FLORIDA RAIL SYSTEM PLAN

DECEMBER 2022

Chapter 4

Proposed Freight Rail Improvements & Investments

FDOT FREIGHT & RAIL

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Chapter 4 Proposed Freight Rail Improvements & Investments

This chapter describes the potential freight rail improvements that have been identified through coordination with stakeholders and reviews of public data. The improvements identified include projects to enhance rail safety at grade crossings, promote economic development, expand customer access to freight rail services, establish or improve intermodal connectivity, upgrade aging infrastructure to a state of good repair, and increase capacity to improve transportation reliability and mitigate supply chain constraints. Projects are categorized as short-range improvements, i.e., those that because of ease of implementation, available funding, and political support could be realized within the next four years; and long-range improvements, whose timing and funding and extent of support have yet to be determined.

4.1 Class I Railroads

Class I railroads are designated as having annual operating revenues of $900 million or more after applying the railroad revenue deflator formula.[1] Florida's Class I freight railroads are private companies that finance their own capital projects. The Class I railroads make annual investments in projects that improve and maintain the safety, efficiency, and capacity of their rail lines and terminals, including infrastructure owned and operated in Florida. By contrast, projects that generate public benefits, such as grade crossing improvements, are more likely to be implemented as public-private partnerships that would warrant mention in a State Rail Plan.

4.1.1 CSX Transportation

Short-Range

In early 2022, CSX announced a full-year capital expenditure plan of approximately $2 billion to maintain and improve infrastructure as well as create additional capacity to improve service performance and accommodate higher traffic volumes for customers seeking to increase their use of rail.[2] No major capital expansion projects in Florida have been announced, however, terminal improvements, siding extensions, and other capacity increases have been planned for lines in other parts of the Southeast U.S., which could generate benefits for CSX freight rail shipments moving to and from Florida.

Table 4-1 lists potential short-range CSX projects identified as part of Florida's Strategic Intermodal Systems (SIS) funding plan and other state programs. In addition, multiple highway-rail grade crossing improvement projects and highway-rail grade separation projects on CSX lines have also been identified by FDOT and incorporated into the investment tables in Chapter 5.

[1] Surface Transportation Board (stb.gov)

[2] https://seekingalpha.com/news/3790048-csx-corporation-slips-after-guiding-for-capex-spending-of-2b

Table 4-1 | CSX Short-Range Projects

Project Name	Type of Project	Estimated Cost
CSX at current rail terminus, Webster Turn	Other Improvements	$2,500,000
CSX Corridor (s) ROW in Miami-Dade County at N / A	Study	$1,500,000
Northwood Connection From CSX Mainline to FEC Mainline	Rail Capacity	$5,450

Source: FDOT, 2022

Long-Range

Long-range projects identified in SIS future plans and other state and regional plans include a realignment of the rail spur at Hookers Point in Tampa; new rail from the SV Line to the A Line (Plant City Subdivision); and upgrades to the CSX/Seminole Gulf Railway freight corridor between Milepost 966.5 and 967.8 and also between the Arcadia/DeSoto county line and the Collier/Lee county line.

The long-range plan also includes multiple grade crossing separation and improvement projects. CSX had previously identified the need for a grade separation of Causeway Boulevard (US 41) and the Rockport lead in Tampa. Causeway Boulevard is busy with commuter traffic during peak hours, and it is a primary means for trucks to access terminals at the Port of Tampa. There are multiple trains daily on the Rockport lead, resulting in delays to commuter and truck traffic. A similar project would be the grade separation of the North 50th Street crossing of the Palmetto Subdivision, which CSX identified as a need in the Hillsborough County MPO 2035 Long Range Transportation Plan Freight Mobility Technical Memorandum.

4.1.2 Norfolk Southern

In early 2022, Norfolk Southern (NS) released plans for its 2022 capital program.[3] Although no strategic infrastructure investments in Florida were identified, planned siding extensions in Georgia and Alabama, and terminal improvement projects in Chicago, Kansas City, and Atlanta could generate benefits for NS freight rail shipments moving to and from Florida. No specific capital projects for the NS network in Florida have been identified for this State Rail Plan. One NS railroad overpass project is included in the program of short-range investments in Chapter 5, and a railroad bridge across NS linking East 12th Street with New Kings Road (US 23) in North Florida is included in the program of long-range investments.

4.2 Class II Railroad

Class II railroads are designated as having annual operating revenues between $40.4 million and $900 million after applying the railroad revenue deflator formula.[4] Florida's one Class II

[3] https://assets-global.website-files.com/5dc6fe1711520ea5aee52cb5/61ddd02dfcadca6460fd5555_NS%20-%201.6.22.pdf

[4] Surface Transportation Board (stb.gov)

railroad, Florida East Coast Railway (FEC), has made investments over the past decade to increase its access and intermodal service at container ports.

4.2.1 Florida East Coast Railway

Short-Range

Table 4-2 lists potential short-range FEC projects identified as part of Florida's Strategic Intermodal Systems (SIS) funding plan and other state programs. Projects include various yard improvements for capacity and efficiency, as well as track improvements and double-tracking.

Table 4-2 | Florida East Coast Railway Short-Range Projects

Project Name	Type of Project	Estimated Cost
FEC Miami Freight Forwarding Yard	Freight Capacity-Access	$12,950,000
FEC North Miami to Little River Track Upgrade	Freight Capacity-Rehab	TBD
FEC North Miami to Ojus Double Track	Freight Capacity-Expansion	$12,950,000
FEC Cocoa Expand or Build New Intermodal Yard	Capacity-Rail Yard	$30,000,000
FEC Fort Pierce to Branch Line Upgrade	Rail Track Upgrade	$50,000,000
FEC at 3 Mainline Bridges	Bridge Maintenance/ Rehab	$9,545,000
FEC at Bowden Intermodal	Other Improvements	$3,658,000
FEC Expand Hialeah Yard to Capacity	Rail Yard	$80,000,000
Intermodal Logistics Center at US 27 (South Bay area)	Rail Terminal	$100,000,000
FEC Frontenac to Cocoa Double Track	Rail Capacity	$9,586,657

Source: FDOT, 2022

In addition, multiple highway-rail grade crossing improvement projects and highway-rail grade separation projects on FEC lines have also been identified by FDOT and incorporated into the investment tables in Chapter 5. FEC is continuing its work with FDOT on an improvement program in Jacksonville to reduce the wait times of vehicles at FEC grade crossings in the city's San Marco neighborhood south of the St. Johns River.

FEC related that several projects are dependent on improvements to be made by Brightline-Florida for implementation of its new intercity passenger service between Orlando and Miami.

Long-Range

Table 4-3 lists potential long-range FEC projects identified as part of Florida's Strategic Intermodal Systems (SIS) future plans and other state programs. These include some projects also listed in the short-range project table.

Among the projects listed is a new automobile handling facility in South Florida, replacing FEC's existing facility in Hialeah Yard. The facility will be used for unloading cars from multi-level auto carriers for both local and export markets.

Table 4-3 | Florida East Coast Railway Long-Range Projects

Project Name	Description	Estimated Cost
FEC Expand Hialeah Yard to Capacity	Rail Yard	$80,000,000
FEC Miami Freight Forwarding Yard	Freight Capacity-Access	$12,950,000
FEC North Miami to Ojus Double Track	Freight Capacity-Expansion	$12,950,000
FEC Auto Handling Facility Miami	Seaport-Terminal	$50,000,000

Source: FDOT, 2022

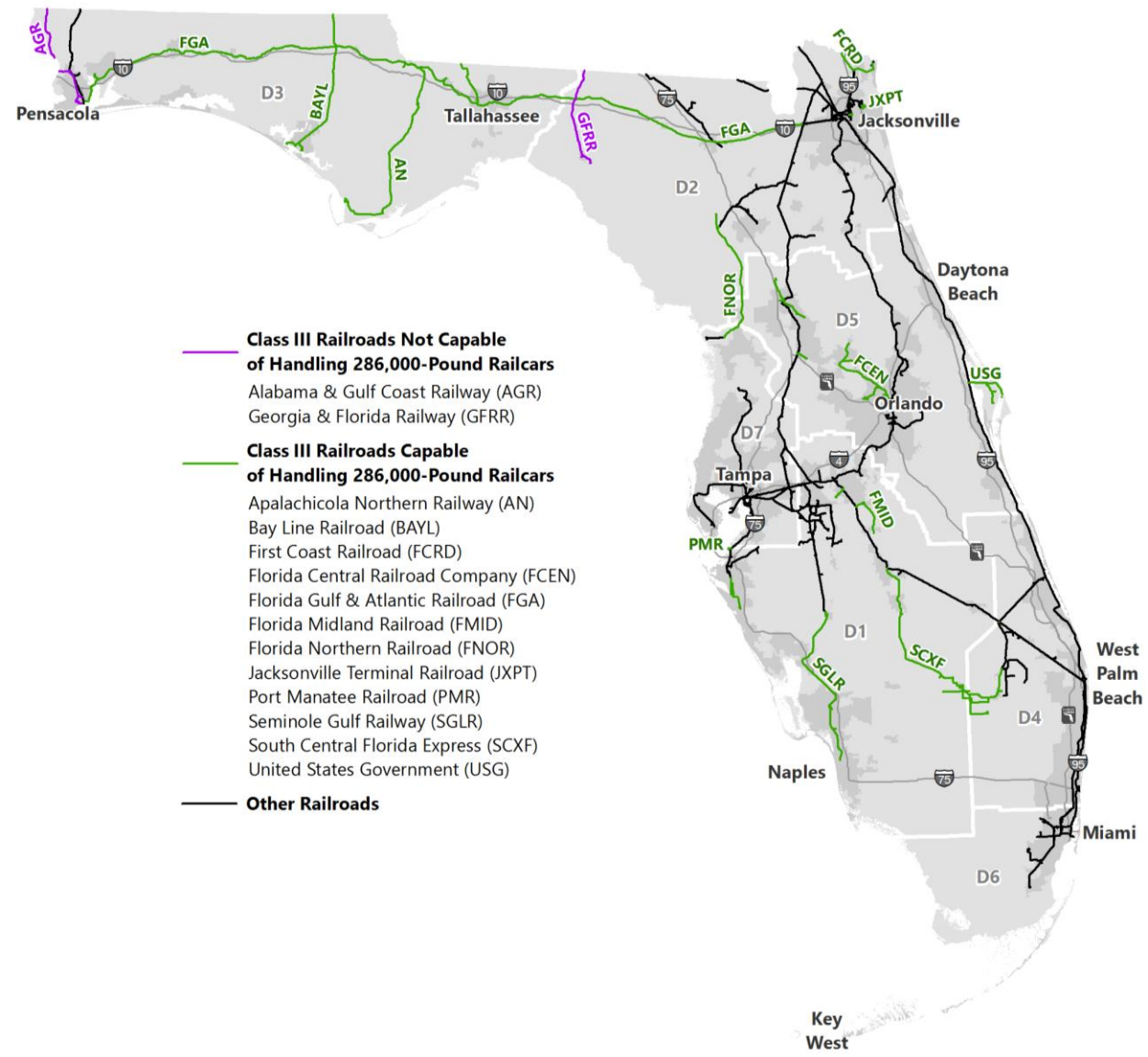
4.3 Class III (Short-Line) Railroads

Class III railroads are designated as having annual operating revenues of $40.4 million or less after applying the railroad revenue deflator formula. Florida's Class III railroads provide critical first-mile/last-mile rail service to shippers across the state that are located along lower-volume branch lines or within terminals, industrial parks, hubs of manufacturing, logistics, or industrial activity. Class III railroads often rely on public funding sources for large capital projects that maintain existing infrastructure in a state of good repair, expand capacity, or modernize assets to continue serving the needs of freight rail shippers.

Some of the largest investment needs that shortline railroads have are projects that upgrade older rail lines to handle the larger and heavier freight cars that have become the industry standard on Class I railroads. Projects may involve strengthening roadbeds and bridges to handle freight cars with a maximum weight on rails of 286,000 pounds (the current weight limit on Class I railroads that interchange with Class III railroads) or removing height obstructions that prevent industry-standard "Plate F" cars (with roof heights 17 feet above the rail) from being carried. Although most of Florida's Class III railroads are able to transport 286,000-pound railcars, a few lines still exist that restrict these car weights, as seen in Figure 4-1.

Shortline railroads were often formed with the purchase or lease of older rail infrastructure from a Class I railroad. This legacy infrastructure may include track configurations or conditions that limit capacity or constrain operational flexibility or efficiency. Common constraints of rail lines acquired by shortline railroads include insufficient yard capacity to switch, build, or stage trains; passing sidings that are too short in length, too few in number, or inefficiently located to accommodate existing operational needs; and inadequate infrastructure to switch customers or interchange cars with connecting carriers. Investments that improve the operational efficiency and competitiveness of shortline railroads enhance the opportunities for Florida businesses to maintain operations, reach customers cost-effectively, and expand their market reach.

Figure 4-1 | Class III Railroad Lines Not Capable of Handling 286,000-Pound Railcar Weight



4.3.1 Recent Federal Grants to Short Lines

Florida Gulf & Atlantic Northeast Florida Rural Railyard Project

In FY 2019, FG&A was awarded a CRISI Grant of approximately $7.8 million for the Northeast Florida Rural Railyard Project. The funds were to be used for right-of-way acquisition, preliminary engineering and environmental analysis and documentation, and construction of a roughly 72-acre railyard in Baker County, Florida. Roberts Land & Timber (Roberts) is the current landowner. The railyard will be the anchor for a new transload facility. The project allows FGA to stage trains there instead of hauling all freight 125 miles west to Tallahassee prior to interchange with CSX.

FGA Florida Panhandle Rural Capacity Expansion Project

In FY 2021, FG&A was awarded a CRISI Grant of $8.3 million for the Florida Panhandle Rural Capacity Expansion Project, which proposes to replace approximately 70,000 ties, install approximately 14,300 new ties, rehabilitate 11 sidings, and make repairs to 60 grade crossings between Jacksonville and Pensacola. The project may also include the acquisition of certain eligible rail equipment. These project elements will improve the track structure, which will increase the line capacity in order to serve growing demand.

Short-Range

Table 4-4 lists potential short-range projects for Florida short lines identified as part of Florida's SIS funding plan and other state programs. In addition, multiple highway-rail grade crossing improvement projects and highway-rail grade separation projects on FEC lines have also been identified by FDOT and incorporated into the investment tables in Chapter 5.

Table 4-4 | Florida Short Line Short-Range Projects

Railroad	Description	Estimated Cost
Apalachicola Northern	Railroad Improvements	$12,000,000
Florida Gulf & Atlantic	Tallahassee Yard Capacity Expansion	$2,002,500
Florida Gulf & Atlantic	Panhandle Track Rehabilitation	$12,000,000
Alabama & Gulf Coast	Track & Bridge Upgrade	$6,643,000

Source: FDOT, 2022

Unanticipated Short-Range Repairs and Improvements

In addition to the planned short-range projects, FDOT anticipates that additional funding from federal and state programs may be needed in the future for short-range repairs and improvements to Class III railroad infrastructure resulting from damage caused by climate change and extreme weather events. One recent example of weather-related shortline damage are the bridge losses sustained by the Seminole Gulf Railway from Hurricane Ian in October 2022. The hurricane destroyed six bridges along the railroad's main line between Arcadia and North Naples (three bridges near Arcadia and three near Fort Myers) and flooded the railroad's principal yard in Arcadia.[5] All rail service on the line has been suspended until repairs can be made to place the track back in service.

Long-Range

Florida's SIS program includes funding for long-range Class III railroad improvement projects. The types of improvements funded are for bridge and track rehabilitation, the latter consisting of crosstie, rail, ballast, grade crossing renewal, and track surfacing depending on the individual need. One long-range project identified in the SIS is a track rehabilitation project on the Alabama & Gulf Coast Railway in northern Escambia County.

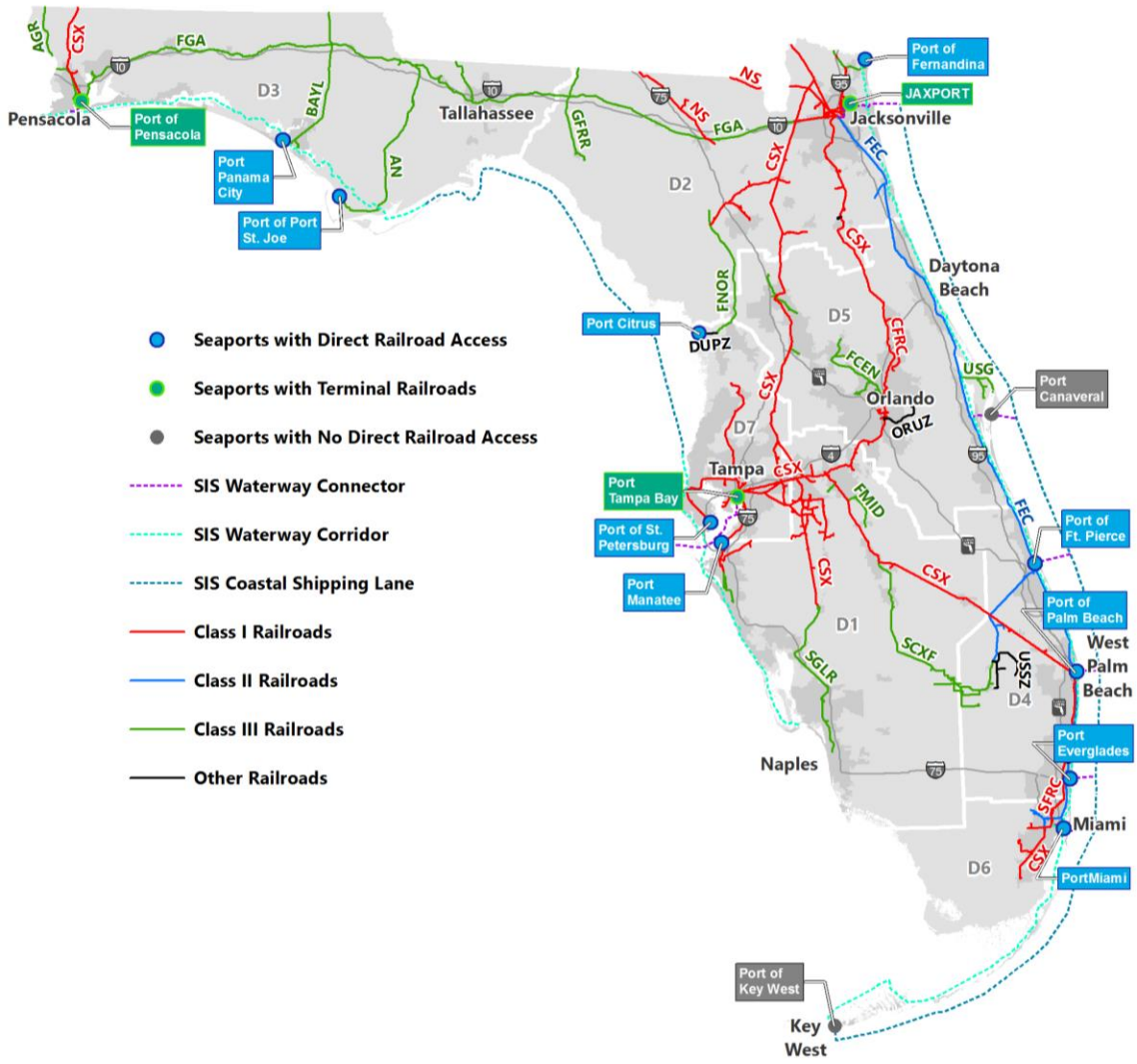
[5] https://www.bizjournals.com/tampabay/news/2022/10/04/southwest-florida-railroad-hurricane-ian.html

4.4 Seaport-Railroad Connectors and Terminal Operators

Rail is a key link in the logistics chain, providing a cost-efficient and high-volume means of moving goods long distances to/from Florida's seaports. Florida's rail system provides essential links to and from Florida's seaports, connecting them to the national freight rail system. By using rail intermodal services, Florida's ports can expand their market reach and customers can take advantage of lower-cost transportation options, replacing long-distance over-the-road truck hauls with local truck deliveries and a long-distance rail move.

Among Florida's 15 seaports, 11 have rail connections and one is currently exploring options to add rail service in the future (Port Canaveral). Additionally, five ports: Port Everglades, JAXPORT, Port Manatee, and the Port of Palm Beach have their own railroads or rail equipment to perform switching, on-port car movements, and on-dock loading and offloading. It should be noted that while the Port of Fort Pierce and the Port of Port St. Joe do have rail connections, these connections are currently inactive. See Figure 4-2.

Figure 4-2 | Florida Freight Rail Network Connections to Florida's Seaports



4.4.1 Recent Rail Improvement Projects At or Near Ports

In recent years, several of Florida's major container ports, such as PortMiami, Port Everglades, and JAXPORT, have diversified their container-handling capabilities and market reach with projects to move a larger percentage of containers by rail. In partnership with FDOT, projects (below) have been undertaken by these to develop on-port and near-port Intermodal Container Transfer Facilities (ICTFs). These facilities enable the efficient transfer of containerized cargo to and from trains and allow for efficient rail transportation service using double-stacked containers on flatcars. Today, several of Florida's seaports operate ICTFs and multipurpose rail terminals. Some of these facilities are highlighted in the next section.

Jacksonville Port Authority

In coordination with the completion of the 47-foot harbor deepening project in 2022, the Jacksonville Port Authority (JAXPORT) is investing $72 million in terminal enhancements to expand container and rail-handling capacity at the Jacksonville Port Authority's Blount Island Terminal. The terminal now features on-dock rail service for cargo handling with heavy-lift capabilities, including one of the nation's highest weight-bearing capacity docks. JAXPORT is currently completing a series of phased yard upgrades to enable the container terminal to handle 500,000 20-foot equivalent units annually. That project is funded by SSA Atlantic Inc., who operates the terminal, and a $20 million grant from the U.S. Maritime Administration. The improvements are funded through a public-private partnership between SSA Atlantic and the U.S. DOT's Maritime Administration (MARAD). In coordination with deepening, JAXPORT completed these berth enhancements enable the SSA Jacksonville Container Terminal (JCT) at Blount Island to simultaneously accommodate two post-Panamax container ships. In early 2023, terminal operator SSA Atlantic will welcome three new eco-friendly 100-gauge container cranes, bringing JCT's total to six.

4.4.2 Recent Port Projects Receiving Federal Grant Awards

Port of Palm Beach Capacity Expansion

In FY 2020, the Port of Palm Beach was awarded a PIDP grant of roughly $13.2 million to double its rail intermodal container-handling capacity. The grant will help fund a project to expand the port's rail infrastructure and container transfer capabilities, modernize truck gates and on-dock roadways, and improve the port's rail connection with the FEC. The completion of this project will help address the major challenge to the Port's ability to reach its maximum container throughput and reach its full potential as a regional economic engine with minimal negative impact on the regional highway network.

Tampa Bay Port Authority Berth 214

In FY 2020, the Tampa Port Authority was awarded an INFRA Grant of approximately $20 million to increase capacity at Port Tampa Bay's Hooker's Point container facility to accommodate an additional 150,000 twenty-foot equivalent units (TEUs) annually. The Berth 214 project is an intermodal project facilitating the transfer of containerized cargo arriving by ship to either road or rail. The project will enable the port to meet existing market demand by expediting construction of a new, 1,300-foot vessel berth (Berth 214) and a 30-acre container yard.

The project includes a gantry crane rail extension, dredging along the dock to enable berthing of post-Panamax vessels, utility and stormwater improvements, and a new container gate. By allowing the simultaneous berthing of up to three deep-draft, post-Panamax vessels, expanding cargo handling capacity, and more efficiently processing container flow, the project decreases shipping costs and improves access to international markets for producers, manufacturers, and distribution centers. The project also generates regional safety benefits associated with fewer truck miles, including crash and emission reductions.

Port Manatee Track Rehabilitation

Port Manatee Railroad has received CRISI grant funding for a two-phase project to replace and upgrade track within and leading to Port Manatee in Palmetto, Florida. Phase 1 replaces and upgrades existing track with new cross-ties, tie plates, bolts, tie anchors, spikes, ballast, and heavier rail in two areas within Port Manatee – north and east of Warehouse 7 and between Warehouse 2 and 3 along Berths 6 and 7. Phase 2 replaces and upgrades existing track in three additional areas within Port Manatee – primarily at the south end of the port's interchange with CSX, the rail line along North Dock Street between East and West End Mainline Switches, and additional work between Warehouses 2 and 3 along Berths 6 and 7.

4.4.3 Proposed Short-Range Future Investments

Table 4-5 lists potential short-range projects for Florida ports identified as part of Florida's SIS funding plan and other state programs.

Table 4-5 | Florida Port-Rail Short-Range Projects

Port	Project	Estimated Cost
Port Everglades	Port Everglades Midport Multimodal Facility – Phase 1	$39,300,000
Port of Fernandina	Port of Fernandina Rail Track Improvements	$600,000
Jacksonville Port Authority	North JAXPORT Switchyard	$10,500,000
Jacksonville Port Authority	Port of Jacksonville Talleyrand Marine Terminal Rail	$250,000,000
Jacksonville Port Authority	Port of Jacksonville Blount Island / Dames Point Terminals – Rail and B	$30,000,000
SeaPort Manatee	SeaPort Manatee Intermodal and Yard Expansion	$19,200,000
SeaPort Manatee	SeaPort Manatee Interchange Yard Expansion	$6,500,000
PortMiami	Port of Miami Extend Railroad Tracks	$1,000,000
PortMiami	Port of Miami Multimodal Terminal	$1,000,000,000
Port of Palm Beach	Port of Palm Beach Intermodal Cargo Transfer Facility	$25,000,000
Port of Palm Beach	Port of Palm Beach On Port Rail Facility Expansion Project	$7,275,000
Port Tampa Bay	Port Tampa Bay Railroad and Crossing Improvements	$11,000,000
Port Tampa Bay	Port Tampa Bay Upland Improvements Port Redwing (Rail)	$4,600,000

Source: FDOT, 2022

The table above includes a $19.2 million rail capacity project at Port Manatee, supported with FDOT participation, to improve supply chain efficiency of containerized export and import cargo movements. Currently, shippers bring loaded containers of cargo from Mexico to the northeastern U.S. seaboard and return empty containers, resulting in constrained supply chains and equipment imbalances. CSX and World Direct Shipping have requested the Port to develop new intermodal container rail facilities that will transfer containerized cargo between 40-foot marine containers carried by ship and 53-foot domestic containers carried by rail to and from U.S. markets in the Midwest and Northeast.

In September 2022, SeaPort Manatee was awarded $11.9 million in Federal INFRA grant funding to help design and construct 16.56 acres of additional cargo-handling space and a new container yard access road, as well as install electrical systems for two new mobile harbor cranes. When complete, CSX will bring southbound double-stack Container on Flat Car (COFC) railcars with 53-foot domestic containers from the Northeast and Midwest to SeaPort Manatee – and return with 53-foot containers loaded with cargo from Mexico.

4.4.4 Proposed Long-Range Future Investments

Florida's seaports are intermodal and cross-modal freight hubs that provide interconnectivity with railroads throughout the state. Total annual Florida container volumes are estimated to grow from 3.8 million TEUs in 2017 to 6.2 million TEUs in 2040.[6]

FDOT has recently participated in many critical rail projects at Florida seaports to enhance connectivity, increase efficiency, and expand capacity. Many of these projects are intended to support on-going growth and potential demand from the growing population, expanded Panama Canal capacity, and increased seaport vessel capacity. Long-range projects will build on these previous accomplishments and continue to expand rail access to seaports, address future capacity needs, and establish new or improved rail services to ports in order to support throughput growth in container and bulk freight handling activities including, liquid bulk, break-bulk, dry bulk and automobiles.

Table 4-6 lists potential long-range projects for Florida ports identified as part of Florida's SIS funding plan and other state programs.

Table 4-6 | Florida Port-Rail Long-Range Projects

Port	Project	Estimated Cost
Port Canaveral	Port Canaveral Rail Expansion	$100,000,000
Port of Fort Pierce	Port of Fort Pierce Re-Establish Avenue M Railway Spur	$5,000,000
Port of Fort Pierce	Port of Fort Pierce Re-Establish Fisherman's Wharf Railway Spur	$5,000,000
Port of Fort Pierce	Port of Fort Pierce Re-Establish Indian River Terminal Railway Spur	$5,000,000

[6] 2020-seaport-and-waterways-system-plan-update6eedf19276fc460e9cad7c294e13806f.pdf (windows.net)

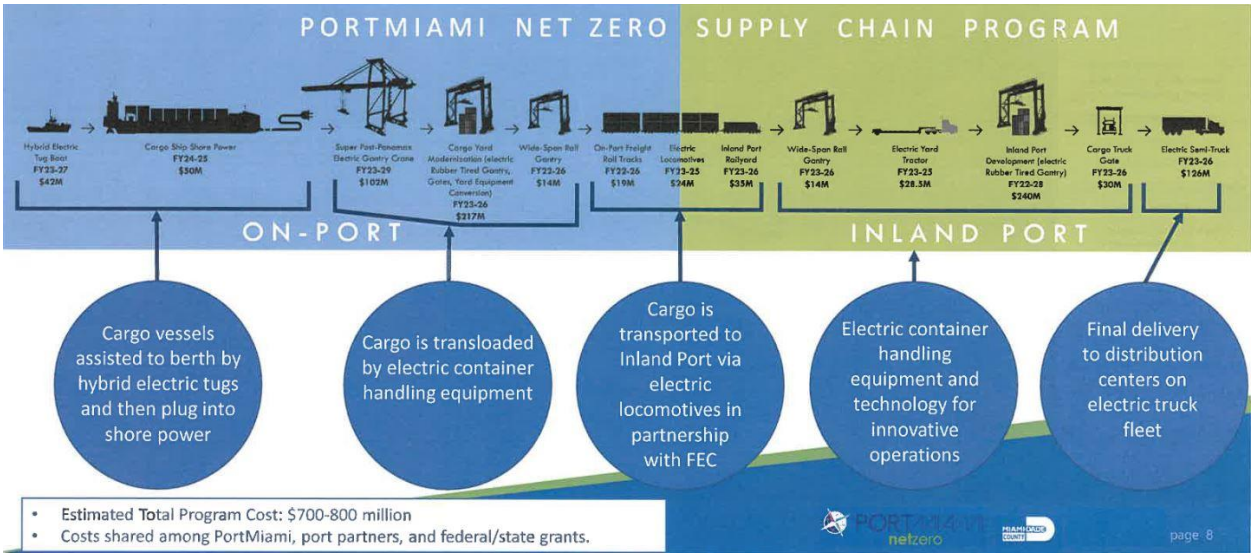
Port	Project	Estimated Cost
Port of Fort Pierce	Port of Fort Pierce Regional Distribution Center Rail Connector to Port	$65,000,000
Jacksonville Port Authority	Port of Jacksonville Blount Island / Dames Point Marine Terminals – Rail	$30,000,000
Jacksonville Port Authority	Port of Jacksonville Talleyrand Marine Terminal Rail	$20,000,000
PortMiami	Port of Miami Multimodal Terminal	$1,000,000,000
Port of Palm Beach	Port of Palm Beach On Dock Rail Expansion and Rail Bridge	$6,000,000
Port of Pensacola	Port Pensacola On-Port Rail Resiliency and Efficiency Enhancements	$1,700,000
Port of Port St. Joe	Port St. Joe Rail Repair	$10,000,000
PortMiami	Net Zero Supply Chain Program – Rail Improvements	$500,000,000

Source: FDOT, 2022

PortMiami Net Zero – Resiliency and Supply Chain Improvements

PortMiami is accelerating the development of its visionary and transformational program to develop the nation's first end-to-end net zero carbon emission supply chain in line with the county's 2030 50% emissions reduction goal, while also working toward the county's economic development goals. PortMiami is seeking $400-$500 million in grant funding over 5 years from sources such as the MEGA Grant Program and IIJA.

Figure 4-3 | PortMiami NetZero Supply Chain Program



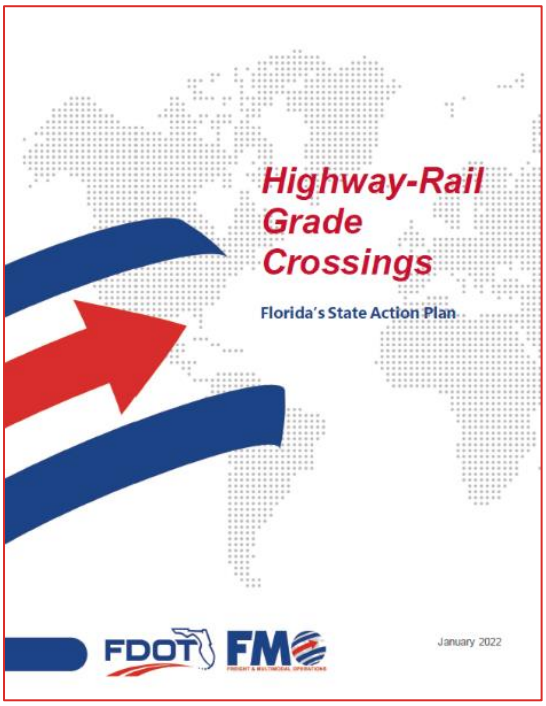
4.5 Highway-Rail Grade Crossing Improvements

Highway-rail grade crossings are a pinch point between freight rail and over the road traffic. Over the last decade, due to increasing population and traffic, incidents at these crossings have slowly but measurably increased. The Freight & Rail Office (FRO) has made multiple efforts in

the past and continues to improve these crossings to ensure they are made safer. Some of these efforts include the State Action Plan, University Research Efforts, Operation STRIDE, and others. Chapter 5 lists specific grade crossing improvement projects and grade separation projects that will be implemented in the short range and long range.

Over the past 16 years, between 560 and 720 crossings have been improved at a cost of $120 million. The long-range, state funded crossing improvements are assumed to continue at the rate of $7.5 million per year (in 2015 dollars). In addition to grade crossing improvements funded through the Rail-Highway Crossing Program (Section 130), Florida has established other programs and partnerships to enhance vehicle and pedestrian safety at highway-rail grade crossings. Those initiatives are discussed below.

Figure 4-4 | Florida's State Action Plan



4.5.1 State Action Plan

The purpose of this Highway-Railroad Grade Crossing State Action Plan (SAP) is to advance the efforts of those programs and plans. The SAP outlines the key challenges for Florida, and the vision for how Florida will address those key challenges. [7]The document starts by laying out the rail safety components of other state plans and discussing the outreach involved in the plan creation. It follows with data analysis and risk assessment components which analyze existing conditions at railroad crossings statewide, and details where risks are the highest. The data analysis and risk assessment lead into a discussion of the highest-priority safety challenges, which are found to be:

- driver and pedestrian behavior
- humped crossing
- traffic queuing on tracks
- blocked crossings

The elimination of rail safety hazards starts with SMART goals, objectives, and actions; these are defined as Specific, Measurable, Action-Orientated, Realistic, and Time-based. The FRO updated the SAP to explore how each safety challenge was selected and will follow with proactive measures for eliminating hazards in the short term to create positive future impacts. The goals and objectives are designed to address the highest priority safety challenges.

[7] Highway-Rail Grade Crossing Safety Action Plan (fdot.gov)

4.5.2 Public Railroad-Highway Grade Crossings Open and Closure Program

Per Florida Statute 341.302, the Department is directed to address the opening and closing of public grade crossings as part of its statewide rail program duties and responsibilities to 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.[8]

The Department initiates and maintains a crossing consolidation and closure program based on analysis of engineering, safety factors, and impact on operating efficiency to vehicle and rail traffic. Governmental entities are notified of potential closures for review and recommendation. Closures by the Department are considered based upon following:

- **Systems or Corridor Approach.** Review of crossings on a specific corridor by railroads, cooperative teams (railroads, state, governmental entity), or state rail personnel, to determine redundant or unused crossings that are viable candidates for closure.
- **Diagnostic Team Safety Review.** Diagnostic teams review and recommend grade crossing closure candidates based on overall safety index, specific hazards, or response to a serious accident(s)/incident(s).
- **Rail Changes, Construction, or Improvement Impacts.** Crossing closure candidates may result from track rehabilitation, new highway or railroad construction, adjacent crossing improvements or signalization, and changes in passenger or freight service.
- **Individual Recommendations**. Recommendations for closure may be submitted by federal or state safety inspectors, Operation Lifesaver volunteers, Railroad Safety Committees, neighborhood associations, or other persons.

4.5.3 Operation Lifesaver

Operation Lifesaver, Inc. (OLI) is a non-profit organization and nationally-recognized leader of rail safety education. Since 1972, OLI has been committed to preventing collisions, injuries and fatalities on and around railroad tracks and highway-rail grade crossings, with the support of public education programs in states across the U.S.[9]

One of the major actions required of the Freight and Rail Office is to perform outreach to communities to ensure that our message of safety and awareness is effective. To that end, FDOT supports Operation Lifesaver, a non-profit organization and nationally recognized leader of rail safety education that distributes educational safety materials and teaches the rail safety message to community members of all ages.

[8] FDOT Public Railroad-Highway Grade Crossings - Opening and Closure
[9] Home | Operation Lifesaver (oli.org)

Figure 4-5 | Operation Lifesaver

OPERATION LIFESAVER® Florida

4.5.4 Railroad Trespassing Reduction Strategies

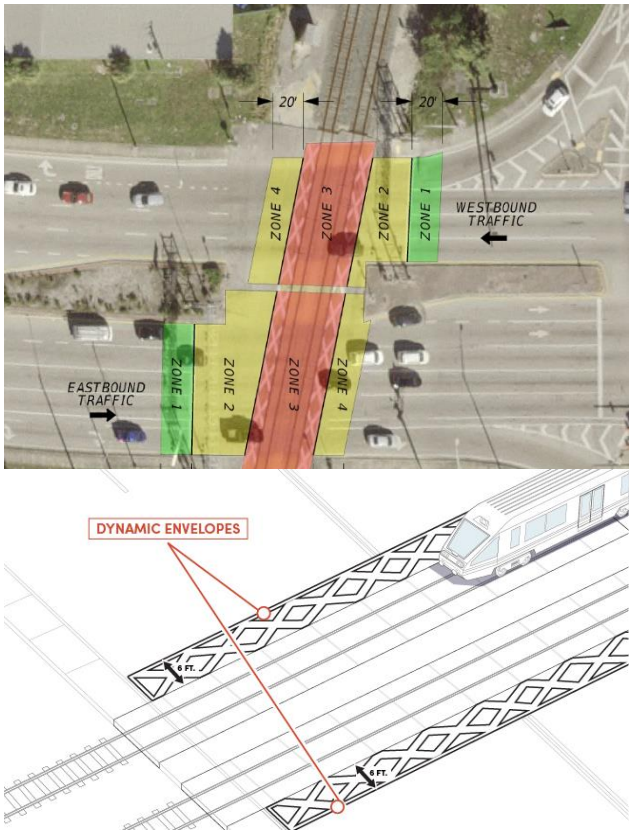
FDOT received a FY 2018 CRISI grant in the amount of up to $157,683 for a program to develop strategies for reducing trespassing on railroad rights-of-way. The funding helped FDOT launch a pilot program using drone technology, closed-circuit television with remote monitoring, and geographic information system spatial analysis to aid partnerships among local law enforcement agencies to combat trespassing in Volusia, Seminole, Orange, and Osceola counties.

4.5.5 Operation STRIDE

To support Operation Lifesaver's message, Operation STRIDE (Statewide Traffic and Railroad Initiative using Dynamic Envelopes) was established by FDOT in December 2019 and includes engineering countermeasures, education, and enforcement efforts to provide a comprehensive strategy to prevent fatalities. By March 2022, FDOT installed dynamic envelopes at 4,000 crossings, a roughly $60 million investment.[10]

A Dynamic Envelope is an area near grade crossings designed to keep motorists out of the danger zone. See Figure 4-6. White connecting X's are used to visually highlight the no-stop zone at grade crossings for drivers, bicyclists, and pedestrians. These markings indicate the clearance needed for trains to safely pass, as any object within

Figure 4-6 | Operation STRIDE Dynamic Envelope Zones



[10] Operation STRIDE (fdot.gov)

the dynamic envelope has the potential to be struck when the train passes through. As shown in the illustration below, the distance between the outer rail and where the pavement marking ends will be six feet unless otherwise advised by the operating agency. The total distance for the dynamic envelope area will be, at a minimum, 10 feet on either side of the railroad.

Dynamic envelopes (see Figure 4-7) are intended to signal pedestrians, bicyclists, and motorists to use caution when around trains and train tracks. The clearly marked “No Stop” areas are designed to:

- Positively influence driver behavior
- Reduce the number of vehicles entering the crossings and stopping too close or on the tracks
- Decrease the number of incidents and injuries at grade crossings

Figure 4-7 | FDOT Staff coating Dynamic Envelope

4.6 Be Rail Smart

The Be Rail Smart Campaign is a Florida Department of Transportation (FDOT) effort to increase rail crossing safety. The Campaign was initially launched in 2018 as an effort to increase rail crossing safety awareness throughout all counties within District Four (Broward, Palm Beach, Martin, St. Lucie and Indian River).[11] Goals of this effort are:

- Reduce the number of incidents on or around the tracks
- Create campaign champions
- Establish campaign partners

[11] Be Rail Smart (fdot.gov)

Throughout the month of September, the campaign promotes public education and awareness of rail safety. These activities include, but are not limited to:

- Scheduling a campaign kick-off for all partner agencies and agency presentations
- Participation in public events at or near to rail at-grade crossings near Tri-Rail stations, including pop-up events and field distributions
- Outreach to schools located near rail at-grade crossings
- Coordination with partner agencies, including MPOs/local municipalities and emergency responders to share messaging online and at special events
- Banner installation and printed materials distribution at select locations

The outreach media developed for this effort is broad and includes YouTube content, pens, bumper stickers, backpacks, etc. Some of the handouts with data can be seen in Figures 4-8.

Figure 4-8 | Be Rail Smart Campaign Tri-Fold

FDOT

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