final report

2004 Freight 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

with

Charles River Associates

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Executive Summary

Purpose

Florida's freight rail system provides a vital linkage connecting critical Florida industries to their suppliers and customers. The rail system reduces highway congestion, improves safety, and protects environmental quality by hauling thousands of tons of freight daily that would otherwise move on Florida's highways. It allows Florida's ports, farmers, and other industries to extend the markets for their goods. It hauls coal to power plants, goods to retail stores, and materials to construction sites, helping to reduce the cost of living in Florida. It provides an alternative transportation system to highways, thereby increasing security and providing relief in times of natural disasters. The rail system provides competition, thus lowering shipper logistics costs and promoting industry expansion and job creation.

Florida's population is growing rapidly and so is the corresponding demand for goods. Freight volumes are projected to nearly double over the next 20 years. The greatest growth in freight will occur in consumer goods, and not in low-value, high-tonnage bulk commodities such as lumber, grain, and coal where rail historically has had a competitive advantage. Without capacity improvements and elimination of chokepoints in the Florida rail network, rail's share of the new Florida freight transportation market will decline.

Decisions made by Floridians today will impact how goods move in the future. Florida is not alone in this decision. Other states and the Federal government are debating whether the public sector should take a more active role in developing a freight rail system that better supports industry, provides jobs, reduces roadway congestion, improves safety and the environment, and reduces highway costs. The choice was best summarized by the AASHTO *Freight-Rail Bottom Line Report,*[1] which presented two paths for the nation's freight rail system:

- **Market-Driven Evolution –** A rail industry that continues to be stable, productive, and competitive with enough business and profit to operate, but not to replenish its infrastructure quickly or grow rapidly; or

- **Public-Policy-Driven Expansion –** A rail industry that provides cost-effective transport needed to serve national and global markets, helps relieve pressure on overburdened highways, and supports social, economic, and quality-of-life goals.

[1] American Association of State Highway and Transportation Officials, "Transportation Investment in America: Freight-Rail Bottom Line Report." Washington, D.C., January 2003.

The principal purpose of this *Freight Rail Component of the Florida Rail Plan* is to provide the necessary information in a policy framework through which strategic actions can be taken to achieve the best freight rail system for Florida's future. More specifically, the *Freight Rail Component* is intended to:

- Place critical information about freight rail issues, needs, choices, costs, and benefits within a larger public policy context;
- Communicate these messages to a wide range of potential audiences; and
- Develop policy options and recommendations for creating a strong freight rail system in Florida.

Florida's Rail System

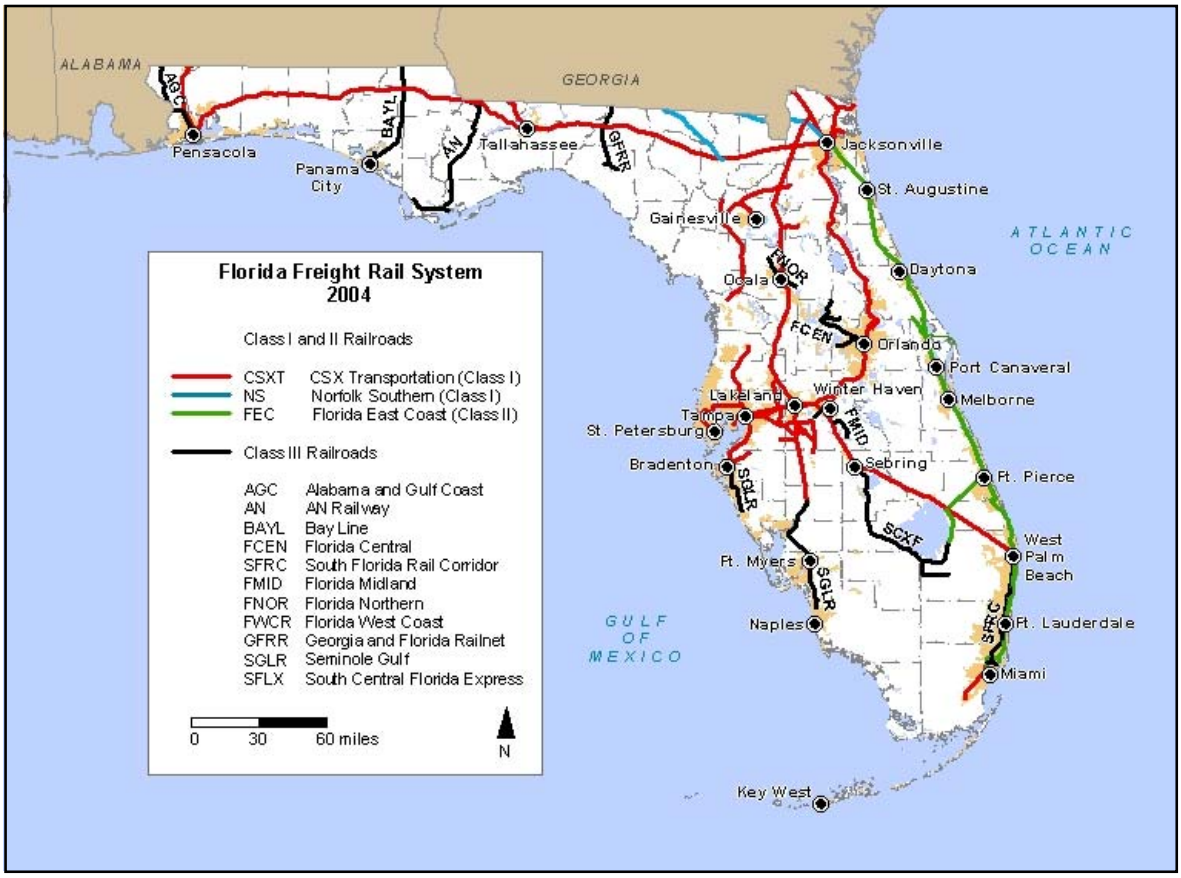
Florida's freight railroads paid over $350 million in wages to more than 6,200 workers in the year 2003.[2] The 14 railroads operating in the State carried 1.97 million carloads of freight, effectively removing six million heavy trucks from the roadways.[3] By offering lower rates than trucks, the railroads support thousands of additional jobs by allowing Florida's industries to be competitive with international and domestic markets such as fertilizer, construction rock, paper products, sugar, processed food, and orange juice.

Florida's rail network extends 2,700 miles across the State, serving nearly every major population center, as show in Figure ES.1. Unlike other modal freight networks, though, the rail network is almost entirely owned and maintained with private funds.

[2] Wage and job statistics are from "Railroad Service in Florida," Association of American Railroads, 2003.

[3] All 2003 freight rail values are based on the corrected 2003 Surface Transportation Board Carload Waybill Sample, issued in January 2005. Truck estimates assume an average net truck weight of approximately 20 tons and do not consider empty truck movements.

Figure ES.1 The Florida Freight Rail Network



Two Class I railroads operate in Florida:[4] CSX Transportation (CSXT) and Norfolk Southern (NS). These two railroads serve the Eastern United States and connect Florida to the national rail network. CSXT is the single largest operating railroad in Florida, with an extensive network covering the Florida Panhandle, Northern and Central Florida, and the Greater Miami area in South Florida. NS lacks an extensive Florida network, serving primarily as a conduit to the national rail system via lines in Northern Florida and the Greater Jacksonville area. Both the Class I carriers, CSXT and NS, interchange railcars with the Florida East Coast Railway (FEC), a Class II railroad that provides service parallel to I-95, along the heavily populated Atlantic Coast Corridor from Jacksonville to Miami.

[4] Railroad classification is determined by the Surface Transportation Board. In 2003: 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. Class II and Class III railroads generally are referred to as "regional" and "short line" railroads, respectively.

Class III railroads serve much of the rest of the State and provide connections and local service to several ports, agricultural areas, and manufacturing clusters. The Talleyrand Terminal Railroad (TTR) is a switching railroad providing service at the Jacksonville Port Authority (JaxPort). Table ES.1 shows the total miles operated and owned in Florida by railroad.

Table ES.1 Summary of Railroad Miles in Florida (2004)*

Railroad Name	Miles Operated in Florida	Percent of Total Miles Operated	Miles Owned in Florida
Alabama and Gulf Coast	45	15%	45
AN	96	100%	96
Bay Line	63	57%	63
CSX Transportation**	1,746	8%	1,616
Florida Central	76	100%	66
Florida East Coast	386	100%	386
Florida Midland	33	100%	27
Florida Northern	27	100%	27
Georgia and Florida RailNet	50	20%	50
Norfolk Southern	149	< 1%	96
Seminole Gulf	115	100%	115
South Central Florida Express	171	100%	120
Totals	**2,957**		**2,707**

Notes: * Miles are calculated as route miles and do not necessarily reflect total track mileage.

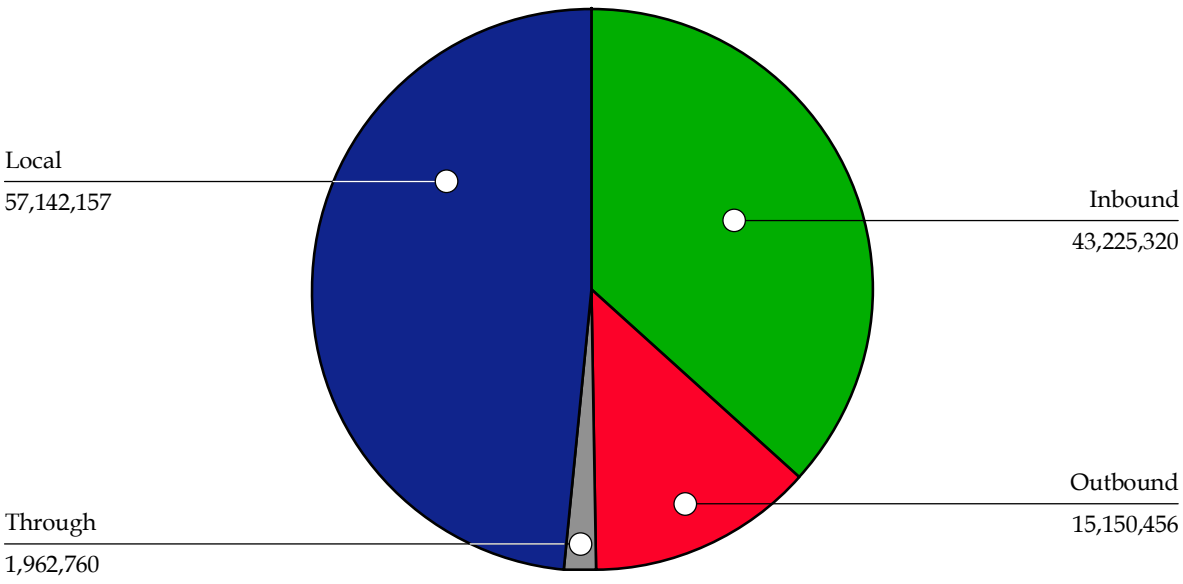
** Includes 130 miles of trackage rights, of which 81 miles area on the South Florida Rail Corridor owned by the Florida Department of Transportation.

In 2003, Florida's freight railroads moved more than 117 million tons of freight, up from 113 million in 2002. This includes more than 43 million inbound tons; 15 million outbound tons; 57 million local tons; and nearly two million through tons.[5] Figure ES.2 shows the distribution of the inbound, outbound, through, and local shares of Florida's total freight rail tonnage for 2003. This pattern is unique among states in that nearly half

[5] "Inbound" is interstate traffic terminating in Florida. "Outbound" in interstate traffic originating in Florida. "Local" is Florida intrastate traffic. "Through" is traffic neither originating nor terminating in Florida, but passing through the State. "Originating" includes both outbound and local. "Terminating" includes both inbound and local.

of the rail movements are local, intrastate moves. The largest component of these intrastate movement are phosphate shipments to fertilizer plants and the Port of Tampa, and rock being used in construction to support Florida's population growth.

Figure ES.2 Florida Freight Rail Tonnage
2003



Figures ES.3 and ES.4 depict the geographical distribution – by Florida DOT District – of originated and terminated tonnage. District 1, anchored by Sarasota and Fort Myers, has the highest originated tonnage, with more than 34 million tons in 2003. Much of District 1's originated tonnage is attributable to the phosphate mining industry in Southwestern Florida's Bone Valley. District 7, which includes Tampa and St. Petersburg, is the highest receiving district, with more than 25 million terminating tons in 2003, again mostly attributable to the phosphate industry. Northern Florida's District 2 has the second highest terminating tonnage, much of that due to Jacksonville's extensive rail yards where many national rail trips terminate and cargo is transferred to trucks for local consumption, dray to Florida peninsula destinations, or export through JaxPort.

Figure ES.3 Florida Rail Traffic Origins by District
2003

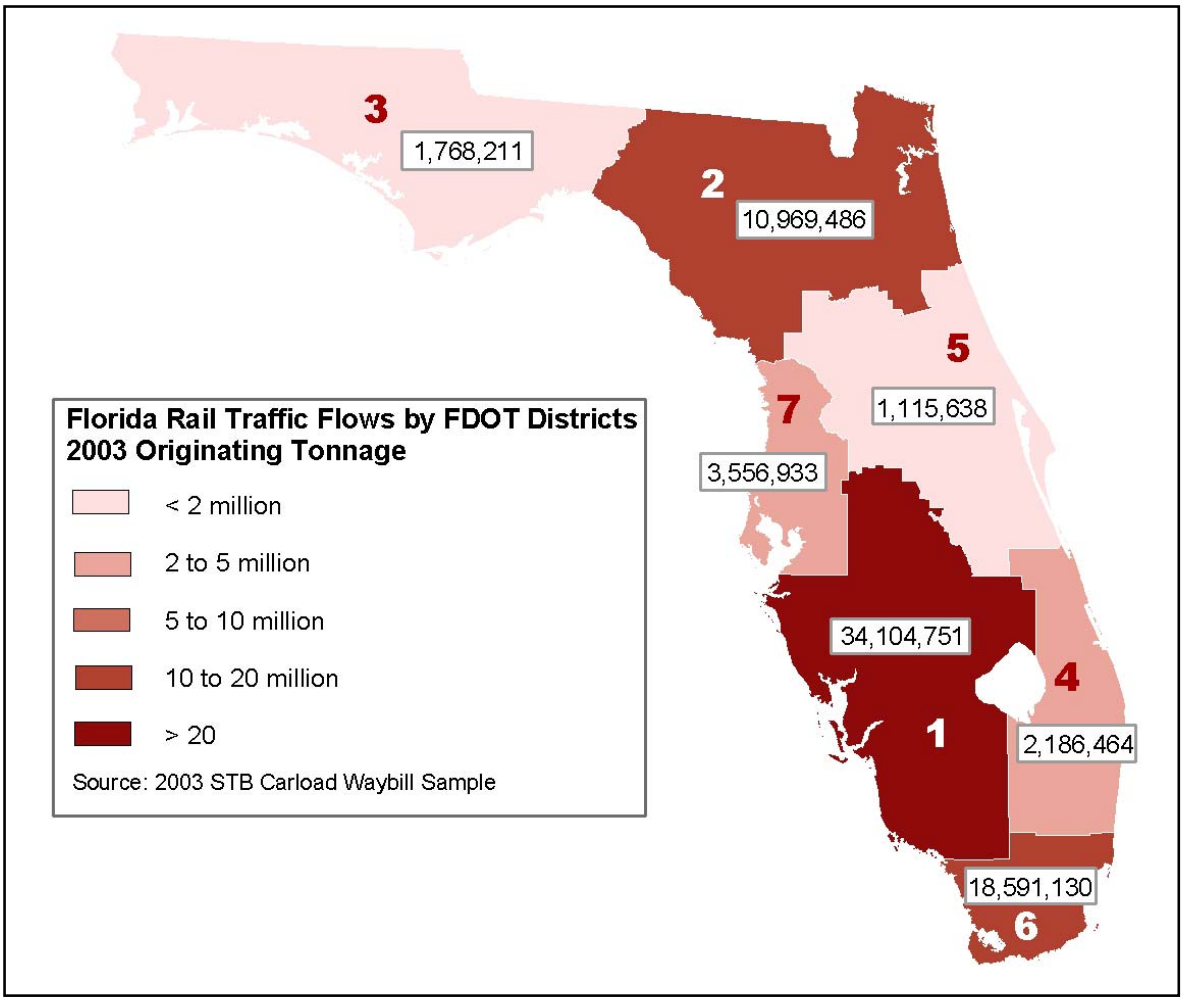
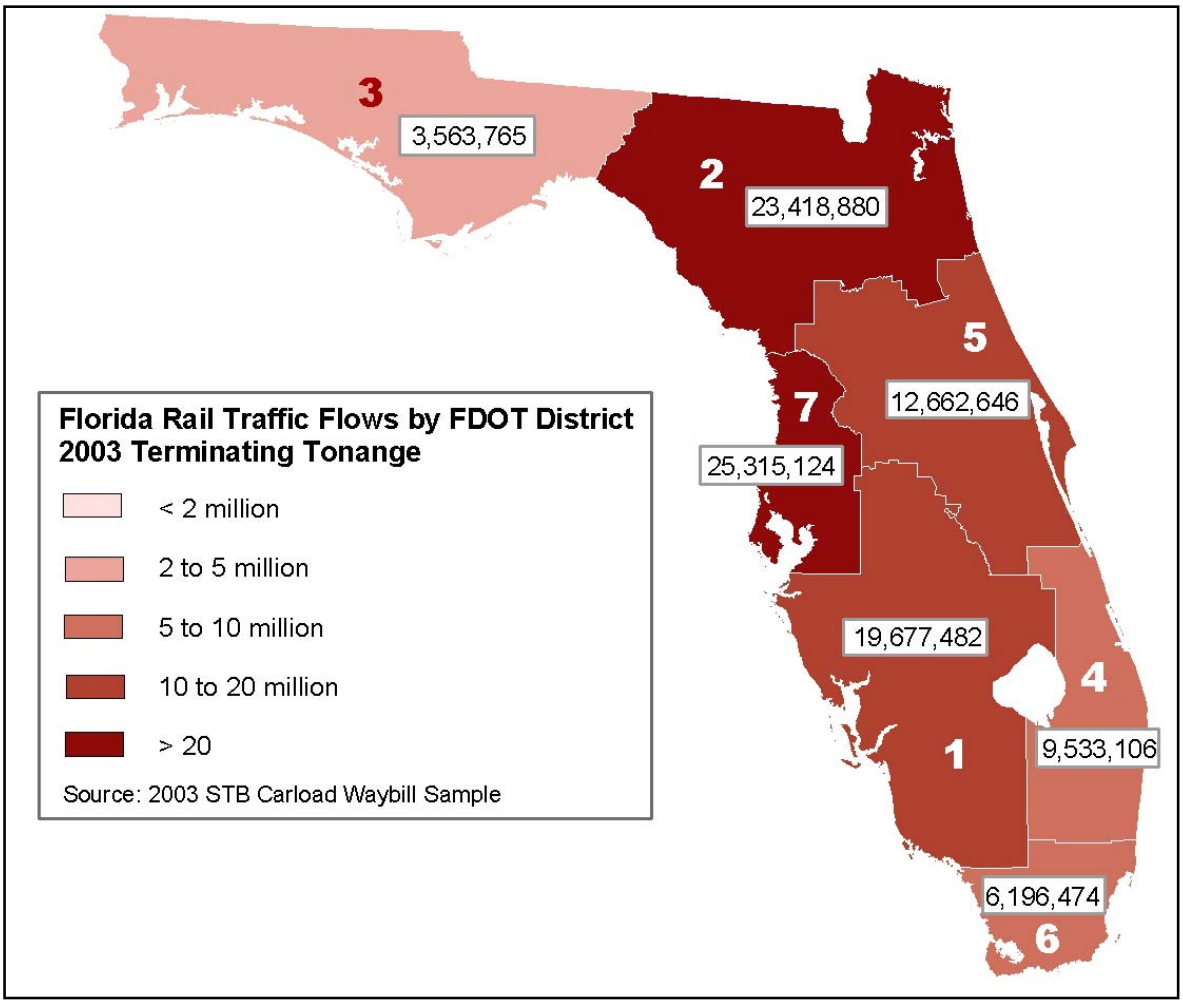


Figure ES.4 Florida Rail Traffic Terminations by District
2003



Freight Rail and the Florida Economy

Population Growth

Florida ranks among the fastest growing states in the nation, whether measured by its population, overall income gains, or economic growth. The pace of this growth puts pressure on all of Florida's infrastructure: its water systems, schools, healthcare facilities, and transportation system. The State's transportation system must accommodate the transportation needs of an increasing number of visitors, retirees, residents, workers, and businesses, and do so reliably, safely, and efficiently. For these reasons, the decision-making process regarding the future of Florida's rail infrastructure and services needs to incorporate and respond to a set of high-growth conditions being experienced by few other states.

Since 1950, the development pattern of Florida has changed because of significant increases in population density. In 1950, Florida was largely rural and had a population density of 51 people per square mile, similar to that of other agricultural and rural states such as Iowa, Missouri, New Hampshire, and Vermont. By 2000, however, Florida's growing population density was 296 people per square mile, making it much more akin to the populous states in the Northeast (see Table ES.2). The ramifications of the State's emergence as one of the most densely populated states in the country include a heightened interest in land use issues, congestion, land acquisition costs, and limited available alignments for building new or expanded guideways (i.e., rail lines and roadways). By 2030, Florida is projected to surpass Delaware and New York in population density and will be the sixth most densely populated State in the country.

Table ES.2 Florida is Now One of the Most Densely Populated States in the Country

States Ranked by Population Per Square Mile, 1950–2000

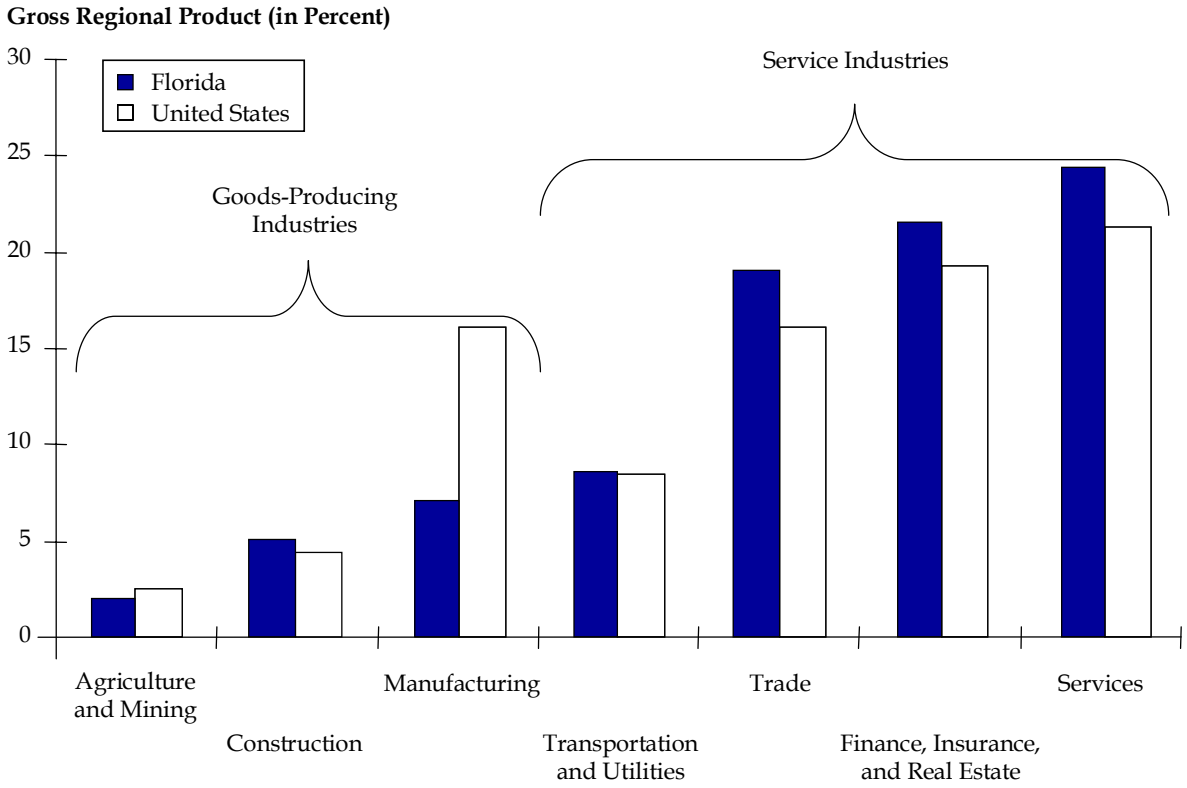
1950	1960	1970	1980	1990	2000
Rhode Island	Rhode Island	New Jersey	New Jersey	New Jersey	New Jersey
New Jersey	New Jersey	Rhode Island	Rhode Island	Rhode Island	Rhode Island
Massachusetts	Massachusetts	Massachusetts	Massachusetts	Massachusetts	Massachusetts
Connecticut	Connecticut	Connecticut	Connecticut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

Source: U.S. Census Bureau.

Industry Profiles

Florida's $491 billion economy is more dependent than the United States' economy on services-related industries such as retail trade, finance, real estate, business, professional, and hospitality services.[6] [Figure ES.5] Many of these sectors are driven by population and economic growth.

Figure ES.5 Contribution to Gross State Product by Industry
Florida versus United States



Source: U.S. Bureau of Economic Analysis.

Florida's businesses, in all sectors of the state economy, depend on a safe, reliable, and cost-effective transportation system, with rail being a crucial component. Improvements to Florida's rail system in terms of reliability, frequency of service, reduced times, and

[6] Economic and employment data from the U.S. Bureau of Economic Analysis.

access can have tangible benefits to the state economy and its overall competitiveness. These benefits include:

- Savings in production costs;
- Reductions in inventory levels;
- Ability to expand sales by reaching more markets;
- More competitive economy, yielding higher output and employment; and,
- Access to a wider range of suppliers, promoting greater competition.

Within the Florida economy, seven specific industries were identified as being especially sensitive to the performance of the State's rail system. These industries account for 34 percent of Florida's gross state product (GSP) and 28 percent of the State's employment.[7] They are the following.

Phosphates and Fertilizers

The production of phosphate and fertilizer puts unique demands on the Central Florida transportation system. Thousands of railcars use the rail lines between the Port of Tampa and the mining areas in Hillsborough, Polk, and Hardee Counties on a daily basis. About 20 million tons of phosphate-related materials are shipped through the Port of Tampa on an annual basis (accounting for approximately 40 percent of the port's volume). The size of Florida's phosphate industry and its effects on rail are reflected in the State's distinction as originating over 25 percent of the U.S. total for "nonmetallic minerals" (the commodity classification that includes phosphate rock as well as the crushed stone and sand used in construction) transported by rail. In fact, nonmetallic minerals account for 61 percent of all freight rail tonnage originated in Florida.[8]

[7] Bureau of Labor Statistics and Bureau of Economic Analysis.

[8] Percentages of nonmetallic minerals calculated from the Association of American Railroads 2002 "Railroad Service In.." reports for Florida and the United States.

Figure ES.6 Phosphate Mining in Bone Valley, Florida

Distribution and Retail

Florida's distribution and retail trade industry depends on the efficient movement of goods to keep costs down and to remain competitive. While trucking is the leading mode to support the movement of merchandise to and from wholesalers and retailers (especially to sales outlets), rail is crucial for the long hauls that bring goods into the State from distribution hubs such as Chicago, Atlanta, and Dallas-Fort Worth, as well as from more distant gateways, such as Los Angeles-Long Beach – the leading point of entry for consumer items entering the United States from Asia. Florida retailers realize cost savings by using rail and weigh that against reliability concerns. Rail service and infrastructure also is crucial for maintaining or improving the competitiveness of Florida's ports.

Food and Agriculture

Rail plays a crucial role in Florida's food and agriculture industries. Perhaps the most famous freight rail shipments are the Tropicana "Orange Juice Trains," originating in Bradenton and Fort Pierce. The Tropicana plants receive up to 300 to 400 inbound trucks of oranges per day to feed production. The juice is processed and packaged in Florida and then sent by rail to markets in the Northeast, Midwest, and California. Service to the Northeast is on 60 car unit trains moving five days per week in expedited service. The rail cars are specially designed refrigerated boxcars, each capable of carrying four truckloads'

worth of product. Upon arriving at the distribution hubs in New Jersey and Ohio, the orange juice is trucked to retail outlets for delivery to stores within 48 hours of leaving the Tropicana plants. This timing is critical since chilled fresh juice has a shelf life of about two months. Without rail, there would still be a demand for Florida orange juice, but the increase in transportation costs would make international markets more competitive. Also, if the juice had to travel by truck, it would no longer be economically feasible to package the product in Florida. This would led to relocating 600 Tropicana packaging jobs out of Florida and closer to the distribution hubs.[9]

Paper and Fiber

There is a limited amount of railroad infrastructure to support the forestry industry, resulting in much of the log production being hauled by truck. Railroads tend to connect population centers while forests are in rural areas. Because timber is such a bulky, low-value product, relative to its weight, the most efficient way to handle its transportation is through short hauls to processing plants. As a result, pulp and paper mills are built close to timber sources, including those in the Panhandle. In 2002, pulp and paper products (STCC 26)[10] accounted for three percent of the originations of rail traffic in Florida. However, several of the major inputs that are required for paper and fiber production, including chemicals, are transported in large quantities into Florida by rail.

One company that does depend on rail is Jacksonville-based Rayonier, a global forest product company specializing in performance fibers used in a wide variety of consumer products such as air conditioning filters, water filters, fabrics, newsprint, etc. Founded in 1926, Rayonier has plants located in Jessup, Georgia and Fernandina Beach, Florida. Rayonier ships 80 percent of products destined within the United States by rail. About 60 percent of the inbound raw materials, chemicals and wood, are shipped by rail.

Automotive Distribution

Whether new or used, meeting Floridians' demand for vehicles requires thousands of truck and rail trips annually as part of a system to transport vehicles to dealers and wholesalers. New cars sold in Florida (1.4 million in 2003) are generally transported to the State from assembly plants predominantly located in the Southeast and Midwest by rail. In 2003, Florida received 30,000 carloads of automobiles from Kentucky, 22,000 from Michigan, 15,000 from Ohio, and 10,000 from Illinois.[11] The railroads need a fast, reliable network to support this business since any delay can reduce auto manufacturers' profits.

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[9] Based on interview with Tropicana conducted for this study.

[10] STCC – Standard Transportation Commodity Codes are seven-digit, hierarchical commodity designations contained in the STB Carload Waybill Sample. The first two digits describe major commodity classes, for example STCC 26 is pulp and paper products.

[11] From the 2003 Corrected Surface Transportation Board Carload Waybill Sample. Values are for STCC 3711, which includes assembled autos and trucks, generally moving in multilevel cars.

Imported vehicles enter the United States through deep sea ports located nationwide, including two in Florida (Jacksonville and Tampa), and are subsequently transported to destinations throughout the State by rail or by truck. Floridians purchase approximately 450,000 imported vehicles per year. Florida's Jaxport (Jacksonville Port Authority) ranks among the leading ports in the nation for the transport of motor vehicles, handling nearly a half million in 2003, up 36 percent over 2003. On-dock rail access to Jaxport's auto import/export facilities is essential to the port's success in attracting and retaining the large-scale business of such auto companies as Nissan and Toyota.

Figure ES.7 Multilevel Auto Carrier

Energy

Electricity costs are a key business climate consideration that affect the site location decisions of prospective companies and also influence the willingness of local companies to expand. Electricity expenses also are a factor affecting the overall cost of living in Florida and the State's attractiveness to residents and retirees. Transportation is a principal cost factor in electricity production, affecting the overall price of energy. By keeping rail costs competitive, in combination with the other cost factors, Florida can continue to offer electricity rates that are not onerous to the State's businesses or residents. While electricity costs are the 12th highest in the nation, they remain a neutral factor in business development. Any significant rise in Florida's electricity costs (e.g., one driven by much higher rail costs for transporting coal) compared to other states, however, could put the State at a disadvantage.

Rail is the primary mode of transportation to bring coal into Florida. This is underscored by coal's ranking among all commodities carried by rail that have a destination in Florida. In 2003, coal accounted for 12 percent (12 million tons) of all goods transported by rail with a Florida destination.

Construction

Many of the materials essential to the construction industry, including metals (e.g., structural steel and architectural pieces), lumber, cement, and aggregate rock, are transported by rail to reach the Florida market. One example of the construction industries dependency on rail is Advanced Drainage Systems (ADS). ADS, located in Winter Garden, manufactures plastic pipes for construction (the distinctive black pipes with the green stripe). They moved to Winter Garden about four years ago because of a Florida DOT grant to construct a rail spur. The site currently provides about 85 jobs in the region. ADS uses plastic pellets (recycled resin) as raw material for the pipe construction. Rail delivers 98.5 percent of the inbound plastic pellets from Texas and Louisiana sources. On average, ADS receives 225,000 pounds of resin per day, with peaks of 350,000 pounds per day. Rail was critical to the ADS plant location. It costs one cent per pound to ship the plastic pellets by rail versus five cents per pound by truck. At 45 million pounds of plastic pellets per year, ADS stated they would relocate the business if rail service were unavailable.[12]

Figure ES.8 Railcar Shipments of Plastic Pellets to ADS at Winter Garden

[12]Based on interview with ADS conducted for this study.

Trends and Issues

Stakeholder Identified Issues

More than 40 interviews were conducted with railroads, ports, shippers/receivers, and other key stakeholders to gather information for this rail plan. One of the questions was to describe the primary issue facing Florida's freight railroads. The responses were:

- **Grade Crossings** – The number one issue regarding freight rail in Florida is the more than 5,000 at-grade road-rail crossings in the State. Grade crossings create safety and noise problems, and traffic delays on both the highways and railroads.

- **286,000-pound Railcars** – The second most important issue identified by the interviewees is the need to upgrade track and bridges to accommodate the industry standard 286,000-pound carloads. Railroads unable to meet this standard are at a disadvantage when competing with trucks and connecting with other railroads.

- **Passenger Rail** – The third most important issue potentially impacting freight rail use in Florida is the growing interest in using available track for intercity and commuter passenger services. This will create capacity and safety issues throughout the network.

Other items of concern identified by the interviewees were:

- **Capacity Problems –** There are track and yard capacity issues, and also capacity issues due to shortages in blue-collar workers (10 percent nationwide rail labor shortage) and certain rolling stock.

- **Class I Service –** The Class I railroads experienced several well-publicized service "meltdowns" recently because of unexpected increases in the demand for freight movement by rail. This creates problems for shippers and short lines waiting for pick-ups and equipment to be returned. The situation has improved, but this illustrates the lack of capacity in the network.

- **Recurring Funding Source –** There is a lack of a consistent, recurring source of public funds in Florida for rail projects. The Strategic Intermodal System (SIS) will help alleviate this issue, but rail funding is not guaranteed.

- **Southwest Florida Service –** Freight rail service to the fastest growing area in Florida is over some of the lowest quality track in the State. There is a need to move construction material and other freight into southwest Florida by rail.

- **"Bee Line" Service –** Several interviewees identified a network gap connecting Orlando and the FEC along the Bee Line Corridor. A rail link would potentially remove hundreds of daily trucks hauling construction material from the roads.

- **Security Issues –** Railroads have experienced few security issues related to domestic traffic, but railroads and shippers see this changing, especially for the shipment of hazardous materials.

- **Improve Port-Rail Connectivity –** Several ports would benefit from improved rail connections.

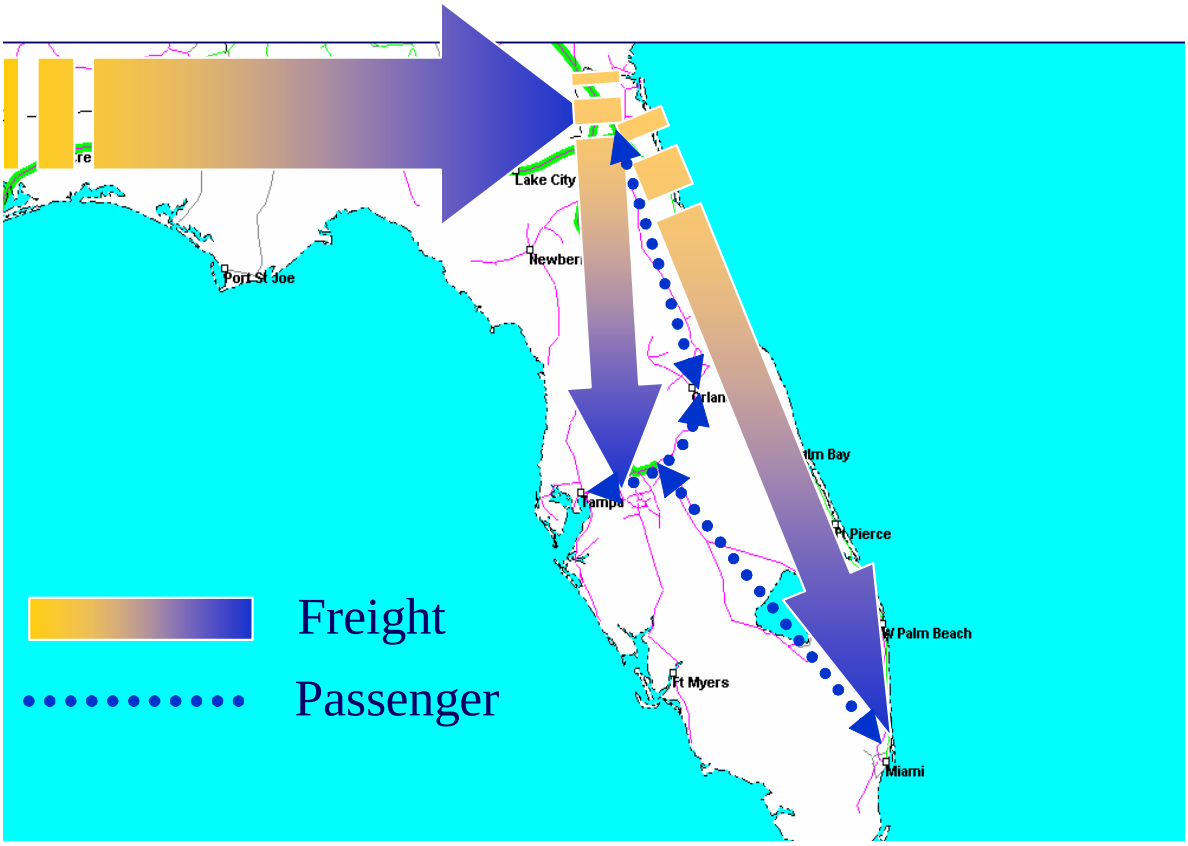
CSX Strategic Plan

CSXT is in the process of developing a strategic plan for their 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. At the center of this plan is a strategy to position CSX in Florida for the "New Economy," with a higher percentage of service-oriented and high-tech industries.

Figure ES.9 demonstrates a strategy 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. 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. The map also shows concentrating Southeast Florida freight on the FEC line, which fits with the FEC strategy of double tracking their network. Reducing freight volumes on the CSXT Orlando-Miami route also would create more capacity for intercity passenger service.

CSX's intentions and strategic plan is not fully known, but it appears that the railroad is positioning several lines for sale and will focus operations in a few very high-density corridors.

Figure ES.9 CSX Strategic Vision for Florida



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

Future Rail Investment Needs

The primary purpose of the needs assessment is to develop a comprehensive list of necessary and desired freight rail improvements, allowing FDOT to gauge the condition of the system and assess potential public involvement. Railroad needs, for the purposes of this rail plan, are defined as unconstrained capital needs and do not include operating expenses or subsidies. A need is a need regardless of whether it is privately or publicly funded or remains unfunded. Inclusion of a need in the *Florida Freight Rail Plan* does not constitute a commitment on the part of Florida DOT or the State of Florida to provide funding.

Approximately $825 million dollars in needs were identified on the Florida freight rail system through this needs assessment. [13] This total does not include CSX future terminal capacity projects, which CSX has claimed "will likely be the most expensive" component of the plan to move more long-haul truckloads by rail.[14]

The unconstrained needs included in this assessment are divided into five categories based on the type of project. Each need is assigned only one category designation based on the type of category that most closely fits the nature and intent of the need. There are projects that could be assigned to multiple categories, but in this needs assessment they are limited to one category. Table ES.3 presents the total needs by category and briefly defines each category type.

Table ES.3 Freight Railroad Needs by Category

Thousands of 2003 Dollars

Category	Total Needs	Category Description
Maintenance and Repair	$20,505	Projects associated with line and structure maintenance, including bridge rehabilitation, track and tie replacement, resurfacing, and repairs to signs and signals.
Safety and Security	111,800	Projects that enhance safety and security of freight transportation, including grade crossing improvements, grade separation projects, signal upgrades, etc.
Line Upgrade and Extension	557,730	Projects that increase the capacity of the freight rail network, including double-track projects, line extensions, and upgrades to accommodate 286k railcars, etc.
Facility Upgrade and Expansion	109,925	Projects that increase the capacity of freight rail facilities, including expansion of intermodal rail facilities and yards, enhanced connectivity and crossovers, and the construction of new facilities and yards. No estimate was provided by CSX for future terminal capacity, though the needs report warns that this **"will likely be the most expensive"** part of the plan to move more long-haul truckloads by rail.
Landside Access	25,150	Projects that enhance landside access, including intermodal ramps and truck access to railroad terminals.
Total	**$825,110**	

[13] This $825 million and Table ES.3 are based on the revised numbers in Addendum 1 of this report (*2004 Freight Rail Component of the Florida Rail Plan)*. The addendum summarizes the report *CSX Submission for the Florida Strategic Intermodal System*, provided to Florida DOT in April 2005.

[14] CSX Transportation, *CSX Submission for the Florida Strategic Intermodal System*, April 2005.

Strategies and Funding Opportunities

The Florida freight rail stakeholders have identified over $825 million in repairs, upgrades, and capacity expansion projects, that will be required to keep pace with the growing demand for goods movement. This total will well exceed $1 billion, once the full costs of the CSX future terminal expansion projects are established. Even with public-private cost sharing and leveraging potential new Federal sources, the needs will outpace available state support. It is, therefore, necessary to establish strategies that focus investments in a manner that best position Florida's freight rail network to meet the growing demand for freight shipments.

The Strategic Intermodal System program offers the Florida DOT a new, steady source of funding to begin addressing some of the issues related to freight rail use in Florida. It offers the advantages of being a recurring funding source of sufficient magnitude to make a real difference in rail service. Not all projects are eligible for SIS funding and the SIS cannot be expected to address all of the needs on the freight rail system. Currently, the SIS is programmed to provide about $9 million annually for rail projects. Combined with private matching funds, this creates a pool of approximately $16 million for rail projects. This leads to a projected $81 million in combined public and private funds between 2006 and 2010 for rail projects. While $81 million will help upgrade Florida's rail network, it falls far short of the $825 million in identified needs. The funding gap will grow even wider as CSX's strategic plan is further unveiled and as potential right-of-way purchases become available.

Rail needs can be divided into four separate funding tiers:

1. **Dedicated Funds** are those needs that receive dedicated ongoing Federal or state funding. The only program under this tier is the Federal Section 130 program, which provides dedicated annual funding for highway-rail grade crossing improvements. The Federal Local Rail Freight Assistance Program was in this tier, but Federal appropriations ceased in 1995 and Florida recently exhausted the last remaining funds.

2. **Competitive Funds** are those needs historically funded through appropriations by a legislative body. For freight rail needs in Florida, this is through the SIS program.[15] Unlike other programs, SIS funding is not dedicated to rail projects. This program, in its current form, also does not address funding for needs on railroads not part of the SIS or emerging SIS networks.

3. **Major Capital Project Funds** are those needs met through one-time capital outlays, either at the Federal or state level, and include such programs as:

[15] Although SIS is a new program, it does have a historical legacy including the Fast Track Economic Growth Transportation Initiative and the Transportation Outreach Program.

- The Federal Borders and Corridors program, which can be applied to rail improvements;
- The Federal CMAQ program, which can be used for rail improvements that improve air quality;
- Special Federal earmarks, especially through TEA-21 or reauthorization;
- Highway construction mitigation programs; and
- Statewide flexible funding.

4. **Private Funds** have and will continue to be the most prevalent source of freight rail capital improvements. Public support has largely been relegated to highway-rail grade crossing safety and short line assistance in the form of economic development and job growth funds. Currently, public-private partnerships are being explored for large-scale project that leverage public and private investments into public and private benefits.

Table ES.4 contains a strategy for maximizing the use of each funding source.

Table ES.4 Funding Commitment Tiers

Tier	Funding Sources	Types of Projects
1. Dedicated Funds	Federal Government	Primary program is the Federal Section 130 Rail Grade Crossing Safety program. This source must be used for road-rail grade crossing safety improvements.
2. Competitive Funds	State and Possible Competitive Federal Grants	Strategic Intermodal System funds should be used for projects that: improve connections with other modes, thus creating a stronger multimodal transportation system; enhance the total freight capacity and reliability of Florida's transportation network; and, support modern rail industry standards to ensure an efficient system. There currently is a funding gap for projects of this nature that are not located on the SIS network. Competitive Federal grants have been available in the past for specific demonstration of new or emerging technologies. Currently, Florida DOT is using Federal demonstration funds to evaluate revenue service using Diesel Multiple Unit (DMU) self-propelled passenger cars on the South Florida Rail Corridor. Additionally, High-Speed Hazard Elimination grant funds have been used for advanced technology to improve highway-rail grade crossing safety.

Table ES.4 Funding Commitment Tiers (continued)

Tier	Funding Sources	Types of Projects
3. Major Capital Project Funds	Mostly Federal, possibly state, local	One-time allocations for Borders & Corridors, CMAQ, and Federal earmarks, especially for projects of regional or national significance. Potential projects requiring this type of funding include: **CSXT Strategic Plan –** Is the most likely large scale project with regional significance, especially the development of new large-scale terminals. This would have a significant positive impact on the economy in Florida and the entire Southeast. Expenses also would be significant, requiring construction of the facilities, upgrades to capacity of the rail lines serving the facilities, upgrades to the roadways around the facilities, and possible economic incentives for relocating businesses. **Intercity Passenger Rail –** More specifically, the impact intercity passenger rail will have on freight capacity in Florida. The strong desire by Floridians for intercity passenger rail system will have tremendous implications for freight services and system capacity. **Nationwide Chokepoints –** there are several chokepoints in the nation's freight rail system that impact Florida, and could involve the State in regional coalitions. These include capacity constraints around Atlanta, along I-95, and chokepoints at eastern-western railroad connections.
4. Private Funds	Private railroads	The railroads will fund projects that are "mission critical" to their strategic plan and projects that offer sufficient return on investment.

Recommendations

The Florida freight rail system currently is undergoing significant changes that will greatly impact the future of rail service in the State. Key changes include:

- CSXT is developing a strategic plan for the new economy that will restructure their rail operations and have broad implications for freight rail services throughout Florida;
- FEC plans to double track most of their network, providing increased capacity for both freight and passenger trains along the entire Florida eastern seaboard;
- The short line railroads plan to upgrade sections of rail to 286,000-pound rail car weight-bearing standards, which will create opportunities for the railroads to enter new markets;
- 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 improve access to airports;

- The Strategic Intermodal System provides a stable, long-term source of funds, allowing the Department to make strategic investments that will enhance the freight rail network; and

- The Federal government is debating legislation that will reauthorize the Federal surface transportation programs. The proposed reauthorization provides new support for freight rail projects.

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

- The Florida population continues to grow at twice the national average, generating more passenger vehicle travel on the roadways and greater, consumer-driven demand for freight movement;

- The CSX restructuring will create difficult decisions about the benefits and costs of abandonments, purchases by other rail operators, intercity passenger service, and recreational uses;

- There are many needs on Florida's Class II and III railroads to increase capacity, upgrade track and bridges, improve safety, and improve modal connections;

- Increasing roadway and railroad traffic will create more delays and safety hazards at the 5,000 at-grade crossings in Florida;

- Neither the railroads or the State will have funding to address all of the needs;

- Loss of rail service will render several Florida industries less competitive, especially in agriculture and mining, and at the marine ports; and

- Without a public-policy-driven expansion of the freight rail network, growth in goods movement will occur on the roadways, increasing congestion, construction costs, maintenance costs, pollution, fuel usage, and accidents.

It is recommended that the State of Florida move toward a public-policy-driven rail program by adopting the following six goals and accompanying broad-based policy-level recommendations.

Goal: Promote Economic Development and Job Growth

Recommendation #1 – The Department should continue to support new and expanded freight access to businesses, ports, and other freight generators for the purpose of maintaining and supporting economic growth. These are typically projects with local impacts that require close coordination with MPOs. The Strategic Intermodal System (SIS) program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #2 – The Department should continue to preserve the viability of Florida's rail network and corridors through strategic programs to support rail operators and, where necessary, preserve the existence of a rail corridor or local service where there are significant public benefits, including economic development, safety, and environmental protection. The SIS program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #3 – The Department should make industrial development agencies aware of the growth of high-tech rail suppliers in the State, and help promote the attraction and retention of these companies. The Department also should promote development of training programs through local colleges and schools to help alleviate the shortage of rail labor.

Recommendation #4 – The Department should promote the public benefits of freight rail, using information from this document and other sources. Stories reporting the public benefits of rail and highlighting the crucial role of rail in industry supply chains can be posted on the Department Internet site and included in Department presentations.

Goal: Relieve Highway Congestion Through a Competitive Freight Rail System

Recommendation #5 – The Department should continue to support new access and expansions in rail capacity that will result in diversion of freight from truck to rail. Shifting freight from truck to rail can help reduce highway congestion and delays, maintain highway capacity for freight that can only be moved economically by truck, reduce highway construction and maintenance costs, and increase safety and environmental quality. The SIS program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #6 – The Department should focus available SIS program funds on projects that: improve connections with other modes to create a stronger multimodal transportation system; enhance the freight capacity and reliability of Florida's transportation network; and, support modern rail industry standards that ensure an efficient system. Such projects require close coordination with Florida DOT district offices and MPOs. Department technical and financial participation in these projects is appropriate because the costs are usually accrued locally, but the benefits are often accrued regionally or statewide.

Goal: Maintain the Physical Continuity and Capacity of the Rail System

Recommendation #7 – The Department should support efforts to modernize the rail system by upgrading track and bridges to accommodate 286,000-pound railcars. The Department also should support efforts to improve schedule reliability, reduce delays, and provide faster travel speeds through signal, operational, and other technology improvements. The SIS program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #8 – The Department should obtain right of first refusal for the purchase of rail lines being sold within Florida. Criteria for state purchase should include consideration of cost, the importance of corridor for passenger and freight uses, public benefits such as economic growth and environmental protection, the viability of other purchasers, and potential for other corridor uses.

Goal: Improve Public Safety and Security

Recommendation #9 – The Department should continue to identify improvements to highway grade crossings that are identified as dangerous because of high rates of fatal or personal injury crashes, conduct public education campaigns, including Florida Operation Lifesaver, and actively monitor progress toward the reduction of grade-crossing accidents.

Recommendation #10 – The Department should promote the Association of American Railroads' security mandates to help protect Florida residents.

Goal: Leverage Federal and Private Funding Sources

Recommendation #11 – The Department should make maximum use of Federal funding available through the pending reauthorization of the Federal surface transportation programs. This funding can be applied to capacity expansion and facility construction, especially for projects of regional and national significance.

Recommendation #12 – The Department should identify and make use of other Federal funding programs that provide transportation planning and improvement funds that can be used to support general freight transportation planning, freight-rail planning, and freight improvements such as the Corridors and Borders program. The Department also should identify and make use of multistate/multiclient pooled funding studies and projects that address freight and freight-rail needs in Florida and Southeast U.S.

Recommendation #13 – As intercity and commuter passenger rail services grow in Florida, the Department should benchmark existing freight capacity and ensure that Federal, state, and local passenger programs provide funding for capacity expansion in shared-use corridors.

Recommendation #14 – Most Federal programs require state, local, or private matching funds for Federally funded projects. The SIS program provides one source of matching funds. The Department should identify additional, flexible funding sources to maximize the use of Federal money.

Goal: Develop Public/Private Partnerships

Recommendation #15 – The Department should convene and support a statewide rail advisory group comprising railroads, shippers, and other parties with a stake in Florida's rail system. The Florida Railroad Association provides a forum for the railroads to discuss

common issues and convey them to Florida DOT, but no comparable forum exists that brings together shippers, railroads, and public officials. Most of the shippers interviewed in the course of developing this plan identified the lack of communication across the Florida rail community as a problem, especially communication between shippers and the larger railroads.

Recommendation #16 – The Department should continue to engage the Florida railroads in the process of developing criteria for allocation of available state funding. This will ensure acceptance of the criteria and broader participation in programs.

1.0 Introduction

1.1 Purpose

Florida's freight rail system provides a vital linkage connecting critical Florida industries to their suppliers and customers. The rail system reduces highway congestion, improves safety, and improves environmental quality by hauling thousands of tons of freight daily that would otherwise move on Florida's highways. It allows Florida's ports, farmers, and other industries to extend the markets for their goods. It hauls coal to power plants, goods to retail stores, and materials to construction sites, helping to reduce the cost of living in Florida. It provides transportation redundancies, thereby increasing security and providing relief in times of natural disasters. The rail system provides competition, thus lowering shipper logistics costs and promoting industry expansion and job creation.

Florida's population is growing rapidly and so are the corresponding demands for goods. Freight volumes are projected to nearly double over the next 20 years, but without capacity improvements, rail's share of that freight is expected to decline. The Federal Highway Administration's (FHWA) Freight Analysis Framework (FAF) estimates that rail's share of Florida freight was 18.2 percent by tonnage and 7.4 percent by the value in 1998. By 2020, rail's share is projected to decline to 16.5 percent by tonnage and 5.8 percent by the value.[1] These projections are based strictly on economic and commodity forecasts and do not consider rail-capacity constraints or erosion of existing freight rail traffic to truck, which will likely lower rail shares even further.

Simply put, the demand for goods in Florida will continue to rapidly grow. This growth will be fueled by population growth and increases in disposable income. Movement of goods throughout the State will occur in trucks and on railroads. Decisions made by Floridians today, will impact how goods move in the future.

Florida is not alone in this decision. The entire nation is debating whether the public should take a more active role in developing a freight rail system that better supports industry, provides jobs, reduces roadway congestion, improves safety and the environment, and reduces highway costs. The choice was best summarized by the AASHTO *Freight-Rail Bottom Line Report*,[2] which presented two paths for the nation's freight rail system:

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[1] U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations. Freight Analysis Framework estimates, 2002.

[2] American Association of State Highway and Transportation Officials, "Transportation Investment in America: Freight-Rail Bottom Line Report." Washington, D.C., January 2003.

1. **Market-Driven Evolution –** A rail industry that continues to be stable, productive, and competitive with enough business and profit to operate, but not to replenish its infrastructure quickly or grow rapidly; or

2. **Public-Policy-Driven Expansion –** A rail industry that provides cost-effective transport needed to serve national and global markets, helps relieve pressure on overburdened highways, and supports social, economic, and quality-of-life goals.

This *Freight Rail Component*'s principle purpose is to provide the necessary information in a policy framework through which strategic actions can be taken to achieve the best freight rail system for Florida's future. More specifically, the *Freight Rail Component* is intended to:

- Place critical information about freight rail issues, needs, choices, costs, and benefits within a larger public policy context;

- Effectively communicate these messages to a wide range of potential audiences; and

- Develop policy options and recommendations for creating a strong freight rail system in Florida.

1.2 Authority

This *Freight Rail Component* will be combined with the *Passenger 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 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 met 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."

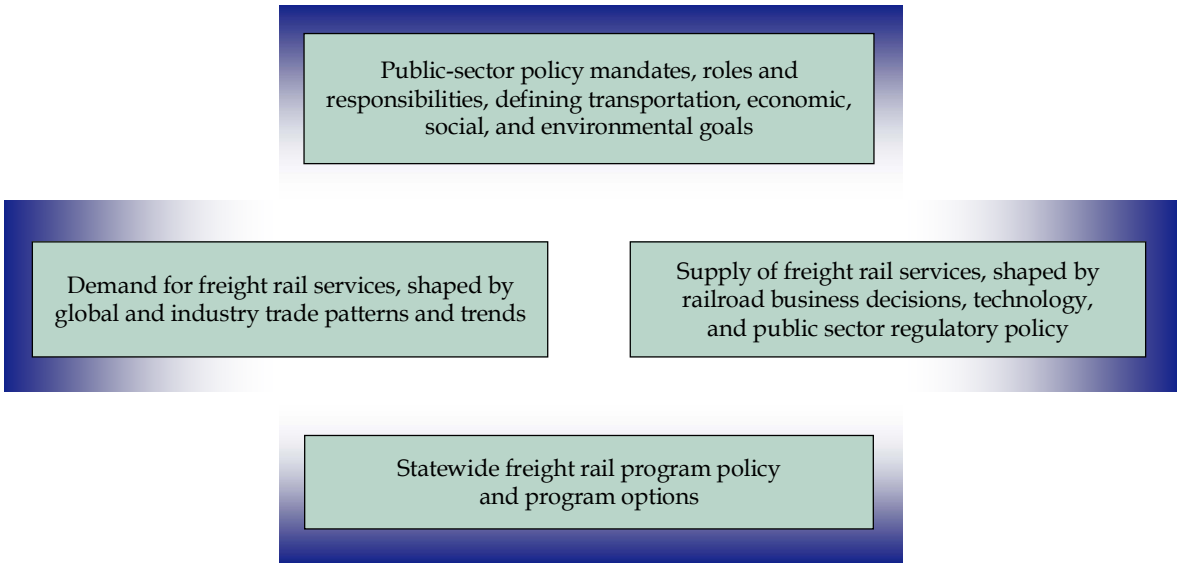
Sections 341.302(4) through (16) of the Florida Statutes require the FDOT to formulate work programs and provide technical assistance to local governments to address identified needs; secure and administer Federal grants when needed to further the statewide program; develop and administer state standards 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 the 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."

1.3 Contents

This *Freight Rail Component* is organized around four broad areas, illustrated in the accompanying figure.

Figure 1.1 Organization of *Freight Rail Component*



This Component identifies the public interest in freight rail, examines the demand and supply for freight rail service, and develops policy and program options for Florida that will support the public interest in freight rail's contribution to transportation, economic, social, and environmental goals. It is organized into the following chapters.

- **Chapter 2.0: Policy Issues, Roles, and Responsibilities –** This chapter examines the historical role that the FDOT and other public agencies have played in shaping Florida's freight rail system. It looks at current funding policies, including the Strategic Intermodal System. It also explores the proposed "six-point plan" and current rail policy.

- **Chapter 3.0: Current Freight Rail System and Services in Florida –** Descriptions and maps of each freight railroad operating in Florida is provided in this chapter. Also included are traffic patterns and trends developed from the Surface Transportation Board Carload Waybill Sample. This chapter concludes with information on abandonments, safety records, and the implication of the Florida West Coast Railroad's decision to abandon service.

- **Chapter 4.0: Freight Rail's Role in the Florida Economy –** This chapter begins by taking a macroeconomic view of population, employment, and income trends in Florida. It then moves into a description of seven Florida industries that are dependent on freight rail services. Each industry is profiled and the role of freight rail discussed.

- **Chapter 5.0: Trends and Issues Impacting Florida's Freight Rail System –** This chapter contains three primary sections. First is a summary of the trends and issues identified during a series of interviews with railroads, ports, and shippers throughout Florida conducted for the *Freight Rail Component.* Second is a discussion of CSXT's strategic plans presented to the FDOT. Finally, a review of national rail trends and issues that could impact Florida railroads is presented.

- **Chapter 6.0: Needs Assessment –** The results of a comprehensive needs assessment for Florida's freight railroads is presented in this chapter. Listing a need in this chapter in no way obligates the FDOT or the State of Florida to provide funding.

- **Chapter 7.0: Strategic and Program Options –** Drawing from current policies, rail traffic trends, industry profiles, and identified issues and needs, this chapter develops various strategies and policy options concerning public involvement in Florida's freight rail system.

- **Chapter 8.0: Funding Florida's Rail Program –** Potential funding sources, Federal and state, are presented in this chapter. This includes funding of eligible projects through the Strategic Intermodal System. Also included in this chapter is a framework for evaluating and prioritizing freight rail projects.

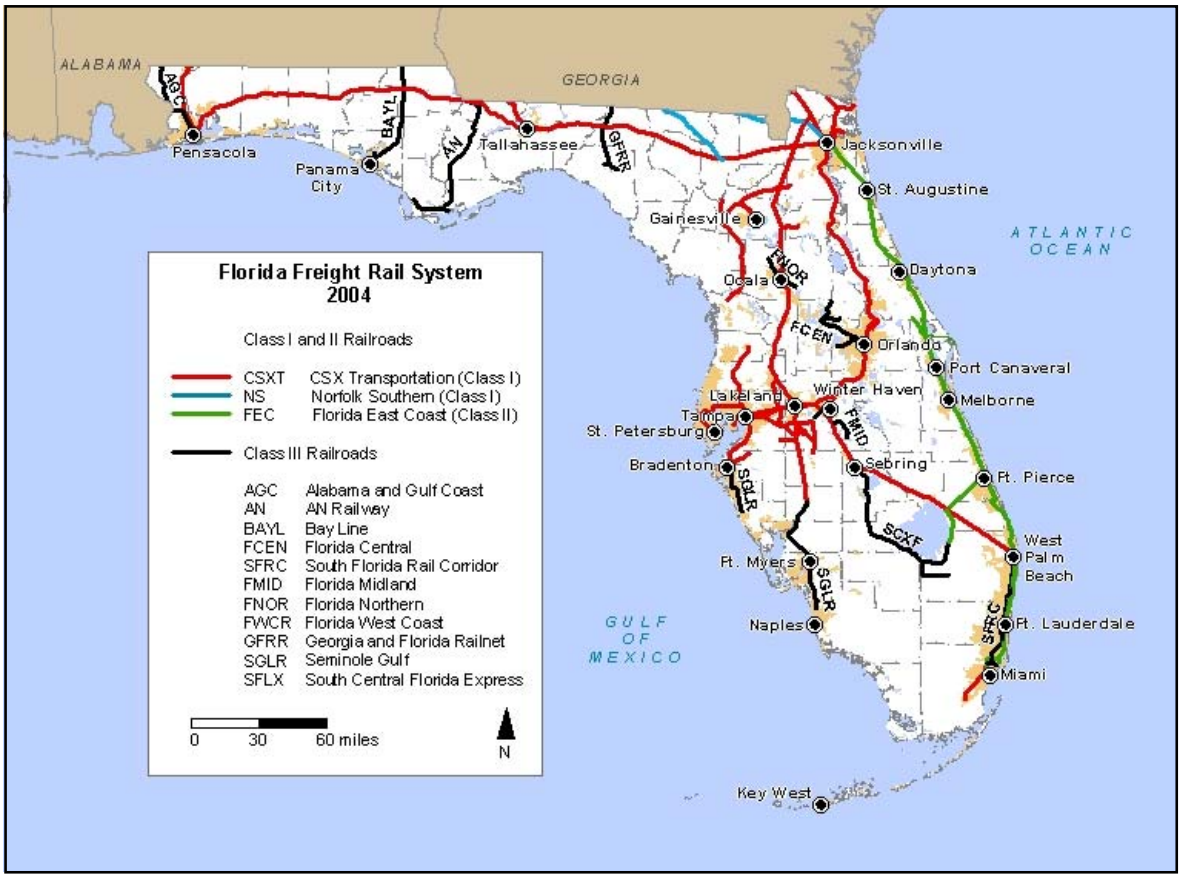
- **Chapter 9.0: Recommendations –** This chapter summarizes the main findings in the *Freight Rail Component* and presents final recommendations and next steps.

2.0 Policy Issues, Roles, and Responsibilities

2.1 Overview

Florida's freight rail network stretches over 2,700 miles across the State, providing service to ports, citrus and sugar plants, auto facilities, power plants, and other vital industries. The network serves nearly every major population center, as show in Figure 2.1. Unlike other freight networks, though, the rail network is almost entirely owned and maintained with private funds.

Figure 2.1 The Florida Freight Rail Network

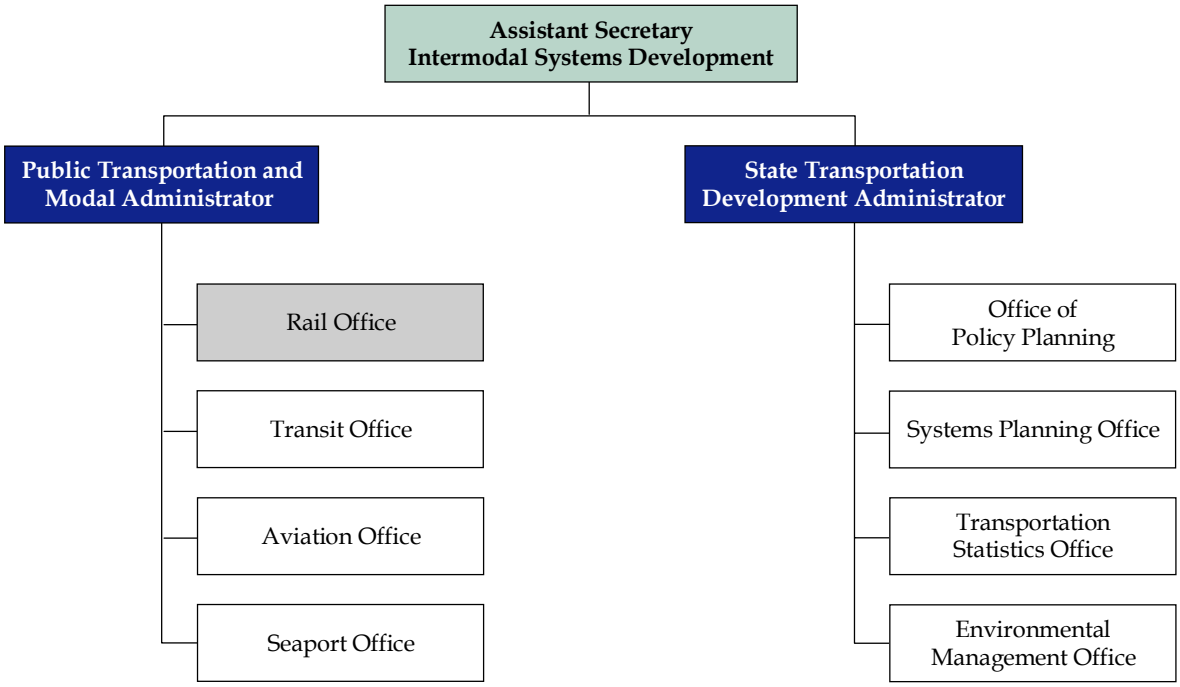


Florida, like most other states, has provided public support to these privately held railroads, when deemed in the best interest of the State. This chapter describes the role of the FDOT Rail Office, and provides some historical perspective on public funding mechanisms. The chapter then discusses the new Florida Strategic Intermodal System and the implications this program has on public support for freight rail projects. This chapter complements Chapter 8.0, which will address the issues of funding sources and project prioritization.

2.2 Public Sector Involvement in Florida Freight Rail

The Rail Office within the FDOT is the designated state agency for freight and passenger railroad planning and programming. The Rail Office is one of four modal offices reporting to the Public Transportation and Modal Administrator, which in turn reports to the Assistant Secretary of Intermodal Systems Development (Figure 2.2). The Assistant Secretary of Intermodal Systems Development reports directly to the FDOT Secretary.

Figure 2.2 Position of the Rail Office within the Florida Department of Transportation



The Rail Office has both freight and passenger functions. The passenger function deals with intercity passenger service (Amtrak), high-speed rail, and commuter rail services. The freight function covers four primary areas: policy, planning and procedures; rail safety inspections; rail-highway crossing safety; and, project development assistance. Specific freight responsibilities are further contained in Figure 2.3.

Figure 2.3 Responsibilities of the Florida Department of Transportation Rail Office Freight Function

In 2000, the FDOT adopted the *Florida Transportation Plan,* which sets forth the State's mission that:

> ***"Florida will provide and manage a safe transportation system that ensures the mobility of people and goods, while enhancing economic competitiveness and the quality of our environment and communities."***

Drawing from this mission statement, this 2004 Freight Rail Component of the Florida Rail Plan adopts the following "Six-Point Plan" to provide more specific criteria for appropriate allocation of public funds to freight rail projects.

- Maximizing the use of Federal money;
- Facilitating public and private partnerships;
- Optimizing rail system safety and security;
- Ensuring freight rail access;
- Preserving rail capacity; and
- Preserving existing and future rail corridors.

The Six-Point Plan has three primary objectives. First, it positions the State to work with the Federal Government and private industry to promote freight rail investments within Florida. The availability of matching funds allows FDOT to pursue Federal funding sources. These matching funds, or seed money, also can provide incentive for additional private investments. The second primary objective is to promote safety and security. This effort is directed at both the interaction between railroads and highway vehicles and pedestrians, in addition to ensuring that rail freight is protected from terrorism, vandalism and trespassing. The third primary objective is to preserve a strong freight rail system within Florida by retaining access, capacity, and corridors.

All of the items in the Six-Point Plan require the Rail Office to have an available source of funds. The primary sources have been the Local Rail Freight Assistance Program and the Transportation Outreach Program. Both of these programs have ceased, but the Strategic Intermodal System (SIS) has been implemented and is available for freight rail projects. Grade crossing improvement and education funding is available through the Federal Highway-Rail Grade Crossing Program (Section 130) and Operation Lifesaver. These sources and programs are discussed below, and SIS is discussed in Section 2.3.

2.2.1 Local Rail Freight Assistance Program

The Penn Central Railroad bankruptcy of 1970, and the bankruptcy of other northeastern railroads, initiated much of the current public sector rail planning. Concerned with the preservation of service, the Federal Government began addressing the issue. The Regional Rail Reorganization (3R) Act of 1973 and the Railroad Revitalization and Regulatory Reform (4R) Act of 1976 provided financial aid to the rail industry, especially the short lines that resulted from the bankruptcies. It was during this time that the states became involved in rail planning. The American Association of State Highway and Transportation Officials (AASHTO) established a Standing Committee on Rail Transportation (SCORT).

The Federal 4R Act was amended by the Local Rail Service Assistance (LRSA) Act of 1978, and the Omnibus Budget Reconciliation Act of 1981. The LRSA program provided funding on a Federal/local matching share basis for four types of projects: rehabilitation, new construction, substitute service, and acquisition. The LRSA Program permitted states to provide funds on a grant or loan basis. In 1990 LRSA was changed to Local Rail Freight Assistance (LRFA). The criteria for lines eligible to receive assistance were revised. Funds for the program were dramatically reduced in the 1990s, and congressional appropriations ceased in 1995. Over $544 million in Federal funds were expended between 1976 and 1985.

Development of the *Florida State Rail Plan* was a requirement for obtaining Federal LRFA funding while the program was active. FDOT participated in the program since its inception in 1978 and financed nearly $12 million in rail rehabilitation projects, mostly with the short line operators on a 70/30 or 50/50 match. FDOT was able to continue the program after the congressional appropriations ended in 1995, but at this time the last remaining funds have been distributed and this program has been terminated.

2.2.2 Fast Track Economic Growth Transportation Initiative and Transportation Outreach Program

In 1999, Florida used the Fast Track Economic Growth Transportation Initiative to fund transportation projects that would spur economic development and create jobs. The 2000 Florida Legislature FDOT replaced this program with the Transportation Outreach Program (TOP). TOP dedicated funding for transportation projects of a high priority, with a minimum of $60 million to be available annually.

Under TOP, almost any freight or passenger transportation project that enhanced mobility was eligible for funding. The projects were submitted annually and evaluated by a seven member advisory council. The Legislature made the final project approval through the General Appropriations Act. During the first five years of Fast Track and TOP, freight rail received 7.8 percent of the total available funding. Allocation included:

- $17.8 million to CSX Transportation;
- $ 945 thousand to the Georgia and Florida RailNet; and
- $ 3 million to the Eller Drive overpass at Port Everglades (considered a rail project).

TOP has now been replaced by the more comprehensive SIS, which is described in Section 2.3.

2.2.3 Highway-Rail Grade Crossing Program

This is a Federally funded program aimed at developing and implementing safety-improvement projects that reduce the number and severity of rail-highway grade crossing accidents. Commonly known as the Section 130 Program (due to a citation in a 1970s Federal highway bill) this was originally the Rail-Highway Crossing Program from the 1973 Highway Safety Act. Funding for this project is from the 10 percent "Safety Set Aside" authorized in TEA-21. The total dollar amounts have remained between $140 and $155 million per year over the past 15 years. The Section 130 Program provides 90 percent project funding, with the other 10 percent coming from state, local, or private sources. The Federal share may reach 100 percent in some cases.

Annually, FDOT receives its 100 percent Federal share of Section 130 funds in the amount of $4.6 million. There are no contributions of state, local, or private funds in the 130 Program budget. This contribution amount has remained stagnant since the inception of the Section 130 Program in 1973.

At least half of the Section 130 funds must be used for installation of protective devices at grade crossings. These include: standard signs and pavement markings, active warning devices, track circuit improvements and interconnections with highway traffic signals, crossing illumination, crossing surface improvements, and general site improvement. The remainder of the funding can be used for construction projects, such as grade separations, sight-distance improvements, geometric improvements, and closing of grade crossings.

There are over 5,000 at-grade crossings in Florida, which presents both safety and mobility challenges. Within FDOT, the Rail Office is involved in the following activities:

- Developing signal safety programs and guidelines;
- Maintaining Rail-Highway Crossing Inventory (RHCI);
- Maintaining a grade crossing hazard elimination program (including median barriers, four-quadrant gates, and event recorders);
- Maintaining a grade crossing opening and closing program;
- Providing quiet zone information for the new FRA Train Horn Rule;
- Providing cutting edge and advanced technology to signal safety systems;
- Providing grade crossing technical information (including a highway-railroad grade crossing material selection handbook, high-profile surveys of rail-highway at-grade crossings, and four-quadrant gate timing); and,
- Coordinating crossing safety management and facilitating statewide issues with FDOT Districts.

2.2.4 Operation Lifesaver

Operation Lifesaver, Inc. is a nationwide, nonprofit public awareness program dedicated to ending collisions, fatalities and injuries at highway-railroad grade crossings and on railroad property. On a national basis, Operation Lifesaver receives $500,000 annually from the Federal Highway Trust Fund, $200,000 from the Federal Transit Administration, and $1.25 million from the Federal Railroad Administration, plus contributions from the railroads and private industries. There are more than 200 trainers and 3,000 volunteers providing educational programs in 49 states,[1] the District of Columbia and Canada. Operation Lifesaver promotes three Es:

[1] There are no railroads currently operating in Hawaii.

- **Education –** Through increased public awareness of the dangers of grade crossings to vehicles and pedestrians;
- **Enforcement –** Of traffic laws related to crossing signs and signals; and
- **Engineering –** Through encouragement of continued engineering research and innovation to improve safety.

FDOT maintains a very active Operation Lifesaver program. They publish a newsletter, travel around the State making presentations to groups of all ages, and organize and participate in special events. They also maintain statistics about fatalities and injuries occurring at grade crossings. In 2003 there were:

- 14 highway-rail grade crossing fatalities;
- 36 highway-rail grade crossing injuries;
- 33 pedestrian-trespassing fatalities; and
- 23 pedestrian-trespassing injuries.

2.3 Strategic Intermodal System

Florida's SIS was established in 2003 by the Florida Legislature to enhance economic competitiveness by focusing limited state resources on the transportation facilities critical to Florida's economy and quality of life. 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. Facilities on the SIS carry more than 99 percent of commercial air passengers, almost all waterborne and rail freight tonnage, and more than 68 percent of truck traffic and 54 percent of total traffic on the highway system.[2]

The SIS will help Florida respond to several key trends that are shaping the State's economy and impacting use of the transportation system: a strong population and economic growth, a shift toward regional economic centers, lagging economic performance of rural areas, a shift toward service and information industries, and continued concerns about growth management and environmental quality. The SIS will be used for:

[2] Statistics in this section were obtained from "Florida's Strategic Intermodal System Plan," FDOT, January 2005.

- 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;

- 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).

To advise FDOT on SIS investments, a Statewide Intermodal Transportation Advisory Council (SITAC) was created. Membership on the SITAC includes: five intermodal industry representatives selected by the Governor (one each from airport, transit system, intercity bus company, spaceport, trucking company); three intermodal industry representatives selected by the President of the Senate (one each from major-line railroads, Atlantic Coast seaport, airport); and, three intermodal industry representatives selected by the Speaker of the House of Representatives (one each from short line railroads, Gulf Coast seaport, trucking company).

To help guide decisions about what improvements to make to the SIS, FDOT and its partners have developed a set of five goals. The first SIS goal reflects FDOT's highest priority – providing a *safe* and *secure* transportation system. The second goal establishes a commitment to *preserve* and effectively *manage* existing transportation infrastructure before expanding the system. Goal number three emphasizes improvement in the *mobility* of passenger and freight trips on Florida's transportation system. The fourth goal is directed at *economic competitiveness*, specifically investments in areas that benefit Florida's existing businesses and help attract new businesses. The fifth and final goal is to support *quality of life* and minimize impacts of transportation systems on the *environment*.

The Florida Legislature has allocated $100 million per year, for the next five years, for projects on the SIS. This provides an opportunity to fund large scale rail projects. It also presents a challenge, since freight rail must now compete with highways, airports, deep sea ports, passenger rail, and transit for these funds. There is an even greater need to promote the public benefits of investments in freight rail projects.

The SIS also benefits rail by:

- Providing state recognition of rail's importance;

- Incorporating rail into statewide, regional and local plans;

- Considering rail as an alternative to highway expansion;

- Facilitating establishment of more efficient and effective rail facilities and services;

- Enabling state funding for projects on designated SIS rail terminals, corridors, and connectors;

- Facilitating public-private partnerships for improving rail service; and
- Establishing a process for proactive planning for the future.

The SIS is comprised of SIS Components and Emerging SIS Components. The following table defines SIS and Emerging SIS criteria for rail facilities.

Table 2.1 Strategic Intermodal System and Emerging SIS Definitions for Rail Facilities

Facility Type	SIS Component	Emerging SIS Component
Passenger Terminals (not specific to rail)	100,000 interregional passengers	50,000 interregional passengers, OR serves clusters of population and tourist activity AND more than 50 miles from SIS terminal
Freight Terminals (not specific to rail)	0.25% of U.S. activity	0.05% of U.S. activity, OR serves clusters of rail-dependent industries AND more than 50 miles from SIS terminal
Passenger Rail Corridors	Existing service	Not applicable
Freight Rail Corridors	10 million gross ton-miles per track-mile	5 million gross ton-miles per track-mile, OR serves clusters of rail-dependent industries

Figures 2.4 and 2.5 show the current SIS freight rail corridors and the intermodal terminals, respectively. There are five rail freight terminals on the SIS and another two on the emerging SIS. Freight Rail route miles on the SIS total 1,700, with another 400 on the emerging SIS.

Figure 2.4 Strategic Intermodal System Freight Rail Corridors and Connectors

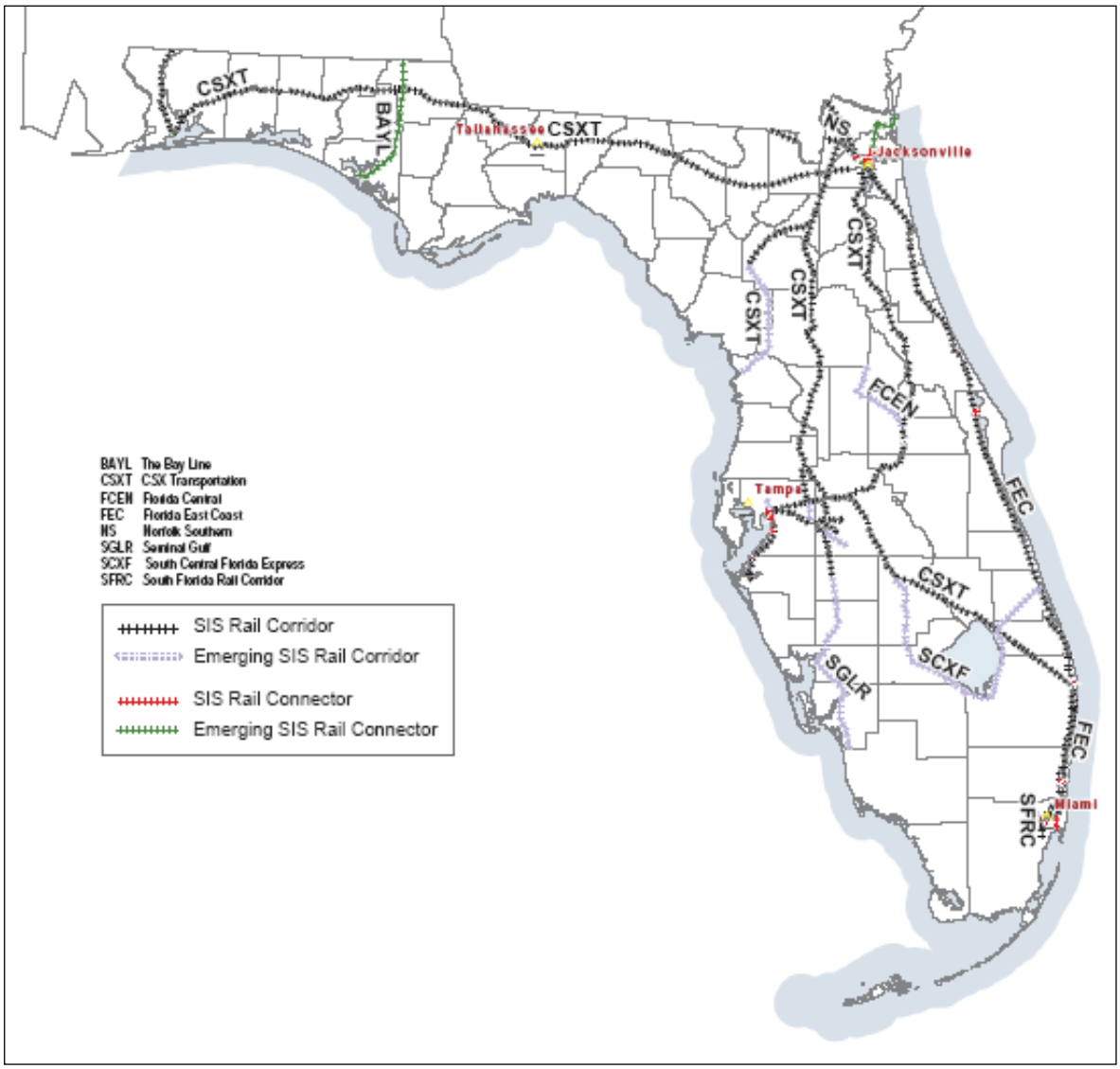
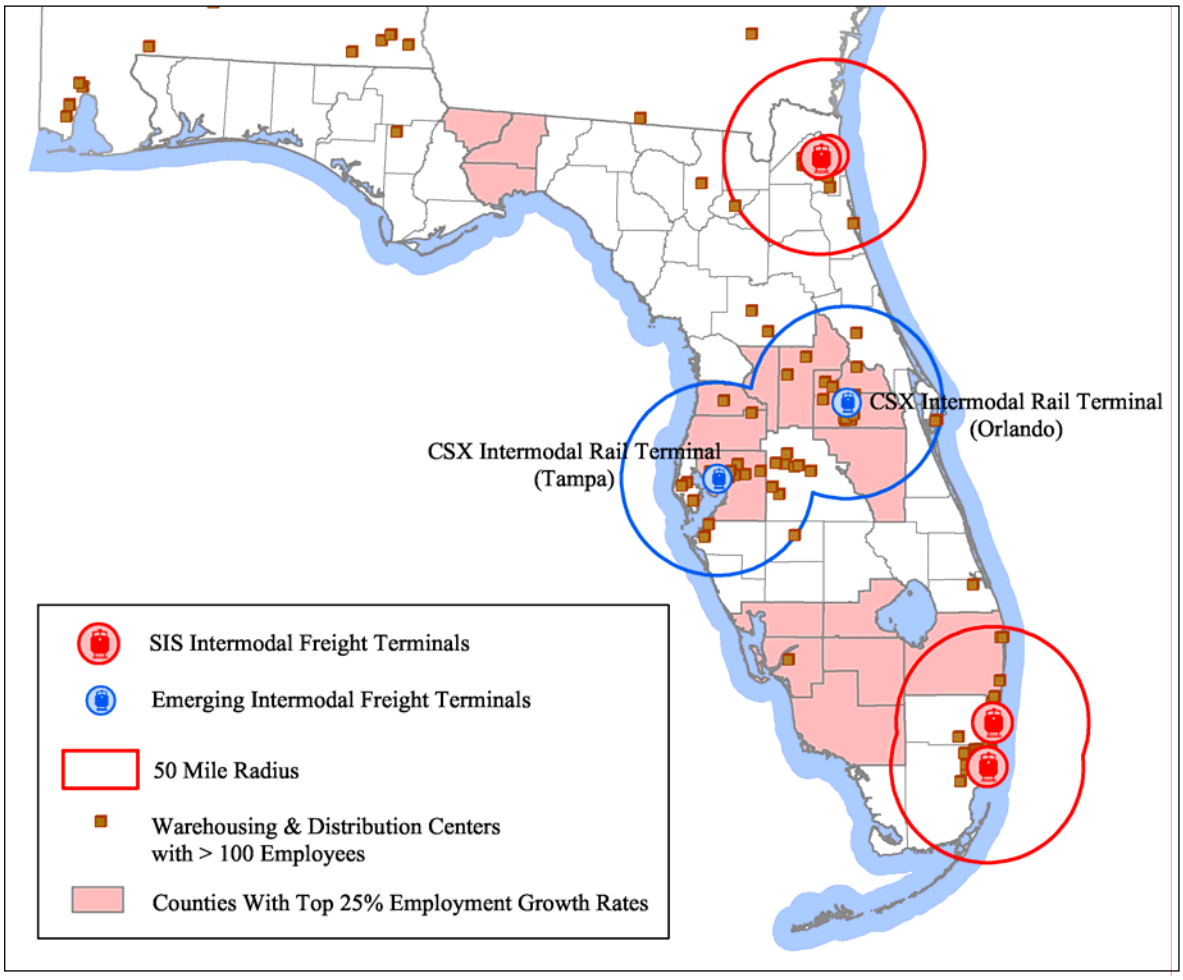


Figure 2.5 Strategic Intermodal System Intermodal Freight Terminals



3.0 Current Freight Rail System and Services in Florida

3.1 Overview

Florida's freight railroads paid over $350 million in wages to more than 6,200 workers in the year 2003.[1] The 14 railroads operating in the State carried 1.97 million carloads and 117 million tons of freight, effectively removing six million heavy trucks from the roadways.[2] By offering lower rates than trucks, the railroads support thousands of additional jobs by allowing Florida's industries to be competitive with international and domestic markets such as fertilizer, construction rock, paper products, sugar, processed food, and orange juice.

This chapter describes the 14 Florida railroads, first by profiling each of the railroads and then by examining traffic movements and trends. Also contained in this chapter are the implications of the Florida West Coast Railroad (FWCR) decision to abandon service, and safety and abandonment summaries.

3.2 Railroad Profiles

This section provides a one-page profile of each of the freight railroads operating in the State (Table 3.1). Each profile briefly describes the history, ownership, infrastructure, connections, and primary commodities for each railroad. A map is provided in each profile showing line ownership (bold lines) and trackage rights (bold dashed lines) in relation to other railroads, urbanized areas, and principal highways.

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[1] Wage and job statistics are from "Railroad Service in Florida," Association of American Railroads, 2002.

[2] All 2003 freight rail values are based on the corrected 2003 Surface Transportation Board Carload Waybill Sample, issued in January 2005. Truck estimates assume an average net truck weight of approximately 20 tons and do not consider empty truck movements.

Table 3.1 Freight Railroads Operating in Florida*

Railroad Name	Abbreviation	Class I	Class II	Class III	Terminal/ Switching
Alabama and Gulf Coast	AGR			●	
AN	AN			●	
Bay Line	BAYL			●	
CSX Transportation	CSXT	●			
Florida Central	FCEN			●	
Florida East Coast	FEC		●		
Florida Midland	FMID			●	
Florida Northern	FNOR			●	
Florida West Coast	FWCR			●	
Georgia and Florida RailNet	GFRR			●	
Norfolk Southern	NS	●			
Seminole Gulf	SGLR			●	
South Central Florida Express	SCXF			●	
Talleyrand Terminal	TTR				●

Note: * Railroad classification is determined by the Surface Transportation Board. In 2003: 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 & Terminal Railroad = a non-Class I railroad engaged primarily in switching and/or terminal services for other railroads. Class II and Class III railroads are generally referred to as "regional" and "short line" railroads, respectively.

Two Class I railroads operate in Florida: CSX Transportation (CSXT) and Norfolk Southern (NS). These two railroads serve the Eastern United States and connect Florida to the national rail network. CSXT is the single largest operating railroad in Florida, with an extensive network covering the Florida Panhandle, Northern and Central Florida, and the Greater Miami area in South Florida. NS lacks an extensive Florida network and primarily serves as a conduit to the national rail system via lines in Northern Florida and the Greater Jacksonville area. Both the Class I carriers, CSXT and NS, interchange with the Florida East Coast Railway (FEC), a Class II regional railroad that provides service to the heavily populated Atlantic Coast Corridor from Jacksonville to Miami. Class III short line railroads serve much of the rest of the State and provide local service to several important ports and manufacturing clusters. Finally, the Talleyrand Terminal Railroad (TTR) is a switching railroad providing service at the Jacksonville Port Authority (JaxPort). Table 3.2 shows the total miles operated and owned in Florida by railroad.

Table 3.2 Summary of Railroad Miles in Florida (2004)*

Railroad Name	Miles Operated in Florida	Percent of Total Miles Operated	Miles Owned in Florida
Alabama and Gulf Coast	45	15%	45
AN	96	100	96
Bay Line	63	57	63
CSX Transportation^	1,746	8	1,616
Florida Central	76	100	66
Florida East Coast	386	100	386
Florida Midland	33	100	27
Florida Northern	27	100	27
Georgia and Florida RailNet	50	20	50
Norfolk Southern	149	< 1	96
Seminole Gulf	115	100	115
South Central Florida Express	171	100	120
Totals	**2,957**		**2,707**

Notes: * Miles are calculated as route miles and do not necessarily reflect total track mileage.

^ Includes 130 miles of trackage rights, 81 miles of which are on the South Florida Rail Corridor owned by the Florida Department of Transportation.

3.2.1 Alabama and Gulf Coast Railway

The Alabama and Gulf Coast Railway (AGR) is a Class III railroad operating between Pensacola, Florida, and Columbus, Mississippi. AGR also serves Mobile, Alabama.

Ownership and History

AGR is a wholly owned subsidiary of Boca Raton-based RailAmerica Corporation, a holding company with 44 short line railroads in the United States and Canada. AGR, based in Monroeville, Alabama, officially became part of RailAmerica in 2002. The railroad was formerly operated by States Rail, which acquired it from Burlington Northern Santa Fe (BNSF) in 1997.

Source: RailAmerica Corporation.

Infrastructure and Connections

AGR operates 44.6 miles in Florida, representing approximately 15 percent of 288 total route miles. AGR's Florida route traverses Escambia County from the state border at Atmore, Alabama, to Pensacola. A small portion of the Atmore-Pensacola route passes back into Baldwin County, Alabama, between Barrineau Park and Muscogee, Florida.

In Florida, AGR connects with CSXT at Cantonment and Pensacola. The railroad's other primary connections include: BNSF at Amory, Mississippi; CAGY at Columbus, Mississippi; CN at Mobile, Alabama; CSXT at Hybart and Mobile, Alabama; NS at Boilgee, Demopolis, Kimbrough, and Mobile, Alabama (over NS); MNBR at Linden, Alabama; and TASD at Mobile, Alabama.

Commodities and Markets

Annually, AGR handles approximately 16,000 carloads of freight in Florida. AGR primarily serves the paper production industry with service to four paper mills and a large paper consolidator, Oren International, in Pensacola. The principal commodities associated with the paper industry (both outbound and inbound) include woodchips, logs, chlorine, sodium chlorate, hydrogen peroxide, rolled and boxed paper, and kaolin clay. AGR also hauls aggregate rock for use by Escambia County for highway projects. AGR also serves the Pensacola Marine Shipyard Complex.

3.2.2 AN Railway, L.L.C.

The AN Railway, L.L.C. (AN) is a Class III railroad operating between Port St. Joe and Chattahoochee, Florida.

Source: Rail Management Corporation.

Ownership and History

AN is a subsidiary of Rail Management Corporation, which acquired AN from the St. Joe Company in 2002. AN is one of two Rail Management Corporation short lines in Florida – the other being the Bay Line Railroad (BAYL). AN is one of 14 railroads owned by Rail Management Corporation in the Southern United States, Arizona, and Wisconsin. AN was originally chartered by the State of Florida in 1903 and was known at that time as the Apalachicola Northern Railroad. The first 30 miles of railroad commenced operation in 1907 after two years of construction through swampland between Apalachicola and Chattahoochee. Through a subsequent acquisition by DuPont in 1933, and the construction of a paper mill at Port St. Joe in 1937, the railroad's operations focused on paper shipment until the mill's closure in 1999.

Infrastructure and Connections

AN operates approximately 96 total route miles, all in Florida. Port St. Joe is the primary base of operations for the railroad and the location of its principal offices and locomotive shop.

AN's only connection is with CSXT at Chattahoochee, Florida.

Commodities and Markets

AN serves various customers in the Florida Panhandle. AN's primary customers include three chemical companies, a scrap metal shipper, three forest products companies, and a barge-rail transload facility at Port St. Joe.

3.2.3 Bay Line Railroad, L.L.C.

The Bay Line Railroad, L.L.C. (BAYL) is a Class III railroad operating between Panama City and Dothan, Alabama.

Source: Rail Management Corporation.

Ownership and History

BAYL was purchased by Rail Management Corporation from Stone Container Corporation in January 1994. The railroad was formerly the Atlanta and St. Andrew's Bay Railway.

Infrastructure and Connections

BAYL operates approximately 63 miles in Florida, representing 57 percent of the railroad's 110 route miles. Panama City is the primary base of operations for the railroad and the location of its principal offices, yard, and locomotive shop. BAYL also owns approximately 1,000 acres of land adjacent to the railroad. BAYL's other primary yard is at Dothan, Alabama.

BAYL's only Florida connection is with CSXT at Cottondale. The railroad's other primary connection is at Dothan, Alabama, where it interchanges with two Class I railroads (CSXT and NS) and two Class III railroads (CHAT and HS). BAYL also serves Port Panama City.

Commodities and Markets

Annually, BAYL handles approximately 28,000 carloads of freight. The principal commodities carried by the railroad include paper products, lumber, chemicals, coal, stone, steel, and fertilizer. BAYL's largest customer is Smurfit-Stone Container in Panama City. BAYL's other principal customers include: Port Panama City, Berg Steel Pipe, Cargill Steel, Arizona Chemical, Whitaker Oil, and Conrad Yelvington Distributors.

3.2.4 CSX Transportation

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.

Source: CSX Transportation, Wikipedia.org.

Ownership and History

CSXT is a division of CSX Corporation. CSXT acquired most of its current Florida assets through the merger of the Chessie System Railway and Seaboard Coast Line Industries in 1982. CSXT currently operates in 23 states, the District of Columbia, and two Canadian provinces.

Infrastructure and Connections

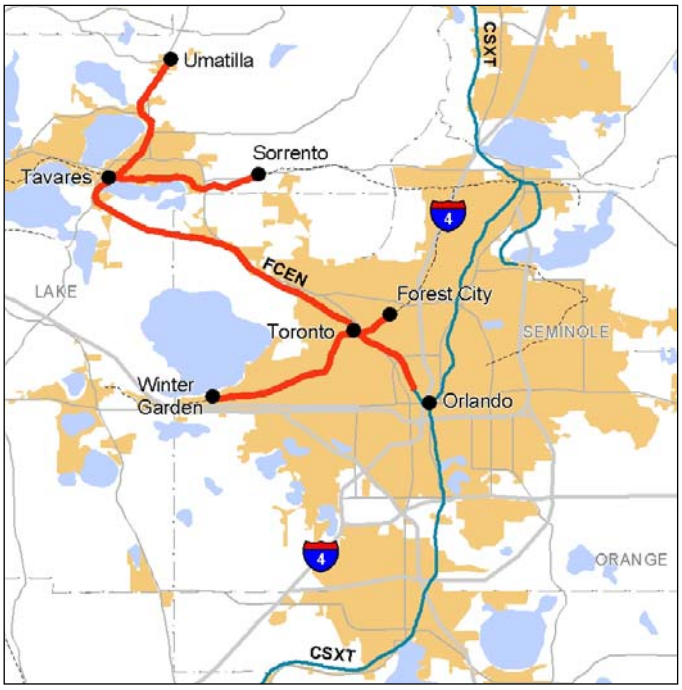
CSXT owns 1,616 route miles in Florida and operates over an additional 130 miles owned by the FDOT (South Florida Rail Corridor) and the Georgia and Florida RailNet (GFRR). CSXT's Florida route miles represent approximately eight percent of the railroad's 23,000 national route miles. CSXT serves most of the State's major urban areas and provides national Class I network connections for many of Florida's short line railroads. CSXT's primary base of operations in Florida is Jacksonville with important yards throughout the State. Both of CSXT's major north-south lines, the "A Line" and the "S Line," terminate in central Florida. The names derive from former Atlantic Coast Line and Seaboard Air Line Railroad routes. CSXT provides vital connections to Florida's short line railroads, and in many cases are the only connection for the short line.

Commodities and Markets

CSXT's principal Florida commodities include nonmetallic minerals, chemicals and allied products, coal, and miscellaneous mixed shipments (intermodal). Nonmetallic minerals include phosphates from Central Florida's Bone Valley and crushed construction rock. CSXT moves hundreds of thousands of imported and domestic autos annually to and from Florida. Its largest auto facilities are located at Jacksonville (three facilities), Tampa, and Palm Center (Miami). CSXT also operates an expedited service that delivers fresh Tropicana Orange Juice from Bradenton and Fort Pierce (received at Jacksonville from FEC) to distribution centers in New Jersey, Ohio, and California.

3.2.5 Florida Central Railroad

The Florida Central Railroad (FCEN) is a Class III railroad serving industries in Lake, Orange, and Seminole Counties northwest of Orlando.



Source: Florida Central Railroad, Pinsly Railroad Company, Surface Transportation Board.

Ownership and History

FCEN was formed in 1986 from several CSXT branch lines. It is one of three Florida short line railroads owned by Pinsly Railroad Company, a holding group with five short lines in Florida, Massachusetts, and Arkansas. The other Pinsly short lines in Florida are FMID and FNOR. All are based in Plymouth, Florida.

Infrastructure and Connections

FCEN operates 66 miles of track, including 41 miles of main track between Orlando and Umatilla; 11 miles of branch line from Tavares to Sorrento; and 14 miles of branch line from Forest City to Winter Garden. FCEN's principal Class I connection is at CSXT's Taft Yard. FCEN has trackage rights over 10 miles of CSXT through Orlando to access that connection at Taft Yard. In December 2004, FCEN petitioned the Surface Transportation Board (STB) to abandon the Forest City Branch between Toronto and Forest City.

Commodities and Markets

Annually, FCEN serves more than 65 customers in Orlando, Toronto, Plymouth, Zellwood, Tavares, Eustis, Umatilla, Mount Dora, Ocoee, and Winter Garden. The principal commodities carried by FCEN (and the other two Pinsly short lines in Florida) include food-related products, chemicals, lumber, stone, scrap metal, fly ash, furniture, fertilizer, citrus juices, pumice, and limestone. In 2003, Pinsly partnered with CSXT, with funding from FDOT, to construct a new rail spur to serve the Florida Auto Auction in Winter Garden. FCEN's rail service to the auction facility makes possible rail shipment of automobiles via CSXT's Taft Yard in Orlando to CSXT's national network.

3.2.6 Florida East Coast Railway

The 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.

Source: Florida East Coast Railway.

Ownership and History

FEC is headquartered at St. Augustine and is owned by Florida East Coast Industries. Founded in 1895 by Henry Flagler to serve rapid residential, agricultural, and tourism growth in South Florida, FEC's history is inextricably linked to the development of West Palm Beach, Miami, and Key West – the railroad's terminus from 1912 to 1935.

Infrastructure and Connections

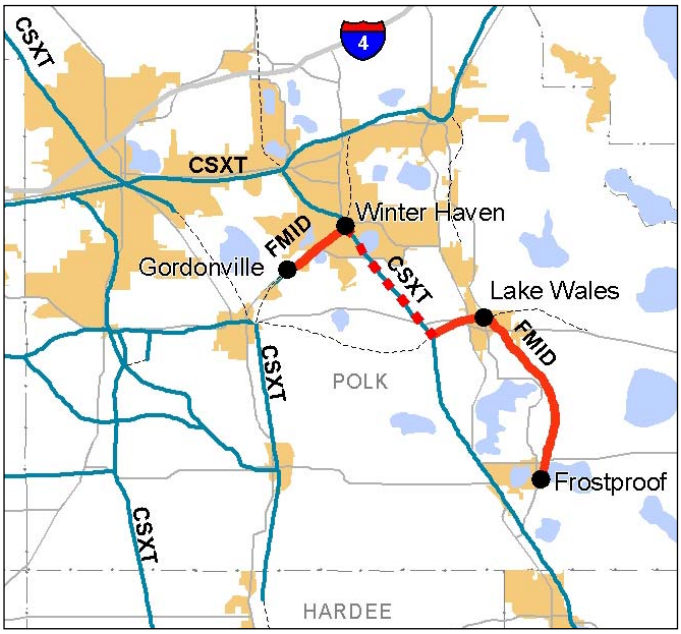
FEC operates 386 route miles, including 351 miles of mainline track between Jacksonville and Miami; 276 miles of branch, switching, and other secondary track; and 159 miles of yard track. FEC provides exclusive rail service to the Ports of Palm Beach, Everglades (Fort Lauderdale), Miami, and the Kennedy Space Center. The FEC's principal carload transfer yards are located at Fort Pierce, Cocoa, Pompano, Fort Lauderdale, and Miami and its intermodal facilities are located at Jacksonville, Fort Lauderdale, and Miami. FEC's chief connection with CSXT and NS occurs at Bowden Yard in Jacksonville. FEC also connects with CSXT at West Palm Beach and Miami (to FDOT's South Florida Rail Corridor) and with SCXF at Fort Pierce.

Commodities and Markets

Annually, FEC moves approximately 30 million tons of freight, including 100,000 carloads of aggregate and 170,000 new autos from its rock distribution centers in Miami, Fort Pierce, Cocoa, Daytona, St. Augustine, and Jacksonville, and from its Miami auto facility. Other important commodities moved by the FEC include: lumber, cement, chemicals, paper products, food products (including orange juice and pulp), primary metal products, machinery, bulk freight, and farm products.

3.2.7 Florida Midland Railroad

The Florida Midland Railroad (FMID) is a Class III railroad serving customers in Polk County in Central Florida.



Source: Florida Midland Railroad, Surface Transportation Board.

Ownership and History

FMID was formed in 1987 from former CSXT branch lines. It is one of three Florida short line railroads owned by Pinsly Railroad Company, a holding company with five short lines in Florida, Massachusetts, and Arkansas. The other Pinsly short lines in Florida are FCEN and FNOR.

Infrastructure and Connections

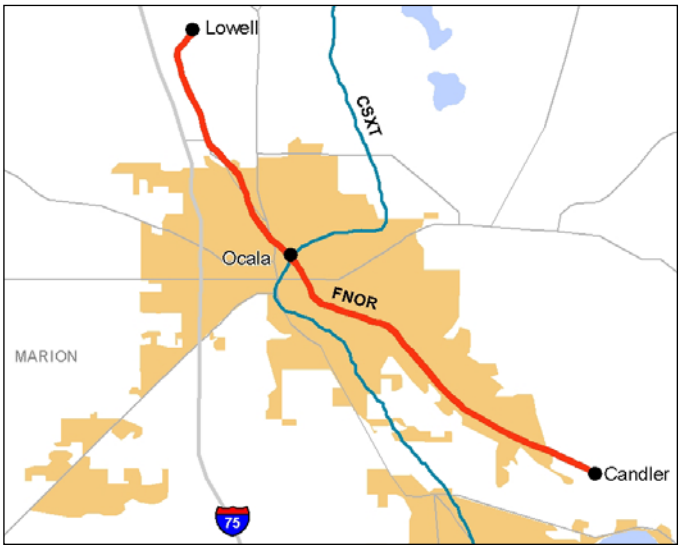
FMID operates over 27 route miles consisting of two disconnected branch lines. The first line runs between Gordonville and Winter Haven and the second runs between Frostproof and Lake Wales, both in Polk County. FMID's principal Class I connections, both with CSXT, are at Winter Haven and West Lake Wales. FMID has trackage rights over approximately 10 miles of CSXT that connect the two branch lines. FMID is based in Plymouth, Florida.

Commodities and Markets

FMID serves more than 25 customers in Leesburg, Winter Haven, Gordonville, Lake Wales, and Frostproof. The principal commodities carried by FMID (and the other two Pinsly short lines in Florida) include food-related products, chemicals, lumber, stone, scrap metal, fly ash, furniture, fertilizer, citrus juices, pumice, and limestone.

3.2.8 Florida Northern Railroad

The Florida Northern Railroad (FNOR) is a Class III railroad serving customers in the Ocala/ Marion County region of North Central Florida.



Source: Florida Northern Railroad, Pinsley Railroad Company.

Ownership and History

FNOR was formed in 1988 from CSXT's Ocala Subdivision. It is one of three Florida short line railroads owned by Pinsly Railroad Company, a holding group with five short lines in Florida, Massachusetts, and Arkansas. The other Pinsly short lines in Florida are FMID and FCEN.

Infrastructure and Connections

FNOR operates over 24.3 route miles between Lowell and Candler in Marion County. The railroad's only interchange is with CSXT at Ocala. From Ocala, FNOR also operates a 2.7-mile industrial track. FNOR is based in Plymouth, Florida.

Commodities and Markets

FNOR serves more than 20 customers in Ocala, Kendrick, Lowell, Maricamp, Kimbrough, and Candler. The principal commodities carried by FNOR (and the other two Pinsly short lines in Florida) include food-related products, chemicals, lumber, stone, scrap metal, fly ash, furniture, fertilizer, citrus juices, pumice, and limestone.

3.2.9 Florida West Coast Railroad Company, Inc.

The Florida West Coast Railroad Company, Inc. (FWCR) is a Class III railroad operating between Newberry and Trenton west of Gainesville.

Source: Wikipedia.org, Surface Transportation Board, Ehringer, Anrea. "Florida West Coast Railroad loses more rail but will continue to operate." *High Springs Herald*. August 26, 2004.

Ownership and History

FWCR was formed in 1987 from 44 miles of former CSXT branch lines. The railroad originally consisted of two lines running between Newberry and Cross City via Trenton and south from Fanning Springs to Chiefland. Before CSXT ownership, the lines were part of the Atlantic Coast Line Railroad. In June 2004, the STB granted the railroad's request to abandon service. The railroad must consummate this abandonment with the STB within one year for it to be finalized.

Infrastructure and Connections

FWCR currently operates approximately eight miles of track between Newberry and Iris, no longer reaching Trenton. The railroad is in the process of abandoning all operations.

Commodities and Markets

In its abandonment petition to the STB, FWCR indicated that it only served two businesses in 2003, generating 33 carloads of freight, consisting mostly of fertilizer. A more detailed discussion of the impacts of this abandonment appears in Section 3.6 of this report.

3.2.10 Georgia and Florida RailNet

The GFRR is a Class III railroad operating between Adel, Georgia, and Perry and Foley, Florida.

Source: Alberta Rail Net, Georgia Department of Transportation, Georgia Railroad Association, Georgia's Railroad History and Heritage (www.railga.com).

Ownership and History

GFRR is a subsidiary of North American RailNet, based in Bedford, Texas. North American RailNet operates six short line railroads in the United States and Canada. The railroad began operations in 1995 after acquiring the lines from NS in Georgia and Florida.

Infrastructure and Connections

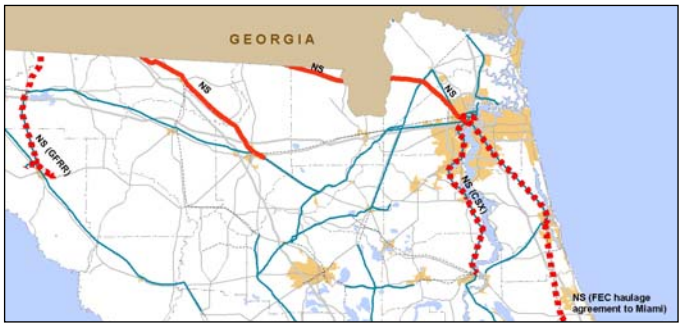
GFRR operates 50 miles in Florida, representing approximately 20 percent of 300 total system miles. Albany, Georgia, is the primary base of operations for the railroad. GFRR's only Florida connection is with CSXT at Greenville. The railroad also connects with NS near Adel, Georgia, and with two other short line railroads in Georgia (Georgia Southwestern Railroad and Valdosta Railway). Both CSXT and NS have trackage rights over the railroad.

Commodities and Markets

Annually, GFRR handles approximately 31,000 carloads of freight in Georgia and Florida. The principal commodities carried by the railroad include aggregates, barley, beer, chicken, chemicals, coal, fiberboard, frozen vegetables, grain, industrial oil, lumber, malt, paper, rubber, scrap metal, soy beans, soy meal, steel, sugar, tires, vegetable oil, wood chips, wood pulp, fertilizer, agricultural lime, and processed clay.

3.2.11 Norfolk Southern

The NS is a Class I railroad providing service to the Eastern United States through its connections in Northeast Florida.



Source: Norfolk Southern Corporation.

Ownership and History

NS is a publicly traded corporation based in Norfolk, Virginia. NS provides service to 22 eastern states, the District of Columbia, and the province of Ontario in Canada. The railroad was formed in 1982 through the union of the Norfolk and Western Railway and the Southern Railway Company. Through this merger, the new corporation acquired Southern Railway's Florida assets.

Infrastructure and Connections

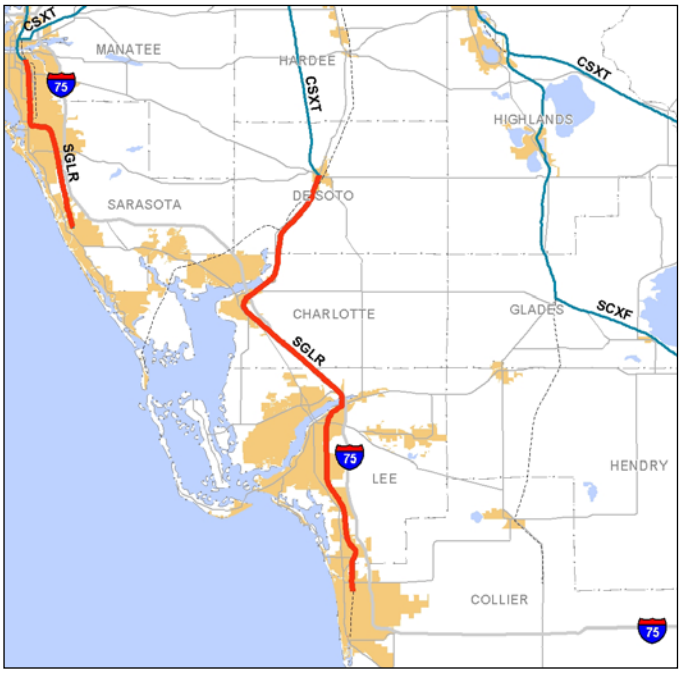
NS operates over 96 route miles in Florida, representing less than one percent of the railroads' 21,500 total U.S. and Canadian route miles. NS's owns two main lines in Florida, terminating at Jacksonville and Navair (near Lake City), respectively. The two lines join at Valdosta, Georgia, and interchange with the NS' interstate network at Macon, Georgia. Trackage rights agreements allow NS to operate over the approximately 53 miles of CSXT's "A Line" between Jacksonville and Palatka (where NS serves Georgia Pacific paper mill) and NS maintains a haulage agreement with FEC from Jacksonville to Miami. NS connects with the following railroads in Florida: CSXT near Lake City and at Jacksonville; FEC at Jacksonville; SCXF at Fort Pierce; TTR at Jacksonville; and GFRR near Adel, Georgia.

Commodities and Markets

Nationally, NS's top commodity by tonnage is coal. In Florida, NS moves bulk commodities, food products, lumber, paper products, steel, and other products. Most of NS's major customers are located in the Jacksonville area and along the Atlantic Coast to Miami. NS also serves major customers in the vicinity of Lake City. NS operates three automobile distribution centers located at Jacksonville, Titusville, and Miami, and an intermodal container/trailer transload facility in Jacksonville that receives port traffic via TTR.

3.2.12 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.



Source: Seminole Gulf Railway, Wikipedia.org.

Ownership and History

SGLR was formed in 1987 on two former CSXT branch lines. Before CSXT ownership, the Sarasota Line (Oneco-Venice) was operated by the Seaboard Air Line Railroad and the Fort Myers Line (Arcadia to North Naples, now terminating at Vanderbilt Beach) was operated by the Atlantic Coast Line Railroad. The first section of the railroad was constructed by the Florida Southern Railroad in 1886 between Arcadia and Punta Gorda. Currently, the railroad does not operate on the Sarasota Line. SGLR's headquarters are at Fort Myers and its management is associated with the Bay Colony Railroad based in Massachusetts.

Infrastructure and Connections

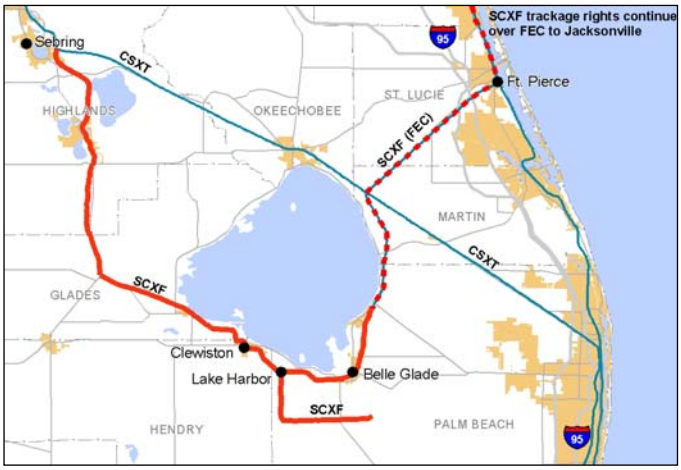
SGLR operates on 115 route miles in Southwest Florida. The Fort Meyer Line serves customers in De Soto, Charlotte, and Lee Counties and interchanges with CSXT at Arcadia. The Sarasota Line (currently inactive) runs between Oneco and Venice and interchanges with CSXT at Oneco. The Sarasota Line serves customers in Manatee and Sarasota Counties. SGLR's primary yard and shop is located at Colonial Station in Fort Myers.

Commodities and Markets

The railroad's primary commodities include building materials, newsprint, beer, LP gas, pulpwood, logs, and stone. In addition to its freight services, SGLR has operated excursion trains from Fort Myers since 1991.

3.2.13 South Central Florida Express

The South Central Florida Express (SCXF) is a Class III railroad serving the agricultural industries of South Central Florida. It is the largest private agricultural railroad in the United States.



Source: www.railwayage.com/aug99/shortline_awards.html, U.S. Sugar Corporation.

Ownership and History

SCXF is a "company railroad" owned and operated by the U.S. Sugar Corporation since 1994. Between 1990 and 1994, the railroad was operated by the Brandywine Valley Railroad, a subsidiary of U.S. Steel. The railroad currently owns an 87-mile section between Sebring and Canal Point. Much of that section was owned previously by CSXT (before Brandywine) and was originally part of the Atlantic Coast Line Railroad. The railroad also owns a branch line running south of Lake Harbor and then turning east into the cane fields south of Belle Glade. The railroad's headquarters are at Clewiston, Florida.

Infrastructure and Connections

SCXF operates on 120 route miles on both sides of Lake Okeechobee in South Florida. The line on the west side of Lake Okeechobee interchanges with CSXT at Sebring; the line on the east side connects with CSXT at Marcy and, through a lease agreement, operates over 51 miles of FEC to the Atlantic Coast where it connects to the FEC main line at Fort Pierce. SCXF has haulage rights on the FEC to its Jacksonville interchanges with CSXT and NS. The railroad owns 14 locomotives and approximately 1,000 special-purpose cane cars.

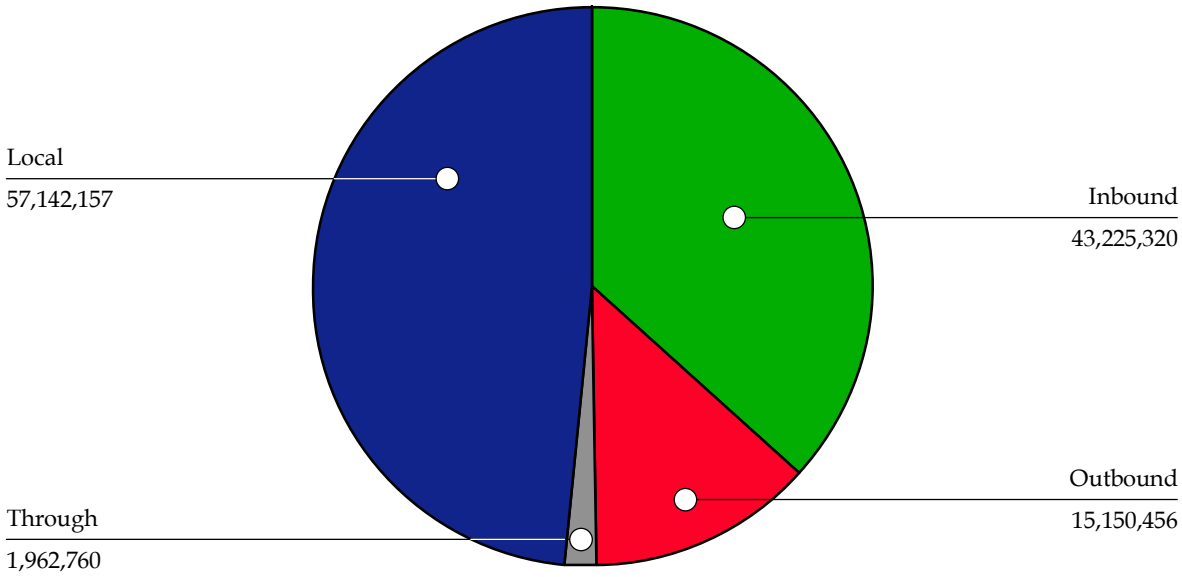
Commodities and Markets

As its ownership implies, SCXF's principal purpose is to transport sugarcane. Since its purchase by its largest customer (U.S. Sugar) in 1994, traffic on the railroad has increased from 41,000 to more than 71,000 annual carloads between 1994 and 2000. The railroad serves 26 customers and hauls cut cane, bulk raw sugar, packages and bulk-refined sugar, fertilizer, molasses, LPG, pulpwood logs, rolled paper, and farm equipment.

3.3 Traffic Description[3]

In 2003, Florida's freight railroads moved more than 117 million tons of freight, up from 113 million in 2002. This includes more than 43 million inbound tons; 15 million outbound tons; 57 million local tons; and nearly two million through tons.[4] Figure 3.1 shows the distribution of the inbound, outbound, through, and local shares of Florida's total freight rail tonnage for 2003.[5] In percentages, inbound accounted for 36.8 percent (down from 40 percent in 2002), outbound was 12.9 percent (consistent with 2002), local contributed 48.6 percent (up from 46 percent in 2002), and through traffic accounted for 1.7 percent (consistent with 2002).

Figure 3.1 Florida Freight Rail Tonnage
2003



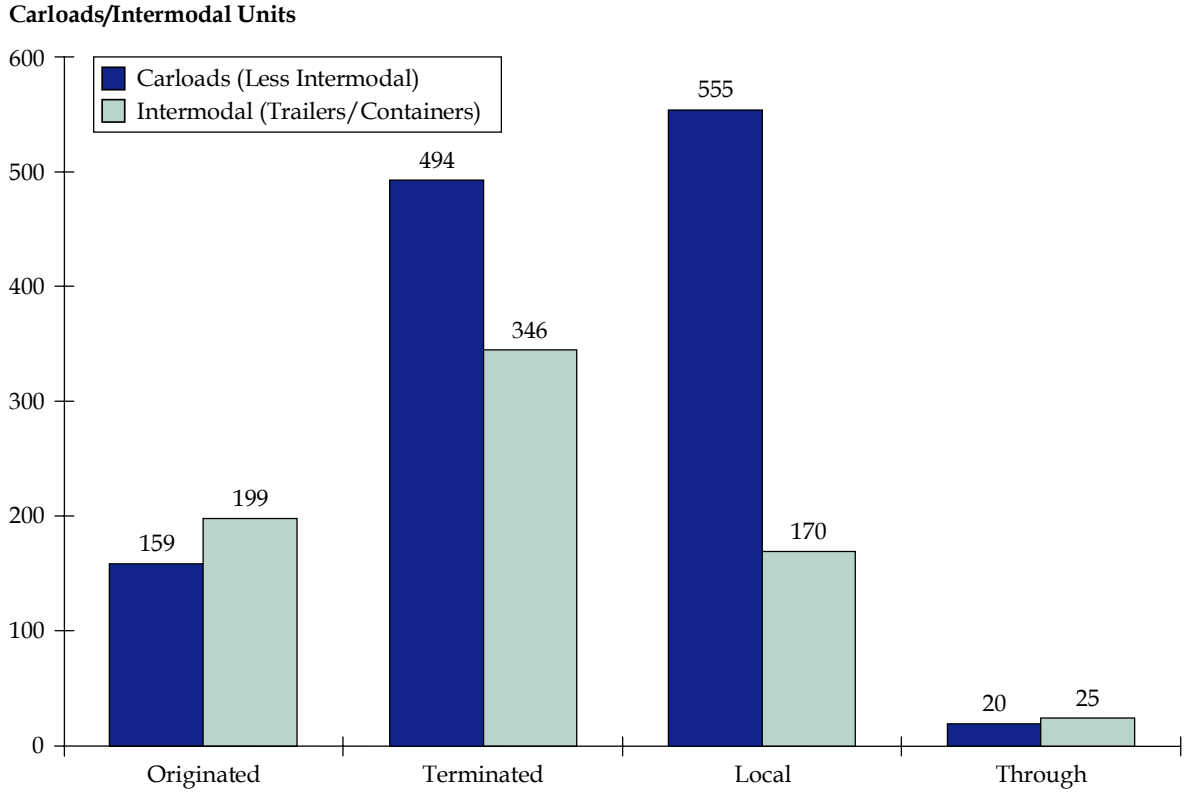
[3] This section uses the 2003 corrected Surface Transportation Board Carload Waybill Sample issued in January 2005.

[4] Terminology used in this report. "Inbound" is interstate traffic terminating in Florida. "Outbound" in interstate traffic originating in Florida. "Local" is Florida intrastate traffic. "Through" is traffic neither originating nor terminating in Florida, but passing through the State. "Origins" include both outbound and local. "Terminations" include both inbound and local.

[5] In the 2002 Florida Rail Plan, total tonnage was calculated as origins plus terminations, thereby double counting local movements. The total tonnage reported here counts the local moves once.

Florida's 2003 rail freight traffic consisted of 1,227,111 carloads and 739,220 intermodal units (trailers and containers) in 2003.[6] Figure 3.2 illustrates the share of carload versus intermodal freight rail movements for outbound, inbound, local, and through freight rail movements.

Figure 3.2 Florida Rail Carload and Intermodal Movements
2003



During 2003, the greatest number of carload movements were local movements, accounting for 45 percent of all carloads. The next greatest category was inbound carloads, with 40 percent of the share. Outbound carloads and through movements account for 13 percent and two percent of the total Florida carload movements in 2003, respectively. Intermodal units tell a different story, with inbound accounting for nearly half (47 percent) of all intermodal moves. The balance between local and outbound intermodal units is much closer than carloads, representing 23 percent and 27 percent of the total intermodal movements, respectively.[7]

[6] Carload total excludes cars hauling intermodal units.

[7] For international traffic, an export through a Florida port is shown as a Florida termination in the Surface Transportation Board Carload Waybill Sample. Similarly, an import is shown as a Florida origination.

Figures 3.3 and 3.4 depict the geographical distribution by District of originated and terminated tonnage. District 1, which includes Sarasota and Fort Myers, has the highest originated tonnage, with more than 34 million tons in 2003. Much of District 1's originated tonnage is attributable to the phosphate mining industry in Central Florida's Bone Valley. District 7, which includes Tampa and St. Petersburg, is the highest receiving District, with more than 25 million terminating tons in 2003, again mostly attributable to the phosphate industry. Northern Florida's District 2 has the second highest terminating tonnage, much of that attributable to Jacksonville's extensive rail yards where many national rail trips terminate and cargo is transferred to trucks for local consumption, dray to Florida peninsula destinations, or export through JaxPort.

Figure 3.3 Florida Rail Traffic Origins by District
2003

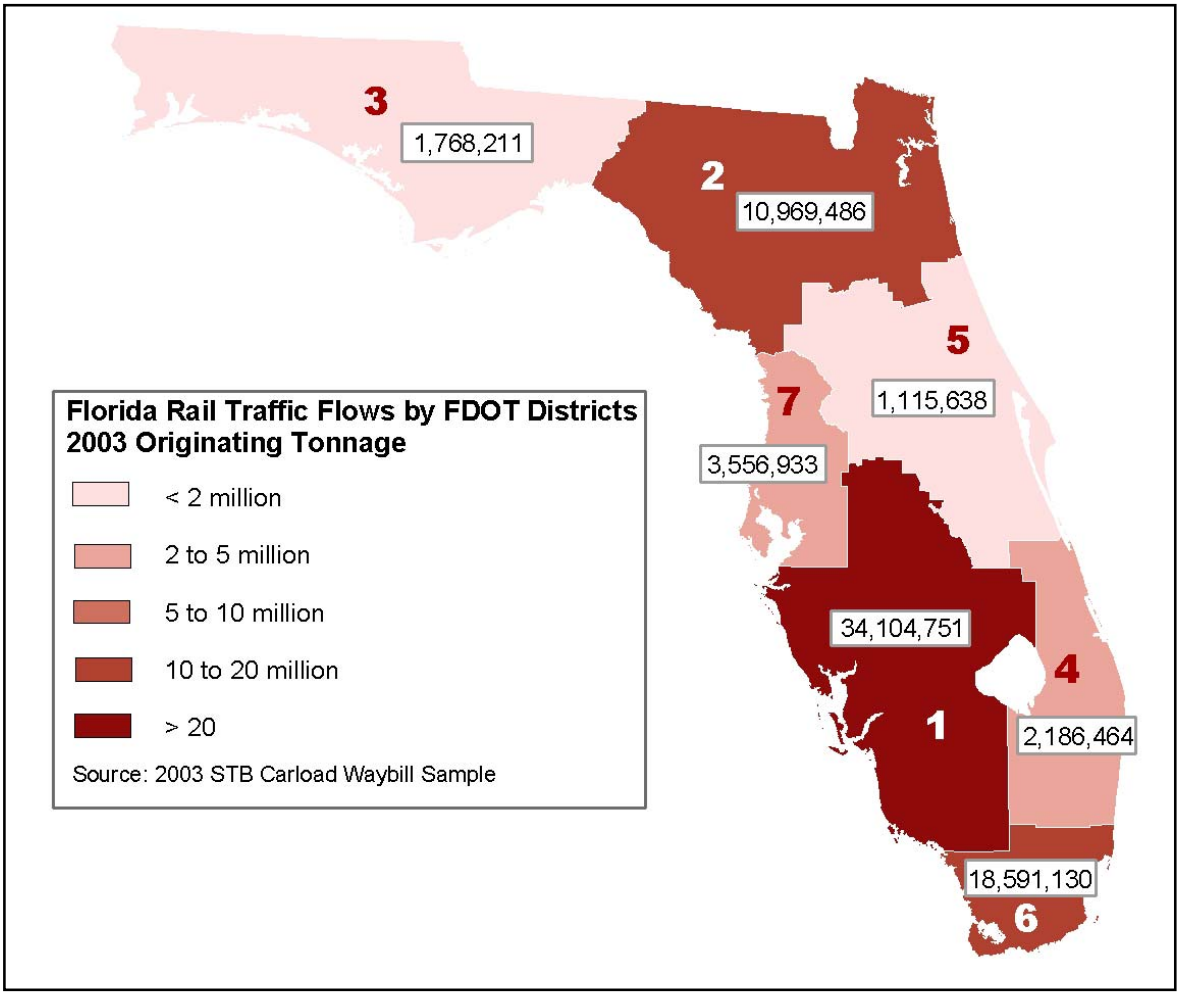
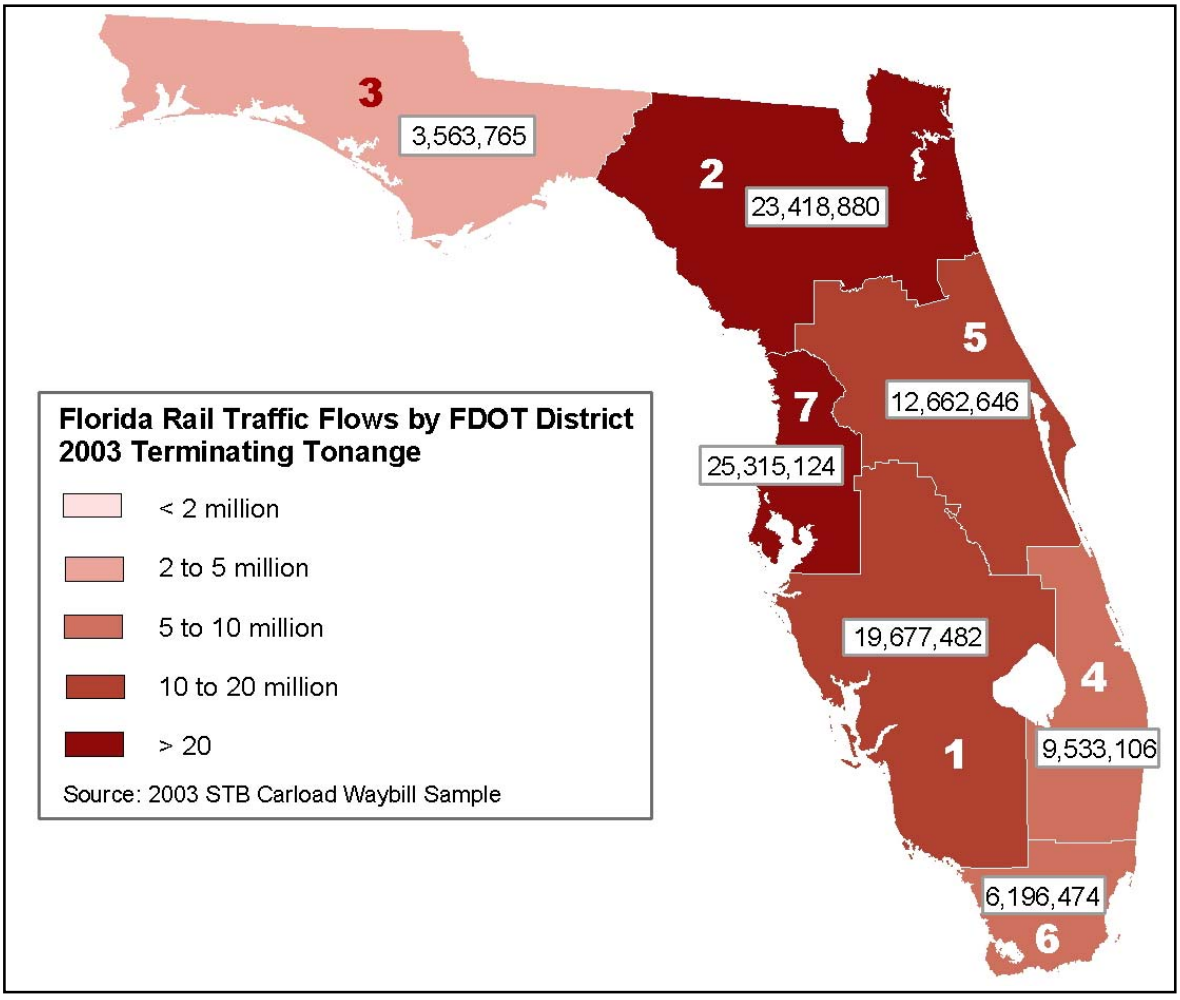


Figure 3.4 Florida Rail Traffic Terminations by District
2003



The following figures illustrate Florida rail traffic trends from 1991 to 2002, and the states that interchanged the most rail traffic with Florida in 2003. Figure 3.5 illustrates historic trends of Florida freight rail originations (outbound and local) by commodity. The commodities listed in this figure are those described in Chapter 4.0 and represent the most important Florida industry groups. The highest tonnage commodity group is nonmetallic minerals, which includes phosphates. The nonmetallic mineral tonnage has grown slightly in the last decade, with a marked increase in the mid to late 1990s followed by a downward trend through 2001. The next highest tonnage group is chemicals, with relatively steady tonnage during the last decade. Of the remaining commodity groups, mixed shipments (mostly intermodal) has increased slightly. Pulp, paper, and allied product tonnage also has increased slightly. Originated coal tonnage has shown the steepest decline (likely the ending of a move through one of the ports that transferred to rail), with lumber and wood products also demonstrating a noticeable downward trend.

Figure 3.5 Florida Rail Originations by Commodity
1991-2002

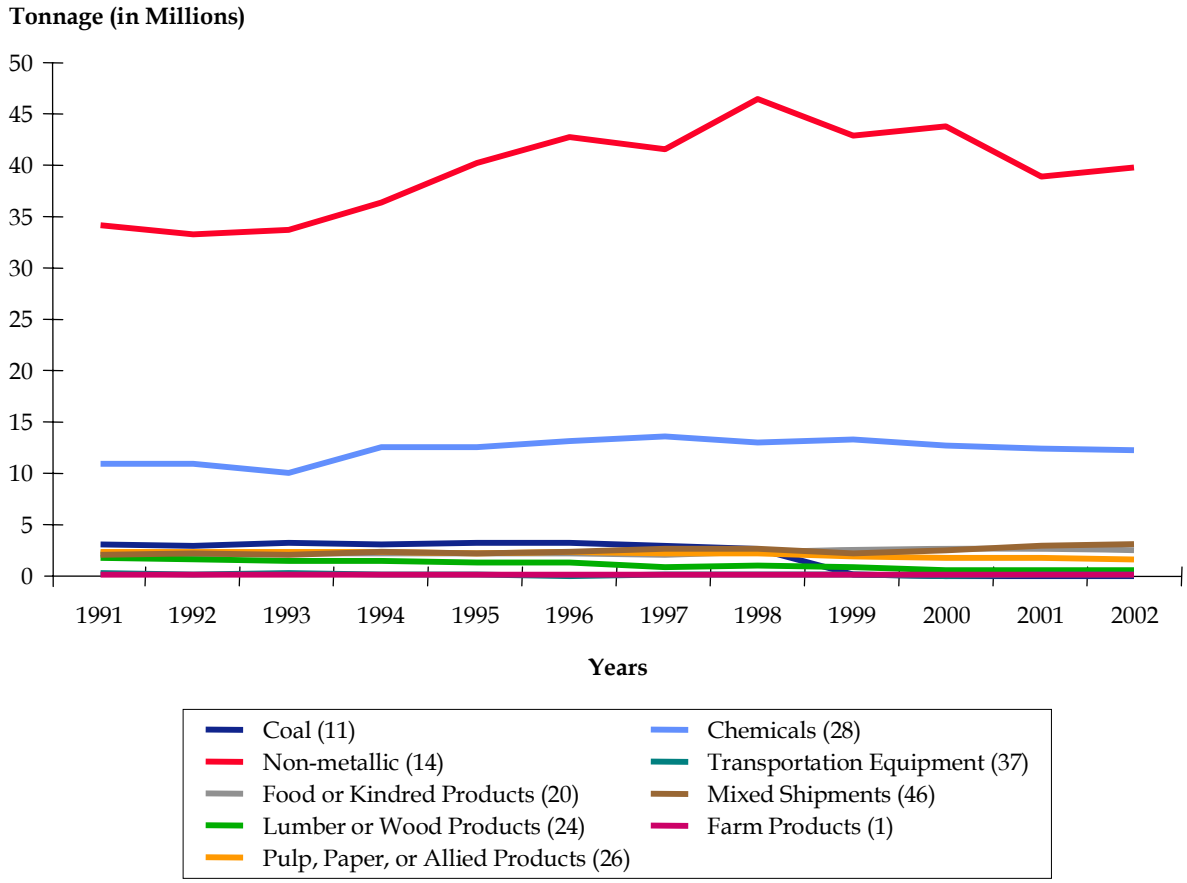


Figure 3.6 demonstrates temporal tonnage trends among Districts for originated traffic (both outbound and local). Southwestern Florida (District 1) and South Florida (District 6) have shown the greatest increases in tonnage over the last decade. Districts 4 and 5 have demonstrated slight increases in rail tonnage originated. The remaining Districts have shown decreases in originated rail tonnage since 1991, with the greatest percentage decrease in District 7.

Figure 3.7 shows the nine top recipients of Florida outbound interstate rail traffic. Georgia received 1.8 million tons, with the top three moves involving sugar, wood pulp, and empty intermodal trailers or containers. The other states receiving more than one-half million tons of rail freight from Florida were Illinois, Alabama, New Jersey, Ohio, Louisiana, Tennessee, North Carolina, and South Carolina.

Figure 3.6 Florida Rail Originations by District
1991-2002

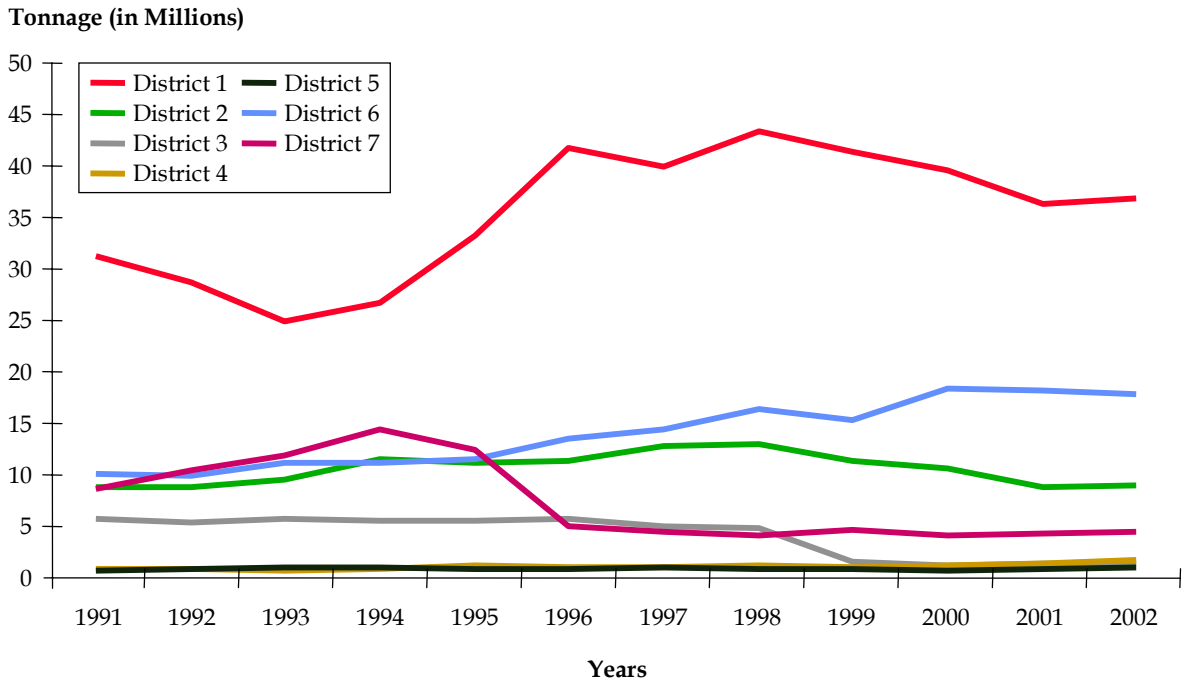
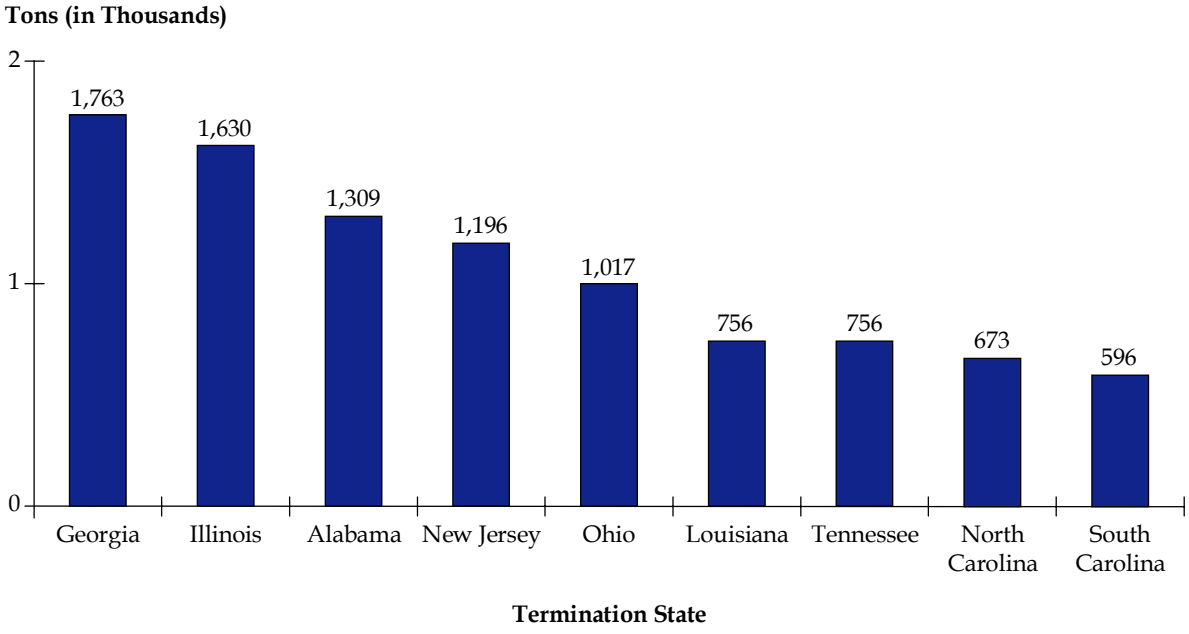


Figure 3.7 Outbound Florida Rail Tonnage by Termination State
2003



The next three figures contain Florida rail traffic trends from 1991 to 2002 for terminations (inbound and local), plus the states that forwarded the most rail traffic to Florida in 2003. Figure 3.8 illustrates historic trends of Florida freight rail terminations by commodity. The commodities listed in this figure are those described in Chapter 4.0 and represent the most important Florida industry groups. The highest tonnage commodity group is non-metallic minerals, which includes phosphates. The nonmetallic mineral tonnage has grown slightly in the last decade, with a marked increase in the mid to late 1990s followed by a downward trend through 2001. This pattern is nearly identical to that seen in Figure 3.6 because most of the phosphate movements are local to Florida. The next highest tonnage groups are coal, which has grown slightly, and chemicals, which have remained relatively flat. Of the remaining commodity groups, lumber and wood products have shown a decline, mixed shipments (mostly intermodal) have increased slightly, and the remaining commodities have remained steady.

Figure 3.8 Florida Rail Terminations by Commodity
1991-2002

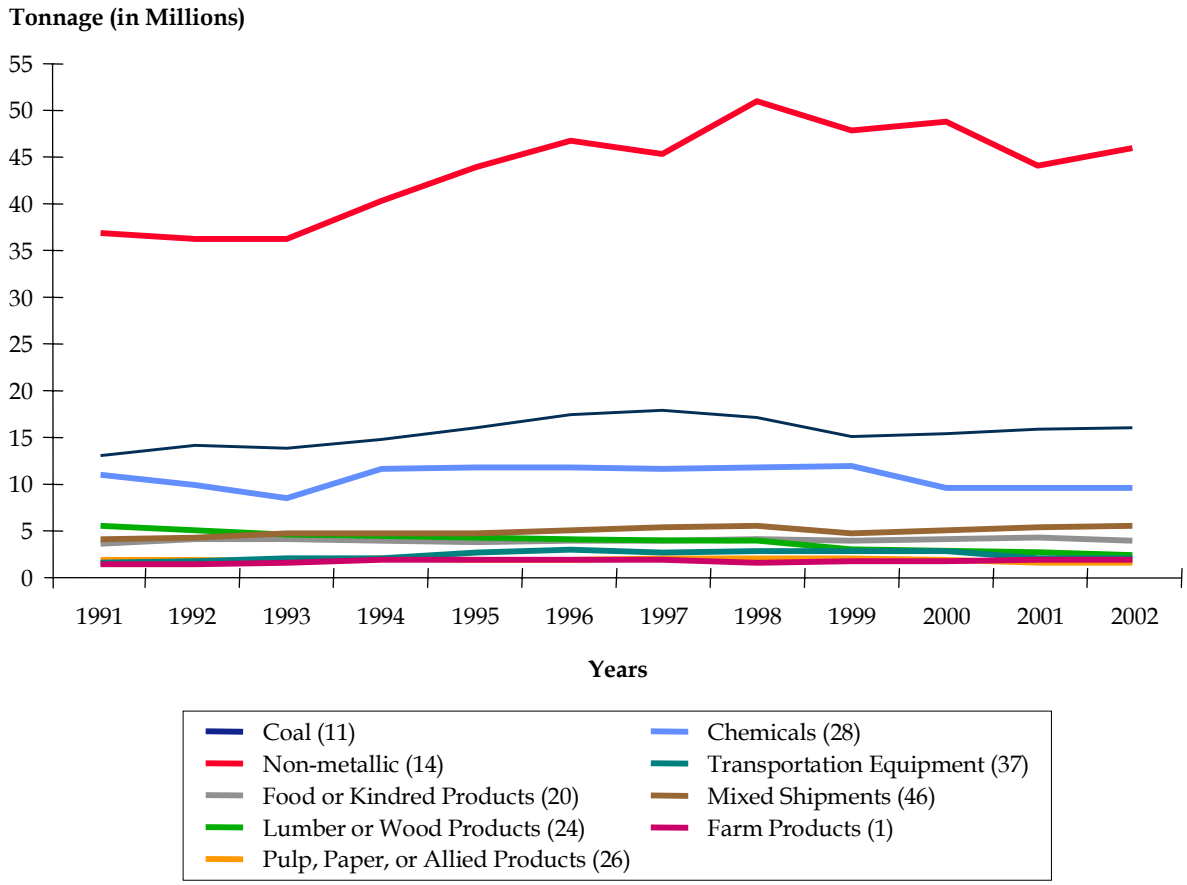


Figure 3.9 demonstrates temporal tonnage trends among Districts for terminated traffic (both inbound and local). The Tampa area (District 7) has shown a decline in terminated rail tonnage since 1991, though there was a slight rebound in 2002. Districts 1 (Southwest) and 5 (East Central) have demonstrated the largest increase in terminated rail tonnage over the last decade. The remaining Districts have shown slight increases or remained roughly even since 1991. One noticeable trend is that because of the decrease in District 7 and the increase in other Districts, there is less of a range in tonnage values in 2002 than there was in 1991.

Figure 3.9 Florida Rail Terminations by District
1991-2002

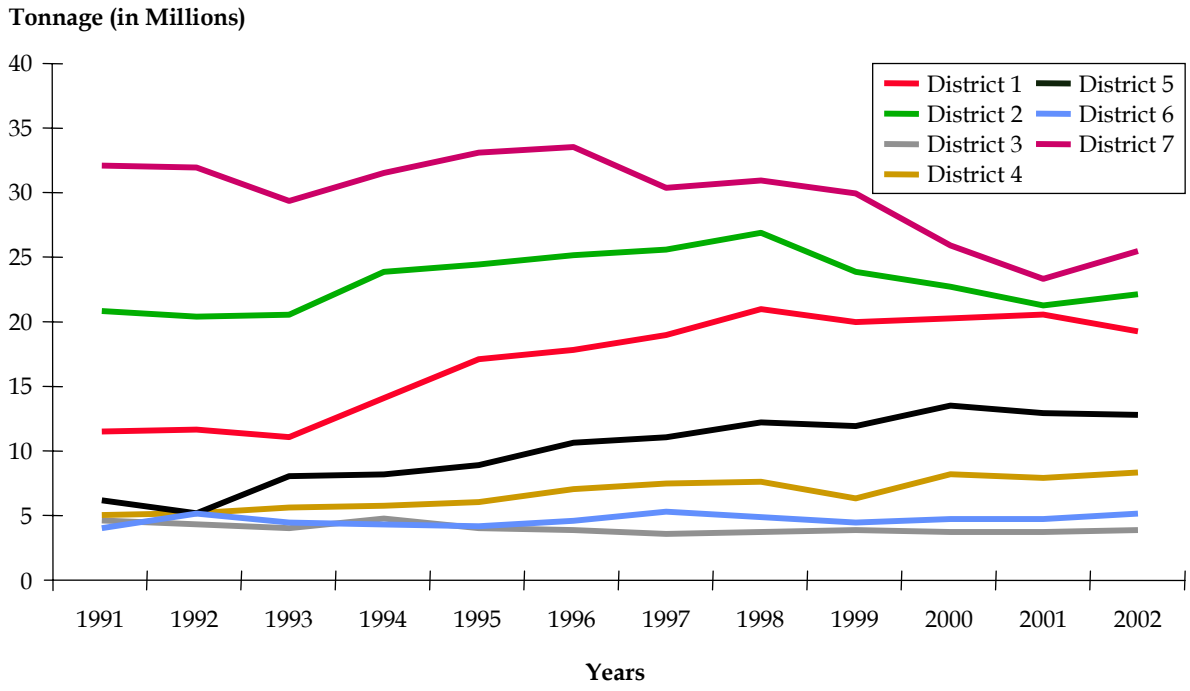
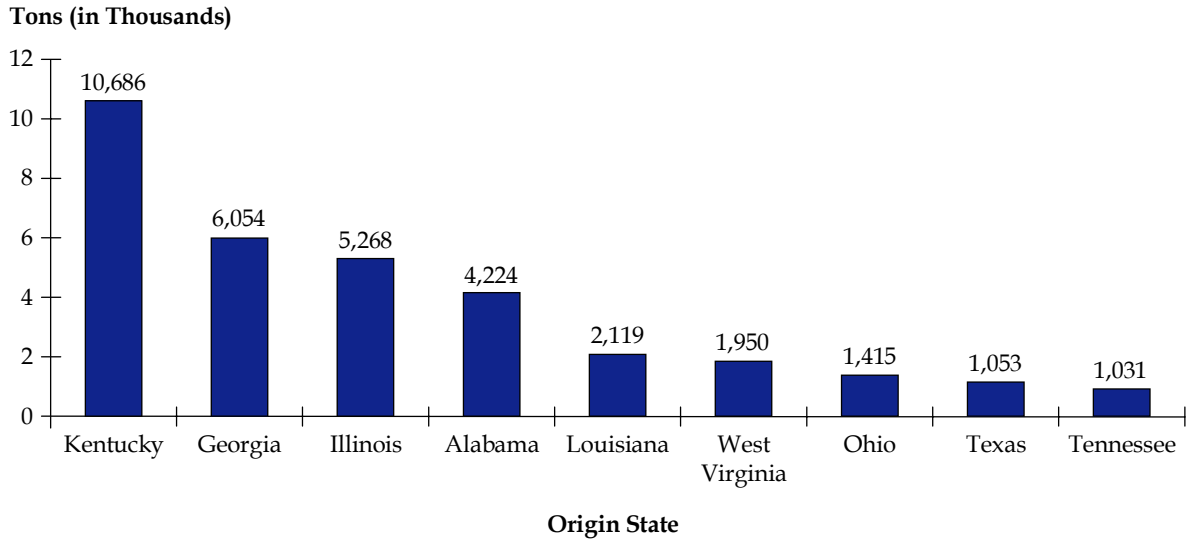


Figure 3.10 shows the nine top originators of Florida inbound rail traffic. Kentucky sends 10.7 million tons of rail freight to Florida, with the top three moves containing coal (8.4 million tons), coal or coke briquettes, and assembled autos. The other states sending more than one million tons of rail freight to Florida were Georgia, Illinois, Alabama, Louisiana, West Virginia, Ohio, Texas, and Tennessee.

Figure 3.10 Inbound Florida Rail Tonnage by Origin State
2003



3.4 Safety Record

The Federal Railroad Administration (FRA) collects data on three major types of safety incidents: train accidents, highway-rail grade crossing incidents, and other incidents. Over the last two years, these three types of safety incidents account for 774 total railroad safety incidents in Florida, resulting in 63 fatalities, 492 injuries, and $7.3 million in damage to the State's railroads. The following paragraphs and tables summarize the safety record of Florida's railroads (freight and passenger) since 2002.

During the last two years, the FRA reported 111 separate train accidents in Florida. The FRA defines a "train accident" as "a safety-related event involving on-track rail equipment (both standing and moving), causing monetary damage to the rail equipment and track above $6,600."[8] Train accidents typically include derailments and major rail collisions but do not account for all highway-rail grade crossing incidents, many of which cause less than $6,600 damage to railroad infrastructure even though non-railroad casualty and property costs may well exceed that amount. In the following table, train accidents are summarized by major cause, type of accident, and by the resulting casualties. The leading cause of train accidents since 2002 is human error, followed by track failure. These two factors caused two-thirds of the train accidents in Florida. Highway-rail train accidents caused the greatest number of casualties related to train accidents, with five killed and four injured since 2002.

[8] Federal Railroad Administration Office of Safety Analysis.

Table 3.3 Florida Train Accidents by Cause (2002 to 2004)*

	Type of Accident					Casualties	
Major Cause	Collision	Derailment‡	Highway-Rail Crossing	Other	Total by Major Cause	Killed	Nonfatal
Equipment	1	7			8		
Highway-Rail			10		10	5	4
Human Error	9	18		12	39	1	2
Miscellaneous		14		4	18		2
Signal		1			1		
Track		35			35		
Total	**10**	**75**	**11**	**16**	**111**	**6**	**8**

Source: Federal Railroad Administration Office of Safety Analysis.

Notes: * Period covers December 2002 through November 2004 and includes passenger and freight train accidents exceeding the $6,600 reporting threshold for damages.

‡ 37 (49 percent) of derailments occurred with train speeds 20 mph or greater.

The following table shows the second category of rail safety incidents, highway-rail incidents, over the last two reporting years. The FRA defines highway-rail incidents as "Any impact between a rail and highway user (both motor vehicles and other users of the crossing as a designated crossing site, including walkways, sidewalks, etc., associated with the crossing." The data show that 158 (77 percent) of the 204 highway-rail incidents in Florida involved a train striking a highway user – either a motor vehicle or a pedestrian. In nearly 23 percent of the incidents, the train was struck *by* a motor vehicle. Twenty of the 33 fatalities were occupants in motor vehicles. Pedestrians, however, experienced the highest mortality rate among highway user types, with 14 fatalities out of 21 total train-pedestrian incidents. It also should be noted that 99 of the 204 incidents did not result in any casualties, fatal or nonfatal.

Finally, during the last two years the FRA reported 469 "other" safety incidents in Florida. "Other" incidents are defined as "any death, injury, or occupational illness of a railroad employee that is not the result of a 'train accident' or 'highway-rail incident'." Of the 469 "other" incidents reported, 56 resulted in fatalities and 413 resulted in nonfatal injuries. All but one of the fatalities was attributable to trespassing on railroad property. The greatest share of injuries was incurred by railroad workers, including employees and contractors.

Table 3.4 Florida Highway-Rail Incidents by Highway User Type *(2002 to 2004)**

Type and Highway User	Total Accidents	Casualties	
		Killed	Nonfatal
Train Struck Highway User	158	33	54
Motor Vehicle	*137*	*19*	*49*
Pedestrian or Other	*21*	*14*	*5*
Train Struck BY Highway User (Consists Totally of Motor Vehicles)	46	1	17
Total Highway-Rail Incidents	**204**	**34**	**71**

Source: Federal Railroad Administration Office of Safety Analysis.

Note: * Period covers December 2002 through November 2004.

3.5 Abandonment History

Since 2002, five railroads have petitioned the STB for permission to abandon portions or all of their railroad track in Florida. As of December 2004, the STB has granted abandonments to FCEN, FMID, and FWCR. These three abandonments will be fully realized when the railroads meet the conditions set forth in the abandonment decisions. CSXT and SGLR also petitioned for abandonments since 2002. Both these petitions are under review by the STB awaiting Environmental Assessments to determine the impact of the abandonments. The following table summarizes the status of abandonments in Florida. The impacts of the pending FWCR abandonment are discussed in further detail below.

Table 3.5 Railroad Abandonments
(Since 2002)

Railroad Name	Section	Status
CSX Transportation	Branch line in Pinellas County (**1.85 miles**).	Pending Environmental Assessment (STB Docket AB_55_646x).
Florida Central	Forest City Spur (**3.4 miles** between Toronto and Forest City in Seminole and Orange Counties).	Abandonment exemption granted by the STB in December 2004 (STB Docket AB_319_4_x).
Florida Midland	Leesburg Branch (**13.21 miles** between Wildwood and Leesburg in Sumter and Lake Counties).	STB granted abandonment in 2001, but negotiations have been reopened for interim trail use (STB Docket AB_325_2x).
Florida West Coast	Newberry to Trenton (**13 miles**) in Alachua and Gilchrist Counties.	STB granted abandonment exemption in June 2004. The railroad must consummate this abandonment with the STB within one year for it to be final.
Seminole Gulf	Portion of the Venice Branch (**12.43 miles**) between Sarasota and Venice.	Pending Environmental Assessment (STB Docket AB_400_3x).
Abandonments in Process	*29.6 miles*	
Abandonments Awaiting Environmental Assessment	*14.3 miles*	
Total Potential Abandonments	**43.9 miles**	

4.0 Freight Rail and the Florida Economy

The discussion in Chapter 3.0 focused on the *providers* of freight rail services in Florida. It told how freight railroads directly provide 6,200 jobs in the State and displace nearly six million annual truck trips. It presented profiles of the railroads and the goods they move. In this chapter, attention is turned to the *users* of freight rail services. The shippers that depend on rail to transport their goods in the global marketplace, to stock their shelves with the latest products for Florida residents and visitors, and to haul construction materials to keep pace with the rapid population growth.

This chapter begins with some macroeconomic trends that drive the demand for freight transportation in Florida. These include population, population density, employment, and income. This is followed by a detailed look at seven Florida industries which depend on a strong freight rail system:

- Phosphates and Fertilizers;
- Distribution and Retail;
- Food and Agriculture;
- Paper and Fiber;
- Automotive Distribution;
- Energy; and
- Construction.

4.1 Why is Freight Rail Important to the Florida Economy?

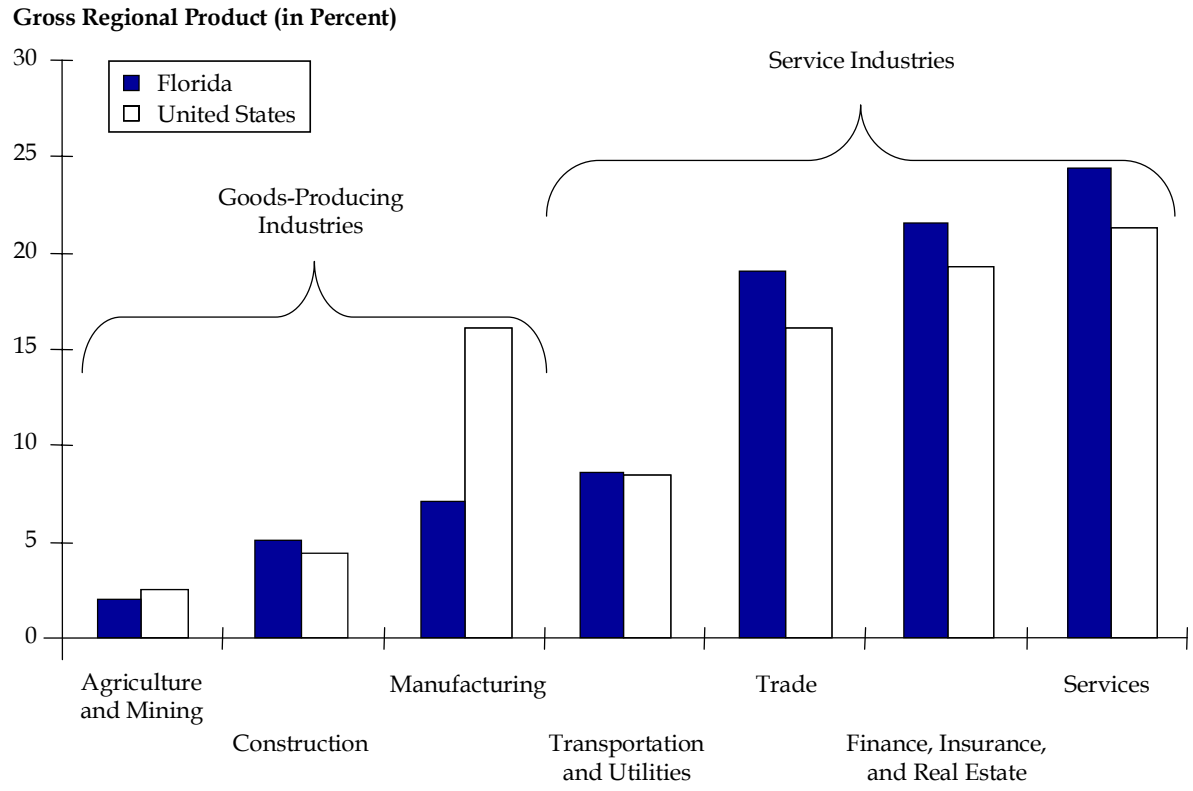
Rail is a key mode in a state transportation system that underpins the $491 billion Florida economy (an economy about the size of Australia's) and its 7.7 million jobs.[1] One-way rail supports the economy is through hauling stone, cement, structural steel, and other items used in the State's large construction industry. Another way is by lowering logistics costs,

[1] Economic and employment data from the U.S. Bureau of Economic Analysis.

thus making Florida's food and agricultural sectors competitive throughout the country. Florida's fast-growing population also has created proportional increases in energy demand, and rail is the preferred transportation mode for the State's coal-fired electric generating plants.

Florida's economy is more dependent than the United States' economy on services-related industries, including retail trade, finance, real estate, business, professional, and hospitality services. Figure 4.1 shows the contribution of each major sector to Florida's gross state product (GSP). The relatively low percent of manufacturing and high percent of trade and services means that a greater than average amount of goods need to be imported from other states and countries. This places even more demands on the transportation system.

Figure 4.1 Contribution to Gross State Product by Industry
Florida versus United States



Source: U.S. Bureau of Economic Analysis.

Service industries tend to move higher values, more time-sensitive goods. They often keep inventories low to reduce costs, but this requires a dependable supply chain. The trucking industry has historically dominated these types of shipments, but railroads have responded by offering scheduled services and improved reliability. [This is discussed further

in Chapter 5.0.] Containers and trailers filled with goods supporting service industries has exhibited, and continues to exhibit, the greatest growth rate in the rail industry.

Continued improvements to Florida's rail system in terms of reliability, frequency of service, reduced times, and access can have tangible benefits to the state economy and its overall competitiveness. These benefits (see box) include:

- Savings in production costs;
- Reductions in inventory levels;
- The ability to expand sales by reaching more markets;
- A more competitive economy, yielding higher output and employment; and
- Access to a wider range of suppliers, promoting greater competition.

Economic Benefits of Freight Rail Improvements

The economic benefits of rail and transportation improvements include:

- For many industry sectors, rail improvements reduce the costs of producing a given level of output by reducing transportation costs. These cost savings can be used by companies to increase profit, make new investments, or expand market share.
- Since lower production costs can lead to lower product prices and increased sales, rail improvements also generate an "output effect" that grows the economy. Expanding output can stimulate increases in employment and further investment.
- Rail improvements allow businesses, such as manufacturers and construction companies, to maintain smaller inventories, resulting in cost savings, but rail service must be reliable for "just-in-time" operations to work.
- Improvements in the freight transportation system, including rail, allow businesses to draw supplies from a wider area, potentially yielding savings in material costs and improvements in quality.

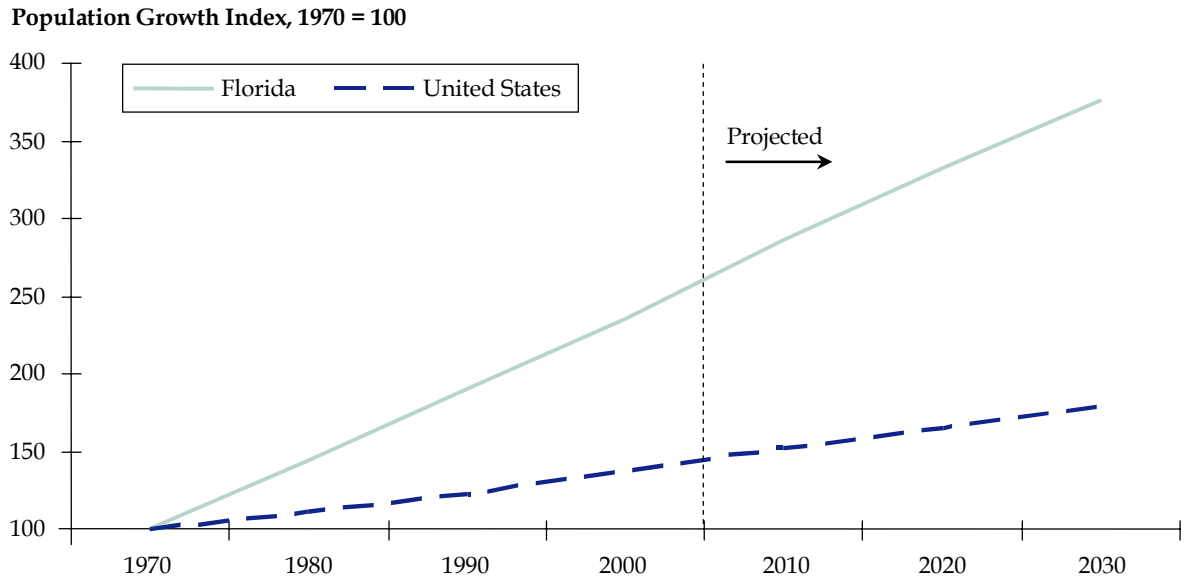
Whether it is through the movement of retail merchandise, citrus products, coal, cement, or fertilizers, rail brings vital goods into and out of the State, helps to keep production costs down, and reduces truck volumes on Florida's highway system. The importance of these and other industries to the Florida economy and the role of rail in making these industries productive is explored in greater detail in subsequent sections of this chapter.

4.1.1 Underlying Trends that Affect Rail and Transportation Demand in Florida

Florida ranks among the fastest growing states in the nation, whether measured by its population, overall income gains, or economic growth. The pace of this growth puts pressure on all aspects of Florida's infrastructure: its water systems, schools, healthcare facilities, etc. In particular, the State's transportation system, including rail, must accommodate the mobility, consumer, and logistics needs of an increasing number of visitors, retirees, residents, workers, and businesses, and do so reliably, safely, and efficiently. For these reasons, the decision-making process regarding the future of Florida's rail infrastructure and services needs to incorporate and respond to a set of high-growth conditions experienced by few other states. Florida trends regarding population, density, employment, and income are briefly described to provide context for the rail plan.

Population – Population growth has a direct impact on transportation demand. More people take more trips, require more services, and need more goods to sustain themselves, and Florida is adding population at a faster pace (net) than all states except California and Texas. Florida's population reached almost 17 million in 2003, and is the fourth largest state in the country. 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 (see Figure 4.2).

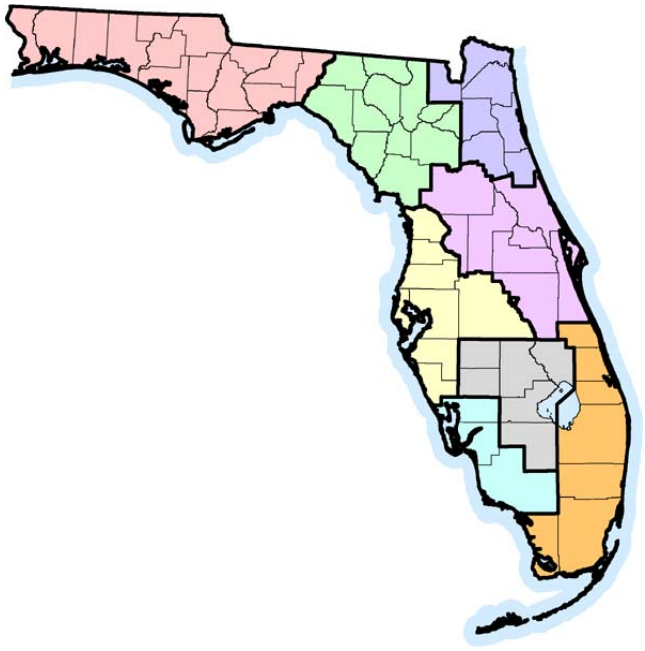
Figure 4.2 Projected Population Growth
Florida versus United States



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

This growth is not limited to a few isolated areas, but is occurring in all regions of the State. The southwest region is expected to grow at the fasted pace (71 percent through 2020) and the southeast region is expected to gain the most population (2.35 million through 2020). The central region is second both in projections for absolute change and percent change (see Figure 4.3).

Figure 4.3 Projected Population Growth within Florida by Region
Through 2020



Region	Absolute Change	% Change
Northwest	+410,000	36%
North Central	+177,000	28%
Northeast	+551,000	44%
Central	+1,628,000	58%
Tampa Bay	+1,287,000	37%
Heartland	+105,000	46%
Southwest	+557,000	71%
Southeast	+2,350,000	44%

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

Population Density – Combined, California, Texas, and Florida account for 42 percent of U.S. population growth, each having added more than one million people since 2000. However, unlike California and Texas, Florida has a much smaller land area (one-third the size of California's), potentially adding greater complexities in absorbing such large population increases. 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 4.1). The ramifications of the State's emergence as one of the most densely populated states in the country include a

heightened interest in land use issues, congestion, land acquisition costs, and limited available alignments for building new or expanded guideways (i.e., rail lines and roadways). By 2030, Florida is projected to surpass Delaware and New York in population density and will be the sixth most densely populated state in the country.

Table 4.1 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	**FLORIDA**
Delaware	Delaware	Ohio	Ohio	**FLORIDA**	
Michigan	Michigan	Michigan	**FLORIDA**		
Indiana	Indiana	Indiana			
Virginia	California	California			
North Carolina	Virginia	**FLORIDA**			
West Virginia	Hawaii				
Tennessee	North Carolina				
Hawaii	**FLORIDA**				
Kentucky					
South Carolina					
California					
Wisconsin					
Louisiana					
Alabama					
Georgia					
New Hampshire					
Missouri					
FLORIDA					

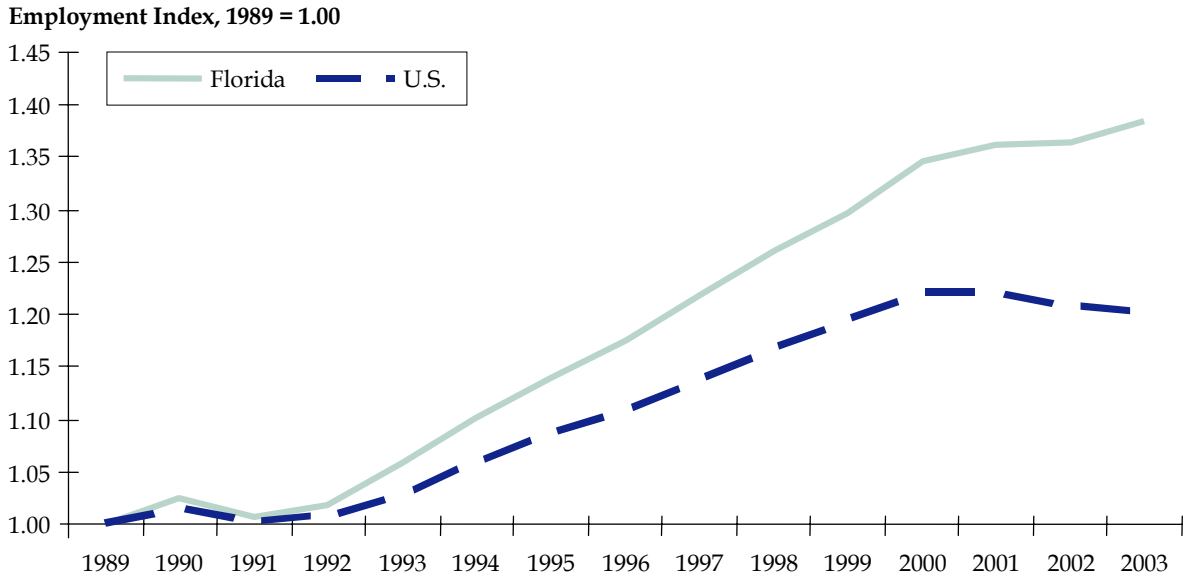
Source: U.S. Census Bureau.

4.1.2 Employment

Florida's expanding economy draws people from throughout the United States and the world. Since 1989, Florida has added jobs at a much faster rate than the U.S. average (see Figure 4.4). In fact, only Texas and California added more jobs than Florida between 1989

and 2003, with each state seeing an increase of over two million jobs. In recent years, however, Florida has weathered the recession better than most states and is continuing to see job growth (albeit at a slower pace than in the 1990s) while many others, including Texas and California, have experienced declines. Florida's growing economy and job numbers, like population, translate to higher demand for a full range of goods – all possessing transportation requirements. Florida's decades-long role as a leader in U.S. job growth is not forecast to change in the future.

Figure 4.4 Job Growth
Florida versus United States

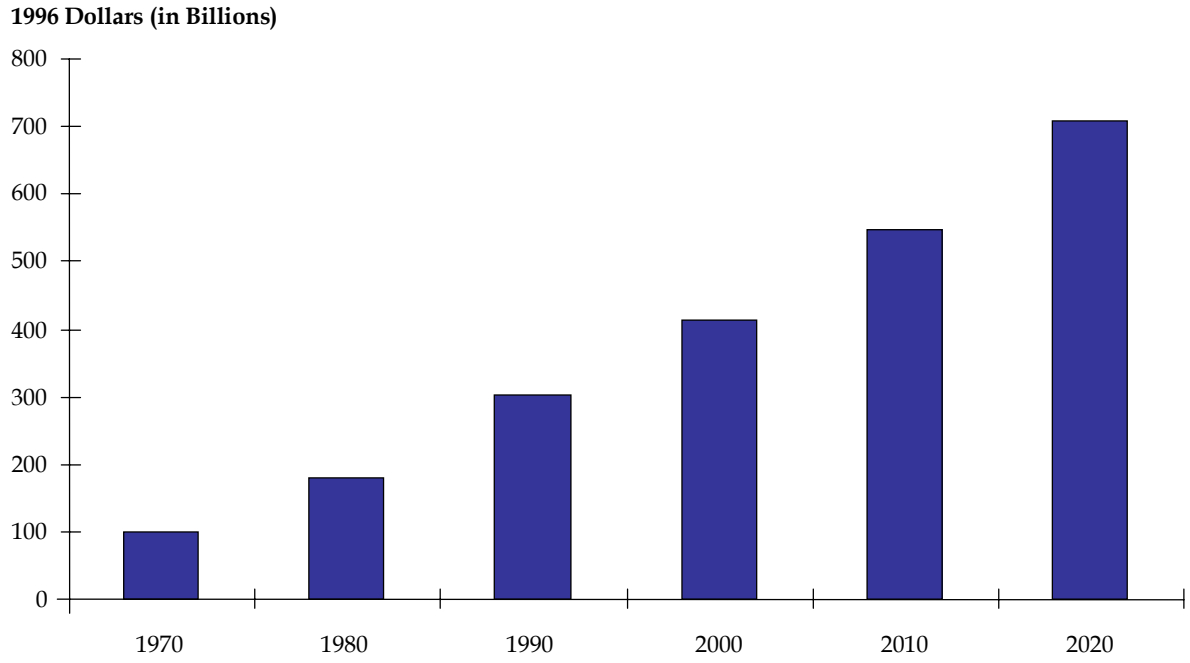


Source: Bureau of Labor Statistics, U.S. Department of Commerce.

4.1.3 Income

While the expansion of jobs is a valid proxy of overall economic growth, people ultimately need higher-income levels to justify increased consumption. In real terms, total income levels in Florida have historically grown quickly and are forecast to continue increasing at a fast pace (see Figure 4.5). Between 2000 and 2020, Florida's total income is expected to increase by about $295 billion (which is the current total of New Jersey's annual income). These dollars will contribute to much higher demand in Florida in coming years, increasing the need for efficient goods movement to satisfy this demand.

Figure 4.5 Current and Projected Florida Income



Source: Woods & Poole, 2002.

4.2 Rail-Intensive Industries

Within the Florida economy, seven specific industries were selected as being especially sensitive to the performance of the State's rail system. These industries are:

- Phosphates and Fertilizers;
- Distribution and Retail;
- Food and Agriculture;
- Paper and Fiber;
- Automotive Distribution;
- Energy; and
- Construction.

These industries account for 34 percent of Florida's GSP and 28 percent of the State's employment.[2] Table 4.2 provides a breakout of contribution of these industries to the GSP. Table 4.3 provides a breakout of employment by industry. Each of these seven industries requires dependable, efficient rail service for inbound supplies and/or outbound products.

Table 4.2 Contribution to Florida Gross State Product of Rail-Intensive Industries

GSP by Industry (in Billions of 1996 Dollars)	2001
Paper and Fiber	1.0
Distribution and Retail*	112.5
Food and Agriculture	8.4
Energy	8.5
Phosphates and Fertilizers^	2.1
Construction	20.9
Total	**153.4**
Total as a Percentage of Florida GSP	34%

* Includes automotive distribution; ^figure is for 2002.

Table 4.3 Employment in Five Freight-Intensive Industries

Employment by Industry (in Thousands)	2003
Paper and Fiber	10.7
Distribution and Retail*	1,435.7
Food and Agriculture	139.7
Energy	26.8
Phosphates and Fertilizers^	5.0
Construction	445.9
Total	**2,063.8**
Total as a Percentage of Florida Employment	28%

* Includes automotive distribution; ^combines phosphate mining (1,827 in 2001) with fertilizer manufacturing (3,157 in 2002).

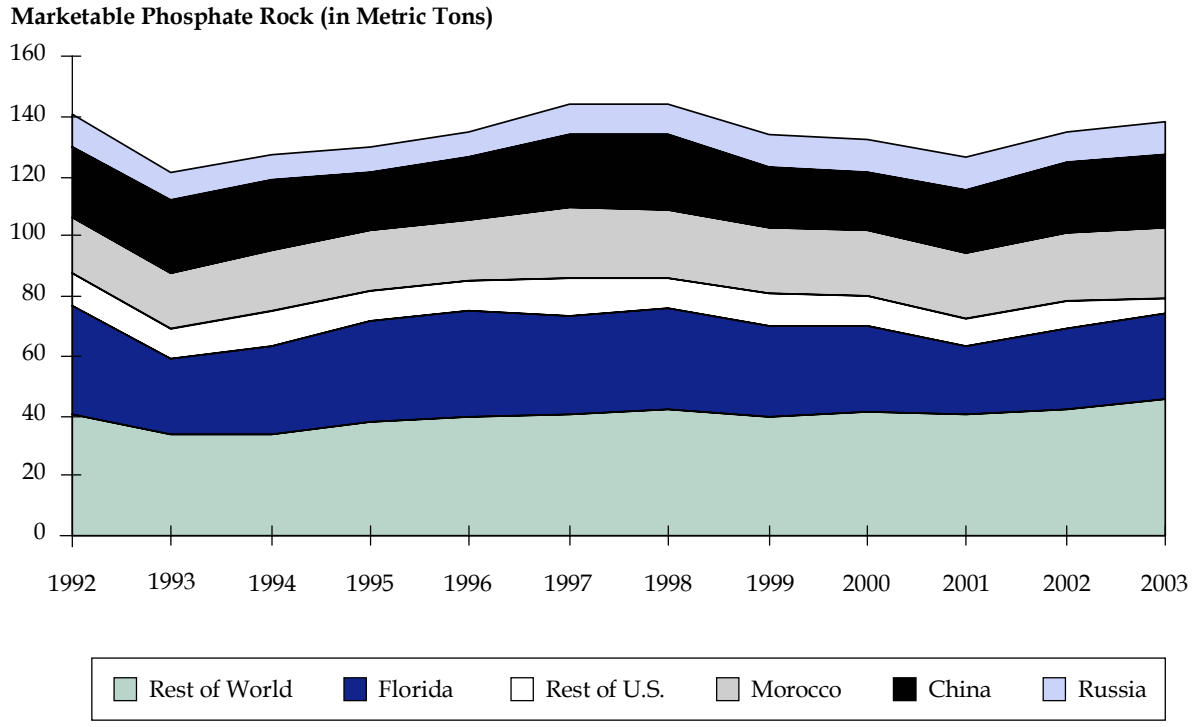
[2] Employment data from the U.S. Bureau of Labor Statistics. GSP data from the U.S. Bureau of Economic Analysis.

4.2.1 Phosphates and Fertilizers

Phosphate and Fertilizer Industry Profile

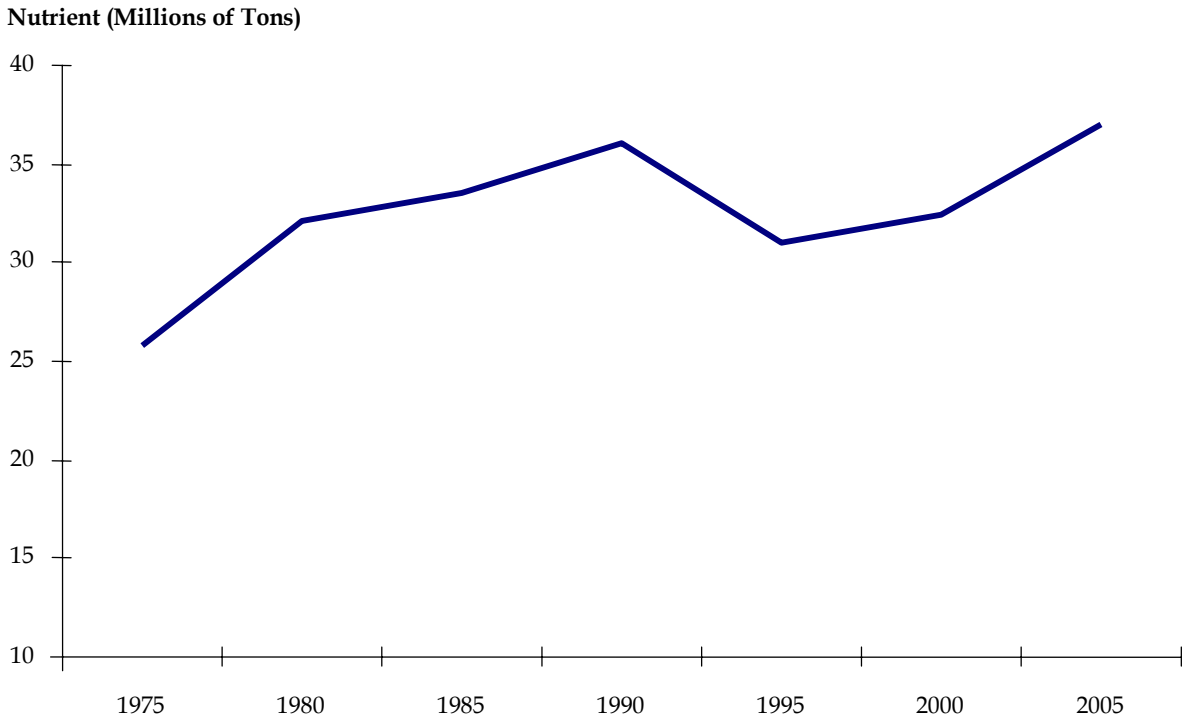
Mineral deposits in West-Central Florida make the State a world leader in the production of phosphate rock. In 2003, Florida mined 28.7 million tons of phosphate rock, accounting for slightly more than one-fifth of world production (see Figure 4.6). With the exception of Hamilton County in northern Florida, the State's phosphates production is concentrated in Polk, Hillsborough, and Hardee counties. Phosphate is one of three primary nutrients in fertilizer and does not have a synthetic replacement. Florida accounts for just over half of the nation's production of phosphatic fertilizers. The phosphates and fertilizers produced in Florida are shipped nationwide (often by barge on the Mississippi Inland Waterway network) and to markets throughout the world, with China, India, Australia, and Brazil ranking among the leading foreign destinations (see Figure 4.7). Demand from China, in particular, has spurred production worldwide in 2004. Long-term demand for phosphate fertilizers is expected to increase as the world's population and the demand for production of grain continue to grow (see Figure 4.8).

Figure 4.6 World Production of Marketable Phosphate Rock
1992-2003



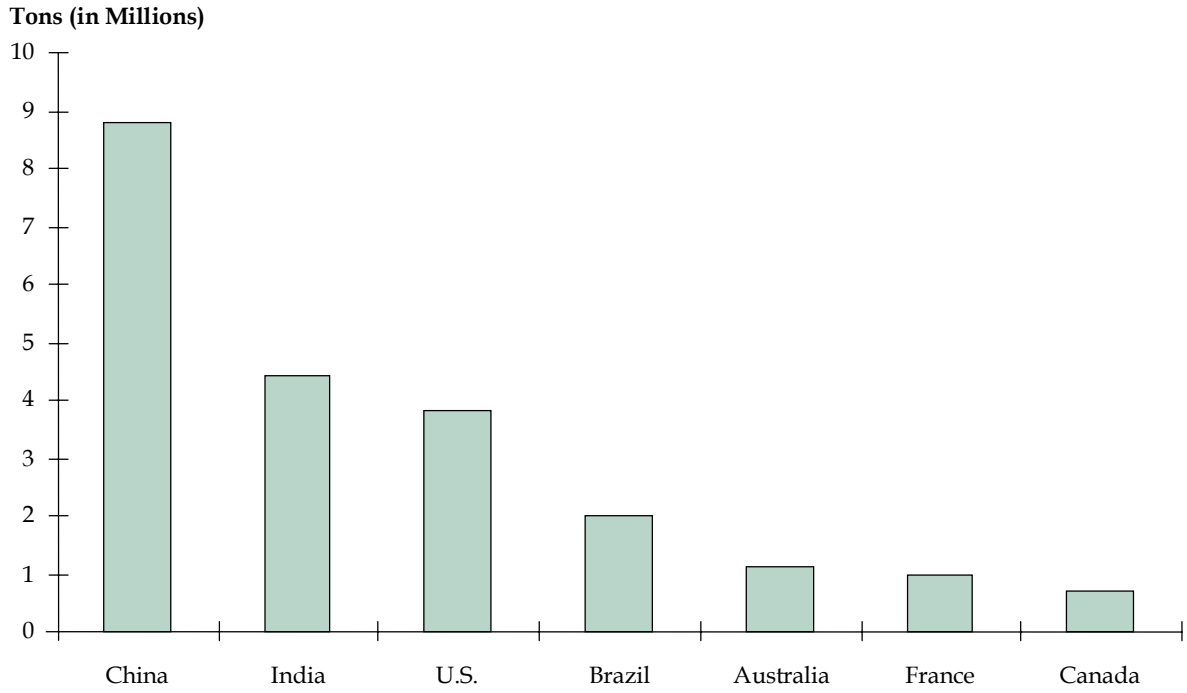
Source: U.S. Geological Service, Florida Phosphate Council.

Figure 4.7 World Consumption of Phosphate Fertilizers
1975-2005



Source: International Fertilizer Association, FERTECON.

Figure 4.8 Global Demand for Phosphate Fertilizer by Country
2001



Source: International Fertilizer Association, FERTECON.

Phosphate production in Florida should continue for decades as technological advances have allowed the mining of rock that would not have been exploitable in previous years. Nonetheless, the reserves in the traditional center of the industry, Polk and Hillsborough Counties are gradually depleting. There are substantial untapped phosphate reserves to the south in Hardee, DeSoto, and Manatee counties, but new mines must go through a strict permitting process before production can begin. The present regulatory framework makes it particularly difficult to mine in areas that are not within or contiguous to current mining operations. While the production of phosphate rock may shift to the south (if permits for new mines are granted), the manufacturing of fertilizers would likely remain in Polk County. The fertilizer facilities are very capital intensive and it is not viewed as economically feasible to build new manufacturing plants closer to the new sources for phosphate rock.

Given the above-mentioned trends, it is expected that Florida's phosphate industry, including rock and fertilizer, will remain static in the near term. In the long term, barring the opening of significant new mines south of Polk County, the industry is likely to decline slowly in the State. According to the U.S. Geological Survey, the Bone Valley area will start experiencing more serious production problems due to depletion in the 2015-2020

timeframe.[3] On the other hand, worldwide phosphate mining is expected to increase as it is indispensable for increasing the production of crops worldwide.

Figure 4.9 Phosphate Mining in Bone Valley, Florida

Rail's Role in the Florida Phosphate and Fertilizer Industry

The production of phosphate and fertilizer puts unique demands on the Central Florida transportation system. Thousands of railcars use the rail lines between the Port of Tampa and the mining areas in Hillsborough, Polk, and Hardee Counties on a daily basis. About 20 million tons of phosphate-related materials are shipped through the Port of Tampa on an annual basis (accounting for approximately 40 percent of the port's volume). The size of Florida's phosphate industry and its effects on rail are reflected in the State's distinction as originating over 25 percent of the U.S. total for "nonmetallic minerals" (the commodity classification that includes phosphate rock as well as the crushed stone and sand used in construction) transported by rail. In fact, although nonmetallic minerals account for only

[3] U.S. Geological Survey, Mineral Commodity Summaries, January 2005.

one-half percent of Florida GSP, they account for 61 percent of all freight rail tonnage originated in Florida.[4]

Florida, historically, has supplied a large portion of world demand for phosphate rock and fertilizer, the question is, given current reserves and limitations on the development of new mines, whether the State will see its role diminished in the future. The resolution of these questions will have an impact on the use of rail, particularly in Central Florida. Should phosphate rock production shift to the south, the fertilizer manufacturers would likely use trucks to transport rock to the fertilizer plants in Polk County. A mixture of rail and trucks would continue to link the industry to the Port of Tampa. If the production of phosphate rock in Central Florida falls and is not replaced by newer mines, phosphate rock is likely to be imported through the Port of Tampa and then transported by rail and truck to the inland fertilizer plants.

Table 4.4 Florida Industry Profile
Phosphates and Fertilizers

Item	Description
SIC Codes:	147: Chemical and Fertilizer Mineral Mining 2874: Phosphatic Fertilizer Manufacturing
NAICS Codes:	21239: Other Nonmetallic Mineral Mining and Quarrying 3253: Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing
Employment:	Phosphate Mining: Year 2001 = 1,827 Fertilizer Manufacturing: Year 2002 = 3,157
Contribution to GSP (1996 Dollars):	$2.1 billion (2002); $4.0 billion in 1997. Note that commodity prices started declining in 1999 so the decline indicated here does not indicate a decline in demand.
Trend:	Short term (through 2010) – Steady Long term (beyond 2020) – Decline (due to depletion)
Suppliers:	Fertilizers/Chemicals: Chemicals, wholesale trade, rubber, professional and business services, trucking, mining, public utilities, petroleum Mining: Real estate, mining, machinery, public utilities, professional services, petroleum, chemicals, wholesale trade, fabricated metals, trucking
Markets:	Fertilizers and Phosphates: Farming, agriculture
Rail Impacts:	Rail is the primary mode of transportation for Florida's phosphates and fertilizers. Rail helps reduce logistics costs, making Florida's products competitive with foreign sources.

[4] Percentages of non-metallic minerals calculated from the Association of American Railroads 2002 "Railroad Service In.." reports for Florida and the United States.

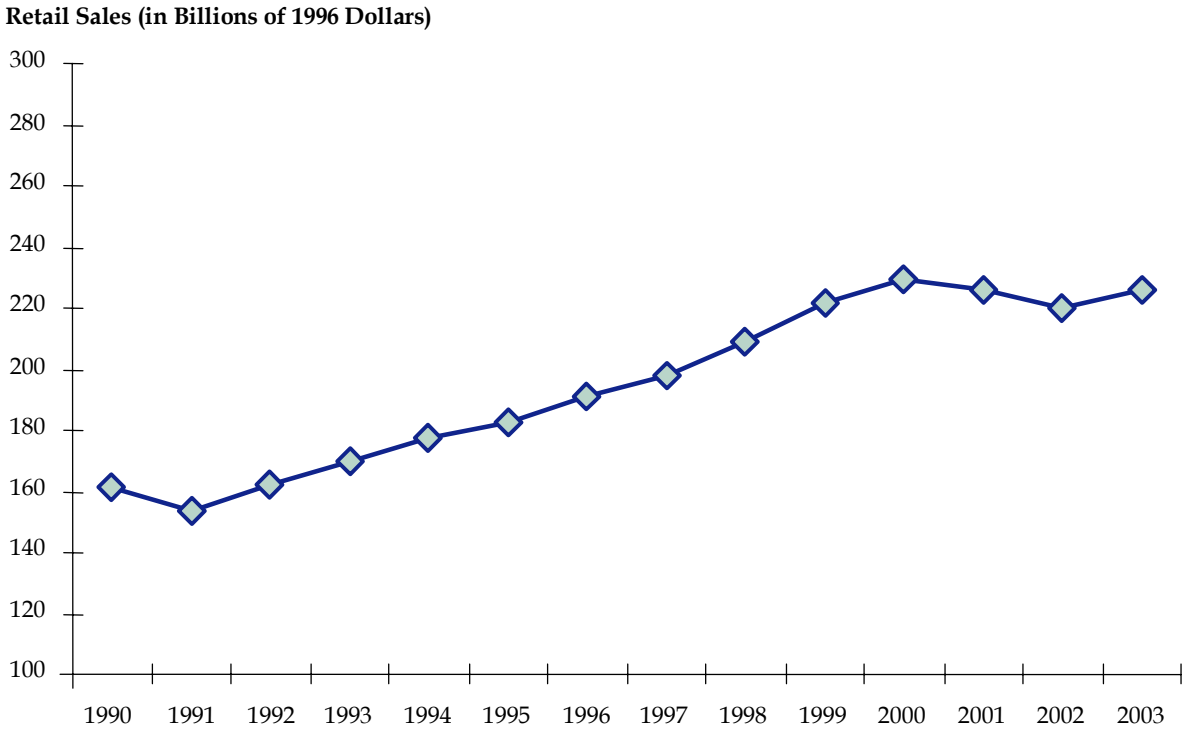
4.2.2 Distribution and Retail

Distribution and Retail Industry Profile

The distribution and retail trade industry is comprised of several key economic sectors – wholesale trade, retail trade, and transportation and warehousing. Together, these sectors employ over 1.4 million people in Florida, accounting for about one-fifth of the State's jobs. These sectors also are major contributors to the State's overall economic growth, adding 248,500 jobs between 1993 and 2003 (15 percent of net new jobs in the State). Primarily due to the very high productivity (value-added per employee) of the wholesale trade and transportation/warehousing industries, the distribution and retail industry accounts for one-quarter of Florida's GSP or about $113 billion in 2001.

Growth in retail trade responds to the expansion of the economy, income, and population. Florida's long-term trend in these three indices suggests that retail sales in the State are likely to continue growing at a moderate-to-fast pace. Between 1990 and 2003, the value of total retail sales in Florida increased, in real terms, from $160 billion to over $220 billion (see Figure 4.9). This type of trend is expected to be maintained in coming years.

Figure4.10 Retail Sales in Florida
1990-2003 (1996 Dollars)

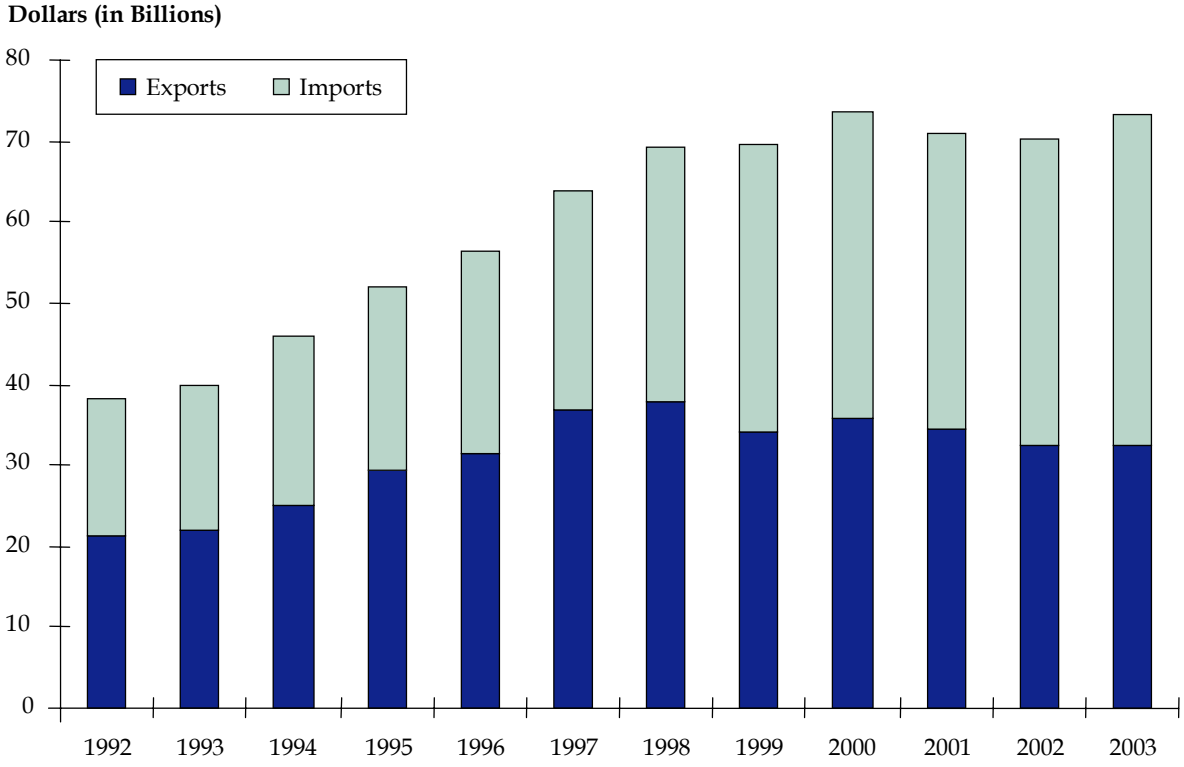


Source: Florida Office of Economic and Demographic Research, "Total Taxable Sales."

Like retail trade, wholesale trade (maintaining inventory, sorting, and selling merchandise to retailers and manufacturing, construction, and professional contractors), also will expand in tandem with the overall growth of the State's population and economy. The growth of wholesale trade was particularly strong during the 1990s as companies increased the use of outsourcing to perform wholesale trade functions that had previously been conducted in-house.

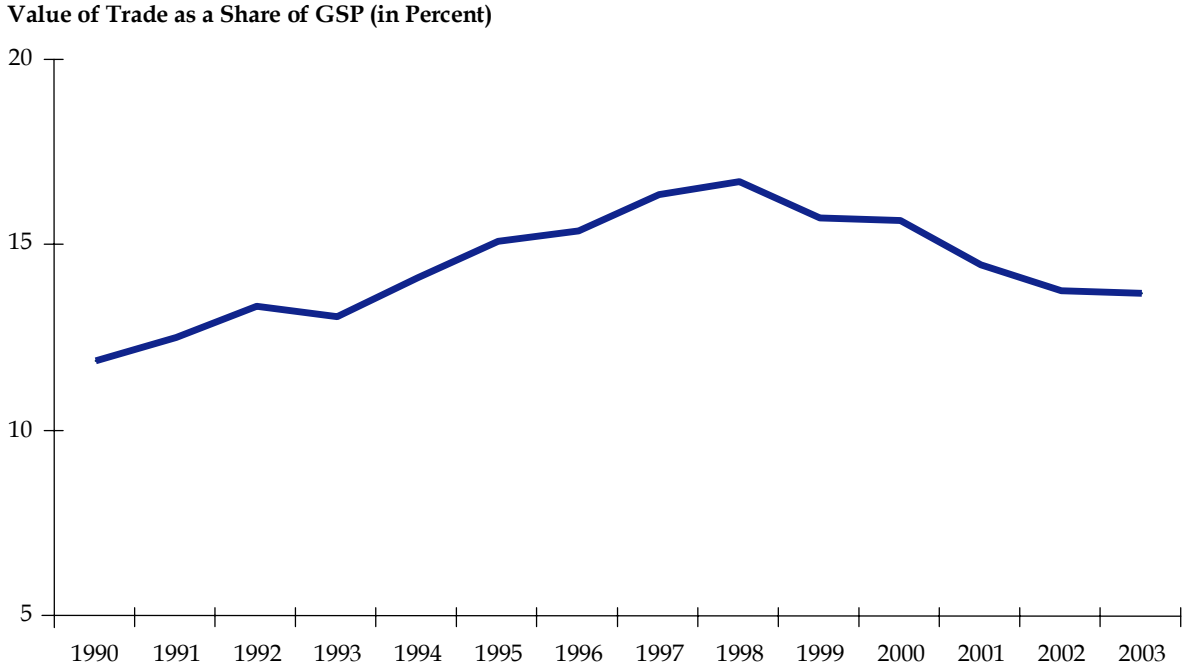
A large part of the distribution industry in Florida relates to the operation of the State's international airports and port gateways. These gateways receive goods from throughout the country for export to foreign markets and process goods imported from overseas for distribution to destinations both within Florida and nationwide. The total value of Florida imports and exports has experienced a sharp rise since the early 1990s, growing from about $40 billion in 1992 to over $70 billion in 2000 (see Figure 4.10). The period from 2000 through 2003 was relatively flat due to economic stagnation in Europe and Latin American and the strength of the dollar. Indications are that 2004 trade will show an increase. The value of international trade today is equivalent to about 14 percent of Florida's GSP (see Figure 4.11).

Figure 4.11 Value of Florida Trade (Imports and Exports)
1992-2003



Sources: U.S. Customs and Border Protection (trade data for Miami and Tampa Customs Districts) and U.S. Bureau of Economic Analysis.

Figure 4.12 Value of Total Trade (Imports and Exports) as a Share of Gross State Product
1990-2003



Sources: U.S. Customs and Border Protection (trade data for Miami and Tampa Customs Districts) and U.S. Bureau of Economic Analysis.

Rail's Role in the Florida Distribution and Retail Industry

Florida's distribution and retail trade industry depends on the efficient movement of goods to keep costs down and to remain competitive. While trucking is the leading mode to support the movement of merchandise to and from wholesalers and retailers (especially to sales outlets), rail is crucial for the long hauls that bring goods into the State from distribution hubs such as Chicago, Atlanta, and Dallas-Fort Worth, as well as from more distant gateways, such as Los Angeles-Long Beach – the leading point of entry for consumer items entering the United States from Asia. Florida retailers realize cost savings by using rail and weigh that against reliability concerns.

Rail service and infrastructure also is crucial for maintaining or improving the competitiveness of Florida's ports. Florida's container ports handled over 2.5 million 20-foot equivalent units (TEU) in 2003, accounting for about 16 percent of all the containers processed by the nation's Atlantic and Gulf ports (see Table 4.5). Led by growth at Port Everglades and the Port of Miami, Florida's ports, overall, largely kept pace with the growth posted by the Atlantic and Gulf coast ports as a whole between 1993 and 2003 (see

Figure 4.6). On-dock or near-dock rail access is a prerequisite for container ports to compete and expand market share. The efficiency of the ship-to-rail intermodal connections (as measured by quality of service and infrastructure capacity) at Florida's ports will be a determinant in how successfully they compete against aggressively expanding ports in Houston, Mobile, Savannah, Charleston, and Hampton Roads (Port of Virginia). The Port of Mobile, alone, will increase its capacity tenfold from 60,000 to 600,000 TEUs annually by 2006. This will include an intermodal terminal on 57 acres of land that will be able to accommodate 8,000-foot trains without interrupting mainline traffic according to plans. The adequacy of the rail service can make the difference between a competitive container port and one that is relegated to niche status.

Table 4.5 Atlantic and Gulf Ports Ranked by TEUs Handled
2003

Port	TEUs Handled	Share
New York/New Jersey	4,067,812	25.0%
Charleston	1,690,847	10.4%
San Juan	1,665,765	10.3%
Hampton Roads	1,646,279	10.1%
Savannah	1,521,206	9.4%
Houston	1,243,706	7.7%
Miami	**1,041,483**	**6.4%**
Jacksonville	**692,422**	**4.3%**
Port Everglades	**569,743**	**3.5%**
Baltimore	528,899	3.3%
Wilmington	254,191	1.6%
New Orleans	251,187	1.5%
Palm Beach	**217,558**	**1.3%**
Gulfport	199,897	1.2%
Boston	158,020	1.0%
Other Florida Ports	**42,106**	**0.3%**
ALL Florida Ports	**2,563,312**	**15.8%**
Atlantic and Gulf - TOTAL	16,239,310	

Source: American Association of Port Authorities.

Table 4.6 Atlantic and Gulf Coast Ports Ranked by Growth in TEUs Handled
1993–2003

Port	TEUs Handled 1993	TEUs Handled 2003	Percent Change
Savannah	536,303	1,521,206	183.6%
Port Everglades	**226,674**	**569,743**	**151.3%**
Houston	538,732	1,243,706	130.9%
Gulfport	89,862	199,897	122.4%
Charleston	802,821	1,690,847	110.6%
Hampton Roads	786,023	1,646,279	109.4%
New York/New Jersey	1,972,692	4,067,812	106.2%
Miami	**572,170**	**1,041,483**	**82.0%**
Jacksonville	**460,238**	**692,422**	**50.4%**
Wilmington	172,998	254,191	46.9%
Palm Beach	**158,762**	**217,558**	**37.0%**
Baltimore	487,772	528,899	8.4%
San Juan	1,559,421	1,665,765	6.8%
Boston	152,240	158,020	3.8%
New Orleans	366,518	251,187	-31.5%
Other Florida Ports	**43,722**	**42,106**	**-3.7%**
ALL Florida Ports	**1,461,566**	**2,563,312**	**75.4%**
Atlantic and Gulf - TOTAL	9,445,203	16,239,310	71.9%

Source: American Association of Port Authorities.

Rail Shipments at the Port of Pensacola

Pensacola is one of the leading ports for exporting bagged agricultural products for humanitarian aid, and rail plays a critical role in this supply chain. Grains are shipped by rail from Midwestern farms to Pensacola and then exported to Africa, Haiti, and other locations for relief and emergency efforts. During peak times, volumes are eight to 12 boxcars per day.

Another move involving rail and the Port of Pensacola involves turbine engines. The GE plant near Pensacola refurbishes turbine engines from Europe and South America. The engines arrive by ship and move by rail to the GE plant for refurbishing. The refurbished engines are then either shipped by rail to domestic destinations or back to the Port for export. The turbines can weigh 250 tons or more each.

Potential Opening of the Cuban Market

Florida's ports today are crucial distribution platforms for goods being shipped to and from Latin America and the Caribbean, including Puerto Rico. This includes groceries,

consumer goods and furnishings, construction materials, machinery, and transportation equipment. Many of these goods are transported to and from the State's ports by rail. The type of logistics or "supply line" relationship that has developed between Florida and Puerto Rico is likely to be replicated, in some manner, with the opening of trade with Cuba. The Cuban market and related trade volumes are potentially huge. Cuba is a much bigger market than Puerto Rico (11.3 million versus 3.9 million people), although its economic size is smaller (gross products of $31.5 billion and $47.4 billion, respectively). It is anticipated that Cuba will have a significant demand for American products, likely similar to those being shipped to Puerto Rico, and Florida should position itself as the critical link in the Cuban logistics supply chain. Inevitably, the State will assume this role at least to some degree because of its geographical proximity and historic connections to Cuba. However, ports in other states, including Mobile, also plan to capture a significant share of Cuban trade once the market opens. The potential for large-scale trade between the United States and Cuba is an economic opportunity for the State, but will put pressure on Florida's rail, highway, port, and air system to accommodate significantly larger freight volumes.

Table 4.7 Florida Industry Profile
Distribution and Retail

Item	Description
SIC Codes:	Retail Trade (super sector) Wholesale Trade (super sector)
NAICS Codes:	Retail Trade (super sector) Wholesale Trade (super sector) Transportation and Warehousing (super sector)
Employment:	Retail trade: 1993 = 764,300; 2003 = 920,400 Wholesale trade: 1993 = 253,300; 2003 = 313,200 Transportation and Warehousing: 1993 = 169,600; 2003 = 202,100
Contribution to GSP (1996 Dollars):	Retail Trade: 1991 = $31.5B; 2001 = $57.2B Wholesale Trade: 1991 = $19.6B; 2001 = $41.1B Transportation and Warehousing: 1991 = $8.0B; 2001 = $14.2B
Trend:	Moderate to fast paced growth, driven by economic and population growth
Suppliers:	Retail Trade: Real estate, communications, public utilities, banking, paper, food, wholesale trade Wholesale Trade: Business and professional services, real estate, communications, wholesale trade, printing, electrical equipment, auto repair, public utilities
Markets:	Wholesale Trade: Gas and oil, primary metals, fuel oil and coal, retail trade, autos and parts, exports, clothing, food and beverages
Rail Impacts:	Rail helps lower costs of retail goods entering Florida, especially long-haul international products through west coast ports. Rail also helps Florida's ports remain competitive for imports and exports of intermodal, automotive, and bulk goods.

4.2.3 Agriculture and Food

Agriculture and Food Industry Profile

Agriculture and food are two interrelated industries. "Agriculture" represents the growing of crops (e.g., sugarcane, oranges, corn) and the raising of livestock, while "food" represents the manufacture of the items commonly found on grocery store shelves (e.g., bread, juice, cheese, meat, soda, beer, etc.) other than fresh produce. Both agriculture and food use rail for inbound materials as well as to transport goods to more distant markets.

Agriculture – Florida's agriculture industry is the ninth largest in the country, producing crops and livestock valued at $6.2 billion in 2002 (see Table 4.8). While the State ranks 18th in the country in terms of the number of cattle, Florida's agriculture industry, based on value, is led by crop production (e.g., citrus, vegetables, sugarcane, nursery products). In 2002, the value of crops grown in Florida reached $5 billion, trailing only three states – California, Iowa, and Illinois (see Table 4.9).

Table 4.8 Market Value of Agricultural Products Sold (Crops and Livestock)
States Ranked by Total Sales, 2002

	Value (in Billions Dollars)	Share of U.S.
California	25.7	12.8%
Texas	14.1	7.0%
Iowa	12.3	6.1%
Nebraska	9.7	4.8%
Kansas	8.7	4.4%
Minnesota	8.6	4.3%
Illinois	7.7	3.8%
North Carolina	7.0	3.5%
Florida	**6.2**	**3.1%**
Wisconsin	5.6	2.8%
United States	200.6	

Source: 2002 Census of Agriculture, U.S. Department of Agriculture.

Table 4.9 Market Value of Crops Sold

States Ranked by Total Sales, 2002

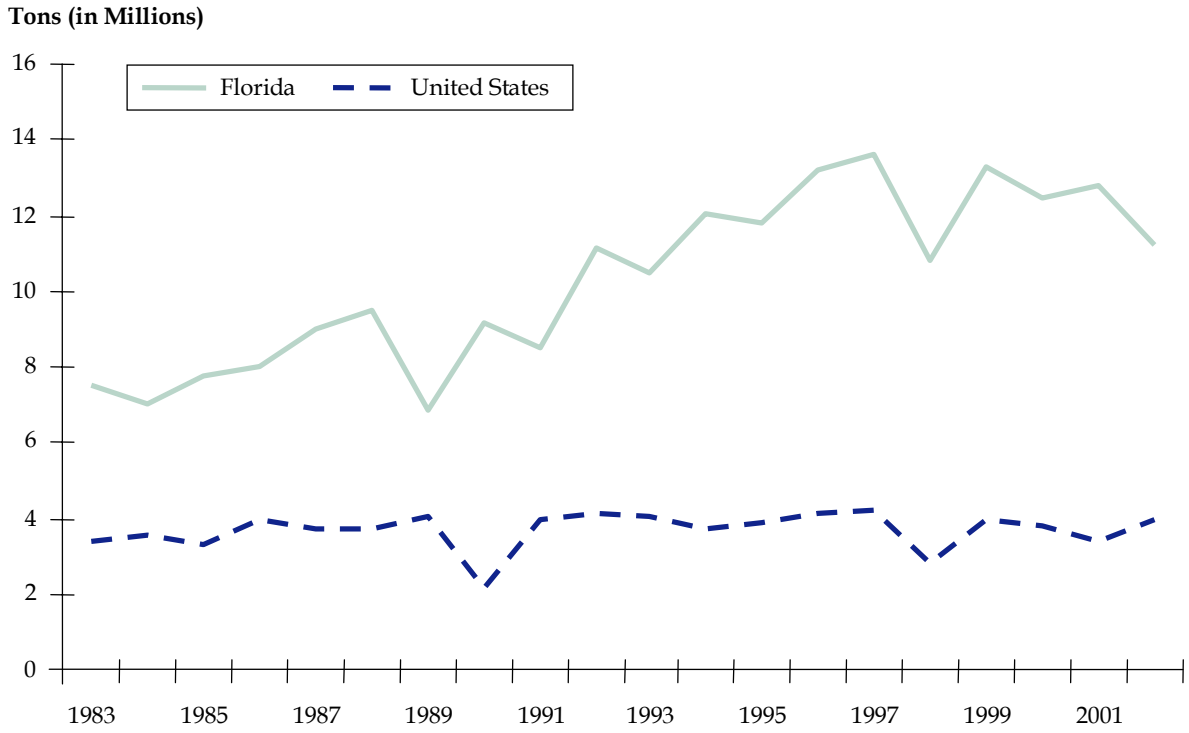
	Value (in Billions Dollars)	Share of U.S.
California	19.2	20.1%
Iowa	6.1	6.4%
Illinois	5.9	6.2%
Florida	**5.0**	**5.3%**
Minnesota	4.6	4.8%
Texas	3.7	3.9%
Washington	3.6	3.8%
Nebraska	3.4	3.6%
Indiana	3.0	3.1%
North Dakota	2.5	2.6%
United States	95.2	

Source: 2002 Census of Agriculture, U.S. Department of Agriculture.

Florida is the national leader in citrus production, growing about 12 million tons of oranges, grapefruit, limes, and other fruits on an annual basis. Florida's share of national citrus production, though it can vary on a year-to-year basis due to changes in climatic conditions, has been trending upwards since the late 1980s (see Figure 4.12).[5] The increase in citrus production has corresponded with a geographical shift for the industry in Florida. Traditionally, orchards have been concentrated in the center of Florida – in Polk, Hillsborough, Manatee, and Pasco counties. However, due to the incidence of frost to the north, production has shifted to the southwest, and Florida's growth in the citrus industry is now led by Hendry, Collier, Charlotte, Lee, and Glades counties. In most recent years, Florida's growers have accounted for about 75 percent of the nation's citrus production, up from 65 to 70 percent in the mid-1980s.

[5] For example, the hurricanes in the fall of 2004 are expected to reduce Florida's citrus and fresh vegetable production by 25 to 30 percent in 2002-2005. The damage caused by the hurricanes may continue to have repercussions on future production, especially during the next five years.

Figure 4.13 Citrus Production from 1983 to 2002
Florida versus United States



Source: Florida Agricultural Statistics Service.

While Florida has a strong domestic advantage over other states in citrus production, competition is increasing from overseas, particularly from Brazil, the world's largest producer of orange juice. High duties protect the Florida citrus industry and are an impediment to U.S. imports from Brazil, which are now mostly destined to European markets. A lowering of these duties may result in a flood of cheaper Brazilian orange juice and present a challenge to Florida's citrus and orange juice industries.

Beyond citrus, Florida is the leading state in the production of a number of other agricultural commodities. Concentrated in Palm Beach, Hendry, and Glades counties, Florida grows 46 percent of the nation's sugarcane. Florida also is the top producer of greenhouse and nursery plants (includes sod). In general, the State's nursery and greenhouse products are most intensively cultivated in urban counties located in the central and southern parts of Florida, including Volusia, Dade, Orange, Lake, and Palm Beach, among others.

The growing public health emphasis being placed on eating fresh fruits and vegetables bodes well for Florida's agriculture. Increases in per capita fruit and vegetable consumption, further enhanced by rising personal income levels, will stimulate demand for products commonly grown in Florida.

Food Products – The value of Florida's food products output reached $11.8 billion in 2001, ranking 10th among the states (see Table 4.10). In real terms, Florida's food production stayed relatively constant during the 1991 to 2001 period. Food production is an important part of the Florida economy, accounting for 10 percent of the State's manufacturing output. Within the food industry, Florida leads the nation in juice production. The State's juice production is valued at over $1 billion per year, 40 percent of the national total. After California, Florida is the second ranking state in fruit and vegetable canning, accounting for one-eighth of U.S. output.

Table 4.10 Food Industry Output by State, 1991-2001

(Millions of 1996 Dollars)

State	1991	2001	Percent Change
California	50,888	44,017	-13.5%
Illinois	26,385	26,876	1.9%
Texas	21,351	23,113	8.3%
Ohio	20,179	19,575	-3.0%
Pennsylvania	19,088	19,543	2.4%
New York	21,603	17,386	-19.5%
Georgia	13,219	17,035	28.9%
Missouri	15,834	16,250	2.6%
Wisconsin	14,512	14,090	-2.9%
Florida	**12,033**	**11,812**	**-1.8%**
United States	396,738	378,509	-4.6%

Source: Bureau of Economic Analysis.

Rail's Role in the Florida Agriculture and Food Industry

Rail plays a crucial role in Florida's food and agriculture industries. Perhaps the most famous freight rail shipments are the Tropicana "Orange Juice Trains," originating in Bradenton and Fort Pierce. The Tropicana plants receive up to 300 to 400 inbound trucks of oranges per day to feed production. The juice is processed and packaged in Florida and then sent by rail to markets in the Northeast, Midwest, and California. Service to the Northeast is on 60 car unit trains moving five days per week in expedited service. The railcars are specially designed refrigerated boxcars, each capable of carrying four truckloads' worth of product. Upon arriving at the distribution hubs, including Jersey City, New Jersey to serve the Northeast and Cincinnati, Ohio to serve the Midwest, the orange juice is trucked to retail outlets for delivery to stores within 48 hours of leaving the Tropicana plants. This timing is critical since chilled fresh juice has a shelf life of about two months.

Without rail, there would still be a demand for Florida orange juice, but the increase in transportation costs would make international markets more competitive. Also, if the juice had to travel by truck, it would no longer be economically feasible to package the product in Florida. This would led to relocating 600 Tropicana packaging jobs out of Florida and closer to the distribution hubs.[6]

Since it is dealing with perishable commodities, a primary concern of the citrus industry is transit time. CSXT provides 28-hour service to Tropicana for the unit trains from Bradenton to Jersey City. The first 10 of these hours are spent between Bradenton and Jacksonville (average train speed of 26 mph). This includes one and one-half hours for the 45 miles from Bradenton through Tampa over "dark territory" (i.e., no signals), and slower train speeds due to the 165 at-grade crossing on the way to Jacksonville. Once at Jacksonville, it takes another 18 hours to move to Jersey City (average train speed of 52 mph).

Rail also plays a critical role in allowing Florida sugar to compete against foreign imports. U.S. Sugar uses rail to haul sugar cane from the fields into the processing plants. In one specific movement, the bulk refined sugar is moved from the plant to the chocolate factory in Hershey, Pennsylvania. The South Central Florida Express originates 10 covered hoppers of refined sugar each week. They have a haulage agreement with FEC to move the cars to Jacksonville for interchange with NS for delivery to Hershey. Without rail, Florida sugar would not be competitive in this market.

One final example of rail use in the food industry is the Winn Dixie supermarket chain. Winn Dixie has increased the use of rail because it is difficult to get truck service into Florida due to the lack of backhaul opportunities. Two years ago, Winn Dixie used no boxcars, but now that trend has reversed. Currently, there are over 350 boxcars per year of canned goods moving from Midwest suppliers to Winn Dixie stores, 75 percent of which are going into Florida. Truck rates from the Midwest to Florida are more than 25 percent higher than rail rates. Winn Dixie operates regional distribution centers in Miami, Pompano, Jacksonville and Orlando. All of these Florida distribution centers have been equipped to accept boxcars from the railroads.

[6] Based on interview with Tropicana conducted for this study.

Table 4.11 Florida Industry Profile
Agriculture and Food

Item	Description
SIC Codes:	Food: 20 – Food and Kindred Products
Employment:	Food: 1993 = 46,800; 2003 = 44,400 Agriculture: 1993 = 98,022; 2002 = 94,711
Contribution to GSP (1996 Dollars):	Food: 1991 = $3.4B; 2001 = $3.3B Agriculture: 1998 = $4.1 billion; 2002 = $3.9 billion
Trend:	Food: Strong growth tied to population growth Agriculture: Steady; products market value was $5.26B in 1992 and $6.2B in 2002
Suppliers:	Food: Farms, food products, wholesale trade, paper, fabricated metals, rubber, business services, trucking, printing, glass, public utilities Agriculture: Farms, food, real estate, agricultural services, chemicals, wholesale trade, trucking, petroleum products, public utilities, auto repair
Markets:	Food: Eating and drinking establishments, retail trade, food products, farms, hotels, exports, amusement and recreation Agriculture: Food products, farms, tobacco manufacturing, textiles, exports, wholesale and retail trade, eating and drinking establishments
Other:	Agriculture: Florida ranks 28th among the states in the value of livestock and poultry production, and has the 18th largest cattle herd (1.7 million head in 2002) in the country.
Rail Impacts:	Offers lower cost transportation service making Florida products (such as citrus and sugar) competitive against foreign imports, especially in U.S. Northeastern and Midwestern markets.

4.2.4 Paper and Fiber

Paper and Fiber Industry Profile

Much of Florida's Panhandle lies within the yellow pine growing region that stretches from East Texas to Georgia, one of the country's most prodigious areas for forestry. As such, Florida has a substantial paper and fiber industry that has been one of the pillars of the northern Florida economy for decades. In 2003, the Panhandle accounted for half of Florida's paper- and fiber-related jobs. Among the states, Florida's non-newsprint paper shipments, valued at $900 million in 2002, are the seventh highest in the country. Overall, Florida's total paper industry (including pulp mills, newsprint, cardboard, stationery, etc.) is the 22nd largest in the United States.

Although Florida's employment and output in the paper and fiber industry has stayed relatively flat in recent years, the overall outlook for the industry is favorable. Paper and fiber market demand is primarily based on population, so long-term demand is expected to be strong as population growth continues to increase. Although international conditions are generally positive and bode well for the industry in Florida, competition from surplus Canadian pulp can dampen the U.S. market at times. The poor management of forests in Southeast Asia, however, is likely to push China and Japan to source their wood and paper supplies from Latin America and South Africa, as well as Canada. This shift will reduce the competition for domestic suppliers.

Technological advancements in forestry and paper production have reduced supply variability, making it possible to ascertain harvest schedules, forecast supply, and anticipate market prices. These management practices are helping to sustain the industry in North America, and are now being exported worldwide so that in 20 years perhaps the entire global market will be much more stable and predictable.

Regulation also plays a role in the paper and fiber industry. Because there are many chemicals (e.g., ammonia) required to break down pulp fiber, there are numerous regulatory requirements around the usage, disposal, and storage of chemicals related to the paper industry. These regulations will continue to become more and more stringent and will contribute to limiting the creation of new mills. Instead, existing mills in Florida (and elsewhere in the United States) are likely to be upgraded and modernized. The regulations in the long term, should contribute to keeping the industry stable in Florida.

Rail's Role in the Florida Paper and Fiber Industry

There is a limited amount of railroad infrastructure to support the forestry industry, resulting in much of the log production being hauled by truck. Railroads tend to connect population centers while forests are in rural areas. Because timber is such a bulky, low-value product, relative to its weight, the most efficient way to handle its transportation is through short hauls to processing plants. As a result, pulp and paper mills are built close to timber sources, including those in the Panhandle. While this pattern is unlikely to change drastically, rail remains popular for long hauls following the processing of timber into paper and wood products and also as the best option for hauling lumber long distances. In 2002, pulp and paper products (STCC 26[7]) accounted for three percent of the originations of rail traffic in Florida. However, several of the major inputs that are required for paper and fiber production, including chemicals, are transported in large quantities into Florida by rail.

[7] STCC –Standard Transportation Commodity Codes are seven-digit, hierarchical commodity designations contained in the STB Carload Waybill Sample. The first two digits describe major commodity classes, for example STCC 26 is pulp and paper products.

One company that does depend on rail is Jacksonville-based Rayonier, a global forest product company specializing in performance fibers. Founded in 1926, over 60 percent of sales are to customers located outside of the United States. Rayonier is the country's sixth largest landowner and produces large quantities of timber and forest products.

Performance fibers are used in a wide variety of consumer products such as air conditioning filters, water filters, fabrics, cellophane, and of course traditional paper goods such as newsprint, tissue, and printing stock. Rayonier has plants located in Jessup, Georgia and Fernandina Beach, Florida both of which use the Florida railroad system to transport inbound and outbound products.

Rayonier ships 80 percent of products destined within the United States by rail. About 60 percent of the inbound raw materials, chemicals and wood, are shipped by rail and the remainder comes in by truck. On the export side, containerized product is loaded onto ships at Savannah while break-bulk products go to Brunswick, Georgia and Fernandina Beach. Rayonier ships 100 percent of export product from the Fernandina Beach plant to the port by truck. About 25 percent of export product from the Jesup plant is shipped to port by rail.

Table 4.12 Florida Industry Profile

Paper and Fiber

Item	Description
SIC Codes:	26: Paper and Allied Products
Employment:	1993 = 13,300; 2003 = 10,700
Contribution to GSP (1996 Dollars):	1991 = $1.1B; 2001 = $979M
Trend:	Strong growth tied to population growth
Suppliers:	Paper, wholesale trade, chemicals, trucking, lumber, rubber, public utilities, machinery, petroleum, textiles, railroads
Markets:	Paper, printing, food, rubber, clothing, tobacco manufacturing, exports, furniture, chemicals
Rail Impacts:	Useful in all aspects of paper and fiber manufacturing, from inbound movement of raw lumber and processing chemicals to outbound movement of finished product.

4.2.5 Automotive Distribution

Automotive Distribution Industry Profile

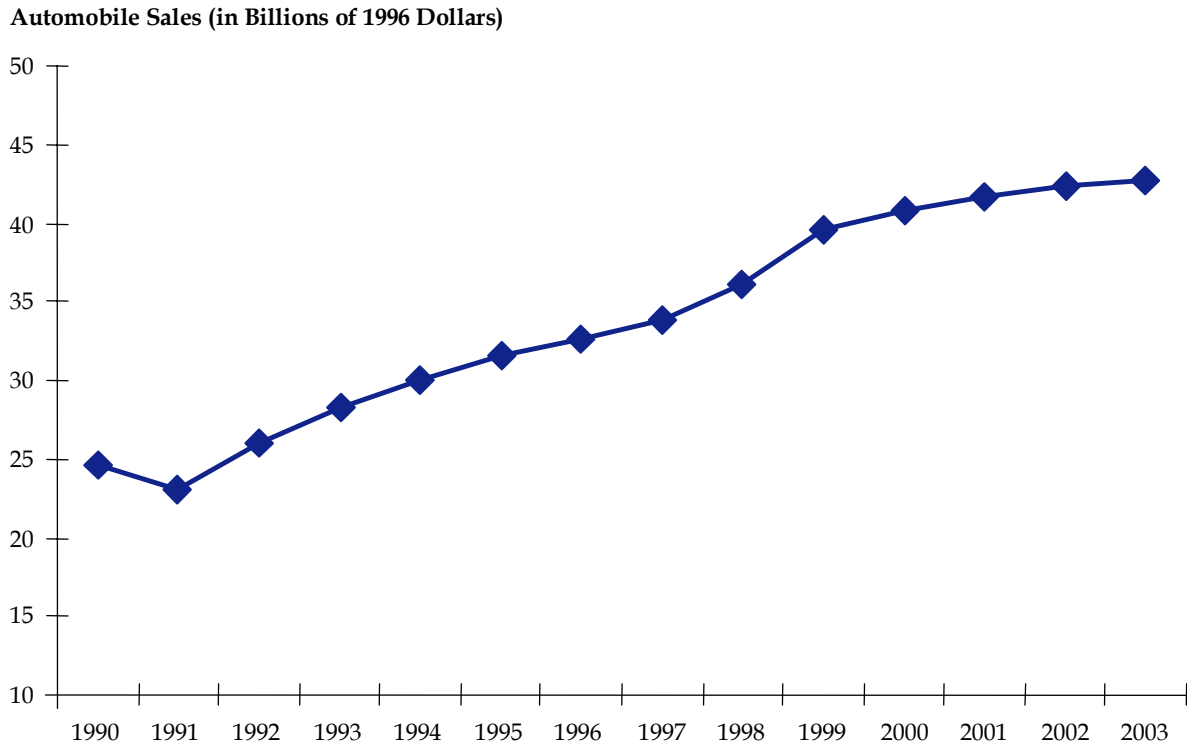
Florida is the fourth most populous state in the country and attracts the second largest number of visitors, after California. The expanding population stimulates demand for retail sales of automobiles while the millions of tourists visiting the State on an annual basis depend on rental cars for mobility. The combination of retail sales and rental cars makes Florida the second largest market for new vehicles in the country, only surpassed by the much more populous State of California (see Table 4.13). In 2003, 1.4 million new cars were registered in Florida and the State accounted for 8.5 percent of all U.S. vehicle sales, far greater than its 5.9 percent share of the U.S. population. In fact, Florida's new car market is larger than Spain's and about the same size as Canada's. Vehicle sales (new and used), valued at about $45 billion in 2003, were responsible for about one-fifth of all Florida retail sales (see Figure 4.13). The movement of vehicles to markets in Florida plays a key supporting role to these retail sales and affects the State's railroads, highways, and ports.

Table 4.13 Florida Ranks Second in Sales of New Motor Vehicles

	Vehicle Sales			Share of
	1993	2003	% Change	U.S. Market
California	1,410,114	1,953,243	38.5%	11.8%
Florida	**1,217,855**	**1,405,665**	**15.4%**	**8.5%**
Texas	961,752	1,284,893	33.6%	7.7%
New York	704,301	918,022	30.3%	5.5%
Michigan	644,440	779,217	20.9%	4.7%
Pennsylvania	605,775	741,523	22.4%	4.5%
Illinois	719,289	716,797	-0.3%	4.3%
New Jersey	498,716	655,034	31.3%	3.9%
Ohio	612,449	639,761	4.5%	3.9%
Georgia	404,911	494,127	22.0%	3.0%
United States	13,940,626	16,611,630	19.2%	

Source: National Automobile Dealers Association.

Figure 4.14 Dollar Value of Automobile Sales in Florida
1990-2003



Source: Florida Office of Economic and Demographic Research.

As Florida's population increases, the total number of vehicles operating in the State also will continue to rise. Between 1993 and 2002, Florida added about 450,000 vehicles per year (net) to its roadways (see Table 4.14). While this rate is not likely to be sustainable, as the annual increase in vehicles has recently exceeded the increase in the number of people, it nevertheless indicates (excluding a huge shift in the way people travel) that the forecast rises in population will lead to a greater number of motor vehicles in operation in the State. More motor vehicles will translate to increased pressure on how to efficiently distribute them to, from, and within the very large Florida market.

Table 4.14 Vehicles in Operation, Top States
1993-2002

	Vehicles in Operation			Share of
	1993	2002	% Change	U.S. Market
California	21,841,046	29,618,605	35.6%	12.9%
Texas	12,360,667	14,664,328	18.6%	6.4%
Florida	**9,985,383**	**13,963,596**	**39.8%**	**6.1%**
Ohio	8,328,741	10,469,719	25.7%	4.6%
New York	10,251,705	10,455,697	2.0%	4.6%
Illinois	7,927,505	9,577,222	20.8%	4.2%
Pennsylvania	8,232,618	9,524,997	15.7%	4.1%
Michigan	7,018,282	8,533,635	21.6%	3.7%
Georgia	4,764,381	7,647,523	60.5%	3.3%
New Jersey	5,313,776	6,687,918	25.9%	2.9%
United States	186,315,464	229,619,979	23.2%	

Source: National Automobile Dealers Association.

Rail's Role in the Florida Automotive Distribution Industry

Whether new or used, meeting Floridians' demand for vehicles requires thousands of truck and rail trips annually as part of a system to transport vehicles to dealers and wholesalers. New cars sold in Florida (1.4 million in 2003) are generally transported to the State from assembly plants predominantly located in the Southeast and Midwest by rail. In 2003, Florida received 30,000 carloads of automobiles from Kentucky, 22,000 from Michigan, 15,000 from Ohio, and 10,000 from Illinois.[8] While this flow pattern supports significant inbound rail traffic into Florida, rail congestion and reliability issues may push some auto manufacturers to increase their use of trucks, especially as more and more vehicles are being made in states that neighbor Florida. Also, due to both the costs of maintaining inventories and the need to load autos onto trucks to reach their final destination (retail dealers), it is expected that autos will soon be drayed from as far away as 600 miles into major urban centers.

Imported vehicles enter the United States through deep sea ports located nationwide, including two in Florida (Jacksonville and Tampa), and are subsequently transported to destinations throughout the State by rail or by truck. Floridians purchase approximately

[8] From the 2003 Corrected Surface Transportation Board Carload Waybill Sample. Values are for STCC 3711, which includes assembled autos and trucks, generally moving in multilevel cars.

450,000 imported vehicles per year, based on national import penetration trends. Florida's Jaxport (Jacksonville Port Authority) ranks among the leading ports in the nation for the transport of motor vehicles, handling nearly a half million in 2003, up 36 percent over 2003 (see Table 4.15). Tampa has a nascent vehicle operation, processing 26,000 vehicles imported from Mexico in 2003, mostly Chrysler PT Cruisers. Growth in vehicle business at the Port of Tampa is limited by the lack of direct rail access at its Hooker's Point facility. On-dock rail access to Jaxport's auto import/export facilities is essential to the port's success in attracting and retaining the large-scale business of such auto companies as Nissan and Toyota.

Table 4.15 U.S. Ports Ranked by Total Number of Vehicles Handled
2003

	Number of Vehicles Handled		
	1993	**2003**	**Percent Change**
New York/New Jersey	386,490	625,798	61.9%
Baltimore	297,766	543,597	82.6%
Jacksonville	**353,471**	**481,111**	**36.1%**
Portland, Oregon	245,067	366,383	49.5%
Long Beach	-	303,647	-
Brunswick	94,266	296,748	214.8%
Los Angeles	301,379	284,682	-5.5%
San Diego	36,178	242,834	571.2%
Hueneme, California	-	211,241	-
San Juan	-	196,162	-
Tacoma	117,141	158,347	35.2%
Charleston	1,714	144,000	-
Wilmington, Delaware	122,312	103,977	-15.0%
Houston	58,685	86,883	48.0%
Vancouver, Washington	24,465	45,644	86.6%
Total - United States	2,230,393	4,190,732	87.9%

Source: American Association of Port Authorities.

Note: The Port of Tampa handles approximately 26,000 vehicles per year.

Due to the size and the growth of the market for imported vehicles, competition is fierce between ports to secure contracts with large automobile manufacturers. For example, in 2002, Swedish carmaker Volvo and its shipping line decided to end delivery of automobiles (about 30,000 per year) to Jaxport, switching to Brunswick, Georgia for vehicles bound for the Southeast market. Brunswick has made many improvements to its port facilities in the last several years (including a new bridge), and offers on-dock rail access to

shippers of automobiles.[9] Because Volvo is relatively small, the switch has not put a significant dent into Jacksonville's business, but this does serve to underscore the overall competitiveness of the market and the importance of making constant improvements to port efficiency to keep costs low.

Beyond the movement of new vehicles, the distribution of used cars also puts pressures on Florida's transportation system. This includes cars leaving Florida's rental car fleets as well as the wholesale buying and selling of vehicles at used car auctions. The rental car industry and the auction houses work hand-in-hand, with some of the largest used car auction franchises located in proximity to Florida's tourism centers such as Orlando.

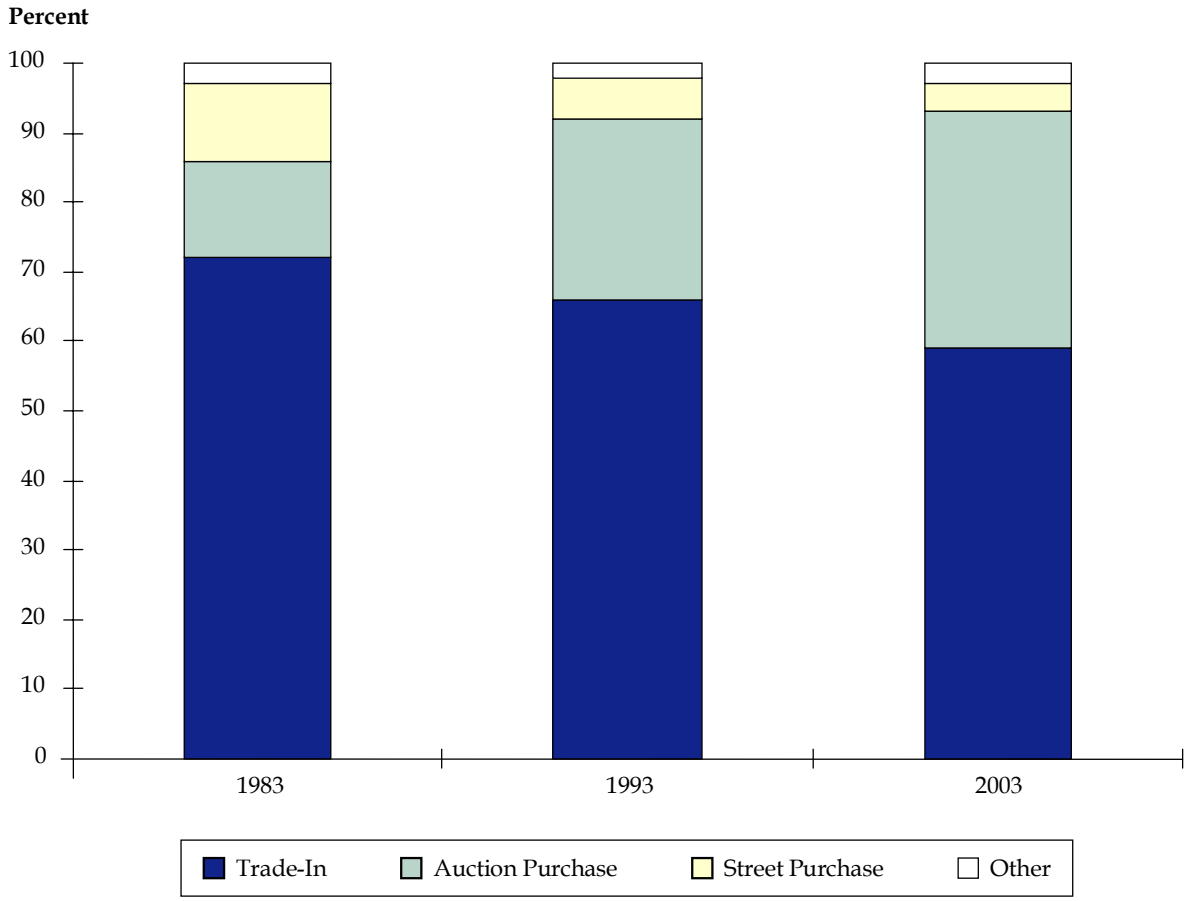
The importance of these auctions is growing as U.S. car dealers are shifting how they purchase their vehicles. In 1983, dealers depended on trade-ins for about three-quarters of their used car inventory, with auction purchases accounting for only 14 percent (see Figure 4.14). By 2003, trade-ins had dropped to less than three-fifths while auction purchases grew to 34 percent of used car sales inventory.

Unlike trade-ins, vehicles traded at auctions do not arrive at dealers' lots following just one trip (i.e., the seller dropping off the vehicle). Auction vehicles go through several trips. First they must be transported to the auction location to be sold, and then they must be shipped to a location (e.g., dealer's lot) specified by the purchaser. In Florida, due to the size of the market, the number of vehicles shipped to and from auctions on an annual basis is enormous. In 2003, 19.5 million used cars were sold in the United States. While data for Florida used car sales were not available, based on the State's share of new car sales in the United States, 8.5 percent, as many as 1.7 million used cars per year are sold in Florida. Given that dealers purchase 34 percent of their used car stock from auto auctions, this would translate to 564,000 vehicles traded at Florida's auto auctions annually. Because the vehicles need to reach the auction houses and then be shipped to reach their final destination, these vehicles must be transported by some mode (rail, truck, or under their own power) over 1.1 million times. Even if all of these cars were brought to and from the auctions by vehicle carriers (average capacity of nine vehicles), this would contribute to 122,000 truck trips per year on Florida roads. Diverting a portion of these trips to rail could potentially reduce truck traffic on Florida's highways. One tri-level railcar can hold up to 15 sedans, so a 20 car train would have the same capacity as 33 vehicle carriers. If rail were responsible for transporting 10 percent of the vehicles going to and from Florida's auto auctions, this could remove approximately 12,000 truck trips from the State's roadways annually.

[9] Southern Business & Development, Spring 2002.

Figure 4.15 Multilevel Auto Carrier

Figure 4.16 Sources of Used Vehicles Retailed by Dealerships
1983-2003



Source: National Automobile Dealers Association.

The key to diverting this auto traffic to rail is the availability of direct, reliable, timely rail service. Most people do not consider automobiles a "perishable" commodity, but within the industry the importance of rapid delivery to the dealers is critical due to the rapid decline in prices as vehicle age and new models become available. Another issue limiting the use of rail for distributing used automobiles is that autos generally move in smaller batches more suitable to trucking. Auto manufacturers also do not like the idea of having railcars diverted from moving new products to used autos. While it may appear carrying used cars to fill empty, backhaul auto racks would reduce costs, the auto rack cycle times become much longer and fleet availability becomes less reliable for the new car manufacturers. One final issue involves pricing. The cost is the same for railroads to move new and used automobiles, but the value associated with the movement of these goods to the industry is vastly different, thus creating difficulties in pricing the shipments.

The CSXT Automotive Service Group (ASG) hauls in excess of five million vehicles representing over $140 billion in finished product across the nation. Revenues from the ASG contributes 12 percent to CSXT's overall total. The traffic mix includes 29 percent new passenger cars, 55 percent new trucks, 12 percent auto parts, and only four percent remarketed vehicles. The ASG manages 37 strategically located Vehicle Distribution Centers, including six in Florida (Blount Island, Jacksonville, Tallyrand, Orlando, Tampa, and Palm Center.)[10]

Rail and Automotive Assembly Plants – Automotive assembly plants are considered one of the top prizes in the economic development field. They employ thousands of people, offer high wage jobs, attract additional suppliers, and can raise a state's prestige as a location for other businesses to expand or relocate. Access to rail trunk lines, preferably served by more than one Class I railroad, is a prerequisite in selecting a site for an assembly plant. Rail is crucial for bringing in supplies to the plants and for transporting finished vehicles to domestic markets as well as to ports for shipment abroad. In the last 15 years, the Southeast has dominated site location decisions, with large-scale investments of U.S., German, Japanese, and Korean manufacturers going to South Carolina, Tennessee, Alabama, Mississippi, and most recently, Texas. Although Florida is not far from this emerging automotive belt, its limited supplier base and distance from the Midwest and Mexico are likely to limit the State's prospects in attracting an assembly plant. However, DaimlerChrysler's decision to locate a truck plant in Savannah, shows that Northeast Florida (only 130 miles south), with its rail, highway, and port facilities, also has potential as a viable location for a major automotive plant.[11]

[10] "CSX Transportation Automotive Service Group Overview," provided by CSXT.

[11] The plant in Savannah is presently on hold, but it is believed that DaimlerChrysler will move forward with it, opening as early as 2007.

Table 4.16 Florida Industry Profile
Automotive Distribution

Item	Description
SIC Codes:	N/A – Not a standard SIC class
Industry Definition:	Distribution of new and used vehicles for export; distribution of imported vehicles to markets; distribution of North American manufactured vehicles to markets; distribution of used cars to markets (e.g., from auto auctions to dealers)
Employment, Contribution:	19,828 (2002; wholesale trade of motor vehicles, motor vehicle parts and supplies)
Trend:	Increasing – Driven by economic, population, and tourism growth
Suppliers:	Domestic and international auto manufacturers, rental car companies
Markets:	Florida and other U.S. auto dealers, rental car companies
Rail Impacts:	Allows Florida ports, especially JaxPort, to remain competitive with other eastern seaboard ports for import/export of assembled automobiles. Transports new and used vehicles into Florida to support the demand from population growth, and the rental car demand from the tourism industry.

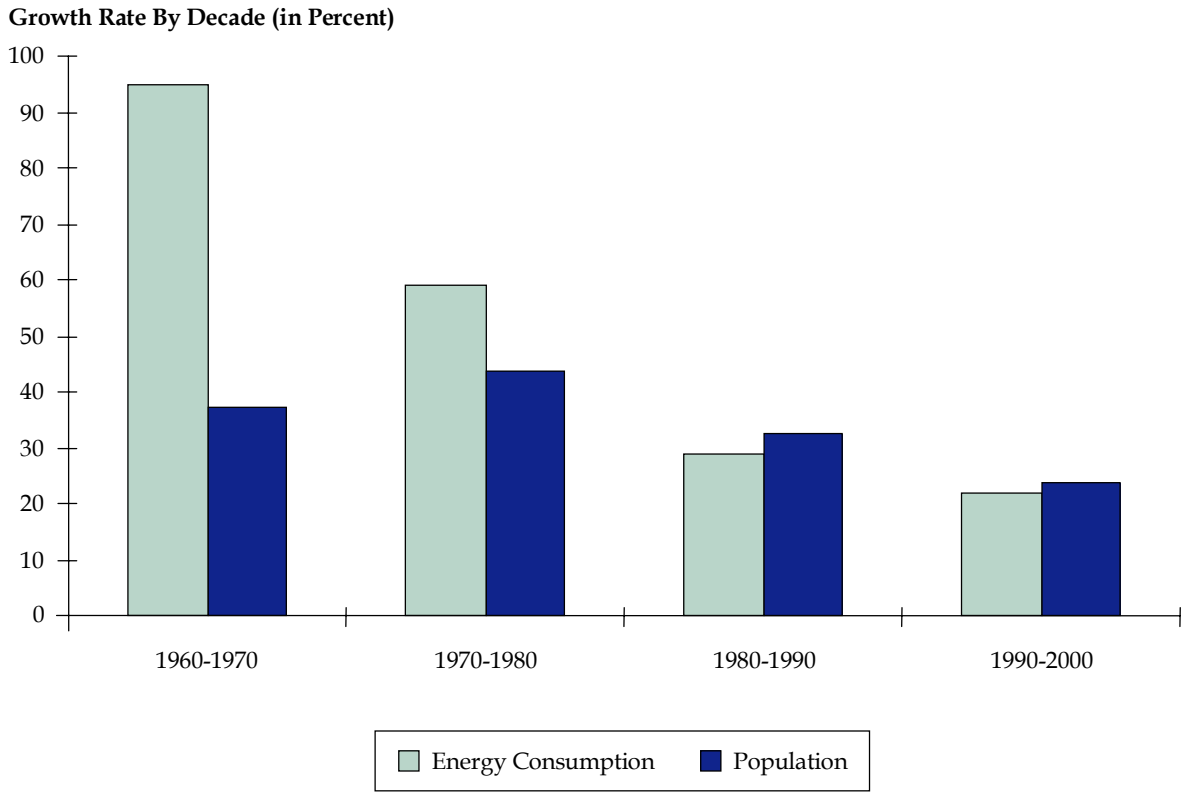
4.2.6 Energy

Energy Industry Profile

Electricity costs are a key business climate consideration that affect the site location decisions of prospective companies and also influence the willingness of local companies to expand. Businesses expect a reliable flow of competitively priced electricity (not only do blackouts or brownouts bring work to a halt, but they also can destroy production runs in some industries such as plastics). Electricity expenses also are a factor affecting the overall cost of living in Florida and the State's attractiveness to residents and retirees. Efforts to lower the costs of electricity, including the costs of transporting energy to markets, will have a positive impact on Florida businesses and residents, alike.

Since the 1980s, Florida's total energy consumption (includes fuels used for all uses) has grown in tandem with the State's population growth (see Figure 4.15), after increasing at a far faster pace than population in the 1960s and 1970s. However, even with this relative slowing, the supply of energy in the State will still need to grow quickly as Florida's population growth leads all but a handful of states. To satisfy its energy needs, Florida will either need to add generating capacity within the State or import more electricity from other states. Limited transmission capacity, however, constrains Florida's ability to meet its needs by importing electricity. Even if transmission capacity is added, Florida's generators will need to increase production and more power plants will need to be built.

Figure 4.17 Growth in Energy Consumption and Population by Decade
1960-2000



Source: U.S. Department of Energy, U.S. Census Bureau.

Rail's Role in the Florida Energy Industry

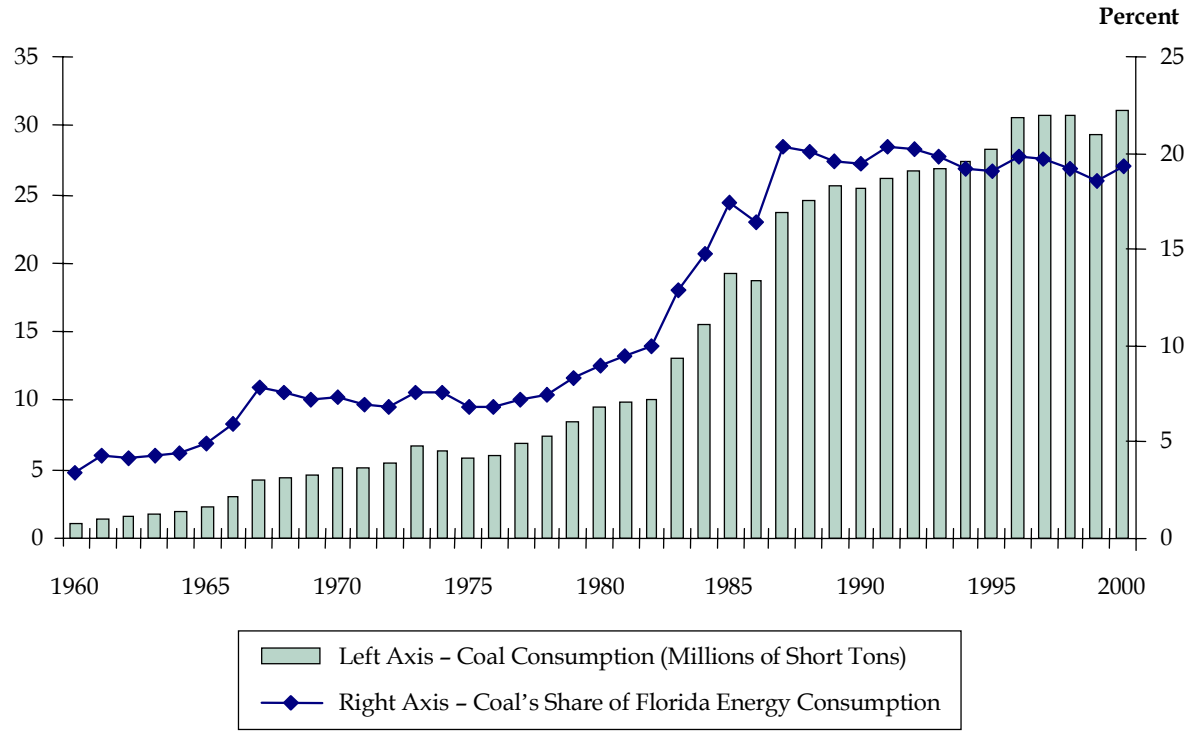
The transport of fuels (i.e., coal and petroleum) by rail is one of the leading inputs in the energy industry. Rail, joined by coal and petroleum commodity purchases, construction, and business services (e.g., architectural, engineering, and environmental services) is a principal cost factor in electricity production that affects the overall price of energy. By keeping rail costs competitive, in combination with the other cost factors, Florida can continue to offer electricity rates that are not onerous to the State's businesses or residents. While electricity costs are the 12th highest in the nation, they remain a neutral factor in business development. Any significant rise in Florida's electricity costs (e.g., one driven by much higher rail costs for transporting coal) compared to other states, however, could put the State at a disadvantage.

Rail is the primary mode of transportation to bring coal into Florida. This is underscored by coal's ranking among all commodities carried by rail that have a destination in Florida. In 2003, coal accounted for 12 percent (12 million tons) of all goods transported by rail

with a Florida destination, which is down from 2002 totals of 17 percent (16 million tons). Because of its weight and the volumes required to sustain electricity production at power plants, rail, barge, and deep sea vessels are the preferred modes for transporting coal.

Coal supplies in the United States are plentiful (particularly in the Rocky Mountain States) and coal-fired power plants can generally offer lower rates than plants using oil or natural gas. Limitations on the development of nuclear and hydroelectric power plants, both low-cost sources of electricity, combined with new technologies that allow coal to be burned more cleanly, have made coal a popular fuel choice for expanding electricity production. If oil and gas prices continue rising as they did in 2004, coal will come into greater use. In Florida, the annual consumption of coal has increased from one million tons in 1960 to over 31 million tons in 2000. In 1960, coal accounted for 3.4 percent of the energy consumed in Florida. By 2000, coal's share reached almost 20 percent (see Figure 4.18).

Figure 4.18 Coal Consumption in Florida
1960-2000

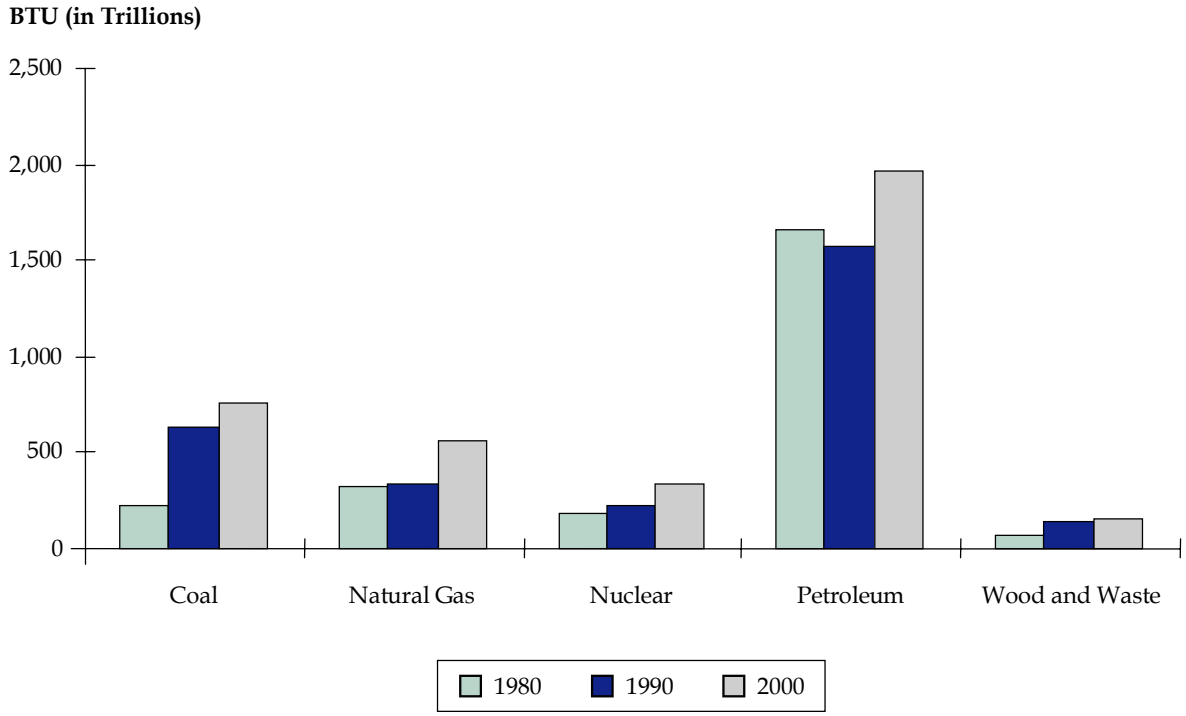


Source: U.S. Department of Energy.

In the future, Florida will need more fuel(s) to meet its demands for electricity generation as its population and economy continue to grow. It is anticipated that much of these fuel needs will be met by increasing the use of coal, which trails only petroleum as the leading energy source in Florida (see Figure 4.19). Higher coal consumption in Florida will

depend, in part, on the railroads' ability to transport coal, particularly the low sulfur variety from Wyoming's Powder River Basin, into the State. Current coal shipments into Florida are dominated by moves from Kentucky (8.4 million tons in 2003) and West Virginia (1.9 million tons in 2003) mines, but more and more eastern states are beginning to use western coal. This presents both an opportunity and threat to the railroads, as western coal can alternatively move to the Mississippi River for transshipment to barges and delivery to Gulf side power plants in Florida. Good access will be critical to maintaining rail as a preferred mode of transportation for any new coal-fired power plants.

Figure 4.19 Energy Consumption by Source in Florida
1980-2000



Source: U.S. Department of Energy.

In the coming years, a potential issue that may limit the push toward coal-fired plants is the implementation of aggressive restraints on carbon dioxide emissions such as those proposed by the Kyoto guidelines. Only the newest plants would be able to conform to the strictest guidelines. The most drastic consequence of this would be the closure of existing coal-fired generating facilities. In the long term, alternative fuels such as biomass and wind power may emerge as viable energy sources, but it will take many years before they would make more than a marginal contribution to Florida's energy needs.

If the carbon dioxide regulations come into being, natural gas will have a clear advantage over coal. Two alternatives currently being studied for bringing additional natural gas into Florida also may slacken demand for coal: 1) a second gas pipeline from Texas; and 2) a project to bring liquefied natural gas into Florida by pipeline from the Caribbean.

Ultimately, the decisions made in the next several years concerning how to meet Florida's energy needs will have a bearing on the utilization of the State's rail system. If clean-burning natural gas becomes the preferred option, the use of rail to transport coal is likely to go into gradual decline as older power plants become antiquated. Even if more coal plants are constructed in Florida, there also is the possibility that they may be located close to the shore so the coal could be brought in by barge, a transportation alternative that is less costly than rail. Lastly, because the permitting process for new power plants in Florida can be slow, the State may meet a growing portion of its energy needs by importing electricity as new capacity is built in neighboring states. The decisions made by Florida's energy providers to address the State's future electricity requirements need to be monitored by the rail industry and policy-makers as they will have an effect on how the State's rail system is utilized.

Florida Power and Light (FPL) and Jacksonville Electric Authority (JEA) are joint owners of St. Johns River Power Park (SJRPP) an electrical generating station north of Jacksonville that burns about 20 percent petroleum coke (petco) and about 80 percent coal. JEA and FPL also are joint owners in a plant located in Macon, Georgia that burns 14 million tons per year of Powder River Basin coal and supplies 800 Megawatts per hour of electricity to Florida. The JEA plant on Blount Island burns about 80 percent petco and 20 percent coal.

SJRPP has cut its rail tonnage from two million tons per year to one million tons and substituted lower priced water transportation service. Currently, about 25 percent of SJRPP inbound tonnage is transported by rail. They are content with the quality of rail service generally, although, they believe the presence of the water-based service keeps the railroads in check.

Another utility that uses rail service is the Lakeland Electric Authority, a municipally owned utility managed under the auspices of the Lakeland City Commissioners. Lakeland operates a 365 megawatt coal unit that can burn up to one million tons of coal per year. Most of the coal is shipped by rail from Eastern Kentucky with a small amount imported from Columbia over the Port of Tampa. This year, Lakeland will ship approximately 600 thousand tons by rail from Kentucky and 200 thousand tons by truck from Tampa. The power plant owns and manages a fleet of 197 coal hoppers.

Lakeland can burn up to 20 percent petroleum coke, all of which is brought in through the Port of Tampa, which is 43 miles away. Currently, all of the coal and petco from Tampa is trucked to Lakeland. About 50 trucks per day operate between Tampa and Lakeland, each truck makes two to three trips per shift. The utility tries to move the trucks at night to minimize traffic congestion and impact on the communities. They would like to move this traffic by rail, but the rates were higher than truck rates.

Table 4.17 Florida Industry Profile
Energy

Item	Description
SIC Codes:	491: Electric Services
Employment:	1993 = 33,400; 2003 = 26,800
Contribution to GSP (1996 Dollars):	1991 = $8.8B; 2001 = $8.5B
Trend:	Strong growth tied to population growth
Suppliers:	Mining (includes coal), public utilities, professional and business services, construction, petroleum products, railroad, banking and finance, real estate
Markets:	Petroleum products, public utilities, primary metals, hotels, mining, paper, eating and drinking establishments, chemicals, retail, amusement and recreation
Rail Impacts:	Rail is the preferred mode of transportation for supplying Florida's power generation plants with both eastern and western coal, thereby helping reduce electricity costs.

4.2.7 Construction

Construction Industry Profile

There are two main drivers for growth in the construction industry: 1) economic expansion; and 2) population growth. For decades, Florida has been a national leader in both of these factors, far outpacing U.S. averages. Economic growth stimulates new investment in commercial structures such as office buildings, industrial facilities, warehouses, laboratories, etc., while a fast growing population translates to strong demand for housing, retail centers, schools, and other public infrastructure. In Florida, the long-term expansion of the tourism industry, a key component of the State's economic growth, also has been a boon for the State's construction sector. Higher numbers of visitors has stimulated investments to build or expand hotels, recreational facilities and attractions, airports, ports, roadways, retail establishments, restaurants, and vacation homes.

The importance of construction to the Florida economy has increased in the past decade. Between 1993 and 2003, the industry added over 150,000 jobs, representing about nine percent of the total number of jobs added to the state economy during the period. In 2002, construction contracts totaled $42.3 billion, second in the nation only to California (see Table 4.18), and in 2003 Florida led the nation in new housing units authorized by the State (see Table 4.19). Although construction is sensitive to economic cycles, its overall future growth trend in Florida is likely to remain positive as the State's population and economy continue to grow.

Table 4.18 Value of Construction Contracts Put in Place
1992-2002

State	Construction Contracts 1992 (in Billion Dollars)	2002	Percent Change
California	27.3	57.5	110.8%
Florida	**16.7**	**42.3**	**152.7%**
Texas	16.7	41.6	149.9%
New York	14.1	24.3	72.2%
Illinois	10.4	20.7	99.1%
Georgia	8.2	19.6	139.9%
North Carolina	8.1	17.5	117.9%
Ohio	10.8	17.2	60.0%
Pennsylvania	10.0	16.2	62.1%
Arizona	5.3	14.4	171.2%
United States	252.2	502.0	99.1%

Source: McGraw-Hill Construction Dodge (copyright) as presented in Statistical Abstract of the United States, 2003.

Table 4.19 New Housing Units Authorized by State
1992-2003

State	Housing Units 1992 (in Thousands)	2003	Percent Change
Florida	**102.0**	**213.6**	**109.4%**
California	97.8	191.9	96.2%
Texas	64.2	177.2	176.0%
Georgia	44.6	96.7	116.8%
North Carolina	48.2	79.2	64.3%
Arizona	31.8	75.0	135.8%
Illinois	40.4	62.2	54.0%
Virginia	40.2	55.9	39.1%
Michigan	37.0	53.9	45.7%
Ohio	42.6	53.0	24.4%
United States	1,094.9	1,889.2	72.5%

Source: U.S. Census Bureau.

Rail's Role in the Florida Construction Industry

Many of the materials essential to the construction industry, including metals (e.g., structural steel and architectural pieces), lumber, cement, and aggregate rock, are transported by rail to reach the Florida market. Gerdau Ameristeel, profiled below, illustrates how a Florida steel supplier to the construction industry uses the State's rail system to ship products and to receive inputs. Another example of the construction industries dependency on rail is Advanced Drainage Systems, also described below.

Gerdau Ameristeel has its national headquarters in Tampa. Other Florida facilities include the Jacksonville Steel Mill (located in Baldwin) as well as finishing facilities in Tampa, Orlando, Jacksonville, and Fort Lauderdale. The Ameristeel business model centers on transforming inbound scrap steel and manufactured steel products for use in construction. Florida is an important market for Ameristeel as the State's rapid growth requires increasing volumes of construction materials for new roads, buildings, ports, and other infrastructure. Due to expected growth in the State, Ameristeel plans to significantly increase production at its Baldwin facility over the next decade.

At any given time, Ameristeel is moving about 800 railcars throughout its North American network. The Baldwin, Florida facility, alone, handles approximately 600 inbound and 200 outbound railcars per month (see Table 4.20). The products they ship by rail include billets, rebar, straight steel, coiled steel, wire rod, angles, flats, channels, and beams. These products move largely in bulkhead flatcars since most receivers do not have cranes to lift the products. The majority of this facility's production is destined for Florida markets, with much smaller volumes headed elsewhere in the Southeast or to the Midwest. Major inputs for the Baldwin facility include about 50 trucks per day of crushed automobiles from South Florida. Ameristeel believes there is an opportunity to move these by rail.

Table 4.20 Modal Share and Rail Volume at Ameristeel's Baldwin Facility

	Rail Share	Truck Share	Railcars per Month
Inbound	60-70%	30-40%	600
Outbound	33%	67%	200

Note: All figures are approximations.

A hazardous byproduct of the manufacturing process, K061 furnace dust, is transported by rail to facilities in Monterrey, Mexico or Rockwood, Tennessee where the material is processed to extract zinc. When possible, Ameristeel prefers rail to transport hazardous materials.

Advanced Drainage Systems (ADS), located in Winter Garden, manufactures plastic pipes for construction (the distinctive black pipes with the green stripe). They moved to Winter Garden about four years ago because of a FDOT grant to construct a rail spur. The site currently provides about 85 jobs in the region.

Figure 4.20 Railcar Shipments of Plastic Pellets to Advanced Drainage Systems at Winter Garden

ADS uses plastic pellets (recycled resin) as raw material for the pipe construction. Rail delivers 98.5 percent of the inbound plastic pellets from Texas and Louisiana sources using a route on Union Pacific through New Orleans to CSX through Orlando to the Florida Central. On average, ADS receives 225,000 pounds of resin per day, with peaks of 350,000 pounds per day. The pellets are stored in the railcars and pumped into the plant as needed. Outbound pipe ships by truck to distribution centers in Fort Lauderdale and Jacksonville, with 120 containers per month exported out of the Port of Miami to South America, the Caribbean, and Puerto Rico.

Rail was critical to the ADS plant location. It costs one cent per pound to ship the plastic pellets by rail, versus five cents per pound by truck. At 45 million pounds of plastic pellets per year, ADS stated they would relocate the business if rail service were unavailable.[12]

Table 4.21 Florida Industry Profile
Construction

Item	Description
SIC Codes:	Construction (major sector)
Employment:	1993 = 294,900; 2003 = 445,900
Contribution to GSP (1996 Dollars):	1991 = $14.4B; 2001 = $20.9B
Trend:	Increasing – Driven by economic and population growth
Suppliers:	Professional services (architecture and engineering), fabricated metals, lumber, cement and glass, electrical equipment, retail and wholesale trade, trucking, rubber, primary metals
Markets:	Residential and commercial structures; non-building infrastructure
Rail Impacts:	Hauls construction rock, lumber, steel, and other construction material to support Florida's growing population. Replaces hundreds of daily truck trips.

4.3 Summary

Florida's economy is largely driven by population growth, and not industrial output. This economic growth is expected to continue above the national average for the foreseeable future. The greatest increases in the demand for goods will result from consumer-driven areas, such as construction, power generation, and especially retail and trade. Tremendous burdens will be placed on Florida's already congested roadways. The railroads can invest sufficient capital to remain competitive in certain areas, but they do not have the resources to provide the large scale highway congestion relief often desired by the public. For the railroads to keep pace with this population-driven economy, it will require a public-policy-driven solution to expand capacity, eliminate chokepoints, and improve train speeds.

[12]Based on interview with ADS conducted for this study.

5.0 Trends and Issues Impacting Florida's Freight Rail System

5.1 Purpose

The discussion in this chapter focuses on trends and issues potentially impacting the freight rail system in Florida and presents suggestions from a series of interviews for programs and policy changes. The chapter is divided into three sections:

1. Summary of the comments from a series of interviews conducted for this rail plan;
2. Summary of a presentation CSXT gave to FDOT concerning its strategic plan for the State of Florida; and
3. National trends, issues, and projects potentially impacting freight rail in Florida.

5.2 Interviews – Methodology and Results

5.2.1 Interview Methodology

Beginning in May 2004 and running through the summer, a series of interviews were conducted with railroads, ports, shippers/receivers, and other key stakeholders to gather information for this rail plan. Many of the interviews were conducted in person, and others were done by telephone and e-mail. During the interviews, participants were provided with a *Stakeholder Outreach Questionnaire* to gauge views on a number of different rail policy issues and to identify specific needs on the current rail network. The questionnaire was divided into five broad topics:

1. Public-sector role in freight rail;
2. Freight rail system status, trends, and issues;
3. Freight rail use and operations;
4. Rail system needs; and
5. Policy, funding, and wrap-up.

The discussion that follows will highlight the key issues and trends identified during the interviews. Freight rail use and operations was covered for the railroads in Chapter 3.0 and for the shippers in Chapter 4.0, therefore it will not be repeated here. Similarly, rail system needs will not be covered here, because it is the topic of Chapter 6.0. As might be expected, there was close agreement on some topics and very divergent views on others, especially between railroads and shippers.

Table 5.1 contains a list of all the companies and organizations participating in the interviews. For reasons of privacy, the discussion of issues and trends will not reference specific companies or individuals.

Table 5.1 Companies and Organizations Interviewed

Category	Interviewee
Railroads	• Alabama and Gulf Coast (AGR) • AN (AN) • Bay Line (BAYL) • CSX Transportation (CSXT) • Florida Central/Midland/Northern (FCEN/FMID/FNOR) • Florida East Coast (FEC) • Georgia and Florida RailNet (GFRR) • Norfolk Southern (NS) • Seminole Gulf (SGLR) • South Central Florida Express (SCXF)
Railroad Suppliers	• Safetran Systems • Quantum Engineering
Ports	• Jacksonville Port Authority (JaxPort) • Nassau Terminals (Fernandina Beach) • Port Everglades • Port Manatee • Port of Miami • Port of Palm Beach • Port of Pensacola • Port of Panama City • Tampa Port Authority

Table 5.1 Companies and Organizations Interviewed (continued)

Category	Interviewee
Shippers	• Advanced Drainage Systems • Florida Auto Auction • Florida Rock • Gerdau Ameristeel • Gulf East Coast Intermodal • Lakeland Electric Company • Pepsi Bottling Group • Rayonier • St. Johns River Power Park/Jacksonville Electric Authority • Sea Star Line • Tropicana • Winn Dixie
State and Public Agencies	• Florida Department of Transportation (FDOT) • MetroPlan Orlando • National Aeronautics and Space Administration (NASA) • South Florida Regional Transit Authority (Tri-Rail)
State Stakeholder Organizations	• Florida Railroad Association

5.2.2 Public-Sector Role in Freight Rail

The nation's freight railroads are private businesses, competing for business and trying to maximize value for their shareholders. At the same time, they provide significant public benefits by providing efficient, low-cost movement of goods, and supporting interstate commerce and economic development. The conflict between private profit and public good requires policy-makers to strike a delicate balance to simultaneously preserve competition and expand public benefits.

The first set of questions in the questionnaire dealt with this issue. Should the public sector invest in freight rail and why? What types of projects should receive public funds? What is a fair method for selecting which projects receive funding?

Not surprisingly, the interviewees (railroads, ports, and rail shippers) were very pro-rail and in favor of public investments to strengthen and grow the rail system in Florida. The general consensus was that freight rail provides many benefits and the State of Florida should make investments that return the most benefits to its citizens. As one railroad executive succinctly phrased it, investments should be based purely on economic measures. The following list summarizes the interviewee's responses to the question. What

factors are most important for public investment in freight railroads? The responses appear in the order of frequency of response by interviewees (there was a two-way tie for fourth place and a three-way tie for seventh place, based on number of interviewees responding):

1. Roadway Congestion Mitigation.
2. Safety Improvement.
3. Job Creation/Retention.
4. Business Attraction, Economic Development; and

   Avoided/Delayed Roadway Costs.
6. Environmental.
7. Security;

   Network Capacity Expansion; and

   Grade Crossing Elimination.

The most popular justification for investing in freight rail projects was highway congestion mitigation. As the highway networks become more crowded and the percent of trucks increases, congestion mitigation is increasingly being used as a rationale for investing in rail projects. Proponents of this investment strategy believe that public support of freight rail improvements will make rail transportation more competitive with truck transportation, resulting in a diversion of trucks from Florida's highways, and leading to many public benefits. These benefits include:

- **Reduction in Vehicle Minutes of Delay (VMD) –** For the cars and trucks remaining on the roadways, less congestion reduces travel delays, which increases productivity.
- **Reduction in Pavement Management Costs –** Heavy trucks accelerate deterioration of roadways, especially low-volume roads where pavements are less thick.
- **Improved Safety –** While truck drivers are often the best and most highly trained drivers on the roadways, the interaction between trucks and passenger vehicles (reduced visibility, anxiety of drivers, speed differentials, etc.) is a safety hazard. Fewer trucks mean improved safety.
- **Improved Environmental Quality –** It is well documented that railroads are more fuel efficient than trucks (generally three times more efficient per ton-mile). Burning less fossil fuel lowers carbon dioxide (CO_2), nitrous oxide (NO_x), particulates, and other vehicle emissions.

- **Avoided Highway Costs –** Less traffic on the roadways leads can lead to avoided, or at least delayed, construction costs to create additional capacity.

- **Lower Fuel Tax Revenues –** Less trucks on the roads leads to lower state income from fuel tax revenues. This needs to be considered when determining net benefits.

The second most popular response, safety improvements, included two elements: improvements to at-grade rail crossings; and improvements to rail safety. FRA statistics claim 2,929 train-vehicle at-grade crossing crashes in 2003.[1] Florida, with 92 crashes, had the 10th highest state total. While grade separation provides the safest improvement, it is not always the most desirable from a cost or community viewpoint (grade separation can divide a community). Florida has the additional problem that digging an underpass or tunnel is generally not a cost-effective option because of the high water table, so grade separation must be accomplished with overpasses. Investments in signaling, enforcement, and education can improve safety and, in many cases, provide more cost-effective and community-friendly investments. Improvements in rail safety are directed at reductions in derailments and the potential for catastrophic events, especially on routes hauling hazardous materials (hazmats) and routes through heavily populated areas.

The next most frequently mentioned benefit was job creation and retention. Investments in short line railroads to retain jobs were the impetus behind much of the Federal and state funding programs in the 1970s, 1980s, and 1990s. Many states use number of jobs multiplied by average wages as a measure of public benefits. Closely tied to job creation is business expansion, which not only reduces state unemployment burdens but also increases tax revenues.

With respect to the types of projects that should attract public investments, there was general agreement among the interviewees that capital projects are appropriate and operating costs are not. Capital projects include: track, tie, and bridge upgrades (especially to 286k standards);[2] industrial rail access; capacity improvements to track such as double-tracking and siding projects; capacity improvements to yards; safety and security improvements, new intermodal facilities; and improved connectors between rail and other modes, especially at ports. In general, rolling stock is not appropriate for public investment, but there are exceptions.[3] Another type of project deemed appropriate for public investment is technology improvements, especially related to field testing. New technologies include signaling systems, positive train control, computer systems, and equipment types.

The final question was what criteria should be used to select projects. The consensus was that it should be driven by benefits and economic reasons, but there also was a desire to achieve some geographical and systemwide fairness. The specific measures mentioned were the same ones discussed above; i.e., how many trucks will be removed from the

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[1] From the Operation Lifesaver Internet site at: http://www.oli.org/library/stats.html.

[2] The term 286k refers to 286,000-pound railcars, which is the current rail industry standard.

[3] See, for example, the Washington State grain car program.

roads, how many jobs will be created, and will safety, security, and environmental concerns be improved. There also was a general agreement that the railroads should provide some level of matching funds so they have a financial stake in the project.

Many of the shippers seemed to prefer public investments in the short line and regional railroads. Several shippers said that wherever the Class Is had sold branches, the new short lines provided much more conscientious and sensitive service to support local needs.

5.2.3 Freight Rail System Status, Trends, and Issues

Railroad Trends

The next series of questions posed to the interviewees addressed trends or issues impacting the use of freight rail in Florida. These trends included both industry trends and railroad trends. Intelligence gathered on industry trends was reported in the industry profiles in Chapter 4.0. This section will focus on trends in the rail industry.

Most of the comments centered around the Class I railroads and their strategic plans and new operating strategies. A topic of concern was the continued line sales by the Class Is. In particular, CSXT sold 350 miles in Indiana and is trying to sell more than 500 miles in West Virginia. CSXT has announced that there will be more track sales. If any of these should occur in Florida, there is both an opportunity for other railroads to enter new markets and concern by shippers at the potential loss of rail service. Another concern is, if a section of track is for sale in Florida, it could be purchased by an investment firm wishing to cannibalize the real estate and other assets for profit. In December, CSXT presented their vision for Florida to FDOT. This is summarized in Section 5.3.

The line sale concern is related to a "hook and haul" strategy by Class I railroads, whereby they focus on long-haul movements and leave the collection and distribution of traffic to short lines and trucks. Creation of large logistics centers ("freight villages") where they can hook locomotives to full trains, or pre-blocked segments delivered by the short lines, and haul these trains over high-density rail lines between centers is a strategy some railroads are exploring. This also allows railroads to run longer trains, forcing capital investments to lengthen sidings from a typical length of 7,000 feet to 9,000 feet.

Freight villages are based on strong underlying business principals, as demonstrated by the BNSF in Joliet, Illinois. By creating a central point for all rail shipments (intermodal, auto, general merchandise), they act as facilitators attracting manufacturing businesses wishing to relocate near the village to lower logistics costs. The villages themselves create few jobs, but they create secondary jobs in warehouses, distribution centers, manufacturing, packaging plants, and other value-added businesses. Another component of the freight villages is that the existing railroad real estate (yards and track) have value. Concentrating yards at the freight villages would allow selling existing urban yards and excessive track, allowing railroads to invest the money into development of high-density corridors. An issue with freight villages is whether a publicly funded facility should be open to other railroads. This would certainly follow the airline industry example, where

the freight village is analogous to an airport. This also is true of marine ports, were where cruise and cargo ships share facilities.

Another emerging Class I trend is the transition to "scheduled railroad" service, or the practice of running trains on predetermined schedules rather than following the historic practice of running trains when the trains are fully assembled (tonnage-based railroad). Stakeholders generally agree that in today's market, running to schedule is more favorable than the tonnage-based model. For shippers, scheduled railroads provide better service quality; for short lines, they enable better management of equipment and connections; and for the larger railroads, the scheduled railroad model reduces equipment and labor costs. Running to schedule makes rail service more competitive for time-sensitive shipments, which have largely diverted to trucks under the tonnage-based plans.

Not a railroad trend, but certainly something that impacts Florida's railroads, is the new truck driver hours of service rules (HOS). Although these are being revised, it appears there will be reductions in the HOS for truck drivers, opening new markets for short-haul rail. This will impact markets separated by about 500 miles, such as Tampa-Atlanta, making them more rail competitive. It also will impact shorter distance markets, where a driver who previously made two trips a day and can now make only one.

Railroad Issues

The number one issue regarding freight rail in Florida, as identified by the interviews, is the more than 5,000 at-grade crossings in the State. The number of at-grade crossings creates several problems. First is the issue of safety. According to the FRA, there were 92 vehicle-train crashes at grade crossings in Florida in 2003.

Another issue related to at-grade crossings is noise, especially from train whistles blown to warn motorists. In response to a legislative mandate, the FRA has issued a Final Rule on the Use of Locomotive Horns at Highway-Rail Grade Crossings that will take effect on June 24, 2005. This final rule requires that locomotive horns be sounded as a warning to highway users at public highway-rail crossings. The final rule provides an opportunity, not available until now, for thousands of localities nationwide to mitigate the effects of train horn noise by establishing new "quiet zones." Some communities had previously enacted their own "whistle bans."

At-grade crossings adversely impact train and highway operations, too. Trains operate slower if there are road crossings, which reduces average train speed, which increases car cycle times, lowers labor productivity, and, in general, increase operating costs. CSXT provides 28-hour expedited service for Tropicana between Bradenton and Jersey City, New Jersey. The approximate train speed between Bradenton and Jacksonville is 26 miles per hour (mph) and between Jacksonville and New Jersey is 52 mph, largely because of the 165 at-grade crossings on the route through Florida. It is not only train speeds that are impacted, but also travel time is increased for motorists as they sit idling at grade crossings. This leads to lost productivity, blockage of emergency vehicles, increased fuel usage, and increased air pollution.

Figure 5.1 Two At-Grade Crossings in Close Proximity

The second most important issue identified by the interviewees is the need to upgrade track to accommodate 286k carloads. Historically, the standard railcar hauled 263,000 pounds, but most railroads today either support or are working to support 286k capacity cars. Some high-density lines even support the new 315,000-pound capacity railcars. Class I railroads use 286k cars on major lines, which creates a problem when interchanging with the short lines. Short lines unable to meet this standard are at a disadvantage when trying to connect with the Class I carriers, as more cars must be used to haul the same tonnage. This additional carload traffic spills over to the Class Is and uses rail capacity throughout the system – not just on the short line. Upgrading track and bridges to 286k standards also provides an additional competitive advantage when competing with trucks for business.

Figure 5.2 Railroad Bridge on the Florida Central

The third most important issue potentially impacting freight rail use in Florida is the growing interest in using available track for intercity and commuter passenger services. Prior to voters overturning the Florida High-Speed Rail Authority Act in November 2004, there was serious concern about the impact high-speed rail would have on network capacity. The safety buffers required by high-speed passenger trains and the precise schedules create problems for the slower moving freight trains. Although this issue is now of less concern, there is a realization that rapid population growth is increasing the need for some form of intercity rail service and new and expanded commuter services.

Beyond these three primary issues, other items of concern identified by the interviewees include:

- **Capacity Problems –** This is not just because of track and yard capacity, but there are capacity issues because of a shortage of blue-collar workers (10 percent nationwide rail labor shortage) and shortages in rolling stock.

- **Class I Service –** The Class I railroads experienced several well-publicized service "meltdowns" recently because of unexpected increases in traffic volume. This creates problems for shippers and short lines waiting for pick-ups and equipment to be returned. The situation has improved, but this illustrates the lack of capacity in the network.

Figure 5.3 Tri-Rail Commuter Service

- **Recurring Funding Source –** There is a lack of a consistent, recurring source of public funds in Florida for rail projects. The Strategic Intermodal System (SIS) will help alleviate this issue, because railroads are part of the SIS network.

- **Southwest Florida Service –** Freight rail service to the highest population growth area in Florida is over some of the lowest quality track in the State. There is a need to move construction material and other freight into southwest Florida by rail.

- **"Bee Line" Service –** Several interviewees identified a network gap connecting Orlando and the FEC along the Bee Line Corridor. A rail link would potentially remove hundreds of daily trucks hauling construction material from the roads. This connection was explored previously, but blocked by area residents opposed to freight rail in their back yards.

- **Security Issues –** Railroads have experienced few security issues related to domestic traffic. Most of the enhanced security efforts occur at the ports and power plants. The railroads and shippers do see this changing, especially for the shipment of hazmats in light of several recent incidents in other states. It is expected that, in the near future, there will be restrictions on the routing of hazmats, increasing the transportation costs and transit times.

- **Increase Rail Competition –** It was suggested that the State take measures to promote competitive access to major railroad customers. [*NOTE: This was not suggested by a railroad!*] One specific example involved connecting CSXT and FEC in south Florida to increase competition at the rock quarries.

- **Improve Port-Rail Connectivity –** Several ports would benefit from improved rail connections (for specific projects, see Chapter 6.0 on needs).

5.2.4 Policy, Funding, and Wrap-Up

The questionnaire ended with questions concerning policy changes, potential funding sources, and any other topics the interviewees wished to raise. The following list contains the interviewee's suggestions. **Please keep in mind that these are suggestions from the interviewees, and not official recommendations of the *Freight Rail Plan* or policies being pursued by FDOT.**

- Highway, rail, and water need to be on equal footing for funding opportunities. (Note: This is being addressed for rail lines on the SIS.)

- Would like a dedicated, recurring, consistent source of funds for rail projects. Could be either a low-interest loan program or a matching grant program for capital improvements.

- A good form of public assistance is through tax relief to the railroads, or a tax credit for investments in rail infrastructure. (Note: Both of these issues are being considered at the Federal level.)

- Provide support for rail industry job training, especially terminal train masters and roadmasters. CSXT and New York State put seed money into the Glenmont Job Corp in Albany, New York, to develop a training program for new railroad workers. University of North Florida, Okefenokee, has a train conductor program with a $4,000 to $5,000 tuition fee. There is a nationwide shortage of railroad workers, and the problem is especially acute in Florida.

- Improve grade crossing safety awareness. (Train Safety Awareness Week was held near the time of the interview, but few people in the room were aware.)

- Develop a policy to encourage manufacturing plants to locate in Florida. Industrial development has been going to Alabama and Georgia.

- Designate and protect priority rail lines in Florida. Florida can build a road across a 70-mph rail mainline, but not an interstate highway.

- FDOT should become an intermodal department (air, rail, truck, and port) and not just a highway department. (Note: The SIS is a step in this direction.)

- Change policy to expedite the regulatory process of new power plants.

- The MPO process needs to be revised. They should have a pot of money available for freight rail projects.

- Florida needs an industrial rail access program.

- Florida needs to join the fight to repeal the national 4.3-cent tax on railroad diesel fuel. (Note: This was repealed by the U.S. Congress in October 2004.)

- Provide tax incentives for industries that move freight from highway to rail in congested areas.

- FDOT should try to close as many grade crossings as possible through incentives.

- The State should invest in improvements for railroad operations software that would create better schedules, assign power to trains in a more optimal way, and help dispatchers and terminal managers reduce delays.

- The State should help short lines get running authority on Class I tracks. An example is the electricity industry where the transmission lines were opened to allow competitive access. The railroads should be like a toll road, where anyone could operate their trains for a fixed price.

- Florida should explore owning, operating, servicing, or subsidizing refrigerated intermodal containers to promote perishable product shipments from Florida.

- Florida should invest in a common pool of coal hoppers that could be used by any electric utility in the State, which would help lower the cost of producing electricity.

- Florida should create a rail advisory council to foster communication between MPOs, state, communities, railroads, and shippers. There was a Freight Stakeholders Task Force, but this ended a couple of years ago.

- FDOT should aggressively go after Federal earmarks, especially for Corridors of National Significance.

- Need better support at the Federal level for a railroad workers compensation package. Is the Florida State Attorney General involved in the Federal Employers Liability Act (FELA) reform?

- Need one person at FDOT to be in charge of opening and closing grade crossings. Would like to change the current law for crossings and have one person with statutory authority on public road-rail grade crossings. Can take two years to close a single crossing.

- Florida needs to purchase more rail right-of-way. Some states have right of first refusal for any rail line being sold. In particular, the MPOs and railroads need to work together to preserve rail right-of-way.

- Florida should protect existing railroad infrastructure. For example, they could buy the bridge over the Intracoastal Waterway used to access Fernandina Beach. Florida should look to the Delaware Shellpot Bridge example where the State of Delaware bought and rehabilitated a rail bridge into the Port of Wilmington and charges a toll for every railcar. Florida could develop a series of toll rail facilities.

- CSXT has clearance problems along the I-95 corridor. They can't run multilevel auto cars or double-stack containers through tunnels in Maryland and Washington. The State should become involved in the Mid-Atlantic Rail Operations effort. Similarly, capacity problems in St. Louis impede the ability of western coal to serve Florida power plants.

- Florida needs to separate freight and passenger trains as much as possible. There should be an investment in key freight lanes to free other lines for intercity and commuter rail.

- Florida needs a strategic plan the railroads can buy into.

5.3 CSXT Strategic Plan for Florida

With connections to every railroad in the State, Florida's largest railroad, CSXT, is the backbone of rail transportation. Consequently, major shifts in CSXT's strategic direction pose major policy implications for all of Florida's railroads.

5.3.1 "State of Florida & CSXT: Building for the New Economy"

CSXT currently is in the process of developing a strategic plan for their 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 system in Florida. This is a summary of the presentation entitled "State of Florida & CSXT: Building for the New Economy."

The presentation consisted of three main sections: national context; Florida context; and strategic synergies.

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.

The $80 billion investment would go toward rail capital improvements, such as:

- Increased mainline capacities;
  - Eliminate single tracks,
  - More and longer sidings, and
  - Improved signals.
- Higher clearance tunnels;
- Larger intermodal facilities; and
- Heavier bridges.

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

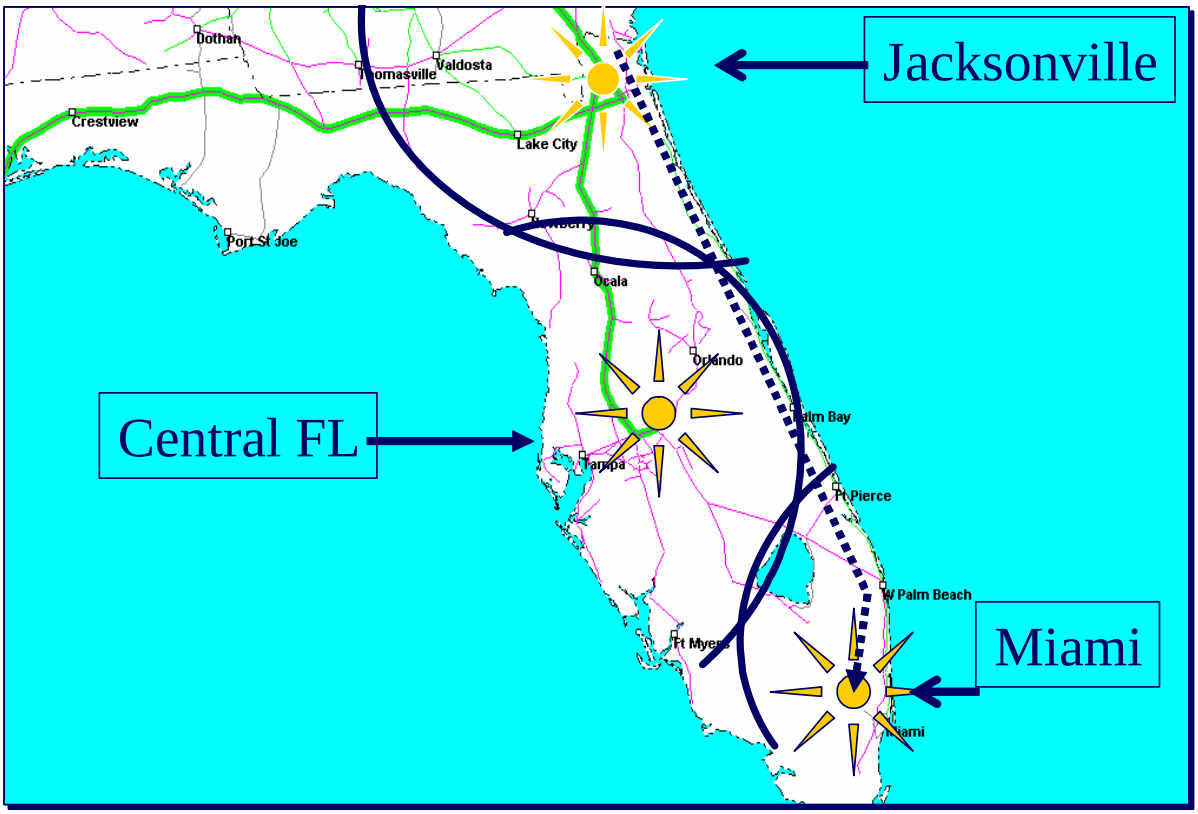
Florida is clearly a growth market. The population is growing at twice the national average and it is projected to surpass New York and become the third most populous state by 2030. Florida also represents the "New Economy" with one in five Floridians working in retail. The State ranks fourth in high-tech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

CSXT wants to position their 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 5.4 Key Florida Markets



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

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

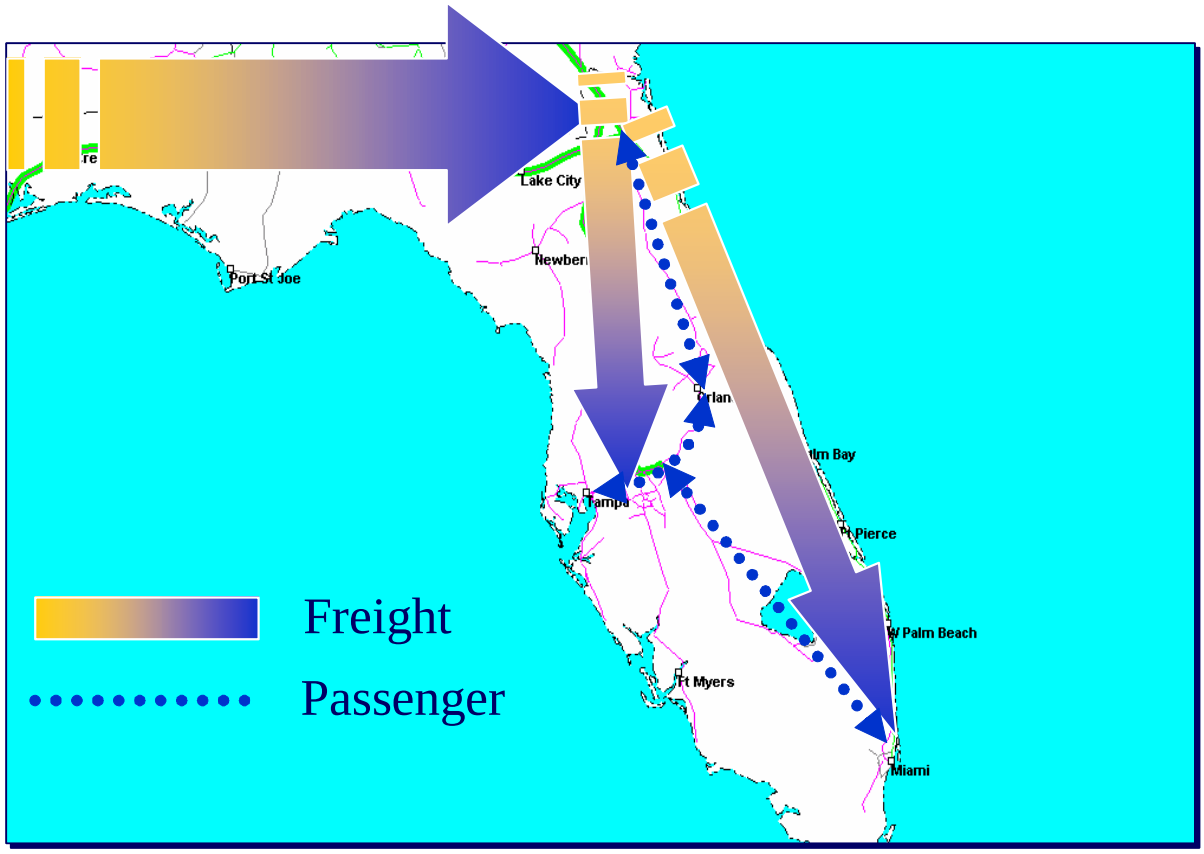
CSXT's purpose is to make rail competitive in the "New Economy." The method to achieving this is through the development of multiple multiproduct, multicommodity distribution centers in the State. These would be:

- Located near sizable markets;
- Have good access to highways;
- Be on high-capacity core rail routes (providing safety, consistency, velocity, frequency, and low costs);
- Be developed with public and government support (benefits shippers and highway users); and
- Require sizable land acquisition (to promote efficient freight rail activity and to allow for warehouse and other value-added activities relocating near the distribution center).

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 5.5.

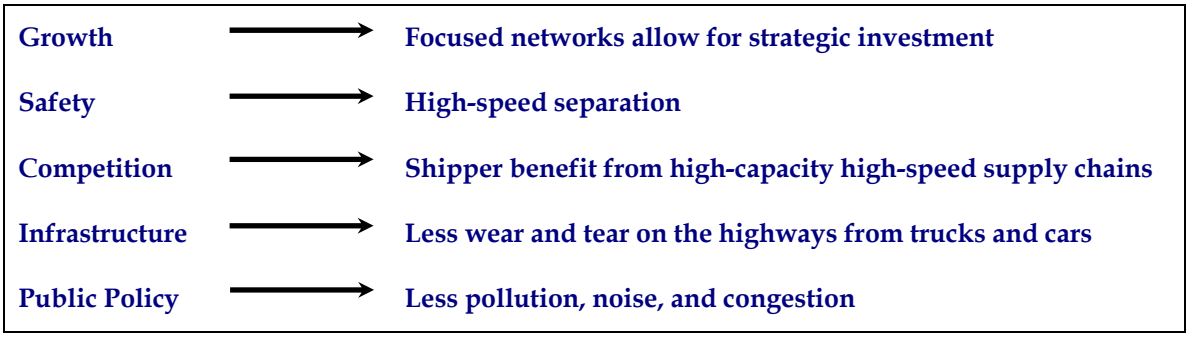
Figure 5.5 Combining State and CSX Transportation Freight/ Passenger Strategies Might be Synergistic



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

There also are synergies in growth, safety, competition, infrastructure, and public policy, as shown in Figure 5.6.

Figure 5.6 State, Public, and CSX Transportation Benefits



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

5.3.2 Implications for Florida Rail Service

Figures 5.4 and 5.5 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. 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. The map also shows concentrating Southeast Florida freight on the FEC line, which fits with the FEC strategy of double tracking their network. Reducing freight volumes on the CSXT Orlando-Miami route also would create more capacity for intercity passenger service.

It is difficult to know CSXT's intentions or plans, but the presentation on December 3 appears 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 their national network, with a 300-mile section in Indiana being the largest sale to date.

5.4 National Trends and Issues

Most of the trends impacting the use of freight rail in Florida, positively or negatively, were identified through the interviews and discussed in Chapter 4.0, and Section 5.2 of this chapter. The following are a few additional trends and issues from a national perspective, and further expansion on some topics already discussed. These are grouped by: changing customer needs; new operations and technology; safety; security; and initiatives of regional and national significance.

5.4.1 Changing Customer Needs

Railroads today are a progressive industry adopting new technology and responding to dynamic customer needs. This section discusses the changing needs of railroad customers and how the railroads are responding.

Just-in-Time Delivery

Shippers argue for more rail competition, but most railroads face severe competition from the trucking industry. Railroads must continually improve to retain current customers and attract new business, just to maintain current modal share. Much of this is driven by customer demands for faster and more reliable freight service, especially to support just-in-time production.

The cost of holding inventory often approaches, and in some cases exceeds, the transportation costs. Therefore, many companies can justify the expense of a premium transportation service supporting just-in-time delivery from the savings in inventory carrying costs. The auto industry, for example, will often operate with only a few minutes of inventory and any disruption in the supply chain will cause an assembly plant to shut down. Wal-Mart has invested heavily in their logistics system and attempts to purchase products, deliver to stores, sell products, and deposit the money before the manufacturer's invoice for the product is due.

The railroads have responded by:

- Offering premium guaranteed on-time intermodal and carload service on lanes connecting numerous major U.S. markets;
- Offering seamless, nonstop express service for time-sensitive premium intermodal and perishable freight (as illustrated by the Tropicana orange juice trains);
- Shifting from a traditional tonnage-based operating strategy (wait until the trains are full) to a schedule operating plan (even if this means running less-than-full trains); and
- Implementing many customer services on the Internet to reduce costs and time and to make car ordering, tracing, pricing, and billing easier for the customer.

Real-Time Tracking and Shipment Visibility

The pressure of just-in-time delivery and the ease with which small packages from Federal Express and UPS can be traced on the Internet have lead many customers to expect accurate and timely shipment tracking information for all goods movement. Real-time tracking also provides an added measure of security for high-value goods.

Most railroads now offer the ability to track shipments on the Internet. There also are third-party companies that offer rail shipment tracking software and services. These include Railinc, Transentric, and Kleinschmidt, and products such as e-Tracker.

Larger Unit Shipments (Heavier-Axle Loads, Higher Clearances)

The cost to operate a train includes both a fixed component (locomotives, stations, track maintenance, administrative, etc.) and a variable component (fuel, etc.). To lower the fixed cost per unit, railroads try to maximize the amount of goods that each train hauls. Because many variable costs are not strictly linear, more efficient railcar loading also can lower per unit variable costs. This can be accomplished in three ways:

1. Loading more into each car. Maximum car hauling weights have climbed from 263,000 pounds to 286,000 pounds, and even 315,000 pounds. This requires upgrades to track and bridges to carry the weight.

2. Increasing the height of the trains for stacked containers and assembled autos. The problems are restricted heights at tunnels, road overpasses, and electric lines.

3. Adding extra cars onto a train, but this requires longer sidings on single-track segments.

Global Trading Needs

Global trading has been part of society for centuries, mostly driven by the desire to obtain goods not available locally. This is still true today, but differences in labor rates and prices and improvements in communication have created enormous growth in global trading. Railroads play a critical role in the global trading supply chain by providing service between U.S. entry/exit points and inland locations. All major ports have rail service to handle intermodal and bulk commodities. A port without rail service is at a severe disadvantage.

Seamless Multimodal Goods Movement (Intermodal Terminals and Highway Access)

A strong national freight network must support the strengths of all modes of transportation. Ports and airports are required to support international trade. Barges and pipelines provide low-cost transportation for high-density bulk movements. Trucks provide individual service and are often the critical link into a customer's facility. Railroads provide efficient, low-cost long-haul service and even short-haul service in certain high-density corridors. To take full advantage of each mode, it is necessary to build efficient intermodal connectors that support the seamless movement of goods.

Shippers rarely care how something is shipped – they just want the lowest priced, most reliable service. In many cases, shippers are unaware of how something is shipped and rely on the carriers or third-party logistics providers to make the arrangements.

One trend is a growth in truck-rail partnerships. Unless a rail move is "door to door," it begins or ends with a truck move. This could involve the transfer of an intermodal container or the transfer of bulk and carload commodities via transload or transflow operations. Rail and trucking companies are partnering to provide integrated door-to-door intermodal services that optimize the relative strengths and efficiencies of each mode. The chairman of the nation's largest truckload carrier states, "Rail is low cost where there is

sufficient density on a lane. This is fundamentally a fact of life. Let's make [rail and truck] technologies work together and use them where appropriate. We have worked with our rail partners very effectively."[4]

5.4.2 New Operations and Technology

This section examines several of the latest operations and technological advances that are reshaping the rail industry. These advances have the potential to make rail transportation more efficient, cost-effective, and attractive to shippers and passengers.

Scheduled Railroading

Freight railroads have historically run tonnage-based operating plans. Under this plan, a train is held in a yard until full, then it is dispatched. This strategy attempts to maximize equipment and crew utilization and was viewed as leveraging the economies of scale provided by trains. While this was, and remains, a good strategy for bulk goods like coal and aggregates, it has proven to be a poor strategy for most other goods. One reason is that is creates significant variability in customer delivery times, leading to the poor service reputation of the railroads. Another reason is that it reduces capacity because train meets and passes can occur at different times and locations every day.

All North American Class I railroads have now switched most of their services to run on a scheduled operating plan. Canadian Pacific Railroad (CPR) was one of the first to adopt scheduled railroading, and surprisingly have overturned the old paradigm that tonnage-based plans are more efficient. They have attributed more than $500 million (Canadian) in annual operating costs savings to their scheduled operating plan. These savings are because of the ability to better manage crews and equipment, and better execute the plan through daily repetition. In addition to cost savings, running on a schedule has allowed CPR to recapture traffic from the trucks. This new operating plan has allowed CPR to "think and act like truckers" according to one vice president.[5]

CSXT, NS, and FEC have all adopted the scheduled railroading philosophy and are continuously working to improve schedules and service.

Positive Train Control

Positive train control comprises several technologies that provide improved operating safety and maximum utilization of track capacity. The technology includes global positioning systems (GPS) and communications for tracking train locations in real-time, information displays for train engineers, remote control of switches, and the ability to

[4] Don Schneider of Schneider National, quoted in *Traffic World*, November 19, 2001.

[5] "How CPR Defines Scheduled Railroading," *Railway Age*, September 2003.

remotely override train throttle and brake controls when necessary for safety. These control systems can significantly reduce the possibility of train collisions and derailments; avoid injuries to train crews, passengers, right-of-way maintenance workers, and bystanders; and can avoid the significant economic costs that such incidents incur.

In addition to the safety benefits, positive train control offers benefits of more reliable train travel times, reduced delays at sidings and junctions, improved operating efficiency, and increased track capacity. This technology has been available for nearly 10 years, but railroads have been slow to implement it on existing routes because of its high cost, long payback time, and difficulty in quantification and allocation of costs to beneficiaries. However, the freight railroad industry (through the Association of American Railroads or AAR), the FRA, Amtrak, and others are now working collaboratively to establish a positive train control system that is acceptable to all parties and conducive to higher passenger train speeds as well as increased operating safety. CSXT, for example, is testing a scaled-down version of positive train control known as CBTM.

Short-Haul Intermodal

The rule of thumb is that rail cannot compete with trucks at a distance of less than 500 miles. Short-haul intermodal services are breaking this rule. The concept is to use rail as a shuttle between high-density origin-destination pairs as an alternative to truck drayage movements, at distances of even less than 100 miles. Perhaps the most successful and highly publicized effort is the Alameda Corridor, which is used to move containers from the Port of Long Beach, California, to the area's rail yards, thereby eliminating the need for thousands of truck drayage movements. A unique feature of the Alameda Corridor is the implementation of a per container toll to pay for the project. Other areas also are considering short-haul intermodal as a means of moving containers in and out of congested areas.

Grade Crossing Technology

Collisions between trains and highway vehicles at grade crossings are one of the major preventable causes of injuries involving railroads, and the primary rail issue identified during a series of interviews throughout the State of Florida. Researchers continue to improve the effectiveness of warning systems for motorists and to ensure that motorists heed the warnings. The developing technology includes:

- Four-quadrant gates and median barrier systems to discourage motorists from driving around grade crossing gates;

- Wayside horn systems to improve the audibility of horn warnings while minimizing noise pollution impacts to nearby residents;

- Resilient barrier systems to physically prevent highway vehicles from crossing the railroad right-of-way; and

- Constant-warning-time predictors, so that crossing gates and other warnings are activated within a fixed interval of time (20 to 30 seconds) before the train arrives, regardless of how fast the train is going (and thereby reducing the tendency or opportunity for motorists to ignore warnings and cross in front of a train).

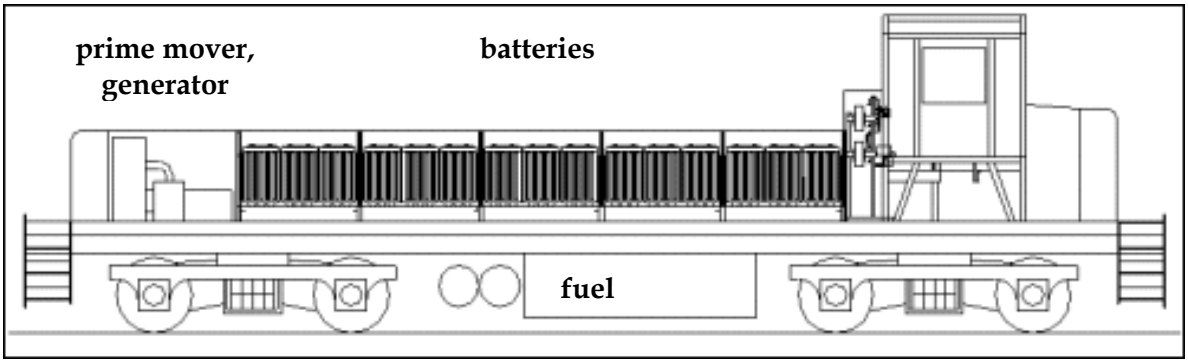
Like other technology advances, grade crossing improvements have been implemented at only a gradual pace. Investment costs are high, the payoff period is long, and it is difficult to quantify or allocate costs among the beneficiaries.

Green Goat[6]

RailPower Technologies, a Vancouver, British Columbia, company, has developed a new, more efficient diesel locomotive. The Green Goat 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. The batteries are kept charged by a small generator driven by a diesel prime mover. While the diesel only runs as required to keep the batteries to the desired state of charge, power is always available without delay from the batteries. During the periods when it is running, it runs at a constant speed and can be tuned to be very efficient. The result in comparison to a conventional diesel-electric switcher is a much quieter and more efficient locomotive that produces much less pollution.

The Green Goat's appearance also is different. It has excellent visibility in all directions and a bank of batteries under a long hood. The heavy batteries provide the necessary weight to give the locomotive good traction. (See Figure 5.7.) The FEC and other railroads have been evaluating the Green Goat.

Figure 5.7 Diagram of the Green Goat



Source: From a RailPower Technologies diagram.

[6] Adapted from: http://www.trainscan.com/news/scan/s0110/.

Right-of-Way Maintenance Advances

Technological improvements in track design – such as welded rail, rail fastening methods, ties, switches, and crossovers – have resulted in reduced wear and tear on tracks and equipment. At the same time, new right-of-way maintenance technology – for tie changing, ballast cleaning, vegetation control, etc. – has increased the productivity of maintenance crews and increased usable track capacity by decreasing maintenance downtime. These advances result in direct economic benefit to the railroads.

5.4.3 Safety

The U.S. rail industry has cut its overall train accident rate 65 percent between 1980 and 2003.[7] The rate of employee casualties has been reduced 76 percent during that time, with 2003 being the lowest rate on record. Railroads today have lower employee injury rates than other modes of transportation and most other major industry groups, including agriculture, construction, and manufacturing. Railroads are far safer than trucks, incurring an estimated one-fifth of the fatalities that intercity motor carriers do per billion ton-miles of freight moved.

One way the rail industry is working to aggressively improve safety is application of fatigue countermeasures. Efforts made at some railroads include changes in work schedules, provisions for on-duty napping, sleep disorder screening, improvements to crew rest facilities, returning crews home rather than lodging them away from home, running more scheduled trains and groups of trains, providing predictable calling windows, and fatigue education programs for employees and their families.

- The most serious railroad safety problems are because of trespassers, highway-rail grade crossing collisions, or pedestrians improperly using the grade crossings. In 2003, these categories accounted for 96 percent of rail-related fatalities. The railroad industry continues to educate the public about the need to exercise great care at highway-rail grade crossings and the dangers of trespassing on railroad property.

Other safety concerns that are not addressed in the above numbers include safety of neighbors in the event of the spill of hazardous cargo. Despite the recent tragedy in South Carolina, railroads are the safest way to transport hazmats. Railroads and trucks haul nearly equivalent amounts of hazmat ton-miles, but trucks have nearly 16 times more hazmat release. Although incidents are rare, the number of people who could be affected by any given incident is high, so these are public policy concerns. The principal efforts to address this issue include new freight cars to provide better protection of dangerous cargos, and improved maintenance and inspection to avoid derailments and crashes.

[7] Material in this section drawn from Association of American Railroads, "Railroads: The Safe Way to Move," July 2004.

Among the groups working to improve rail grade crossing safety is Operation Lifesaver, which seeks to prevent injuries and fatalities at highway-rail grade crossings and to prevent injuries and fatalities to those who trespass on railroad property. Operation Lifesaver educates both drivers and pedestrians to make safe decisions at crossings and around railroad tracks. Additionally, the nonprofit organization promotes active enforcement of traffic laws relating to crossing signs and signals and private property laws related to trespassing, as well as encouraging continued engineering research and innovation to improve the safety of railroad crossings.

The rail industry supports (from AAR):

- Eliminating (through overpasses or underpasses) the 4,500 grade crossings on the 160,000-mile national highway system and on all high-speed rail routes;
- Adopting a uniform national grade crossing closure process, combined with a freeze on the overall number of grade crossings within each state;
- Increasing dedicated public funding for grade crossing warning device upgrades;
- Expanding funding for Operation Lifesaver, an organization that increases public awareness of dangers of grade crossings; and
- Enhancing traffic law enforcement at crossings.

5.4.4 Security

The attacks of September 11, 2001, and the train bombing in Madrid, have necessitated increased safety and security measures to prevent terrorist from disrupting or using the nation's freight system. The freight railroads have been on heightened alert since that time. In response, The Board of Directors of AAR – comprised of the CEOs of North America's major freight railroads and Amtrak – developed a set of security mandates.[8] Five critical action teams were established to scrutinize different aspects of the railroad system:

- Hazmats;
- Operations;
- Infrastructure;
- Information technology and communications; and
- Military movements.

[8] Adapted from the Association of American Railroads Internet site at: http://www.aar.org/Rail_Safety/Rail_Security_plan.asp.

Their analysis examined and prioritized all railroad assets, vulnerabilities and threats, and then identified countermeasures. Using national intelligence community "best practices," the Railroad Security Task Force developed a comprehensive risk analysis and security plan that includes:

- A database of railroad critical assets;
- Assessments of railroad vulnerabilities;
- Analysis of the terrorism threat;
- Calculations of risk;
- Identifications of countermeasures to reduce risk;
- Definition of alert levels;
- Delineation of actions to be taken at each alert levels; and
- Functions of the AAR operations center and railroad alert network.

Specific actions that have been taken by the railroads include:

- Increased employee security awareness and training to ensure that more than 200,000 railroad employees became the eyes and ears of the railroad industry's security;
- Compared employee records to Federal Bureau of Investigations (FBI) terrorist lists;
- Created new position of Executive Director of Security at AAR;
- Established a 24/7 AAR operations center to coordinate industry-wide rail freight security;
- Increased tracking and inspection of certain hazmat and munitions movements;
- Increased security of railroad physical assets;
- Increased random inspections;
- Conducted spot identification checks;
- Increased coordination with Military Transportation Management Command;
- Increased cyber security procedures; and
- Implemented encryption technology for selected data communications.

Through AAR, freight railroads remain in constant communication with the U.S. DOT security personnel, the FBI, the National Security Council, and state and local law enforcement officers. The industry also has in place plans to respond immediately to any threats to our transportation network.

In addition to the terrorist attacks, railroads and their customers have long been targets of more conventional crimes, including larceny, robbery, shipment of stolen goods or contraband, and theft of services. The procedures outlined above will help to reduce these acts, too.

5.4.5 Initiatives of Regional and National Significance

There are several ongoing, large-scale studies of regional and national significance that could impact freight rail service in Florida. These include the Mid-Atlantic Rail Operations Study (MAROps) and Chicago Region Environmental And Transportation Efficiency Program (CREATE).

Mid-Atlantic Rail Operations Study

The Mid-Atlantic rail system is presently constrained by significant choke points that must be eased if the region's increasing demands for passenger and freight movements are to be met. 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 (NS, CSXT, and Amtrak). It 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. This 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. The total estimated cost of these improvements is $6.2 billion dollars (2002 dollars). However, neither the railroads nor the states can bear the financial burden of these improvements entirely on their own.

Although this study focused on the five participating states, the Mid-Atlantic region is an integral part of the entire eastern seaboard. Rail improvements in the Mid-Atlantic region, or the lack thereof, directly affect states from Florida to New England as well. As a prime example, CSXT is unable to run double-stack containers trains or tri-level auto racks on their track parallel to I-95 because of height restrictions in Washington and Maryland. Elimination of these restrictions would benefit Florida by removing trucks from I-95, and enhancing the competitiveness of Florida ports importing and exporting containers and autos.

Chicago Region Environmental and Transportation Efficiency Program

CREATE was conceived as a package of critically needed improvements to the Chicago region's rail infrastructure. Physically, CREATE calls for rationalization, reconstruction, and upgrade of five cross-town corridors in Chicago: Belt Railway East-West Connector, Union Pacific (UP)/CSXT/NS Western Avenue Corridor, CSXT/Indiana Harbor Belt Beltway Corridor, Metra South West Service Passenger Express Corridor, and a new Central Corridor connecting Canadian National (CN)-Wisconsin Central with Eastern

Class Is. The project is being advanced by a consortium consisting of the Illinois DOT, Chicago DOT, the six largest North American Freight Railroads (UP, BNSF, NS, CPR, CN, and CSXT), and Metra, Chicago's regional passenger railroad.

Despite the fact that this project is about 1,000 miles from Florida, its impacts will be felt across the nation. It will improve throughput and reduce congestion at the nation's largest rail hub. It will reduce delays and lower transit times. It will lower logistics costs for shippers. It will free equipment, increasing capacity in the entire system. It has been projected that besides Illinois, the states most impacted by create will be California and New Jersey. CREATE also will impact Florida, especially on shipments to and from the Midwest, Upper Great Plains, Pacific Northwest, and Western Canada regions.

5.5 Florida Railroad Suppliers

In addition to railroad companies, shippers, and ports, Florida is home to a number of important suppliers of railroad industry products, services, and technology. The railroad supply industry has historically been very fragmented with many small, specialized companies offering narrow ranges of products and services. Beyond product specialization, the geographically dispersed nature of the rail industry has led many supplier companies to become regionally focused. Railcar repair shops, for example, tend to be scattered throughout the United States because damaged railcars must often undergo repair before they can be safely moved. Railroad suppliers tend to position their operations close to railroad operating hubs and headquarter facilities.

Recently, the railroad supply industry has undergone significant consolidation – a trend that is expected to continue. Nevertheless, there continue to be many small companies throughout the United States in addition to larger holding companies with subsidiary or divisional offices. Several of these major railroad supply companies either are headquartered or maintain major operations within Florida. As a result, Florida is a significant exporter of rail products and services to other parts of the United States and, in some cases, to the rest of the world. Figure 5.8 illustrates the breadth and depth of these Florida suppliers' operations.

Many of these Florida-based suppliers develop and produce high-tech products and are located in regions targeted by the State for economic development. As such, FDOT may have opportunities to work with other state agencies to promote the advancement of the railroad supplier industry within Florida.

Figure 5.8 Florida Railroad Industry Suppliers

Category/Company	Location(s)	Freight Car Repair	Locomotives – New, Rebuilt, Repairs	Passenger and Transit Car	New Freight Car	Major Freight Car Components	Oil and Hazardous Materials Clean-Up Contractors	Railroad Construction and Suppliers	Manufacturers	Special Services
American Equipment Company	Boca Raton									■
Appalachian Railcar Services, Inc.	Palatka	■								
Balfour Beatty Rail Maintenance, Inc.	Jacksonville							■		
Bergman Associates	Fort Lauderdale							■		
C.K. Industries, Inc.	Deland									■
Compressed Air Systems, Inc.	Tampa								■	
Crossties of Ocala, Inc.	Ocala							■		
DeAngelo Brothers, Inc.	Jacksonville							■		
Ecology & Environment, Inc.	Miami Lakes, Pensacola, Tallahassee						■			
Ecotrans Technologies, LLC	Jacksonville		■							
Exemplar International	Sarasota									■
FGE Fruit Growers Express	Jacksonville	■								
GATX	Lake City	■								
GE Transportation Systems, Global Signaling, LLC	Melbourne							■		■
GEOFOCUS, LLC	Boca Raton			■						■
GFA Rail Services, Inc.	Arcadia, Bradenton, Fort Myers, Mulberry	■								
Global Welding and Fabrication Services, Inc.	Clearwater	■		■						■
Haynes Corporation	Naples								■	
Hulcher Services, Inc.	Jacksonville, Tampa						■	■		
Industrial Environmental Coatings Corporation	Pompano Beach								■	
JBM, Inc.	Jacksonville	■				■		■	■	■
Molex, Inc.	Pinellas Park								■	
Mulberry Railcar Repair Company	Mulberry	■								
POHL Corporation	Jacksonville							■		
Professional marine Consulting	Jacksonville							■		■
Professional Railroad Placement Services, Inc.	Plymouth									■
Quantum Engineering, Inc.	Orange Park								■	
R.J. Corman Derailment Services	Starke							■		
Rail Trusts Equipment, Inc.	Jacksonville		■		■					
Railway Marketing Corporation	Crystal River					■				
RESCAR, Inc.	Lakeland, White Springs	■								
Shaw Environmental and Infrastructure, Inc.	Alpharetta, Clermont, Miami						■			
The EZ Street Company	Miami							■		
Touchton Air Brake Company, Inc.	Jacksonville					■			■	
True Temper Railway Appliances	Lake Suzy								■	
TTX Company, Acorn Division	Jacksonville	■								
Ultra-Tech Enterprises, Inc.	Punta Gorda								■	
UltraTech International, Inc.	Jacksonville								■	
Union Tank Car Company	Mulberry	■								
United Window & Cab Corporation	Tarpon Springs								■	
Velcorp/GEMS	Jacksonville								■	
WATCO Companies, Inc.	Jacksonville	■	■		■	■				■
Witherow Locomotive Service, Inc.	Plymouth		■							
Xenotronics	Alamonte Springs								■	
Total Number										
44	71	11	4	2	2	4	3	11	13	10

Source: *The Railroad Directory USA, Canada, and Mexico*, 2003 Issue, Volume 27.

6.0 Florida Freight Rail Needs Assessment

This section presents short- and long-term freight rail needs in Florida. This assessment is based on data provided directly by Florida's freight railroads, ports, and major shippers. In total, this needs assessment identifies 87 short- and long-term capital improvement projects and other initiatives valued at $781.5 million, from 2004 to 2025.

6.1 Purpose

The primary purpose of the needs assessment is to develop a comprehensive list of necessary and desired freight rail improvements, allowing FDOT to gauge the condition of the system and assess potential public involvement. Railroad needs, for the purposes of this rail plan, are defined as unconstrained capital needs and do not include operating expenses or subsidies. A need is a need regardless of whether it is privately or publicly funded or remains unfunded. Inclusion of a need in the *Florida Freight Rail Plan* does not constitute a commitment on the part of FDOT or the State of Florida to provide funding. Thus, the needs included in this assessment should be considered "unconstrained" needs that have no funding commitments. FDOT will review and evaluate these needs when determining appropriate levels of public support.

This document also does not include all freight rail needs. The freight railroads are private, for-profit businesses and in some cases did not submit all their capital needs for inclusion in this public document. This is especially true in cases where private capital is available to fully fund planned improvements, where the railroads believe that public involvement in specific projects is less likely, and where disclosure of a need could adversely affect strategic plans. It also should be noted that because of current strategic planning and rationalization processes at CSXT, not all CSXT needs have been identified by the railroad. It is anticipated, given CSXT's preliminary strategic direction and upgrading of the "S Line," that these needs may well total hundreds of millions of dollars.[1]

[1] "CSX Submission for the Florida Strategic Intermodal System," was provided to FDOT in April 2005. This document contains $328 million in needs, though it does not contain cost estimates for future terminal expansion which CSX claims **"will likely be the most expensive"** part of the plan to move more long haul truckloads by rail. This report was received too late to incorporate into this Chapter 6.0. It is, therefore, summarized in Addendum 1.

6.2 Methodology

Data collection for the needs assessment relied principally on project information supplied by the freight railroads, ports, and major shippers and receivers throughout the State. Beginning in May 2004, interviews were conducted with railroads, ports, and shippers/ receivers to collect needs information. Most of the interviews were conducted in person, several were conducted by telephone. During each interview, the participating railroad, port, or shipper/receiver was provided with a Stakeholder Outreach Questionnaire to establish each participating organization's view on a number of different rail policy issues and to identify specific needs on the current rail network. Part 5 of the Questionnaire asked the participants to provide a detailed list of needs, including project name, project description, project location, estimated project costs, project timeframe, description of why it is necessary, and anticipated benefits. Participants were asked to divide needs into short-term (five years or less) and long-term projects (25 years or less). Finally, the Questionnaire invited participants to include any type of capital need, including infra-structure, new technology deployment, rail marketing, safety, security, changing customer requirements, etc.

In addition to the railroads, ports, and shippers interviewed to collect needs data, several other organizations were asked to contribute needs or provide supporting information related to needs. These organizations contributed to the freight rail needs assembly by providing studies, background information, and other important documents, some of which were directly related to freight rail needs and were consequently integrated into the needs list. Those organizations included state and regional public agencies (including FDOT) and the Florida Railroad Association. Table 6.1 lists the participants who submitted needs in this data collection effort.

Table 6.1 Participating Organizations Submitting Needs

Category	Organization
Railroads	• Alabama and Gulf Coast (AGR); • AN (AN); • Bay Line (BAYL); • CSX Transportation (CSXT); • Florida Central/Midland/Northern (FCEN/FMID/FNOR); • Florida East Coast (FEC); • Georgia and Florida RailNet (GFRR); • Norfolk Southern (NS); and • South Central Florida Express (SCXF).

Table 6.1 Participating Organizations Submitting Needs (continued)

Category	Organization
Ports	• Jacksonville Port Authority (JaxPort); • Port Everglades; • Port Manatee; • Port of Miami; • Port of Palm Beach; • Port of Pensacola; • Port of Panama City; and • Tampa Port Authority.
Shippers	• Florida Rock; and • Tropicana.
State and Public Agencies	• Florida Department of Transportation (FDOT); and • South Florida Regional Transit Authority (Tri-Rail).
State Stakeholder Organizations	• Florida Railroad Association.

Once assembled, the initial list of needs was supplemented with additional projects identified through existing studies and documents, including the Florida SIS project, metropolitan and local public planning documents, and several engineering studies commissioned by the railroads. After additional projects were added to the initial list needs, the needs were recirculated to the participating railroads and ports to verify the final list of needs and to remove any redundant projects. During the verification process, the railroads and ports were asked to identify additional information on the needs, including the potential benefits of the investment to economic sectors of the economic analysis portion of the rail plan (agriculture and food; automotive; construction; energy; intermodal and international; paper; and phosphates and fertilizers).

6.3 Findings

Approximately $782 million dollars in needs were identified on the Florida freight rail system through this needs assessment. The unconstrained needs included in this assessment are divided into five categories based on the type of project. Each need is assigned only one category designation based on the type of category that most closely fits the nature and intent of the need. There are projects that could be assigned to multiple categories, but in this needs assessment they are limited to one category. The following table presents the total needs by category and briefly defines each category type.

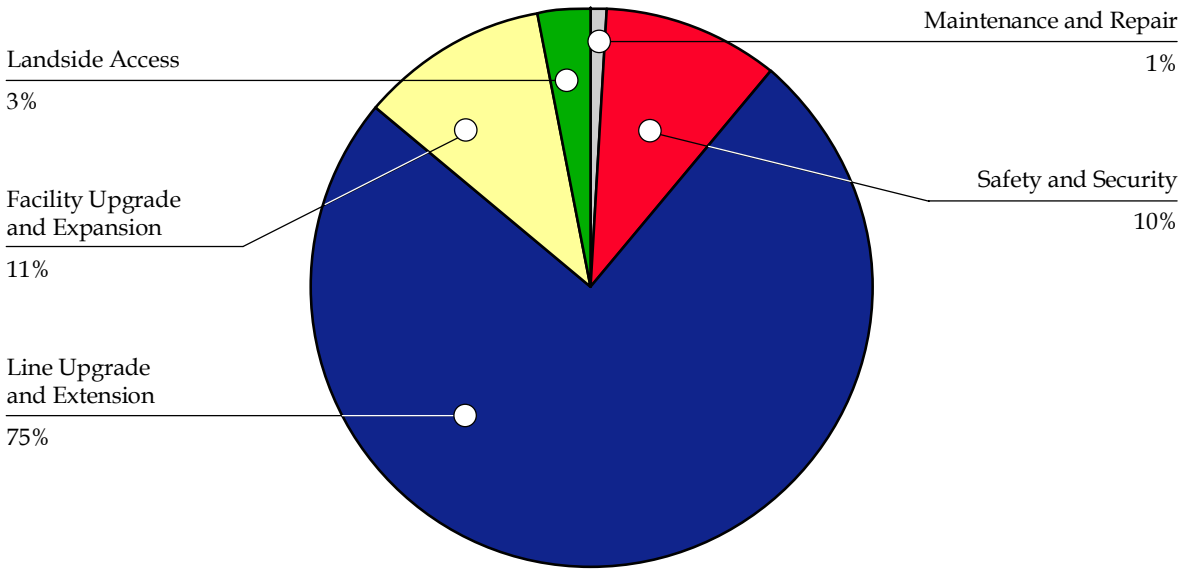
Table 6.2 Freight Railroad Needs by Category

Thousands of 2003 Dollars

Category	Total Needs	Category Description
Maintenance and Repair	$7,805	Projects associated with line and structure maintenance, including bridge rehabilitation, track and tie replacement, resurfacing, and repairs to signs and signals.
Safety and Security	79,300	Projects that enhance safety and security of freight transportation, including grade crossing improvements, grade separation projects, signal upgrades, etc.
Line Upgrade and Extension	583,230	Projects that increase the capacity of the freight rail network, including double-track projects, line extensions, and upgrades to accommodate 286k railcars, etc.
Facility Upgrade and Expansion	83,025	Projects that increase the capacity of freight rail facilities, including expansion of intermodal rail facilities and yards, enhanced connectivity and crossovers, and the construction of new facilities and yards.
Landside Access	28,150	Projects that enhance landside access, including intermodal ramps and truck access to railroad terminals.
Total	**$781,510**	

The category with the greatest needs total is Line Upgrade and Extension, comprising nearly 75 percent of the total needs. The next two categories are Facility Upgrade and Expansion and Safety and Security, representing approximately 11 percent and 10 percent respectively, of the total needs. The Landside Access and Maintenance and Repair categories have the lowest needs totals, comprising approximately three percent and one percent of the total needs, respectively. Figure 6.1 graphically illustrates the allocation of the needs by category type.

Figure 6.1 Freight Railroad Needs by Category



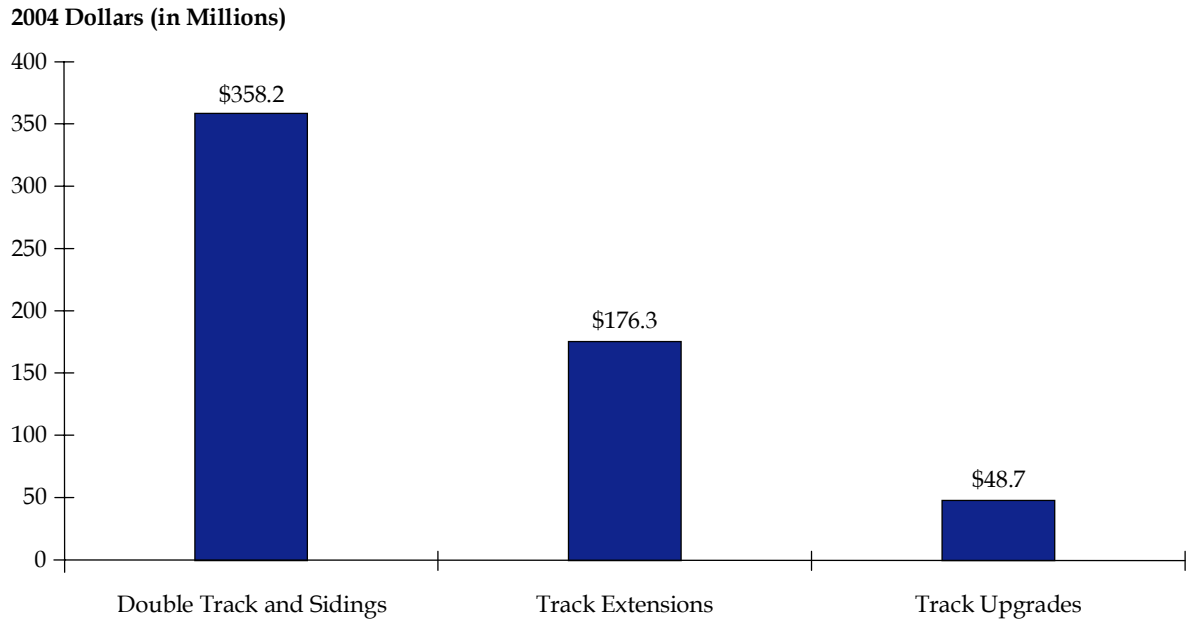
The following paragraphs discuss some of the principal projects of each category. The categories are presented in order of highest to lowest total needs, beginning with Line Upgrade and Extension.

6.3.1 Line Upgrade and Extension

Line Upgrade and Extension needs are those projects related to capacity improvements on Florida's freight rail network. The specific types of projects included in this category are double tracking and sidings on existing lines; new lines and line extensions; track and structure upgrades to accommodate heavier (286k) railcars; and any other improvement that increases the volume of freight that can be moved through a rail corridor. It is helpful to think of this category as those projects that increase capacity on the *lines* of the network as opposed to the subsequent category, Facility Upgrade and Expansion, which consists of projects that increase capacity at the *nodes* of the network.

The following histogram illustrates the distribution of specific project types within the Line Upgrade and Extension category.

Figure 6.2 Line Upgrade and Extension
Subcategory Needs



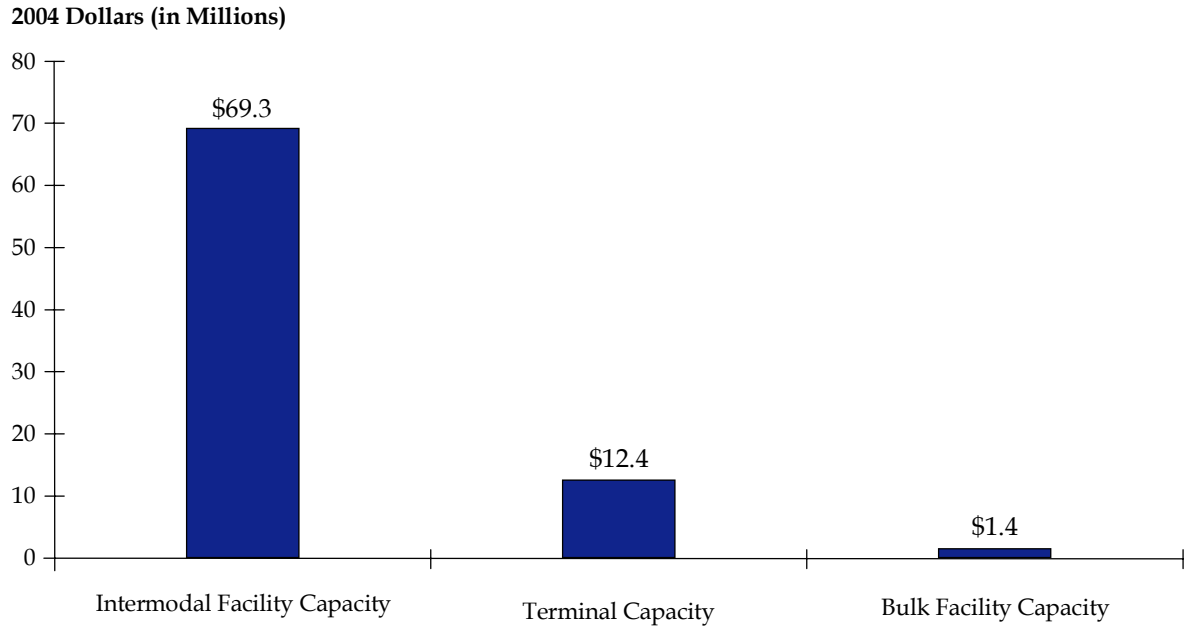
The single largest need identified in the Line Upgrade and Extension category is double-track and siding improvements, with nearly $360 million proposed. FEC and CSXT needs comprise the majority of the $358 million, including a series of double-track projects between Jacksonville and Miami on the Florida East Coast and additional line capacity between Lakeland and Callahan on CSXT's "S Line" and between Pensacola and Jacksonville on CSXT. Line extensions, including the proposed east-west CSXT route[2] and GFRR dolomite extension in the "Big Bend" region are the two largest line extension initiatives. Several smaller line extension needs also have been proposed, including a new extension of FEC to serve Florida Rock. Finally, several Florida short lines have identified needs related to upgrading track to accommodate 286k railcars. These upgrade needs total nearly $50 million.

6.3.2 Facility Upgrade and Expansion

As mentioned above, this category includes those improvements that increase the capacity of Florida's freight rail network at its *nodes*. These nodes include important junctions or terminals in the rail network, including yards and ports. Most of the approximately $82 million in identified needs in this category is related to the expansion and improvement of rail yards and terminals. Figure 6.3 depicts the major expenditures identified in this category.

[2] Note: The CSXT east-west route was submitted as a need by a shipper, not the railroad.

Figure 6.3 Facility Upgrade and Expansion
Subcategory Needs

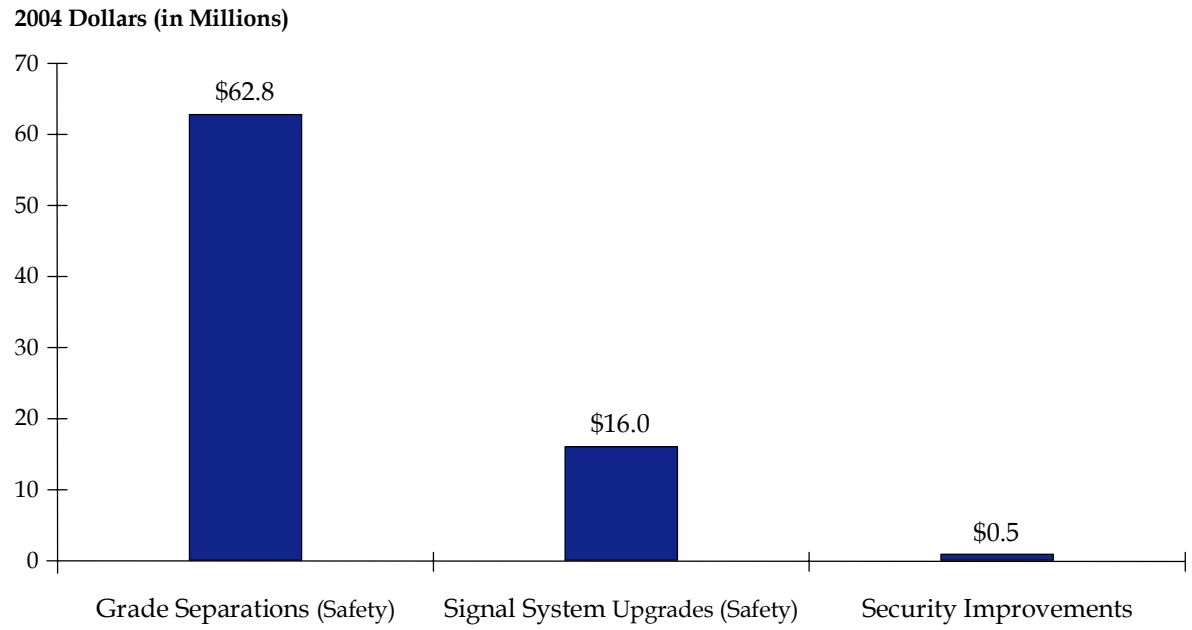


As shown in the graph, the greatest estimated need within the Facility Upgrade and Expansion category is for intermodal facility capacity enhancements, with $69 million in proposed improvements. The single largest intermodal project is estimated at more than $50 million in collective needs for intermodal facility improvements proposed by Port Everglades and FEC for capacity enhancements, including TOFC/COFC and intermodal container yard projects, at Port Everglades. Several other ports identified intermodal needs, including nearly $10 million at the Port of Palm Beach. In addition to intermodal facility enhancement, there are $12.4 million in identified needs related to freight rail terminal enhancement at Florida's ports. The two largest terminal needs are both at the Port of Jacksonville: the Talleyrand and Blount Island terminal expansion projects. Finally, at the Port of Panama City and the Port of Pensacola, there are specific rail freight needs related to bulk terminal capacity enhancement.

6.3.3 Safety and Security

Safety and security needs include more than $79 million in infrastructure and targeted security enhancements. Specifically, safety needs include projects that reduce the accident potential through grade separations of highway and rail traffic and through technological improvements, such as signal systems, to the railroads. Security needs include those projects that safeguard Florida's critical freight infrastructure, including rail structures and port facilities served by rail. The histogram in Figure 6.4 shows the split between safety and security needs.

Figure 6.4 Safety and Security
Subcategory Needs



Grade separation projects, including those at Port Everglades (I-595/Eller Drive) and the Port of Tampa (Causey Boulevard and U.S. 41), comprise the largest portion of safety needs. There also is a $16 million proposal on the Florida East Coast to upgrade the signal system, which would enhance rail operations safety. Finally, FEC has identified security improvements needs at its Hialeah and Bowden Intermodal Facilities.

6.3.4 Landside Access

Participants in this needs assessment identified more than $28 million in projects that enhance landside access to the freight rail system, including intermodal ramps and truck access to railroad terminals. While similar, these needs are differentiated from the Facility Upgrade and Expansion needs because the specific intent of these projects is to increase the capacity of the intermodal connection between rail and another mode – typically highway or waterborne modes.

6.3.5 Maintenance and Repair

Nearly $8.0 million in Maintenance and Repair category projects were identified through this needs assessment. Projects in this category are associated with line and structure maintenance, including bridge rehabilitation, track and tie replacement, resurfacing, and repairs to signs and signals. Within this category, the specific activity of tie replacement

and surfacing is the greatest single need, with approximately $5.3 million in projects identified by rail and port stakeholders. Several short line railroads in the northern portion of the State report the greatest need for this type of maintenance funding. Finally, bridge rehabilitation by several different entities (a short line railroad, a regional railroad, and a port) is estimated at $2.5 million.

6.4 Summary by District

Table 6.3 contains a summary of needs by railroad and category. Railroad needs exceeding $50 million include improvements to CSXT, FEC, and Port Everglades. The two largest category needs are line upgrade and extensions on the CSXT and Florida East Coast, estimated at $281[3] and $214 million, respectively.

Table 6.3 Summary of Needs by District and Type

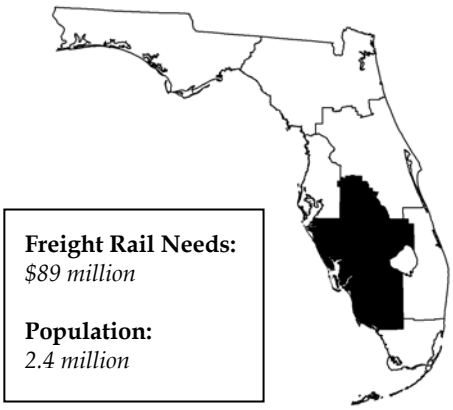
Thousands of 2004 Dollars

District	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade and Expansion	Landside Access	Total
1	$ -	$ -	$87,116	$1,130	$750	$88,996
2	1,945	250	38,887	12,980	5,750	59,812
3	3,360	-	22,829	2,659	2,450	31,297
4	-	36,800	45,419	66,256	10,150	158,625
5	-	-	96,219	-	-	96,219
6	500	250	37,475	-	1,750	39,975
7	-	26,000	-	-	7,300	33,300
Multiple	2,000	16,000	255,285	-	-	273,285
Total	**$7,805**	**$79,300**	**$583,230**	**$83,025**	**$28,150**	**$781,509**

[3] Note: More than $200 million of these CSXT needs were submitted by a shipper, not the railroad.

6.4.1 District 1 – Southwestern and Central Florida

District 1 encompasses 12 counties in South Central and Southwestern Florida and includes the major metropolitan areas of Sarasota-Bradenton, Fort Meyers, and Naples. The combined freight railroad needs for this District are nearly $90 million through 2025. Line Upgrade and Extension is the single largest needs category, with more than $87 million in estimated needs, $50 million of which is related to an additional bridge span over the Manatee River for CSXT, proposed by the Tropicana Corporation, to develop redundancy and provide additional capacity between Bradenton and Tampa. Other major needs in District 1 include line upgrades and extensions for FMID and SCXF to accommodate 286k railcars.

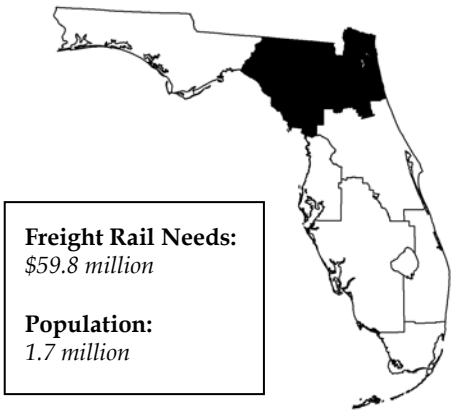


Freight Rail Needs:
$89 million

Population:
2.4 million

6.4.2 District 2 – North Central and Northeast Florida

District 2 spans the width of the peninsula from the "Big Bend" region along the northwestern section of the Gulf Coast to the greater Jacksonville region on the State's Atlantic shore. Freight rail needs in District 2 total approximately $60 million through 2025, including major investments in the Line Upgrade and Extension ($39 million) and Facility Upgrade and Expansion ($13 million) categories. The largest proposed projects include rail improvements associated with terminal expansion at the Port of Jacksonville, double-tracking capacity expansion by FEC, and the proposed extension/rebuild of GFRR to the dolomite mineral reserves in the Big Bend region.

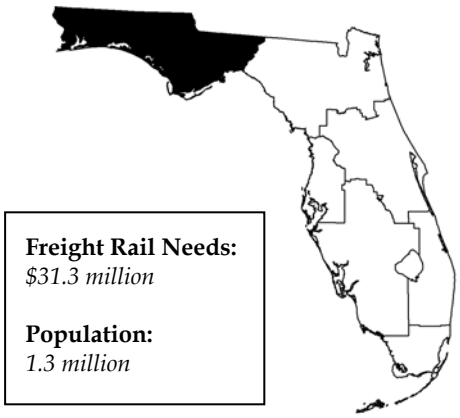


Freight Rail Needs:
$59.8 million

Population:
1.7 million

6.4.3 District 3 – Florida's Panhandle

District 3 covers 16 counties of the Florida Panhandle and includes the Tallahassee, Panama City, and Pensacola metropolitan areas. The total freight rail needs for District 3 are nearly $32 million through 2025, the lowest total need for any single District. Nearly two-thirds of the total needs of this District are projects related to Line Upgrade and Extension, including 286k upgrades by BAYL and AN.

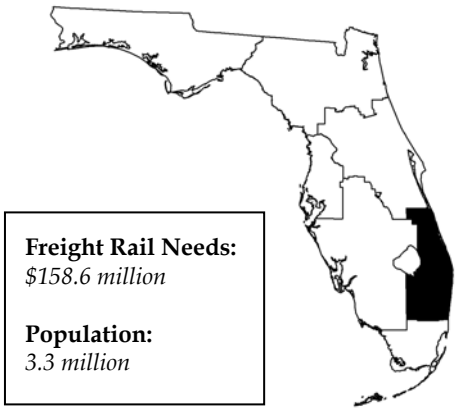


Freight Rail Needs:
$31.3 million

Population:
1.3 million

6.4.4 District 4 – Southeast Seaboard

District 4 is comprised of five populous counties on Florida's southeastern seaboard and is anchored by the Fort Lauderdale and West Palm Beach urbanized areas. Within District 4, there are nearly $159 million in freight rail needs, the greatest needs total for any single District. Several major proposed projects totaling nearly $88 million are associated with intermodal and landside access improvements to Port Everglades, including improvements on FEC. There are an additional $21 million in needs for similar access and intermodal improvements at the Port of Palm Beach. Finally, FEC lists more than $45 million in double-tracking capacity projects within the District.

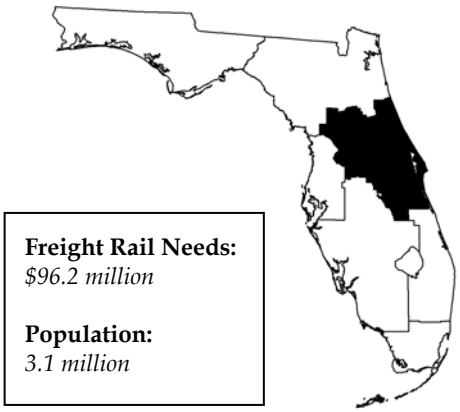


Freight Rail Needs:
$158.6 million

Population:
3.3 million

6.4.5 District 5 – Central and Eastern Florida

District 5 encompasses nine counties of central and eastern Florida. The District contains the Orlando, Daytona Beach, and Melbourne urbanized areas and has more than $96 million in needed freight rail improvements. The single largest proposed projects are double-track improvements to FEC totaling more than $81 million dollars. FMID and FNOR have proposed more than $7.0 million each in line upgrade projects to accommodate 286k railcars.

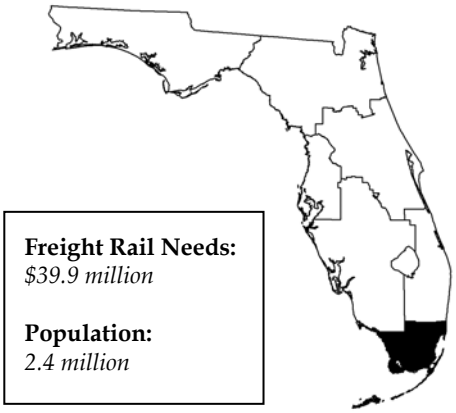


Freight Rail Needs:
$96.2 million

Population:
3.1 million

6.4.6 District 6 – South Florida and Miami-Dade

South Florida's Miami-Dade and Monroe Counties comprise District 6. This geographically diverse District includes the Florida Keys, the Everglades, and metropolitan Miami, where most rail activity is concentrated. The total estimated freight rail needs for the District are nearly $40 million, including more than $27 million in double-track improvements on FEC. Other needs in District 6 include intermodal and security improvements at the Port of Miami.

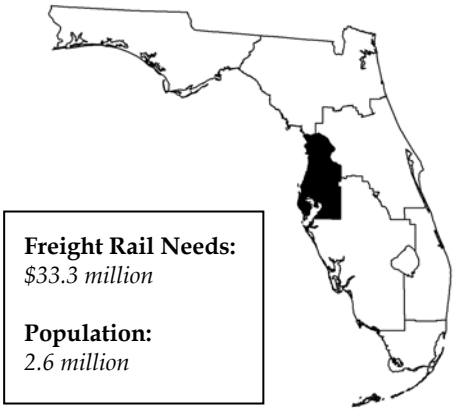


Freight Rail Needs:
$39.9 million

Population:
2.4 million

6.4.7 District 7 – Tampa Bay and West Central Florida

Five counties comprise District 7, which includes the Tampa-St. Petersburg-Clearwater urbanized area. Participants in this needs assessment identified $33 million in improvements, including $26 million in rail/highway grade separations to enhance security and improve access. Another $7.0 million is needed for on-port rail improvements at the Port of Tampa, including refurbishment of existing trackage and industrial access.



Freight Rail Needs:
$33.3 million

Population:
2.6 million

6.4.8 Multiple Districts

Approximately one-third of the total estimated needs are located in multiple Districts. Most of these projects are large corridor improvement proposals, the largest of which is a $150 million proposal to create a new east-west cross-peninsula connection for CSXT, proposed by Tropicana. Other major improvements include a $60 million capacity improvement proposal to CSXT's "S Line" corridor; a $24 million double-tracking proposal by FEC between Micco and Gifford; and $18 million in capacity improvements on CSXT between Pensacola and Jacksonville.

6.5 Summary by Railroad

Table 6.4 contains a summary of needs by railroad and category. Railroad needs exceeding $50 million include improvements to CSXT, FEC, and Port Everglades. The two largest

category needs are line upgrade and extensions on the CSXT and Florida East Coast, estimated at $281[4] and $214 million, respectively. Detailed descriptions appear in Section 6.6.

Table 6.4 Summary of Needs by Railroad and Type

Thousands of 2004 Dollars

Railroad (or Port Railroad)	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade and Expansion	Landside Access	Total
Alabama and Gulf Coast	$2,056	$ -	$ -	$ -	$ -	$2,056
AN	-	-	3,500	-	-	3,500
Bay Line	1,304	-	12,383	-	-	13,687
CSX Transportation	-	-	281,000	-	3,000	284,000
Florida Central	-	-	7,000	-	-	7,000
Florida East Coast	2,000	16,500	214,168	33,000	500	266,168
Florida Midland	-	-	7,800	-	-	7,800
Florida Northern	-	-	7,800	-	-	7,800
Georgia and Florida RailNet	-	-	12,000	-	-	12,000
Norfolk Southern	1,945	-	-	-	-	1,945
Port Everglades	-	36,800	-	25,000	500	62,300
Port Manatee	-	-	-	1,130	750	1,880
Port of Jacksonville	-	-	280	9,980	2,500	12,760
Port of Miami	500	-	-	-	1,500	2,000
Port of Palm Beach	-	-	-	11,256	9,650	20,906
Port of Pensacola	-	-	-	600	-	600
Port of Tampa	-	26,000	-	-	7,300	33,300
Port Panama City	-	-	7,700	2,059	2,450	12,209
South Central Florida Express	-	-	29,599	-	-	29,599
Total	**$7,805**	**$79,300**	**$583,230**	**$83,025**	**$28,150**	**$781,509**

[4] Note: More than $200 million of these CSXT needs were submitted by a shipper, not the railroad.

6.6 Detailed Needs Table

Table 6.5 contains the detailed needs identified by freight stakeholders participating in the Florida Freight Rail Plan 2004 Update. The following table presents, in detail, every project identified through the process described in this report. The table is sorted by railroad and then by highest to lowest ranked cost estimate by project. Each project is further identified by the following attributes:

- District(s);
- Category (Maintenance and Repair, Safety and Security, etc.);
- Location;
- Project description;
- Cost estimate (in current [2004] dollars);
- Timeframe;
- Source of the need; and
- Industry benefits (black box indicating that a project would benefit one of the following Florida industrial sectors examined in this plan).

The information contained in the detailed needs table has been edited for length and clarity but otherwise represents the extent of information provided by the stakeholder participants in the needs identification process. Thus, some cells are blank and, for some needs, there is a lack of cost estimates and other information that may become available in the future. There also is a difference, by stakeholder, in the amount of detail provided; e.g., some railroads might have included milepost information as part of the location description while others made general references to counties.

Table 6.5 Detailed Projects and Needs by Railroad

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
3		■					Alabama and Gulf Coast	Florida Upgrade	Escambia County	Replace crossties, install switch ties, add ballast, surface the line, and birch cut (approximately 28.2 miles).	$1,303	2 months from approval date	Railroad	Total Funding: $1,303,445; Railroad Contribution: $260,689	■		■	■		■	■	■	Provides rail link between Port of Pensacola and national/U.S. rail network and is primary outbound rail line for Federal humanitarian shipments; the line also provides emergency redundancy for the CSXT line.
3		■					Alabama and Gulf Coast	Florida Upgrade – Pensacola Yard	Pensacola, off Pace Boulevard	Rebuild four tracks at the Pensacola Yard.	393	2 months from approval date	Railroad	Total Funding: $314,455; Railroad Contribution: $78,614									Provides rail link between Port of Pensacola and national/U.S. rail network and is primary outbound rail line for Federal humanitarian shipments; the line also provides emergency redundancy for the CSXT line.
3		■					Alabama and Gulf Coast	Florida Upgrade – Bridges	Escambia County	Rebuild one bridge and rehabilitate one bridge.	359	4 months from the approval date	Railroad	Total Funding: $287,360; Railroad Contribution: $71,840									Provides rail link between Port of Pensacola and national/U.S. rail network and is primary outbound rail line for Federal humanitarian shipments; the line also provides emergency redundancy for the CSXT line.
3				■			AN	Bridge Program	Gulf, Franklin, Gadsen, and Liberty Counties	Repair several bridges and upgrade bridges to accommodate 286k railcars.	3,500	4 years	Railroad										
3				■			Bay Line	Port Panama City Intermodal Distribution Center Connector Upgrade	Bay County	Upgrade 15.75 miles of track between Port Panama City and Port Panama City Intermodal Distribution Center.	7,220	289 Days	Railroad										
3				■			Bay Line	Rail Program	Bay and Jackson Counties (From Port of Panama City to connections at Cottondale and Dothan)	Replace 14 miles of 90-pound rail laid in 1944 and 1945 with 136-pound rail.	4,409	1 year	Railroad										
3		■					Bay Line	Tie and Surface Program	Bay and Jackson Counties	Insert ties and surface track in rail program area (14 miles).	904	1 year	Railroad										
2				■			Bay Line	Upgrade Port Panama City Intermodal Distribution Center Access Track	Bay County	Rehabilitate side track (Majette passing track on east side of BAYL, along western boundary of Panama City Intermodal Distribution Center (track is 5,494 feet in length).	754	52 days	Railroad										Track provides the only access to the Port Panama City Intermodal Distribution Center.
3		■					Bay Line	Tie and Surface Program	Jackson County	Insert ties, provide ballast, and surface track from State Line to Cottondale (6 miles).	400	120 days	Railroad										
Multiple				■			CSX Transportation	Cross Coast Line	East to west line across Florida	A direct rail route between the coasts.	150,000	5 to 25 years	Tropicana	Additional details available in Tropicana needs document									Could relieve some truck traffic on busy 1-4 corridor.
Multiple				■			CSX Transportation	"S Line" Capacity	"S Line" between Callahan and Lakeland	Additional line capacity on the "S Line" between Callahan and Lakeland.	60,000		Florida SIS Memo 06/29/2004	Development proposals vary from a single siding ($4.0 million) to a full corridor upgrade ($60 million)									
1				■			CSX Transportation	Additional Rail Route over Manatee River	Bridge between Bradenton and Palmetto	Develop an additional bridge to provide added capacity and redundancy, providing a double-track connection between Bradenton and Tampa.	50,000	5 to 25 years	Tropicana	Additional details available in Tropicana needs document									Would provide added capacity and redundancy and provide a double-track connection between Bradenton and Tampa.
Multiple				■			CSX Transportation	Jacksonville to Pensacola Improvements	Between Jacksonville and Pensacola	Additional line capacity, including sidings, to improve speeds and reduce congestion on the CSXT line between Jacksonville and Pensacola.	18,000		Florida SIS Memo 06/29/2004										This will improve the gateway route between New Orleans and Jacksonville.
1				■			CSX Transportation	Double Track Bradenton to Tampa	From the Manatee River to the Bradenton rail yard	Double track to improve capacity and efficiency between Tampa and Bradenton.	3,000	5 to 25 years	Tropicana										
2						■	CSX Transportation	Duval Intermodal	Duval Intermodal Ramp at Jacksonville	Construction of additional tracks to add track capacity for the CSXT Intermodal Duval intermodal ramp at Jacksonville.	3,000		Florida SIS Memo 06/29/2004										
7				■			CSX Transportation	Crossover Track to Port Tampa	From the main line track between Bradenton and Tampa, to Port Tampa; crossover at Big Bend or Port Sutton	Crossover track to alleviate switching pressure in the Tampa and Yeoma yards and create a direct connection to Port Tampa for northbound freight.	-	Less than 5 years	Tropicana										

Table 6.5 Detailed Projects and Needs by Railroad (continued)

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
2		■					CSX Transportation	High-Capacity Railcar Maintenance Facility	South of Jacksonville	A centrally located maintenance facility capable of handling heavy repairs positioned near the Jacksonville area (economic development).	-	5 to 25 years	Tropicana										
2			■				CSX Transportation	NS/CSXT Duval Interchange	CSXT/NS grade crossing at the northern end of the CSXT Duval intermodal ramp in Jacksonville	Improvements to reduce the conflicts and congestion at the NS/CSXT grade crossing at the northern end of the CSXT Duval Intermodal ramp in Jacksonville.	-		Florida SIS Memo 06/29/2004										
Multiple			■				CSX Transportation	North-South Transit Time Improvement	Tampa to Jacksonville	Development and deployment of a traffic metering system to improve rail traffic flow through 200+ non-gated at-grade crossings.	-	5 to 25 years	Tropicana										
Multiple					■		CSX Transportation	New Yard in Bradenton – Tampa Corridor	Between Tampa and Bradenton (Palmetto)	Addition of a yard between Tampa and Bradenton at Palmetto to add yard capacity thereby reducing congestion at CSXT's southern terminus yard in Bradenton.	-	Less than 5 years	Tropicana										
5				■			Florida Central	Upgrade to 286/316k standards		$3,400,000 for track (17 miles at $200,000 per mile) and $3,600,000 for ties and resurfacing (60 miles at $60,000 per mile).	7,000	Less than 5 years	Railroad (e-mail from Ben Biscan 09/08/2004)										
5	11			■			Florida East Coast	Double track Palm Bay to Micco			26,259		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
4	17			■			Florida East Coast	Double track K Branch at Fort Pierce	MP 0 to MP 7		26,204		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
4	13				■		Florida East Coast	Port Everglades Intermodal Facility	Port Everglades, Fort Lauderdale, 0.7 miles; mile markers 343.21 and 343.89	Construction of 2 side tracks capable of handling as many as 13 railcars each (26 total); purchase of land for the facility would be required; the project would expand TOFC/COFC capabilities of the FEC at Port Everglades and would potential divert trucks from I-95 and the Florida Turnpike onto the rail corridor and strengthen Port Everglades intermodal connections.	26,000	5 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"	How does this relate to the Port Everglades proposed intermodal facility?	■	■	■	■	■	■	■		Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
Multiple	10			■			Florida East Coast	Double track Micco to Gifford			24,002		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
6	9			■			Florida East Coast	Double track the Medley Lead	Medley Lead, Hialeah, 5.4 miles; mile marker 0 of the Medley Lead to 5.4	Construction of 5.4 miles of new track adjacent to the existing single line track, including the construction of 1 bridge; this project is a companion project of the North Leg Wye at the Hialeah Rail Yard (a project to begin in 2004 – see notes to right) and will enable trains to increase speed through 13 at-grade crossings to reduce vehicular congestion and enhance efficiency.	22,419	5 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"	The North Leg Wye will allow trains to move from the Medley Lead to the east without stopping at the Hialeah Rail Yard			■						Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
5	4			■			Florida East Coast	Double track City Point to South Pineda			19,792		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
4	2			■			Florida East Coast	Double track from Hypoluxo to Villa Rica	Hypoluxo to Villa Rica (Boca) 8.3 miles; mile marker 311.30 (South Hypoluxo) to 319.60 (North Villa Rica)	Connection of two existing side tracks, including two bridges, to create a stretch of double track that will allow for more efficient movement of the 22 daily trains that use the segment and reduce vehicular delays at the segment's 22 at-grade crossings.	19,215	5 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"	Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"	■	■	■	■	■	■	■		Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.

Table 6.5 Detailed Projects and Needs by Railroad (continued)

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
Multiple	21		■				Florida East Coast	Upgrade ATC Signal System			16,000		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"										
5	15			■			Florida East Coast	Double track South Spruce Creek to North New Smyrna Beach			15,713		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
6	5			■			Florida East Coast	Double Track from South Ojus to North Miami	North Miami to South Ojus, 4.3 miles; mile marker 353.25 (South Ojus) to 357.6 (North Miami)	Connection of two existing side tracks, including 3 bridges, to create a stretch of double track that will allow for more efficient movement of the 17 daily trains that use the segment and reduce vehicular delays at the segment's 9 at-grade crossings.	15,055	5 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"	This project is one of the top priorities for the FEC for improving efficiency and reducing vehicular delays; the annual cost of delays at these 9 at-grade crossings has been estimated at more than $900,000 annually; this project was an unfunded Transportation Outreach Project Request in 2002/2003	■	■	■	■	■	■	■		Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
5	1			■			Florida East Coast	Double track from Indian River South to Frontenac	Indian River to North Frontenac, 6.1 miles from mile marker 158 to 164.1	Construction of 6.1 new miles of track adjacent to the existing single line track and the Frontenac Intermodal Facility to connect two existing side tracks to create a stretch of double track that will allow for more efficient movement of the 20 daily trains that use the segment and reduce vehicular delays; the principal cause of the delays is a regular stop by a train carrying autos at Frontenac, which stops for an average of one hour, blocking traffic on the single track.	13,209	5 years	FEC Railway SIS Project Needs Request	This project is the top priority of the FEC for improving operational efficiency and reducing vehicular delays; costs from the report: Double Tracking from Indian River to North Frontenac; total private funds: $6,140,598; total matching funds requested: $6,140,597; New cost ($13.2 million) from "FEC Estimate for Priority Needs for FDOT"	■	■	■	■	■	■	■		Increased capacity; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
2	6			■			Florida East Coast	Double track from Sunbeam Road to Bayard	Sunbeam Drive to Bayard Road, Jacksonville, 5.7 miles; mile marker 9.7 to 15.4	Construction of 5.7 miles of new track adjacent to the existing single line track, including double tracking of four bridges; the project will connect two existing side tracks to create a stretch of double track that will allow for more efficient movement for the 20 daily trains that move through the area each day by decreasing wait time for Bowden Yard trains to exit southbound; vehicular crossing time will be reduced at cross streets.	11,500	5 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
2	12			■			Florida East Coast	Bowden Yard Bypass	Bowden Yard, Jacksonville, 3.04 miles; mile marker 5.4 (Reba Street) to 8.44 (Mobile Gas)	Construction of 3.04 miles of track to serve as a double track around the Bowden Rail Yard to allow through trains to avoid the yard; this will reduce delays for trains and vehicular traffic and create efficiencies for all Florida rail movements along the east coast.	7,097	5 to 10 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		Increased freight capacity; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
5	3			■			Florida East Coast	Double track Frontenac to City Point			6,445		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
2	7			■			Florida East Coast	Construct 3-mile siding between Bayard and Magnolia	MP 21.3 to 24.3		4,967		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		

Table 6.5 Detailed Projects and Needs by Railroad (continued)

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
4	16				■		Florida East Coast	Expand/Rebuild TOFC in Fort Pierce	Fort Pierce, 1.5 miles; mile markers 242 and 243	Repair and reconstruct the existing TOFC facility to accommodate new intermodal growth associated with a proposed Wal-Mart Distribution facility and other distribution facilities that will likely follow Wal-Mart.	4,000	5 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
2	14				■		Florida East Coast	TOFC Extension Bowden Yard	Bowden Yard, Jacksonville, 0.6 miles; mile markers 4.56 to 5.15	Move crossovers and extend the lead track so that traffic in the main yard does not get congested; project will expand the capacity of the Bowden Intermodal Facility and improve the connectivity of the FEC with CSXT and NS; the project will improve throughput capacity and reduce the number of trucks that backup outside the Bowden Yard, especially for the crossings on the south of the yard.	3,000	5 to 10 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
2	8			■			Florida East Coast	Construct mile-long storage track off Magnolia siding			2,290		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
Multiple	20	■					Florida East Coast	Systemwide bridge rehabilitation	Stewart, Jupiter at Fort Lauderdale		2,000		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT"		■	■	■	■	■	■	■		
2	18		■				Florida East Coast	Improve Bowden Intermodal Facility Security			250		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT" (Total cost for improvements to Hialeah and Bowden = $500,000; split for convenience)										
2	19					■	Florida East Coast	Improve Bowden Intermodal Facility Ingress/ Egress for Trucks	Bowden Yard, Jacksonville, 0.3 miles; mile markers 5.29 to 5.55; the new ingress/egress will be located along the north end of the yard near Gordon Street	Relocate the ingress/egress point for the Bowden Yard approximately 420 feet to the north of the existing point along U.S. 1 near Gordon Street; the new configuration should maximize the ease of circulation and cargo transfers and reduce the potential for truck-train accidents; a reconfigured circulation pattern will keep trucks on the north and west boundaries of the yard and off of U.S. 1.	250	5 to 10 years	FEC Railway SIS Project Needs Request; cost estimate from memo: "FEC Estimate for Priority Needs for FDOT" (Total cost for improvements to Hialeah and Bowden = $500,000; split for convenience)		■	■	■	■	■	■	■		Increased freight capacity with reduced truck trips; more service options with better competitive rates; enhanced safety, reliability emergency response; greater ability to recover from service disruptions.
6	18		■				Florida East Coast	Improve Hialeah Intermodal Facility Security			250		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT" (Total cost for improvements to Hialeah and Bowden = $500,000; split for convenience)										
6	19					■	Florida East Coast	Improve Hialeah Intermodal Facility Ingress/Egress for Trucks			250		Cost estimate from memo: "FEC Estimate for Priority Needs for FDOT" (Total cost for improvements to Hialeah and Bowden = $500,000; split for convenience)		■	■	■	■	■	■	■		
Multiple	NA			■			Florida East Coast	Connection to Florida Rock Quarry	Florida Rock Quarry to FEC line in Miami Area (1.5 miles)	A new 1.5-mile connection between Florida Rock Quarry and FEC to provide competitive rail service; Florida Rock currently is served by CSXT.	-		This project was identified by Florida Rock; it is not listed on the "FEC Priority Needs List for FDOT"				■						
1				■			Florida Midland	Upgrade to 286k/316,000 standards		$6,000,000 for track (30 miles at $200,000 per mile) and $1,800,000 for ties and resurfacing (30 miles at $60,000 per mile).	7,800	Less than 5 years	Railroad (e-mail from Ben Biscan 09/08/2004)										

Table 6.5 Detailed Projects and Needs by Railroad (continued)

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
5				■			Florida Northern	Upgrade to 286k/316,000 standards		$6,000,000 for track (30 miles at $200,000 per mile) and $1,800,000 for ties and resurfacing (30 miles at $60,000 per mile).	7,800	Less than 5 years	Railroad (e-mail from Ben Biscan 09/08/2004)										
5					■		Florida Northern	Unloading Facilities		2 planned, both at Candler (EOL) chemical and lumber unloading.	-		Railroad										
2				■			Georgia and Florida RailNet	Dolomite Mines Extension	In the "Big Bend" area of Florida, from approximately Greenville to Perry on an abandoned rail bed parallel to U.S. 98	Clear and rebuild track on existing rail bed currently owned by Foley Land & Timber to access dolomite mining area.	12,000		Railroad										Would permit competitive rail shipping of dolomite for use primarily as fertilizer in Georgia and South Carolina by lowering the unit shipping cost of dolomite, thereby making the mining and rail shipping operation financially feasible.
2		■					Norfolk Southern	Tie and Surface Program	Navair, Florida, to Valdosta, Georgia	Insert ties and resurface between Navair, Florida, and Valdosta, Georgia (28.8 miles total, 24.8 in Florida).	1,945	2005	Railroad	NS SIS Needs, originally submitted 01/02/2004 to James Brogan (CS) and resent to Dave Hunt (CS) on 07/26/2004										
4			■				Port Everglades	Eller Drive Overpass	Eastern terminus of I-595 where it transitions into Eller Drive in Broward County (Eller Drive from east of the I-595/U.S. 1 interchange to McIntosh Road)	Construction of an overpass over a proposed spur of the FEC to serve a proposed 40-acre Intermodal Container Transfer Facility.	36,800	2004 to 2010 (in various phases)	Port	Rail Connectivity Needs Assessment estimated cost $13.5 million; Port Everglades reports $7,700,000 in funding is available										The overpass will separate rail activities from highway traffic to the port (cruise and cargo) to provide safety and efficiency.
4					■		Port Everglades	Intermodal Container Transfer Facility	Southport area of Port Everglades in Broward County (south of Eller Drive and west of McIntosh Road)	The development of an approximately 40-acre Intermodal Container Transfer Facility in Southport that would connect to the FEC main line through a rail spur.	25,000	Begin 2012	Port	The ICTF project cost estimate does not include the costs associated with equipment that is necessary to operate an ICTF; the $25 million cost is for the development of the land and the proposed rail spur that will come from the north side of Eller Drive all the way down to the proposed ICTF in Southport										Would provide the port with its first ship-to-rail conveyance facilities for containerized cargo, thereby eliminating the current practice of intermediate drayage to a rail transfer facility.
4						■	Port Everglades	Rail Barge	Slip 1 or 2 in the Northport area of Port Everglades in Broward County	Construction of a final heavy-rail track connection between the existing rail lines on Port Everglades property to the docks to move containers via rail directly onto and/or off of a barge.	500	Begin 2006	Port										
1					■		Port Manatee	Port/CSXT Interchange Holding	Port Manatee	Holding tracks at Port/CSXT Interchange.	1,130		Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports (Landside Access Study), Parts I and II (1998)										
1						■	Port Manatee	South Dock Street Extension	Port Manatee	Extension of trackage to parallel South Dock Street.	750		Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports (Landside Access Study), Parts I and II (1998)										

Table 6.5 Detailed Projects and Needs by Railroad (continued)

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
2				■			Port of Jacksonville	Blount Island off-terminal improvements	Port of Jacksonville	Blount Island off-terminal improvements, portions of overall rail plan.	-		Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports (Landside Access Study), Parts I and II (1998)										
2					■		Port of Jacksonville	Talleyrand Terminal Trackage	Port of Jacksonville – Talleyrand Terminal	A holding yard and a second lead track to the facility (parallel to the existing track) to support on-dock operations and increase access flexibility.	4,850		Rail Connectivity Needs Assessment										
2					■		Port of Jacksonville	Blount Island Rail Loop	Port of Jacksonville	Blount Island Rail Loop.	2,500		A Five-Year Plan to Accomplish the Mission of Florida's Seaports, 2000/2001-2004/2005 (2001), Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports (Landside Access Study), Parts I and II (1998)										
2						■	Port of Jacksonville	Dames Point Trackage	Port of Jacksonville – Dames Point Terminal	Provide rail access for new terminal development.	2,500		Rail Connectivity Needs Assessment										
2					■		Port of Jacksonville	Oil terminal rail yard	Port of Jacksonville	Oil terminal rail yard.	1,850		Florida Rail System Plan (2002)										
2					■		Port of Jacksonville	East loop of rail area (Container Way)	Port of Jacksonville	East loop of rail area (Container Way).	780		Florida Rail System Plan (2002)										
2				■			Port of Jacksonville	Rail link at CFS Corp	Port of Jacksonville	Rail link at CFS Corp.	280		Florida Rail System Plan (2002)										
6						■	Port of Miami	Track Extension	Port of Miami	Track extension to serve the Port of Miami Terminal Operating Companies (POMTOC) and Maersk, including 4,000 feet of track (3 spurs).	1,500		Florida SIS Memo 06/29/2004	Rail Connectivity Needs Assessment discusses a variety of rail access improvements above and beyond those included here									
6		■					Port of Miami	Bridge Repairs	Port of Miami	Repairs to the existing rail bridge, including upgrades, sign, lights, and controls, etc.	500		Florida SIS Memo 06/29/2004	Rail Connectivity Needs Assessment discusses a variety of rail access improvements above and beyond those included here									
6					■		Port of Miami	On-port railroad marshalling yard	Port of Miami	On-port railroad marshalling yard.	-		FSTED Future Planned Major Port Projects and Intermodal Connectors (2003)										
6						■	Port of Miami	Airport/Seaport rail Link (east/west corridor)	Port of Miami	Airport/Seaport rail Link (east/west corridor).	-		Port of Miami Master Development Plan (2000), Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports (Landside Access Study), Parts I and II (1998)										
4						■	Port of Palm Beach	Off-port intermodal rail improvements	Port of Palm Beach	Off-port intermodal rail improvements.	7,150		FY 2004 FSTED Project Applications (2003)										
4					■		Port of Palm Beach	On-port intermodal rail improvements	Port of Palm Beach	On-port intermodal rail improvements.	6,300		FSTED Future Planned Major Port Projects and Intermodal Connectors (2003), FY 2004 FSTED Project Applications (2003)										

Table 6.5 Detailed Projects and Needs by Railroad (continued)

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
4					■		Port of Palm Beach	Intermodal rail improvements – Skypass	Port of Palm Beach	Intermodal rail improvements – Skypass.	4,956		FY 2004 FSTED Project Applications (2003)										
4						■	Port of Palm Beach	Interchange Rail Extension	Port of Palm Beach (north of 13th Street to south of SR 710)	Reconstruction of FEC rail to improve efficiency and safety by reducing amount of switches and directional moves performed; also would reduce traffic congestion for City of Riviera Beach and the Port of Palm Beach.	2,500	1 year	Port of Palm Beach	Rail Connectivity Needs Assessment estimated cost for "lead track capacity" $1.8 million									
4					■		Port of Palm Beach	North Yard Rail Extension	Tropical Terminal – Port of Palm Beach	North Yard rail extension to allow direct discharge of containers to/from terminal and railcars to facilitate transfer of cargo for Tropical Shipping.	-		Port of Palm Beach										
3					■		Port of Pensacola	Bulk Facility Rail Loop – Track Extension	Port of Pensacola	Rail loop track extension from existing on-terminal trackage as part of a new bulk handling facility (1,185 feet of new track).	600		Rail Connectivity Needs Assessment (2002); Port of Pensacola Master Plan (1999)										
3						■	Port of Pensacola	Waterfront rail spur revitalization	Port of Pensacola	Revitalize rail spur at waterfront complex.	-		Year 2020 Florida Statewide Intermodal System Plan – Interim Final Report (2000)										
7			■				Port of Tampa	Causeway Boulevard Overpass	Causeway Boulevard and CSXT at the Port of Tampa	Grade separation for Causeway Boulevard, a major connector to I-75 for port traffic, over main Tampa-Bradenton CSXT line that feeds both port and private terminals.	15,000		Rail Connectivity Needs Assessment										
7			■				Port of Tampa	U.S. 41 Overpass	U.S. 41 and CSXT at the Port of Tampa	Overpass to carry U.S. 41 over CSXT port lead tracks that now cross at-grade reduce vehicle delay of cargo and non-port traffic at the crossing.	11,000		Rail Connectivity Needs Assessment	Some U.S. 41 improvements recently received funding through FDOT's SIS Program									
7						■	Port of Tampa	Portway Rail Access and Refurbishing	Port of Tampa	Portway rail access to berths and industrial parcels, and refurbishing of existing rail segments for Hookers Point, Point Sutton, Pendola, or Port Redwing.	7,300	7.3	Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports (Landside Access Study), Parts I and II (1998)										
7					■		Port of Tampa	Hookers Point Rail Facilities	Port of Tampa	Development of rail facilities on Hookers Point.	-		Master Plan Update (2000)										
3				■			Port Panama City	BAYL Replacement	Port Panama City	Replacement of 21 miles between Panama City and Class I connections in Dothan, Alabama, and Cottondale, Florida, to accommodate 286k carloads.	7,700		Rail Connectivity Needs Assessment (2002)										
3						■	Port Panama City	Rail track improvements	Port Panama City	Rail track improvements, including road crossings.	2,450		FSTED Future Planned Major Port Projects and Intermodal Connectors (2003), Port Panama City Master Plan (2003)										
3					■		Port Panama City	Industrial park rail yard and dump pit	Port Panama City	Construct rail yard and rail dump pit for port industrial park.	859		FSTED Future Planned Major Port Projects and Intermodal Connectors (2003), FY 2004 FSTED Project Applications (2003)										
3					■		Port Panama City	Bulk terminal rail yard expansion	Port Panama City	On-terminal loop track extension to facilitate on-site switching and reduce rail movements across U.S. 98; would include trackage and facilities (pit and scale) for a bulk terminal (same as loop track project).	800		Rail Connectivity Needs Assessment (2002)	Rail Connectivity Needs Assessment estimated cost $600,000									
3					■		Port Panama City	Cargo area rail yard improvement	Port Panama City	Improve rail yard in general cargo area.	400		FSTED Future Planned Major Port Projects and Intermodal Connectors (2003), Port Panama City Master Plan (2003)										

Table 6.5 Detailed Projects and Needs by Railroad (continued)

Thousands of 2004 Dollars

District	FEC Priority	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade & Expansion	Landside Access	Railroad	Project	Location	Description	Estimate	Timeframe	Source	Notes	Agriculture and Food	Automotive	Construction	Energy	Intermodal and International	Paper	Phosphates and Fertilizers	Other (Please Specify)	Other Benefits
1				■			South Central Florida Express	Sebring to More Haven Prime Rail	Sebring to Moore Haven	New prime rail (53 miles).	14,000	5 years	Railroad		■					■			Attract new business and improve infrastructure of railroad.
1				■			South Central Florida Express	Sebring to Moore Haven Relay Rail	Sebring to Moore Haven	Upgrade relay rail, including 11 turnouts (53 miles).	12,316	5 years	Railroad		■					■			Attract new business and improve infrastructure of railroad.
Multiple				■			South Central Florida Express	Lake Harbor to South Bay Prime Rail	Lake Harbor to South Bay	Upgrade rail to support 286k railcars (6 miles).	1,737	5 years	Railroad		■					■			Attract new business and improve infrastructure of railroad.
Multiple				■			South Central Florida Express	Lake Harbor to South Bay Relay Rail	Lake Harbor to South Bay	Upgrade rail to support 286k railcars (6 miles).	1,546	5 years	Railroad		■					■			Attract new business and improve infrastructure of railroad.
TOTAL											**$781,509**												

7.0 Strategies and Program Options

Needs on the Florida freight rail system total $782 million, and this value could double once all needs associated with CSXT's new strategic plan are known.[1,2] Even with public-private cost sharing, and leveraging potential new Federal sources, the needs will outpace available State support. It is therefore necessary to establish strategies that focus investments in a manner that best position Florida's freight rail network to meet the growing demand for freight shipments.

This chapter first provides a summary of the key trends and issues detailed in previous chapters. Based on this information, Section 7.2 discusses the types of projects best suited for SIS investments, while Section 7.3 looks at projects that will most likely need to be addressed outside the SIS.

7.1 Trends and Issues

Economic trends are detailed in Chapter 4.0, while rail industry trends and issues are described in Chapter 5.0. Table 7.1 provides a summary of the principal trends and issues associated with each topic or industry.

[1] "CSX Submission for the Florida Strategic Intermodal System," was provided to FDOT in April 2005. The CSX report was received too late to incorporate into this chapter, therefore, it is summarized in Addendum 1. Substituting in the new CSX needs brings the total to $825 million, though it does not contain cost estimates for future terminal expansion which CSX claims **"will likely be the most expensive"** part of the plan to move more long haul truckloads by rail.

[2] Note: The estimates of needs are based on information from railroads, shippers, government agencies, and key stakeholders. Listing a project as a need in no way obligates or infers that funding will be provided by FDOT or other public agency.

Table 7.1 Trends and Issues

Topic/Industry	Florida Trends	Issues
Florida Population Growth	Expected to grow at more than double the national average, at least through the year 2030.	Adds additional passenger and freight congestions to the already crowded Florida roadways. Creates an even more service-based economy, increasing shipments of consumer goods and shipments of materials supporting population growth (e.g., energy, construction).
Florida Population Density	Florida currently is the eighth most densely populated state, trailing only the smaller states in the Northeast. By 2030, Florida is expected to pass New York and Delaware to become the sixth most densely populated state.	Reduces available land and increases land value, making construction of new highways more difficult and expensive. Creates additional need to use existing rail right-of-way for passenger service.
New Economy	More jobs in high-tech, retail, and service industries.	Rail will need to provide faster, more reliable service to compete with trucks in this environment.
Safety	Grade crossing incidents and fatalities have declined, but still pose serious problems in Florida.	With more than 5,000 highway-rail grade crossings, it is necessary to continue with safety improvements and education programs.
Automotive Distribution	Increasing due to economic, population, and tourism growth.	Rail connectivity and service to the ports is critical for Florida ports to remain competitive with ports in other states. Though not thought of as perishable, the value of autos rapidly depreciates, making transit time and service reliability critical. Strong rail service can be a factor in attracting highly desirable automotive assembly plants.
Construction	Increasing due to economic and population growth.	Rail supports this industry by hauling rock, lumber, steel, and other construction materials. Key issue is access, both to the mining and construction sites. The southwestern portion of the State has the fastest population growth rate, but the least rail access.
Distribution and Retail	Moderate to fast paced growth driven by economic and population growth.	When discussing truck to rail diversions, these are typically the goods involved. Rule of thumb is that rail competes at distances greater than 500 miles, making intrastate rail shipments difficult. Rail can take trucks off the highways, but only through improvements in transit times and service reliability. This category also contains import/export intermodal, for which improved rail connections can help attract more business to Florida ports.

Table 7.1 Trends and Issues (continued)

Topic/Industry	Florida Trends	Issues
Energy	Strong growth tied to population growth.	Rail hauls coal to power plants, fueling Florida's growing power demands. Competition is more from intercoastal barges than trucks. Florida's clean air (result of geographical advantages) could open the possibility of new coal fired plants exporting electricity to other states. This will create more need for rail service, especially to western coal fields.
Food and Agriculture	Food – Strong growth tied to population growth. Agriculture – Steady demand.	Food is similar to distribution and retail, in that it is driven by population growth and dependent on fast, reliable transportation. Agriculture (such as citrus and sugar) depend on rail to provide low-cost transportation, allowing Florida markets to compete nationally against foreign competition. These are often perishable goods, and speed and reliability are critical.
Paper and Fiber	Strong growth tied to population growth. An important employer in the northern part of the State.	Rail hauls logs to the mills and finished product to the customers. Rail also provides safer transportation of hazardous processing chemicals. Most rail issues in the paper and fiber industry are related to access, and generating sufficient densities and lengths of haul for rail to be competitive.
Phosphates and Fertilizers	Steady in the short term. Declining in long term due to depletion and foreign competition.	Largely localized between the mines in Hillsborough, Polk, and Hardee Counties and the Port of Tampa. A high-volume, profitable business that makes significant contributions to Florida's economy. It is important to maintain strong rail service, since any disruptions make Florida less competitive and would place tremendous strain on the local roadways.
Railroads – Class I	CSXT is developing a strategic plan for the "new economy," which includes high-density corridors, large intermodal centers, and possible selling or downgrading of existing corridors.	CSXT will require large amounts of capital to execute their strategic plan (as the plan currently is understood). Part of this funding will come from the sale of existing assets, but they also will be looking to the State for public funding. The State also will need to consider potential line purchases should corridors become available that benefit the intercity or commuter passenger rail strategic vision. If the freight village concept is realized, the State will additionally need to support roadway developed around the villages.
Railroads – Class II	FEC is double tracking their network to expand capacity.	This will be needed to support additional freight and passenger movement along the densely populated eastern seaboard, especially with current population growth projections.
Railroads – Class III	Primary trend is upgrading to 286,000 pounds railcar standards to improve connections with Class Is and competitiveness with trucks.	Recurring funding is important since these are often a multiyear, phased upgrades. Until the entire route is upgraded, the benefits cannot usually be realized.

Although there are many specific issues and projects within the various industries, there also are recurring issues that appear throughout Table 7.1. These include:

- Demand for freight will grow with population;
- Florida's highways will become more congested with autos and heavy trucks;
- Railroads need to decrease transit times and improve reliability to effectively compete for most goods that are driven by consumer growth;
- Florida railroads needs to maintain industry standards to improve connectivity and service;
- Rail is vital to low-value, high-tonnage shipments of coal, phosphates, and construction rock;
- Low-cost rail service allows Florida businesses to compete nationwide against foreign imports;
- Safety at the more than 5,000 highway-rail crossings remains a serious issue; and
- Growing population creates more demand for passenger rail, potentially reducing capacity for freight.

7.2 Within SIS Strategies

The SIS offers the FDOT a new, steady source of funding to begin addressing some of the issues related to freight rail use in Florida. It offers the advantages of being a recurring funding source of sufficient magnitude to make a real difference in rail service. Not all projects are eligible for SIS funding and the SIS cannot be expected to address all of the needs on the freight rail system. This section outlines the Rail Office's best uses of the SIS. It begins with a description of the facilities and lines on the SIS, then discusses projects currently programmed for SIS funding, and concludes with a general description of the types of projects that should be funded through the SIS program.

7.2.1 Freight Rail Facilities and Lines on the SIS

To be eligible for SIS funding, a project must be on the SIS or emerging SIS network. Current requirements for a rail line to be on the SIS network is an annual tonnage of 10 million gross ton-miles per track mile. The emerging SIS requires five million gross ton-miles per track mile, or service to a cluster of rail dependent industries. Of the 2,711 railroad miles in Florida, 1,706 miles are on a SIS rail corridor, 395 miles on an emerging SIS rail corridor, 47 on a SIS rail connector, and 105 on an emerging SIS rail connector. In all, 2,253

miles are on the SIS or emerging SIS, accounting for 83 percent of the total rail mileage in Florida. Table 7.2 contains a detailed list of the freight terminals and rail lines that currently are part of the SIS (this is mapped in Figures 2.4 and 2.5).[3]

Table 7.2 Florida Freight Rail Terminals and Lines Currently on the SIS

Terminal and Line Description	SIS	Emerging SIS
CSX Intermodal Terminal – Jacksonville	●	
CSX Intermodal Terminal – Orlando		●
CSX Intermodal Terminal – Tampa		●
FEC Intermodal Terminal – Fort Lauderdale	●	
FEC Intermodal Terminal – Jacksonville	●	
FEC Intermodal Terminal – Miami	●	
Norfolk Southern Intermodal Terminal – Jacksonville	●	
Amtrak corridor from the AL state line east to Jacksonville via Pensacola, Chattahoochee, Tallahassee, and Baldwin (CSX track)	●	
Amtrak corridor from Auburndale north to Jacksonville via Orlando and Sanford (CSX track)	●	
Amtrak corridor from Jacksonville northwest to GA state line via Dinsmore and Callahan (CSX track)	●	
Amtrak corridor from Mangonia Park north to Auburndale (CSX track)	●	
Amtrak corridor from Miami north to Mangonia Park (South FL Rail Corridor)	●	
Amtrak corridor from Tampa east to Auburndale via Plant City and Lakeland (CSX track)	●	
CSX lines from AL state line east to Jacksonville via Pensacola, Chattahoochee, Tallahassee, and Baldwin	●	
CSX lines from Agricola north to Mulberry	●	
CSX lines from Arcadia north to Lakeland via Mulberry	●	
CSX lines from Auburndale north to Jacksonville via Orlando and Sanford	●	
CSX lines from Baldwin north to Callahan	●	
CSX lines from Bradenton north to Tampa	●	
CSX lines from Bradley Junction east to F. Meade in Polk County		●
CSX lines from Crystal River to Newberry in Alachua, Levy, Marion, and Citrus Counties		●
CSX lines from Edison Junction east to Bradley Junction	●	
CSX lines from Jacksonville northwest to GA state line via Dinsmore & Callahan	●	
CSX lines from Mangonia Park north to Auburndale	●	
CSX lines from Newberry northeast to Starke		●

[3] SIS and Emerging SIS definitions are current as of January 20, 2005.

Table 7.2 Florida Freight Rail Terminals and Lines Currently on the SIS (continued)

Terminal and Line Description	SIS	Emerging SIS
CSX lines from Plant City north to Baldwin via Zephyrhills, Wildwood, and Ocala	●	
CSX lines from Tampa east to Auburndale via Plant City and Lakeland	●	
CSX lines from Tampa east to Bartow via Valrico, Edison, and Mulberry	●	
CSX lines from Uceta Rail Yard to Busch Boulevard		●
CSX lines from Welcome north to Plant City in Hillsborough County		●
FEC lines from Miami north to Jacksonville	●	
FEC lines from NW 74th Street to NW 121st Way (Medley Lead)		●
Florida Central Railroad line from Orlando north to Umatilla in Orange and Lake Counties		●
Norfolk Southern lines from Jacksonville northwest to the GA state line	●	
Seminole Gulf Railway line from Vanderbilt Beach north to Arcadia in Collier, Lee, Charlotte, and Desota Counties		●
South Central Florida Express Railroad lines from Sebring to Ft. Pierce via Belle Glade and Marcy in Highlands, Glades, Hendry, Palm Beach, Martin, and St. Lucie Counties		●
South Florida Rail Corridor from Miami north to Mangonia Park (owned by FDOT, operated by CSX)	●	

7.2.2 Freight Rail Projects Currently Programmed for SIS Funding

The Florida Legislature approved initial funding for the SIS of $100 million per year for five years beginning in 2006. This money is to be allocated to highway, airport, marine port, and rail projects. Table 7.3 contains the rail projects selected by the FDOT that currently are programmed for SIS funding. The projects total $80.6 million, with FDOT contributing $45.7 million, or 9.14 percent of available SIS funds. The railroads will contribute the remaining $34.9 million with private funding. The railroad share is based on a 50/50 match with the Class I and II railroads and a 75/25 match for the Class III railroads (FDOT providing the 75 percent).

Table 7.3 SIS Rail Projects, 2006-2010

Railroad	Description	Construction Year	Florida Share (SIS)	Railroad Share
Bayline	Bay County Segment #1 – Track Upgrade – Replace and upgrade track and supporting structures on 15.75 miles.	2006	$5,605,000	$1,868,000
CSXT	Anthony Siding – Passing Track/Siding – Construct new passing siding.	2006	$3,105,000	$3,105,000
CSXT	Wildwood Siding – Passing Track/Siding – Construct passing siding extension.	2008	$1,657,000	$1,657,000
Florida Central	Orlando to Plymouth – Track Upgrade – Upgrade rail to support 286,000 lb cars.	2006	$7,245,000	$2,415,000
Florida East Coast	Indian River to Frontenac – Double Track – Double-track section between Indian River and Frontenac.	2006	$6,836,000	$6,836,000
Florida East Coast	Port of Miami Rail Access Bridge – Structure Rehabilitation – Bridge repairs, upgrades, signs, lights, and controls.	2006	$259,000	$259,000(*)
Florida East Coast	Hypoluxo to Villa Rica – Double Track – Double-track section between Hypoluxo and Villa Rica.	2010	$11,323,000	$11,323,000
Florida East Coast	Frontenac to City Point – Double Track – Double-track section between Frontenac and City Point.	2010	$3,798,000	$3,798,000
Norfolk Southern	South end of Lacy Siding to North end of Simpson Yard – Double Track – Add 8,347 feet of track.	2006	$2,484,000	$2,484,000
South Central FL Express	Lake Harbor to South Bay – Track Upgrade – Upgrade rail to support 286,000 lb cars.	2006	$3,398,000	$1,133,000
TOTALS			**$45,710,000**	**$34,878,000**

Source: Florida Department of Transportation.

* Represents the Port of Miami Share.

7.2.3 Strategies for Using SIS Funding

Currently, the SIS is programmed to provide about $9 million annually for rail projects. Combined with private matching funds creates a pool of approximately $16 million for rail projects. This leads to a projected $81 million in combined public and private funds between 2006 and 2010 for rail projects. While $81 million will help upgrade Florida's rail network, it falls far short of the $782 million in needs. The funding gap could grow even wider as CSXT's strategic plan is unveiled or potential right-of-way purchases become available.

The FDOT Rail Office should, therefore, adopt a strategy for the types of projects best addressed through the SIS, and the types of projects best addressed through other sources. This allows the Rail Office to focus on long-term goals and insures that rail remains a strong component of the SIS network.

The best strategy is to focus on projects that are consistent with the five SIS goals. The first SIS goal reflects FDOT's highest priority – providing a *safe* and *secure* transportation system. The second goal establishes a commitment to *preserve* and effectively *manage* existing transportation infrastructure before expanding the system. Goal number three emphasizes improvement in the *mobility* of passenger and freight trips on Florida's transportation system. The fourth goal is directed at *economic competitiveness*, specifically investments in areas that benefit Florida's existing businesses and help attract new businesses. The fifth and final goal is to support *quality of life* and minimize impacts of transportation systems on the *environment*.

In general, the FDOT should apply SIS funds to projects that: improve connections with other modes, thus creating a stronger multimodal transportation system; enhance the total freight capacity and reliability of Florida's transportation network; and, support modern rail industry standards to ensure an efficient system. Table 7.4 provides more specific examples cross referenced by the SIS goals.

Table 7.4 Recommended Types of Freight Rail Projects for SIS Funding

Project Type	SIS Goals				
	Safety and Security	System Preservation	Intermodal Mobility	Economic Enhancement	Quality of Life
Improve connections to ports, intermodal transfer locations, and other modal connectors.			●	●	●
Increase rail capacity by adding track and eliminating bottlenecks.			●	●	●
Support track and bridge upgrades to 286,000 lb railcar standard.		●	●		
Improve other modes, through traffic diversions or elimination of conflicts (e.g., traffic blockages).	●		●		●
Improve safety of the rail line to prevent derailments and other train accidents.	●				●
Provide connections and extensions to industrial sites.			●	●	
Provide upgrade support to prevent termination of rail service in economically viable corridors.		●	●	●	

Another issue is the balance between one or two large projects and several smaller projects. For 2006 through 2010, 10 rail projects were selected. In general, it is best to distribute the funds over several small to medium projects, rather than one large project. This helps to promote a sense of fairness, reduces the risk of project failure, and provides benefits to more regions of the State. Public support for large scale projects (e.g., right-of-way

purchases, intermodal yard construction, major line extensions, etc.) is best pursued through other mechanisms (see Section 7.3 and Chapter 8.0).

Finally, SIS funds should be used as matching funds if Federal sources become available, provided that the projects are consistent with the SIS goals and are of the type described in Table 7.4. A combination of Federal, SIS, and private funds would provide funding for larger projects. This can create additional challenges, though, since SIS funds are allocated to specific projects and not held in reserve.

7.3 Outside SIS Strategies

While funding through the Strategic Intermodal System will enhance Florida's freight rail system and enhance transportation capacity in the State, the SIS cannot be expected to address every type of need that arise. The previous section recommended SIS funding for rail projects that improve connections with other transportation modes, enhance freight capacity and reliability, and help maintain modern standards. It also recommended that funding be allocated to several projects, rather than one or two large-scale projects.

The types of projects best addressed outside of the SIS include:

- Rail projects off the SIS and emerging SIS network;
- Projects of regional and national significance;
- Right-of-way purchases to maintain freight capacity or for passenger rail service; and
- Highway-railroad grade crossing safety improvements.

7.3.1 Off-SIS Projects

Table 7.2 contains a detailed list of the rail lines and facilities on the SIS and emerging SIS networks. Most of Florida's rail lines are eligible for SIS funding, but there is an immediate funding gap for the 17 percent of Florida's rail network currently not part of the SIS network. These are lines hauling less than five million annual gross ton-miles per track mile, and not serving a cluster of rail dependent industries.

This creates a difficult situation. Without State support, these low volume lines may not be able to upgrade or expand into industrial sites, allowing them to generate sufficient new business to become part of the SIS. The SIS program recognizes this problem and has established a long-term goal of applying 75 percent of capacity funding to projects on the SIS and 25 percent for projects off the SIS. This does, however, create a short-term funding gap, at least through 2010, for Florida's lowest volume rail lines.

7.3.2 Projects of Regional and National Significance

No formal definition exists for "regional and national significance," but informally it refers to projects that provide significant economic and other public benefits, but are of a scope and nature that cannot be expected to receive public assistance through a single state. Projects of regional and national significance are prevalent throughout the country, and include Alameda Corridor in Southern California ($2.4 billion), CREATE in Chicago ($1.5 billion), and MAROps in the Northeast ($6.2 billion).

With respect to freight rail in Florida, there currently are no projects of a regional and national significance that are actively seeking funding, but there are several potential projects on the horizon, including:

- **CSXT Strategic Plan –** This would seem to be the most likely large scale project with regional significance, but until more details are released, it is only speculation. If CSXT should develop three intermodal "freight village" within Florida, this would have a significant positive impact on the economy in Florida and the entire Southeast. Expenses also would be significant, requiring not only the construction of the facilities, but upgrades to capacity of the rail lines serving the facilities, upgrades to the roadways around the facilities, and possible economic incentives for relocating businesses. This effort would require a strong relationship between Florida and CSXT, and possibly Federal involvement.

- **Intercity Passenger Rail –** More specifically, the impact intercity passenger rail will have on freight capacity in Florida. The strong desire by Floridians for an efficient and effective intercity passenger rail system will have tremendous implications for freight services. Passenger rail, with its exact schedules and safety requirements, utilizes capacity and can create bottlenecks on heavily used freight lines. Capacity expansion is expensive, but most of these costs should be borne by passenger rail, with partial funding coming from Federal sources such as the FTA New Starts Program.

- **MAROps –** As described in Chapter 5.0, MAROps is a five state effort (Virginia, Maryland, Delaware, Pennsylvania, New Jersey) aimed at mitigating congestion on I-95 by enhancing rail capacity. This project has implications for the entire eastern seaboard, including Florida, since capacity and height restrictions limit the ability of the railroads to offer double-stack intermodal service along the I-95 corridor. Florida should offer political support for this effort since it will help divert trucks from I-95 and improve intermodal service to and from Florida.

- **Nationwide Chokepoints –** There are several chokepoints in the nation's freight rail system that impact Florida, and could involve the State in regional coalitions. These include capacity constraints around Atlanta and chokepoints at eastern-western railroad connections. One particular issues is congestion at St. Louis that limits the ability of western coal to move into Florida power plants.

7.3.3 Line Ownership and Right-of-Way Preservation

FDOT has ventured into ownership of rail lines with the purchase of the South Florida Rail Corridor. If more opportunities for rail line ownership and right-of-way preservation should present themselves, FDOT would need to evaluate the benefits and potential funding mechanisms. It is very unlikely that a purchase would be made for the purpose of operating freight trains, but more likely the justification would be for establishing inter-city and commuter passenger rail service. The purchase would require a special appropriate from the Florida Legislature, possibly combined with Federal sources.

CSXT's presentation of their strategic plan to FDOT, discussed in Chapter 5.0, strongly hinted that there could be several corridors available for passenger rail. One strong possibility is the "A" line between Jacksonville and Orlando. The FDOT should obtain the right of first refusal for purchase of rail lines offered for sale. Each line would have to then be evaluated based on its importance to the State for passenger and freight service, cost, and availability of funding.

7.3.4 Highway-Rail Grade Crossing Safety

Improvements of highway-rail grade crossings is almost always justified through safety improvements or through reductions in roadway queues. Highway-rail grade crossing improvements rarely receive public funding on the basis of railroad improvements. The Federal Government offers funding support for safety improvements and safety awareness through the Section 130 and Operation Lifesaver programs.

The Highway-Rail Grade Crossing Program, commonly known as the Section 130 Program, is aimed at developing and implementing safety-improvement projects that reduce the number and severity of rail-highway grade crossing accidents. Funding for this project is from the 10 percent "Safety Set Aside" authorized in TEA-21. The Section 130 Program typically provides 90 percent Federal project funding, with the other 10 percent coming from state, local, or private sources. The most common use of Section 130 funds is for installation of protective devices at grade crossings, including: standard signs and pavement markings; active warning devices; track circuit improvements and interconnections with highway traffic signals; crossing illumination; crossing surface improvements; and, general site improvement.

Another popular highway-rail grade crossing program is Operation Lifesaver. This is a nonprofit education and awareness program receiving funding from Federal Highway Trust Fund, the Federal Transit Administration, and the Federal Railroad Administration, plus contributions from the railroads and private industries. Florida has an active Operation Lifesaver program.[4]

[4] For more information on Operation Lifesaver in Florida, see http://www.floridaol.org/.

Improvements to grade crossings can lead to higher train speeds, which leads to expanded system capacity and improved reliability. Despite this, grade crossing improvements are mostly justified through safety and funded through Federal programs. SIS funding should only be used in extreme cases, were there are clear mobility benefits.

8.0 Funding Florida's Rail Program

Making the needed investments and fully realizing the benefits of freight rail in Florida will require partnerships among the railroads, the State, and the Federal Government to formulate policies and programs to invest where freight rail improvements have significant highway, economic, and other public benefits. The partnership in some cases may extend beyond Florida's boundaries to match the scale of the policy and investment decisions to the scale of today's freight rail system. The Strategic Intermodal System (SIS) provides FDOT with a mechanism for developing and maintaining an efficient and balanced transportation system. While it does not guarantee funding to freight rail projects, the SIS provides a more consistent funding source than has previously been available.

This chapter begins by describing the different types of funding available to meet Florida's freight rail system needs, followed by a discussion of needs currently unfunded. The chapter then provides a list and description of Federal sources that will most likely be available for providing public assistance to freight rail projects. The chapter concludes with a framework for evaluating the public benefits of freight rail projects that enables policy-makers to prioritize competing projects.

8.1 Existing Funding Sources

Rail needs can be divided into four separate funding tiers:

1. **Dedicated Funds** are those needs that receive dedicated ongoing Federal or state funding. The only program under this tier is the Federal Section 130 program, which provides dedicated annual funding for highway-rail grade crossing improvements. The Federal Local Rail Freight Assistance Program was in this tier, but Federal appropriations ceased in 1995 and Florida recently exhausted its last remaining funds.

2. **Competitive Funds** are those needs historically funded through appropriations by a legislative body. For freight rail needs in Florida, this is through the SIS program.[1] Unlike other programs, SIS funding is not dedicated to rail projects. This program, in its current form, also does not address funding for needs on railroads not part of the SIS or emerging SIS networks.

[1] Although SIS is a new program, it does have a historical legacy including the Fast Track Economic Growth Transportation Initiative and the Transportation Outreach Program.

3. **Major Capital Project Funds** are those needs met through one-time capital outlays, either at the Federal or state level, and include such programs as:

   - The Federal Borders and Corridors program, which can be applied to rail improvements;
   - The Federal CMAQ program, which can be used for rail improvements that improve air quality;
   - Special Federal earmarks, especially through TEA-21 reauthorization;
   - Highway construction mitigation programs; and
   - Statewide flexible funding.

4. **Private Funds** have and will continue to be the most prevalent source of freight rail capital improvements. Public support has largely been relegated to highway-rail grade crossing safety and short line assistance in the form of economic development and job growth funds. Currently, public-private partnerships are being explored for large-scale project that leverage public and private investments into public and private benefits.

Table 8.1 contains a strategy for maximizing the use of each funding source.

Table 8.1 Funding Commitment Tiers

Tier	Funding Sources	Types of Projects
1. Dedicated Funds	Federal Government	Primary program is the Federal Section 130 Rail Grade Crossing Safety program. This source must be used for road-rail grade crossing safety improvements.
2. Competitive Funds	State and Possible Competitive Federal Grants	Strategic Intermodal System funds should be used for projects that: improve connections with other modes, thus creating a stronger multi-modal transportation system; enhance the total freight capacity and reliability of Florida's transportation network; and, support modern rail industry standards to ensure an efficient system. There currently is a funding gap for projects of this nature that are not located on the SIS network. Competitive Federal grants have been available in the past for specific demonstration of new or emerging technologies. Currently, FDOT is using Federal demonstration funds to evaluate revenue service using Diesel Multiple Unit (DMU) self-propelled passenger cars on the South Florida Rail Corridor. Additionally, High-Speed Hazard Elimination grant funds have been used for advanced technology to improve highway-rail grade crossing safety.

Table 8.1 Funding Commitment Tiers (continued)

Tier	Funding Sources	Types of Projects
3. Major Capital Project Funds	Mostly Federal, possibly state, local	One-time allocations for Borders & Corridors, CMAQ, and Federal earmarks, especially for projects of regional or national significance. Potential projects requiring this type of funding include: **CSXT Strategic Plan –** Is the most likely large scale project with regional significance, especially the development of new large-scale terminals. This would have a significant positive impact on the economy in Florida and the entire Southeast. Expenses also would be significant, requiring construction of the facilities, upgrades to capacity of the rail lines serving the facilities, upgrades to the roadways around the facilities, and possible economic incentives for relocating businesses. **Intercity Passenger Rail –** More specifically, the impact intercity passenger rail will have on freight capacity in Florida. The strong desire by Floridians for intercity passenger rail system will have tremendous implications for freight services and system capacity. **Nationwide Chokepoints –** There are several chokepoints in the nation's freight rail system that impact Florida, and could involve the State in regional coalitions. These include capacity constraints around Atlanta, along I-95, and chokepoints at eastern-western railroad connections.
4. Private Funds	Private railroads	The railroads will fund projects that are "mission critical" to their strategic plan and projects that offer sufficient return on investment.

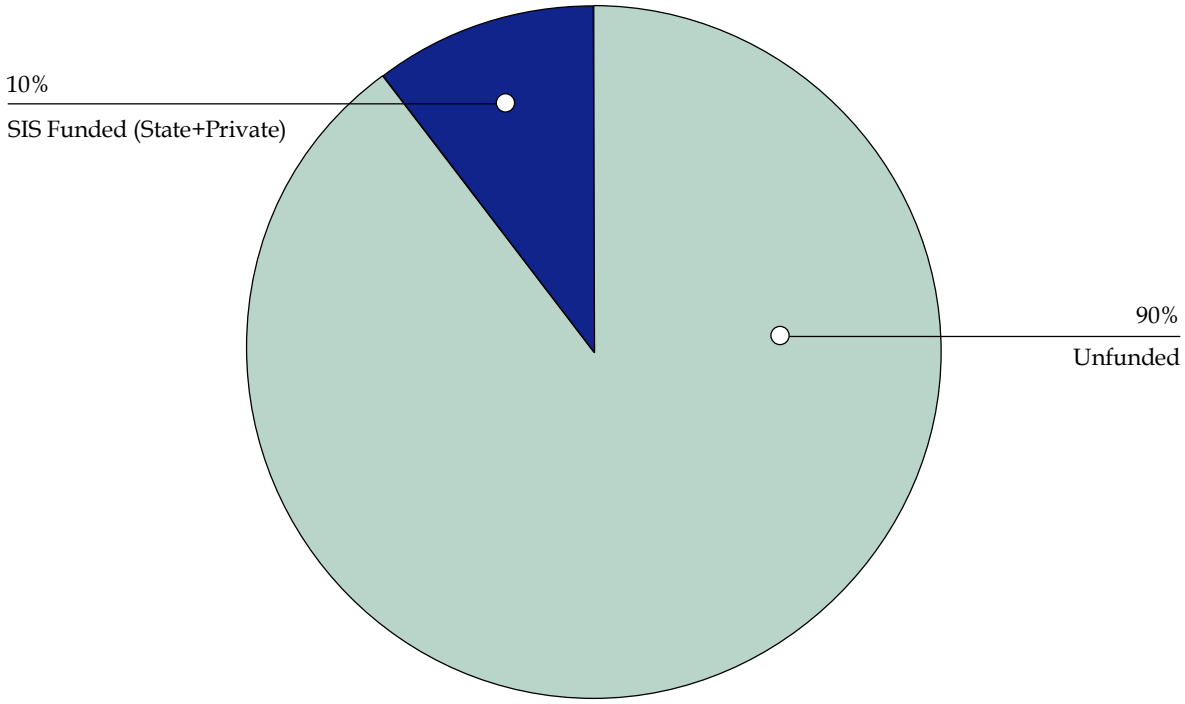
A variety of private and public funding sources are available to implement the Florida rail improvement scenarios. However, the specific amounts associated with these sources are unknown. Private industry funding depends largely on quarterly revenues and the cost of borrowing. Federal revenues depend on a variety of programs that are periodically reauthorized, and may (or may not) include vitally needed earmarks. It is hoped that pending Federal transportation legislation will provide additional funding for rail programs, but this is far from certain, and there will be competition for any available funds from other states and other modes. As previously discussed, the SIS provides a steady source of funding for transportation projects, but there is no guarantee that freight rail projects will be selected. There also is a statewide funding gap for rail lines that are not part of the SIS.

8.2 Funding Shortfall

Figure 8.1 compares the $782 million in rail needs (identified in Table 6.5) against the $80.5 million in projects currently planned for funding from a combination of the SIS and

private sources (Table 7.3).[2] As shown in Figure 8.1, funding is available for only 10 percent of the identified needs through the year 2010. Clearly, there is a significant gap between Florida rail program funds and Florida's rail needs.

Figure 8.1 Percentage of Needs Funded by Strategic Intermodal System
2006-2010



While Figure 8.1 provides a snapshot of the current funding situation, it does not provide the complete status. The unfunded needs will continue to grow as new projects are identified. This is especially true in the case of CSXT, which has not fully revealed their Florida strategic plan and identified all of their needs.[3] The percentage of needs that are funded also will grow as the most important projects are financed privately, as funding becomes available. Also, many of the unfunded needs will be addressed beyond 2010. Finally, there may be opportunities to obtain Federal funding for some of the unfunded needs.

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[2] "CSX Submission for the Florida Strategic Intermodal System," was provided to FDOT in April 2005. The CSX report was received too late to incorporate into this chapter, therefore, it is summarized in Addendum 1. Substituting in the new CSX needs brings the total to $825 million, though it does not contain cost estimates for future terminal expansion which CSX claims **"will likely be the most expensive"** part of the plan to move more long haul truckloads by rail.

[3] Ibid.

What seems clear, based on historic and current funding sources and levels, is that neither the private or the public sectors alone will have sufficient capital for the investments needed to allow rail to reach its full potential in meeting Florida's transportation needs. Some form of innovative financing – with public participation leveraging private investment – will be essential.

8.3 Potential Funding Sources

Many states, like Florida, are involved in freight rail planning and actively invest in freight rail projects. Thirty state DOTs have staff dedicated to managing freight rail and passenger rail programs. Twenty state DOTs have staff dedicated specifically to freight rail. Twenty-two states have used state money to fund rail projects, which have included the purchase of branch lines and the banking of rights-of-way, grants, and loans for rail line rehabilitation and equipment, and construction of clearance and track improvements. Several large-scale studies also are underway to explore the extent to which publicly funded improvements to the freight railroads can provide congestion mitigation and lead to avoided highway costs.

Florida's assistance to freight railroads is based primarily on the potential for congestion mitigation, highway maintenance cost savings, job creation, economic development, safety, and the continuation of rail service. The primary funding mechanism is the SIS, which currently is projected to provide approximately $9 million annually for freight rail assistance between 2006 and 2010. When combined with private matching funds, this source will go a long way toward strengthening Florida's railroad system. Still, as discussed in the previous section, SIS funding cannot be expected to address all needs and issues.

As it plans for the future, the State can consider three basic tools for investing in freight rail improvements, along with some other possible mechanisms discussed below:

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. CMAQ, created in ISTEA, has benefited passenger 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 in reauthorization.

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.
- 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 freight rail improvements in the future. State-only SIBs are another possibility, such as Pennsylvania's initiation of a new state SIB for freight 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 freight 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 freight rail infrastructure improvements. The project was funded through a combination of railroad revenues; port revenues; state, local, and regional funds; and Federal loan guarantees. The Shellpot Bridge in Delaware is another excellent example of public/private cooperation for a needed freight rail project benefiting both sectors.

A key strategy will involve the need to leverage potential Federal funding sources, especially for large-scale projects of regional and national significance. There is renewed interest in investing in freight rail as a means of avoiding highway costs, improving safety and the environment, and strengthening and expanding the nation's freight network. Large

scale efforts such as the Mid-Atlantic Rail Operations Study (MAROps)[4] and the Chicago Region Environmental And Transportation Efficiency Study (CREATE)[5] have shown a willingness of Federal, state, local, and private concerns to work together to enhance the freight rail network.

Table 8.2 summarizes the current Federal programs that can potentially benefit freight rail and shows freight-related Reauthorization proposals that are included in one or more bills.

Table 8.2 Current and Proposed Federal Funding Programs for Freight Rail-Related Investment

Current and Proposed Federal Programs	Current Eligibility for Freight Rail-Related Improvements	Impediments	Proposed Reauthorization Changes
NHS	Can fund highway intermodal connectors to rail terminals.	Connectors are normally lower priority on NHS system and there is no eligibility for rail improvements.	All reauthorization bills propose set-asides for intermodal connectors.
STP (including Section 130 Rail-Highway Grade Crossing Program)	Section 130 funds rail-highway grade crossing safety improvements. STP in general can fund improvements to accommodate freight rail, under certain circumstances. Work allowed includes: "…lengthening or increasing vertical clearances of bridges, adjusting drainage facilities, lighting, signage, utilities, or making minor adjustments to highway alignment…"*	STP normally can't fund freight rail other than highway grade crossings, which must have safety benefit.	Increased funding for Section 130 in Safe, Accountable, Flexible, and Efficient Transportation Equity Act (SAFETEA) and Transportation Equity Act: A Legacy for Users (TEA-LU); Administration and SAFETEA makes all STP funds eligible for publicly owned intermodal facilities, including rail.
CMAQ	Can fund any transportation project that improves air quality, including operations for up to 3 years.	Air quality-oriented, not for capacity improvements.	No change for freight.

[4] MAROps is a joint initiative of the I-95 Corridor Coalition, five-member state (New Jersey Pennsylvania, Delaware, Maryland, and Virginia), three railroads (Amtrak, CSX, and NS). The FRA and FHWA participated as advisors. The MAROps participants crafted a 20-year, $6.2 billion program of rail improvements aimed at improving the competitiveness of north-south rail transportation for both passengers and freight in the Mid-Atlantic region.

[5] 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 IL DOT, Chicago DOT, 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.

Table 8.2 Current and Proposed Federal Funding Programs for Freight Rail-Related Investment (continued)

Current and Proposed Federal Programs	Current Eligibility for Freight Rail-Related Improvements	Impediments	Proposed Reauthorization Changes
TIFIA	Provides loans and credit assistance for highway and public intermodal rail facilities.	Private rail not eligible. Current project minimum $100 million.	Administration and SAFETEA proposes to make private rail eligible. Project minimum reduced to $50 million. Requires a revenue stream.
RRIF	Provides loans and credit assistance to private railroads.	Applicant must provide Credit Risk Premium. "Lender of last resort" provision has caused some concern.	No changes proposed.
GARVEEs	The Grant Anticipation Revenue Vehicle (GARVEE) bond is a financing instrument with principal and/or interest repaid with future Federal-aid highway funds.	Eligibility is constrained by the underlying Federal-aid highway programs.	Same as for SIBs, underlying Federal program eligibility carries through into GARVEEs.
Borders and Corridors	Border and corridor programs are for improvements to highway trade corridors and border crossings and have been used for rail grade crossings; e.g., FAST.	Very limited eligibility for rail; highway needs dominate.	Administration proposes eligibility for multistate, multimodal corridor planning; SAFETEA and TEA-LU propose expanded funding with current eligibilities. All bills separate borders and corridors.
Rail Modernization	Public transit program – can fund commuter rail improvements that have associated benefits for freight.	Must have primarily passenger benefit.	Likely source for flyover projects benefiting commuter rail.
High-Priority Projects	Rail Intermodal Projects occasionally earmarked by Congress, such as Detroit rail intermodal terminal in TEA-21.	Normally focused on large highway projects.	This source and new program for "Projects of Regional and National Significance."
Projects of Regional and National Significance	Proposed program.		TEA-LU proposes new discretionary program for "Projects of Regional and National Significance" that could include freight rail projects.
Private Activity Bonds	Allows private sector access to tax-exempt debt. Currently not available for surface transportation.		Administration and SAFETEA propose $15 billion private activity bond volume for highway and rail projects. This would allow railroads to participate in tax-exempt borrowing along with city and state.

Table 8.2 Current and Proposed Federal Funding Programs for Freight Rail-Related Investment (continued)

Current and Proposed Federal Programs	Current Eligibility for Freight Rail-Related Improvements	Impediments	Proposed Reauthorization Changes
Tax Credit Bonds	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. Currently not available for transportation.		AASHTO proposes a Transportation Investment Corporation to issue $80 billion in tax credit bonds, a portion to benefit intermodal freight. An institutional mechanism, Bonds for America, has been proposed in SAFETEA but no funding has been provided.

Source: NCHRP 8-36, Task 43, "Return on Investment on Freight Rail Capacity Improvement," April 2005.

Note: * Federal Highway Administration Information Memo entitled *Use of Federal-Aid Highway Funds for Improvements to Rail Facilities*, dated February 9, 1993, and signed by Anthony R. Kane.

The most beneficial Federal programs for freight rail to date have been the FHWA Section 130 grade crossing and CMAQ programs, and the FTA Rail Modernization Program (which has funded commuter rail improvements that have been indirectly beneficial to freight rail). For the future, the proposed changes for TEA-21 reauthorization noted in Table 8.2 all have the potential to spur additional investment in freight rail projects. For large-scale projects, the proposed program for Projects of Regional and National Significance is of most interest along with the Section 130 grade crossing program or its successor. The TIFIA loan and credit enhancement program offers possibility if a revenue stream is identified. RRIF will likely continue as the program of choice for smaller regional and short line railroads.

Private Activity Bonds and Tax Credit Bonds present two interesting funding possibilities. Private activity bonds could give private railroads access to tax-exempt financing for rail improvements, thus significantly reducing the cost of capital. This could allow the railroads, states, and the cities to jointly pursue tax-exempt borrowing. The Tax Credit Bond initiative, as proposed by AASHTO, would set aside a portion of the proceeds for intermodal improvements such as freight rail that could be distributed as grants, loans, or credit enhancements. The tax credit bond option continues to be explored among constituency groups and on Capital Hill. An institutional mechanism, Bonds for America, has been proposed in reauthorization but no funding has been provided.

8.4 Framework for Evaluating Projects Involving Public Sector Funds

As illustrated in Figure 8.1, freight railroad improvement needs far exceed available funding. To help FDOT allocate public dollars in a manner that maximizes public benefits, it is necessary to develop a prioritization process and provide a better understanding of what constitutes a public benefit. This section outlines a framework FDOT has developed for prioritizing freight rail needs. This section also discusses work on a framework across all modes for fair allocation of funds through the SIS program.

8.4.1 Historical Basis

In the 1970s, the United States was faced with the bankruptcy of several northeastern railroads. The Federal Government came to the rescue by provided funding through several acts: Regional Rail Reorganization (3R) Act of 1973; Railroad Revitalization and Regulatory Reform (4R) Act of 1976; Local Rail Service Assistance (LRSA) Act of 1978; and, Local Rail Freight Assistance (LRFA) program of 1989. This prompted the need to develop an objective methodology for allocating funding to the railroads in a way that took into consideration public interests. Consequently, FRA developed a benefit/cost methodology described in "Benefit/Cost Guidelines Rail Branch Line Continuation Program," (February 1980) and "FRA Simplified Benefit/Cost Methodology" (May 1982). This methodology was updated for the LRFA program in the FRA document "Benefit/ Cost Methodology for The Local Rail Freight Assistance Program."

The FRA benefit/cost methodology consists of a multisteps process.[6] Of relevance to this discussion are the direct transportation efficiency benefits and the secondary benefits contained in the FRA methodology. The transportation efficiency benefit (items a through g) include direct savings to shippers and carriers. The secondary benefits (items h through j) contain items that are a result of the direct benefits.

a. Difference between rates charged for service by alternate mode and rates changed for rail service on traffic that will move under both alternatives;

b. Shipper business profits, on traffic that would not move without project;

c. Branch line projected operating profit or loss;

d. Labor output that would be lost without project;

e. Cost of moving businesses, if move would occur without project;

[6] These are described in full in: Federal Railroad Administration, "Benefit/Cost Methodology for The Local Rail Freight Assistance Program," July 1990.

f. Present value of stream of lease payments;

g. Salvage value at the end of planning horizon;

h. Relocation expenses, if line improvements prevent a business from incurring relocation costs necessitated by locating nearer to a alternate transportation source;

i. Unemployment, if line improvements prevent loss of jobs, then wages earned are a benefit for the expected amount of time the employees would have been unemployed; and

j. Highway impacts, if not completing the project would lead to a significant diversion of traffic from rail to truck, then avoided increases in road maintenance and repair are public benefits. Truck to rail diversions also lead to an decrease in air pollution, as trucks generally produce at least three times more NO_x and particulates than trains on a per ton basis.

This framework developed by the FRA provides the foundation for many of the public benefit calculation used in evaluating public investments in freight rail. This topic is further discussed in the NCHRP project "Return on Investment on Freight Rail Capacity Improvement."[7]

8.4.2 Strategic Intermodal System – Future Prioritization Plan

Drawing from this historical work and discussions with key stakeholders, FDOT is in the process of developing a public benefit methodology for prioritizing rail projects under the SIS. This is part of a larger effort to develop a consistent methodology for prioritizing projects across all transportation modes to obtain the most efficient allocation of SIS funds.[8]

Under this methodology the railroads will be asked to provide key performance projections for each project. FDOT will then convert these performance projections into priority criteria. The types of information the railroads will be asked to supply for each project are:

- Travel time reductions;
- System reliability improvements;
- Industry standards conformation;
- Capacity increases;

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[7] National Highway Cooperative Research Program, Project 8-36, Task 43, "Return on Investment on Freight Rail Capacity Improvement," April 2005.

[8] Reynolds, Smith and Hills, "Technical Report: Development of a Strategic Intermodal System (SIS) Project Priority Methodology," January 2005.

- Railroad-Highway at-grade crossing reduction or improvement; and
- Business capture, retention, and job creation.

FDOT can then use this information to look at the public benefits, such as:

- Projected change in NO_x and particulates;
- Projected change in fuel consumption;
- Projected change in truck vehicle miles traveled;
- Projected change in number of Florida jobs;
- Projected change in highway travel time delays;
- Avoided highway costs;
- Projected change in highway maintenance costs;
- Projected change in shipper transportation expenditures;
- Projected new or increased wages;
- Projected economic changes (taxes, gross state product, etc.);
- Projected safety changes due to change in at-grade crossing;
- Change in passenger rail operating subsidies; and
- Projected safety changes due to change in truck VMT.

9.0 Recommendations

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

- CSXT is developing a strategic plan for the new economy that will restructure their rail operations and have broad implications for freight rail services throughout Florida;
- FEC plans to double track most of their network, providing increased capacity for both freight and passenger trains along the entire Florida eastern seaboard;
- The short line railroads plan to upgrade sections of rail to 286,000 pounds railcar weight-bearing standards, which will create opportunities for the railroads to enter new markets;
- 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 improve access to airports;
- The Strategic Intermodal System provides a stable, long-term source of funds, allowing the Department to make strategic investments that will enhance the freight rail network; and
- The Federal Government is debating legislation that will reauthorize the Federal surface transportation programs. The proposed reauthorization provides new support for freight rail projects.

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

- The Florida population continues to grow at twice the national average, generating more passenger vehicle travel on the roadways and greater, consumer-driven demand for freight movement;
- The CSX restructuring will create difficult decisions about the benefits and costs of abandonments, purchases by other rail operators, intercity passenger service, and recreational uses;
- There are many needs on Florida's Class II and III railroads to increase capacity, upgrade track and bridges, improve safety, and improve modal connections;
- Increasing roadway and railroad traffic will create more delays and safety hazards at the 5,000 at-grade crossings in Florida;

- Neither the railroads or the State will have funding to address all of the needs;
- Loss of rail service will render several Florida industries less competitive, especially in agriculture and mining, and at the marine ports; and
- Without a public-policy-driven expansion of the freight rail network, growth in goods movement will occur on the roadways, increasing congestion, construction costs, maintenance costs, pollution, fuel usage, and accidents.

To support the deliberations of the Florida Legislature, the DOT, and other key partners in the State's multimodal transportation system, this *Freight Rail Component of the Florida Rail Plan* offers the following six goals and accompanying broad-based policy-level recommendations. These recommendations, and the other data and findings developed in this document, are intended to serve as a starting point for future rail planning in Florida and for the resolution of critical issues regarding overall vision, governance, funding, and program delivery for Florida's freight rail system.

It is recommended that Florida rail program adopt these six goals:

1. Promote economic development and job growth;
2. Relieve highway congestion through a competitive freight rail system;
3. Maintain the physical continuity and capacity of the rail system;
4. Improve public safety and security;
5. Leverage Federal funding sources; and
6. Develop public/private partnerships.

The specific recommendations for each goal are as follows.

Goal: Promote Economic Development and Job Growth

Recommendation #1 – The Department should continue to support new and expanded freight access to businesses, ports, and other freight generators for the purpose of maintaining and supporting economic growth. These are typically projects with local impacts that require close coordination with MPOs. The Strategic Intermodal System (SIS) program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #2 – The Department should continue to preserve the viability of Florida's rail network and corridors through strategic programs to support rail operators and, where necessary, preserve the existence of a rail corridor or local service where there are significant public benefits, including economic development, safety, and environmental protection. The SIS program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #3 – The Department should make industrial development agencies aware of the growth of high-tech rail suppliers in the State, and help promote the attraction and retention of these companies. The Department also should promote development of training programs through local colleges and schools to help alleviate the shortage of rail labor.

Recommendation #4 – The Department should promote the public benefits of freight rail, using information from this document and other sources. Stories reporting the public benefits of rail and highlighting the crucial role of rail in industry supply chains can be posted on the Department Internet site and included in Department presentations.

Goal: Relieve Highway Congestion Through a Competitive Freight Rail System

Recommendation #5 – The Department should continue to support new access and expansions in rail capacity that will result in diversion of freight from truck to rail. Shifting freight from truck to rail can help reduce highway congestion and delays, maintain highway capacity for freight that can only be moved economically by truck, reduce highway construction and maintenance costs, and increase safety and environmental quality. The SIS program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #6 – The Department should focus available SIS program funds on projects that: improve connections with other modes to create a stronger multimodal transportation system; enhance the freight capacity and reliability of Florida's transportation network; and, support modern rail industry standards that ensure an efficient system. Such projects require close coordination with FDOT district offices and MPOs. Department technical and financial participation in these projects is appropriate because the costs are usually accrued locally, but the benefits are often accrued regionally or statewide.

Goal: Maintain the Physical Continuity and Capacity of the Rail System

Recommendation #7 – The Department should support efforts to modernize the rail system by upgrading track and bridges to accommodate 286,000-pound railcars. The Department also should support efforts to improve schedule reliability, reduce delays, and provide faster travel speeds through signal, operational, and other technology improvements. The SIS program should be used for this purpose, although other funding sources will be required for projects outside the SIS network.

Recommendation #8 – The Department should obtain right of first refusal for the purchase of rail lines being sold within Florida. Criteria for state purchase should include consideration of cost, the importance of corridor for passenger and freight uses, public benefits such as economic growth and environmental protection, the viability of other purchasers, and potential for other corridor uses.

Goal: Improve Public Safety and Security

Recommendation #9 – The Department should continue to identify improvements to highway grade crossings that are identified as dangerous because of high rates of fatal or personal injury crashes, conduct public education campaigns, including Florida Operation Lifesaver, and actively monitor progress toward the reduction of grade-crossing accidents.

Recommendation #10 – The Department should promote the Association of American Railroads' security mandates to help protect Florida residents.

Goal: Leverage Federal and Private Funding Sources

Recommendation #11 – The Department should make maximum use of Federal funding available through the pending reauthorization of the Federal surface transportation programs. This funding can be applied to capacity expansion and facility construction, especially for projects of regional and national significance.

Recommendation #12 – The Department should identify and make use of other Federal funding programs that provide transportation planning and improvement funds that can be used to support general freight transportation planning, freight rail planning, and freight improvements such as the Corridors and Borders program. The Department also should identify and make use of multistate/multiclient pooled funding studies and projects that address freight and freight rail needs in Florida and Southeast U.S.

Recommendation #13 – As intercity and commuter passenger rail services grow in Florida, the Department should benchmark existing freight capacity and ensure that Federal, State, and local passenger programs provide funding for capacity expansion in shared-use corridors.

Recommendation #14 – Most Federal programs require state, local, or private matching funds for Federally funded projects. The SIS program provides one source of matching funds. The Department should identify additional, flexible funding sources to maximize the use of Federal money.

Goal: Develop Public/Private Partnerships

Recommendation #15 – The Department should convene and support a statewide rail advisory group comprising railroads, shippers, and other parties with a stake in Florida's rail system. The Florida Railroad Association provides a forum for the railroads to discuss common issues and convey them to FDOT, but no comparable forum exists that brings together shippers, railroads, and public officials. Most of the shippers interviewed in the course of developing this plan identified the lack of communication across the Florida rail community as a problem, especially communication between shippers and the larger railroads.

Recommendation #16 – The Department should continue to engage the Florida railroads in the process of developing criteria for allocation of available state funding. This will ensure acceptance of the criteria and broader participation in programs.

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 21st 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 represents 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 – Liquified 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_2), ozone (O_3), particulate matter (PM_{10}), and sulfur dioxide (SO_2).

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 are 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 21st 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 21st 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 or 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.

Addendum 1 – CSX Transportation Needs

In December 2004, CSX made a presentation to Florida DOT entitled "State of Florida & CSX: Building For The New Economy." A summary and discussion of the presentation is contain in Section 5.3 of this *Freight Rail Component of the Florida Rail Plan*. In April 2005, CSX provided Florida DOT a report entitled "CSX Submission for the Florida Strategic Intermodal System." This report contains five groups of projects that CSX has submitted for potential funding under the Strategic Intermodal System.

The CSX report was received too late to include in the main discussion of needs in Chapter 6.0 of this *Freight Rail Component of the Florida Rail Plan.* Therefore, this addendum contains a summary and discussion of the CSX report.

Priority Group I Projects and Public Benefits

The Group I projects represent the most immediate and highest priority needs on the CSX rail network. Group I contains two projects, both aimed at capacity expansion on the "S Line" between Jacksonville and Orlando/Tampa. More specifically, the projects are located on CSX's 155.7-mile Wildwood Subdivision between Baldwin Yard (Jacksonville) and Zephyrhills (20 miles NE of Tampa). These projects will eliminate the two longest runs between sidings on this subdivision, thus reducing waiting (and idling) time and increasing capacity. The projects are:

- **New 11,000-foot Passing Siding at Anthony, Florida** – Currently, there are 12 miles between the Ocala and Sparr sidings. A siding at Anthony will reduce the distance between siding to approximately six miles. The total cost of this project is $4.75 million.

- **New 11,000-foot Passing Siding at Terrell, Florida** – This siding would reduce the current 15-mile distance between the Bushnell and Lacoochee sidings to approximately seven miles. In addition to the siding, this project requires the construction of three short bridges. The total cost is $5.56 million.

While the two projects each provide benefits to CSX and the public, completion of both projects is necessary to achieve maximum benefits. The public benefits identified by CSX include:

- **Increase Capacity –** By three additional trains per day, which is approximately 221,000 annual truckloads removed from Florida roadways. This will reduce roadway maintenance costs.

- **Improved Safety –** Due to less trucks on the roadways.

- **Reduced Travel Time –** Mostly through decreased delays at grade crossings.

- **Reduced Roadway Congestion –** From freight migrating from truck to rail, due to the increased capacity and service.

- **Reduced Emissions and Fuel Savings –** From lower truck vehicle miles traveled (VMT) and reduced train idling times.

- **Improved Market Position –** For goods and services originating in the South Florida and Tampa/Clearwater/Bradenton areas.

- **Improved Intermodal Linkages –** By reducing connection times for CSX intermodal, automobile distribution, and Transflo bulk shipments to/from the South Florida, Tampa, and Orlando areas.

Priority Group II-V Projects and Future Terminal Capacity

Beyond the two most pressing needs for sidings at Anthony and Terrell, CSX provided several other projects for consideration for public support through the SIS. These projects are aggregated into Group II, III, IV, and V based on priority and timing. Group II projects are for a 2007-2010 timeframe. Groups III, IV, and V are beyond 2010. Table A1.1 contains the full list of projects.

Table A1.1 CSX Rail System Needs – Individual Projects

Group	Description	Cost Estimate (Millions Dollars)
I	Construct new 11,000-foot passing siding at Anthony, Florida.	4.7
I	Construct new 11,000-foot passing siding at Terrell, Florida.	5.6
II	Extend Whitehouse siding and upgrade to 30 mph.	3.6
II	Construction Baldwin to Fouraker second main line, including universal crossovers and improvements to N.W. connection to the "SP" Line.	15.9
II	Upgrade Highland universal crossovers mile post S 666.7 to #20 turnouts.	2.0
II	Install #20 crossover at Brooker connection in Starke.	1.2
II	Improve Hawthorne siding to raise speed to 30 mph.	2.9
II	Improve Lachloosa siding to raise sped to 30 mph.	2.8

Table A1.1 CSX Rail System Needs – Individual Projects (continued)

Group	Description	Cost Estimate (Millions Dollars)
II	Construct double track through Ocala by upgrading and connecting existing Singletary and Ocala sidings.	9.5
II	Improve Summerfield siding to raise speed to 30 mph.	2.7
II	Construct siding and universal crossovers at Wildwood.	11.8
II	Construct 3.8 miles of new double track and universal crossovers and upgrade Dade City and Vitis sidings to double track.	20.4
II	Construct two grade separations in the Dade City to Vitis area.	20.0
III	Improve Honeymoon connection at Jacksonville to provide for simultaneous movements.	1.4
III	Construct second main track at Baldwin from the S.E. Baldwin to the south end of the East Pass on the Jacksonville Terminal subdivision.	18
III	Rebuild the 1-10 overpass over the north end of Baldwin Yard.	18
III	Install new #20 universal crossovers at Starke.	2.4
III	Extend double track at Newnan by 1.8 miles.	6.3
III	Improve Waldo siding, including signals for 30 mph.	2.6
III	Upgrade Orange Heights siding to 30 mph.	3.3
III	Upgrade siding at Sparr to 30 mph.	3.6
III	Construct double track at Santos by upgrading and extending the siding by 2.6 miles.	11.1
III	Install power turnout at Park Spur.	1.0
III	Extend Carters siding to 11,000 feet.	4.7
III	Extend Davenport siding to 11,000 feet.	4.7
III	Install power switch to Stanton.	1.0
III	Install power switch at Taft TOFC facility.	1.0
IV	Connect Whitehouse and East Pass to form double track.	23.9
IV	Expand Baldwin Yard.	24.9
IV	Close several road crossings in Baldwin.	?
IV	Grade separate CR 464 (SW 17th Street) in Ocala.	12.5
IV	Connect double track at Wildwood to Summerfield siding to create a 15.1-mile section of double track.	14
IV	Rebuild U.S. 301 bridge over the north end of Wildwood Yard.	12.7
IV	Extend siding and construct new set-off yard at Stokes.	10.6
IV	Install new #15 universal crossovers at Lakeland.	7.7
IV	Construct a new siding at Lakeland.	7.7
IV	Extend Auburndale siding to 11,000 feet.	4.7
IV	Extend Kissimmee siding to 11,000 feet.	4.7
V	Construct a new siding at Cypress.	6
V	Construct a new siding at Westville	6
V	Grade separate CSX/NS railroad crossing at grade near Duval Intermodal facility in Jacksonville.	10
Other	Future Terminal Capacity	?

The 11 Group II projects total $92.8 million and are all located on the "S Line." The intention is to increase capacity and train speeds between Jacksonville and Orlando/Tampa. These projects quote the same benefits as the Group I projects, namely increased rail capacity of approximately three trains per day and the associated public benefits accruing from a reduction in truck VMT.

Group III contains 14 projects with a total cost of $79.1 million. Nine of these projects are again directed at improving the "S Line." The remaining five include one improvement at Taft Yard in Orlando, and four projects on the line south of Orlando to Auburndale. Group IV (11 projects totaling $123.4 million) continues to focus on this same area. The projects include expansion of Baldwin Yard, and further capacity and speed improvements to the "S Line" and to the Orlando-Auburndale Line.

The three Group V projects total $22 million. Two of the projects are new sidings between Tallahassee and Pensacola. The remaining project is grade separation of the CSX and NS lines near the Duval Intermodal facility.

The final item listed in Table A1.1 is future terminal capacity. The CSX report states that Florida is a perfect place to establish large, multiuse truck/rail facilities similar to BNSF at Joliet, Illinois and UP at Rochelle, Illinois. Although CSX does not use this term, the BNSF and UP facilities are referred to as "freight villages." [See Chapter 5.0] CSX plans to "locate these facilities deep into the heart of the State to maximize the benefits of rail transportation." The number or specific location of these sites were not identified, though previous discussions with CSX have indicated the need for freight villages in Jacksonville, Orlando/Tampa, and Miami.

The report does state that public assistance to expedite these terminal expansion projects is anticipated, and that of all the plans to move more long-haul truckloads from the highways to rail this will likely be the most expensive. What CSX does not state, is that in addition to the expense of the actual terminal expansion, Florida will need to make considerable investment in the connecting roadways to handle truck traffic into and out of these centers.

Discussion

In all, CSX has provided 41 needs totaling 327.6 million. [See Table A1.2] This does not include the cost of future terminal capacity (i.e., freight villages). Of these 41 needs, two are on the I-10 line (both west of Tallahassee), seven are between Orlando/Taft Yard and Auburndale, and the remaining 32 are either on the "S Line" between Jacksonville and Lakeland or improvements to yards in the Jacksonville area.

Table A1.2 CSX Rail System Needs – Cost Summary

Group	Number of Projects	Cost Estimate (Millions Dollars)	Notes
I	2	10.3	
II	11	92.8	
III	14	79.1	
IV	11	123.4	Excludes cost of closing several at grade crossings in Baldwin
V	3	22.0	
Future Terminal Capacity	Not provided	Not provided	No estimates given, though the report warns that these **"will likely be the most expensive"**[1] part of the plan to move more long-haul truckloads by rail.
Total	41	327.6	Excludes cost for Baldwin grade crossing closings and freight villages.

The emphasis is clearly on developing "a significantly more productive and efficient "S Line" corridor and terminal facilities for CSX to handle Central and Southern Florida's freight needs."[2] This is consistent with the CSX presentation to Florida DOT in December, which implied a desire to:

- Focus on three key Florida markets (Figure A1.1);
- Focus investments into fewer, high-density freight lanes (Figure A1.2);
- Develop a partnership with the FEC for service to Southeast Florida (Figure A1.2); and
- Separate freight and passenger service in Florida as much as possible (Figure A1.2).

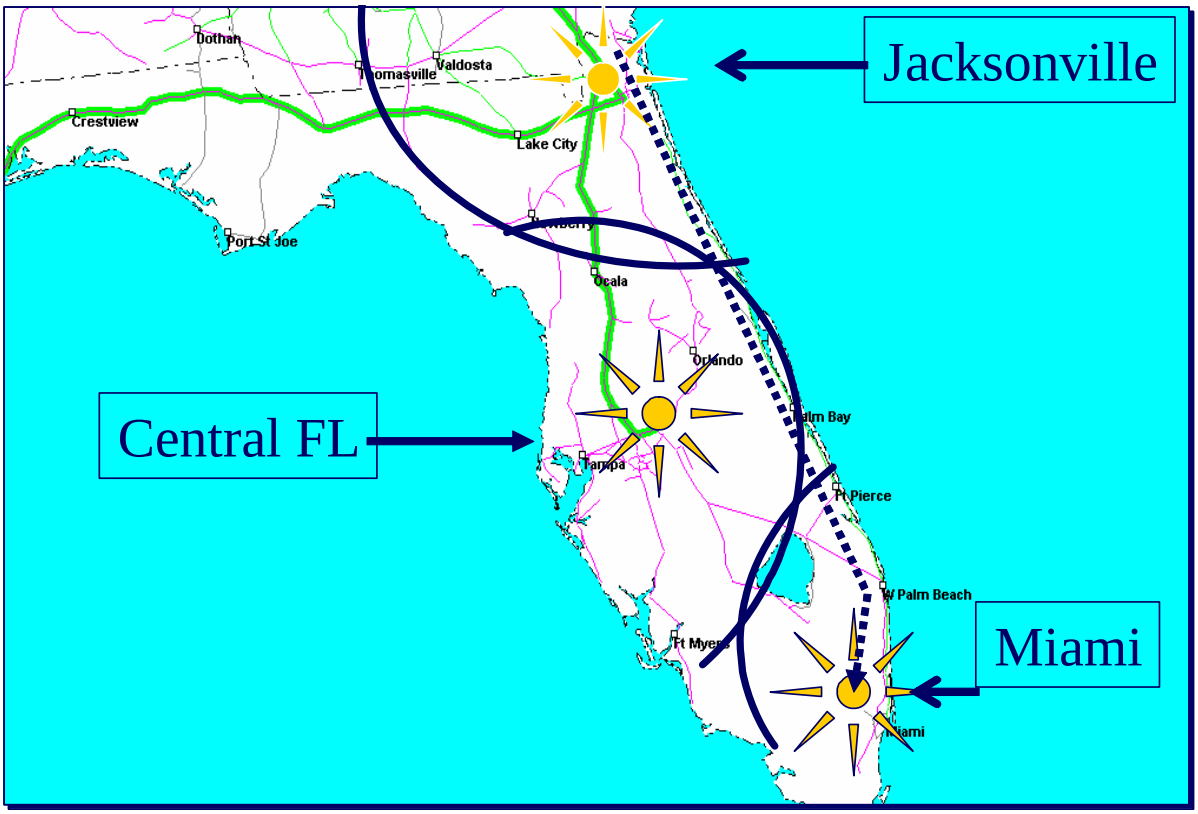
The numerous "S Line" improvement needs reemphasizes the importance of this line to CSX's future plans to provide rail service to Florida. The lack of investments on the "A Line" from Jacksonville to Orlando, and the route from Orlando/Tampa to Miami support the idea that these may be for sale, either to a Class II or III railroad or for intercity passenger service. There also is a notable lack of investment in the collector/distributor

[1] "CSX Submission for the Florida Strategic Intermodal System," prepared by HDR, page 11.

[2] Ibid, page 12.

lines that serve Florida's businesses and ports, which supports a strategy of operating much of the non-bulk trains out of high-density freight villages.[3]

Figure A1.1 Key Florida Markets

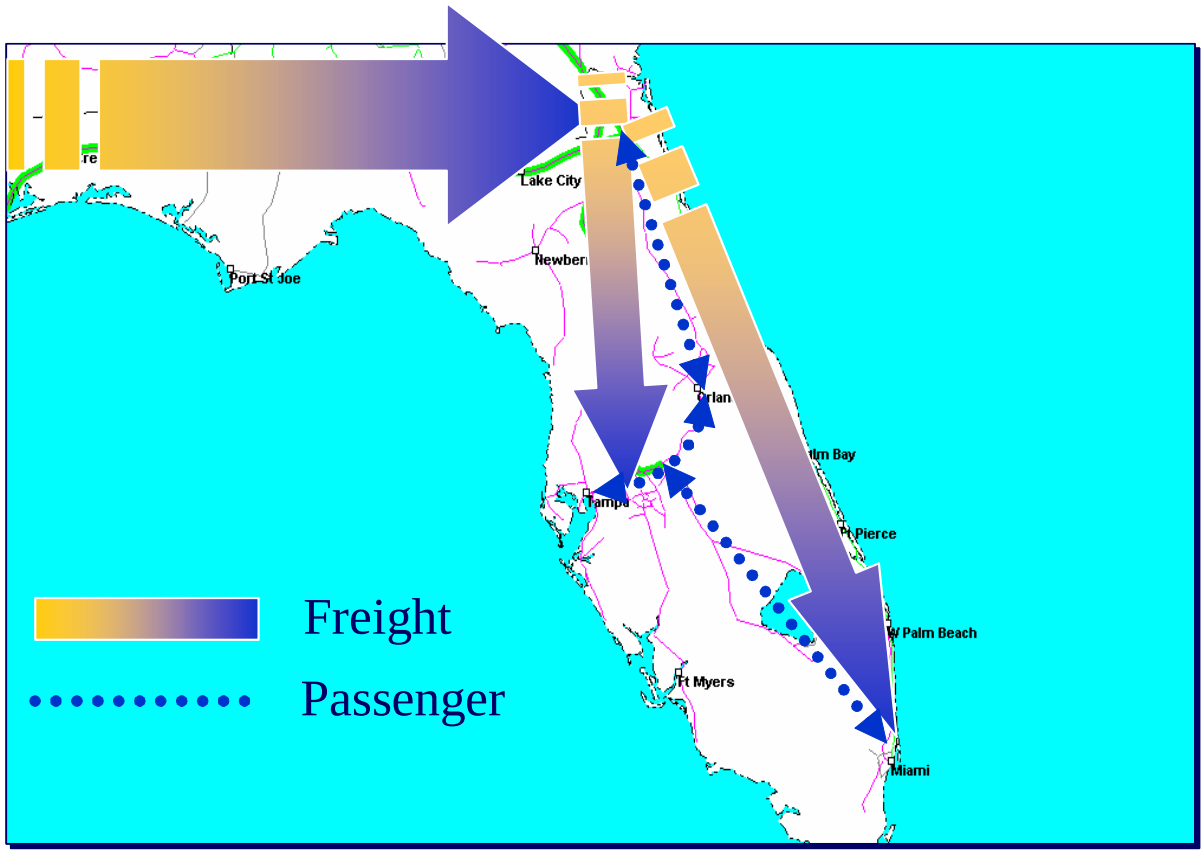


Source: *"State of Florida & CSX: Building For The New Economy,"* presentation to Florida DOT by CSXT on December 3, 2004.

(Heavy Green Lines – CSX Core Routes, Light Magenta Lines – Other CSX Routes, Dotted Line – FEC Route)

[3] Freight villages are best suited for intermodal and carload traffic, not bulk items such as phosphates, construction rock, or coal.

Figure A1.2 Combining State and CSX Freight/Passenger Strategies Might Be Synergistic



Source: *"State of Florida & CSX: Building For The New Economy,"* presentation to Florida DOT by CSXT on December 3, 2004.

■ Update of Needs (Tables 6.2 and 6.4)

The CSX list of needs was received too late to incorporate into Chapter 6.0, "Florida Freight Rail Needs Assessment," but updates to two of the summary tables are provided in this addendum. For this purpose, all prior CSX needs (detailed in Table 6.5) have been removed and replaced with the needs as described in the "CSX Submission for the Florida Strategic Intermodal System." In some cases the CSX needs in Table 6.5 are duplicated in the new list, and in other cases the needs were provided by a shipper and do not conform to CSX's new strategic plan. There were $284 million in needs removed and $328 million in needs added. The total needs are now $825 million, but this total does not include CSX future terminal capacity projects which CSX has claimed "will likely be the most expensive [component of the strategic plan]."

The CSX needs were divided into the five project categories as follows:

1. Maintenance and Repair
   - Group IV – Rebuild U.S. 301 bridge, north end of Wildwood Yard ($12.7M).
2. Safety and Security
   - Group II – Construct two grade separations, Dade City to Vitis area ($20 M);
   - Group IV – Close several road crossings in Baldwin (no costs provided); and
   - Group IV – Grade separate CR 464 in Ocala ($12.5 M).
3. Line Upgrade and Extension – All other projects (total $256 M).
4. Facility Upgrade and Expansion
   - Group III – Install power switch to Stanton ($1 M);
   - Group III – Install power switch at Taft TOFC facility ($1 M); and
   - Group IV – Expand Baldwin Yard ($24.9 M).
5. Landside Access – No projects

The revisions to Tables 6.2 and 6.4 follow.

Table A1.3 Freight Railroad Needs by Category (Revised Table 6.2)

Thousands of 2003 Dollars

Category	Total Needs	Category Description
Maintenance and Repair	$20,505	Projects associated with line and structure maintenance, including bridge rehabilitation, track and tie replacement, resurfacing, and repairs to signs and signals.
Safety and Security	111,800	Projects that enhance safety and security of freight transportation, including grade crossing improvements, grade separation projects, signal upgrades, etc.
Line Upgrade and Extension	557,730	Projects that increase the capacity of the freight rail network, including double-track projects, line extensions, and upgrades to accommodate 286k railcars, etc.
Facility Upgrade and Expansion	109,925	Projects that increase the capacity of freight rail facilities, including expansion of intermodal rail facilities and yards, enhanced connectivity and crossovers, and the construction of new facilities and yards. No estimate was provided by CSX for future terminal capacity, though the needs report warns that this **"will likely be the most expensive"** part of the plan to move more long-haul truckloads by rail.
Landside Access	25,150	Projects that enhance landside access, including intermodal ramps and truck access to railroad terminals.
Total	**$825,110**	

Table A1.4 Summary of Needs by Railroad and Type (Revised Table 6.4)

Thousands of 2004 Dollars

Railroad (or Port Railroad)	Maintenance and Repair	Safety and Security	Line Upgrade and Extension	Facility Upgrade and Expansion	Landside Access	Total
Alabama and Gulf Coast	$2,056	$ -	$ -	$ -	$ -	$2,056
AN	-	-	3,500	-	-	3,500
Bay Line	1,304	-	12,383	-	-	13,687
CSX Transportation	12,700	32,500	255,500	26,900	-	327,600
Florida Central	-	-	7,000	-	-	7,000
Florida East Coast	2,000	16,500	214,168	33,000	500	266,168
Florida Midland	-	-	7,800	-	-	7,800
Florida Northern	-	-	7,800	-	-	7,800
Georgia and Florida RailNet	-	-	12,000	-	-	12,000
Norfolk Southern	1,945	-	-	-	-	1,945
Port Everglades	-	36,800	-	25,000	500	62,300
Port Manatee	-	-	-	1,130	750	1,880
Port of Jacksonville	-	-	280	9,980	2,500	12,760
Port of Miami	500	-	-	-	1,500	2,000
Port of Palm Beach	-	-	-	11,256	9,650	20,906
Port of Pensacola	-	-	-	600	-	600
Port of Tampa	-	26,000	-	-	7,300	33,300
Port Panama City	-	-	7,700	2,059	2,450	12,209
South Central Florida Express	-	-	29,599	-	-	29,599
Total	**$20,505**	**$111,800**	**$557,730**	**$109,925**	**$25,150**	**$825,110**