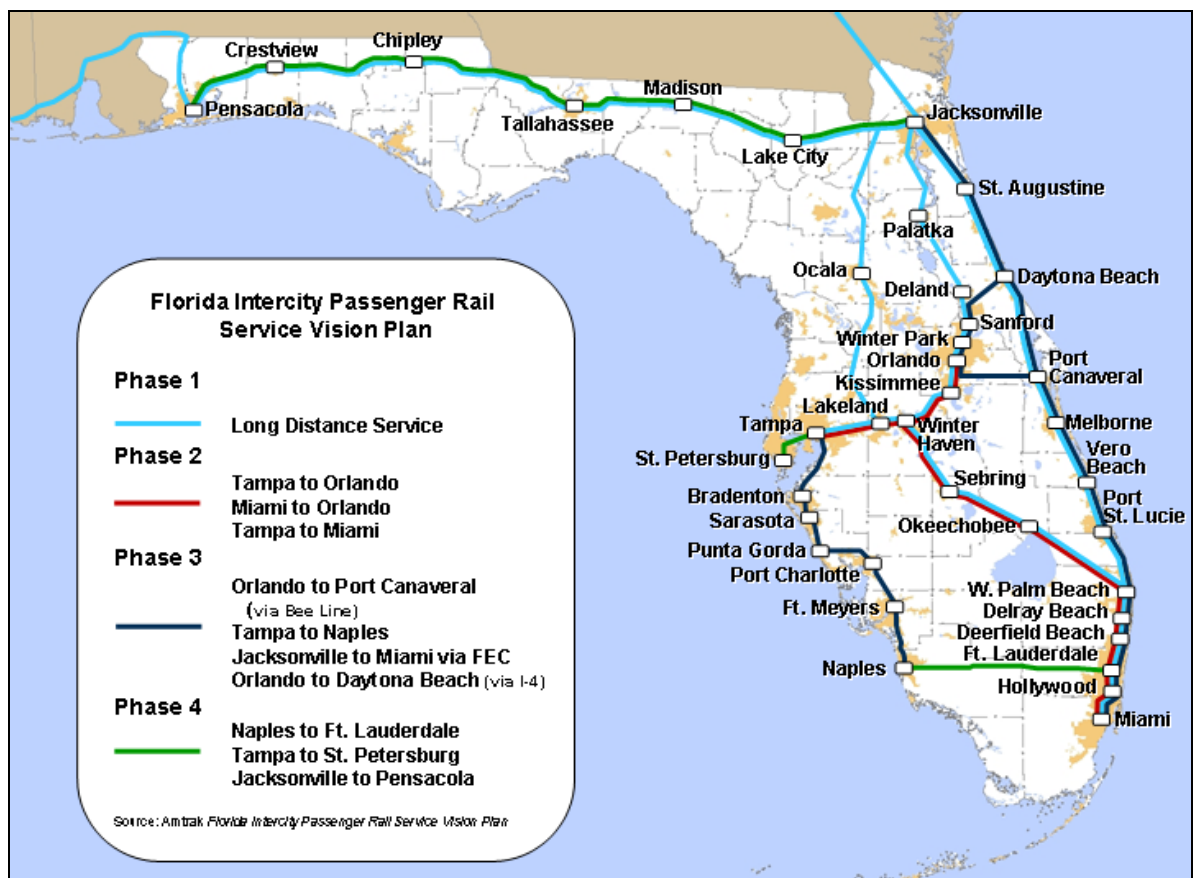
<sup>7</sup> National Railroad Passenger Corporation, "Florida Intercity Passenger Rail Service Vision Plan," submitted to the Florida Department of Transportation, May 1, 2000, p. 23.

Development of successful intercity passenger rail services is a function of many different factors, including:

- High density of person trips between the cities and along the corridor;
- Competitive distance range (Amtrak specified this as 75 to 300 miles);
- Existing rail infrastructure or rights-of-way (reduces initial capital costs, making project more financially feasible); and
- Good collection/distribution services at the origin and destination rail stations (this can include subways, buses, taxicabs, monorails, and commuter/light rail).

Amtrak's market analyses focused on these criteria. The results indicate that the Miami-Orlando and Tampa-Orlando corridors have the greatest potential for initial implementation of Florida intercity passenger rail service. The "Florida Intercity Passenger Rail Service Vision Plan" has four proposed phases (see Figure ES.4). Phases 1 and 2 would be implemented within the first five years of the program, and Phases 3 and 4 during the subsequent 15 years.

**Figure ES.4 Florida Intercity Passenger Rail Service Vision Plan**



## Commuter Rail Services

Plans throughout Florida for expanded and new commuter rail operations include:

**South Florida Regional Transportation Authority (Tri-Rail)** – SFRTA has several expansion plans, both in progress and being considered, for Tri-Rail. These include: double tracking and development of a new signal system to expand capacity; 15.7-mile extension of service along the Jupiter Corridor; 13.8-mile extension of service along the Scripps Transit Corridor; establishing service on the Florida East Coast between West Palm Beach and Miami; and a 17.4-mile extension connecting the Kendal area with the Miami Intermodal Center.

**Orlando North/South Corridor Commuter Rail** – A 61-mile, 15-station commuter rail system linking DeLand, Orlando, and Kissimmee is also being studied. These trains would operate in the 65- to 79-mph range utilizing existing CSXT right of way. The service is proposed to be offered at 30-minute peak rush hour headways. At an August 2004 joint METROPLAN ORLANDO and LYNX meeting, both boards agreed to move forward with the North/South Commuter Rail Corridor Project. The Volusia County MPO also voted to move forward with this project. The FDOT is currently conducting an environmental assessment to determine the impact of commuter rail operations on Central Florida's ecosystem. This study should be complete in the fall of 2005. The initial operating segment from DeBarry to Orlando is scheduled to open in 2009.

**Orlando Light Rail Transit** – FDOT, METROPLAN ORLANDO (the Orlando metropolitan planning organization or MPO), and LYNX (the Central Florida Regional Transportation Authority) have been studying a potential 22-mile light rail transit (LRT) system running between Altamonte Springs and Sea World, via downtown Orlando. A Supplemental Draft Environmental Impact Statement (EIS) has been prepared. According to the METROPLAN 2025 Long-Range Transportation Plan,<sup>8</sup> this LRT would require 29 light rail vehicles (LRVs), an annual operating and maintenance budget of \$21.9 million, and initial capital costs of \$1,290 million (in 2002 dollars). The SeaWorld-LYNX Central Station is projected to have the highest projected ridership at 25,000 boardings per day.

**Tampa** – In 1995, the Hillsborough County MPO adopted the 2015 Long-Range Transportation Plan, which included a regional rail system. The Hillsborough Area Regional Transit Authority (HART) board selected a 20-mile light rail line that will connect Downtown Tampa to the University of South Florida, Hyde Park, West Tampa, and the Westshore Business District. An estimated 30,000 riders will use the rail service daily. The annual capital cost of the overall system is approximately \$985 million, while the annual operating cost is \$22 million. If funding is secured, construction is scheduled to start in 2008, with the first 10-mile segment open by 2011.

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<sup>8</sup> Adopted by METROPLAN ORLANDO in September 2004.



## High-Speed Rail

Intercity passenger rail service, as discussed thus far, allows maximum operating speeds of 79 mph. High-speed rail operates in the 120- to 200-mph range, or more. The primary advantage of high-speed rail is that it expands the 75- to 300-mile competitive range of intercity service, especially providing stronger alternatives to air travel at longer distances. The primary disadvantage of high-speed rail is the cost associated with new alignments, track upgrades, rolling stock, and highway-rail grade crossing separations. The Orlando-Tampa corridor, for example, is already heavily congested with freight trains and would require a new alignment for high-speed passenger rail. Safety reasons also prompt a higher degree of separation between high-speed passenger and freight trains, either through dedicated track or temporally.

Florida has been evaluating high-speed rail since at least the mid-1970s, when the Florida Transit Corridor Study analyzed 150-mph trains operating between Daytona Beach and St. Petersburg.<sup>9</sup> In November 2000, Florida voters approved an amendment to the state constitution mandating the development of high-speed passenger transportation service linking Florida's five largest urban areas. This service would have speeds in excess of 120 mph and would operate on dedicated rails or guideways. This prompted the Florida Legislature to enact the Florida High-Speed Rail Authority Act, which created the nine-member Florida High-Speed Rail Authority.

The Florida High-Speed Rail Authority created a vision for a high-speed rail network linking the major population centers in Florida. The Authority issued a request for proposal in October 2002 to design, build, operate, maintain, and finance an initial high-speed rail service between Tampa and Orlando. The cost estimate was \$2.4 billion.

Growing concern over the costs of implementing a high-speed rail network led to efforts to repeal the amendment. In November 2004, Florida voters chose to overturn the original amendment, resulting in removal of the constitutional mandate. Currently, the Florida High-Speed Rail Authority is completing the work in progress (EIS and Record of Decision) for the initial Tampa-Orlando segment. Beyond that, the future of high-speed rail in Florida is unclear.

## Freight Rail Initiatives Potentially Impacting Passenger Service

CSXT, headquartered in Jacksonville, is a Class I railroad operating the most extensive rail network in Florida and provides the State with national rail connections. It is in the process of developing a strategic plan for its future. This is necessary to plan capital investments, evaluate existing markets and new opportunities, and identify other measures to maximize shareholder value and insure the long-term viability of the company. CSXT

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<sup>9</sup> Background information obtained from: <http://www.floridahighspeedrail.org/>. In particular, the document "History of High-Speed Rail in Florida: Chronology of Events" was used.

presented FDOT a strategic vision for its rail system in Florida, entitled “State of Florida & CSX: Building for the New Economy.”

Florida is clearly a growth market for transportation services, driven by the growing population. Florida also represents the “New Economy” with one in five Floridians working in retail. The State ranks fourth in high-tech employment. CSXT wants to position its company and the State to take advantage of this growth by:

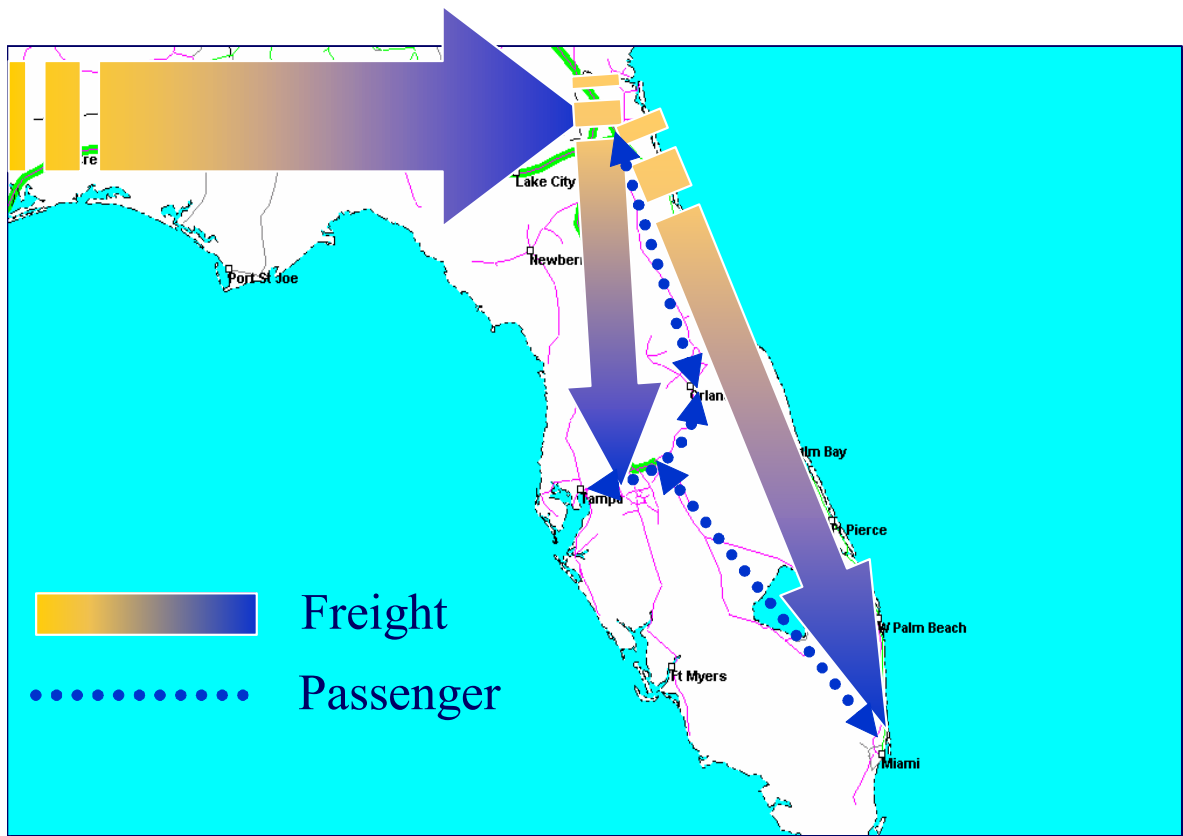
- Continuing to improve and decongest Jacksonville;
- Deepening the partnership with FEC to serve the Southeast;
- Leveraging the Central Florida franchise; and
- Creating opportunities for the balance of the network.

CSXT’s purpose is to make rail competitive in the “New Economy.” The method to achieving this is through the development of multiple multiproduct, multicommodity distribution centers in the State. CSXT also sees potential synergies with the State of Florida, both in leveraging benefits from the “New Economy” and in the citizen’s desire for intercity passenger rail service. With respect to intercity passenger rail service, CSXT envisions a separation of high-density freight lines and passenger service, as possibly depicted in Figure ES.5.

This figure demonstrates a desire by CSXT to: 1) focus investments into fewer, high-density freight lanes; 2) develop a partnership with FEC for service to Southeast Florida; and 3) separate freight and passenger service in Florida as much as possible. This map clearly shows a concentration of freight service on the “S Line” between Jacksonville and a possible distribution center in the Orlando/Tampa area. Freight volumes on the “A Line” would be reduced, possibly freeing the line for Jacksonville-Orlando-Tampa passenger service, though severe rail congestion in the Orlando-Tampa corridor would need to be addressed. The map also shows concentrating Southeast Florida freight on the FEC line, which fits with the FEC strategy of double tracking its network. This would free the CSXT Orlando-Miami route for passenger service, but it would also make Jacksonville-Miami intercity passenger rail service more difficult over FEC due to potential conflicts with and capacity constraints from increased freight trains.

FEC, headquartered in St. Augustine, is a regional railroad operating between Jacksonville and Miami. FEC maintains the second largest railroad network in the State after CSXT and provides the only north-south mainline along the Atlantic Coast between West Palm Beach and Jacksonville. In March 2004, FEC produced a report entitled “Strategic Intermodal System Project Needs.” This report detailed 20 projects on its network, largely aimed at capacity expansion. These improvements will increase capacity and transit times, both enhancing the viability of operating intercity and commuter passenger rail operations over FEC.

**Figure ES.5 Combining State and CSX Transportation Freight/Passenger Strategies Might be Synergistic**



Source: “State of Florida & CSX: Building for the New Economy,” presentation to the Florida Department of Transportation by CSX Transportation on December 3, 2004.

## ■ Other Issues

### Federal Funding Opportunities

The most prevalent source of funds for passenger rail and bus transit projects is through the many assistance programs of the Federal Transit Administration (FTA). These funds are generally provided through legislative formulas or discretionary authority and generally follow an 80 percent Federal and 20 percent local contribution, although FTA recently has been promoting a 50/50 split. For Fiscal Year 2005, Florida received \$259 million in FTA funding, the majority going to bus projects. Despite Florida being ranked fourth in

the nation in terms of population (5.67 percent of total United States), the State ranked 12<sup>th</sup> in terms of FTA funding allocation (2.38 percent).<sup>10</sup>

The FTA grants will continue to be an important funding source as Florida plans for future passenger rail systems. There are three basic mechanisms for investing in passenger rail:

1. **Grants from surface transportation programs.** Grants give states and the Federal government the best control over the use of funds. Funds can be targeted to specific projects that solve passenger and freight rail needs. The two primary sources of Federal grant funds for passenger rail transit are the New Starts and the Rail Modernization programs.<sup>11</sup> The New Starts program is a discretionary program, completely earmarked in the Federal annual appropriations process, and used for construction of new fixed-guideway systems or extensions to existing fixed-guideway systems. The Rail Modernization program apportions funds to transit properties with rail transit systems that have been in operation seven or more years. These funds are used to rehabilitate and upgrade existing rail systems to ensure that they remain in state of good repair. Other Federal grant programs potentially benefiting rail include: the long-standing Federal Highway Administration (FHWA) Section 130 Rail-Highway Grade Crossing Program, which provides dedicated funding to improve safety at rail grade crossings; Congestion Mitigation and Air Quality Improvement Program (CMAQ) for air quality non-attainment areas; the Corridors and Borders Programs; and the proposed Program for Projects of National and Regional Significance.
2. **Loan and credit enhancement programs** such as Transportation Infrastructure Finance and Innovation Act (TIFIA), Railroad Rehabilitation and Improvement Financing (RRIF), and State Infrastructure Banks (SIBs).
  - TIFIA provides loans, loan guarantees, and lines of credit for large projects. The program is modeled after a loan provided for the Alameda Corridor Transportation Project. To qualify for assistance under TIFIA, a project needs a source of revenue to cover debt service costs and the total project must be valued at more than \$100 million or 50 percent of the State’s annual Federal-aid highway apportionments, whichever is less.
  - RRIF is a loan and credit enhancement program for freight rail. The program has been slow to catch on because of features such as “lender of last resort” and requirement that project recipient assume the credit risk premium. Though this is a freight rail program, funding has been used for Amtrak and it should not be disregarded as a potential passenger rail source.

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<sup>10</sup>Federal Transit Administration, “Grant Program Apportionment Summaries by State,” Fiscal Year 2005, prepared by the Office of Program Management, January 10, 2005.

<sup>11</sup>More information available from the Federal Transit Administration Internet site at: [http://www.fta.dot.gov/grant\\_programs/overview/9913\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/overview/9913_ENG_HTML.htm).

- SIBs are designed to complement traditional Federal-aid highway and transit grants by providing states increased flexibility for financing infrastructure investments. Approximately 32 states have SIBs that provide loans for highway and in some cases transit improvements. Expanded SIB authority in reauthorization could provide states with a mechanism to provide revolving loans and possibly credit enhancement for rail improvements in the future. State-only SIBs are another possibility, such as Pennsylvania’s initiation of a new state SIB for rail.
- 3. Tax-expenditure financing programs**, including accelerated depreciation, tax-exempt bond financing, and tax-credit bond financing. Expansion of tax-exempt private activity bonds for surface transportation has been proposed in the Administration’s Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) reauthorization bill; these could potentially be beneficial for rail investment. Tax-credit bond financing is a new form of Federally subsidized debt financing, where the investor receives a Federal tax credit in lieu of interest payments on the bonds. From the borrower’s perspective, it provides a zero-interest-cost loan. These programs can be used to provide targeted, income-tax benefits for investments made to improve the efficiency or increase the capacity of the rail system. They have the potential to elevate the rail system’s rate of return and simultaneously reduce its cost of capital.

Florida will likely want to explore all of these tools, tailoring them to projects that produce public and systemwide benefits.

## Public-Private Opportunities

According to the FHWA, a “public-private partnerships” (PPP) refers to a contractual agreement between a public agency and private-sector entity that allows for greater private-sector participation in the delivery of transportation projects. Traditionally, private-sector participation has been limited to planning, design, or construction contracts on a fee-for-service basis. By expanding the private-sector role, the public sector can leverage additional technical, management, and financial resources.<sup>12</sup>

Public-private partnerships provide the most likely scenario for providing intercity passenger rail services in Florida and the rest of the nation. This might be through Amtrak (which essentially acts as a private-sector entity forced to return a profit) or through an agreement like the Florida Overland Express. The critical component to any public-private partnership is for both sides to enter the negotiations with a willingness to contribute toward a successful outcome. If the private sector attempts to place all the risk on the public sector, or if the public sector expects the private sector to provide all the funding, the partnership is unlikely to succeed.

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<sup>12</sup>For further information, see the Federal Highway Administration Internet site on Public-Private Partnerships at: <http://www.fhwa.dot.gov/ppp/index.htm>.

## ■ Summary

Florida's rail network is at a critical juncture:

- The Florida population continues to grow at twice the national average, generating high congestion and delays in the form of more passenger vehicle travel on the roadways and more commercial vehicles delivering goods.
- Airport congestion and delays will increase as the demand for interstate and intrastate air travel increases.
- The CSXT restructuring will create difficult decisions about the benefits and costs of abandonments, purchases by other rail operators, intercity passenger service, and recreational uses. Unique opportunities to acquire valuable rail corridors for passenger operations may become available.
- Increasing roadway and railroad traffic will create more delays and safety hazards at the 5,000 at-grade crossings in Florida.
- Neither the State, potential private transit operators, nor the freight railroads will have funding to address all of the needs.
- A long-term vision, such as that presented in Amtrak's "Florida Intercity Passenger Rail Service Vision Plan," needs to be adopted to begin addressing these issues.

# 1.0 Introduction

## ■ 1.1 Purpose

Florida, with 17 million residents in 2003, is the fourth most populous state in the nation. By 2025, Florida is forecast to have 20.7 million people and could surpass New York to become the third most populous state (trailing only California and Texas). To reach these levels, Florida is expected to add population at a rate more than double the national average. This has led to a change in the very nature of Florida's settlement patterns. In 1950, Florida was largely rural and had a population density of 51 people per square mile, similar to other agricultural and rural states. By 2000, however, Florida's growing population density (296 people per square mile) made it the eighth most dense state in the nation, trailing only the smaller more populous states in the Northeast. By 2030, Florida is likely to surpass Delaware and New York in population density, and will be the sixth most densely populated state in the country.

As the population grows, traffic congestion in Florida worsens, especially in the State's booming urban areas. The Texas Transportation Institute (TTI) rates three of Florida's major metropolitan areas (Miami, Tampa-St. Petersburg, and Orlando) among the worst 30 U.S. cities for traffic congestion, measured as annual delay per traveler. Traffic congestion in Florida's urban areas is estimated to cost drivers and businesses an estimated \$4.5 billion in lost productivity and excess fuel costs. The solution in the past, in Florida and the nation, has been to add new roadways and more lanes on existing roads. This becomes much more difficult as increasing population density increases property values and decreases available land. Right-of-way and construction costs for transportation capacity expansion rapidly escalate, especially in urban areas where congestion is most severe.

The northeastern states, with similar population densities to Florida, have recognized the importance of strong intercity and commuter rail services to help alleviate the need for additional roadway construction. Floridians also have recognized this need, and responded with proposals for new and expanded intercity rail, high-speed rail, and commuter rail services. This *Passenger Rail Component of the Florida Rail Plan* presents the need, current status, and future plans for passenger rail in Florida.

## ■ 1.2 Authority<sup>1</sup>

This *Passenger Rail Component* will be combined with the *Freight Rail Component* to form the biannual *Florida Rail System Plan*. This plan becomes the rail component of the *Florida Transportation Plan*, which in turn becomes the transportation component of the *State Comprehensive Plan*.

The *Florida Rail System Plan* is mandated by Section 341.302 of the Florida Statutes and requires that “the Florida Department of Transportation, in conjunction with other governmental units and the private sector, shall develop and implement a rail program of statewide application designed to ensure the proper maintenance, safety, revitalization, and expansion of the rail system to assure its continued and increased availability to respond to statewide mobility needs.”

Section 341.302(3) of the Florida Statutes further requires that the Florida Department of Transportation (FDOT) “Develop and periodically update the rail system plan, on the basis of an analysis of statewide transportation needs. The rail system plan shall include an identification of priorities, programs, and funding levels required to meet statewide needs. The rail system plan shall be developed in a manner that will assure the maximum use of existing facilities and the optimum integration and coordination of the various modes of transportation, public and private, in the most cost-effective manner possible. The rail system plan shall be updated at least every two years and include plans for both passenger rail service and freight rail service.”

Sections 341.302(4) through (16) of the Florida Statutes require FDOT to formulate work programs and provide technical assistance to local governments to address identified needs; secure and administer Federal grants when needed to further the statewide program; develop and administer state standards concerning the safety and performance of rail systems; conduct inspections of such rail-related matters to assure adherence to standards; and to assess penalties for failure to adhere to the state standards.

Finally, Section 341.302(17) mandates that FDOT “Exercise such other functions, powers, and duties in connection with the rail system plan as are necessary to develop a safe, efficient, and effective statewide transportation system.”

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<sup>1</sup> From “2002 Florida Rail System Plan,” Florida Department of Transportation, page 1-1.



## ■ 1.3 Contents

This *Passenger Rail Component* is divided into four additional chapters:

### **Chapter 2.0 – Need for Passenger Rail Services**

This chapter makes the case for new and expanded passenger rail service in Florida by looking at population growth, roadway congestion, and airport congestion.

### **Chapter 3.0 – Description of Existing Passenger Rail Services**

Descriptions and maps of existing passenger rail service operating in Florida are provided in this chapter. This principally involves Amtrak service and commuter service in Miami. This chapter also contains a discussion of the new Tri-Rail diesel multiple units (DMUs).

### **Chapter 4.0 – Status of Proposed Passenger Rail Systems**

This chapter describes the current status of new and expanded passenger rail service plans in Florida. It includes the “Florida Intercity Passenger Rail Service Vision Plan”; commuter services in Miami, Orlando, and Tampa; and the current status of high-speed rail efforts. This chapter concludes with a discussion of freight rail plans that potentially impact passenger rail service.

### **Chapter 5.0 – Other Issues and Summary**

This chapter provides a summary of issues affecting passenger rail in Florida, including a discussion of potential Federal funding sources and public-private opportunities.

## 2.0 Need for Passenger Rail Services

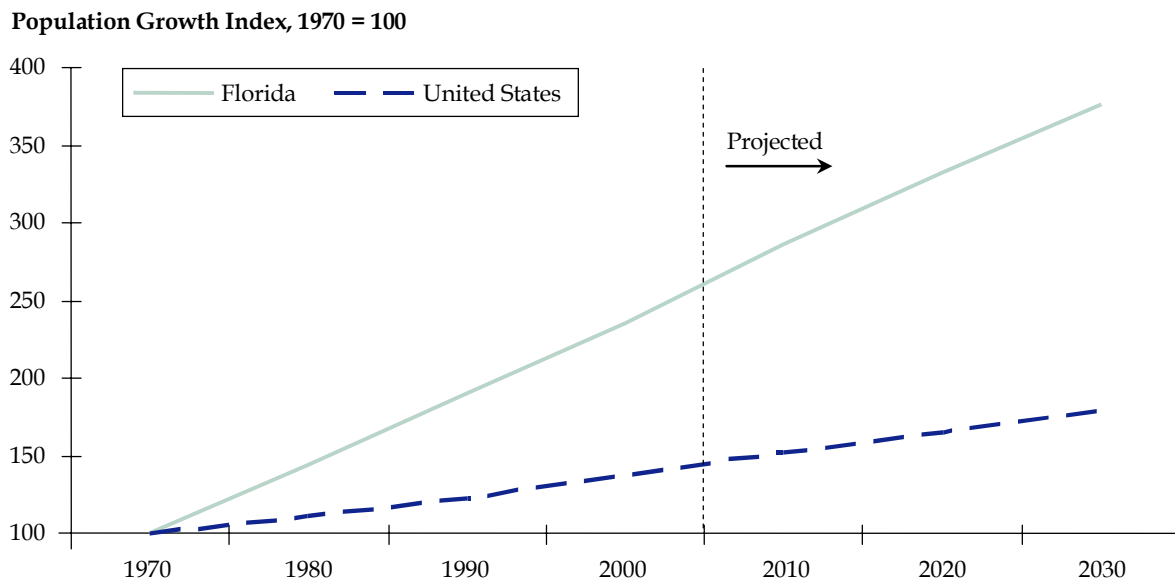
### ■ 2.1 Population Growth

Florida attracts more than 300,000 new residents each year, lured by the Sunshine State's climate, lack of state income tax, and burgeoning economy. The stream of new residents has grown steadily since the early 1900s when transportation improvements, including Henry Flagler's Florida East Coast Railway (FEC), heralded a new era of prosperity and development. The Interstate Highway System and improved air service made Florida more accessible, and air conditioning made it more hospitable, promoting an even larger surge of newcomers following World War II. Since then, Florida's population has grown exponentially, fueled by a vibrant and diverse economy, exceptional natural and cultural amenities, and some of the most favorable winter weather in the United States. It is estimated that more than 900 people move to Florida each day, more than all other states except California and Texas. Since 1950, Florida's population has increased six-fold, jumping from 2.8 million to 17 million in 2003.

The influx of new residents is so massive that the State, despite careful planning and strategic investments in infrastructure, simply cannot keep up with transportation demand. This is especially true in its urban areas. Other Sunbelt and Rocky Mountain States are facing similar dilemmas: since the 1980s, the demand for transportation has outpaced the supply. In Florida and other high-growth states, highways cannot be constructed fast enough and airports operate at or above capacity.

The future will bring additional challenges. Florida currently is the fourth largest state in the country. By 2015, Florida is expected to have about 18.5 million people, and by 2025 Florida is forecast to have 20.7 million people and could surpass New York to become the third most populous state (trailing only California and Texas). Most of this growth will be in migration; only 15 percent of Florida's population growth during the 1990s is due to natural increase (births minus deaths). Florida is expected to add population at a rate more than double the national average for the foreseeable future (Figure 2.1).

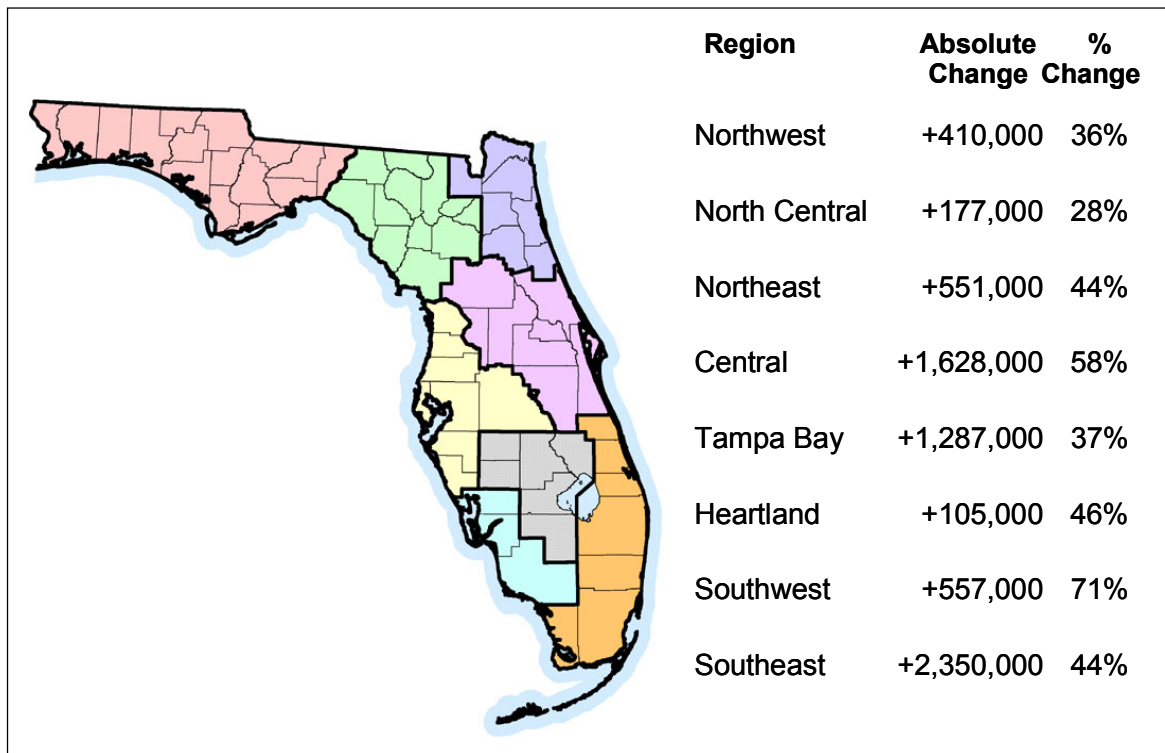
**Figure 2.1 Projected Population Growth**  
*Florida versus United States*



Source: U.S. Census Bureau and Florida Office of Economic and Demographic Research.

Population growth is forecast for all regions of the State. However, a few regions will lead Florida’s growth through 2020. The Southwest region, anchored by Naples and Fort Myers, will experience the fastest growth rate in the State, with a forecasted 71 percent increase in population through 2020. The Southeast region will experience the greatest absolute increase in population (2.35 million through 2020). The Central region, anchored by Orlando, is second both in projections for absolute change and percent change.

**Figure 2.2 Projected Population Growth within Florida by Region**  
*Through 2020*



Source: Florida's Office of Economic and Demographic Research, Forecasts for 2000-2020.

While Florida's increasing population will present great challenges to transportation policy-makers, the State's increasing population density also will provide opportunities to develop non-highway systems that effectively serve higher densities, including intercity rail. Since 1950, the very nature of Florida has changed as a result of significant increases in population density. In 1950, Florida was largely rural and had a population density (51 people per square mile) similar to that of other agricultural and rural states, including Iowa, Missouri, New Hampshire, and Vermont. By 2000, however, Florida's growing population density (296 people per square mile) had made it much more akin to the populous states in the Northeast (see Table 2.1). By 2030, Florida is likely to surpass Delaware and New York in population density and will be the sixth most densely populated state in the country. The ramifications of the State's increasing population density include higher land acquisition and engineering costs for new transportation capacity. Higher densities, however, are better suited to intercity passenger rail service.

**Table 2.1 Florida is Now One of the Most Densely Populated States in the Country**  
*States Ranked by Population per Square Mile, 1950-2000*

1950	1960	1970	1980	1990	2000
Rhode Island	Rhode Island	New Jersey	New Jersey	New Jersey	New Jersey
New Jersey	New Jersey	Rhode Island	Rhode Island	Rhode Island	Rhode Island
Massachusetts	Massachusetts	Massachusetts	Massachusetts	Massachusetts	Massachusetts
Connecticut	Connecticut	Connecticut	Connecticut	Connecticut	Connecticut
New York	New York	Maryland	Maryland	Maryland	Maryland
Maryland	Maryland	New York	New York	New York	New York
Pennsylvania	Pennsylvania	Delaware	Delaware	Delaware	Delaware
Ohio	Ohio	Pennsylvania	Pennsylvania	Pennsylvania	<b>FLORIDA</b>
Delaware	Delaware	Ohio	Ohio	<b>FLORIDA</b>	
Michigan	Michigan	Michigan	<b>FLORIDA</b>		
Indiana	Indiana	Indiana			
Virginia	California	California			
North Carolina	Virginia	<b>FLORIDA</b>			
West Virginia	Hawaii				
Tennessee	North Carolina				
Hawaii	<b>FLORIDA</b>				
Kentucky					
South Carolina					
California					
Wisconsin					
Louisiana					
Alabama					
Georgia					
New Hampshire					
Missouri					
<b>FLORIDA</b>					

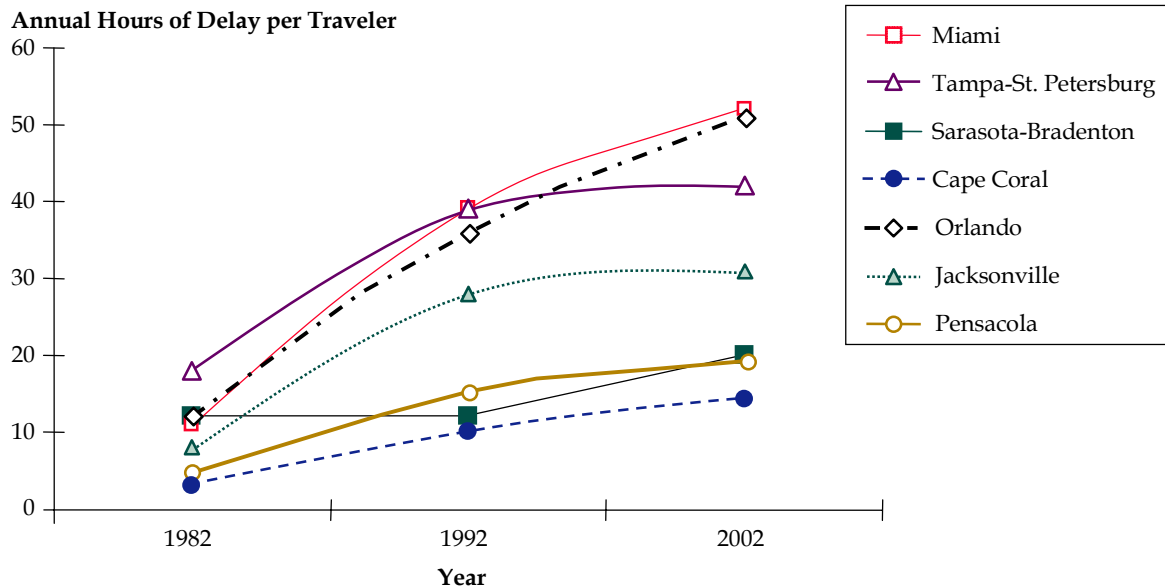
Source: U.S. Census Bureau.

## ■ 2.2 Roadway Congestion

Roadway congestion accompanies population growth. Consequently, traffic congestion in Florida, especially in the State’s booming urban areas, continues to worsen. TTI rates three of Florida’s major metropolitan areas (Miami, Tampa-St. Petersburg, and Orlando) among the worst 30 U.S. cities for traffic congestion, measured as annual delay per traveler. Traffic congestion in Florida’s urban areas costs drivers and businesses an estimated \$4.5 billion in lost productivity and excess fuel costs. Figure 2.3 shows the increase, since 1982, in annual delay per traveler for several urban areas in Florida. Miami (which ranks

sixth in the nation for delay) increased from 11 hours of delay per traveler in 1982 to 52 hours in 2002. Similarly, delay per traveler grew from 12 hours (1982) to 51 hours (2002) in Orlando and from 18 hours (1982) to 41 hours (2002) in the Tampa-St. Petersburg area. Annual traffic delay in Sarasota-Bradenton, Pensacola, and Cape Coral grew at more modest rates.

**Figure 2.3 Annual Hours of Delay on Florida’s Highways**



Source: Texas Transportation Institute’s 2004 *Urban Mobility Study*, National Congestion Tables.

Congestion and delay on Florida’s highways are not only caused by population growth, but also from an increase in the total number of miles driven. Over a five-year period from 1998 to 2003, Florida’s vehicle miles of travel (VMT) increased faster than the national rate, increasing from 137,543 million miles in 1998 to 185,511 million miles in 2003. On a per capita basis, Florida’s VMT increased from 8,881 miles in 1998 to 10,900 in 2003.<sup>1</sup>

The Federal Highway Administration (FHWA) estimates that “bottlenecks” (physical capacity overwhelmed by demand) account for 50 percent of total traffic congestion. The other 50 percent of congestion is caused by a combination of traffic incidents (25 percent), work zones (15 percent), bad weather (10 percent), and poor signal timing (five percent).

<sup>1</sup> Bureau of Transportation Statistics. 2004 *State Transportation Profiles*.

A recent study by the American Highway User's Alliance<sup>2</sup> identifies four strategies to counter increasing congestion:

1. Increase the number and size of highways;
2. Improve current highway operations through Intelligent Transportation Systems (ITS) and other management strategies;
3. Minimize VMT through Travel Demand Management (TDM) and non-automotive travel modes; and
4. Managing urban growth and form.

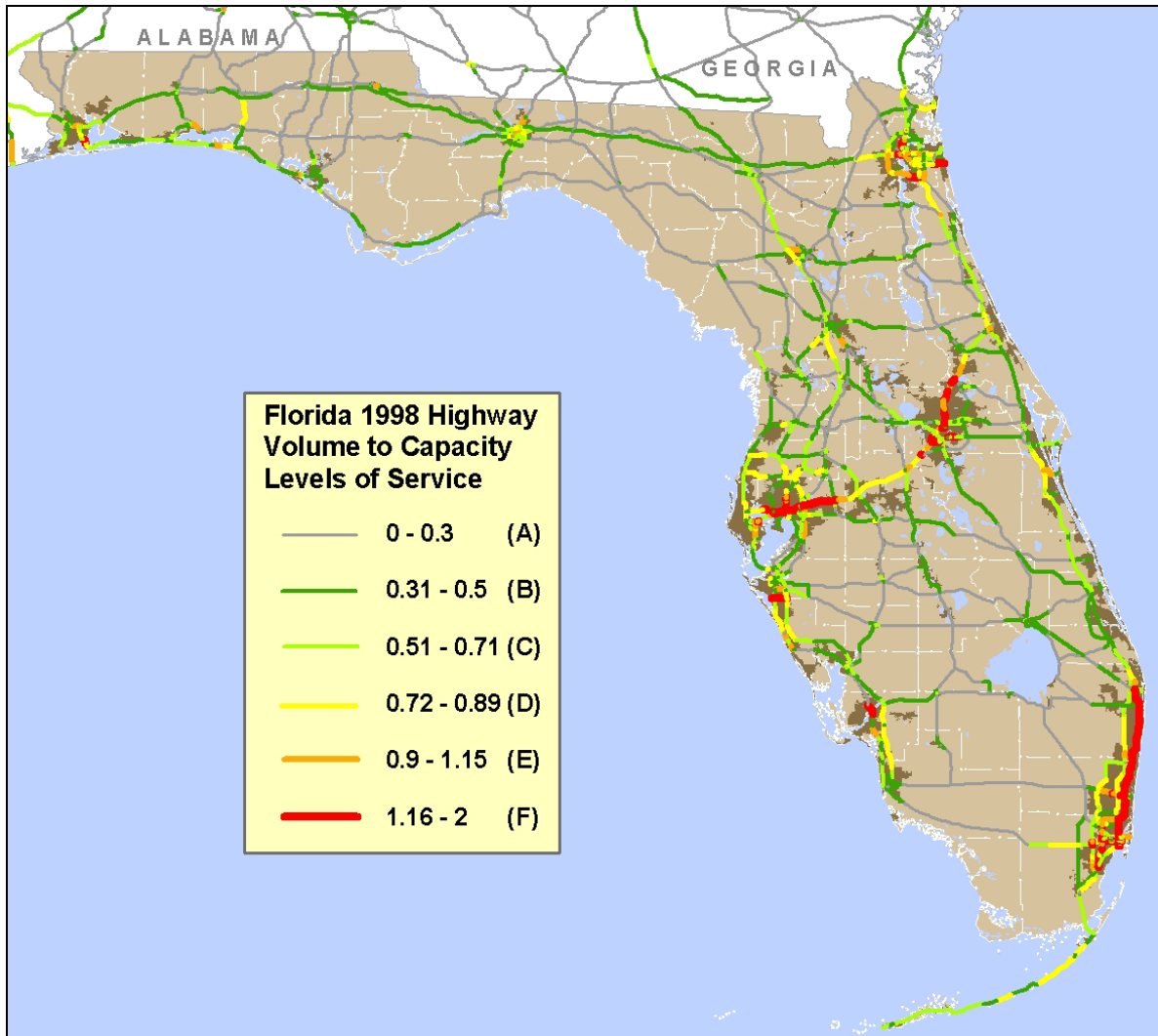
For Florida, and many other states, the prospect of adding additional lanes and constructing new highways is not promising due to budget constraints, escalating highway construction costs, and community opposition. The effort required to effectively manage urban growth and form to meaningfully impact highway demand also is very difficult, and is fraught with legal and institutional challenges. For Florida, investment in highway operations and non-automotive modes holds promise for relieving at least some of the future highway congestion.

Figures 2.4 and 2.5 depict the current and future *levels of service* for Florida's primary highways (1998 and 2020). The levels of service are based on grades (A through F) assigned to highway segments based on how much traffic they carry in comparison to the design capacity (volume-to-capacity ratios). The grades are intended to convey the current and future performance of Florida's highway network if no capacity improvements were made to the system. The first map shows existing bottlenecks in the State's major urban areas (Southeast Florida, Tampa-St. Petersburg, Orlando, Jacksonville, etc.). The second map shows future conditions and illustrates the spread of bottlenecks and congestion over entire urban areas and intercity corridors, such as the I-4 corridor between Tampa and Daytona Beach.

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<sup>2</sup> American Highway User's Alliance. *Unclogging America's Arteries: Effective Relief for Highway Bottlenecks*. 2004.

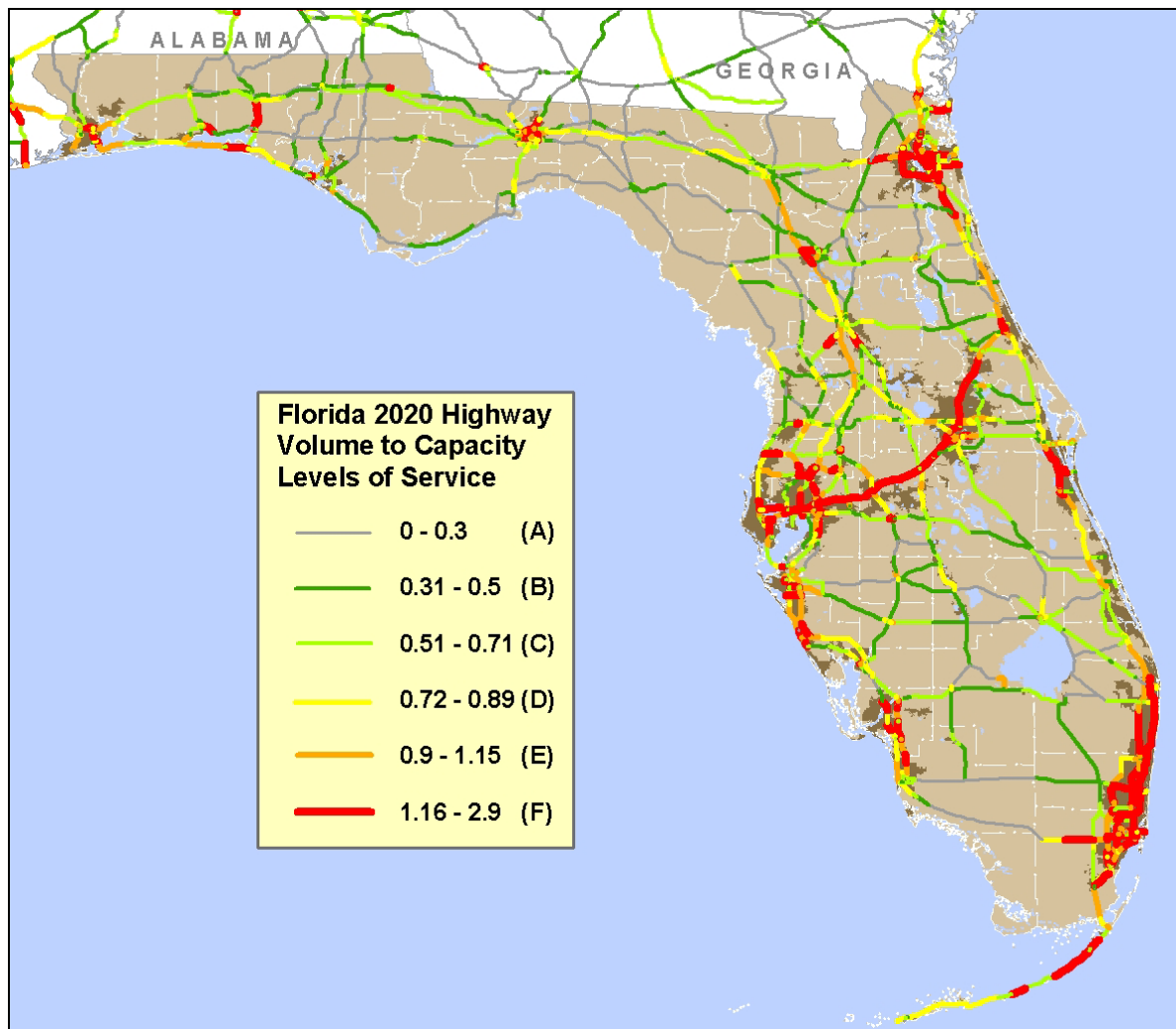
**Figure 2.4 Florida Highway Congestion, 1998**  
*Level of Service Estimates*



Source: Federal Highway Administration Freight Analysis Framework.



**Figure 2.5 Florida Highway Congestion, 2020**  
*Level of Service Estimates*



Source: Federal Highway Administration Freight Analysis Framework.

## ■ 2.3 Airport Congestion

Florida airports provide international, domestic, and intrastate service to residents, businesses, and visitors to the Sunshine State. FDOT estimates that more than half of Florida's visitors arrive by air and that, collectively, the State's airports serve 110 million passengers annually. However, Florida's commercial airports are becoming more congested. The number of residents and visitors using the State's airports continues to outpace any increase in terminal or runway capacity. The Miami International Airport, for example,

has more takeoffs and landings per runway than any airport in the United States.<sup>3</sup> The Federal Aviation Administration (FAA) recently identified Fort Lauderdale and Palm Beach International Airports as two of 15 congested airports in the U.S. in need of additional capacity before 2013. The FAA, in the same report, identified South Florida as one of seven metropolitan areas in need of additional commercial airport capacity by 2013.<sup>4</sup> Currently, aircraft delays due to airspace congestion and limited capacity cost Florida businesses and residents upwards of \$300 million annually.

There is limited future capacity that can be developed within Florida's air system. Constructing new airports, especially major international airports, has become increasingly difficult and costly in the United States due to the high level of resistance by community groups opposed to the environmental and noise impacts generated by commercial aviation. Because of this resistance, there has only been one major *new* airport constructed since 1974 (Denver). Another potential source of airport capacity is the conversion of military airfields to civilian and commercial use. The best example of full conversion is the Austin, Texas, Bergstrom Air Force Base, which became the Austin Bergstrom International Airport in 1999. Joint commercial/military use of base fields is another way that capacity can be added to the nation's air system. For example, Elgin Air Force Base in the Florida Panhandle is a joint use airport (Okaloosa Regional). Ultimately, there are few opportunities to add capacity through joint use and conversion in Florida. In South Florida, for example, several proposals have pushed for the conversion of Homestead Air Force Base in Miami-Dade County, but community opposition to this plan has been overwhelming.

Several airports in Florida are expanding their terminal facilities to keep pace with passenger growth. Miami International Airport is planning one additional runway and is one of four U.S. airports (Los Angeles International Airport, John F. Kennedy International Airport, and San Francisco International Airport) working with the FAA on plans to accommodate the new Airbus A-380 aircraft. However, capacity improvements will primarily accommodate growth in domestic interstate and international travel and not necessarily intrastate Florida traffic. Thus, adding airport capacity to accommodate intercity flights within Florida is difficult. One reason for this constraint is due to the nature of aircraft used for intercity flights. Usually these craft are small turboprop or regional jets that, despite their economical sizes, consume scarce runway slots that could otherwise be used by larger aircraft.

Table 2.2 presents the 2003 enplanements and national rank of Florida's major commercial airports.

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<sup>3</sup> [www.airport-technology.com](http://www.airport-technology.com).

<sup>4</sup> U.S. Department of Transportation, Federal Aviation Administration, Mitre Corporation. June 2004. *Capacity Needs in the National Airspace System: An Analysis of Airport and Metropolitan Area Demand and Operational Capacity in the Future*.

**Table 2.2 Florida Passenger Enplanements 2003**

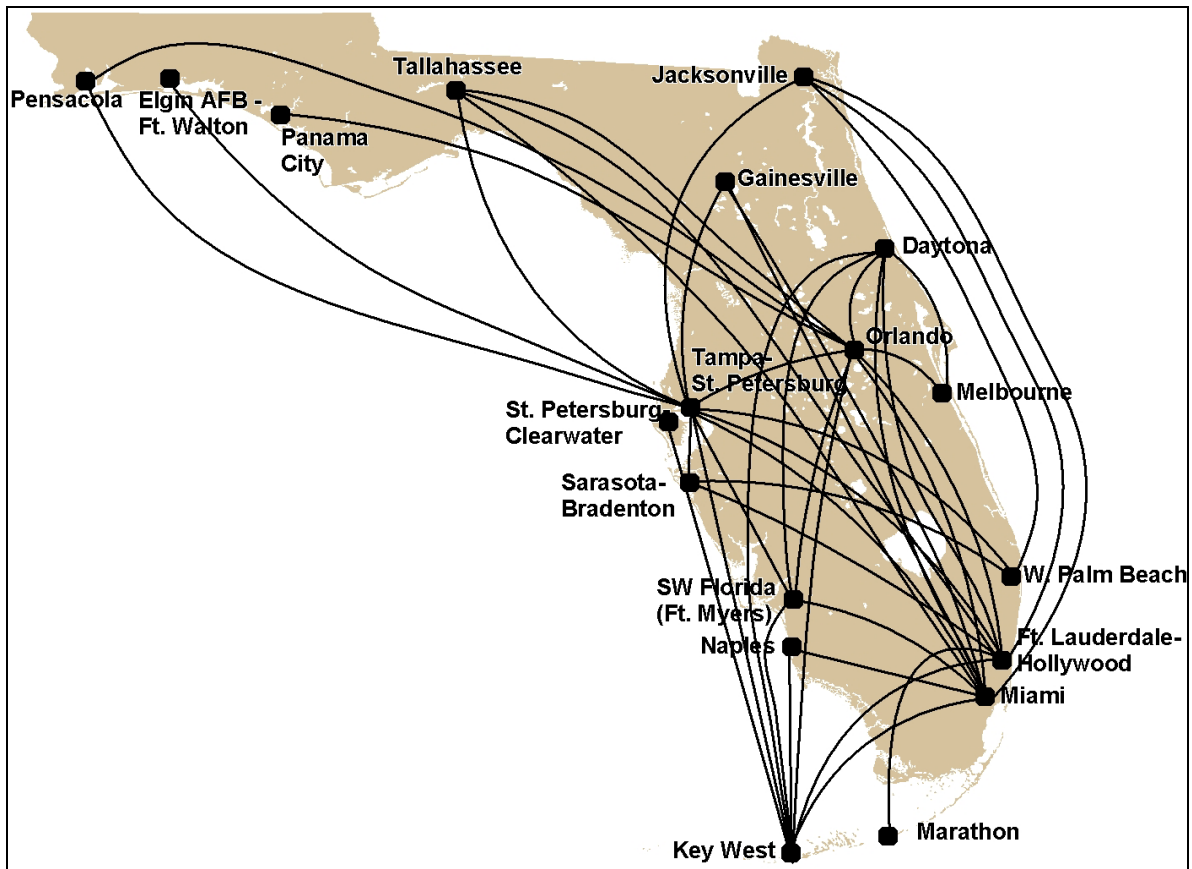
<b>Airport</b>	<b>Hub Designation</b>	<b>2003 National Rank</b>	<b>Percent of Florida Enplanements 2003</b>	<b>2003 Passenger Enplanements</b>
Miami International	Large	14 <sup>th</sup>	25.3%	14,198,321
Orlando International	Large	16 <sup>th</sup>	23.9%	13,375,162
Fort Lauderdale-Hollywood International	Large	28 <sup>th</sup>	15.5%	8,682,781
Tampa International	Large	30 <sup>th</sup>	13.7%	7,672,533
Palm Beach International	Medium	55 <sup>th</sup>	5.4%	3,011,968
Southwest Florida International (Fort Myers)	Medium	57 <sup>th</sup>	5.2%	2,906,367
Jacksonville International	Medium	61 <sup>st</sup>	4.3%	2,415,747
Pensacola Regional	Small	98 <sup>th</sup>	1.2%	689,269
Orlando Sanford	Small	105 <sup>th</sup>	1.1%	619,894
Sarasota-Bradenton International	Small	112 <sup>th</sup>	1.0%	533,045
St. Petersburg-Clearwater International	Small	113 <sup>th</sup>	0.9%	522,308
Okaloosa Regional (Elgin AFB)	Small	139 <sup>th</sup>	0.6%	347,645
Melbourne International	Small	177 <sup>th</sup>	0.3%	194,409
Key West International	Non Hub	146 <sup>th</sup>	0.5%	299,193
Daytona International	Non Hub	153 <sup>rd</sup>	0.5%	275,985
Panama City-Bay County International	Non Hub	181 <sup>st</sup>	0.3%	182,027
Gainesville Regional	Non Hub	204 <sup>th</sup>	0.2%	120,547
<b>Total Florida Enplanements</b>			<b>100%</b>	<b>56,047,201</b>
<b>Total U.S. Enplanements</b>	<b>Florida Percent of U.S. Enplanements</b>		<b>8.6%</b>	<b>650,808,785</b>

Source: Federal Aviation Administration.

Currently, there is relatively good intercity air service within Florida. Intrastate flights are available from airports throughout the State. The map in Figure 2.6 shows the current intrastate Florida air traffic network. Principal intrastate carriers include Southwest, American, US Airways, Delta/Comair, Continental, Cape Air, Seacoast Airlines, and Gulfstream International. The Florida city pairs with the highest frequency of flights include Orlando-Miami; Tampa-Miami; Miami-Key West; Miami-Fort Myers; Jacksonville-Fort Lauderdale; Jacksonville-West Palm Beach; and Jacksonville-Miami.

The principal challenge, however, is finding airport capacity to accommodate additional intrastate flights. Contributing to this problem is the fact that intrastate flights use a higher percentage of smaller, regional jets, which generate less revenue for the airports. As congestion increases, airports prefer to give the valuable takeoff and landing slots to larger airplanes.

Figure 2.6 Florida Intrastate Scheduled Flights



## ■ 2.4 Rail - Underutilized Alternative

As illustrated in Table 2.1, Florida's population density is now similar to states like New Jersey, New York, Connecticut, and Massachusetts. These states also have congested roadways and airports, but they have invested in strong intercity and commuter passenger rail systems to help mitigate this congestion. Even less dense states like Maine and traditional single-occupancy automobile states like California are realizing the benefits of passenger rail service.

One study finds that trips of 100 to 400 miles are the most effective markets for intercity rail service. For trips of fewer than 100 miles, rail has difficulties competing with automobiles. For trips of greater than 400 miles, air has an advantage due to the faster travel speeds. Rail has become much more time competitive as the time required for airport access, security, and transfers increases. Several regions have efforts underway to serve these markets with new intercity passenger rail service, freeing up slots for longer haul flights at hub airports. Early success stories include new rail service between Boston and

Portland, Maine (the Downeaster), compensating for a 26 percent reduction in airline seat capacity between 2000 and 2001. Another example where passenger rail is beginning to replace air and highway trips is the Capital Corridor service from San Jose to Sacramento. Since 1991, the service has grown to serve more than one million passengers on nine daily round trips, and more frequent service is planned for 2004 to meet growing demand. In the Pacific Northwest, new trains on the Cascades Line serving Seattle, Vancouver, and Portland, Oregon, have seen ridership almost triple since 1993 to nearly 700,000 in 2003.<sup>5</sup>

Both geographically (distance between major cities) and demographically, Florida seems to be perfectly suited for passenger rail service, but the description of existing services contained in Chapter 3.0 will show that Florida is lagging other states in this area.

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<sup>5</sup> From Surface Transportation Policy Project's *The State of the Nations' Intercity Rail: How Federal Investment will Improve Travel Choice and Relieve Traffic Congestion*.

## 3.0 Description of Existing Passenger Rail Services

This chapter provides a description of current passenger rail services in Florida. Section 3.1 discusses intercity service provided by Amtrak, while Section 3.2 looks at commuter operations. Section 3.3 concludes with a discussion and photographs of the new DMUs in operation on Tri-Rail.

### ■ 3.1 Amtrak

The National Railroad Passenger Corporation (Amtrak) has provided intercity and long-distance services to Florida for more than 35 years. This section describes the history, current status, and services offered by Amtrak in the Sunshine State.

#### 3.1.1 History

Throughout the first half of the 20<sup>th</sup> Century, Americans relied heavily on intercity passenger rail to travel short and long distances. As automobiles became more economical and massive highway investments were made, the role of passenger rail quickly began to diminish in relationship to personal automobile travel. Consequently, the share of ridership on passenger railroads – both intercity and commuter – dropped significantly, leaving many passenger railroads out of business and forcing freight railroads with passenger operations to cease some services.

The Nixon Administration, realizing the need for a reliable, national intercity rail system, asked Congress to consider a bill that would form a national intercity railroad to relieve freight railroads of money-losing passenger operations. In 1970, Congress created the National Railroad Passenger Corporation (Amtrak) as a for-profit government corporation with trackage rights over all freight railroads. The bill that created Amtrak guaranteed priority over freight trains but required Amtrak to compensate the freight railroads for the incremental costs associated with its operations over their tracks. Congress expected Amtrak would become profitable after a few initial years of Federal support. This was perhaps an unrealistic expectation, and one that few passenger rail systems are expected to achieve. The more appropriate question is whether the \$25 billion in Federal subsidies Amtrak has received since 1971 can be justified from the public benefits obtained (avoided highway costs, congestion mitigation, alternate transportation system in times of crisis, environmental and safety improvements, etc.).

### 3.1.2 Current Amtrak Status<sup>1</sup>

Following several unsuccessful efforts in the late 1990s to restructure Amtrak and make the railroad self sufficient, Amtrak's current situation is tenuous. The 1997 Amtrak Reform and Accountability Act attempted to bring profitability to the railroad by 1) converting Amtrak from a government corporation to a private entity without monopoly protection; 2) allowing the railroad to add new routes and close money-losing ones; and 3) and providing \$2.2 billion in subsidies through 2002 with the hope that Amtrak would become self sufficient within five years. In 2002, the U.S. Department of Transportation's (DOT's) Office of Inspector General found that Amtrak had not made any progress toward self-sufficiency and that the railroad would have to receive public funds to continue operating. From Fiscal Year (FY) 2003 to FY 2005, Amtrak continued to receive annual appropriations, although the funding was far below levels requested by the railroad. Beyond 2006, Amtrak's survival is in doubt due to a White House budget proposal that provides no funding for Amtrak.

The Bush Administration's FY 2006 Budget would eliminate all Federal subsidies to the railroad and would not provide any funding for any year thereafter. The Budget requests \$360 million for the Surface Transportation Board to maintain commuter operations that require the use of Amtrak personnel or property. Beyond that request, there is no guarantee of funding for *any* other type of Amtrak operation, including intercity service on the busy Northeast Corridor between Washington, D.C., and Boston. The Administration's posture toward Amtrak is very deliberate. The 2006 Budget reads, "With no subsidies, Amtrak would quickly enter bankruptcy, which would likely lead to the elimination of inefficient operations and the reorganization of the railroad through bankruptcy procedures." Without Federal money, Amtrak will quickly be forced into Chapter 7 "shut-down" bankruptcy, forcing the company to cease all rail operations and placing all railroad assets in the hands of a bankruptcy trustee responsible to the railroad's creditors. Chapter 7 bankruptcy does not allow the railroad to continue operating, unlike the more familiar Chapter 11 bankruptcies by several airlines that have allowed continued operations with time to reorganize and meet creditor's demands. The effect on Florida, if this provision were to make it through Congress, would be the immediate closure of Florida operations. Through bankruptcy restructuring, the Administration hopes that the nation's intercity passenger rail system will attract private investment, state and local funding, and make available Federal dollars to support the most viable routes.

### 3.1.3 Florida Route Descriptions

Amtrak currently operates 43 intercity routes through 46 states. Its network covers 22,000 miles of track, most of which is owned by for-profit freight railroads. Amtrak owns

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<sup>1</sup> National Association of Railroad Passengers and letter from Senator Patty Murray, Ranking Member Subcommittee on Transportation, Treasury, and General Government, to President Bush, February 16, 2005.

approximately 730 route miles, representing three percent of its national network. Most of the Amtrak-owned route mileage is located between Washington, D.C., and Boston (Northeast Corridor) and between Philadelphia and Harrisburg, Pennsylvania. Amtrak does not own any mileage in Florida, but operates a maintenance facility in Hialeah.

In Florida, Amtrak operates four distinct services, the *Auto Train*, *Silver Meteor*, *Silver Star*, and *Sunset Limited*. Amtrak operates in Florida over lines owned by CSX Transportation (CSXT) and FDOT (South Florida Rail Corridor). Amtrak's current Florida routes include:

- *Auto Train* offers non-stop service between Lorton, Virginia (just south of Washington, D.C.), and Sanford, Florida. The *Auto Train* operates daily, with afternoon departures in each direction. The entire trip takes approximately 16 and one-half hours. It is the only combination auto/passenger train in the United States. The *Auto Train* operates over CSXT's "A Line" from the Florida-Georgia border to its terminus in Sanford.
- The *Silver Star* and the *Silver Meteor* offer service daily between New York City and Miami. Both services operate over *mostly* the same route within Florida, but follow different trajectories north of Savannah, Georgia, through the Carolinas. From the Florida-Georgia border, both routes operate over CSXT's "A Line" south to Auburndale. At Auburndale, the *Silver Meteor* continues southeast to West Palm Beach via CSXT and the South Florida Rail Corridor into Miami. From Auburndale, the *Silver Star* travels southwest to Tampa and then back to Auburndale where it retraces the *Silver Meteor's* aforementioned route to Miami. North of Florida, the *Silver Star* follows a route along the Appalachian Piedmont between Savannah, Georgia, and Raleigh, North Carolina, via Columbia, South Carolina. The *Silver Meteor* follows a route along the Atlantic Coastal Plain, serving Charleston, South Carolina, and Fayetteville and Raleigh, North Carolina. From Raleigh, both routes operate over the same line north to New York City.
  - Within Florida, the *Silver Star* serves the following stations: Jacksonville, DeLand, Winter Park, Orlando, Kissimmee, Lakeland, Tampa, Winter Haven, Sebring, West Palm Beach, Deerfield Beach, Fort Lauderdale, Hollywood, and Miami. The *Silver Star* travel time from Jacksonville to Miami is slightly longer than 11 hours. The total travel time between New York City and Miami is slightly longer than 30 hours.
  - The *Silver Meteor* serves the same stations as the *Silver Star*, with the exception of Tampa. Because the *Silver Meteor* switches at Auburndale and does not stop in Tampa, it offers slightly faster service between Central and South Florida. The *Silver Meteor* carries passengers between Jacksonville and Miami in nine hours. The total travel time between New York City and Miami is 27 hours.
  - Together, the *Silver Star* and *Silver Meteor* provide Amtrak's **Cross Florida Service** between Orlando and Miami (*Silver Meteor*) and between Orlando and Miami via Tampa (*Silver Star*).



- The *Sunset Limited* provides tri-weekly service between Orlando and Los Angeles over the CSXT “A Line” from Orlando to Jacksonville and over CSXT across the Florida Panhandle. Within Florida, the *Sunset Limited* serves stations in Orlando, Winter Park, Sanford, DeLand, Palatka, Jacksonville, Lake City, Madison, Tallahassee, Chiplet, Crestview, and Pensacola. The trip through Florida requires approximately 12 hours (eight to nine hours between Pensacola to Jacksonville and three and one-half hours between Jacksonville and Orlando). At 2,768 miles, the *Sunset Limited* is Amtrak’s longest route. Travel time on the entire route, between Los Angeles and Orlando, is nearly three days (67 hours, 15 minutes).
- With its **Thruway Motorcoach Services**, Amtrak serves many Florida counties that do not have immediate passenger rail access. The Thruway service provides rail-bus connections for communities previously served by the Palmetto Service between Lakeland and Jacksonville. On October 31, 2004, Amtrak discontinued its Palmetto service to Florida. The Palmetto, which originates in New York City, previously terminated in Miami via Jacksonville, Orlando, and Tampa over CSXT’s “S Line.” The Palmetto called on four stations between Lakeland and Jacksonville, including Ocala, Waldo Wildwood, and Dade City. The Palmetto service now operates between New York City and Savannah, Georgia. Other Thruway bus services include: Orlando/Tampa to St. Petersburg and Fort Myers (via Lakeland, Bradenton, Sarasota, and Port Charlotte); DeLand to Daytona Beach; Orlando to Orlando hotels and attractions; and Miami to Key West (via Miami International Airport, Homestead, Key Largo, Islamorada, Marathon, and Key West).

Table 3.1 summarizes Florida’s Amtrak current passenger rail service.

**Table 3.1 Summary of Florida Amtrak Passenger Rail Service**

Route	Frequency	Origin/Destination	Type of Service
<i>Auto Train</i>	Daily, each direction	Washington, D.C. (Lorton, Virginia) to Sanford, Florida	Conventional and personal auto transport
<i>Silver Meteor</i>	Daily, each direction	New York City to Miami	Conventional
<i>Silver Star</i>	Daily, each direction	New York City to Miami (via Tampa)	Conventional
<i>Sunset Limited</i>	Three times per week	Los Angeles to Orlando (via Jacksonville)	Conventional

Amtrak provides passenger rail service to 24 stations in Florida. The map in Figure 3.1 provides an overview of Amtrak’s four routes serving Florida, including all passenger rail stations.

Figure 3.1 Amtrak Routes and Stations in Florida



### 3.1.4 Ridership

With 913,000 passengers in 2004, Florida is one of three states outside the Northeast Corridor with relatively high Amtrak ridership. Table 3.2 shows Florida in relation to the other high ridership states for 2004. Although Amtrak carries nearly one million annual passengers in Florida, much of this travel is interstate trips. For example, the busiest station within Florida is the Sanford *Auto Train* station, with 197,483 total passengers in 2004. This service is exclusively for interstate passengers.

**Table 3.2 Top Amtrak Ridership States**  
*Millions of Passengers*

Rank	State	2004 Ridership	Rank	State	2004 Ridership
1	New York	10.385	7	Maryland	1.779
2	California	9.332	8	Connecticut	1.392
3	Pennsylvania	4.849	9	Washington	1.068
4	New Jersey	3.855	10	Florida	.913
5	District of Columbia	3.744	11	Virginia	.803
6	Massachusetts	1.962	12	Delaware	.753

Source: Amtrak.

Note: Northeastern Corridor states are shaded.

After the Sanford *Auto Train* station, Orlando has the second highest ridership with 164,273 passengers in 2004. Miami, Jacksonville, West Palm Beach, and Tampa all had more than 50,000 passengers in 2004 and six other stations had ridership of at least 20,000.

From 2003 to 2004, overall ridership in the State increased by 3.4 percent. Tampa experienced the greatest absolute growth in ridership, adding 8,372 riders over 2003. Stations in the greater Miami-Fort Lauderdale area also saw increases during this period, with West Palm Beach, Hollywood, and Fort Lauderdale adding at least 4,000 passengers each. Despite losing the Palmetto service late in the year, Waldo (near Gainesville) led the State in percentage growth, at 31.4 percent. Lakeland, Wildwood (also on the former Palmetto route), and Sebring experienced at least 20 percent growth. Seven stations, including Tampa and West Palm Beach, grew by 10 to 20 percent. Nine stations lost ridership during the year, including Orlando, which had the greatest net loss (-8,810). The Sanford station also experienced small percentage loss (one percent) for *Auto Train* and conventional service. The stations served by the *Sunset Limited* west of Jacksonville experienced significant declines in ridership, led by Tallahassee’s 23.6 percent drop in ridership. Table 3.3 shows 2003 to 2004 Amtrak ridership in Florida by station.

Since 1980, Amtrak’s Florida ridership has grown by nearly 46 percent, from 626,115 to 913,533 in 2004. The railroad’s peak Florida ridership was achieved in 1992, with 1.2 million passengers.

**Table 3.3 Florida Amtrak Ridership by Station**  
*Fiscal Years 2003 and 2004*

Station	2004	2003	Percent Change	Net Change
Sanford ( <i>Auto Train Station</i> )	197,483	199,804	-1.2%	-2,321
Orlando	164,273	173,083	-5.1%	-8,810
Miami	82,193	79,371	3.6%	2,822
Jacksonville	70,474	68,638	2.7%	1,836
West Palm Beach	55,171	48,892	12.8%	6,279
Tampa	50,895	42,523	19.7%	8,372
Fort Lauderdale	48,004	43,836	9.5%	4,168
Hollywood	31,166	26,660	16.9%	4,506
Kissimmee	30,215	29,618	2.0%	597
Deerfield Beach	26,208	23,748	10.4%	2,460
Winter Park	24,269	23,781	2.1%	488
Winter Haven	20,952	19,812	5.8%	1,140
DeLand	20,080	19,285	4.1%	795
Sebring	18,343	15,200	20.7%	3,143
Sanford	10,710	10,729	-0.2%	-19
Palatka	10,210	9,721	5.0%	489
Ocala*	10,209	8,842	15.5%	1,367
Lakeland	9,775	7,951	22.9%	1,824
Delray Beach	8,537	8,232	3.7%	305
Okeechobee	4,379	3,704	18.2%	675
Pensacola	4,130	4,531	-8.9%	-401
Waldo*	4,049	3,082	31.4%	967
Tallahassee	2,888	3,778	-23.6%	-890
Wildwood*	2,644	2,153	22.8%	491
Dade City*	1,951	1,644	18.7%	307
Chipley	1,886	1,906	-1.0%	-20
Crestview	1,357	1,578	-14.0%	-221
Lake City	703	782	-10.1%	-79
Madison	399	482	-17.2%	-83
<b>Total Florida Ridership</b>	<b>913,553</b>	<b>883,366</b>	<b>3.4%</b>	<b>30,187</b>

Source: Amtrak.

Note: \* Signifies station formerly served by Palmetto service suspended in October 2004. Ridership totals for these stations include passengers using Thruway connecting motorcoach service after Palmetto operations ceased.

### 3.1.5 Economic Impact<sup>2</sup>

In 2004, Amtrak employed 990 Florida residents, generating nearly \$44 million in wages. During 2004, Amtrak procured \$13.7 million of goods and services in Florida, with much of the money spent in the following locations: Jacksonville \$5,929,077; Miami \$1,665,407; Boca Raton \$1,514,521; Fort Lauderdale \$1,107,983; and Hialeah \$1,213,242. Expenditures in Jacksonville are primarily due to the concentration of railroad equipment maintenance firms in the Jacksonville area. Amtrak's Hialeah maintenance facility performs light overhauls for Viewliner, Amfleet, and Heritage cars for Silver Service Trains. Amtrak also operates a maintenance facility in Sanford, which services the Superliner cars of the *Auto Train* and *Sunset Limited*.

### 3.1.6 Travel Times in Comparison to Automobiles and Planes

Of the nearly one million annual passengers on Amtrak in Florida, most of this travel was interstate trips. Florida intercity passenger rail travel is very low in comparison to intercity highway and airline travel. One of the principal reasons is the slower travel times. Table 3.4 provides a comparison of some transit times for autos, planes, and rail. All air travel times include one extra hour to allow for check-in and security, though no extra time was added for travel to and from the airport or train station. Averaged across these five markets, air travel is one hour and 56 minutes faster than autos, and autos are two hours and 17 minutes faster than rail.

Another issue reducing the competitiveness of current intercity passenger rail service in Florida is the low frequency and off-peak travel times. In the markets listed, there are usually one or two rail departures per day. Jacksonville to Tampa, for example, has two rail trips on an average weekday. One departs at 5:10 a.m. and the other at 8:15 a.m. Air, by way of contrast, offers 12 trips from Jacksonville to Tampa on the same weekday.

To provide another contrast, New York City to Washington, D.C., and Jacksonville to Tampa are both approximately 225 miles apart. Business travelers in the New York-D.C. corridor can select from any of the hourly departures of the Metroliner trains (two hours and 59 minutes travel time) or the regional trains that run between the Metroliner service (approximately 3.5 hours travel time). The flexibility of schedule and the time savings to the business traveler make passenger rail a competitive, viable option to air travel for New York-D.C. travel. The five hours and 16 minutes travel time in the Jacksonville-Tampa Corridor make it difficult for a traveler to justify the lost opportunity costs from time that could have been used conducting business.

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<sup>2</sup> Amtrak Fact Sheet, Fiscal Year 2004, State of Florida.

**Table 3.4 Comparison of Modal Travel Time for Select Florida Cities**

	Highway Mileage <sup>1</sup>	Automobile <sup>1</sup>	Airplane <sup>2</sup>	Amtrak <sup>3</sup>
Jacksonville-Pensacola <sup>4</sup>	359	5 hours, 57 minutes	4 hours, 10 minutes	8 hours, 7 minutes
Jacksonville-Tampa	224	3 hours, 25 minutes	2 hours	5 hours, 16 minutes
Jacksonville-Miami	350	5 hours, 10 minutes	2 hours, 44 minutes	9 hours
Orlando-Miami	241	3 hours, 37 minutes	1 hour, 58 minutes	5 hours, 45 minutes
Tampa-Miami	284	4 hours, 20 minutes	1 hour, 56 minutes	5 hours, 45 minutes
<b>Average</b>		<b>4 hours, 30 minutes</b>	<b>2 hours, 34 minutes</b>	<b>6 hours, 47 minutes</b>

Notes: <sup>1</sup> Highway mileage and automobile times obtained from Microsoft Maps & Directions (<http://mappoint.msn.com/>). No allowance is made for congestion.

<sup>2</sup> Airplane times were obtained from [Expedia.com](http://www.expedia.com), sorted by shortest time. One hour was added to all air travel times to allow for airport check-in and security.

<sup>3</sup> The shortest Amtrak time is listed. This time includes any layover time at a connection.

<sup>4</sup> There were no direct flights between Jacksonville and Pensacola. The shortest trip time was three hours and 10 minutes, which includes a connection in Atlanta. Times allow for the time zone change.

## ■ 3.2 Commuter Services

Tri-Rail, Florida's only commuter rail system, transports 2.5 million annual passengers in the urban corridor between West Palm Beach and Miami. Daily ridership has peaked at more than 11,000 on several occasions.<sup>3</sup> Tri-Rail is operated by the South Florida Regional Transportation Authority (SFRTA) and covers a 72-mile-long corridor (142.2 directional route miles).

### 3.2.1 Current Operations

Tri-Rail operates 30 daily round trips on weekdays, seven on Saturday, and six on Sunday and major holidays. All trips cover the entire 72-mile Tri-Rail route between the Mangonia Park (West Palm Beach) and Miami Airport Stations. Tri-Rail operates over a 72-mile corridor owned by FDOT and dispatched by CSXT. The map in Figure 3.2 shows the locations of commuter rail stations along the Tri-Rail line.

<sup>3</sup> <http://www.sfrta.fl.gov/press.html#press1>.

Figure 3.2 Tri-Rail Commuter Rail System Map



Source: Tri-Rail (South Florida Regional Transportation Authority).

SFRTA contracts with CSXT to provide a number of services to the railroad, including dispatching and maintenance of track, bridges, buildings, and signal systems. CSXT dispatches all trains on the SFRTA line, including its freight trains and Amtrak intercity passenger rail trains.

### 3.2.2 History

Tri-Rail, which commenced operations on January 9, 1989, began as a demonstration commuter rail project to alleviate highway congestion during the widening of I-95. The following timeline describes the history of Tri-Rail from 1985 to 2003.

**Table 3.5 Tri-Rail Timeline of Major Events**

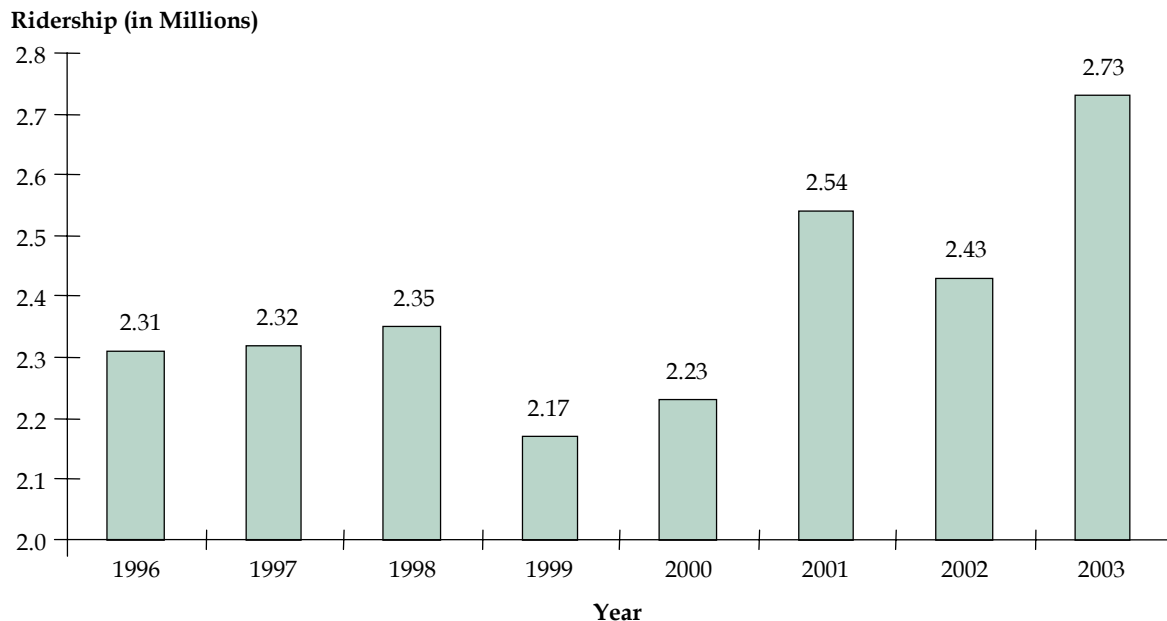
1984-1985	Final Planning Studies were completed, allowing early organizers to take additional steps in preparing the region for commuter rail service.
1986	Tri-County Rail Organization (TCRO) formed - through an interlocal agreement made between Dade, Broward, and Palm Beach Counties. The agreement authorizes TCRO to eventually manage regional commuter rail operations.
1989	Tri-County Commuter Rail Authority created - through Florida Statutes, thereby replacing TCRO.
2003	South Florida Regional Transportation Authority (SFRTA) formed - in 2003, Governor Jeb Bush signed legislation transforming the Tri-County Commuter Rail Authority (Tri-Rail) into SFRTA, a regional authority charged with providing greater mobility in South Florida. SFRTA is empowered by the State to enhance the movement of people and goods to improve economic viability and quality of life in South Florida.

### 3.2.3 Ridership

Among U.S. commuter rail systems, Tri-Rail ranked 10<sup>th</sup> in ridership in 2003, with 2.7 million annual unlinked trips, or 82 million annual passenger miles. Ridership on Tri-Rail has grown steadily since its formation, with some slight upward and downward fluctuation from year to year. From 1996 to 2003, ridership grew from 2,305,492 to 2,725,142, an increase of 18 percent. The chart in Figure 3.3 illustrates recent Tri-Rail ridership trends.



**Figure 3.3 Annual Tri-Rail Ridership**  
*Millions of Unlinked Trips*



Source: 1996-2003 National Transit Database.

While ridership has grown throughout the Tri-Rail system, SFRTA reports that ridership at stations serving the region’s three international airports has experienced double-digit growth.<sup>4</sup> The West Palm Beach Station led the growth, with a 35 percent ridership increase during 2002. Stations serving the Fort Lauderdale/Hollywood International Airport and the Miami International Airport experienced 32 percent and 11 percent growth, respectively.

### 3.2.4 Other Rail-Based Transit Systems

In addition to Tri-Rail, which is a commuter railroad, there are several rail-based passenger transportation systems operating in the State of Florida. These include:

- **Metrorail**, operated by the Miami-Dade Transit Agency, is an electrically powered, elevated, rapid-transit heavy rail system extending from Kendall in South Miami-Dade to Medley in West Miami-Dade. Metrorail has 22 stations connecting a major portion of Miami-Dade County’s businesses, cultural, and shopping centers. Travel from one end of the system to the other takes only 42 minutes over the 22.4-mile system, with top speeds of 58 mph and average speeds of 31 mph. This system, which

<sup>4</sup> South Florida Regional Transportation Authority.

first opened in May 1984, currently has 136 cars, with a capacity of 164 passengers per car. Total ridership in FY 2003 was 14.3 million, which generated total revenues of \$14.3 million. The FY 2003 operating budget was \$42.0 million.<sup>5</sup>

- **TECO Line Streetcar System** (light rail), operated by the Hillsborough Area Regional Transit Authority (Tampa/Ybor City), offers 10 station stops along 4.6 directional route miles.
- **Metromover**, located in Miami, is the largest automated guideway in the United States. It is operated by the Miami-Dade Transit Agency, has more than 8.5 directional route miles, and serves 21 stations.
- **Sky Train** is a people mover system located in Jacksonville. Sky Train is operated by the Jacksonville Transportation Authority, has more than 5.4 directional route miles, and serves eight stations.

### ■ 3.3 Diesel Multiple Units

The Colorado Railcar Manufacturing Company has developed and certified a self-propelled diesel rail car for use by U.S. passenger railroads and transit agencies. This car offers certain advantages in light-density passenger applications, including:

- Improved operating efficiencies because of lower fuel consumption and reduced maintenance costs, in comparison to short locomotive-hauled trains;
- Reduced environmental impacts, such as noise, vibration, and emissions, and reduced visual impacts because of its relatively compact size;
- The ability to pull up to two additional commuter coaches; and
- The ability to meet Federal Railroad Administration (FRA) crashworthiness requirements for vehicles that are to operate in mixed traffic with freight trains and Amtrak.

The DMU is an example of railcar technology that is easily deployable in markets where other types of rolling stock (e.g., conventional locomotive-coach trains) would be too costly to operate. The DMU also may allow certain types of train trips that are not otherwise practical, such as operating a single train comprised of two or more DMUs from a central business district and then separating the train at a suburban junction into two or more pieces (each with a powered DMU). In this way, DMU-type technology can support a branching distribution network into suburban and exurban commuting markets where

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<sup>5</sup> Miami-Dade County Metrorail Internet site at: <http://www.co.miami-dade.fl.us/transit/metrorail.asp>.

operating a conventional locomotive-coach trainset would be prohibitively expensive in terms of cost per passenger.

The DMU successfully completed its testing at the Transportation Technology Center (TTC) in Pueblo, Colorado, and made its debut at the 2002 American Public Transportation Association (APTA) Annual Conference in Las Vegas. In September 2003, the SFRTA invited Colorado Railcar to test the DMU on a 72-mile Tri-Rail route from Miami International Airport to Mangonia Station (see Figure 3.4). This is an existing Tri-Rail route including 18 station stops and using a locomotive-hauled trainset. The DMU pulled two bi-level cars, and used 128 gallons of fuel for the 144-mile round trip (versus 325 gallons for the existing locomotives). The DMU met the schedule and all of SFRTA's requirements.

**Figure 3.4 Diesel Multiple Unit Pulling Two Bi-Level Commuter Coaches in Tri-Rail Test**



Source: Colorado Railcar Internet site at: <http://www.coloradorailcar.com/>.

In early 2004, FDOT received a grant from the FRA to procure a DMU trainset and demonstrate its viability in revenue service. On receiving the grant, FDOT contracted with SFRTA through a joint participation agreement and authorized the acquisition of three commuter railcars from Colorado Railcar Manufacturing. These include:

- One double-deck DMU (see Figure 3.5);
- One single-level DMU (which had previously entered revenue service); and
- One double-deck low-floor coach.

These cars were purchased using a Federal appropriation and FDOT matching funds. A single-level DMU costs \$2.9 million and a double-deck costs \$3.9 million. Operating and maintenance expenses for the demonstration are funded by SFRTA.

In late 2004, FDOT was granted additional FRA funding to procure an additional demonstration trainset.

**Figure 3.5 Double-Deck Diesel Multiple Unit in Latter Stages of Production**



Source: Colorado Railcar Internet site at: <http://www.coloradorailcar.com/>.

## 4.0 Status of Proposed Passenger Rail Systems

This chapter discusses the status of proposed future passenger rail services in Florida. Section 4.1 examines future intercity passenger rail service, while Section 4.2 considers the future of commuter services. Section 4.3 describes the recent history and current status of high-speed rail in Florida. Finally, Section 4.4 presents the issues related to the freight network that could impact passenger service.

### ■ 4.1 Florida Intercity Passenger Rail Service

#### 4.1.1 Background

As chronicled in Chapter 3.0, Florida intercity passenger rail service is synonymous with Florida interstate passenger rail service. While it is possible to ride Amtrak between selected city pairs within Florida, the service is part of longer movements designed to transport people between Florida and other states. The *Auto Train* operates more than 800 miles between the Washington, D.C. area and Sanford, Florida. The *Silver Star/Silver Meteor* covers more than 1,000 miles between New York City and Jacksonville, Orlando, and Tampa. The *Sunset Limited* operates over a 2,500-mile route between Orlando and Los Angeles.

In May 2000, Amtrak submitted to FDOT a document entitled “Florida Intercity Passenger Rail Service Vision Plan.” Amtrak, under contract with FDOT, supplemented this with an August 2002 “Florida Intercity Passenger Rail Plan: Phase 2 Implementation Plan.” This vision contains an assessment of potential intercity passenger rail corridors and a phased approach for developing a comprehensive passenger rail network to reliably move people within Florida’s borders. The key to this strategy is development of a series of 75- to 300-mile service corridors. This range represents the most competitive distances for intercity passenger rail. Rail has difficulties competing with autos at distances shorter than 75 miles and rail is at a disadvantage to air service at distances beyond 300 miles.<sup>1</sup>

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<sup>1</sup> National Railroad Passenger Corporation, “Florida Intercity Passenger Rail Service Vision Plan,” submitted to the Florida Department of Transportation, May 1, 2000, p. 23.

Amtrak's financial struggles have been well documented for years. The public sector continues to provide millions of dollars in annual subsidies to cover both capital and operating expenses, yet many feel the program is not successful because it does not return a direct monetary profit. The Federal government has recently proposed to completely eliminate Amtrak funding, effectively eliminating the National Railroad Passenger Corporation (see additional discussion in Section 3.1). While this sounds like an end to the Amtrak Florida Vision Plan presented below, it should not be viewed as such for several reasons:

- Previous attempts have been made to eliminate funding for Amtrak, but last-hour compromises and support usually materialize. Recently, this has been driven by public support for a strong intercity passenger rail service in the wake of the September 11 attacks, and despite the Madrid bombing.
- Transportation Secretary Norman Mineta, in a recent editorial, provided a vision of “starving” Amtrak to enhance intercity passenger rail service.<sup>2</sup> Secretary Mineta claims that supporting non-competitive, long-distance routes has prevented Federal support of potentially successful new intercity ventures. This editorial describes how eliminating public subsidies of Amtrak would allow a 50:50 partnership between the Federal government and states for investing in intercity passenger rail. He specifically points to the new Cascades service connecting Portland-Seattle-Vancouver as a good example. Though Secretary Mineta does not specifically mention Florida, the Amtrak Florida Vision Plan outlined below would fit perfectly within this type of strategy.
- Amtrak's vision plan outlines a need for intercity passenger rail service in Florida, and describes one way this service could be implemented. It is a well-designed and feasible plan, regardless of whether Amtrak, other public agencies, and/or private entities develop and operate the services.

#### **4.1.2 Assessment of Potential Corridors for Florida Intercity Passenger Service**

Development of successful intercity passenger rail services is a function of many different factors, including:

- High density of person trips between the cities and along the corridor;
- Competitive distance range (Amtrak specified this as 75 to 300 miles);
- Existing rail infrastructure or rights-of-way (reduces initial capital costs, making project more financially feasible); and

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<sup>2</sup> Norman Y. Mineta, “Starving Amtrak to Save It,” *The New York Times*, Wednesday, February 23, 2005, p. A19.

- Good collection/distribution services at the origin and destination rail stations (this can include subways, buses, taxicabs, monorails, and commuter/light rail).

Amtrak's market analyses (summarized in Table 4.1) focused on the first three of these criteria. The results indicate that the Miami-Orlando and Tampa-Orlando corridors have the greatest potential for initial implementation of Florida intercity passenger rail service. First, there are existing rail lines generally maintained to Class IV track standards that support passenger rail speeds of up to 79 mph. Second, the distance falls within the 75- to 300-mile rail competitive range. Finally, these corridors include some of the largest current and projected-year 2010 travel markets. Combining the Miami-Orlando and Orlando-Tampa corridors to create a Tampa-Miami service would utilize the same rail lines with only incremental additional costs. Thus, Tampa-Miami also is included as part of the initial focus.

**Table 4.1 Potential Travel Markets for Intercity Passenger Rail Service**

Intercity Travel Markets	Existing Rail Corridor	Distance (Miles)	Person-Trips (Millions)	
			Year 2000	Year 2010
Orlando-Space Coast	None	45	13.77	17.71
Tampa-Orlando	CSXT	90	12.95	16.12
Orlando-Daytona Beach	None	60	12.64	16.07
Southeast (Miami)-Orlando	CSXT	230	11.55	15.20
Tampa-Southwest (Fort Myers)	CSXT	270	4.30	5.20
Southeast (Miami)-Southwest (Fort Myers)	None	150	5.10	6.97
Tampa-Southeast (Miami)	CSXT	270	4.30	5.20
Jacksonville-Orlando	CSXT	135	3.47	4.73
Jacksonville-Daytona Beach	FEC	90	2.91	3.62
Orlando-Sarasota	CSXT	140	2.21	2.80
Southeast (Miami)-Space Coast	FEC	210	2.20	2.65
Jacksonville-Pensacola	CSXT	360	1.88	2.35
Tampa-Jacksonville	CSXT	200	1.45	1.78
Southeast (Miami)-Jacksonville	FEC/CSXT	340	1.08	1.36
Jacksonville-Space Coast	FEC	130	0.95	1.21
Southeast (Miami)-Daytona Beach	FEC	255	0.89	1.10

Source: Amtrak, "Florida Intercity Passenger Rail Service Vision Plan," May 1, 2000, page 24. Information originally from Florida Department of Transportation.

The corridor between Tampa and Fort Myers meets two of Amtrak's three criteria: it is large and rapidly growing and it is within the 75- to 300-mile range. It fails on the third criteria because there is a gap in the network between Sarasota and Fort Myers and the track is in need of upgrading to accommodate passenger service. The Orlando-Space

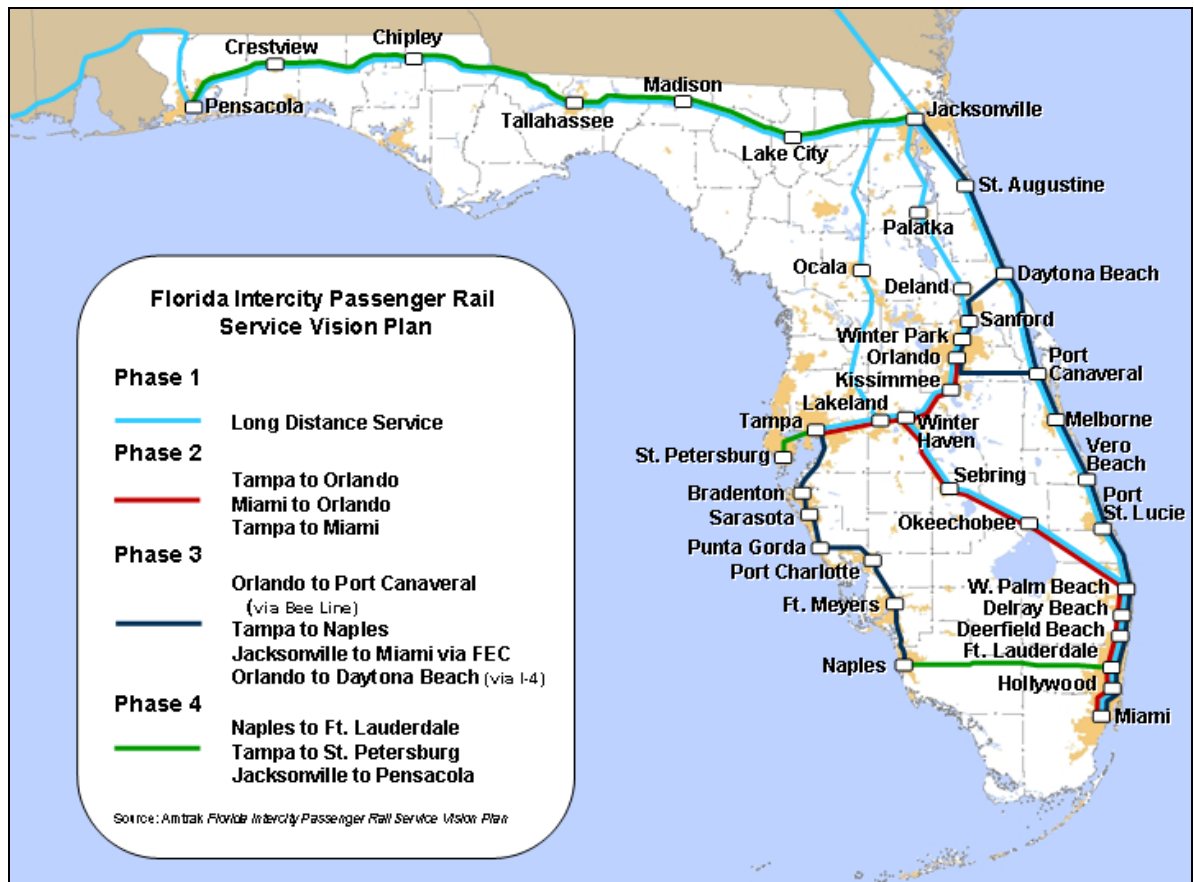


Coast and Orlando-Daytona Beach travel markets also are large and projected to continue growing, but they fall below the 75-mile automobile competitive distance and there are no existing direct rail lines.

### 4.1.3 Florida Intercity Passenger Service Vision Plan

The “Florida Intercity Passenger Rail Service Vision Plan” has four proposed phases (see Figure 4.1). Phases 1 and 2 would be implemented within the first five years of the program, and Phases 3 and 4 during the subsequent 15 years.

**Figure 4.1 Florida Intercity Passenger Rail Service Vision Plan**



**Phase I** consists of route changes for Amtrak’s long-distance intercity Silver services. This phase will increase intercity passenger service by leveraging off of existing routes and starting a new route in the Orlando-Tampa market. The routes for Phase I include:

- Direct service between Jacksonville and Miami using the FEC;
- Additional service between Jacksonville and Tampa; and
- New service between Orlando and Tampa.

**Phase 2** consists of new Florida-sponsored, corridor-focused intercity passenger rail service on existing CSXT lines. This phase directly addresses the routes identified in the market analysis. It includes new service between:

- Miami and Orlando;
- Tampa and Orlando; and
- Tampa and Miami.

**Phase 3** includes State-sponsored routes and services to be completed in the 10-year period following implementation of Phase 2. This phase includes train speed, service frequency, and station location enhancements for the routes implemented in Phases 1 and 2, and new service between:

- Orlando and Port Canaveral on a new rail alignment;
- Tampa and Naples, which will require a section of new alignment and upgrade to some existing track; and
- Orlando and Daytona Beach, which will require a section of new alignment between Lake Monroe and Daytona Beach.

**Phase 4** includes two major new rail alignments on new rights-of-way. It also includes additional service between Jacksonville, Tallahassee, and Pensacola. The new rail lines include:

- New rail alignment between Naples and Fort Lauderdale; and
- New direct rail alignment between Tampa and St. Petersburg using a new structure across Tampa Bay. This line would not only benefit intercity passenger rail service, but also would enhance the ability to provide commuter rail service.

#### **4.1.4 Financial Analysis and Benefits**

The “Florida Intercity Passenger Rail Service Vision Plan” includes an analysis of the revenue, costs, and public benefits attributed for the Phase 2 services described above. Revenues are based on annual ridership projections and estimated revenues per passenger mile. Costs include capital costs, rolling stock costs, and operating costs. These are summarized in Table 4.2.

**Table 4.2 Phase 2 – Projected Service, Ridership, Costs, and Revenues**

Alignment	Daily Round Trips	Annual Ridership (Thousands)	(Million Dollars)				
			Capital Costs	Rolling Stock Costs	Passenger Revenue	Operating Expense	Profit/(Loss): Pax Rev - Op Exp
Tampa-Orlando	6	415	\$60-82	\$16-20	\$7.3	\$7.8	(\$0.5)
Miami-Orlando	4	625	\$93-130	\$30-36	\$22.2	\$18.7	\$3.5
Tampa-Miami	2	419	\$125-181	\$20-24	\$14.0	\$11.3	\$2.7
<b>Total</b>	<b>12</b>	<b>1,459</b>	<b>\$278-393</b>	<b>\$76-92<sup>a</sup></b>		<b>\$37.8</b>	<b>\$5.7</b>

Source: Amtrak, "Florida Intercity Passenger Rail Service Vision Plan," May 1, 2000.

Note: All dollar amounts are in current year (2000) dollars.

<sup>a</sup> Rolling Stock total includes \$10 million to \$12 million for spares.

Overall capital costs to implement Phase 2 service will be between \$278 and \$393 million. This includes changes to speed, capacity, and grade crossings necessary to obtain 79-mph service between the city pairs. Speed changes involve relaying continuous welded rail, replacement of approximately 33 percent of the existing wood ties, and increasing ballast by an average of 10 percent. Capacity includes new siding and lengthened siding and a new facility for layover storage, inspection, and routing maintenance. Grade crossing capital expenses are for installation of new concrete track crossing panels, resurfacing of roadway approaches, addition of bells and adjustments to supplement existing lights, and traffic markings on the roadway approaches. The estimate assumes that all existing public grade crossings have suitable track crossing panels, two-quadrant gates, flashing lights, and an advance warning system providing the required 20-second interval. Private crossings are assumed to be uncontrolled.

The rolling stock estimates are based on one diesel locomotive plus three or four single-level coaches. The Miami route also includes a café car.

Operating costs include train-related expenses (train labor, power, host railroad user fees, insurance, reservations/marketing, commissions, and segment-related equipment), route-related expenses (station operating costs and off-train, segment-related expenses), and system expenses (overhead for financial, legal, and planning aspects of train operations).

An initial investment of between \$354 and \$485 million will be required for capital and rolling stock expenses. Once fully operational, two of the three routes are projected to cover their operating costs with fare box receipts. Overall, total passenger fares are expected to exceed operating costs by \$5.7 million annually. This excludes any capital costs for additional track and rolling stock upgrades and maintenance.

Amtrak envisions financing Phase 2 of the "Florida Intercity Passenger Rail Service Vision Plan" jointly with FDOT. Each side would provide 50 percent of the necessary capital costs. In its plan, Amtrak anticipated using Federal funding for intercity passenger rail projects in Federally designated corridors. Miami-Orlando-Tampa is a designated corridor.

## 4.1.5 Conclusion

Phase 1 of this plan was to be implemented by 2002 and Phase 2 by 2005. Given the uncertainty surrounding investments in high-speed rail in Florida and uncertainty in Amtrak's future, this has not occurred. Despite the delay in time, and despite the possible elimination of Amtrak, this plan still provides a sensible and achievable approach toward implementing much-needed intercity passenger rail in Florida. It has shown the corridors most suitable for intercity rail, based on distance, existing rail lines, and current and projected travel patterns.

More details on the specific needs, operating plans, costs, and revenue assumptions can be found in the "Florida Intercity Passenger Rail Service Vision Plan."

## ■ 4.2 Commuter Rail Services

### 4.2.1 South Florida Regional Transportation Authority (Tri-Rail)

SFRTA has several expansion plans, both in progress and being considered, for Tri-Rail. These include:

- Double tracking;
- Jupiter Corridor;
- Scripps Transit Corridor;
- FEC service between West Palm Beach and Miami; and
- East Kendall.

#### *Double Tracking*

The Double Track Corridor Improvement Program involves construction of a second mainline track parallel to the existing track along the 72-mile South Florida Rail Corridor (SFRC) and development of a new signal system. The program began in the late 1990s in response to expected increases in this heavily traveled corridor. The last of this five-segment project is due for completion in March 2006.

Segments 1 through 3 are completed. Segment 1 added 8.14 miles of double track to the system on either side of the Cypress Creek Station. Segment 2 added 1.5 miles of double tracking at the southern end of the network, as well as a station at Miami International Airport. Segment 3, completed in September 2000, covered 6.97 miles of track work and upgrades at the northern end of Broward County and very southern end of Palm County. Segment 4, another 6.89 miles of double tracking in Miami-Dade County around the Golden Glades and Opa-locka stations, started in June 2001 and is scheduled for completion in the summer of 2005. The "Notice to Proceed" with the design/build of Segment 5,

three disjoint sections covering the remainder of the system, was issued in January 2002. The Tri-Rail system showing these five segments is displayed in Figure 4.2.

Anticipated benefits of the system include:

- Enhanced on-time performance;
- More convenience through greater scheduling flexibility;
- Increased service frequency;
- Reduced travel time;
- Increased access and options for leisure riders;
- Enhanced comfort at stations;
- Improved protection from the weather;
- Future expansion capabilities;
- More efficient movement of goods and freight; and
- Less traffic congestion.

### ***Jupiter Corridor***

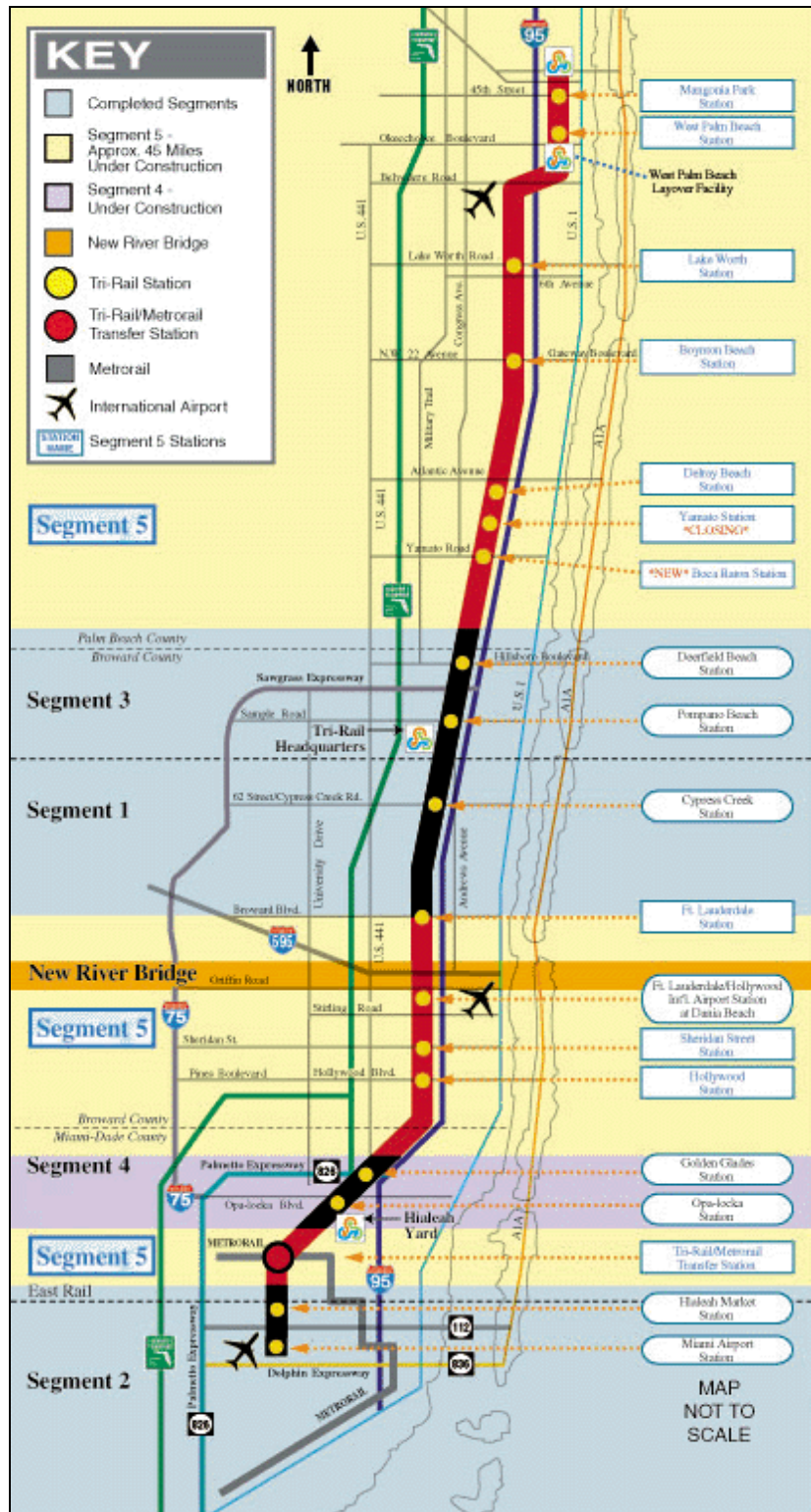
The Jupiter Corridor is a proposed 15.7-mile extension of Tri-Rail from West Palm Beach to Jupiter, Florida, along FEC right-of-way. SFRTA views this as a short-term project with a tentative completion in 2009 at a total estimated cost of \$151 million. Funding would be drawn from a combination of FDOT District IV, Federal Transit Administration (FTA) New Starts and other FTA programs, Palm Beach STP, and private-sector sources. The funding is required for track and signal improvements, grade crossing improvements, station construction, new maintenance layover facility, and acquisition of rolling stock.

### ***Scripps Transit Corridor***

The Scripps Research Institute is the largest, private, non-profit biomedical research organization in the United States. They have 2,800 employees based in a one million square foot facility in La Jolla, California. Scripps is planning a new facility in Palm Beach County to act as the east coast headquarters. Initially providing 545 above-average-wage jobs, Scripps anticipates the total number of Scripps and spin-off jobs to approach 6,500.

The plan involves development of a 3,700-acre research and development park on property currently owned by Mecca Farms and Vavrus Ranch. Part of SFRTA's medium- to long-range plan is to provide Tri-Rail service to this part over existing CSXT track. The service would be a 13.8-mile northwestern extension from the existing Mangonia Park Station. The total estimated cost is \$184 million.

Figure 4.2 South Florida Rail Corridor Double-Track Improvement Program



Source: [http://www.tri-rail.com/double\\_tracking/fact\\_sheet.htm](http://www.tri-rail.com/double_tracking/fact_sheet.htm).

### ***Florida East Coast Service between West Palm Beach and Miami (South FEC Rail)***

The FEC track lies adjacent to U.S. 1, running through densely developed areas along Florida's Atlantic seaboard. In fact, a large part of the original development in cities such as Miami, Hollywood, and Fort Lauderdale can be traced back to the availability of rail service. Tri-Rail would like to take advantage of this high population density by offering passenger rail service starting near the Miami Arena in downtown Miami and continuing north to a connection with existing Tri-Rail service in Pompano Beach. The total length of the proposed extension is 34.7 miles and it would serve not only the Miami central business district, but also downtown Fort Lauderdale and the Fort Lauderdale/Hollywood International Airport.

The South FEC Rail project is a medium-term project included in both the Broward County Long-Range Transportation Plan and the Tri-Rail Master Plan. Initial capital costs estimates are \$451 million (\$370 million in 2003 dollars).

### ***East Kendall***

The Kendall area, located in southwest Miami-Dade County, is primarily a suburban residential district. Many of the residents travel over severely congested routes to employment centers located north of the community. This rail project would connect Kendall residents with the proposed Miami Intermodal Center (MIC), providing service for both work and pleasure trips.

This project will connect the Kendall area with the MIC to be located at the Miami International Airport over a 17.4-mile extension along CSXT track parallel to State Roads 826 and 874. There are six proposed stations on this line (MIC, Blue Lagoon, Coral Way, Sunset, Killian, and Metro Zoo/Coral Reef). This is part of Tri-Rail's 2020 Long-Range Master Plan. Funding, estimated at \$815 million (\$511 million in 2003 dollars), has not yet been identified.

## **4.2.2 Orlando**

From 1999 to 2003, the population in the Orlando Metropolitan Area (Orange, Osceola, and Seminole Counties) increased by 17 percent. During this same timeframe, registered vehicles increased 23.6 percent, the roadway congestion index increased 18.9 percent, and the travel time index increased 11.2 percent.<sup>3</sup> This continued rapid growth has prompted METROPLAN ORLANDO (the metropolitan planning organization or MPO for the Orlando Metropolitan Area) and LYNX (the Central Florida Regional Transportation Authority) to look toward commuter rail solutions to mitigate highway congestion. There is both a light rail and a commuter rail system under study. A light rail system connecting

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<sup>3</sup> "Tracking the Trends 1999-2003: A Transportation System Indicators Report for the Orlando Metropolitan Area," METROPLAN ORLANDO, January 2005.

Orlando International Airport with the visitor attractions on International Drive is being planned as the first phase.

### ***North/South Corridor Commuter Rail***

A 61-mile, 15-station commuter rail system linking DeLand, Orlando, and Kissimmee also is being studied. These trains would operate in the 65- to 79-mph range utilizing existing CSXT right of way. The service is proposed to be offered at 30-minute peak rush hour headways, with off-peak service times still to be determined. At an August 2004 joint METROPLAN ORLANDO and LYNX meeting, both boards agreed to move forward with the North/South Commuter Rail Corridor Project. The Volusia County MPO also voted to move forward with this project. The FDOT is currently conducting an environmental assessment to determine the impact of commuter rail operations on Central Florida's ecosystem. This study should be complete in the fall of 2005. The initial operating segment from DeBarry to Orlando is scheduled to open in 2009.

### ***Light Rail Transit***

FDOT, METROPLAN ORLANDO, and LYNX have been studying a potential 22-mile light rail transit (LRT) system running between Altamonte Springs and Sea World, via downtown Orlando. A Supplemental Draft Environmental Impact Statement (EIS) has been prepared. According to the METROPLAN 2025 Long-Range Transportation Plan,<sup>4</sup> this LRT would require 29 light rail vehicles (LRVs), an annual operating and maintenance budget of \$21.9 million, and initial capital costs of \$1,290 million (in 2002 dollars). An initial operating segment between SeaWorld and the LYNX Central Station in downtown Orlando would require 19 LRVs, \$13.8 million in annual operating and maintenance budget, and \$715.3 million in initial operating costs. The SeaWorld-LYNX Central Station is projected to have the highest projected ridership at 25,000 boardings per day.

## **4.2.3 Tampa**

The Hillsborough Area Regional Transit Authority (HART) is designated as a regional transportation organization providing public mass transit services in Hillsborough County, which includes the City of Tampa. HART directly provides, or provides through arrangements with other organizations, the following services:<sup>5</sup>

- Local fixed-route and express bus service;
- Vanpool and Guaranteed Ride Home service;
- 100 percent wheelchair/bicycle-accessible buses;

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<sup>4</sup> Adopted by METROPLAN ORLANDO in September 2004.

<sup>5</sup> Adapted from <http://www.hartline.org/>.



- Transportation Accessible Program (TAPS);
- Door-to-door paratransit service;
- Travel planning assistance;
- Circulator service in South County;
- Travel training;
- Employer/Subscription mini-bus service; and
- Bus Buddy Training.

In 1995, the Hillsborough County MPO adopted the 2015 Long-Range Transportation Plan, which included a regional rail system. After much study, the HART board selected a light rail line in 2001 that provides new rail service to Tampa. This is a 20-mile rail line that will connect Downtown Tampa to the University of South Florida, Hyde Park, West Tampa, and the Westshore Business District. It is estimated that nearly 30,000 riders will use the rail service daily. The annual capital cost of the overall system is approximately \$985 million, while the annual operating cost is \$22 million. If funding is secured, construction is scheduled to start in 2008, with the first 10-mile segment open by 2011.

## ■ 4.3 High-Speed Rail

### 4.3.1 Background<sup>6</sup>

In Section 4.1, intercity passenger rail service was discussed in the context of Class IV track, which allows maximum operating speeds of 79 mph. High-speed rail operates in the 120- to 200-mph range, or faster, and requires a minimum of Class VII or greater track. The primary advantage of high-speed rail is that it expands the 75- to 300-mile competitive range of intercity service, especially providing stronger alternatives to air travel at longer distances. The primary disadvantage of high-speed rail is the cost associated with new alignments, track upgrades, rolling stock, and highway-rail grade crossing separations. The Orlando-Tampa corridor, for example, already is heavily congested with freight trains and would require a new alignment for high-speed passenger rail. Safety reasons also prompt a higher degree of separation between high-speed passenger and freight trains, either through dedicated track or temporarily.<sup>7</sup>

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<sup>6</sup> Background information obtained from: <http://www.floridahighspeedrail.org/>. In particular, the document “History of High-Speed Rail in Florida: Chronology of Events,” was used.

<sup>7</sup> For example, there are sections of the Northeast Corridor owned by Amtrak where freight trains are only permitted to operate between 10:00 p.m. and 6:00 a.m.

Florida has been evaluating high-speed rail since at least the mid-1970s, when the Florida Transit Corridor Study analyzed 150-mph trains operating between Daytona Beach and St. Petersburg. In the 1980s, Governor Bob Graham created the Florida High-Speed Rail Committee, which issued a report recommending public/private partnerships be formed to implement a high-speed rail network to meeting Florida's mobility needs in the 21<sup>st</sup> Century. In 1984, the Florida Legislature enacted the Florida High-Speed Rail Transportation Committee Act and, by 1986, a study was completed recommending a high-speed rail system connecting Miami, Orlando, and Tampa. Proposals were received and reviewed, but eventually they were rejected by the State as too expensive. In 1992, the Florida Legislature passed the New High-Speed Rail Act, bringing FDOT into the efforts. In 1995, FDOT announced a funding commitment of \$70 million per year for 30 years for high-speed rail. This led to the partnership with the Florida Overland Express (FOX).

### 4.3.2 The Florida Overland Express Public/Private Partnership

FOX consisted of a consortium that included Fluor Daniel, Oderecht Contractors, Bombardier, and GEC Alstom. This consortium proposed the construction of 320 miles of new electrified, grade-separated, dedicated high-speed rail track linking Miami, Orlando, and Tampa at a total cost of \$6.1 billion. Top speeds would reach 200 mph, providing travel times of 1.5 hours between Orlando and Miami. The FOX consortium proposed debt financing with bonds fully repaid from system revenues and a \$70 million annual contribution from the State.

A ridership and revenue report was developed for FDOT in 1998 to evaluate the FOX effort.<sup>8</sup> This study included: intercity highway and air surveys to estimate the demand for intercity trips; development of travel forecasting models using revealed choices (existing conditions) and stated-preferences (hypothetical scenarios); and estimates of future ridership and revenues for the FOX system.

The FOX study analyzed several alternatives, and provided detailed ridership and revenue estimates comparing three alignments:

- **FOX Baseline Alignment.** The Baseline alignment would attract an estimated eight million riders in 2010, with revenues of \$413 million generated by these riders.
- **Sawgrass Mills Alignment.** The Sawgrass Mills alignment differed from the Baseline by relocating the Broward County station near Sawgrass Mills Mall, a large outlet shopping mall in Sunrise, Florida, rather than near Fort Lauderdale airport. This alignment would require 11 minutes in additional travel time in comparison to the Baseline alignment and would have generated an estimated 7.3 million riders and \$375 million in revenue for 2010.

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<sup>8</sup> "Florida Overland Express High-Speed Rail Study: Final Ridership and Revenue Report," prepared for Florida Department of Transportation by KPMG Peat Marwick LLP, April 1998.

- **Inland Alignment.** The Inland alignment proposed an “inland” route, without service to the Palm Beach station. The Inland alignment travel time would be five minutes faster between Tampa and Miami than the Baseline alignment. This alignment would generate an estimated at 5.02 million riders and \$136 million in revenue.

The corresponding capital and operating cost estimates are not included in the FOX study.

In 1999, this effort was terminated and, in 2000, the more cost-effective “Florida Intercity Passenger Rail Service Vision Plan” was prepared by Amtrak (see Section 4.1).

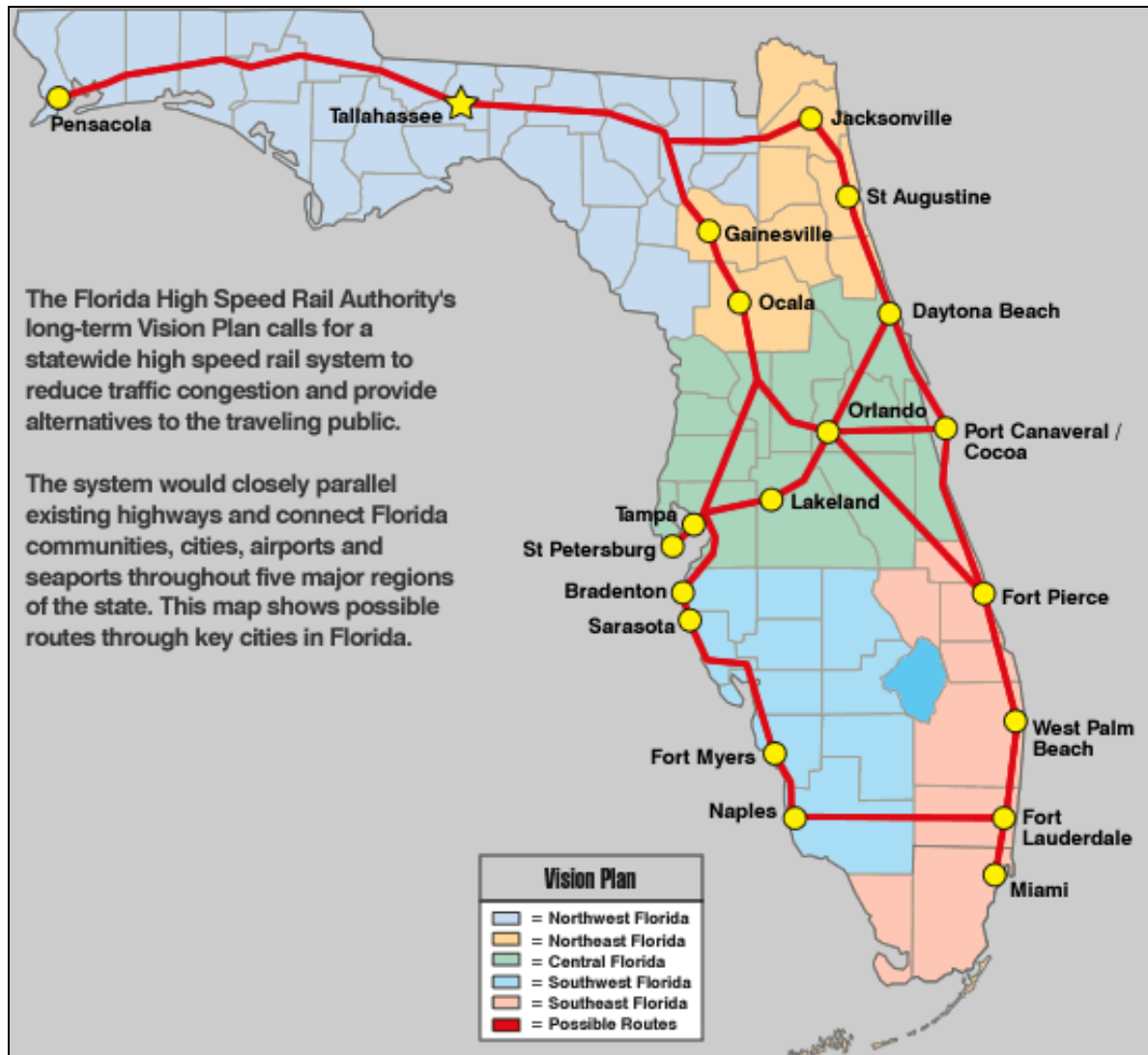
### 4.3.3 Florida High-Speed Rail from 2000 to Present

In November 2000, Florida voters approved an amendment to the state constitution mandating the development of high-speed passenger transportation service linking Florida’s five largest urban areas. This service would have speeds in excess of 120 mph and would operate on dedicated rails or guideways. This prompted the Florida Legislature to enact the Florida High-Speed Rail Authority Act, which created the nine-member Florida High-Speed Rail Authority.

The High-Speed Rail Authority created a vision for a high-speed rail network linking the major population centers in Florida (see Figure 4.3). The Authority issued a request for proposal in October 2002 to design, build, operate, maintain, and finance an initial high-speed rail service between Tampa and Orlando. The cost estimate was \$2.4 billion. The route would begin near the Tampa Central Business District and travel parallel along I-4 into Orlando and on to the Orlando International Airport. A Phase I, Part 2 extension into St. Petersburg also was planned.

Growing concern over the costs of implementing a high-speed rail network led to efforts to repeal the amendment. In November 2004, Florida voters chose to overturn the original amendment, resulting in removal of the constitutional mandate. Although the amendment has been repealed, the Florida High-Speed Rail Authority Act is still in effect pending action by the Florida Legislature. The Florida High-Speed Rail Authority decided it was in the best interest of the State of Florida to complete the Final EIS and to pursue a Record of Decision from the FRA for the initial Tampa-Orlando segment, completing and preserving the progress to date.

Figure 4.3 Florida High-Speed Rail Authority Long-Term Vision Plan



Source: The Florida High-Speed Rail Authority at <http://www.floridahighspeedrail.org/>.

#### 4.3.4 The Future of Florida High-Speed Rail

As of this writing, the Florida High-Speed Rail Authority is completing the work in progress (EIS and Record of Decision) for the initial Tampa-Orlando segment. Beyond that, the future of high-speed rail in Florida is unclear. Possible scenarios include:

- **Additional Studies** - It seems likely that studies will continue, either publicly or privately sponsored, evaluating the prospects of high-speed rail in Florida.

- **Intercity Service Evolving into High-Speed Service** - This would appear to be the most likely candidate and would follow the pattern in the Northeast Corridor. Implementing 79-mph intercity passenger rail service would then allow track upgrades and a gradual speed increases along selected corridors. This has occurred in the heavily traveled Northeast Corridor, where Amtrak operates Acela trains at 150 mph along some segments. Primary issues with this approach are separation of passenger and freight rail, and the numerous highway-rail at-grade crossings.
- **CSXT “A Line” to “S Line” Shift** - As will be discussed in the next section, and as demonstrated in the April 2005 CSXT report submitted to FDOT entitled “CSX Submission for the Florida Strategic Intermodal System,” the “S Line” is the preferred route for rail freight traffic. This creates an opportunity to operate passenger service on the “A Line,” though there are still significant capacity issues to overcome. One of the most congested areas is the Tampa to Orlando rail corridor, which is heavily utilized by freight trains.

## ■ 4.4 Freight Rail Initiatives Potentially Impacting Passenger Service

### 4.4.1 CSX Transportation Background and Strategic Plan

CSXT is a Class I railroad operating the most extensive rail network in Florida. CSXT provides the peninsula with its principal national rail connections and maintains its national headquarters at Jacksonville.

CSXT owns 1,616 route miles in Florida and operates over an additional 130 miles owned by FDOT (SFRC) and Georgia and Florida RailNet (GFRR). CSXT’s Florida route miles represent approximately eight percent of the railroad’s 23,000 national route miles. CSXT serves most of the State’s major urban areas and provides national Class I network connections for many of Florida’s short line railroads.



CSXT is in the process of developing a strategic plan for its future. This is necessary to plan capital investments, evaluate existing markets and new opportunities, and identify other measures to maximize shareholder value and insure the long-term viability of the company. On December 3, 2004, CSXT presented FDOT a strategic vision for its rail sys-

tem in Florida. This presentation is summarized in the Freight Rail Component of the Florida Rail Plan, and the parts relevant to passenger rail are repeated here.

The CSXT presentation, entitled “State of Florida & CSX: Building for the New Economy,” consisted of three main sections: national context; Florida context; and strategic synergies. This is followed by an interpretation of the implications for Florida intercity passenger rail service.

### *National Context*

Studies, such as the U.S. DOT Freight Analysis Framework, have projected a major freight crisis is coming with respect to growth in traffic and the available infrastructure to support that growth. Railroads must be part of the solution. Investment in rail capacity expansion is one of the most productive means of averting this crisis, with an investment of \$80 billion leading to public benefits of \$600 billion. This includes: \$400 billion in benefits to shippers and consumers through lower transportation costs; \$180 billion in societal benefits of reduced pollution, congestion, and improved safety; and, \$27 billion in reduced highway construction and maintenance costs.

Railroads are one of the most capital-intensive industries, investing about 18 percent of their revenue back into the infrastructure. They cannot afford large capacity expansion programs from current revenues, and existing public and private investment options are limited.

### *Florida Context*

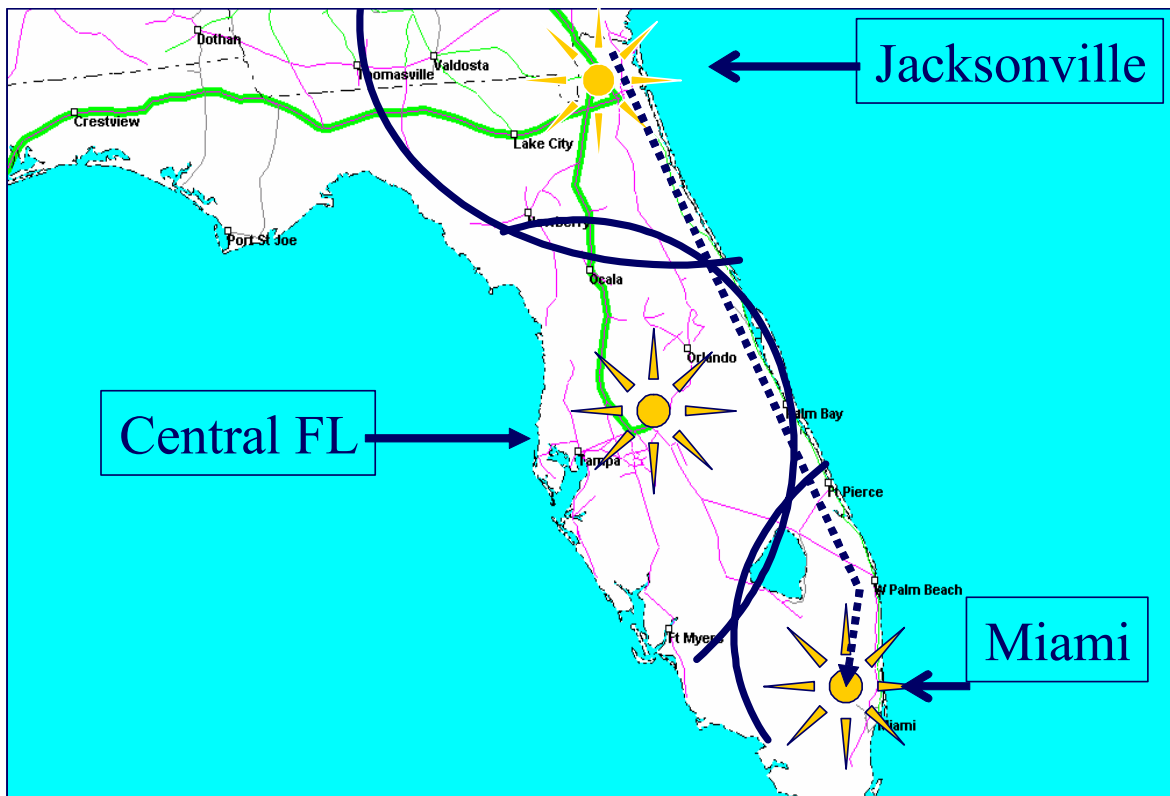
Florida is clearly a growth market for transportation services. The population is growing at twice the national average and it is projected to surpass New York and become the third most populous state by 2030. Florida also represents the “New Economy” with one in five Floridians working in retail. The State ranks fourth in high-tech employment.

CSXT wants to position its company and the State to take advantage of this growth by:

- Continuing to improve and decongest Jacksonville;
- Deepening the partnership with FEC to serve the Southeast;
- Leveraging the Central Florida franchise; and
- Creating opportunities for the balance of the network.

CSXT views Florida as three primary markets: Northeast, Central, and Southeast.

Figure 4.4 Key Florida Markets



Source: “State of Florida & CSX: Building for the New Economy,” presentation to Florida Department of Transportation by CSX Transportation on December 3, 2004.

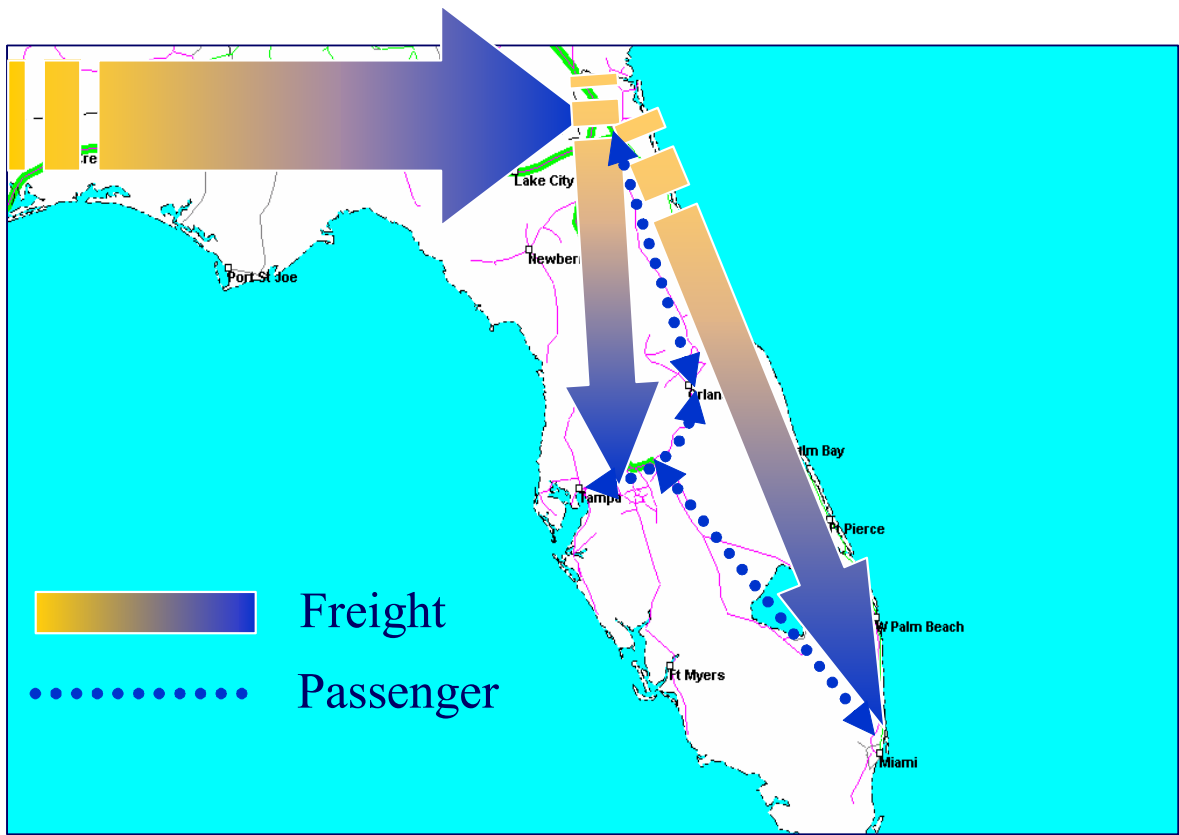
Note: Heavy Green Lines - CSXT Core Routes, Light Magenta Lines - Other CSXT Routes, Dotted Line - FEC Route.

CSXT’s purpose is to make rail competitive in the “New Economy.” The method to achieving this is through the development of multiple multiproduct, multicommodity distribution centers in the State.

### *Strategic Synergies*

CSXT sees potential synergies with the State of Florida, both in leveraging benefits from the “New Economy” and in the citizen’s desire for intercity passenger rail service. With respect to intercity passenger rail service, CSXT envisions a separation of high-density freight lines and passenger service, as possibly depicted in Figure 4.5.

**Figure 4.5 Combining State and CSX Transportation Freight/Passenger Strategies Might be Synergistic**



Source: “State of Florida & CSX: Building for the New Economy,” presentation to Florida Department of Transportation by CSX Transportation on December 3, 2004.

### *Interpretation of the Implications to Intercity Passenger Rail Service*

Figures 4.4 and 4.5 demonstrate a desire by CSXT to: 1) focus investments into fewer, high-density freight lanes; 2) develop a partnership with the FEC for service to Southeast Florida; and 3) separate freight and passenger service in Florida as much as possible. These maps clearly show a concentration of freight service on the “S Line” between Jacksonville and a possible distribution center in the Orlando/Tampa area. Freight volumes on the “A Line” would be reduced, possibly freeing the line for Jacksonville-Orlando-Tampa passenger service, though severe rail congestion in the Orlando-Tampa corridor would need to be addressed. The maps also show concentrating Southeast Florida freight on the FEC line, which fits with the FEC strategy of double tracking its network. This would free the CSXT Orlando-Miami route for passenger service, but it also would make Jacksonville-Miami intercity passenger rail service more difficult over the FEC due to potential conflicts with and capacity constraints from increased freight trains.



It is difficult to know CSXT's intentions or plans, but the presentation on December 3, 2004, and the maps in Figures 4.4 and 4.5 appear to be positioning several lines for sale. This is consistent with CSXT's national strategy of rationalizing less profitable and duplicate lines. CSXT has announced plans to rationalize at least 1,000 miles of its national network, with a 300-mile section in Indiana being the largest sale to date.

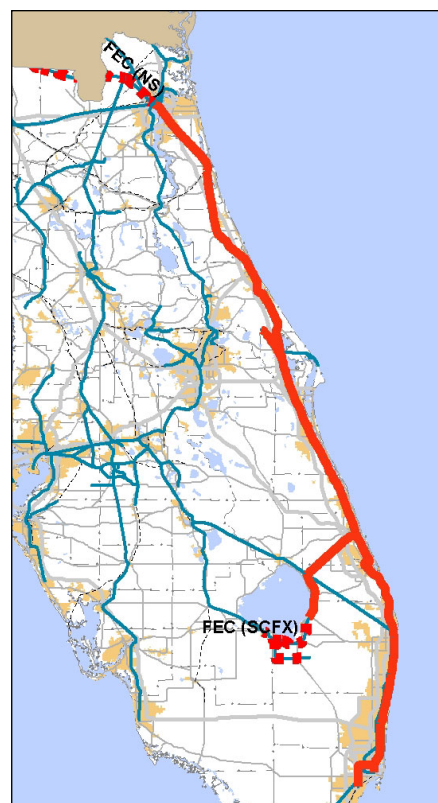
A subsequent April 2005 CSXT report submitted to FDOT entitled "CSX Submission for the Florida Strategic Intermodal System," reinforces this view with \$328 million in needed projects, mostly occurring on the "S Line." This report further warns that terminal capacity expansion (not included in the \$328 million) "will likely be the most expensive"<sup>9</sup> part of the plan to move more long-haul truckloads by rail.

#### 4.4.2 Florida East Coast Railway Strategic Plan

FEC is a Class II regional railroad operating between Jacksonville and Miami. FEC maintains the second largest railroad network in the State after CSXT and provides the only north-south mainline along the Atlantic Coast between West Palm Beach and Jacksonville.

FEC is headquartered at St. Augustine and is owned by Florida East Coast Industries. It operates 386 route miles, including 351 miles of mainline track between Jacksonville and Miami; 276 miles of branch, switching, and other secondary track; and 159 miles of yard track. FEC provides exclusive rail service to the Ports of Palm Beach, Everglades (Fort Lauderdale), Miami, and the Kennedy Space Center. FEC's chief connection with CSXT and Norfolk Southern (NS) occurs at Bowden Yard in Jacksonville. FEC also connects with CSXT at West Palm Beach and Miami (to FDOT's SFRC) and with the South Central Florida Express at Fort Pierce.

In anticipation of available funding through the Strategic Intermodal System (SIS), FEC produced a report entitled "Strategic Intermodal System Project Needs" in March 2004. This report detailed 20 projects on its network and, along with subsequent documents, established project priorities. The projects were largely aimed at capacity expansion and included:



<sup>9</sup> "CSX Submission for the Florida Strategic Intermodal System," prepared by HDR, p. 11, April 2005.

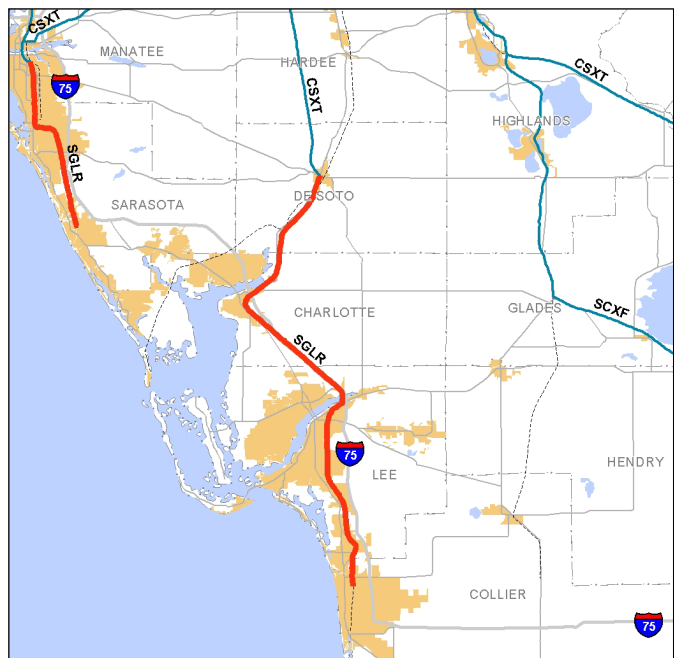
- Double tracking the FEC network (10 projects);
- Intermodal improvements to enhance modal transfers (four projects);
- Grade crossing improvements (three projects);
- Grade crossing elimination (one project);
- New track construction (one project); and
- Vehicular access improvement (track access in Jacksonville) (one project).

The double tracking and grade crossing projects will increase capacity and transit times, both enhancing the viability of operating intercity passenger rail operations over FEC.

### 4.4.3 Network Gaps

#### *Southwest Florida and the Seminole Gulf Railway*

The Seminole Gulf Railway (SGLR) is a Class III railroad with two lines in Southwestern Florida: The Fort Myers Line between Arcadia and Vanderbilt Beach and the Sarasota Line between Oneco and Venice. The Fort Myers Line serves customers in De Soto, Charlotte, and Lee Counties and interchanges with CSXT at Arcadia. The Sarasota Line (currently inactive) runs between Oneco and Venice and interchanges with CSXT at Oneco.



Southwest Florida is projected to be the fastest growing section of the State, with population increasing by 71 percent through 2020 (see Figure 2.2). Amtrak identified the

Tampa-Fort Myers corridor as one of the leading intercity passenger rail markets based on distance and travel volumes (Table 4.1). The problem with passenger rail service to this rapidly growing area is the gap in the SGLR network, and the generally poor quality of the track. It would take substantial investments to upgrade this track to support 79-mph passenger rail service.

#### *Orlando - Space Coast*

In terms of person trips per year, Amtrak identified the Orlando-Space Coast corridor as the most heavily traveled (Table 4.1), but the lack of existing rail lines have made this a lower priority than the volumes would dictate. A rail link parallel to the Bee Line

Corridor also would potentially remove hundreds of daily trucks hauling construction material from the roads. Construction of this line was explored previously, but blocked by area residents opposed to rail in their back yards.

### *Fort Myers - Miami*

Another area that would seem to support intercity passenger rail service based on distance and volume is the Miami-Fort Myers corridor. I-75 (“Alligator Alley”) is a heavily traveled route running thorough the Everglades. There also is a need for freight rail service in this corridor, especially movements of construction rock from the Miami area into the rapidly growing towns of southwestern Florida. The lack of existing rail lines make future rail service a lower priority in this corridor.

## 5.0 Other Issues and Summary

This chapter looks at Federal (Section 5.1) and public/private (Section 5.2) opportunities for funding passenger rail services in Florida. It concludes in Section 5.3 with a summary of the key points of this report.

### ■ 5.1 Federal Opportunities

The most prevalent source of funds for passenger rail and bus transit projects is through the many assistance programs of the FTA. These funds are generally provided through legislative formulas or discretionary authority and generally follow an 80 percent Federal and 20 percent local contribution, although FTA recently has been promoting a 50/50 split.

For FY 2005, Florida received \$259 million in FTA funding, though the majority of this went to bus projects. Despite Florida being ranked fourth in the nation in terms of population (5.67 percent of U.S. total), the State ranked 12<sup>th</sup> in terms of FTA funding allocation (2.38 percent). Table 5.1 provides a summary of the primary FTA programs and the Florida allocation for FY 2005.<sup>1</sup>

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<sup>1</sup> Federal Transit Administration, “Grant Program Apportionment Summaries by State,” FY 2005, prepared by the Office of Program Management, January 10, 2005.

**Table 5.1 Federal Transit Administration Grant Programs**

<b>Program</b>	<b>Description</b>	<b>Florida FY 2005 Allocation (Bus and Rail)</b>
Metropolitan Planning	This program provides funding to support the planning of transportation investment decisions in metropolitan areas.	\$4.0 million
State Planning and Research Grants	This program provides funding to states for statewide planning for non-urbanized areas, and other technical assistance activities.	\$0.8 million
Urbanized Area Formula Program	This program makes Federal resources available to urbanized areas for transit capital and operating assistance in urbanized areas.	\$175.7 million
Non-Urbanized Area Formula Program	This program provides formula funding to states for supporting public transportation in areas of less than 50,000 population.	\$7.0 million
Rural Transit Assistance Program	This program provides funding to assist in the design and implementation of training and technical assistance projects and other support services tailored to meet the needs of transit operators in non-urbanized areas.	\$0.1 million
Elderly and Persons with Disabilities	This program provides formula funding to states for assisting private non-profit groups in meeting the transportation needs of the elderly and persons with disabilities.	\$6.3 million
Bus and Bus-Related Program	This program provides funding for buses, bus maintenance and administrative facilities, transfer facilities, park-and-ride stations, bus maintenance, passenger shelters and bus stop signs, and other bus-related purchases.	\$35.2 million
Fixed-Guideway Modernization	This program provides funds to modernize or improve existing rail or fixed-guideway systems, including rehabilitation of rolling stock, track, structures, signals, etc.	\$18.2 million
Major Capital Investments - New Starts	This program provides funds for construction of new fixed-guideway systems or extensions to existing fixed-guideway systems.	\$11.3 million
Flexible Funding	This is a funding mechanism, authorized under the Transportation Equity Act for the 21 <sup>st</sup> Century (TEA-21), which allows some highway funds to be transferred to transit projects, and vice versa.	0
Job Access and Reverse Commute Program	This program provides funding to develop transportation services for welfare recipients and low-income individuals to and from jobs, and to develop transportation services from urban centers to suburban employment opportunities.	\$0.6 million
National Research and Technology Program	This program provides funds to conduct national research and the development of advanced transit technology.	0
Over-the-Road Bus Accessibility	This program provides funding for private over-the-road bus operators to retrofit vehicles to meet the requirements of the Americans with Disabilities Act.	0

Source: Program names and descriptions taken from the Federal Transit Administration web site at: [http://www.fta.dot.gov/grant\\_programs/overview/9913\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/overview/9913_ENG_HTML.htm). Funding Allocation taken from Federal Transit Administration, "Grant Program Apportionment Summaries by State," FY 2005, prepared by the Office of Program Management, January 10, 2005. Breakouts differentiating bus and rail funding are not contained in this report.

The two primary sources of Federal funds for rail transit are the New Starts and the Rail Modernization programs.<sup>2</sup> The New Starts program is a discretionary program, completely earmarked in the Federal annual appropriations process. Under TEA-21, the guaranteed funding for new starts grew from \$760 million in FY 1998 to \$1.2 billion in FY 2003. The New Starts program provides funds for construction of new fixed-guideway systems or extensions to existing fixed-guideway systems. Eligible purposes are light rail, rapid rail (heavy rail), commuter rail, monorail, automated fixed-guideway system (such as a “people mover”), or a busway/high-occupancy vehicle (HOV) facility, or an extension of any of these. Projects become candidates for funding under this program by successfully completing the appropriate steps in the major capital investment planning and project development process. Major new fixed-guideway projects, or extension to existing systems financed with New Starts funds, typically receive these funds through a full funding grant agreement that defines the scope of the project and specifies the total multiyear Federal commitment to the project. The FTA typically enters into a four- to seven-year timeframe for scheduled payouts of these funds.

The Rail Modernization program apportions funds to transit properties around the country with rail transit systems that have been in operation seven or more years. These funds are used to rehabilitate and upgrade existing rail systems to ensure that they remain in state of good repair. Eligible systems includes heavy rail, commuter rail, light rail, monorail, trolleybus, aerial tramway, inclined plane, cable car, automated-guideway transit, ferryboats, that portion of motor bus service operated on exclusive or controlled rights-of-way, and HOV lanes. Eligible purposes are capital projects to modernize or improve existing fixed-guideway systems, including purchase and rehabilitation of rolling stock, track, line equipment, structures, signals and communications, power equipment and substations, passenger stations and terminals, security equipment and systems, maintenance facilities and equipment, operational support equipment (including computer hardware and software), system extensions, and preventive maintenance.

As it plans for the future, Florida can consider three basic tools for investing in passenger rail systems:

- 1. Grants from surface transportation programs.** Grants give states and the Federal government the best control over the use of funds. Funds can be targeted to specific projects that solve freight and passenger rail needs. At the Federal level, the long-standing FHWA Section 130 Rail-Highway Grade Crossing Program provides dedicated funding to improve safety at rail grade crossings. The Congestion Mitigation and Air Quality Improvement Program (CMAQ), created in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), has benefited passenger (e.g., Amtrak’s Downeaster) and freight rail intermodal projects where there is an air quality benefit. There also are discretionary grant programs such as the Corridors and Borders Programs in TEA-21 and a proposal for a Program for Projects of National Significance

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<sup>2</sup> Summary descriptions of these programs taken from the U.S. House of Representatives web site at <http://www.house.gov/transportation/highway/06-20-02/06-20-02memo.html> and the Federal Transit Administration web site at [http://www.fta.dot.gov/grant\\_programs/overview/9913\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/overview/9913_ENG_HTML.htm).

in reauthorization. The FTA New Starts and Rail Modernization programs also fall into this category.

- 2. Loan and credit enhancement programs** such as Transportation Infrastructure Finance and Innovation Act (TIFIA), Railroad Rehabilitation and Improvement Financing (RRIF), and State Infrastructure Banks (SIB).
  - TIFIA provides loans, loan guarantees, and lines of credit for large projects. The program is modeled after a loan provided for the Alameda Corridor Transportation Project. To qualify for assistance under TIFIA, a project needs a source of revenue to cover debt service costs; the total project must be valued at more than \$100 million or 50 percent of the State’s annual Federal-aid highway apportionments, whichever is less; the Federal TIFIA loan cannot exceed one-third of the total project cost; and the project’s senior debt obligations must receive an investment-grade rating from at least one of the major credit rating agencies. These factors limit its applicability, and private rail projects are not eligible today (although eligibility is proposed for reauthorization); but TIFIA is an important tool that can be used for financing joint highway and rail projects that meet the program guidelines.
  - RRIF is a loan and credit enhancement program for freight rail. It seems particularly oriented to needs of regional and short line railroads. The program has been slow to catch on because of features such as “lender of last resort” and requirement that project recipient assume the credit risk premium. Though this is a freight rail program, funding has been used for Amtrak and it should not be disregarded as a potential passenger rail source.
  - SIBs are designed to complement traditional Federal-aid highway and transit grants by providing states increased flexibility for financing infrastructure investments. Approximately 32 states have SIBs that provide loans for highway and in some cases transit improvements. Expanded SIB authority in reauthorization could provide states with a mechanism to provide revolving loans and possibly credit enhancement for rail improvements in the future. State-only SIBs are another possibility, such as Pennsylvania’s initiation of a new state SIB for rail.
- 3. Tax-expenditure financing programs**, including accelerated depreciation, tax-exempt bond financing, and tax-credit bond financing. Expansion of tax-exempt private activity bonds for surface transportation has been proposed in the Administration’s TEA-21 reauthorization bill; these could potentially be beneficial for rail investment. Tax-credit bond financing is a new form of Federally subsidized debt financing, where the investor receives a Federal tax credit in lieu of interest payments on the bonds. From the borrower’s perspective, it provides a zero-interest-cost loan. These programs can be used to provide targeted, income-tax benefits for investments made to improve the efficiency or increase the capacity of the rail system. They have the potential to elevate the rail system’s rate of return and simultaneously reduce its cost of capital.

Florida will likely want to explore all of these tools, tailoring them to projects that produce public and systemwide benefits. The Alameda Corridor rail project, completed at a cost of \$2.4 billion, is the bellwether for innovative public-private financing of highway and rail infrastructure improvements. The project was funded through a combination of railroad revenues; port revenues; state, local, and regional funds; and Federal loan guarantees. Rail projects often provide both freight and passenger benefits (e.g., the Chicago Region Environmental and Transportation Efficiency Program (CREATE)<sup>3</sup>), thus further expanding the potential revenue sources.

## ■ 5.2 Public-Private Opportunities

According to the FHWA, a “public-private partnerships” (PPP) refers to a contractual agreement between a public agency and private-sector entity that allow for greater private-sector participation in the delivery of transportation projects. Traditionally, private-sector participation has been limited to planning, design, or construction contracts on a fee-for-service basis. By expanding the private-sector role, the public sector can leverage additional technical, management, and financial resources.<sup>4</sup>

Some of the primary reasons for public agencies to enter into PPPs include:

- Accelerating the implementation of high-priority projects;
- Turning to the private sector to provide specialized management services;
- Enabling the delivery of new technology developed by private entities;
- Drawing on private-sector expertise in accessing and organizing the widest range of private-sector financial resources;
- Encouraging private entrepreneurial development, ownership, and operation of rail transit and/or related assets; and
- Allowing for the reduction in the size of the public agency and the substitution of private-sector resources and personnel.

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<sup>3</sup> CREATE was conceived as a package of critically needed improvements to the Chicago region’s rail infrastructure. The project is being advanced by a consortium consisting of the Illinois Department of Transportation, Chicago Department of Transportation, the six largest North American freight railroads, and Metra, Chicago’s regional passenger railroad. CREATE calls for \$1.5 billion worth of rationalization, reconstruction, and upgrades to five cross-town corridors in Chicago.

<sup>4</sup> Much of the introductory material in this section is from the Federal Highway Administration Internet site on Public-Private Partnerships at: <http://www.fhwa.dot.gov/ppp/index.htm>.



From the private-sector viewpoint, a PPP allows entry into a new venture with reduced start-up debt and a shifting of much of the risk to the public sector. For rail operations, acquisition of right-of-way and repair and/or upgrading of track is difficult to finance because these assets have limited value and generally are not acceptable as collateral. Rolling stock, on the other hand, is an easily transferable asset that can be financed. A common role for the public sector, therefore, is to provide access to right-of-way for new transit operations.

Even after a new transit operation begins, it is unlikely that farebox receipts will fully cover operating expenses. This is in part due to the requirement to run low-revenue trains at off times and to low-volume locations as a public service rather than a business decision. The public sector needs to enter into PPPs realizing that both capital and operating financial support will likely be required.

PPPs provide the most likely scenario for providing intercity passenger rail services in Florida, and the rest of the nation. This might be through Amtrak (which essentially acts as a private-sector entity forced to return a profit) or through an agreement like FOX described in Section 4.3. The critical component to any PPP is for both sides to enter the negotiations with a willingness to contribute toward a successful outcome. If the private sector attempts to place all the risk on the public sector, or if the public sector expects the private sector to provide all the funding, the partnership is unlikely to succeed.

## ■ 5.3 Summary

As has been shown throughout this report, the Florida rail system currently is undergoing significant changes that will greatly impact the future of passenger and freight rail service in the State. Key changes include:

- CSXT is developing a strategic plan for the new economy that will restructure its rail operations and have broad implications for rail services throughout Florida;
- FEC plans to double track most of its network, providing increased capacity for both freight and passenger trains along the entire Florida eastern seaboard;
- Florida voters overturned the high-speed rail legislation, but there is still a strong demand and desire for intercity passenger rail services that could help mitigate congestion on the roads and at the airports;
- Florida's SIS Program provides a stable, long-term source of funds, allowing FDOT to make strategic investments that will enhance the rail network;
- The Federal government is debating legislation that will reauthorize the Federal surface transportation programs, and provide additional funding for passenger rail projects; and

- The Federal government continues to debate the future of Amtrak and intercity passenger rail service in the United States.

As a result, Florida's rail network is at a critical juncture:

- The Florida population continues to grow at twice the national average, generating high congestion and delays in the form of more passenger vehicle travel on the roadways and more commercial vehicles delivering goods.
- Airport congestion and delays will increase as the demand for interstate and intrastate air travel increases.
- The CSXT restructuring will create difficult decisions about the benefits and costs of abandonments, purchases by other rail operators, intercity passenger service, and recreational uses. Unique opportunities to acquire valuable rail corridors for passenger operations may become available.
- Increasing roadway and railroad traffic will create more delays and safety hazards at the 5,000 at-grade crossings in Florida.
- Neither the State, potential private transit operators, nor the freight railroads will have funding to address all of the needs.
- A long-term vision, such as that presented in Amtrak's "Florida Intercity Passenger Rail Service Vision Plan," needs to be adopted to begin addressing these issues.

# Glossary

**AAR** - Association of American Railroads. An association of private rail carriers that was founded to promote cooperation among the rail carriers; headquartered in Washington, D.C.

**AASHTO** - American Association of State Highway and Transportation Officials. AASHTO is a non-profit, non-partisan association representing highway and transportation departments in the 50 states, the District of Columbia, and Puerto Rico. It represents all five transportation modes: air, highways, public transportation, rail, and water. Its primary goal is to foster the development, operation, and maintenance of an integrated national transportation system.

**Abandonment** - Elimination of a line segment from a rail network. Abandonments must be approved by the Surface Transportation Board (STB).

**Access Price** - The cost to access a particular mode. The access price for an automobile is the average parking cost for an automobile. The access price for transit is zero.

**Access Time** - The time it takes to access a particular mode. For example, the access time for an automobile can be assumed to be zero. The access time for transit is the walk time plus the wait time for that mode.

**ADT/AADT** - Average Daily Traffic/Annual Average Daily Traffic. The number of vehicles or passengers using a facility on an average day. It is calculated by dividing the total yearly volume (of passengers or vehicles) by an appropriate number of days (365 if service is equal on weekends).

**AGR** - Alabama and Gulf Coast Railway. A Class III railroad with operations in Florida.

**“A Line”** - A former Atlantic Coast Line, which along with the “S Line” forms CSX Transportation’s major north-south lines terminating in central Florida. Between Jacksonville and central Florida, the “A Line” is the eastern CSXT line, passing through Pecan, Seville, Orange City, Sanford, Orlando, etc.

**Amtrak** - National Railroad Passenger Corporation. The U.S. operator of intercity passenger rail service. Amtrak has provided intercity and long-distance services to Florida for more than 35 years.

**AN** - AN Railway. A Class III railroad with operations in Florida.

**APTA** - American Public Transportation Association. An international organization that has been representing the transit industry since 1882. APTA members include bus, rapid

transit and commuter rail systems, and the organizations responsible for planning, designing, constructing, financing, and operating transit systems.

**ATC** - Automatic Train Control Systems. Technologies to monitor and control the movements of trains, thereby eliminating the risk of human error and reducing collisions.

**ATIS** - Advanced Traveler Information System. A system that attempts to improve transportation system efficiency by providing users with information about the transportation network.

**AVO** - Average Vehicle Occupancy. The number of persons per vehicle.

**Ballast** - Foundational material placed on the roadbed for the purposes of distributing weight, providing drainage, and holding the track line and surface.

**Barge** - A non-motorized water vessel. Usually flat-bottomed and towed or pushed by other craft, used for transporting freight.

**BAYL** - Bayline Railroad. A Class III railroad with operations in Florida.

**Berth** - A specific segment of wharfage where a ship ties up alongside at a pier, quay, wharf, or other structure that provides a breasting surface for the vessel. Typically, this structure is a stationary extension of an improved shore and intended to facilitate the transfer of cargo or passengers.

**Bogie** - A set of wheels built specifically as rear wheels under a container. Used with roadrailer cars in Norfolk Southern's Triple Crown service.

**Branch Line** - A secondary line of a railway, typically stub-ended and designed to provide service to a customer.

**Breakbulk Cargo** - General cargo that is conventionally stevedored and stowed, as opposed to bulk or containerized cargo.

**Bridge Traffic** - A railroad's traffic that originates and terminates on other railroads, or off-line. Also known as overhead or through traffic. These terms can also reflect geographical regions, where bridge/overhead/through traffic traverses a region, but does not originate or terminate in that region.

**Bulk Cargo** - Homogeneous raw material shipped in shipload lots. Such commodities may include grain, coal, chemicals, or petroleum products.

**Bulk Transfer** - The transfer of bulk products, such as plastic pellets or liquid sweeteners, from one mode of transportation to another. Bulk transfer permits off-rail shippers and receivers of varied commodities to combine long-haul efficiencies of rail with convenient door-to-door delivery of trucks.

**Carload** - Shipment of freight required to fill a rail car. A standard measure, along with tons of railroad traffic volumes.

**Carload Waybill Sample** - As a means to provide regulatory oversight, the Surface Transportation Board (STB) requires all railroads terminating more than 4,500 cars per year to file a sample of waybills. The Waybill Sample database contains rail shipments data such as origin and destination points; type of commodity; number of cars, tons, and revenue; length of haul; participating railroads; interchange locations; and Uniform Rail Costing System shipment variable cost estimates. The Waybill Sample contains confidential information and is used primarily by Federal and state agencies. It is generally not available for public use. However, there is a public-use version of the Sample that contains aggregated non-confidential data.

**Changeable Message Sign** - An Advanced Traveler Information System (ATIS) device that attempts to provide drivers with real-time information concerning driving conditions. These signs can advise motorists of congestion, road or ramp closures, accidents, or alternate routes.

**CMAQ** - Congestion Mitigation and Air Quality Improvement Program. Jointly administered by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), the CMAQ program was reauthorized in 1998 under the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21). The TEA-21 CMAQ program provides more than \$8.1 billion in funds to state departments of transportation (DOTs), metropolitan planning organizations (MPOs), and transit agencies to invest in projects that reduce criteria air pollutants regulated from transportation-related sources over a period of six years (1998-2003). The TEA-21 CMAQ program is similar to its Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) predecessor, but it features greater program flexibility, several new program options, an expansion of eligible activities available for funding, and the statutory formula for apportioning funds was redesigned to provide a more equitable distribution.

**CNG** - Compressed Natural Gas. Often used as a fuel for transit or fleet vehicles.

**COFC** - Container On (rail) Flat Car. A form of intermodal movement of freight.

**Congestion Pricing** - Policies that attempt to reduce congestion by applying a price for roadway use during peak travel periods. Such policies may include parking surcharges and automated tolling.

**Container** - A large, weatherproof box designed for shipping freight in bulk by rail, truck, or steamship. Standard lengths include 20 feet, 40 feet, 48 feet, and 53 feet.

**Containerized Cargo** - Cargo that is practical to transport in a container, and results in a more economical shipment than other forms of unitization.

**CREATE** - Chicago Region Environmental And Transportation Efficiency Program. This project is an outgrowth of a public-private partnership between the State of Illinois, the City of Chicago, and several freight and passenger railroads. The project will maximize the use of five rail corridors for a faster and more efficient rail network, eliminate the wait for motorists at 25 grade crossings by creating grade separations that separate motorists from trains, and create six rail-to-rail “flyovers” - overpasses and underpasses that

separate passenger trains from freight trains. Under the CREATE plan, railroads will, for the first time, make additional investment decisions based on what is best for the overall rail network. The railroads will pay for the benefits they receive under the project, and the city, state, and Federal government will pay for the public benefits generated by the plan. Due to the large number of rail interchanges in Chicago, this project will impact freight rail service across the U.S.

**Cross Ties** - The wooden, concrete, or steel crosspieces that keep two rails in gage.

**CSXT** - CSX Transportation. A Class I railroad, and one of the four largest railroads in the U.S. (along with BNSF, NS, and UP). CSXT, headquartered in Jacksonville, is the largest railroad operating in Florida.

**CWR** - Continuous Welded Rail. A number of rails welded together to form a continuous string (typically, in lengths of 1,400 feet).

**Deficiency** - A constraint in the transportation system that decreases the efficiency of the system. Deficiencies can include congestion; geometric limitations such as speed, height, or width restrictions; or facility conditions that restrict use or operations.

**DMU** - Diesel Multiple Unit. Self-propelled, bidirectional passenger rail cars with diesel engines, electric generators, and electric motors located below the passenger compartment.

**DOT** - Department of Transportation.

**Double-Stack Containers** - Containers that can be stacked atop one another on a flatcar.

**Dray** - A local move of a trailer or container by truck, especially between a rail yard or port and a customer.

**EIS** - Environmental Impact Statement.

**Elasticity Factor** - The effect on demand for one mode induced by the change in price of a competing mode.

**Embargo** - A means of controlling or stopping rail traffic when accumulations, congestion, or other problems, such as poor track conditions (typically of a temporary nature), interfere with normal operations.

**ETC** - Electronic Toll Collection. Use of technological advances in communications to assess a toll on a vehicle without the use of a tollbooth. Often used in congestion pricing strategies.

**FAA** - Federal Aviation Administration.

**FCEN** - Florida Central Railroad. A Class III railroad with operations in Florida.

**FDOT or Florida DOT** - Florida Department of Transportation.

**FEC** - Florida East Coast Railway. A Class II railroad operating entirely within the State of Florida.

**FEU** - Forty-Foot Equivalent Units. This is a common measure for containerized freight movements, though TEU (twenty-foot equivalent units) is the standard measure.

**Federal Highway-Rail Grade Crossing Program (Section 130)** - Provides funds for road-rail grade crossing safety improvement and education.

**FHWA** - Federal Highway Administration.

**FMID** - Florida Midland Railroad. A Class III railroad with operations in Florida.

**FNOR** - Florida Northern Railroad. A Class III railroad with operations in Florida.

**FRA** - Federal Railroad Administration. The FRA is a division within the U.S. Department of Transportation (DOT) that is responsible for conducting and monitoring research regarding freight and passenger rail operations, and enforcing Federal programs for railroad safety. The FRA is generally responsible for administering all Federal programs related to rail transportation.

**FRA Track Classes** - Federal Railroad Administration Track Classes. The FRA limits operating speeds on track based on physical condition. The established classes and their maximum speeds are as follows:

Class	Maximum Freight Train Speed
1	10 mph
2	25 mph
3	40 mph
4	60 mph
5	80 mph
6	110 mph

Exempt track does not meet Class I standards and can be operated only with written approval of the FRA and with certain restrictions. (Please note that Track Classes are distinct from Railroad Classifications.)

**Freight** - Any commodity being transported.

**Freight Villages** - Large logistics centers that form a central point for all rail shipments (intermodal, auto, general merchandise) and act as facilitators to attract manufacturing businesses that wish to relocate to lower logistics costs; they also create secondary jobs in warehouses, distribution centers, manufacturing, packaging plants, and other value-added businesses.

**FTA** - Federal Transit Administration.

**FWCR** - Florida West Coast Railroad. A Class III railroad with operations in Florida. In June of 2004, the STB granted the FWCR approval to abandon all service.

**FY** - Fiscal Year.

**Gage (of track)** - The distance between the parallel tracks on a rail line, measured at right angles. Standard gage is four feet, eight inches.

**GFRR** - Georgia and Florida RailNet. A Class III railroad with operations in Florida.

**GIS** - Geographic Information Systems. The use of computers, software, and geographic data to display, manipulate, and analyze information.

**GPS** - Global Positioning Systems. Use of satellites and advanced communications technology to accurately locate and track items on the globe. Can be used by drivers, transit operators, and trucking companies to locate vehicles and provide alternative routes.

**Grade Crossing** - The point at which a roadway intersects and crosses a rail line. The crossing can be at-grade or grade separated.

**Green Goat** - A new, efficient diesel locomotive developed by RailPower Technologies - a Vancouver, British Columbia company. It is a hybrid switcher, in which the electric traction motors on the axles are powered by a large bank of custom-designed lead acid batteries.

**Gross Ton-Mile** - The movement of the combined weight of transportation equipment and its contents a distance of one mile.

**GSP** - Gross State Product. The total value of all products and services produced in that state.

**GUI** - Graphical User Interface. The portion of computer software visible to the user.

**Haulage Rights** - An arrangement where one railroad may negotiate rates or contracts with customers located on another railroad's line. The railroad receiving haulage rights supplies the cars and the railroad granting haulage rights operates the trains.

**Headway** - The time interval between consecutive vehicles passing a given point. Generally used to define transit service. Used in the following context: "Peak-period transit buses and trains generally run on five-minute headways."

**HOV** - High-Occupancy Vehicle. A designated lane on a highway, also known as a carpool or "diamond" lane.

**ICC** - Interstate Commerce Commission. Former transportation regulating authority, eliminated by the ICC Termination Act of 1995. Replaced by the Surface Transportation Board (STB).



**Inbound Traffic** - Traffic terminating in one region that originated in another region. Typically used in this report to represent interstate traffic terminating in Florida.

**Interchange** - The exchange of carload traffic between railroads. An interchange point or location is the specific track or tracks on which cars are placed for delivery to another railroad.

**Intermodal (or Multimodal)** - Carriage by more than a single mode with a transfer(s) between modes to complete a trip or a freight movement. In passenger transportation, intermodal usually refers to trips involving more than one mode. For freight and goods movement, the definition refers to transfers between all freight modes including ships, rail, truck, barge, etc., taken as a system for moving freight. Intermodal also refers to COFC and TOFC movements.

**Intermodal Management System** - Florida's systematic process of evaluating and monitoring intermodal facilities and linkages of statewide significance to identify and correct deficiencies that impede efficient connectivity with national and international transportation systems and markets.

**Intermodal System** - The transportation network consisting of public and private infrastructure for moving people and goods using various combinations of transportation modes.

**Interstate** - Traffic that originates in one state and terminates in another. Foreign and domestic port (import and export) traffic is also considered to be interstate in nature.

**Intrastate** - Traffic that originates and terminates in a single state. This traffic is also referred to as local.

**Intrastate Carrier** - A carrier operating solely within the boundaries of a single state; e.g., the Florida East Coast Railway (FEC).

**ISTEA** - Intermodal Surface Transportation Efficiency Act of 1991.

**ITS** - Intelligent Transportation Systems. Using technology to improve the efficiency of the transportation system.

**Lading** - Freight or cargo making up a shipment.

**LCV** - Longer Combination Vehicle. Any combination of truck tractor and two or more trailers or semi-trailers that operate on the Interstate System at a gross vehicle weight greater than 80,000 pounds.

**Line-Haul Service** - The movement over the tracks of a railroad from one city to another, not including the switching service, or the movement of a truck over the highway from city to city.

**LNG** - Liquefied Natural Gas. This is often used as a fuel for transit or fleet vehicles.

**Local Traffic** - Freight or passenger movements that both originate and terminate in a region. If the region is defined as a state, local traffic represents intrastate traffic.

**Long-Range Component** - The long-range part of the Florida Transportation Plan, updated at least every five years, or more often as needed, to reflect changes in the issues, goals, and long-range objectives for the ensuing 20 years.

**LRFA** - Local Rail Freight Assistance Program. A Federal program designed to provide assistance (funding) for light-density rail lines. The program is not currently funded.

**LRT** - Light Rail Transit.

**LRV** - Light Rail Vehicle.

**LTL** - Less-Than-Truckload. The quantity of freight that is less than that required for application of a trailerload rate. LTL carriers, such as Yellow Freight, will combine shipments from multiple customers into a single truck.

**Main Line** - Two definitions apply. First is a designation made by each railroad of its own track, generally signifying a line over which through trains pass with relatively high frequency. A main line generally has heavier weight rail, more sophisticated signaling systems, and better maintenance than branch lines. The second is a designation of the through track between any two points, even on a branch line, as distinguished from side tracks, pass tracks, or spurs.

**MAROps** - Mid-Atlantic Rail Operations Study. MAROps is the joint product of five states (Virginia, Maryland, Delaware, Pennsylvania, and New Jersey), the I-95 Corridor Coalition (representing these five states and seven others in the NEC), and three railroads (Norfolk Southern, CSX Transportation, and Amtrak). The study addresses the barriers associated with planning and funding transportation system improvements across boundaries - across the jurisdictional boundaries between states and cities, across the interest boundaries between the public agencies and private firms, and across the financial boundaries between the highway and rail systems. The study identified 71 infrastructure and information system improvements that must be implemented across the five states and Washington, D.C., over the next 20 years to relieve these choke points. These improvements potentially impact the diversion of truck traffic to rail on the entire length of I-95 from Florida to Maine.

**MGTM/M** - Million Gross Ton-Miles per Mile.

**Mobility** - The ability of people to complete desired trips, or for goods to be moved from place to place.

**Modal Share** - The percentage of freight or passengers moved by a particular type (mode) of transportation.

**Mode Shift** - The change in mode by an individual person or freight shipment. A person may shift modes when the relative cost in terms of time, money, and convenience between

modes changes. For example: if transit fares were reduced, people who once drove alone to work may decide to take the bus instead. Mode shifts can also occur between air, truck, rail, and water movement of freight.

**MPO** - Metropolitan Planning Organization. A forum for cooperative decision-making for a metropolitan planning area.

**Multilevel Auto Carrier** - A type of train car that has two levels, used in the transport of vehicles.

**Multimodal Transportation** - More than one mode to serve transportation needs in a given area. This term is sometimes used interchangeably with intermodal.

**NAAQS** - National Ambient Air Quality Standards. Federal air quality standards established pursuant to Section 109 of the Clean Air Act that apply to outside air everywhere and are set to protect public health. Included are standards for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (PM<sub>10</sub>), and sulfur dioxide (SO<sub>2</sub>).

**Net Ton-Mile** - The movement of a ton of freight one mile. Excludes the weight of the vehicle hauling the freight.

**NS** - Norfolk Southern Railroad. A Class I railroad, and one of the four largest railroads in the U.S. (along with BNSF, CSXT, and UP). NS, headquartered in Roanoke, VA, offers service to Jacksonville and northern locations in Florida.

**Operating Revenue** - All revenue generated through the operation of transportation services.

**Operation Lifesaver** - Operation Lifesaver is a national, non-profit education and awareness program dedicated to ending tragic collisions, fatalities, and injuries at highway-rail grade crossings and on railroad rights-of-way.

**Originating Traffic** - Includes both outbound and local traffic in Florida.

**Outbound Traffic** - Traffic originating in one region that terminates in another region. Typically used in this report to represent interstate traffic originating in Florida.

**Peak Hour** - The hour of the day during which the volume is higher than at any other hour during the day.

**Peak Period** - The time period that has the highest volume of traffic in a day. For example, the peak period for urban highways is generally between 6:00 a.m. and 9:00 a.m.

**Piggyback** - The transportation of highway trailers (TOFC) or containers (COFC) on rail cars specifically equipped for the service. It is essentially an intermodal movement in which a truck performs pickup and delivery to a rail terminal, as well as delivery at the terminating rail head.

**PMT** - Personal Miles Traveled. This is the summation of the products of person trips multiplied by miles traveled per trip.

**PPP** - Public-Private Partnership. Public agencies and private industry working together to solve transportation problems.

**Quiet Zone** - A segment of rail line with one or more highway-rail grade crossings at which specific safety measures have been implemented allowing the avoidance of sounding of locomotive horns. The Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings is to take effect on June 24, 2005.

**Rail** - A rolled steel shape, commonly a Tee-section designed to be laid end-to-end in two parallel lines on cross ties or other suitable supports to form a track for railway rolling stock.

**Rail Yard** - A system of tracks within limits provided for switching cars, making up trains, storing cars, and other purposes.

**Railroad Classifications** - Railroad classifications are determined by the Surface Transportation Board (STB). In 2003, the classifications were as follows:

- **Class I** = \$277.7 million or more in operating revenues.
- **Class II** = a non-Class I line-haul railroad operating 350 miles or more with operating revenues of at least \$40 million.
- **Class III** = a non-Class I or II line-haul railroad.
- **Switching and Terminal Railroad** = a non-Class I railroad engaged primarily in switching and/or terminal services for other railroads.

Note: Class II and Class III railroads are generally referred to as “regional” and “short line” railroads, respectively.

**Railroad Mileage** - The following definitions apply: road or route miles signify the unduplicated mileage of a rail carrier’s system and is the typical measure of a railroad’s size. Track miles, a higher number than route miles, for a given system, taking into account second (or third) tracks; running track miles represent tracks normally used in train service, exclusive of yard tracks, industrial sidings and storage tracks; total track miles are the sum of running tracks plus all other tracks.

**Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act)** - Federal legislation that provided reform of railroad economic regulation and Federal funding for the rehabilitation of railroad facilities and equipment.

**Ramp Metering** - A traffic control policy using traffic flow monitoring and traffic signalization technologies at freeway access ramps to limit the flow onto the freeway. Ramp metering attempts to reduce the number of cars merging into free-flow traffic at a given time.

**Regional Rail Reorganization Act of 1973 (3R Act)** – Passed by Congress to finance and restructure eight Eastern bankrupt railroads and preserve essential transportation services in the Northeast and Midwest. This Act led to the creation of Conrail.

**ROW** – Right-of-Way. A strip of land for which an entity has a right to build, operate, and maintain a linear facility such as a road, railroad, or pipeline.

**RRIF** – Railroad Rehabilitation and Improvement Financing Program. The program provides direct loans and loan guarantees to state and local governments, government-sponsored authorities and corporations, railroads, and joint ventures that include at least one railroad. Eligible projects include: 1) acquisition, improvement, or rehabilitation of intermodal or rail equipment or facilities (including tracks, components of tracks, bridges, yards, buildings, and shops); 2) refinancing outstanding debt incurred for these purposes; or 3) development or establishment of new intermodal or railroad facilities.

**Safety Management System** – A systematic process that has the goal of reducing the number and severity of traffic crashes by ensuring that all opportunities to improve highway safety are identified, considered, implemented as appropriate, and evaluated in all phases of highway planning, design, construction, maintenance, and operation, and by providing information for selecting and implementing effective highway safety strategies and projects.

**Safety Program** – Includes projects designed to improve vehicle and pedestrian safety on the city, county, and state highway systems. The safety program is divided into three subprograms: rail-highway crossings, highway safety, and traffic safety grants.

**SCXF** – South Central Florida Express. A Class III railroad with operations in Florida.

**SCORT** – Standing Committee on Rail Transportation. Established by the American Association of State Highway and Transportation Officials (AASHTO), this Committee is charged with: reviewing, evaluating, and recommending transportation legislation; exchanging technical information and policy positions on railroad matters; evaluating, commenting upon, and suggesting revisions to Federal regulations; reaching a common viewpoint of the states on rail policies and problems; gathering information and investigating railroad concerns; providing technical expertise and management training for state railroad connected agencies; providing public information on rail transportation matters; cooperating and coordinating activities with transportation users and the railroad industry; taking a forward-looking view of and disseminating rail progress; and encouraging research necessary to reach these goals. It is also tasked with identifying and receiving reports from its subcommittees and task forces as to Federal regulatory mandates of national concern, and reporting on these matters.

**SFRC** – South Florida Rail Corridor. An operating rail corridor owned by the Florida Department of Transportation (FDOT). It extends from north of West Palm Beach to Miami. Maintenance and corridor operations are performed by CSX Transportation (CSXT) under contract to the FDOT. Tri-Rail, Amtrak, and CSXT freight all operate on this Corridor.

**SFRTA** - South Florida Regional Transportation Authority.

**SGLR** - Seminole Gulf Railway. A Class III railroad with operations in Florida.

**Short-Range Objectives** - One or more statements, for each long-range objective, of the specific, measurable, intermediate ends that are achievable and mark progress toward a goal. Specific objectives may be associated with more than one goal and/or long-range objective.

**SIB** - State Infrastructure Bank. A SIB is a revolving fund mechanism for financing a wide variety of highway and transit projects through loans and credit enhancement. SIBs are designed to complement traditional Federal-aid highway and transit grants by providing states increased flexibility for financing infrastructure investments. Under the initial SIB Pilot Program, 10 states were authorized to establish SIBs. In 1996, Congress passed supplemental SIB legislation as part of the Department of Transportation (DOT) Fiscal Year (FY) 1997 Appropriations Act that enabled additional qualified states to participate in the SIB pilot program. This legislation included a \$150 million General Fund appropriation for SIB capitalization. The Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21, Public Law 105-178, as amended by Title IX of Public Law 105-206) extended the pilot program for four states (California, Florida, Missouri, and Rhode Island) by allowing them to enter into cooperative agreements with the U.S. DOT to capitalize their banks with Federal-aid funds provided in FY 1998 through FY 2003.

**SIC** - Standard Industrial Classification. Published by the U.S. Office of Management and Budget (OMB), the SIC is a numerical classification scheme for defining industries.

**Side-Track** - A short track extending alongside and often connecting at both ends with main track.

**SIS** - Strategic Intermodal System. Established in 2003 by the Florida Legislature, 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. The SIS will be used for: targeting expenditures to help the State's economic competitiveness, including increased corridor emphasis in planning and funding projects; applying innovative policies and technologies, including Intelligent Transportation Systems (ITS); clarifying the State's roles and responsibilities on and off this system; and providing input to the next update of the Florida Transportation Plan (2025).

**Six-Point Plan** - As part of the 2004 Freight Rail Component of the Florida Rail Plan, the "Six-Point Plan" provides specific criteria for allocating public funds to freight rail projects, including: 1) maximizing the use of Federal money; 2) facilitating public and private partnerships; 3) optimizing rail system safety and security; 4) ensuring freight rail access; 5) preserving rail capacity; and 6) preserving existing and future rail corridors.

**"S Line"** - A former Seaboard Air Line, which along with the "A Line" forms CSX Transportation's major north-south line terminating in central Florida. Between

Jacksonville and central Florida, the “S Line” is the western CSXT line, passing through Baldwin, Starke, Hawthorne, Ocala, etc.

**Slow Order** - A speed restriction placed by railroad management on a designated segment of track, generally as a temporary measure during the performance of maintenance work. Sometimes, however, slow orders represent semi-permanent restrictions due to deteriorated track conditions.

**SOV** - Single Occupancy Vehicle. An automobile in which only the driver is transported.

**State Highway System** - A network of approximately 12,000 miles of highways owned and maintained by the state or state-created authorities. Major elements include the Interstate, Florida’s Turnpike, and other toll facilities operated by transportation authorities and arterial highways.

**State Implementation Plan** - The plan developed by the state and approved by the U.S. Environmental Protection Agency (EPA) that contains the strategies and mechanisms, enforceable under state law, necessary to meet the national ambient air quality standards and comply with Federal and state air quality laws and regulations.

**Station** - A place designated by name in a railroad timetable.

**STB** - Surface Transportation Board. The STB is an economic regulatory agency that Congress charged with the fundamental missions of resolving railroad rate and service disputes and reviewing proposed railroad mergers. The STB is decisionally independent, although it is administratively affiliated with the U.S. Department of Transportation (DOT). It was created in the Interstate Commerce Commission Termination Act of 1995 and is the successor agency to the Interstate Commerce Commission (ICC). The agency has jurisdiction over railroad rate and service issues and rail restructuring transactions (mergers, line sales, line construction, and line abandonments); certain trucking company, moving van, and non-contiguous ocean shipping company rate matters; certain intercity passenger bus company structure, financial, and operational matters; and rates and services of certain pipelines not regulated by the Federal Energy Regulatory Commission.

**STCC** - Standard Transportation Commodity Code. A standard seven-digit collapsible coding structure. The first five digits of the STCC coincide with the Commodity Classification for Transportation Statistics, a commodity adaptation of the Standard Industrial Classification (SIC) published by the U.S. Office of Management and Budget (OMB), which was developed for use in the Census of Transportation and adopted by the Interstate Commerce Commission (ICC) as the mandatory reporting form for all ICC-regulated carriers.

**Strategic Issues** - Critical challenges or fundamental policy concerns that affect the nature of a public condition. Strategic issues serve to identify the most significant opportunities and/or threats/problems that the agency must address in the next five years to help the agency succeed or prevent the agency from failing in its mission.

**Subdivision** - A portion of a railroad operating division, as designated in a timetable.

**Switching Railroad** - A non-Class I railroad engaged primarily in switching services for other railroads.

**TCRO** - Tri-County Rail Organization.

**TDM** - Travel Demand Management.

**TEA-21** - The Transportation Equity Act for the 21<sup>st</sup> Century. Enacted June 9, 1998, as Public Law 105-178. TEA-21 authorizes the Federal surface transportation programs for highways, highway safety, and transit for the six-year period 1998-2003. TEA-21 has expired and has not yet been reauthorized.

**Terminal** - An assemblage of facilities provided by a railway at a terminus or at an intermediate point for the handling of passengers or freight and the receiving, classifying, assembling, and dispatching of trains.

**Terminating Traffic** - Includes both inbound and local traffic in Florida.

**TEU** - Twenty-Foot-Equivalent Unit. The eight-foot-by-eight-foot-by-20-foot intermodal container is used as a basic measure in many statistics.

**Through Traffic** - Represents traffic neither originating nor terminating in Florida, but passing through the State. This is also referred to as overhead traffic.

**Tie** - The transverse member of the track structure to which the rails are spiked or otherwise fastened to provide proper gage and to cushion, distribute, and transmit the stresses of traffic through the ballast to the roadbed.

**TIFIA** - The Transportation Infrastructure Finance and Innovation Act of 1998. Established a new Federal credit program (referenced as the TIFIA program) under which the U.S. Department of Transportation (DOT) may provide three forms of credit assistance - secured (direct) loans, loan guarantees, and standby lines of credit - for surface transportation projects of national or regional significance. The program's fundamental goal is to leverage Federal funds by attracting substantial private and other non-Federal co-investment in critical improvements to the nation's surface transportation system. In all cases, the DOT uses a merit-based system to award credit assistance to project sponsors, who may include state DOTs, transit operators, special authorities, local governments, and private entities.

**Timetable** - The authority for the movement of regular trains subject to the rules. It may contain classified schedules and includes special instructions.

**TOFC** - Trailer On (rail) Flat Car. A form of intermodal piggyback movement of freight.



**Track** – An assembly of rails, ties, and fastenings over which cars, locomotives, and trains are moved.

- **Bad Order** – A track on which bad order cars are placed either for light running repairs or for subsequent movement to repair tracks.
- **Classification** – One of the body tracks in a classification yard, or a track used for classification purposes.
- **Crossover** – Two turnouts with track between, connecting two nearby and usually parallel tracks.
- **Interchange** – A track on which cars are delivered or received, as between railways.
- **Passing** – A track auxiliary to the main track for meeting or passing trains. Same as a “siding.”
- **Side** – A track auxiliary to the main track for purposes other than for meeting and passing trains.
- **Spur** – A stub track diverging from a main or other track.
- **Station** – A track upon which trains are placed to receive or discharge passengers, baggage, mail, and express.
- **Storage** – One of the body tracks in storage yards or one of the tracks used for storing equipment.
- **Team** – A track on which cars are placed for transfer of freight between cars and highway vehicles.
- **Trackage Rights** – Rights obtained by one carrier to operate its trains over the tracks of another carrier.

**Track Capacity** – The number of cars that can stand in the clear on a track. Track capacity can be defined in several ways, but essentially it is the number of trains that can traverse a rail line before significant delays or safety issues arise.

**Trackage Rights** – An arrangement by which one railroad may operate its trains over the tracks of another railroad. In overhead trackage rights, the tenant railroad may not directly serve the track owner’s customers.

**Trains, Categories of:**

- **Extra Train** – A freight train that does not operate regularly but only when required to move cars in excess of the normal flow of traffic.
- **Intermodal Train** – A train that handles only trailer on a flat car (TOFC) or container on a flat car (COFC) traffic.
- **Switch Runs** – Trains that operate in terminal areas or in road territory for short distances (normally shorter than 100 miles) and place and pull cars from industries along the line. Switch runs are also referred to as “locals” by some railroads.

- **Through Freight** - Trains that operate between terminals that may be several hundred or thousands of miles apart and do little or no picking up and setting off of cars en route.
- **Unit Train** - A train handling a large volume of one commodity. Typically those trains handle coal, ore, potash, etc., which originates at one point and is hauled to one destination.

**Transit** - Mass transportation by bus, rail, or other conveyance that provides general or special services to the public on a regular and continuing basis. It does not include school buses or charter or sightseeing services.

**Transportation Corridor** - Any land area designated by the state, a county, or a municipality that is between two geographic points and that is used or suitable for the movement of people and goods by one or more modes of transportation, including areas necessary for management of access and securing applicable approvals and permits. Transportation corridors shall contain, but are not limited to, the following: a) existing publicly owned rights-of-way; b) all property or property interests necessary for future transportation facilities, including rights of access, air, view, and light, whether public or private, for the purpose of securing and utilizing future transportation rights-of-way, including but not limited to, any lands reasonably necessary now or in the future for securing applicable approvals and permits, borrow pits, drainage ditches, water retention areas, rest areas, replacement access for landowners whose access could be impaired due to the construction of a future facility, and replacement rights-of-way for relocation of rail and utility facilities.

**Transportation Expenses** - The expenses directly associated with the operations of a railroad. They generally include the cost of crews, fuel, and other related items.

**Travel Price** - The travel cost per mile for a particular mode. For example, the average cost for automobile travel on a per mile basis that includes the cost of operating, maintaining, and insuring the vehicle.

**TTI** - Texas Transportation Institute.

**TTR** - Talleyrand Terminal Railroad. A switching railroad providing service to JaxPort.

**Turnout** - A device made of two movable rails with connections and a crossing frog that permit the movement of an engine, car, or train from one track to another. Also called a switch, although the switch is one component of a turnout.

**Unit Train** - A dedicated set of rail vehicles (a train) loaded with one commodity at one origin, unloaded at one destination each trip, and moving in both directions on a predetermined schedule without intermediate stops.

**VMD** - Vehicle Minutes of Delay. Waiting time measured by minutes, attributable to congestion.

**VMT** - Vehicle Miles of Travel. The total number of miles traveled for a mode during a given time period.

**WIM** - Weigh-in-Motion. A technology that weighs vehicles while they are moving down a road. Generally used to weigh heavy trucks, thereby eliminating the need for roadside weigh stations.

**Work Program** - The five-year listing of all transportation projects planned for each fiscal year by the Florida Department of Transportation (FDOT), as adjusted for the legislatively approved budget for the first year of the program.