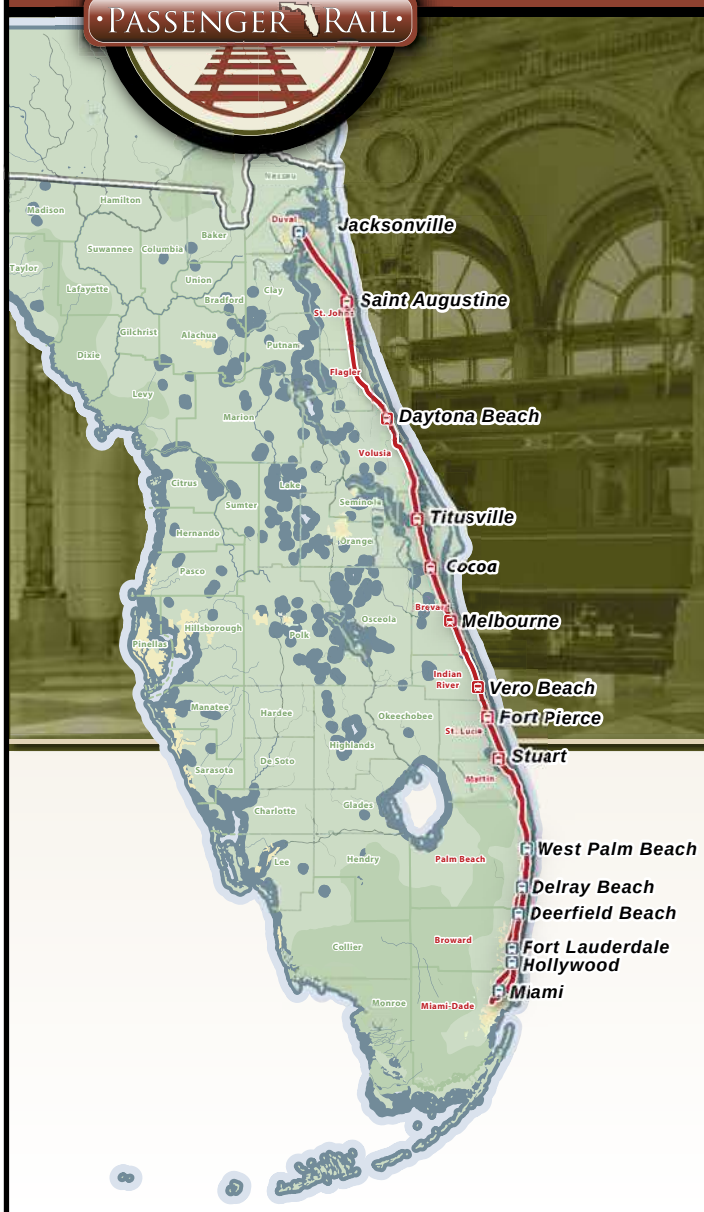
DRAFT ENVIRONMENTAL ASSESSMENT AND 4(f) STATEMENT FOR THE FEC AMTRAK PASSENGER RAIL STUDY

JACKSONVILLE (DUVAL COUNTY) TO MIAMI (MIAMI-DADE COUNTY), FLORIDA

FEC AMTRAK® PASSENGER RAIL



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Prepared Pursuant to 42 USC § 4332, 49 USC § 303, and 64 FR 28545

by the Federal Railroad Administration

and

Florida Department of Transportation

_____
Date of Approval

_____
for Federal Railroad Administration
David Valenstein, Acting Division Chief,
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Executive Summary

ES.1 Introduction

This Draft Environmental Assessment (EA) was prepared by Florida Department of Transportation (FDOT), in conjunction with the Federal Railroad Administration (FRA).

This Draft EA will assist in the decision-making process as required by the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 et seq.), Council on Environmental Quality (CEQ) Regulations for implementing the provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FRA's policies and procedures. The Draft EA provides information associated with the potential environmental impacts of the Florida East Coast (FEC) Amtrak® Passenger Rail Study.

The Vision of Rail Transportation in 2030
"Florida has a safe, secure, and efficient passenger and freight rail system providing mobility, improving quality of life and promoting economic opportunities and environmental sustainability for Florida."

2009 Florida Rail System Plan: Policy Element (FDOT, March 2009).

The Federal Railroad Administration (FRA), in cooperation with the Florida Department of Transportation (FDOT), is proposing to provide intercity passenger rail service along nearly 350 miles of Florida's East Coast (FEC) Railway freight rail line and by expanding Amtrak's long-distance passenger rail service from Jacksonville to West Palm Beach, with service continuing to Miami on the existing South Florida Rail Corridor (SFRC) Amtrak route. The project study corridor traverses through eleven (11) Florida counties, which from north to south are Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward and Miami-Dade.

As part of the service development plan jointly developed by FDOT, Amtrak, FEC Railway and South Florida Regional Transit Authority (Tri-Rail), the project will use the existing rail lines and right-of-way to the maximum extent possible, and provide improvements needed to operate the passenger service trains at 90 mph and continue FEC's freight service on the corridor. The project will include the addition of two southbound and two northbound passenger trains per day at speeds up to 90 mph on the existing FEC Railway. Other improvements include eight (8) new passenger stations (involving three renovated former station buildings) between Jacksonville and Stuart, and the realignment of the Northwood Crossover in West Palm Beach, Palm Beach County. No infrastructure improvements are proposed on the SFRC from West Palm Beach to Miami as the existing Amtrak train speeds (up to 79 mph) will be maintained on the SFRC.

This Executive Summary includes information on the project background, purpose and need for the Proposed Action; the No Action Alternative; the decisions to be made; and a summary of the environmental impacts and agency and public involvement. Exhibit ES.1 summarizes the environmental impacts of implementing the Proposed Action by resource area.

EXHIBIT ES.1
Summary of Environmental Impact due to Proposed Action

	TOPICAL CATEGORIES	Build Alternative - FEC Mainline (100 ft row)	Build Alternative - Northwood Crossover	Build Alternative - Preferred Stations	No Build Alternative	Basis for Decision
A.	NATURAL ENVIRONMENT					
1	Air Quality	Enhanced	Enhanced	Enhanced	Minor	*Refer to Section 3.3.1*
2	Coastal and Marine	No impact	No impact	No impact	No impact	*Refer to Section 3.2.6*
3	Contamination Sites	Minor	Minor	Minor	No impact	*Refer to Section 3.5*
4	Farmlands	No impact	No impact	No impact	No impact	*Refer to Section 3.2.8*
5	Floodplains	Minor	Minor	Minor	No impact	*Refer to Section 3.2.3*
6	Infrastructure	Minimal	Minimal	Minimal	Moderate	*Refer to Section 3.8 and 1.5.3*
7	Navigation	No impact	No impact	No impact	No impact	*Refer to Section 3.2.1.1*
8	Special Designation	No impact	No impact	No impact	No impact	*Refer to Section 3.2.1.2*
9	Water Quality/Quantity	Minimal	Minimal	Minimal	No impact	*Refer to Section 3.2.2*
10	Wetlands	Minor (14.4 acres)	0	Minimal (0.35 acres)	No impact	*Refer to Section 3.2.4*
11	Wildlife and Habitat	Minimal	Minimal	Minimal	No impact	*Refer to Section 3.2.7*
12	Essential Fish Habitat	3.86 acres	0	0.35 acres		*Refer to Section 3.2.5*
B.	CULTURAL ENVIRONMENT					
1	Historical and Archaeological	No adverse effect	Minimal (0.33 acres of direct use) with no adverse effect	Enhanced (adaptive reuse of 3 former historic train stations)	No impact	*Refer to Section 3.6*
2	Recreation Areas	No impact	No impact	No impact	No impact	*Refer to Section 3.4.1.3*
3	Section 4(f) Potential	No impact	De minimus finding for archaeological site; no adverse effect	De minimus finding for historic stations sites; no adverse effect	No impact	*Refer to Section 3.7.1*
C.	SOCIAL ENVIRONMENT					
1	Aesthetics	Minimal	Minimal	Minimal	No impact	*Refer to Section 3.4.4*
2	Economic	Enhanced	Enhanced	Enhanced	No impact	*Refer to Section 3.4.2*
3	Land Use	Enhanced	Enhanced	Enhanced	No impact	*Refer to Section 3.4.3*
4	Mobility	Enhanced	Enhanced	Enhanced	No impact	*Refer to Section 3.4.5*
5	Relocation	0	19 non-residential	3 non-residential	No impact	*Refer to Section 3.4.6*

EXHIBIT ES.1
Summary of Environmental Impact due to Proposed Action

	TOPICAL CATEGORIES	Build Alternative - FEC Mainline (100 ft row)	Build Alternative - Northwood Crossover	Build Alternative - Preferred Stations	No Build Alternative	Basis for Decision
	- No. of parcels impacted (36 total)	0	19	17	No impact	*Exhibit 3.27*
	- No. of acres impacted (9.52 acres total)	0	3.32	6.2	No impact	*Exhibit 3.27*
6	Social	Minimal - noise/vibration/viewshed	Minimal - noise/vibration/viewshed	Minimal	No impact	*Refer to Section 3.4.1*
D.	OTHER					
1	Secondary and Cumulative Effects	No impact	No impact	Enhanced - TOD induced land use	No impact	*Refer to Section 3.10*
2	Noise/Vibration	Minimal	Minimal	Minimal	No impact	*Refer to Section 3.3.2*
3	Construction	Minimal - Temporary	Minimal - Temporary	Minimal - Temporary	No impact	*Refer to Section 3.9*

Notes:
No Impact–No impacts expected;
Minimal–Impacts are not expected to be measurable, or are measurable but are too small to cause any change in the environment
Minor–Impacts that are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated for with little effort and few resources so that the impact is not substantial
Moderate–Impacts that are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated for with effort and resources so that the impact is not substantial
Major–Environmental impacts that, individually or cumulatively, could be substantial

ES.2 Background

The history of intercity passenger rail service along Florida's east coast from Jacksonville to Miami spans more than 100 years - from the completion of the FEC Railway by Henry Flagler in 1896 (Flagler Museum, 2010) to the recent proposal to restore passenger service - and is intricately linked to the state's growth and development. The FEC rail corridor initially operated as a passenger rail line along Florida's east coast. The cities along Florida's east coast historically developed around train stations along the FEC railway. Florida's east coast communities, from West Palm Beach north to Jacksonville, have been without passenger rail service since the late 1960s.

Florida's Vision Plan
Some states are major thoroughfares with millions of passengers and millions of tons of freight passing through each year on their way to other locations. Other states contain large hubs that provide critical connections in the nationwide transportation system. Florida, by nature of its peninsular geography, contains a transportation system that predominately supports Floridians. Therefore, a vision for rail in Florida must focus on:
1) connecting Florida with the rest of the U.S. and North America; and,
2) supporting intrastate movement of people and freight.

FDOT's 2006 Florida Freight and Passenger Rail Plan (February 2007)

In August 2006, under the direction and guidance of FDOT, the Florida Intercity Passenger Rail "Vision Plan" was developed. This "Vision Plan" was for a statewide passenger rail system, to be incrementally implemented, and to serve the major travel markets within the state of Florida. As presented in the "Vision Plan", the proposed statewide system will connect the major cities of Florida, as well as numerous other communities not typically served by air or rail. By focusing on key corridors, such as Orlando/Tampa to Jacksonville, Jacksonville to Miami, and Jacksonville westward along I-10, Florida is adding multimodal capacity where it is most needed. By purchasing rail lines in South Florida and in Orlando, Florida is investing in commuter operations to support these growing metropolitan areas. Florida's investments in freight and passenger rail are guided by the five 2025 Florida Transportation Plan goals for Florida's multimodal transportation system:

- Provide a safer and more secure transportation system for residents, businesses, and visitors;
- Enrich the quality of life and responsible environmental stewardship;
- Support adequate and cost-efficient maintenance and preservation of Florida's transportation assets;
- Strengthen the economy through enhanced mobility for people and freight; and
- Provide sustainable transportation investments for Florida's future.

Chapter 1 presents the public benefits expected due to the FEC AMTRAK Passenger Rail project with respect to:

- Community support (Chapter 4);
- Creating jobs and economic stimulus and recovery (Section 1.5.3.1),
- Cross-modal opportunities and intermodal connectivity (Section 1.5.3.2),
- Reduction in green house gas (GHG) emissions and energy efficiency (Section 1.5.3.3),
- Livable communities (Section 1.5.3.4), and
- Improving historic transportation facilities through adaptive reuse (Section 3.6).

ES.3 Purpose and Need for the Proposed Action

Florida continues to have one of the highest population and economic growth rates in the United States. This extraordinary growth places pressure on the State's major transportation network to provide mobility for resident and visitor populations. In order to meet the state's mobility needs, Florida has a well developed network of limited access highway facilities, as well as a highly developed airport system that serves intercity and interstate travel markets. The ability to significantly expand those components of the network to meet existing and projected growth is becoming limited due to environmental, social, economic and financial impacts.

As an important component of the vision for rail in Florida, the FEC Amtrak Passenger Rail project will create jobs, improve mobility, complement the state-wide transportation network, provide an alternate mode of travel to congested I-95, an alternate to air travel with long distance service to Washington D.C. and New York, provide enhance economic development opportunities, and reduce green house gas emissions.

The long-term goals and objectives of the project are summarized in Exhibit ES.2.

EXHIBIT ES.2
Project Goals and Objectives

Primary Goal	Long Range Objectives
***R*estore** intercity passenger rail service along nearly 350 miles of Florida's east coast	• Improve intercity mobility and access by filling a critical gap in the transportation network on Florida's east coast • Connect major tourist destinations along Florida's east coast • Provide reliable high quality rail service connecting to Northeast, Mid-Atlantic, Southeast, and Midwest • Provide efficient, comfortable, safe, and reliable intercity rail service
***A*ugment** ongoing redevelopment	• Promote compact development patterns in historic downtowns • Enhance development opportunities to strengthen existing communities • Increase visitation for tourism, sporting events, business activities, personal visits • Preserve environmental quality • Protect Florida's sensitive human and natural environmental resources • Reduce global warming emissions through reductions in vehicle-miles traveled
***I*nterface** with airports, seaport, mass transit and Florida's highways as part of Florida's Strategic Intermodal System	• Link all major forms of transportation • Provide better access to seaports and airports • Interconnect with local and mass transit services
***L*ighten** capacity constraints on existing transportation system by enhancing rail mobility and connectivity to Florida's east coast	• Expand choices of transportation modes • Move people efficiently • Provide predictable consistent travel times • Enhance efficient operation of transportation facilities and service • Provide travel times that are comparable with air and automobile
***S*timulate** economy through construction and transit-orientated development (TOD)	• Stimulate the potential for transit-oriented development (TOD) • Create new employment opportunities along study area and throughout Florida (related to construction, operation and maintenance [O&M], and TOD)

ES.4 Proposed Action

In 2000, Amtrak, FEC, FDOT and regional authorities agreed to a service concept to reintroduce passenger rail along Florida's east coast on the FEC Corridor. Preliminary station locations, primarily in downtowns, were identified between Jacksonville and West Palm Beach. This new Amtrak long-distance service would utilize, to the maximum extent possible, the existing FEC tracks, with limited additional track sidings as needed. An existing interconnection in West Palm Beach between the FEC and FDOT-owned South Florida Rail Corridor (SFRC) tracks would be realigned to accomplish Amtrak service south to Miami. The Build Alternative for the proposed action consists of three distinct components – the FEC mainline, the Northwood Crossover, and the eight proposed stations, as shown on the project location map in Exhibit ES.3.

To accommodate passenger trains up to 90 mph and continue FEC Railway's freight service, the following improvements are required:

- Eight new stations between Jacksonville and Miami;
- New track sidings (2,500 feet) at the new stations;
- Track signal control;
- Twenty-nine (29) curve miles of surface replacement track work of the existing rail line;
- Upgrades at existing highway and pedestrian crossings;
- New railroad crossings at sidings only; and
- Crossover track improvements at the Northwood Crossover in Palm Beach County

As a Corridor Development Program, there will be a phased approached to developing intercity passenger rail service and corridor service on the FEC corridor. The first phase will provide the infrastructure, stations/facilities and equipment (fleet) to extend Amtrak long-distance intercity service south on the FEC line from Jacksonville to Miami by 2013. The second phase will add corridor services between Jacksonville and Miami, including the provision of additional connections such as the extension of the northern terminus into the downtown Jacksonville Regional Transportation Center (JRTC), proposed by others. The total trip time between Jacksonville and Miami is estimated at about 6.5 hours inclusive of the eight new station stops.

ES.4.1 FEC Mainline

The Build Alternative would restore passenger service on the existing FEC Railway from Jacksonville to West Palm Beach. The northern terminus will be the existing Jacksonville Amtrak station, with an ultimate terminus at the planned Jacksonville Regional Transportation Center (JRTC). The southern terminus will be at the Miami Central Station (MCS), which is part of the Miami Intermodal Center (MIC) project at Miami International Airport (MIA), and is scheduled for completion by 2012 (FDOT, June 2010). The JRTC and the MIC projects are connected actions proposed by others.

EXHIBIT ES.3
Project Location Map

In West Palm Beach, the alternative would use the Northwood Crossover to connect to the SFRC, which is an existing railway located approximately 2,100 feet west of the FEC Railway. The Build Alternative would follow the existing Amtrak route on the SFRC from West Palm Beach to Miami. The segment of the FEC Railway from Jacksonville to West Palm Beach is a single-track railroad while the segment of the SFRC from West Palm Beach to Miami is a double-track railroad.

The existing FEC Railway freight corridor south of the Northwood Crossover was considered as an alternative alignment for the proposed passenger rail service from West Palm Beach to Miami. This alignment would require additional infrastructure and stations along the freight corridor within highly urbanized areas. This alternative alignment would involve substantially higher capital costs, right-of-way costs and environmental impacts as compared to the Preferred Alternative (the existing Amtrak route) and was consequently eliminated from detailed analysis.

ES.4.2 Northwood Crossover

An existing Amtrak route is located along the SFRC from West Palm Beach to Miami. A connection (or "crossover") from the FEC Railway to the SFRC would be required to provide continuous intercity passenger rail service from Jacksonville to Miami. The existing Northwood Crossover (Exhibit 2.1) from the FEC to the SFRC was evaluated. The Northwood Crossover (described in Section 1.4.3) is an existing track connecting the two railways in the Northwood section of West Palm Beach. This existing connector track located parallel to 27th Street is not usable for the proposed intercity passenger rail service because of a missing connection in the northeast quadrant leading to and from the FEC Railway and points north. Rebuilding the existing Northwood Crossover to provide the missing northern connector track would impact the Shalow Memorial Park (Evergreen Cemetery), which is potentially eligible for listing on the National Register of Historic Places (NRHP). As a result of the potential social effects, cultural impacts, and community disruption associated with impacts to the historically significant Evergreen Cemetery, this alternative was eliminated from detailed study. The Build Alternative was identified to realign the Northwood Crossover (Exhibit 2.2) just south of the existing alignment and generally parallel to (and north of) 25th Street. The Build Alternative was developed to avoid impacts to the following cultural resources that were identified within the Northwood Area of Potential Effect:

- Evergreen Cemetery (PB00218, potentially NRHP-eligible)
- Hurricane of 1928 African American Mass Burial site (PB11548, NRHP-listed)
- Pauper's Cemetery (PB14864, potentially NRHP-eligible)
- Quonset Hut Row (PB09907, potentially NRHP-eligible)
- FEC Railway (PB12102, NRHP-eligible)
- SAL Railroad (PB12917, not-eligible for NRHP listing)
- 25th Scatter Site
- City of West Palm Beach Memorial Park

ES.4.3 Station Alternatves

There are no existing passenger stations in operation on the existing FEC Railway freight corridor. Eight new passenger stations along the FEC Railway between Jacksonville and Stuart are proposed as part of the project, at preferred locations in the following cities, as shown in Exhibit ES.4.

EXHIBIT ES.4
Summary of Preferred Station Alternatives

Proposed Station	Recommended Location	Potentially NRHP-eligible or NRHP-listed	Adaptive Reuse of Historic Building	New Building
St. Augustine	Alternative 1: U.S. 1 at San Marco Avenue	FEC Freight Station (SJ5476) Potentially NRHP-eligible	✓	
Daytona Beach	Alternative 1: South of International Speedway Boulevard (Magnolia Avenue)			✓
Titusville	Alternative 2: North of Pine Street	Titusville Train Station (8BR468) Potentially NRHP-eligible	✓	
Cocoa	Alternative 2: South of Rosa L. Jones Boulevard		✓	
Melbourne	Alternative 3: North of U.S. 192			✓
Vero Beach	Alternative 3: North of 23rd Street	Vero Railroad Station/Museum (IR68) NRHP-Listed		New ancillary building adjacent
Fort Pierce	Alternative 1: Orange Avenue – East of FEC Railway			✓
Stuart	Alternative 3: Stypmann Boulevard			Proposed Transit Center

Three of these locations (Daytona Beach, Melbourne, and Ft. Pierce) will consist of new station buildings. The Preferred Alternative for Stuart would utilize a portion of the proposed Martin County transit center. The remaining four locations are anticipated to involve the renovation of existing buildings (three former historic train stations in St. Augustine, Titusville, and Cocoa) and the addition of an ancillary structure for Amtrak operations adjacent to the historic railroad station building in Vero Beach.

The approximate building size for the small and medium stations is 1,000 square feet and 2,500 square feet, respectively. Typical station layouts are provided in Appendix B. The small stations would be unstaffed and consist of a platform, canopy, signage, lighting, and a semi-enclosed shelter. The medium stations would include a building to support ticket operations

and provide restroom facilities. These medium stations would be accessible to the public during necessary operating times based on the Amtrak route schedules. The proposed stations and parking areas would comply with the Americans With Disabilities Act (ADA). Any medium station involving Amtrak staffing is subject to a signed agreement. Conceptual renderings of the Preferred Alternative stations are provided in Appendix B.

ES.4.4 Proposed Platforms

The Preferred Alternative consists of new platforms at each of the proposed stations. The platforms are approximately 1,000 feet long and located adjacent to the proposed stations. In Melbourne, the platform length was reduced to 890 feet because of site constraints and geometric criteria. The typical platform width is 12 feet. The proposed platforms are generally located within the existing FEC Railway right-of-way as shown on the concept plans provided in Appendix B.

ES.4.5 Proposed Sidings

As part of the Preferred Alternative, new rail sidings (that is, passing tracks) are required at the proposed stations to move the Amtrak trains off the mainline railway to service the loading/unloading of passengers. The rail sidings consist of a single track (approximately 2,500 feet in length) parallel and connected to the mainline track. The sidings are generally located within the existing FEC Railway right-of-way as shown on the concept plans in Appendix B.

ES.4.6 Surface Replacement Track

The Preferred Alternative includes approximately 29 miles of surface replacement track work on the existing FEC rail line (from Jacksonville to West Palm Beach) within existing horizontal curves. These curve improvement locations are shown on the track charts provided in Appendix B. This will involve adding 6 inches of grade to the rail bed to accommodate the increased speeds up to 90 mph. The upgraded curves may involve minor spiral transitions upstream and downstream of the curves to accommodate the changes in superelevation. At these curve locations, this may involve the replacement of the existing track to accommodate the curve radius modifications and the lengthened spiral transitions. Generally, any surface replacement track within the existing horizontal curves will be replaced in the same location. Minor alignment shifts within the right-of-way may be needed to accommodate curve transitions. During the subsequent design phase for this project, the limits of the surface replacement track within existing curves and any alignment shifts within the right-of-way will be defined. Exhibit 2.54 lists the approximate locations of the proposed curve improvements.

ES.4.7 Track Signal Control

The Preferred Alternative involves upgrades at existing highway and pedestrian crossings on the FEC Railway corridor to enhance safety.

ES.4.8 Grade Crossings

The Preferred Alternative will not result in any new railroad grade crossing locations at intersecting roadways along the FEC Railway mainline. Seven new grade crossings are proposed at the realigned Northwood Crossover including: 25th Street (two crossings), 25th

Court, Windsor Avenue, Division Avenue, and Rosemary Avenue (two crossings). Also, two existing grade crossings (Windsor Avenue and E. Tamarind Avenue) are proposed to be relocated to accommodate the realigned Northwood Crossover. The Windsor Avenue crossing will move approximately 200 feet south of its current location and the E. Tamarind Avenue crossing will relocate two blocks south from 27th Street to 25th Street. Fifteen of the existing FEC mainline grade crossings will be modified to include a second rail track for the siding at the proposed stations.

The Preferred Alternative will result in the closure of three existing grade crossings to accommodate proposed platforms. These grade crossing closures include Lincoln Avenue and Palmetto Avenue in Melbourne and 14th Avenue in Vero Beach. The local access streets in Melbourne provide east-west access to surrounding land uses. The closure of these two grade crossings is not anticipated to adversely impact local circulation as alternate routes are located approximately 150 feet north (Fee Avenue) and 300 feet south (U.S. 192). In Vero Beach, access to 14th Avenue would be accommodated 400 ft. to the north at the St. Lucie Avenue/26th Street intersection. In the existing condition, St. Lucie Avenue transitions to 14th Avenue. The availability of alternative routes in close proximity to the proposed grade crossing closures will result in minimal changes to the existing traffic patterns. Access to existing properties will not be affected by the proposed closure of these grade crossings. The existing grade crossings, proposed grade crossings for sidings, and the proposed grade crossing closures are identified on the concept plans provided in Appendix B.

ES.5 No Action Alternative

The No-Build Alternative, which involves no changes to the transportation facilities within the study area beyond currently planned and programmed (tentatively funded) projects, was evaluated in this study. The No-Build Alternative would involve no infrastructure improvements to the existing FEC Railway (from Jacksonville to the existing Northwood Crossover in West Palm Beach). The existing freight operations (and maintenance infrastructure) on the FEC Railway would be maintained with the No-Build Alternative.

The No-Build Alternative would include future planned and programmed roadway, transit, rail, air, and other intermodal improvements within the study area. The No-Build Alternative would not meet the project purpose to provide intercity passenger rail service on Florida's east coast from Jacksonville to Miami or address the need to improve connectivity for intercity and intermodal travel. The No Build Alternative also would not enhance mobility or stimulate economic development along Florida's east coast. Although the No-Build Alternative does not meet the purpose and need for the project, it was retained for detailed analysis in order to evaluate potential benefits and impacts associated with the proposed action in comparison to taking no action.

ES.6 Decision to be Made

Because the proposed action may involve potential federal funds, the project must comply with NEPA. NEPA requires federal agencies to consider the impacts of their actions on the natural, social, economic and cultural environment and to disclose those considerations in a public document. The NEPA process is intended to help public officials make decisions based on an understanding of the environmental consequences and take actions that protect, restore and enhance the environment (40 CFR 1500.1).

The purpose of this EA is to provide the public with a full accounting of the environmental impacts of the alternatives developed to meet the project purpose and need. The EA serves as the primary document to facilitate review of the proposed project by federal, state and local agencies and the public. FRA approval of this EA, and the potential subsequent FONSI, grants location and design concept acceptance for the project, described in more detail in Section 1.4 of this chapter. However, if this EA results in the identification of significant adverse impacts resulting from the proposed action, an EIS would be required to further evaluate the project effects prior to approval of the proposed action.

ES.7 Summary of Environmental Impacts

Generally, no significant impacts are anticipated to the environment as a result of the proposed action and the majority of the impacts, particularly to the social environment, would be positive. The majority of the stations were planned and proposed as "infill" development adjacent to the existing FEC Railway on previously disturbed areas. At some stations, only a small amount of property would be acquired for use as part of the stations. The cities where stations are proposed view the stations as community assets and would continue to promote transit-oriented development in the adjoining areas.

Chapter 3 is an inventory of the affected environment and a discussion of consequences and potential mitigation measures. It succinctly describes the natural, social, physical and economic environments of the area that may be affected by the proposed action. It describes the impacts of the preferred alternative; the adverse effects that cannot be avoided if implemented; the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity; and any irreversible or irretrievable commitments of resources that would result if the proposed action is implemented (40 CFR part 1502.16). The environmental effects of the project alternatives are documented in the environmental support documents included in Appendix A. These environmental studies include maps of environmental resources throughout the study area.

For purposes of the analysis, the study area encompasses a 400-foot-wide corridor centered on the existing FEC Railway from the Jacksonville Amtrak Station to the Northwood Crossover near West Palm Beach, and on the SFRC from the FEC Railway/SFRC Northwood Crossover to the MIC. A 1,000-foot-wide corridor was designated as the study area along the FEC Railway/SFRC Northwood Crossover. At the proposed station locations, the study area encompasses a 500-foot radius surrounding each location alternative (outside the proposed construction limits). Because the existing Amtrak passenger service is provided on the SFRC between West Palm Beach and the existing Miami Amtrak Station, no infrastructure improvements are required on the SFRC south of the Northwood Crossover to accommodate the proposed action. Impacts to the environment were evaluated for the 100-foot-wide FEC Railway right-of-way from the existing Jacksonville Amtrak Station to the Northwood Crossover in West Palm Beach (Section 1.4.1). The Area of Potential Effect for cultural resources is defined in more detail in Section 3.6.

This subsection summarizes the conclusions of the analyses made for each of the environmental areas based on the application of the described methodology. Only those activities for which a potential environmental concern was determined at each location are described. Exhibit ES-1 summarizes this information.

- Special Designations: This project traverses the Pellicer Creek Aquatic Preserve, Indian River – Malabar to Vero Beach Aquatic Preserve, and the Loxahatchee River - Lake Worth Aquatic Preserve. No improvements are proposed in the vicinity of these aquatic preserves; therefore, it has been determined that the project will have no impact to water bodies with special designations. During the design phase of the project, further coordination with FDEP will occur to ensure the ERP requirements include best management practices during construction to preserve (or enhance) the water quality within these surface waters.

- Water Quality: No significant impacts are anticipated to water quality as a result of project activities. Impacts to water quality would be avoided and minimized through the use of best management practices and permitting requirements. ERP requirements protect the discharge water quality, which avoids impact. Therefore, the Preferred Alternative would not impact sole source aquifers. According to EPA comments received through ETDM, the project is anticipated to result in minimal effect to water quality and drinking water. Further consultation with EPA was initiated due to the presence of sole source aquifers in the study area. A copy of the EPA coordination letter is included in Appendix E.

- Floodplains: No bridge modifications or new bridge structures are proposed; therefore, no regulated floodways are affected by the proposed improvements. Although this project involves work within the FEMA-mapped floodplain, work is not expected to impact the function of the 100-year floodplain because work is generally expected to be above the 100-year floodplain elevation. If work is found to be necessary below the 100-year elevation, demonstration of no adverse impact will be required as part of the ERP process.

- Wetlands: Twenty-seven (27) curves within the study limits will be upgraded or modified. Eight (8) of these curves have associated wetland involvement. Wetlands were mapped at these 8 curve locations. The potential impact area (direct and indirect impact areas) included the curve length plus 1,000 linear feet of approach on each end of the curve, and the full 100-foot width of the FEC Railway right-of–way. Direct impacts to wetlands based on the engineered designs are anticipated to be much less. As summarized in Exhibit 3.4, the potential direct impacts total 14.4 acres of wetland impacts. The only preferred station location with wetland involvement is St. Augustine. The wetlands are classified as saltwater marsh and deepwater tidal habitats with potential impact of 0.35 acres. Every opportunity to avoid impacts to wetlands will be explored to the extent practicable in the selection of alignments and designs. Although some impacts to jurisdictional wetlands associated with the improvements will be unavoidable, minimization of these impacts will be ensured through innovative design, including cross-sections of minimum practicable width. It is anticipated that wetland impacts that would result from the construction of this project would be mitigated pursuant to S. 373.4137 F.S. to satisfy all mitigation requirements of Part IV, Chapter 373, F.S. and 33 U.S.C.s. 1344. Any mitigation requirements would be coordinated further during permitting.

- Essential Fish Habitat: The San Sebastian River contains EFH and HAPCs in the vicinity of the Preferred Alternative St. Augustine station location (the former St. Augustine freight station). Based on conceptual station design plans, rail improvements as part of the station development may impact 0.28 acres of estuarine deepwater subtidal habitat within the FEC Railway right-of-way. The proposed improvements at the Preferred Alternative St. Augustine station may modify the existing bank along the waterway which provides shelter and substrate to which algae and invertebrate food sources can affix. However, it is anticipated that this bank area will

be replaced with similar substrate so that algae and invertebrate food sources will once again be able to affix and shelter would be available. Therefore, any impact to EFH would be considered temporary.The project is not anticipated to have adverse effects to EFH or HAPCs as a result of the proposed improvements. An EFH Assessment has been prepared and documented in the Wetland Evaluation Report (provided in Appendix A) for the project and consultation has been conducted in accordance with the Magnuson-Stevens Fishery Conservation and Management Act.

- An Endangered Species Biological Assessment (ESBA) survey was conducted between May and July2010 and is included in Appendix A. The existing FEC Railway track crosses through or close to nearly every habitat type found along Florida's east coast. Along the FEC Railway corridor are FWC Biodiversity Hot Spots, FWC Priority Wetlands Habitats, and USFWS Consultation Areas for West Indian Manatee, Atlantic Salt Marsh Snake, Red-cockaded Woodpecker, Florida Scrub Jay, Piping Plover, Crested Caracara, Southeastern Beach Mouse and Snail Kite. As would be expected with a project extending through nine counties and such a variety of habitat types, a large number of protected species may occur along the project corridor as shown in Exhibit 3.7 through 3.12 along with the potential for impact or effect.

  No adverse effects to individuals or to regional populations of federally or state-listed species are anticipated as a result of the proposed project. Based on these results, FDOT requested USFWS concurrence with a determination of no adverse effect. A copy of the coordination letter dated July 26, 2010 is included in Appendix E. As a result of this consultation, USFWS noted that the project may affect federally listed species that naturally occur along the existing railway corridor. During the design and permitting phase of the proposed project, consultation with USFWS will be reinitiated and specific surveys, as necessary, will be conducted to determine if any federally listed species are routinely using the areas proposed for construction. At this time, USFWS will review the design plans to determine the project effects on involved species. If any federal or state-listed species are affected, the appropriate standard provisions permit conditions and/or mitigation will occur in consultation with USFWS. Based on the project commitment to reinitiate USFWS consultation during the design and permitting phases, USFWS provided concurrence with FDOT's determination of no adverse effect in a coordination letter dated August 3, 2010.

- Green House Gases: The Preferred Alternative, with an increased number of train trips per day, would result in a significant reduction in air emissions for both criteria pollutants and greenhouse gases (GHGs), and would also greatly reduce the amount of energy consumed. Even with the small increase in rail intersection interruption, the minimal increase in emissions from vehicles in queue will be insignificant when compared to the emissions reductions from the decrease in total traffic. The increase in train traffic will account for up to a 90+ percent reduction in total emissions for criteria pollutants for the project area, which amounts to approximately 8 million tons per year.

- Noise: Based on FRA and FTA criteria, the existing noise levels due to the freight trains create a moderate to severe impact rating and the predicted noise levels will not result in a change in the existing impact rating. Therefore, noise effects are not anticipated to land uses adjacent to the FEC mainline as a result of the proposed action. As the noise analysis results resulted in the absence of noise effects at 70 feet from the track centerline, noise contours at distances

greater than 70 feet were not necessitated. In summary, the noise analyses indicated the proposed project will have no effect on adjacent land uses.

- Vibration: The results of the vibration assessment for the high speed mainline rail locations show that the Amtrak passenger cars will exceed a similar freight train transit event by 1 to 4 VdB because of the differences in speed. Amtrak's train speed was verified to be approximately 71 to 72 mph at the Indiantown location. The FEC Railway freight train speed at the mainline track in Vero Beach was verified to be approximately 40 to 49 mph. However, it is not expected that the Amtrak passenger cars would ever reach such a speed in urban and developed areas because of safety concerns and track crossings. Based on the data presented, the measured vibration levels from the FEC Railway freight trains appear to be greater than the measured vibration levels from the proposed Amtrak passenger cars that would make four daily trips on the FEC Railway corridor. The exception is in the high-speed rural areas, where the Amtrak trains would generate greater vibration levels.

- Environmental Justice: The realigned Northwood Crossover would result in impacts to approximately 10 non-residential properties within, or adjacent to, the Northwood Industrial Park. These properties are vacant or located near the industrial/commercial land uses and do not involve disproportionately high or adverse impacts to minority or low-income populations. The existing social demographics for the Northwood Crossover study area were documented during the ETDM screening. Based on this analysis, the realigned Northwood Crossover is located in an area designated with a minority concentration of 0-6% of the population; therefore no minority populations are involved.

- Relocations and Right-of-way: The proposed project involves minimal property acquisition (9.52 acres) for the proposed stations and the realignment of the Northwood Crossover. The actual property acquisition may be reduced to approximately 5.63 acres in consideration of potential lease agreements and property agreements with joint development partners (including FEC Railway and the jurisdictional municipalities for the proposed stations). The anticipated property acquisition due to the proposed project is estimated at 13 potential displacements (10 as a result of the Northwood Crossover realignment [including 10 non-residential displacements] and 3 associated with the proposed stations). No residential displacements are associated with the proposed project. All of the non-residential displacements associated with the realigned Northwood Crossover involve light-industrial/manufacturing land uses. To minimize the unavoidable effects of right–of-way acquisition and displacement of people, FDOT will carry out a right–of-way and relocation program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law 100-17).

- Contamination: The Preferred Alternative is not anticipated to involve major soil disturbance activities. Proper hauling and disposal of any hazardous materials during construction would be handled using best management practices. Potential impacts from contamination as a result of project activities would be further assessed during the design phase. Any identified contamination involvement will be coordinated with appropriate regulatory agencies and, prior to right-of-way acquisition, appropriate action will be taken, where applicable.

- Section 106: A Cultural Resource Assessment Survey (CRAS) was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966. As a result of the survey, the

sites summarized in Section 3.6.2 were identified and determined to be eligible or potentially eligible for listing on (or are already listed on) the National Register of Historic Places. Through the application of the Criteria of Adverse Effect, the Federal Railroad Administration (FRA), in cooperation with the Florida Department of Transportation (FDOT), and in consultation with the SHPO, has determined that the effects of the proposed action do not constitute an adverse effect on any of the properties. The SHPO concurrence letter, dated August 3, 2010, is provided in Appendix E that includes the commitments that were developed that would result in a No Adverse Effect finding.

ES.8 Public and Agency Involvement

Throughout this study, early and continual opportunities for involvement in project development were provided to agencies, project stakeholders, and the interested public. In consultation with FRA, FDOT coordinated the public involvement program with participation from joint development partners FEC Railway and Amtrak. Chapter 4 summarizes the public involvement program conducted. The program included extensive public outreach, coordination with local governments, and consultation activities with federal, state and local regulatory and resource agencies.

As part of FDOT's ETDM process, the project was screened in the programming phase, which provides federal and state agencies and other interested parties the opportunity to comment on the project purpose and need, proposed improvements and alternatives (Section 1.3.3).

In coordination with the FEC, Amtrak ran an "inspection train" on Saturday May 1, 2010 from Miami to Jacksonville. More than 100 passengers were aboard, including Federal, state, and local officials. Florida Governor Crist met the train as its starting point in Miami, touring the train before its departure. The train stopped in each of the eight cities along the corridor, and cities staged rallies to celebrate the train's arrival and show their support for the future service. Local communities are working together to make this project a reality. Over 130 resolutions & letters of support and more than 1,500 petition letters have been solicited in support of passenger rail on the FEC (go to http://www.tcrpc.org and click on Amtrak/FEC Corridor Project). The Amtrak/FEC Coalition includes participation by each of the cities, counties and MPO/TPOs along the corridor as well as other groups and organizations.

The following quotes from local and state government officials, interested organizations, community leaders, and affected business owners and residents documented in media articles are indicative of the widespread support for the project.

"We subsidize building and widening roads for vehicles far more and at a greater cost than rail. What is happening nationally is beginning to hit Florida, Central Florida and now Brevard County. Passenger rail is an integral component to a larger multi-modal transportation network that will provide transportation choices to many."

John Titkanich, City of Cocoa Community Development Director, FLORIDA TODAY 7/9/10

"Riding the Amtrak inspection train was a kaleidoscope of Florida's railroad past, present and future."

Flare Elliott, New Smyrna Beach Business Owner/ Friends of Historic Canal Street, Hometown News 5/7/10

"It's the most progressive and wonderful idea I've heard since I've been in Florida."

Trudie Kibbe Reed, President of Bethune-Cookman University, The Daytona Beach News-Journal 6/8/10

"I think it would be good for community. It would bring people in and out. It would increase my business as well as the local businesses in the area."

London Willis, Business Owner, Channel 13 News, 4/30/10

"We've had several workshops to include the community. It's going to enhance our tax base. It's going to redevelop that area. It's going to expand the beautiful downtown area, which is a stone's throw away. If you want to go to the beach or port area, we will provide transportation for you. It's going to motivate that community. Hooray for the citizens of Cocoa! Job well done."

Florida Today 7/8/10

"We can bring something historic back to life"

Ed Kindle, President of the Historical Society of North Brevard, Florida Today 7/9/10

"I want to thank Amtrak and the Florida Coast Railroad for continuing to expand Florida's vision of how rail can connect our cities, roads, airports and seaports, and most importantly, create jobs for Floridians. Intercity passenger rail is a logical next step, and today's effort symbolizes how partnerships will help make the vision a reality."

Governor Crist, Governor's Press Office, 5/1/10

This would benefit everyone from the college student that wants to go home for the weekend to the senior citizen that wants to visit friends in another city."

Governor Crist, The Florida Times Union Jacksonville.com 5/1/10

Just a wonderful opportunity to take advantage of the infrastructure already here, creating new jobs and create a transportation system that's a state of the art….I believe it would benefit a lot of people that are coming to visit from New York to visit in Daytona."

Representative Suzanne Komas, FOX 35 News 5/1/10

"I think it's a great opportunity and, if we're fortunate to get one, I think everyone will love it. Part of the fun is taking the train."

Commissioner Ed Ciampi, The Stuart News 5/1/10

"It would reduce road traffic, reduce pollution. To me the biggest plus will be reducing global warming…I think it's important for my grandkids."

Anthony Ehrlich of Barberville, The Daytona Beach News-Journal 5/13/10

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Glossary

A-Weighting (dBA)—A standardized filter used to alter the sensitivity of a sound level meter with respect to frequency so that the instrument is less sensitive at low and high frequencies where the human ear is less sensitive.

Alignment—Horizontal and vertical geometry defining the path of a transportation component or system.

Amtrak—Amtrak (formally the National Railroad Passenger Corporation) is a federally-owned passenger railroad created in 1971 and authorized to operate a nationwide system of passenger rail transportation. Amtrak services are primarily focused on national rail passenger transportation service between major intercity travel markets of the United States. Amtrak passengers enjoy service in more than 500 communities in 46 states throughout a 22,000-mile route system.

At-Grade Crossing—An intersection of two or more flows of traffic (possibly involving different modes) at the same location and elevation.

Average Daily Traffic (ADT)—The total volume of traffic during a given time period divided by the number of days in that time period, representative of average traffic in a one-day time period.

Ballast (Railroad)—Coarse gravel or crushed rock laid to form a bed for a railroad.

Commuter Rail—Passenger rail system serving travel within an urban region mainly for commuter purposes. Also known as regional rail or corridor rail service. Typically designed to operate on the general railroad system, sharing tracks with freight trains and intercity passenger trains.

Consist—The numbers of cars on a train.

Corridor Rail Service—Passenger rail system serving travel within an urban region mainly for commuter purposes. Also known as regional rail or commuter rail. Typically designed to operate on the general railroad system, sharing tracks with freight trains and intercity passenger trains.

Crossover—Two turnouts with the track between the frogs arranged to form a continuous passage between two nearby and generally parallel tracks.

Cumulative Impacts—Impacts on the environment that result from the incremental impact of a project when added to other past, present, and reasonably foreseeable future actions regardless of which agency or person undertakes other such actions.

Decibel (dB)—The standard unit of measurement for sound pressure level and vibration level. Technically, a decibel is the unit of level which denotes the ratio between two quantities that are proportional to power; the number of decibels is 10 times the logarithm of this ratio.

Efficient Transportation Decision Making—The Efficient Transportation Decision Making (ETDM) process is the Florida Department of Transportation's implementation of environmental streamlining mandated by Executive Order (EO) 13274. Its procedures, data

systems, and agreements with environmental resource agencies facilitate involvement of those agencies and the public in the early planning of new transportation projects. Florida's ETDM process defines the procedures for planning transportation projects, conducting environmental reviews, and developing and permitting projects. The ETDM web site makes information readily available about proposed transportation projects in the ETDM Process. Data from over 400 data bases are accessible through the Project Diary and Project Effects menus that allow for efficient determination of the natural, physical, and cultural resources that might be affected by a proposed project.

Endangered Species—According to the Federal Endangered Species Act of 1973, endangered species are any species in danger of extinction throughout all or a significant portion of its natural range.

Environmental Assessment—A document prepared for federal actions that are not categorical exclusions and that do not clearly require an EIS. An EA provides the analysis and documentation to determine if an EIS or a Finding of No Significant Impact (FONSI) should be prepared.

Environmental Impact Statement—A document that must be filed when the Federal government takes a "major Federal action significantly affecting the quality of the human environment." An EIS is to serve as an action forcing device to insure that the policies and goals defined in NEPA are infused into the ongoing programs and actions of the Federal Government. Agencies shall focus on significant environmental issues and alternatives and shall reduce paperwork and the accumulation of extraneous background data, per 40 CFR Section1502.1.

Environmental Justice—The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (U.S. EPA)

Fare—Payment to ride a transit vehicle. Typically cash, ticket, token, or valid transfer document.

Federal Rail Administration—The Federal Rail Administration (FRA) is one of ten intermodal administrations within the U.S. Department of Transportation. FRA is involved in promulgating and enforcing rail safety regulations; administering railroad assistance programs; conducting research and development in support of improved railroad safety and national rail transportation policy; providing for the rehabilitation of Northeast Corridor rail passenger service; and consolidating government support of rail transportation activities.

Finding of No Significant Impact (FONSI)—A document by a federal agency that briefly presents the reasons why an action, not otherwise excluded (§ 1508.4), will not have a significant effect on the human environment and, therefore, for which an environmental impact statement will not be prepared. It will include the environmental assessment or a summary of it and will note any other environmental documents related to it (§ 1501.7(a)(5)). If the assessment is included, the finding need not repeat any of the discussion in the assessment but may incorporate it by reference.

Floodplain—The level area adjoining a river channel that is inundated during periods of high flow.

Florida East Coast Railway—The Florida East Coast (FEC) railway operates 351 miles of mainline track along the east coast of Florida. The FEC railway moves major carload commodities of aggregate, automobiles, lumber, farm products, food, machinery, pulp and paper, petroleum products, stone, clay and glass between Jacksonville and Miami, Florida.

Frog—The crossing point of two rails.

Headway—The scheduled time interval between trains or buses operating on a transit route (e.g., the interval between the scheduled times a train or bus is planned to stop at a location to collect or deliver passengers.)

Hertz (Hz) —The unit of acoustic or vibration frequency representing cycles per second.

High-Speed Intercity Passenger Rail Program—A new vision for developing high-speed rail in America. It called for a collaborative effort among the Federal Government, States, railroads, and other key stakeholders to help transform America's transportation system through a national network of high-speed rail corridors.

Intercity Rail—Passenger rail system used for serving long distance travel between cities. See Amtrak.

Linked Trip—A journey taken from an origin to a destination that may consist of several modes of travel with intermediate transfers but is counted as a single unit.

Metropolitan Planning Organization (MPO)—The area agency charged with the conduct of the urban transportation planning process. It is mandated by the federal government to be able to use federal transportation funds in an urban area. It is also the single, region-wide recipient of federal funds for transportation planning purposes. Together with the state, it carries out the planning and programming activities necessary for federal capital funding assistance.

Miles of Track—The amount of track per one mile segment of right-of-way. Miles of track are measured without regard to whether or not rail traffic can flow in only one direction on the track. All track is counted, including yard track and sidings.

Mitigation—Engineering, design, monetary, or construction measures to lessen or offset adverse impacts caused by a proposed action.

Mode—A system for transporting people and goods described by a specific right-of-way, technology and operational features (e.g., aviation, rail, marine transport, highway, etc.)

National Environmental Policy Act (NEPA)—Federal legislation that requires federal agencies to consider the potential environmental consequences in their decision-making regarding major federal actions (including land port of entry studies). The law requires that the agency make the analysis and information considered available to the public for comment prior to a final decision regarding the proposed action.

National Historic Preservation Act (NHPA)—The National Historic Preservation Act (NHPA) (16 U.S.C. 470 *et seq.*) is legislation intended to preserve historical and archaeological sites in the United States of America. The act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices.

National Register of Historic Places (NRHP)—A list of structures, sites, and districts of national historical significance as determined by the Advisory Council on Historic Preservation under the National Historic Preservation Act of 1966, as amended.

No-build Alternative—The no-build alternative is the baseline to which all other alternatives are compared, in addition to comparing the consequences for doing nothing.

Off-peak period—The time period outside of the morning (a.m.) and evening (p.m.) peak travel periods. Passenger service demand at this time is less than experienced during the peak period(s).

Operating Costs—Recurring costs incurred in operating transit systems, including wages and salaries, maintenance of facilities and equipment, fuel, supplies, employee benefits, insurance, taxes, and other administrative costs. Amortization of facilities and equipment is not included.

Park-and-ride—A parking area provided for commuters who park their automobile to either form carpools or to connect to public transit (train or bus) to continue their commute.

Passenger station—The buildings, structures and shelters, including all attached fixtures, used as transit passenger station facilities for access to a regional rail system. Passenger stations may include other amenities or services such as auto parking, ticket/token/pass sales, or consumer services.

Peak hour—The hour of the day in which the maximum demand for service is experienced, accommodating the largest number of automobile or transit patrons. The peak hour is typically experienced during the morning (a.m.) or evening (p.m.) commuting travel periods.

Peak period—The period during which the maximum amount of travel (e.g., highest demand for passenger service) occurs. It may be specified as a morning (a.m.) or evening (p.m.) peak period. The peak period generally corresponds with the morning and evening commuter traveling periods as employees travel to and from their places of employment.

Public transit—Transportation provided via bus, rail, or other conveyance, either publicly or privately owned, providing to the public general or special service (but not including school buses or charter or sightseeing service) on a regular basis.

Receiver/Receptor—A stationary far-field position at which noise or vibration levels are specified.

Regional Rail—Passenger rail system serving travel within an urban region mainly for commuter purposes. Also known as commuter rail or corridor rail service. Typically designed to operate on the general railroad system, sharing tracks with freight trains and intercity passenger trains.

Ridership—A general measure of the number of people utilizing a transit service.

Right-of-Way—The corridor (horizontal and vertical space) occupied by a transportation way such as a highway, street, road, rail, or runway.

Section 106 of the National Historic Preservation Act—The National Historic Preservation Act of 1966 (16 USC 470f), Section 106, requires federal agencies to consider the effect of their undertakings on properties included in or eligible for inclusion on the National Register of

Historic Places and to afford the Advisory Council on Historic Preservation the opportunity to comment on such undertakings.

Section 404—The Federal Water Pollution Control Act Amendments of 1972 (33 USC 401 et seq.) is the enabling legislation for protection of waters of the United States by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency.

Section 4(f)—Legislation protecting publicly owned parks, public recreation areas, historic properties, or wildlife and waterfowl refuges. The statute states that no Department of Transportation project may use land from these areas unless it has been demonstrated that there is to be no prudent and feasible alternative to using the land and that the project includes all possible planning to minimize harm resulting from the use.

Section 6(f)—Legislation that provides funds for and authorizes Federal assistance to the States in planning, acquisition, and development of needed land and water areas and facilities, and for the Federal acquisition and development of certain lands and other areas.

Sound Level Exposure (SEL)—The level of sound accumulated over a given time interval or event. Technically, the sound exposure level is the level of the time-integrated mean square A-weighted sound for a stated time interval or event, with a reference time of one second.

State Historic Preservation Office—State Historic Preservation Offices (SHPOs) administer the national historic preservation program at the State level, review National Register of Historic Places nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with Federal agencies during Section 106 review. SHPOs are designated by the governor of their respective State or territory.

Stations—Locations where trains stop to take on and discharge passengers.

Track—The pair of steel rails, and supporting ties and stone ballast or concrete slab, upon which trains operate.

Trackbed—The prepared, graded surface upon which tracks are constructed.

Transit Oriented Development—Concentrated, higher density development typically constructed within one-half mile of a public transit station that features mixed land uses, a pedestrian-friendly environment, a strong sense of "place" and public areas and open spaces. Transit Oriented Development seeks to take advantage of the benefits provided by efficient access to public transportation.

Transload—The process of transferring a shipment from one mode of transportation to another.

Unlinked trips—Unlinked trips are counted as the total number of passengers who board public transportation vehicles. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination.

Vibration—An oscillation wherein the quantity is a parameter that defines the motion of a mechanical system.

Waters of the U.S.—Waters used in interstate or foreign commerce, subject to ebb and flow of the tide, and all interstate waters including interstate wetlands which are considered jurisdictional under Section 328.3[2] of the Clean Water Act. Jurisdictional waters of the U.S. are

further defined as all other waters such as navigable waterways, intrastate lakes, rivers, streams, intermittent streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds or impoundments of water, tributaries of waters, and territorial seas.

Wetlands—Wetlands are areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and similar areas.

Wye—A track arrangement of three switches and three legs, in the form of the letter Y, for reversing the direction of a train.

Acronyms

AADT	Average Annual Daily Traffic
AB	Aquatic Bed
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
AIWA	Atlantic Intracoastal Waterway Association
AN	Advance Notification
APE	Area of Potential Effect
ARRA	American Recovery and Reinvestment Act
BEA	U.S. Bureau of Economic Analysis
BEBR	Bureau of Economic and Business Research
BTU	British Thermal Unit
CAAA	Clean Air Act Amendments
CBD	Central Business District
CBRA	Coastal Barrier Resource Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
CRA	Community Redevelopment Area
CRAS	Cultural Resource Assessment Survey
CSXT	CSX Transportation
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBA	A-weighted sound levels
DHR	Division of Historical Resources
DOE	U.S. Department of Energy
EA	Environmental Assessment
ECFRPF	East-Central Florida Regional Planning Council
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EM	Emergent
EPA	U.S. Environmental Protection Agency

ERP	Environmental Resource Permit
ESA	Endangered Species Act
ESBA	Endangered Species Biological Assessment
EST	Environmental Screening Tool
ETDM	Efficient Transportation Decision Making
FAC	Florida Administrative Code
FCMA	Florida Coastal Management Act
FCMP	Florida Coastal Management Program
FDACS	Florida Department of Agriculture & Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEC	Florida East Coast Railway
FEMA	Federal Emergency Management Agency
FGDL	Florida Geographic Data Library
FHSRA	Florida High Speed Rail Authority
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMC	Fishery Management Council
FMSF	Florida Master Site File
FO	Forested
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
F.S.	Florida Statute
FTA	Federal Transit Administration
FTE	Full Time Equivalent
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
GIS	Geographic Information System
GPR	Ground Penetrating Radar
HAPC	Habitat Areas of Particular Concern
HSIPR	High-Speed Intercity Passenger Rail Program
Hz	Hertz

ISTEA	Intermodal Surface Transportation Efficiency Act
JRTC	Jacksonville Regional Transportation Center
JTA	Jacksonville Transportation Authority
KG	Kilogram
Ldn	Day-Night Sound Level
LEED™	Leadership in Environmental and Energy Design
Leq	Equivalent Sound Level
LRD	Loxahatchee River District
MCS	Miami Central Station
MIA	Miami International Airport
MIC	Miami Intermodal Center
MP	Mile Post
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OFW	Outstanding Florida Water
OGT	Office of Greenway and Trails
PD&E	Project Development and Environmental
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PPV	Peak Particle Velocity
PSR	Programming Summary Report
PTC	Positive Train Control
RIMS II	Regional Input-output Modeling System

RMS	Root Mean Square
ROD	Record of Decision
ROW	Right-of-Way
RSIA	Rail Safety Improvements Act of
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAFMC	South Atlantic Fishery Management Council
SCE	Sociocultural Effects
SFECCTA	South Florida East Coast Corridor Transit Analysis
SFRC	South Florida Rail Corridor
SFRTA	South Florida Regional Transportation Authority
SFWMD	South Florida Water Management District
SHPO	State Historic Preservation Officer
SJRWMD	St. Johns River Water Management District
SOV	Single-occupant Vehicle
SWFWMD	Southwest Florida Water Management District
TEA-21	Transportation Equity Act for the 21st Century
TMDL	Total Maximum Daily Load
TOD	Transit-oriented Development
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
VdB	Vibration Decibels
VMT	Vehicle-miles Traveled

Chapter 1

Purpose and Need

1.1 Introduction

Chapter 1 details the underlying purpose and need for the proposed action. The alternatives presented in Chapter 2 were developed to meet the purpose and need of the project. Chapter 1 provides an overview of project development and the decision-making process that provides the framework in which reasonable alternatives are identified.

The Florida Department of Transportation (FDOT), in conjunction with the Federal Railroad Administration (FRA), initiated the Florida East Coast (FEC) Amtrak® Passenger Rail Study to evaluate alternatives to provide intercity passenger rail service along nearly 350 miles of Florida's east coast between Jacksonville and Miami. This Environmental Assessment (EA) was prepared to document the engineering and environmental evaluations necessary to reach a decision on the type and location of any proposed improvements in compliance with the National Environmental Policy Act (NEPA). NEPA compliance is critical to the application for federal funding under FRA's High-Speed Intercity Passenger Rail (HSIPR) Program.

The early 21st Century is a period of unique challenges and opportunity for Florida. Florida attracts more than 300,000 new residents each year, lured by the state's climate, lack of state income tax, and burgeoning economy. The stream of new residents has grown steadily since the early 1900s when transportation improvements, including Henry Flagler's FEC Railway, heralded a new era of prosperity and development. The Interstate Highway System and improved air service made Florida more accessible, and air conditioning made it more hospitable, promoting an even larger surge of newcomers following World War II. Florida's population has grown exponentially, fueled by a vibrant and diverse economy, exceptional natural and cultural amenities, and some of the most favorable winter weather in the United States (FDOT, 2009).

As Florida continues to experience substantial population and employment growth, the state's existing transportation network continues to decline, with substantial increases in congestion and decreases in mobility. These conditions are especially prominent along the state's east coast, which is the oldest contiguous band of development in Florida, including the nation's oldest city, St. Augustine, which dates back to the 1500s. Current development patterns from Jacksonville to Miami comprise 8.3 million residents within 11 coastal counties, all of which are served by this project. The FEC Amtrak Passenger Rail project is being proposed as an alternative mode of travel to enhance mobility, safety, livability, and improve transportation connectivity between and among Florida's east coast cities, which have constrained roadway networks connecting these historic downtowns. Initial phases of intercity service could be complemented over time by corridor service, thereby significantly expanding the mobility options for residents, visitors and commuters, by providing alternatives to congested highways and long distance air travel. The proposed passenger rail service will play an important role in keeping Florida's economy competitive for the future while enhancing the state's sustainability and livability characteristics, help contain urban sprawl, and provide an important catalyst for the continued redevelopment of these coastal communities.

Florida's east coast between Jacksonville and West Palm Beach relies heavily on automobile travel on congested I-95, Greyhound service, and regional executive airports. The proposed action would improve connectivity to the east coast communities for in-state and out of state travelers, with continuing Amtrak service south to Miami and north to D.C. and New York.

Additional capacity is needed to assist seaports in Jacksonville, Fort Pierce, Port Canaveral, Everglades, Palm Beach and Miami to accommodate expected growth in freight and cruise activity. The project would play a substantial role in helping seaports accommodate growth related to cruise activity. The proposed stations in Titusville and Cocoa are near Port Canaveral, a major passenger cruise port that carries nearly two million cruise passengers annually. (Section 1.5.3.2 Transportation Benefits)

Florida's Vision
Some states are major thoroughfares with millions of passengers and millions of tons of freight passing through each year on their way to other locations. Other states contain large hubs that provide critical connections in the nationwide transportation system. Florida, by nature of its peninsular geography, contains a transportation system that predominately supports Floridians. Therefore, a vision for rail in Florida must focus on:
1) connecting Florida with the rest of the U.S. and North America; and,
2) supporting intrastate movement of people and freight.

FDOT's 2006 Florida Freight and Passenger Rail Plan (February 2007)

Also in the vicinity of Titusville and Cocoa, within the central portion of the FEC corridor in Brevard County, is the "Space Coast Region" that is home to the NASA space program and Kennedy Space Center. Recent national actions indicate the planned restructuring of the NASA program, which may result in the potential loss of up to 30,000 jobs. To assist with the urgent need for economic restructuring, the Task Force on Space Industry Workforce and Economic Development was created and assigned to the U.S. Department of Commerce - Economic Development Administration. The purpose of the task force is to identify ways to promote economic growth and sustainability in the Space Coast region, including expanded mobility and access. The FEC Amtrak Passenger Rail project will help fulfill the mission of this key federal task force to help offset the significant economic impacts of changes to America's space program.

The development of a future passenger rail station is an important investment for the future of the Florida east coast cities. The FEC Amtrak Passenger Rail project supports both state and national mobility and economic goals. Florida's investments in freight and passenger rail are guided by the five 2025 FTP goals for Florida's multimodal transportation system:

Florida's Investment
Florida has been a leader among the states in accepting the challenge of partnering with the railroads to expand the rail system through public policy and public investments, while adhering to the goals in the 2025 FTP. By focusing on key corridors, such as Orlando/Tampa to Jacksonville, Jacksonville to Miami, and Jacksonville westward along I-10, Florida is adding multimodal capacity where it is most needed. By purchasing rail lines in South Florida and in Orlando, Florida is investing in commuter operations to support these growing metropolitan areas.

FDOT's 2006 Florida Freight and Passenger Rail Plan (February 2007)

- Provide a safer and more secure transportation system for residents, businesses, and visitors;
- Enrich the quality of life and responsible environmental stewardship;

- Support adequate and cost-efficient maintenance and preservation of Florida's transportation assets;
- Strengthen the economy through enhanced mobility for people and freight; and
- Provide sustainable transportation investments for Florida's future.

Chapter 1 presents the public benefits expected due to the FEC AMTRAK Passenger Rail project with respect to:

- Community support (Chapter 4);
- Creating jobs and economic stimulus and recovery (Section 1.5.3.1),
- Cross-modal opportunities and intermodal connectivity (Section 1.5.3.2),
- Reduction in green house gas (GHG) emissions and energy efficiency (Section 1.5.3.3),
- Livable communities (Section 1.5.3.4), and
- Improving historic transportation facilities through adaptive reuse (Section 3.6).

The FEC rail corridor initially operated as a passenger rail line along Florida's east coast. The cities along Florida's east coast historically developed around train stations along the FEC railway. The project proposes to restore passenger rail service, in the form of Amtrak, on the existing FEC Railway freight rail line from Jacksonville to West Palm Beach, where no passenger rail service exists today, with service continuing south to Miami on the existing South Florida Rail Corridor (SFRC) Amtrak route. The proposed passenger rail service will connect to existing Amtrak service outside Florida including New York, Washington D.C., Savannah (Georgia) and other major cities. The proposed FEC Amtrak Passenger Rail project consists of the following major infrastructure improvements to add two southbound and two northbound trains per day:

- Minor improvements (within existing horizontal curves) to the existing FEC rail line between Jacksonville and West Palm Beach (Section 1.4.2)
- Realigning the connector track (Northwood Crossover) to the existing SFRC (Section 1.4.3)
- Eight new stations between St. Augustine and Stuart (Section 1.4.4)

Exhibit 1.1 shows the project study area and proposed station locations under evaluation. South of the Northwood Crossover, the additional passenger trains would use the existing Amtrak route on the SFRC and the existing Amtrak stations; therefore, no infrastructure improvements are proposed south of the Northwood Crossover on the SFRC. Four related projects are proposed by others and are connected actions; these include the planned Jacksonville Amtrak Station, the Miami Amtrak Station as part of the Miami Intermodal Center (under construction), completed Tri-Rail Double-Tracking project (on SFRC), and the South Florida East Coast Corridor Transportation Analysis (SFECCTA). The FEC Amtrak Passenger Rail project was also known as the Florida East Coast Amtrak Service project.

This EA will assist in the decision-making process as required by the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C.] 4321 et seq.), Council on Environmental Quality (CEQ) Regulations for implementing the provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and FRA's policies and procedures.

As an important component of the vision for rail in Florida, the FEC Amtrak Passenger Rail project will create jobs, improve mobility, complement the state-wide transportation network,

provide an alternate mode of travel to congested I-95, an alternate to air travel with long distance service to Washington D.C. and New York, provide enhance economic development opportunities, and reduce green house gas emissions.

EXHIBIT 1.1
Project Study Area

This EA provides information associated with the No-bBuild Alternative and the potential environmental impacts of implementing the Proposed Action by resource area. Based on the evaluation of environmental impacts documented in this EA, no significant impacts to the environment are anticipated. Chapter 1 provides an overview of the project background, purpose and need for the Proposed Action, project description, the decisions to be made, and the expected benefits to the public.

Chapter 1 provides an overview of the project background, purpose and need for the Proposed Action, project description, the decisions to be made, and the expected benefits to the public. **Chapter 2** provides discussions on the station alternative locations that were evaluated and presented for agency and public input that lead to the selection of the preferred alternative. **Chapter 3** focuses on the environmental effects as a result of the preferred alternative for this proposed action. **Chapter 4** summarizes the extensive public involvement program and documents the opportunities provided for agency and public input.

1.2 History of Intercity Passenger Rail

The history of intercity passenger rail service along Florida's east coast from Jacksonville to Miami spans more than 100 years - from the completion of the FEC Railway by Henry Flagler in 1896 (Flagler Museum, 2010) to the recent proposal to restore passenger service - and is intricately linked to the state's growth and development. It is important to note Florida's east coast communities, from West Palm Beach north to Jacksonville, have been without passenger rail service since the late 1960s.

1.2.1 FEC Railway

Upon Henry Flagler's first visit to Florida in 1878, he recognized the state as a favorable tourism destination with high economic growth potential. To encourage economic development, Flagler purchased the Jacksonville, St. Augustine & Halifax Railroad in 1885 and proceeded to develop interconnected passenger rail service from Jacksonville to Daytona by 1889.

The railroad was designated the Florida East Coast Railway in 1895, and by the following year, the system was operating between Jacksonville to Miami, opening up the state's east coast to its eventual development as a string of coastal downtowns along the Atlantic Ocean. Flagler's FEC development pattern continues today, and Florida's east coast remains a linear pattern of historic coastal communities, formed primarily around their former train stations. Economic conditions varied through the decades, but passenger rail service remained a key feature of Florida's east coast until the 1960s. By then, the FEC railway had become heavily utilized for freight traffic, and with the presence of prolonged union strikes, passenger service on the FEC Railway was ultimately discontinued in 1968. However, the ribbon of historic coastal communities along the FEC, all of which began as transit-oriented development remains a key organizing element of land use for Florida's current coastal development pattern.

The Historic FEC Corridor - Completed by Henry Flagler in the late 1890s, passenger rail service on the FEC railway was available between Jacksonville and Miami until service was discontinued in 1968.

The existing FEC Railway operates freight service on 351 miles of railroad track from Jacksonville to Miami. The existing freight train operation consists of approximately 21 freight trains (per direction, one-way) between Jacksonville and West

Palm Beach (FEC Railway, 2009). The freight trains operate at speeds up to 60 miles per hour (mph). Key freight commodities include aggregates, automobiles and equipment, lumber, farm products, food, machinery, pulp and paper, petroleum products, and materials. Freight operations are serviced through various intermodal facilities, terminals and transload and storage/distribution facilities located along the facility.

1.2.2 Amtrak Service

Florida is served by three Amtrak services – the Auto Train, Silver Meteor, and Silver Star – covering 20 stations throughout the state (Amtrak, 2010), operating over lines owned by CSX Transportation and FDOT (the SFRC) (FDOT, March 2009). Amtrak's Auto Train offers one daily departure in each direction, with non-stop service between Lorton, Virginia, near Washington, D.C., and Sanford, Florida, near Orlando. The Silver Meteor and the Silver Star offer service between New York City, Georgia and Florida (two northbound and two southbound trips).

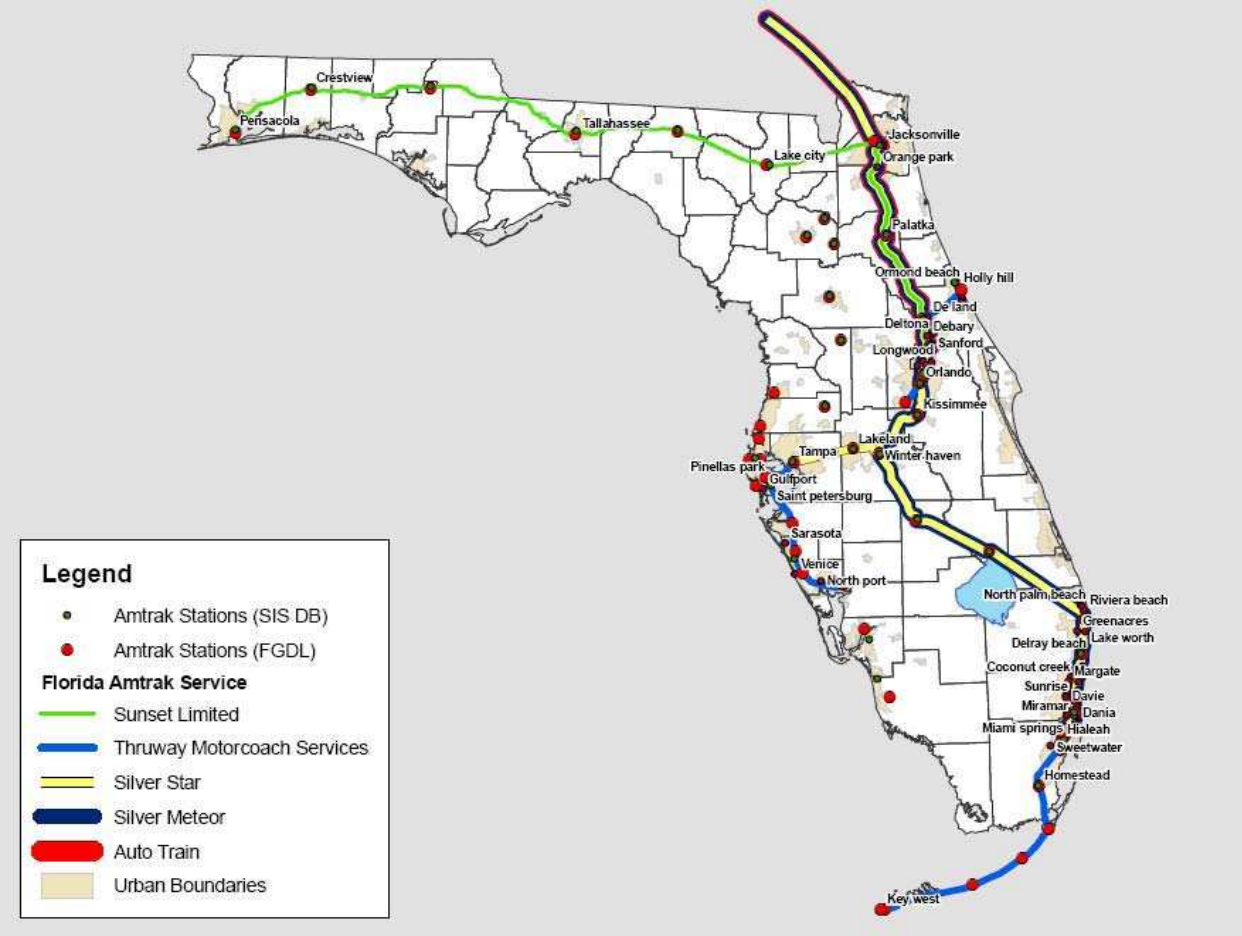
The existing Amtrak route in Florida goes from Jacksonville to Miami via central Florida as shown in Exhibit 1.2. No existing intercity passenger service exists on Florida's east coast between Jacksonville and West Palm Beach. Between West Palm Beach and Miami, Amtrak intercity passenger service is provided in Delray Beach, Deerfield Beach, Ft. Lauderdale and Hollywood. The two southbound trains from West Palm Beach to Miami only discharge passengers and the two northbound trains from Miami to West Palm Beach only receive passengers.

1.2.3 Florida High Speed Rail

The potential for high-speed intercity passenger rail service to address a portion of the transportation needs in Florida has a long history. Efforts to evaluate high-speed rail's potential were initiated following approval by Florida voters in 2000**.** The chronological history since 2000 is shown in Exhibit 1.3.

While the Florida High Speed Rail project from Tampa to Orlando is an important component of statewide passenger rail connectivity, it will not address the purpose and need for this FEC Amtrak Passenger Rail project to improve connectivity for intercity and intermodal travel, enhance mobility of the transportation network, and stimulate economic development along Florida's east coast. The proposed FEC Amtrak Passenger Rail project would enhance statewide passenger rail connectivity by providing a direct passenger service route from Jacksonville to Miami, restore passenger service between Jacksonville and West Palm Beach, and reintroduce rail as a mobility option along the Florida's east coast. The following sections describe the FEC Amtrak Passenger Rail service component of the statewide passenger rail vision in more detail.

EXHIBIT 1.2
Amtrak Routes and Stations in Florida



Sources: 2006 Florida Freight & Passenger Rail Plan (February 2007), Amtrak, Florida Geographic Data Library (FGDL and Strategic Intermodal System (SIS) Database (DB) [refers to Amtrak stations that are designated to SIS].

Note: The Sunset Limited service has not been in service since August 2005 because of Hurricane Katrina. As of June 2010, Amtrak has not determined if or when service will be resumed. Amtrak provides accessible thruway motorcoach (i.e., bus) service on some routes.

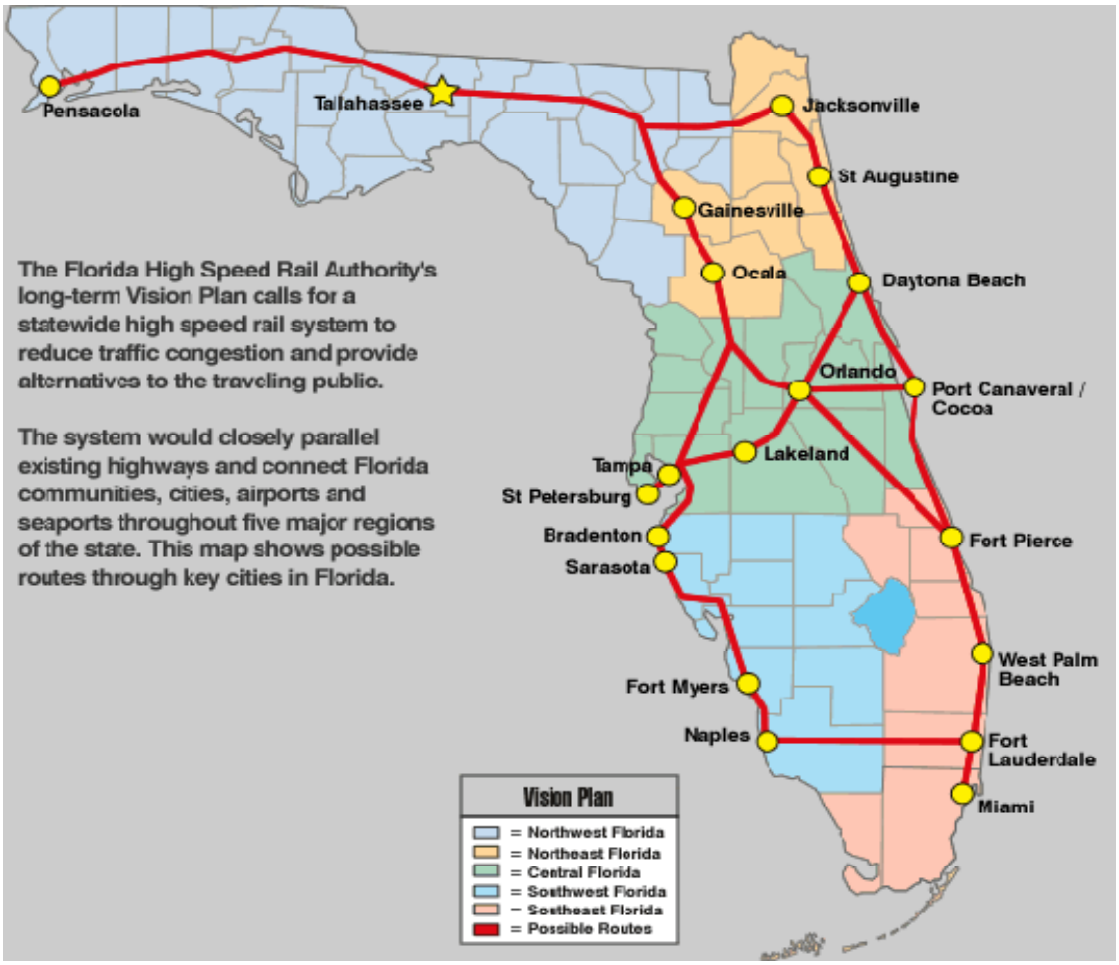
EXHIBIT 1.3
Florida High Speed Rail Legislation 2000-2010

Year and Event	Description of Event
2000 **Constitutional Amendment on High Speed Rail Approved by Florida Voters**	Florida's voters adopted an amendment to the Constitution of the State of Florida that mandated the construction of a high-speed transportation system in the state. The amendment required the use of train technologies that would operate at speeds in excess of 120 mph and would consist of dedicated rails or guideways separated from motor vehicle traffic. The system was to link the five largest urban areas of Florida and construction was mandated to begin by November 2003.
2001 **Florida Legislature Enacts the Florida High Speed Rail Authority Act**	Florida Legislature enacted the Florida High Speed Rail Authority Act and created the Florida High Speed Rail Authority (FHSRA). The FHSRA was charged with the responsibility for planning, administering, and implementing a high-speed rail system.
2001 **High Speed Rail Authority Issues Vision Plan**	The FHSRA crafted a vision for a high-speed rail network linking the major population centers of Florida (Exhibit 1.4). The FHSRA's long-term vision for a statewide high-speed rail system included the provision for high-speed rail along Florida's east coast, linking Jacksonville and Miami.
2002 **Report to the Governor and the Legislature Issued**	The FHSRA issued a request for proposal in 2002 to design, build, operate, maintain, and finance an initial high-speed rail service between Tampa and Orlando. The cost estimate was $2.4 billion. The route was planned to begin near the Tampa Central Business District and travel parallel to Interstate 4 (I-4) into Orlando, then to the Orlando International Airport, along with a future extension into St. Petersburg. A Draft Environmental Impact Statement (EIS) was prepared for Tampa-Orlando project in 2003, and a Final EIS was released in 2005 (reevaluation and Record of Decision in 2010).
2003 **Funding Vetoed by Governor Jeb Bush**	Governor Jeb Bush vetoed funding approved by the Legislature for the High Speed Rail project and for the continuation of activities by the Board. The Authority was able to continue the project development and environmental (PD&E) Process and Procurement process with funds previously earmarked by the federal government.
2004 **Constitutional Requirement is Repealed**	Growing concern over the costs of implementing a high-speed rail network led to efforts to repeal the amendment. In November 2004, Florida voters chose to overturn the original amendment, resulting in the removal of the constitutional mandate.
2004-2006 **Florida Intercity Passenger Rail "Vision Plan" developed**	Building upon the groundwork laid by the FHSRA, the FDOT developed the Florida Intercity Passenger Rail "Vision Plan. The largest numbers of estimated intercity trips would be between central Florida and Tampa Bay (Orlando-Tampa), southeast Florida and central Florida (Miami-Orlando), and southeast Florida and the Tampa Bay region (Miami-Tampa). Additional significant travel is anticipated between Jacksonville (northeast Florida) and Orlando (central Florida). The FEC Corridor between Jacksonville and West Palm Beach/Miami was identified as "Coastal Route" for future passenger service and prioritized as Phase 1 in the state's long-range rail plan.

EXHIBIT 1.3
Florida High Speed Rail Legislation 2000-2010

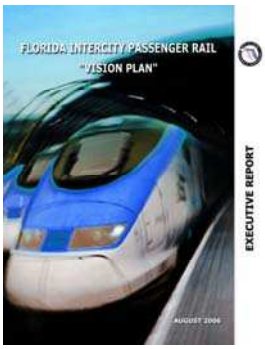
Year and Event	Description of Event
2009 **American Recovery and Reinvestment Act**	President Obama announced a new vision for developing high-speed rail in America. To initiate the fulfillment of this vision, the Obama administration provided $8 billion in the American Recovery and Reinvestment Act (ARRA) of 2009 for transit and high-speed rail and a high-speed rail grant program of $1 billion per year (proposed in the fiscal year 2010 federal budget).
2009 **Florida Rail System Plan**	The 2009 Florida Rail Plan was an update to the 2006 Florida Freight and Passenger Rail Plan and built upon previous rail planning efforts, including the 2006 Florida Intercity Passenger Rail Vision Plan. The proposed project was developed in response to this policy plan.
2009 **FRA's High-Speed Intercity Passenger Rail Program**	The FRA published notice of its procedures and guidelines for the High-Speed Intercity Passenger Rail (HSIPR) program, detailing the application requirements and procedures for obtaining funding for high-speed rail projects under the ARRA and the U.S. Department of Transportation (USDOT) Appropriations Acts of 2008 and 2009.
December 2009 **Florida Statewide Passenger Rail Commission created**	Governor Charlie Crist signed House Bill 1B, creating the Florida Statewide Passenger Rail Commission. The commission will monitor Florida's passenger rail systems, advise DOT concerning passenger rail service, evaluate passenger rail policies and provide advice and recommendations to the legislature (Florida Rail Enterprise, 2010).
January 2010 **Florida Receives $1.25 Billion For High Speed Rail**	Florida was awarded $1.25 billion to start construction of the Tampa-Orlando segment of the federally-designated Tampa-Orlando-Miami corridor. It was one of the largest awards made to any state. Florida won because the Tampa-Orlando project was "shovel ready," had a low cost to build, and had strong legislative and community support.

EXHIBIT 1-4
Florida High-Speed Rail Authority Long-Term Vision Plan



Source: 2006 Florida Freight & Passenger Rail Plan (February 2007)

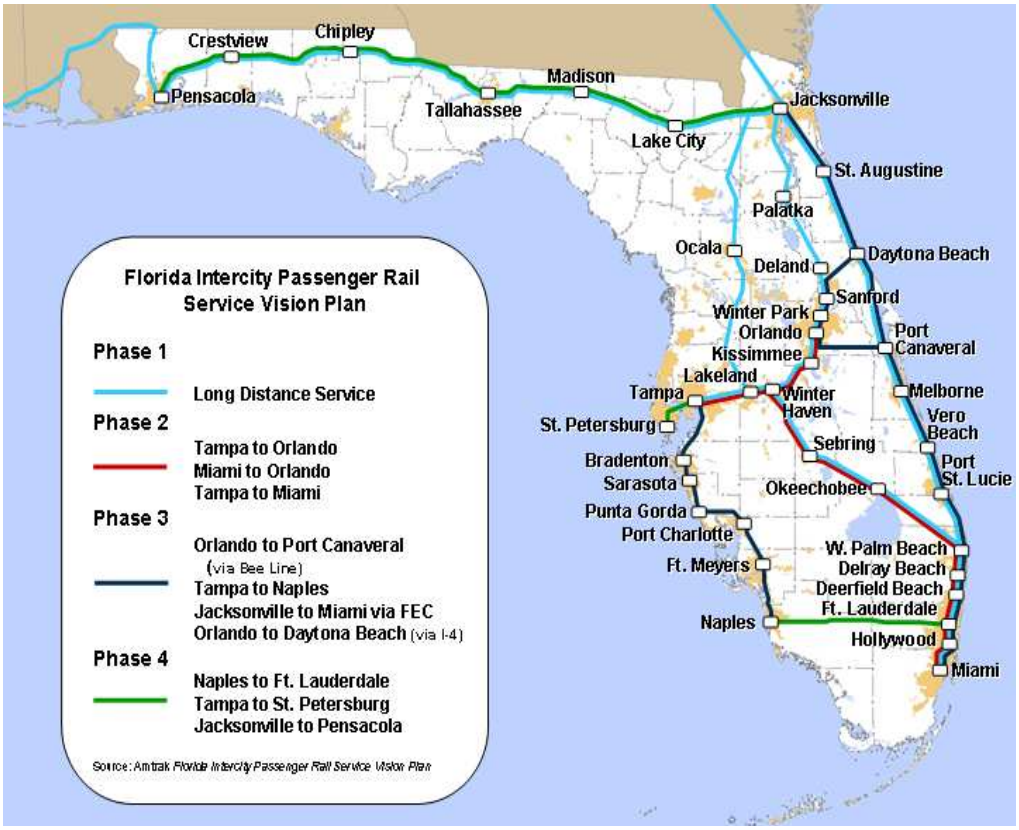
1.2.4 Florida Intercity Passenger Rail Vision



Building upon the groundwork laid by the FHSRA, the FDOT developed the *Florida Intercity Passenger Rail "Vision Plan"* (FDOT, August 2006). The plan found that the intercity travel market would grow from slightly more than 100 million trips in 2006 to nearly 200 million trips by 2020, and 320 million trips by 2040 (FDOT, August 2006). This increase would add pressure to existing transportation facilities and call for the development of substantial new infrastructure to meet the demand. The largest numbers of estimated intercity trips would be between central Florida and Tampa Bay (Orlando-Tampa), southeast Florida and central Florida (Miami-Orlando), and southeast Florida and the Tampa Bay region (Miami-Tampa). Significant travel also is expected between Jacksonville (northeast Florida) and Orlando (central Florida).

The *2004 Passenger Rail Component of the Florida Rail Plan* (FDOT, June 2005) proposed four phases of improvements (Exhibit 1.5). Direct passenger service from Jacksonville to Miami via the FEC Railway was programmed as part of Phase 1 and Phase 3 of the plan. These improvements were not initiated due to funding constraints.

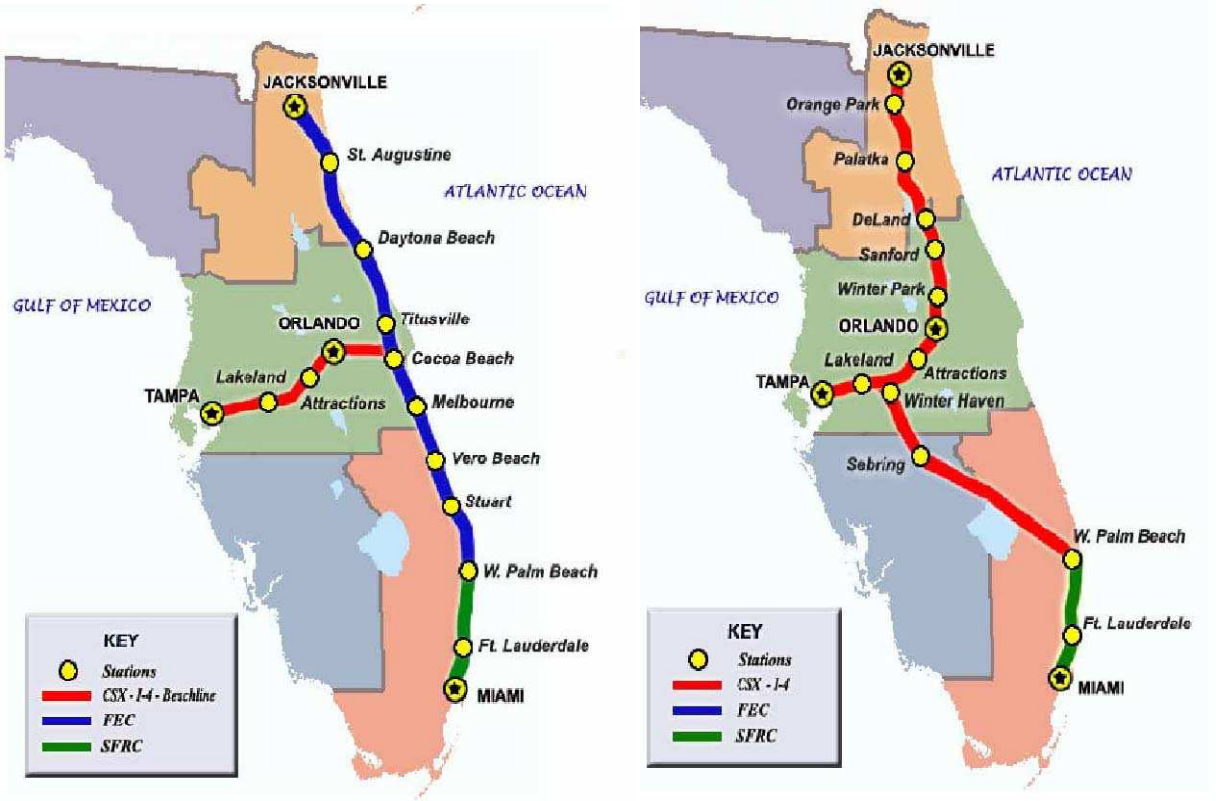
EXHIBIT 1.5
Florida Intercity Passenger Rail Service Vision Plan



Source: 2004 Passenger Rail Component of the Florida Rail Plan (FDOT, June 2005)

The *2006 Florida Freight & Passenger Rail Plan* (FDOT, February 2007) evaluated two independent routes for potential service – a coastal route and an inland route, as shown in Exhibit 1.6. The coastal route option depends on a partnership with the FEC Railway instead of CSX Transportation and serves communities between Jacksonville and West Palm Beach. It was determined that the coastal route was a slightly more expensive option but potentially could provide higher ridership and better financial performance. For each route option, the vision plan had four proposed phases. Phase 1 (including direct service between Miami and Jacksonville) would be implemented within the first 5 to 7 years of the program.

EXHIBIT 1.6
Florida Intercity Passenger Rail Service Vision Plan



Coastal Route **Inland Route**

Source: 2006 Florida Freight & Passenger Rail Plan (FDOT, February 2007)

1.2.5 American Recovery and Reinvestment Act of 2009

On April 16, 2009, President Obama, together with Vice President Biden and Secretary of Transportation LaHood, announced a new vision for developing high-speed rail in America. The FRA *Vision for High-Speed Rail* (FRA, April 2009) calls for a collaborative effort among the federal government, states, railroads, and other key stakeholders to help transform America's transportation system by investing in an efficient, high-speed passenger rail network of 100- to 600-mile intercity corridors that connect communities across the nation. To initiate the fulfillment of this vision, the Obama administration provided $8 billion in the American Recovery and Reinvestment Act (ARRA) of 2009 for transit and high-speed rail and a high-speed rail grant program of $1 billion per year (proposed in the fiscal year 2010 federal budget). These first steps emphasize strategic investments that would yield tangible benefits to intercity rail infrastructure, equipment, performance, and intermodal connections over the next several years, while also creating a "pipeline" of projects to enable future corridor development.

1.2.6 Florida Rail System Plan

In June 2009, FDOT released the *2009 Florida Rail System Plan: Policy Element* (FDOT, March 2009). This plan indicated that from a passenger rail perspective:

- Public interest in rail options to meet intercity and regional mobility needs is rising.
- Passenger rail would steadily become more important as an alternative to the congestion on Florida's highways and increase the mobility of tourists, business travelers, and citizens, especially older Floridians.
- The concerns over dependence on foreign oil, fluctuating gas prices, and fuel supply disruptions as a result of natural disasters are likely to increase reliance on transit (commuter rail, heavy rail, light rail, and bus) as an alternative to the automobile for commuting.

The Vision of Rail Transportation in 2030
"Florida has a safe, secure, and efficient passenger and freight rail system providing mobility, improving quality of life and promoting economic opportunities and environmental sustainability for Florida."

2009 Florida Rail System Plan: Policy Element (FDOT, March 2009).

This plan called for development of intercity passenger rail corridor service between commuter rail hubs in the key city pairs of:

- Orlando and Tampa
- Jacksonville and Miami
- Miami and Orlando/Tampa mid-point
- Miami and Orlando/Jacksonville mid-point

The 2009 Florida Rail Plan is an update to the 2006 Florida Freight and Passenger Rail Plan and builds upon previous rail planning efforts, including the 2006 Florida Intercity Passenger Rail Vision Plan. The proposed project was developed in response to this policy plan.

1.2.7 FRA's High Speed Intercity Passenger Rail Program

On June 23, 2009, the FRA published notice of its procedures and guidelines for the HSIPR program, detailing the application requirements and procedures for obtaining funding for high-speed rail projects under the ARRA and the U.S. Department of Transportation (USDOT) Appropriations Acts of 2008 and 2009. The evaluation and selection criteria established were intended to prioritize projects that deliver transportation, economic recovery, and other public benefits, including energy independence, environmental quality, and livable communities; ensure project success through effective project management, financial planning, and stakeholder commitments; and emphasize a balanced approach to project types, locations, innovation, and timing. In January 2010, Florida was awarded $1.25 billion to start construction of the Tampa-Orlando segment of the federally-designated Tampa-Orlando-Miami corridor.

In July 2010, FRA released a notice of funding availability for high-speed and intercity passenger rail projects. The 2010 USDOT Appropriations Act appropriated $2.5 billion for the HSIPR program. The FEC Amtrak Passenger Rail Service project is potentially eligible to apply for a portion of the HSIPR funds under the Fiscal Year 2010 Service Development Program grant application.

1.3 Federal Action Required

Transportation projects seeking federal funding must comply with NEPA by considering the environmental impacts of proposed improvements that could significantly affect the environment. This study is being conducted in compliance with NEPA to maintain the ability to apply for and use any available federal funds. NEPA requires federal agencies to conduct an environmental review before approving, funding or implementing a project. The following discussions describe the project development and environmental studies completed in compliance with NEPA.

1.3.1 Agency and Public Scoping (August 2009)

During the initial phases of project development in August 2009, the study team coordinated with federal and state regulatory and resource agencies, the cities where stations are proposed, and regional and other special-interest groups (refer to Chapter 4). No significant issues related to the environment were raised during the initial scoping activities and outreach.

1.3.2 Service NEPA Completed (October 2009)

In 2009, agencies applying for ARRA federal funding were required to complete an initial environmental review designated "Service NEPA" prior to consideration for funding (FRA, August 2009). The Service NEPA-level review provided a broad collective analysis of each project component to determine the potential for significant adverse environmental impacts. A Programmatic EA was determined as the appropriate environmental review for Service NEPA-level compliance because the impacts from the project (that is, nominal additional trains to an existing freight corridor, stations in urban settings that are requesting intercity service, limited adverse impacts with opportunities for further avoidance and minimization) had not been fully evaluated and early scoping efforts suggested that impacts did not appear to be significant. To comply with "Service NEPA," the *Programmatic Environmental Assessment for High-Speed Intercity Passenger Rail on Florida East Coast Amtrak Service* (FDOT, October 2009) was completed. Also, a *Service Development Plan* was completed to document the intended service operations and service implementation. The results of the "Service NEPA" study indicated that additional engineering and environmental evaluations were needed before further consideration of federal funding. These evaluations are required to:

- Analyze site specific location and design alternatives for the preferred stations locations, corridor improvements, and the Northwood Crossover
- Evaluate avoidance and minimization alternatives
- Fully disclose potential environmental impacts not already in the Service NEPA review

During the "Service NEPA" phase of project development phase, the Programmatic Environmental Assessment (PEA) and the *Service Development Plan* were made available for public review on the project Web site (http://www.sfeccstudy.com/FDOT/Amtrak.html).

1.3.3 ETDM Screening

After the PEA was completed in 2009, the identified alternatives were screened as part of FDOT's Efficient Transportation Decision Making (ETDM) process. The screening process consists of a desktop analysis of potential environmental effects to the social (human), cultural,

natural and physical environment using Geographic Information System (GIS) databases to identify environmental resources in the study area. The ETDM process was developed to provide opportunities for public and agency input during the programming phase of projects before detailed NEPA analysis. Through the ETDM process, agency comments are obtained to provide information on environmentally sensitive areas and identify project issues. The ETDM Programming Summary Report documents this analysis and the agency comments. The Programming Summary Report for this project and more information about the ETDM process for this project are available on the ETDM public Web site (FDOT, July 2010; http://etdmpub.fla-etat.org/est) and provided in Appendix A of this document. The ETDM Programming Screens for the project were conducted in ten separate screening events: Rail Mainline (ETDM#11860), the eight proposed stations (ETDM#12836 to #12843), and Northwood Crossover (ETDM#12796). FDOT District Four served as the lead coordinating agency on the ETDM Programming Screen. Prior to the publishing of the ETDM Programming Summary Report in July 2010, the project was determined to involve one Class of Action.

1.3.4 Project NEPA Initiated

Following the ETDM programming screen, the "Project NEPA" study began in March 2010 to analyze all reasonable alternatives that meet the purpose and need for the project to satisfy federal NEPA requirements. After review of the "Service NEPA" study results, FRA determined in May 2010 that the completion of an EA was the appropriate Class of Action for "Project NEPA" compliance. A public involvement program to provide further opportunity for agency and public input was conducted concurrently with the preparation of this EA. In compliance with Title VI of the Civil Rights Act of 1964, public participation was solicited without regard to race, color, national origin, age, sex, religion, disability or family status.

1.4 Project Description

The proposed FEC Amtrak Passenger Rail project consists of providing intercity passenger rail service along nearly 350 miles of Florida's east coast between Jacksonville and Miami on the existing FEC Railway freight rail line and the existing SFRC Amtrak route. Major infrastructure components include minor curve improvements to the existing FEC railway between Jacksonville and West Palm Beach, eight new stations, and realigning the connector track (Northwood Crossover) to the existing SFRC. The proposed passenger service would be provided by expanding Amtrak's long-distance passenger rail service from Jacksonville to West Palm Beach, with connecting service to Miami via the existing Amtrak route on the SFRC. The proposed project would enhance rail connecting to the existing Amtrak Atlantic Coast Service route from New York to Miami.

1.4.1 Project Study Area

The project study area primarily consists of the existing FEC Railway freight corridor from Jacksonville to the Northwood Crossover in West Palm Beach (approximately 280 miles), and the SFRC from the Northwood Crossover in West Palm Beach to Miami (approximately 65 miles). The project corridor traverses 11 counties along Florida's east coast (Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward and Miami-Dade) as shown in Exhibit 1.1 (presented previously). The project study area also includes the Northwood Crossover (generally parallel to 25TH Street) from the FEC to the SFRC and the station alternatives in each of the eight cities proposed to include new stations. More detail on

the Northwood Crossover and proposed stations are provided in Section 1.4.3 and Section 1.4.4 of this chapter, respectively, and Chapter 2 (Alternatives Analysis).

The northern terminus will be the existing Jacksonville Amtrak station, with an ultimate terminus at the planned Jacksonville Regional Transportation Center (JRTC). The southern terminus will be at the Miami Central Station (MCS), which is part of the Miami Intermodal Center (MIC) project at Miami International Airport (MIA), and is scheduled for completion by 2012 (FDOT, June 2010). The MIC is an integrated program designed to relieve roadway congestion in the area surrounding MIA and to create a transportation hub (the MCS), where various forms of transportation would be available to the public. The environmental effects associated with relocating Amtrak passenger service to the MCS from the existing Miami Amtrak Station were documented in a Final EIS, which resulted in a Record of Decision (May 1998) for the MIC proposed improvements. Any improvements and project effects associated with the proposed JRTC or relocating Amtrak passenger service from the existing Jacksonville Amtrak station will be studied under a separate environmental determination and are not included in the FEC Amtrak Passenger Rail study and proposed action. For more detail on these connected actions, refer to Section 1.7 of this chapter.

Rendering of Future Jacksonville Regional Transportation Center

Source: http://www.jtafla.com

For the determination of the affected environment and environmental consequences, the general study area encompasses a 400-foot-wide corridor centered on the existing FEC railway from the Jacksonville Amtrak Station to the Northwood Crossover near West Palm Beach, and on the SFRC from the FEC/SFRC Northwood Crossover to the MCS. A 1,000-foot-wide corridor was designated as the study area along the FEC/SFRC Northwood Crossover. At the proposed station locations, the study area encompasses a 500-foot radius surrounding each location alternative. Because the existing Amtrak passenger service is provided on the SFRC between West Palm Beach and the existing Miami Amtrak station, no infrastructure improvements are required on the SFRC south of the Northwood Crossover to accommodate the proposed action. Impacts to the environment were evaluated for the 100-foot-wide FEC right-of-way from the existing Jacksonville Amtrak Station to the Northwood Crossover in West Palm Beach.

1.4.2 Proposed Improvements

The following infrastructure improvements are proposed between Jacksonville and West Palm Beach to provide intercity passenger rail service, accommodate the passenger trains at speeds up to 90 mph and continue FEC Railway's freight service:

- Eight new stations between Jacksonville and Stuart (St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart). Some of the stations involve former station buildings as described in Section 2.4.1.
- New platforms at each proposed station (approximately 1,000 feet long)

- New track sidings (double tracking approximately 2,500 feet in length) at the new stations
- Track signal control
- Twenty-nine (29) miles of surface replacement track work on the existing FEC Railway (from Jacksonville to West Palm Beach) within existing curves. This will involve adding 6 inches of grade to the rail bed to accommodate the increased speed.
- Upgrades at existing highway and pedestrian crossings on the FEC Railway corridor to enhance safety
- New railroad crossings at sidings only
- Realigned track at the Northwood Crossover in Palm Beach County

Joint development partners include Amtrak (who is proposing to operate passenger service for the project) and FEC Railway (who will maintain ownership and operation of the FEC Railway corridor). The proposed platforms, sidings and proposed curve track replacement are primarily located within the existing FEC right-of-way. Minimal right-of-way is anticipated for the proposed stations.

1.4.3 Proposed Northwood Crossover

The Northwood Crossover is an existing track connecting the FEC Railway with the SFRC in the Northwood section of West Palm Beach. This is a short connector track since the FEC Railway is located approximately 2,100 feet east of the SFRC. The existing connector is oriented in a northwest/southeast direction between the two rail lines. In its current configuration, the existing connector track is not usable for intercity passenger rail traffic due to a missing connection in the northeast quadrant leading to and from the FEC Railway and points north. It is proposed that the Northwood Crossover be realigned immediately south of its current alignment (generally parallel to, and north of, 25th Street) to accommodate train traffic to and from points north on the FEC Railway. Minor right-of-way acquisition would be required at the proposed crossover in West Palm Beach.

1.4.4 Proposed Stations

Eight new passenger stations are proposed to be constructed between Jacksonville and Stuart as part of the project, at locations in:

- St. Augustine
- Daytona Beach
- Titusville
- Cocoa
- Melbourne
- Vero Beach
- Fort Pierce
- Stuart

Photo from Cocoa Public Workshop held May 2010

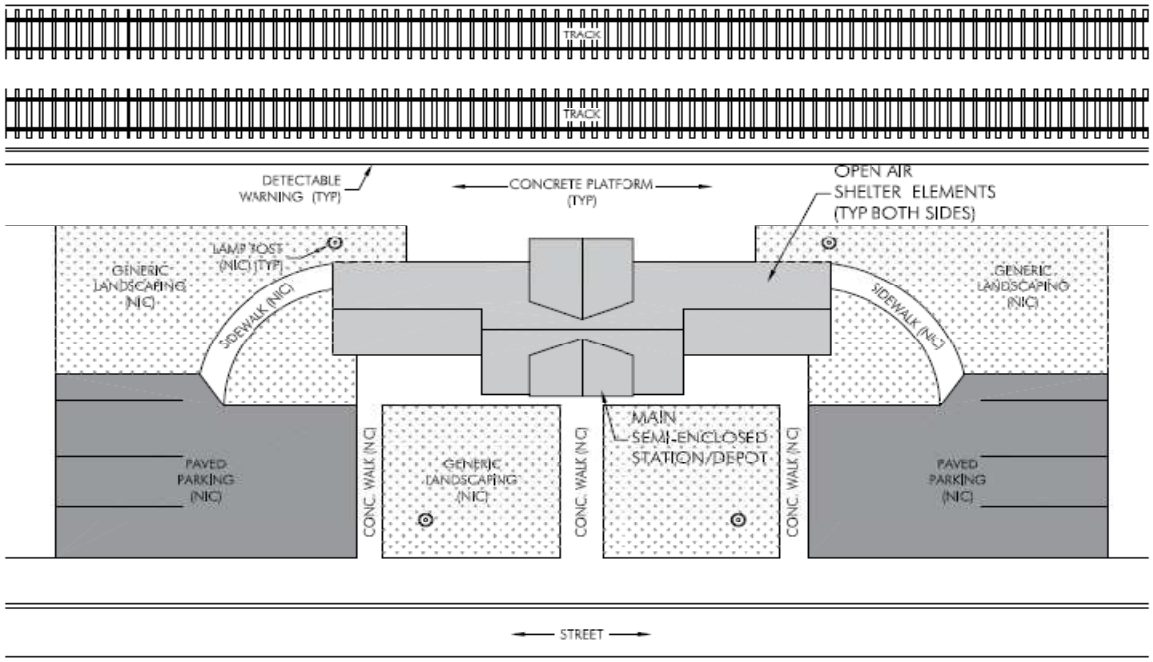
The station location alternatives identified in each of the eight cities are documented in Chapter 2 (Alternatives Analysis) of this EA. The locations of new stations along the FEC Railway were developed by the FDOT in consultation with local government agencies, regional planning councils, metropolitan planning organizations, Amtrak, and the FEC Railway with substantial public input. Interagency meetings were conducted with local officials of these cities

and organizations to identify, evaluate, and refine the station location alternatives. Interagency meetings were conducted with local officials of these cities. In addition, public workshops and station design sessions were held in each of the eight cities where new stations are proposed. South of the Northwood Crossover, the existing Amtrak service would be used for passenger operations from West Palm Beach to Miami. The existing Amtrak operations are described in more detail in Section 3.8.1.

Two types of stations are proposed: small and medium. The small stations would be unstaffed and would consist of a platform, canopy, signage, lighting, and a semi-enclosed shelter (Exhibits 1.7 and 1.8). Medium stations are planned for St. Augustine and Cocoa (Exhibit 1.9). Additionally, the proposed Daytona Beach station is planned to be a seasonally-staffed station and will require a medium station building. The approximate building size for the small and medium stations is 1,000 square feet and 2,500 square feet, respectively. Typical station layouts are provided in Appendix B.

Limited paved parking may be provided at the proposed stations. The number of parking spaces would vary by location. Because the stations are in highly-urbanized areas, limited or no parking facilities may be provided at some locations. Patrons accessing these stations would be anticipated to either walk and/or use adjacent parking facilities to access the station. The stations have been located to facilitate potential future transit-oriented development and intermodal connections. The stations and parking areas would comply with the Americans with Disabilities Act. New passing track (rail sidings 2,500 feet in length) would be added at stations to move Amtrak trains off the mainline tracks while serving the proposed stations. Improvements to the Jacksonville and Miami Amtrak stations have been proposed by others (see section 1.7). Trains would use the existing Hialeah Yard for maintenance.

EXHIBIT 1.7
Small Station Layout



Source: HSIPR on FEC Amtrak Service Programmatic Environmental Assessment (October 2009)

EXHIBIT 1.8
Small Station Elevation and Rendering

Source: HSIPR on FEC Amtrak Service Programmatic Environmental Assessment (October 2009)

EXHIBIT 1.9
Medium Station Rendering

Source: HSIPR on FEC Amtrak Service Programmatic Environmental Assessment (October 2009)

1.4.5 Description of the Intercity Corridor Service

As of June 2010, the State of Florida is served by two Amtrak auto trains which provide service between Lorton, Virginia, and Sanford, Florida, and four Amtrak intercity passenger service trains which provide service between New York and Miami: Numbers 91 and 92 (the Silver Star) and 97 and 98 (the Silver Meteor).

The proposed service would initially consist of two southbound and two northbound trains per day, with a total trip time between Jacksonville and Miami of less than 7 hours. A phased approach to developing intercity passenger rail service is proposed. The first phase would provide the infrastructure, stations, and equipment (fleet) to extend Amtrak service from Jacksonville to Miami by 2012. Later phases would expand passenger rail service along the corridor, such as relocating Amtrak's northern terminus to the downtown JRTC, adding corridor rail service south from the JRTC to St. Augustine, and extending existing Tri-Rail Commuter Rail service north from West Palm Beach to Jupiter.

Additional passenger trains may be required to support the proposed service both to accommodate growth anticipated from expansion of service to new cities, and to provide the necessary different types of cars. The Silver Star and Silver Meteor typically consist of a combination of baggage, dining, sleeping and coach cars. Currently offered First Class and Coach Class services would be operated on both the inland and coastal routes, consistent with Amtrak's current service quality standards for long distance trains. Train amenities include full dining service, first class sleeping accommodations, and checked baggage service. Station amenities would vary by location, but would be consistent with Amtrak's adopted station standards. Fare structure for the new service has not been determined, but would be consistent with the existing Amtrak fares in Florida.

The existing FEC Railway track, signals, and grade crossings would be upgraded to accommodate passenger train speeds up to 90 mph. Other rail services to benefit from this program include the freight services of the FEC Railway and the passenger rail services of Tri-Rail. The project increases capacity along the corridor for freight service and the proposed extension of Tri-Rail to Jupiter.

Phase 2 would add additional trains and expand passenger rail corridor service to include Jacksonville to Cocoa routes. The equipment and operation costs for the future phases are not included in the proposed action; however, the infrastructure improvements included in the proposed improvements will accommodate the Phase 2 improvements.

1.5 Project Purpose and Need

1.5.1 Purpose

The primary purpose of the project is to provide intercity passenger rail service on Florida's east coast from Jacksonville to Miami as part of the *2009 Florida Rail System Plan* to address the project needs discussed in detail in the following sections: improve connectivity for intercity and intermodal travel, enhance mobility of the transportation

> *"Florida's high speed rail will create efficient transportation options, boost our economy and put Floridians back to work."*
>
> Governor Charlie Crist

network, and stimulate economic development along Florida's east coast. The alternatives presented in Chapter 2 were developed to address the purpose and need for the project. The long-term goals and objectives of the project are summarized in Exhibit 1.10.

EXHIBIT 1.10
Project Goals and Objectives

Primary Goal	Long Range Objectives
***R*estore** intercity passenger rail service along nearly 350 miles of Florida's east coast	• Improve intercity mobility and access by filling a critical gap in the transportation network on Florida's east coast • Connect major tourist destinations along Florida's east coast • Provide reliable high quality rail service connecting to Northeast, Mid-Atlantic, Southeast, and Midwest • Provide efficient, comfortable, safe, and reliable intercity rail service
***A*ugment** ongoing redevelopment	• Promote compact development patterns in historic downtowns • Enhance development opportunities to strengthen existing communities • Increase visitation for tourism, sporting events, business activities, personal visits • Preserve environmental quality • Protect Florida's sensitive human and natural environmental resources • Reduce global warming emissions through reductions in vehicle-miles traveled
***I*nterface** with airports, seaport, mass transit and Florida's highways as part of Florida's Strategic Intermodal System	• Link all major forms of transportation • Provide better access to seaports and airports • Interconnect with local and mass transit services
***L*ighten** capacity constraints on existing transportation system by enhancing rail mobility and connectivity to Florida's east coast	• Expand choices of transportation modes • Move people efficiently • Provide predictable consistent travel times • Enhance efficient operation of transportation facilities and service • Provide travel times that are comparable with air and automobile
***S*timulate** economy through construction and transit-orientated development (TOD)	• Stimulate the potential for transit-oriented development (TOD) • Create new employment opportunities along study area and throughout Florida (related to construction, operation and maintenance [O&M], and TOD)

1.5.2 Need

The need for the project stems from continued growth in long-distance travel to Florida's east coast cities; an incomplete, inconvenient, and overburdened transportation network; and depressed economic conditions. The following sections describe the need for the project in more detail.

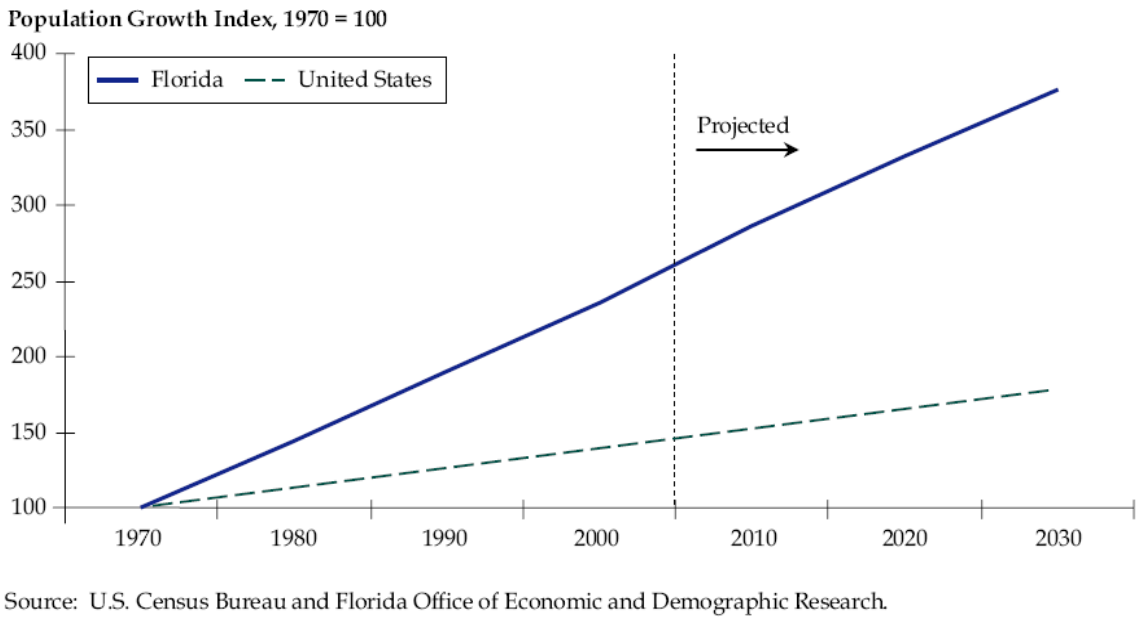
1.5.2.1 Improve Transportation Connectivity

The need for the expanded Amtrak service is directly related to the expected growth in population and intercity travel demand to Florida's eastern communities. Florida's population

is expected to increase at a rate more than double the national average for the foreseeable future (refer to Exhibit 1.11) (FDOT, February 2007).

The University of Florida estimates that 25 million people will live in the state by 2035, compared to the current population of approximately 17 million. Florida's current transportation system has not kept pace with the tremendous increase in population, economic activity, and tourism in the state. The interstate highway system, regional commercial airports and conventional passenger rail system serving the intercity travel market all operate at or near capacity and will require large public investments for maintenance and expansion to meet existing demand and future growth. Moreover, the ability to expand many major highways and strategic airports is uncertain because needed expansions may be impractical or may be constrained by physical, economic and/or other factors.

EXHIBIT 1.11
Projected Population Growth, Florida vs. U.S.



Source: 2006 Florida Freight & Passenger Rail Plan (FDOT, February 2007)

The influx of new residents is so significant that the state, despite careful planning and strategic investments in infrastructure, simply cannot adequately support transportation demand. This is especially true in Florida's urban areas. In Florida and other high-growth states, highways cannot be constructed fast enough and airports currently operate at or above capacity. A growing travel market is associated with baby-boomers, retirees and new immigrants who are selecting Florida's east coast communities for second homes. St. Augustine, Vero Beach, Melbourne, Fort Pierce and Stuart are increasingly being selected for second homes for both northerners, who enjoy Florida's mild winter weather, and Floridians, who take respite from the urban stresses of southeast Florida and Jacksonville.

City-to-city travel is on the rise. One key city pair for intercity travel is Jacksonville and Miami. The stretch between this city pair is densely populated with several major population centers including St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce and Stuart. No passenger rail service currently exists along the FEC Railway to serve intercity travel between these communities. Instead they depend mainly upon roadway connections. The presence of several airports allows for limited connections for passengers via air. The FEC Railway also connects these communities, but only freight traffic moves on the corridor at this time. Substantial additional capacity is needed to assist seaports in meeting expected growth in freight and cruise activity. For rail and urban transit systems to serve as viable options for the movement of people and goods within and between urban areas, investments in additional passenger and freight rail capacity will also be needed.

Transportation connectivity refers to the number and availability of connections between modes of transport and activity centers. The proposed action would connect to cruise ports, regional transit systems, and regional airports along the east coast of Florida. Passengers from the Northeast, Mid-Atlantic, and Southeast would not be reliant solely on the automobile to visit Florida's east coast attractions, vacation homes, and business opportunities. Local shuttle services would provide connections for Amtrak passengers to tourist destinations, seaports, hotels and other amenities. In addition, the proposed action would provide a mobility option for travel to Florida's east coast communities for Florida residents. Use of these additional connections also plays a key role in improving transportation mobility. The FEC rail corridor between Miami and Jacksonville has the potential to serve more than 8.6 million people by 2035 (FDOT, October 2009).

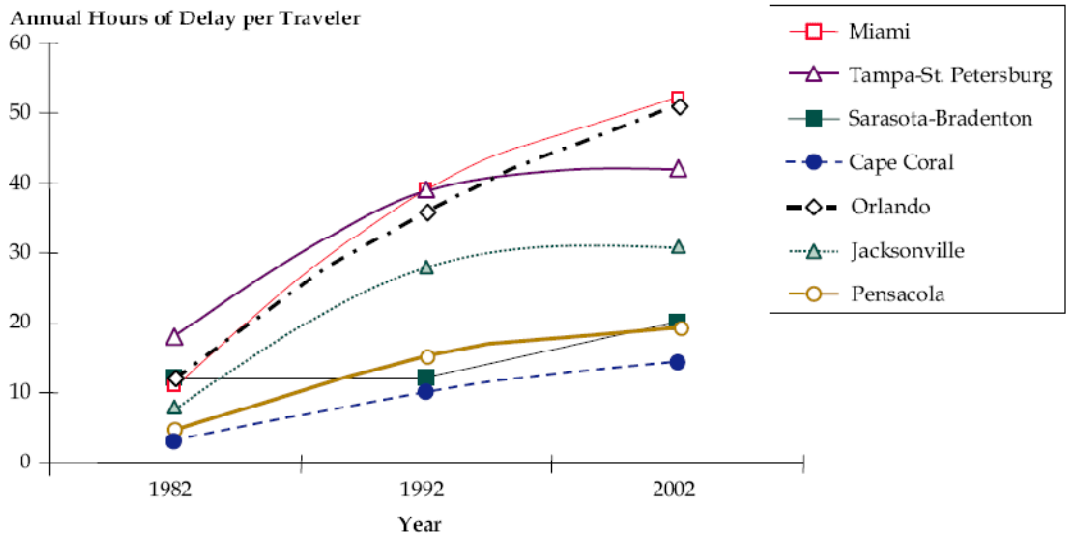
1.5.2.2 Enhance Transportation Mobility

As the population grows and ages, traffic congestion in Florida worsens, especially in the state's booming urban areas (Exhibit 1.12) (FDOT, June 2005). Many urban and inter-regional highway corridors are heavily congested during peak periods or are expected to be by 2020, even with planned capacity improvements. Exhibits 1.13 and 1.14 show Florida highway congestion levels of service (LOS) in 1998 and 2020, respectively. The concept of LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and the perception by motorists and/or passengers. Six LOS are defined for each type of facility for which analysis procedures are available. The six LOS are given letter designations, A through F, with LOS A representing the best operating conditions and LOS F the worst. The LOS analyses were completed in accordance with the procedures outlined in FDOT's *Design Traffic Handbook.*

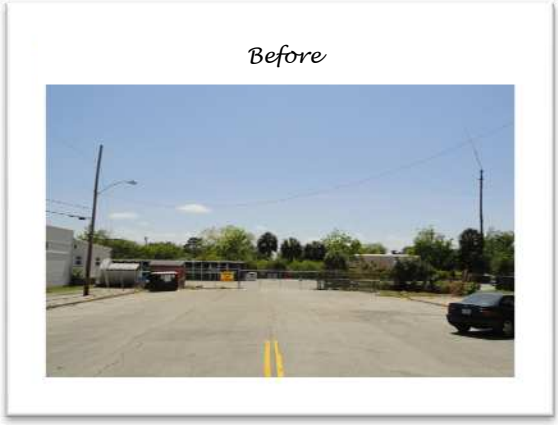
Daytona Votran Intermodal Terminal in downtown Daytona Beach

Florida's historic eastern cities are accessed by sparse commercial air service to one regional airport, limited intercity bus service, rental cars from distant major airports, and congested Interstate 95 (I-95). Exhibit 1.15 summarizes specific mobility issues facing the project corridor.

EXHIBIT 1.12
Annual Hours of Delay on Florida's Highways

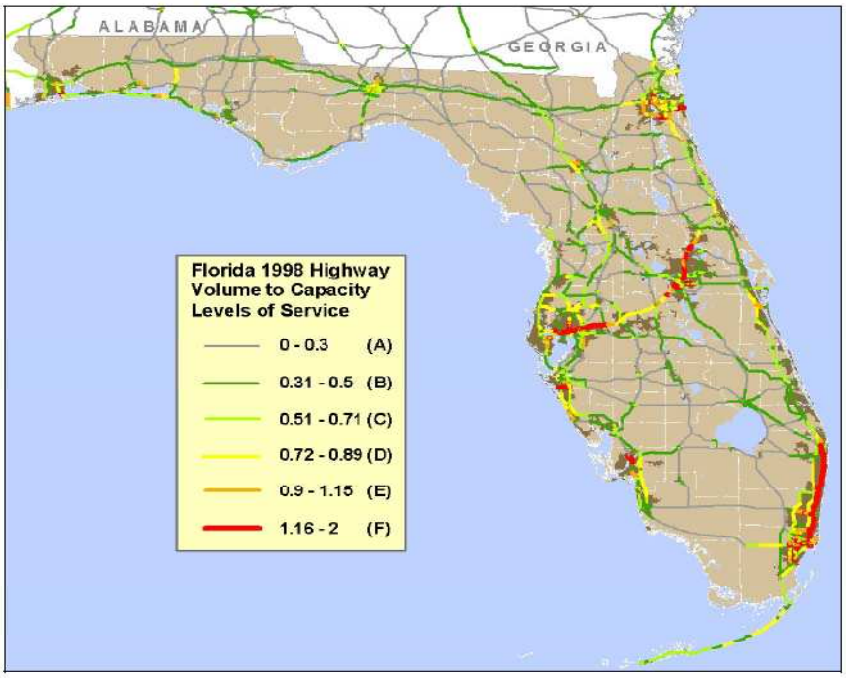


Source: 2004 Passenger Rail Component of the Florida Rail Plan (June 2005)



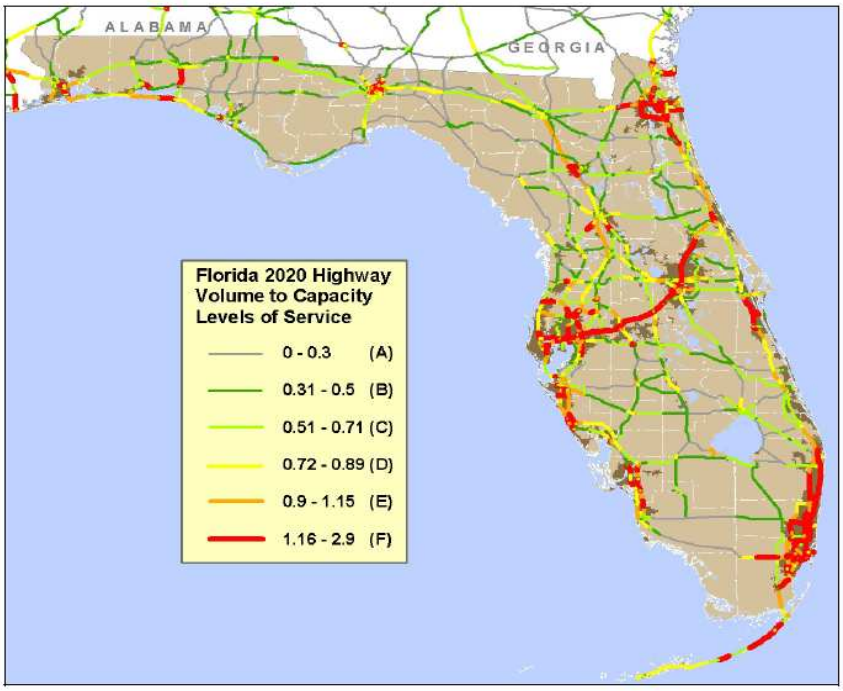
The illustrations above show the before and after conditions for the station proposed in Daytona Beach within the city's community redevelopment area. The proposed passenger rail service would reinforce the city's role as a key destination for travelers in Florida and across the nation.

EXHIBIT 1.13
Florida Highway Congestion, 1998 Level of Service Estimates



Source: 2004 Passenger Rail Component of the Florida Rail Plan (June 2005)

EXHIBIT 1.14
Florida Highway Congestion, 2020 Level of Service Estimates



Source: 2004 Passenger Rail Component of the Florida Rail Plan (June 2005)

EXHIBIT 1.15
Mobility Issues

Travel Mode	Mobility Deficiency
Air	• Daytona Beach is the only airport with commercial air service, coming from either Charlotte or Atlanta. In-state air travelers must connect through these two cities to access project area cities. • Major airports at Jacksonville, Orlando and West Palm Beach have much higher commercial service, but rental cars and the interstate system must be used to access the project study area.
Greyhound	• Greyhound provides limited service to the project area. • The cities of Stuart, Vero Beach and Cocoa are not served by Greyhound. • St. Augustine, Titusville, Melbourne and Fort Pierce are served by two buses northbound and four buses southbound per day. • Daytona Beach has the highest service level with five buses per day in each direction.
Bus and Mass Transit	• Regional and local bus mass transit services exist in communities along Florida's east coast such as Sunshine (St. Augustine), Votran (Daytona), Space Coast Area Transit (Titusville, Cocoa, Melbourne), GoLine (Vero Beach), Treasure Coast Connector (Fort Pierce, Stuart). • Intercity bus service is limited and is subjected to mobility and access issues due to congestion on roadways.
Highway	• The current capacity and connectivity of Florida's transportation system is significantly insufficient to meet existing and especially future demand and mobility. • I-95 in Palm Beach is experiencing annual average daily traffic volumes from approximately 169,200 vehicles per day to almost 202,600 vehicles per day and is expected to experience daily traffic volumes of 290,000-plus vehicles per day by the year 2033.
Rail	• There is no passenger rail service along the FEC railway to serve intercity travel between the communities of St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce and Stuart. • The existing intercity passenger service provided by Amtrak occurs south of West Palm Beach on the CSX corridor, serving only the three southernmost counties in the study area (Palm Beach, Broward, and Miami-Dade). It is limited to two round trip trains per day with limited stops in this section. • Only freight traffic moves on the FEC corridor

Source: FDOT's *ETDM Project Summary Report*, 2010 (http://etdmpub.fla-etat.org/est)

With several large-scale developments recently completed, others under construction, and many more anticipated in both the short- and long-range time frames, it is evident the overcapacity problems of Florida's roadway network will worsen considerably over time. . The current and projected future roadway congestion will further deteriorate air quality, reduce reliability, and increase travel times on Florida highways. Out-of-town visitors are dependent on car rentals for intercity mobility, which further degrades the roadway network's ability to provide work-based trips. The dependence on automobile mobility and fuel cost fluctuations negatively affects the economy, quality of life, and air quality in Florida's metropolitan areas as the transportation system becomes less reliable as travel demand increases.

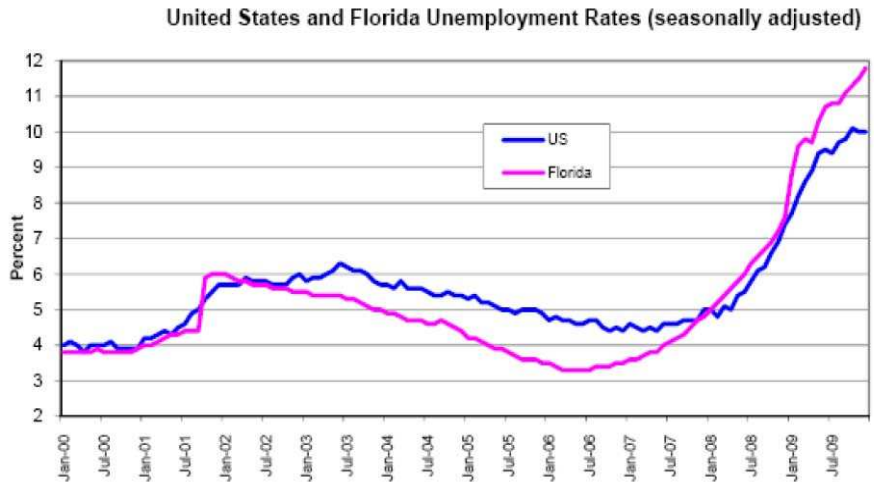
Transportation mobility is defined as the ease with which people travel. Measures of mobility include travel time and traffic congestion, or level of service—measures linked to the efficiency of transportation movements. The proposed action would provide a mobility option to the congested I-95 corridor and the congested airways serving Orlando and southeast Florida. More than 150 local governments, agencies and other groups have adopted resolutions and letters of support requesting establishment of passenger service on this FEC Railway along Florida's east coast. Passenger rail would steadily become more important as an alternative to the congestion on Florida's highways, and would increase the mobility of tourists, business travelers, and citizens, especially older Floridians (FDOT, March 2009).

1.5.2.3 Stimulate Economic Development

Florida's economy has been battered by declining home prices, increased numbers of foreclosures statewide, the collapse of national financial markets and the subsequent credit freeze, influx of immigrants from disaster areas including Haiti and Chile, retirement of the Space Shuttle program and the effects of a global recession. Florida's unemployment rate continues its upward trend, with the seasonally-adjusted rate for December 2009 reaching 11.8 percent (the highest level in 35 years). The official unemployment rate does not include individuals who have stopped looking for work, those who have been forced into part-time work, or those who have accepted jobs far below their skill levels. When those people are added, the percentage of workers who are unemployed or underemployed exceeds 19.5 percent. Since April 2007, Florida has lost more than 720,000 jobs across (virtually) all industries. The construction industry has been the most severely affected. In addition, 23,000 project area jobs are expected to be lost due to the retirement of the Space Shuttle program at Cape Canaveral. As documented in FDOT's ETDM Programming Summary Report (in Appendix A), Exhibit 1.16 depicts the unemployment rates in the United States and Florida over the last decade.

The proposed action will stimulate job growth in the construction and transportation sectors. In addition to short-term construction jobs, this project will create long-term employment associated with ongoing attempts to economically revitalize the historical town centers in the project corridor.

EXHIBIT 1.16
Unemployment Rates in U.S. and Florida



Source: Florida Agency for Workforce Innovation, Labor Market Statistics Center, Local Area Unemployment Statistics Program, in cooperation with the U.S. Department of Labor, Bureau of Labor Statistics.

1.5.3 Project Benefits

1.5.3.1 Economic Recovery

The proposed action would provide the opportunity to move people more efficiently, and would enhance development opportunities at and beyond station areas, strengthening existing communities. The passenger service would encourage increased visitation along the corridor for tourism, business, visits to family and friends, sporting events and personal business activities throughout the service area. As a strategic investment for the future growth of the region, the program would:

- Provide connections to major employment locations and attractions
- Provide access to major sports, entertainment and meeting facilities
- Increase accessibility to medical center facilities
- Use existing alignment while preserving road capacity
- Decrease the need for parking, which enables an acceleration in adaptive reuse redevelopment
- Increase modal choices in the region when combined with future investment in a comprehensive transit system
- Provides the context for focused growth

With the implementation of the project, land use policies and resumed economic growth, the following projections are estimated:

- The total value of commercial and residential development is projected to reach $419 billion in 2021. This compares to a total parcel value baseline (no-build) forecast of $417 billion in 2021.

- Property taxes would generate a cumulative $52.2 million in local tax revenues by 2021, increasing from $4.4 million in the opening year (2012) of the program.
- Sales taxes from job earnings would generate $56 million in state revenue and $5 million in local revenue in 2021. Over the study period from 2012 through 2021, these revenues exceed $580 million (AECOM, September 2009).

Of the 11 counties within the study area, 10 exceed the national average unemployment rate; St. Johns County is the only county in the study area that does not. In some counties, the unemployment is almost 50 percent higher than the national average. The direct effect from construction activities would add jobs for the construction industry and suppliers. The spending created from these direct jobs would create employment opportunities across all occupation categories. The continuing employment from O&M would have a direct effect on job creation, and indirect and induced effects that create employment opportunities across the occupational spectrum. Estimated economic stimulus benefits from the project are summarized in Exhibit 1.17.

EXHIBIT 1.17
Estimated Stimulus Benefit

Stimulus Impact	Study Corridor	Florida	Total
Induced Development Value (in 2021)	$2 billion	NA	NA
Construction Related Jobs	1,350	550	1,900
Operations & Maintenance Jobs	200	25	225
TOD Related Jobs (in 2012)	330	NA	NA
TOD Related Jobs (in 2021)	3,300	6,300	9,600
Total Permanent Jobs (in 2021)	3,500	6,300	9,800

Source: FDOT's *ETDM Project Summary Report*, 2010 (http://etdmpub.fla-etat.org/est)

The construction of future commercial and residential development at the scale and type estimated for the study area would have an impact on the local economy because of increased demand for labor and increased spending on supplies and materials. The U.S. Bureau of Economic Analysis (BEA) Regional Input-Output Modeling System (RIMS II) multipliers were applied to predict direct, indirect and induced jobs and earnings in Duval, St. Johns, Flagler, Volusia, Brevard, St. Lucie, Indian River, Martin, and Palm Beach Counties during construction (FDOT, October 2009). The analysis forecasts that future development from implementation of the FEC Amtrak Passenger Rail program could contribute up to $141 million in household earnings and 3,753 person-year jobs to the study area in 2012. This amount grows to a cumulative $1,691 million in household earnings and 44,994 person-year jobs by the tenth year of operations in 2021 (AECOM, 2009).

The number of potential permanent jobs resulting from the FEC Amtrak Passenger Rail program was also estimated considering increased commercial density in the study area. With the addition of new office and retail space to existing parcels, passenger service could attract approximately 330 permanent jobs (in 2012) in Duval, St. Johns, Flagler, Volusia, Brevard, St. Lucie, Indian River, Martin, and Palm Beach counties, increasing to approximately 3,300 permanent jobs by 2021. These new jobs and earnings would have impacts on the local

economy. Using BEA RIMS II multipliers, an estimate was made of future direct, indirect, and induced permanent jobs and earnings from the new development. The future development's permanent economic impacts could include up to $259 million in annual earnings to the counties served by the FEC Amtrak Passenger Rail program and up to 6,334 permanent jobs by 2021 (AECOM, 2009).

Also, within the central portion of the FEC corridor in Brevard County, is the "Space Coast Region" that is home to the NASA space program and Kennedy Space Center. Recent national actions indicate the planned restructuring of the NASA program, which is anticipated to worsen the ongoing economic decline in the area, creating the potential loss of up to 30,000 additional jobs. To assist with the dire need for economic restructuring in this portion of the corridor, the Task Force on Space Industry Workforce and Economic Development was recently created and assigned to the U.S. Department of Commerce - Economic Development Administration. The purpose of the task force is to identify ways to promote economic growth and sustainability in the Space Coast region as it adapts to changes in America's space program, including expanded mobility and access to/from the Space Coast region. The FEC Amtrak Passenger Rail project will help fulfill the mission of this key federal task force to help offset the significant economic impacts of changes to the space program.

1.5.3.2 Transportation Benefits

Intermodal Connection Opportunities

The proposed action would lead directly to the reintroduction of new intercity passenger rail service for communities along Florida's east coast between Jacksonville and Miami by way of Amtrak service. Specifically, new intercity passenger rail service would be provided to and from St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce and Stuart.

The implementation of the proposed intercity passenger rail service along Florida's east coast between Jacksonville and Miami on the FEC Railway would vastly expand intermodal connection opportunities. Intermodal connections are planned to airports, passenger terminals at seaports, existing and planned commuter rail, local transit, trolley and bus service, intercity bus terminals, and private taxi and shuttle services. The ultimate northern terminus in Jacksonville is planned to be at the JRTC, which would provide connections to the Jacksonville Transportation Authority (JTA) bus terminal, a JTA Skyway people mover station, bus rapid transit stations, a Greyhound bus terminal, two park-and-ride facilities, and a potential future commuter rail station. The southern terminus would be the MCS at the MIC, which would provide connections to MIA via the MIA Mover, an automated people mover system linking the MIC to the MIA terminal, a rental car facility, parking, local bus terminal for MetroBus, and a commuter rail station for existing and future Tri-Rail service. The JRTC and the MIC are being studied separate from the proposed action documented in this EA. Intermodal connections for the proposed stations are summarized in Exhibit 1.18.

EXHIBIT 1.18
Proposed Stations Intermodal Connections

Proposed Station Location	Intermodal Connections
St. Augustine	• St. Augustine/St. John County Airport • Car rental facilities at the airport and in the area • Local bus service provided by Sunshine Bus • Local private trolley service provided by Old Town Trolley • Greyhound bus station • Future commuter rail
Daytona Beach	• Daytona Beach Regional Airport • Regional bus service provided by Votran • Greyhound bus terminal • Multiple car rental facilities in the area • Future premium transit on the International Speedway Boulevard corridor
Titusville	• Space Coast Regional Airport • Car rental at the airport • Local bus service run by Space Coast Area Transit • Private shuttle service to nearby Port Canaveral • Greyhound bus station
Cocoa	• Local bus service run by Space Coast Area Transit • Private shuttle service to Port Canaveral
Melbourne	• Melbourne Airport • Private shuttle service to Port Canaveral • Regional bus service provided by Space Coast Area Transit • Greyhound bus station
Vero Beach	• Regional bus service provided by Local GoLine • Local bus service provided by Indian River County's public transit
Fort Pierce	• Regional bus service provided by Treasure Coast Connector • Local bus service provided by St Lucie County Community Transit • City marina facility providing access to intracoastal waterway • Greyhound bus station
Stuart	• Local bus service provided by Community Coach • Local (electric) trolley service provided by Stuart Shuttle • City marina and designated anchorage facility providing access to intracoastal waterway and Okeechobee canal system

Service and Safety Benefits

Improvements to the FEC Railway would include upgrades to wayside signaling systems and grade crossing improvements. These improvements would enable passenger trains to achieve speeds up to 90 mph throughout a significant portion of the FEC Railway, resulting in better on-time performance and travel time savings. The existing travel time on the Amtrak route from Jacksonville to Miami through central Florida is approximately 8:48 for the Silver Meteor northbound train. Conceptual schedules for the northbound FEC corridor train is estimated to involve a run time of 6:08 one-way. Therefore, travel time savings have been modeled at approximately 160 minutes with the proposed project improvements.

The existing wayside signal system on the FEC Railway is primarily automatic train control, which consists of a cab signal with speed control. Automatic train control is in service on the FEC Railway from Sunbeam (mile post [MP] 9.8 south of Bowden Yard) to North Miami (MP 359). Automatic train control would ensure that train to train collisions would be prevented and that locomotive engineers would operate within the specified speed.

There are more than 700 highway-rail grade crossings within the FEC Railway. All grade crossings are currently FRA-compliant. The FEC Railway would install additional constant warning time devices where passenger train speed upgrades would cause a differential between freight and passenger train speeds. This would ensure that the public could expect crossing warning devices to give the same warning time to both freight and passenger trains regardless of train speed. Grade crossing work would include the relocation/reuse of existing equipment, where possible, in lieu of total replacement. Upgrades to the crossing warning systems include new houses and crossing warning devices, and relocating existing warning devices and wiring new equipment into existing houses.

Pre-emption circuits would be added or maintained. This would ensure that highway traffic signals and highway grade crossing warning devices are communicating and giving adequate warning to motorists.

Cross-Modal Benefits

Providing intercity rail passenger service along the FEC Railway would generate many cross-modal benefits. Opportunities for interconnectivity exist between the proposed intercity rail service along the FEC Railway with the existing commuter rail (Tri-Rail), heavy rail (MetroRail) services in Miami, the proposed expanded Tri-Rail commuter rail service from West Palm Beach north to Jupiter, and the proposed commuter rail service by the JTA in Jacksonville.

The proposed action would improve railroad operations along the FEC Railway for freight and passenger rail traffic. The improved track, signal work and grade crossing upgrades would benefit rail freight traveling on the FEC Railway. The project would divert some automobile traffic from the state and regional highway system, resulting in reduced traffic volumes and improved safety on roads and highways connecting the communities along Florida's east coast. I-95 runs along the entire east coast of Florida and is located within 5 miles of the FEC Railway for the length of the state. The location of the FEC Railway relative to I-95 would provide a passenger rail mobility option for motorists traveling along the east coast of Florida.

More than 30 percent of the state's airports are projected to be operating at more than 80 percent of capacity, the point at which additional capacity should be under construction. The

project would provide an alternative mode choice to air travel and would assist in easing capacity constraints at airports.

Substantial additional capacity is needed to assist seaports in accommodating expected growth in freight and cruise activity. The project would play a substantial role in helping seaports accommodate growth related to cruise activity. The proposed stations in Titusville and Cocoa are near Port Canaveral, a major passenger cruise port that carries nearly two million cruise passengers annually. The passenger rail service along with the proposed stations would offer connections to other modes such as local transit, private shuttle and rental car service to allow for smooth intermodal connections for cruise passengers to and from Port Canaveral. Planned improvements along the line that would benefit rail traffic would assist the FEC Railway in better accommodating expected growth in freight traffic at nearby seaports in Jacksonville, Fort Pierce, Port Canaveral, Everglades, Palm Beach and Miami.

1.5.3.3 Environmental Benefits

The FEC Amtrak Passenger Rail program would shift travel to Florida east coast destinations from automobiles, buses, and airlines to intercity passenger rail. The associated environmental benefits include reduced greenhouse gas (GHG) emissions and fuel consumption. Traveling by intercity rail is a "greener" option, per passenger mile, than traveling either by car, bus, or airplane. The average carbon dioxide (CO_2) emissions per passenger mile travelling by rail are 0.18 kilogram (kg), compared with 0.21 kg for car travel and 0.35 kg for air travel (Carbonfund.org, 2007). Intercity passenger rail consumes 2,586 British thermal units (BTUs) per passenger mile compared to 3,514 BTUs for personal cars, 3,101 BTUs for airplanes and 4,315 BTUs for buses (U.S. Department of Energy [DOE], 2009).

> Within the United States, transportation is the largest source of GHG emissions after electricity generation. With scientific recognition that GHG emissions are contributing to a long-term warming trend of the earth, there is an increasing realization that transportation, as a major contributor of GHGs, plays an important role in climate change policy and program decisions. (USDOT, 2009)

The FDOT has recognized the importance that rail transportation can play in improving environmental quality. As stated in the *2009 Florida Rail System Plan: Policy Element* (FDOT, March 2009), "Rail transportation can also play an important role in helping to reduce greenhouse gas emissions…Rail transportation offers important environmental advantages due to its inherent energy and infrastructure efficiencies, as well as its potential to facilitate sustainable, compact transit-oriented development. From both an environmental and quality of life perspective, Florida should place a greater emphasis on rail transportation in the future."

In 2007, the Governor's Action Team on Energy and Climate Change released its findings and recommendations in a Phase 1 report (Governor's Action Team on Energy and Climate Change, 2007), followed in 2008 by its final Phase 2 report entitled "Florida's Energy and Climate Change Action Plan" (Governor's Action Team on Energy and Climate Change, 2008). Findings and recommendations related to addressing energy and climate change in relation to transportation, as outlined in the Phase 2 report (Governor's Action Team on Energy and Climate Change, 2008), included the following:

- Transportation is a major contributor to GHG emissions in Florida, accounting for about 46 percent of CO_2 emissions statewide.

- The transportation sector's GHG emissions in Florida are dominated by personal vehicle travel in cars and light trucks, which account for almost two-thirds of these emissions.
- Transportation-related GHG emissions are increasing, primarily due to strong growth in travel by motor vehicles in Florida.
- The FDOT projects that daily truck-miles traveled on state roads would increase by 527 percent to 201 million in 2050 and daily vehicle-miles traveled (VMT) on state roads are projected to exceed 1.1 billion by 2050, an increase of 240 percent.
- Reducing VMT is crucial to mitigating GHG emissions from the transportation sector.
- Reduce VMT by increasing the viability of multiple modes of travel and providing incentives to use modes other than single-occupant vehicles (SOVs).
- Transit and rail are important GHG reduction strategies that should be implemented.
- Develop and implement policies and strategies that include program funding and financial incentives that expand non automobile infrastructure and provide modal alternatives to SOV travel.

The proposed action is consistent with the findings and recommendations of Florida's Energy and Climate Change Action Plan (Governor's Action Team on Energy and Climate Change, 2008). The project would improve environmental quality and energy efficiency, while reducing the nation's dependence on domestic and foreign oil. Traveling by passenger rail versus other modes can contribute to VMT reduction and subsequent reduction of GHG emissions, and would consume less energy and use less fuel, thus reducing the Nation's dependence on oil.

In accordance with Executive Order 07-128, the Florida Governor's Action Team on Energy and Climate Change was created to develop a comprehensive Energy and Climate Change Action Plan to guide the state in fully achieving or surpassing the statewide targets for greenhouse gas reductions outlined in the Governor's Executive Order 07-127.

Throughout the study area, the reduction of GHG emissions and improvement of air quality is a highly prioritized goal for local governments, regional planning councils, metropolitan planning organizations (MPOs), and other agencies. Specifically, these entities emphasize the expansion of mass transit, particularly on the FEC Railway, and multi-modal transportation networks, coupled with priority on compact urban form and the reduction of urban sprawl, as key mechanisms to help reduce GHG emissions.

Leadership in Environmental and Energy Design (LEED™) would be implemented for the construction of the proposed stations. The FDOT would work with each city to meet the requirements needed to achieve the LEED™ certified level at a minimum. As a result, the FDOT would strive to maximize debris diverted from landfills, increase the use of locally manufactured products, reuse or recycle materials, and design and construct energy-efficient buildings and stations. In addition, the project's urban form reinforces the Neighborhood Development component of the LEED program, LEED-ND, which focuses on site design characteristics as well as the integration of new structures into the built environment. The recommended station locations are within historic downtowns characterized by compact, pedestrian-friendly, urban development, which is the ultimate goal of the LEED-ND program.

1.5.3.4 Livable Communities

Florida Transportation Plan Definition of Livable Community
A neighborhood, community or region with compact, multidimensional land use patterns that ensure a mix of uses, minimize the impact of cars, and promote walking, bicycling and transit access to employment, education, recreation, entertainment, shopping and services.

The restoration of intercity passenger rail service and future corridor service on the FEC Railway supports compact redevelopment activity under way along Florida's east coast, specifically in the eight communities proposed for Amtrak stations, and would help complete the state's multimodal transportation network. .

The FEC rail corridor initially operated as a passenger rail line along Florida's east coast. The cities along Florida's east coast historically developed around train stations along the FEC railway. Each city is characterized by a mix of uses that generate the TOD ideal of eighteen hours of daily activity. The restoration of passenger service on the corridor would add the missing "T" (transit) to the existing pattern of transit-ready development and reinforce its continued redevelopment.

Recommended station locations along the corridor are uniquely positioned to celebrate the federal emphasis on livable communities to: catalyze TOD in historic downtowns undergoing redevelopment, contain growth and reduced urban sprawl, promote bicycle and pedestrian traffic in and around stations, and promote heritage and eco-tourism. New stations are proposed adjacent to St. Augustine's historic district, inside Vero Beach's central business area, and in the community redevelopment areas of Daytona Beach, Titusville, Cocoa, Melbourne, Ft. Pierce and Stuart. These communities have been undergoing aggressive revitalization of their downtown areas through improvements to structures and the public realm. All eight station cities have extensive community planning programs, including active community redevelopment agencies, main street programs, and historic preservation districts. The strong state and local commitment to redeveloping these communities has led to reinvestment and attracted residents, retail, restaurants, workplace and civic uses. The traditional downtowns maintain classic compact urban form, with gridded street networks and mixed-use neighborhoods that help reinforce sustainable patterns of development. The station areas and traditional downtowns are transit-supportive, pedestrian friendly, and well-integrated into local and regional roadway, transit and bicycle/pedestrian corridors.

Alternative locations in St. Augustine, Titusville and Melbourne are adjacent to regional airports. The Miami station is located at the MIC adjacent to MIA. Whether located adjacent to an airport or within a central business district (CBD), the proposed stations would feature direct transfers to a variety of other modes. Each station would allow intermodal connections to local and regional transit services provided by local agencies, airports with car rental facilities and other modes. Exhibit 1.18 (presented previously) summarizes intermodal connections at each proposed station. At the northern end in Jacksonville, the system would eventually extend from the JRTC, connecting to the Jacksonville bus terminal and people mover system, bus rapid transit stations, regional bus terminal, two park-and-ride garages and a potential commuter rail station. The southern terminus in the MIC provides connections to MIA via the MIA People Mover, local Metrobus service, and the Tri-Rail commuter rail station.

1.5.4 Transportation Plan Consistency

In accordance with the Policy Element of the *2009 Florida Rail System Plan*, investments in Florida's rail system should support and spur desired economic growth. The plan establishes state policy directing investment in rail system capacity improvements to enhance interstate and intrastate movement of people and goods when public benefit can be demonstrated (FDOT, March 2009). The proposed action is consistent with the Phase 1 implementation of Florida's Rail System Plan to provide intercity rail services to Florida's east coast communities. The action is further reinforced by the existing policies and priorities in the State Comprehensive Plan, Strategic Regional Policy Plans, local comprehensive plans, and the long-range transportation plans of the metropolitan and transportation planning organizations along the corridor. The eight "station communities" are aggressively restoring their historic downtowns and have prioritized Amtrak stations in their core areas to stimulate continued redevelopment of their compact downtowns.

The purpose of the project is consistent with recent federal transportation policy, most notably:

- The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 (Public Law 109-59)
- The Transportation Equity Act for the 21st Century (TEA-21) of 1998 (Public Law 105-178)
- The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 (Public Law 102-240)

These acts encourage public transportation investment that increases national productivity and domestic and international competition while improving safety and social and environmental conditions. Specifically, these policies encourage investments that:

- Link all major forms of transportation
- Improve public transportation systems and services
- Provide better access to seaports and airports
- Enhance efficient operation of transportation facilities and service

1.6 Decisions to be Made

Because the proposed action may involve potential federal funds, the project must comply with NEPA. NEPA requires federal agencies to consider the impacts of their actions on the natural, social, economic and cultural environment and to disclose those considerations in a public document. The NEPA process is intended to help public officials make decisions based on an understanding of the environmental consequences and take actions that protect, restore and enhance the environment (40 CFR 1500.1).

The purpose of this EA is to provide the public with a full accounting of the environmental impacts of the alternatives developed to meet the project purpose and need. The EA serves as the primary document to facilitate review of the proposed project by federal, state and local agencies and the public. After the public Notice of Availability (NOA) of the EA and all NEPA requirements have been addressed, a Finding of No Significant Impact (FONSI) may be prepared. A FONSI is a document that presents the reasons why the agency has concluded that there are no significant environmental impacts projected to occur upon implementation of the

action (Council on Environmental Quality [CEQ], 2007). FRA approval of this EA, and the potential subsequent FONSI, grants location and design concept acceptance for the project, described in more detail in Section 1.4 of this chapter. However, if this EA results in the identification of significant adverse impacts resulting from the proposed action, an EIS would be required to further evaluate the project effects prior to approval of the proposed action.

1.7 Related Actions

Four other projects were developed or are being evaluated by others and are related actions. These four related actions include:

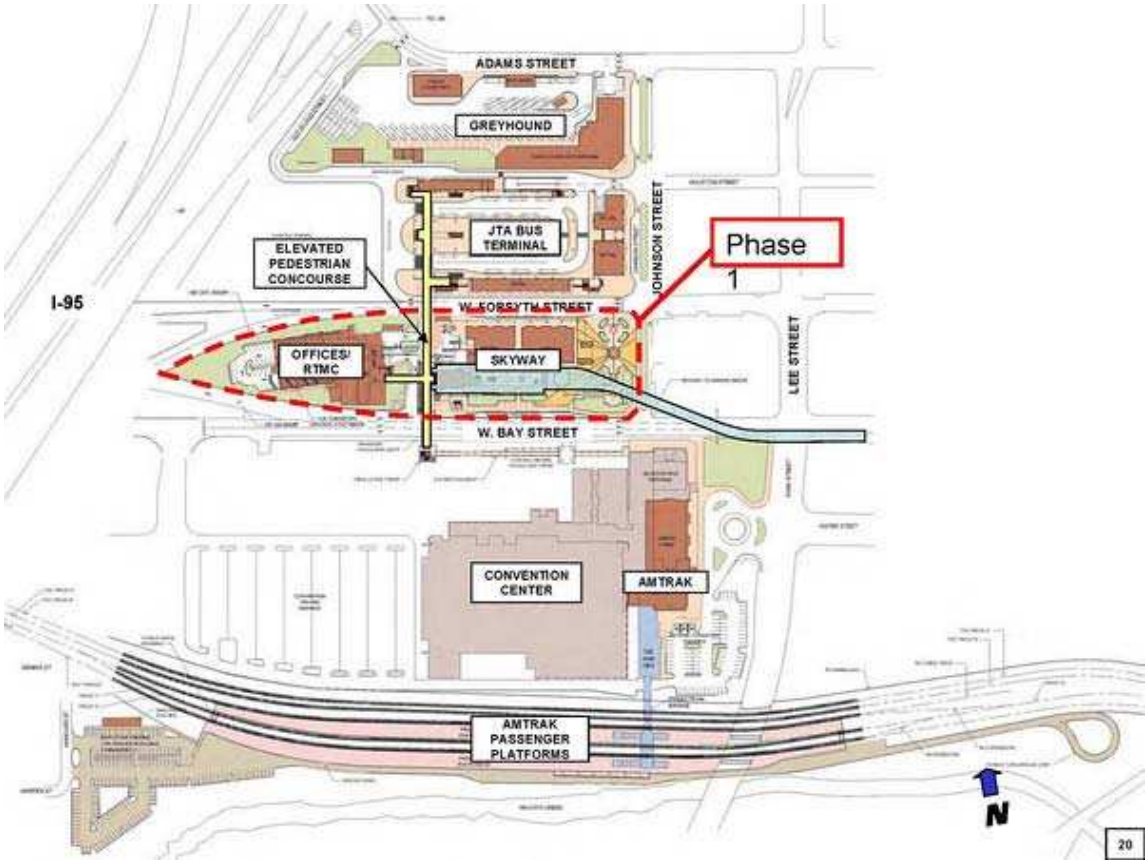
- The planned Jacksonville Amtrak Station
- Miami Intermodal Center (under construction)
- Completed Tri-Rail Double-Tracking project (on SFRC)
- South Florida East Coast Corridor Transportation Analysis (SFECCTA)

1.7.1 Planned Jacksonville Regional Transportation Center

The existing Jacksonville Amtrak station is located at 3570 Clifford Lane, approximately 5 miles northwest of the city's center. The existing station is planned to be relocated to the proposed JRTC in downtown Jacksonville. The JRTC site is bounded by Park Street on the east, I-95 on the west, Adams Street on the north, and McCoy's Creek and Hanover Street on the south. The JRTC site is strategically located at the I-95/I-10 merge and is accessible to the three major rail providers (CSX, FEC Railway, and Norfolk Southern). The JRTC would bring together intracity and intercity transportation systems in a common facility offering commuters and visitors convenient intermodal transfers and access to Jacksonville's public transportation network. The JRTC would consist of a JTA bus terminal, a JTA Skyway people mover station, bus rapid transit stations, an Amtrak station, a Greyhound bus terminal, two park-and-ride facilities/parking garages, a public plaza, retail establishments, an elevated pedestrian concourse, JTA offices, and a regional transportation management center (Exhibit 1.19) (FDOT, 2007). As of May 2010, FDOT was finalizing an EA/FONSI to document the potential effects as a result of the proposed action. The JTA is also studying the possibility of implementing a future commuter rail system with three proposed lines extending from the JRTC, including one line to the southeast along the FEC Railway connecting to St. Augustine.

The proposed Amtrak station at the JRTC would be housed within the historic Jacksonville Terminal building. The Jacksonville Terminal building is listed on the National Register of Historic Places (NRHP). This historic building, which adjoins the Prime Osborn Convention Center in downtown Jacksonville, would be restored to its original use as a rail station for Amtrak (FDOT, 2007). The first phase of construction is planned for 2011 and includes the regional transportation management center. Subsequent phases include the bus transit facility, structured parking, the proposed Amtrak rail terminal, and the Greyhound bus terminal.

EXHIBIT 1.19
Jacksonville Transportation Center

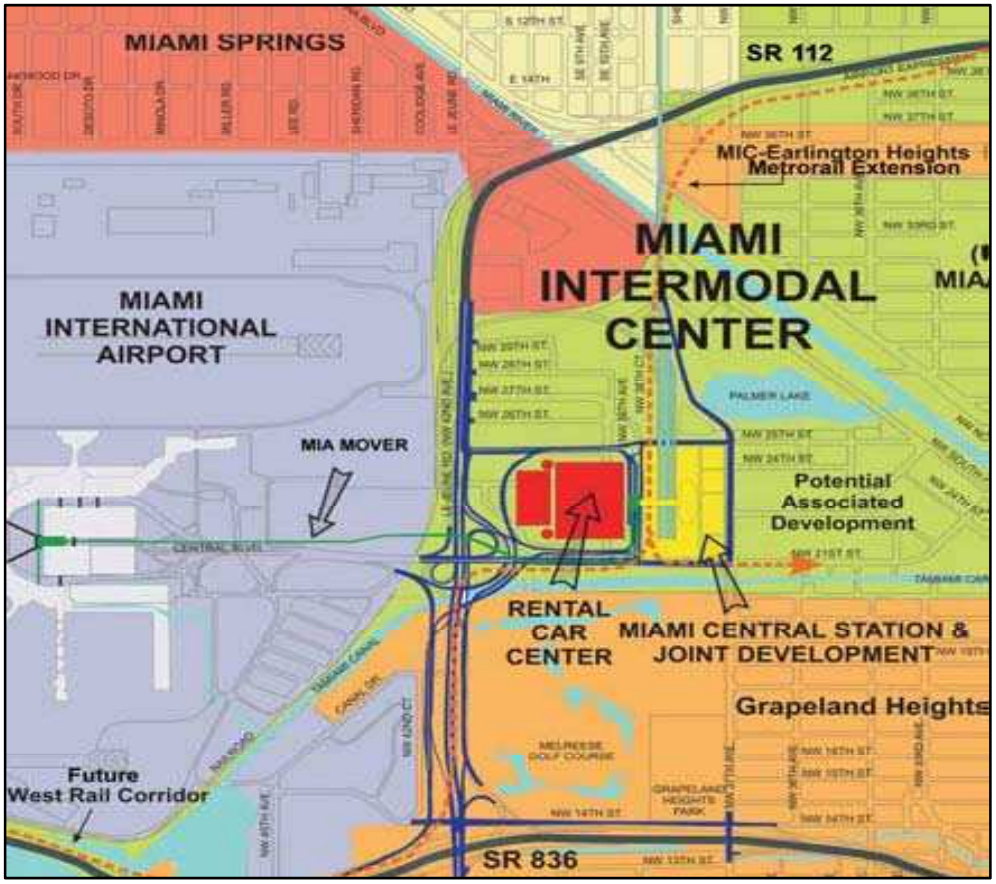


Source: http://www.metrojacksonville.com/article/2009-dec-a-closer-look-at-the-transportation-center

1.7.2 Miami Intermodal Center

The existing Miami Amtrak station is located at 8303 NW 37th Avenue in Hialeah. The FDOT and the Federal Highway Administration (FHWA) have proposed the relocation of the existing station to the proposed MCS component of the MIC (FDOT, 2010: http://www.micdot.com). On May 5, 1998, the USDOT awarded a Record of Decision (ROD) granting location and design concept approval to the MIC. The MIC is located immediately east of MIA in Miami-Dade County (Exhibit 1.20). The MIC is an integrated program designed to relieve roadway congestion in the area surrounding MIA and to create a transportation hub (the MCS), where various forms of transportation would be available to the public. Major MIC program components consist of major roadway improvements completed in May 2008, a Rental Car Center (scheduled to open in spring 2010), the MIA Mover, an automated people mover system linking the MIC to the MIA terminal (scheduled for operation in September 2011), the MCS (scheduled to be completed in spring 2012) and a Joint Development component which is currently being explored. The MCS is scheduled for completion in 2012. (Exhibit 1.21) (FDOT, 2010).

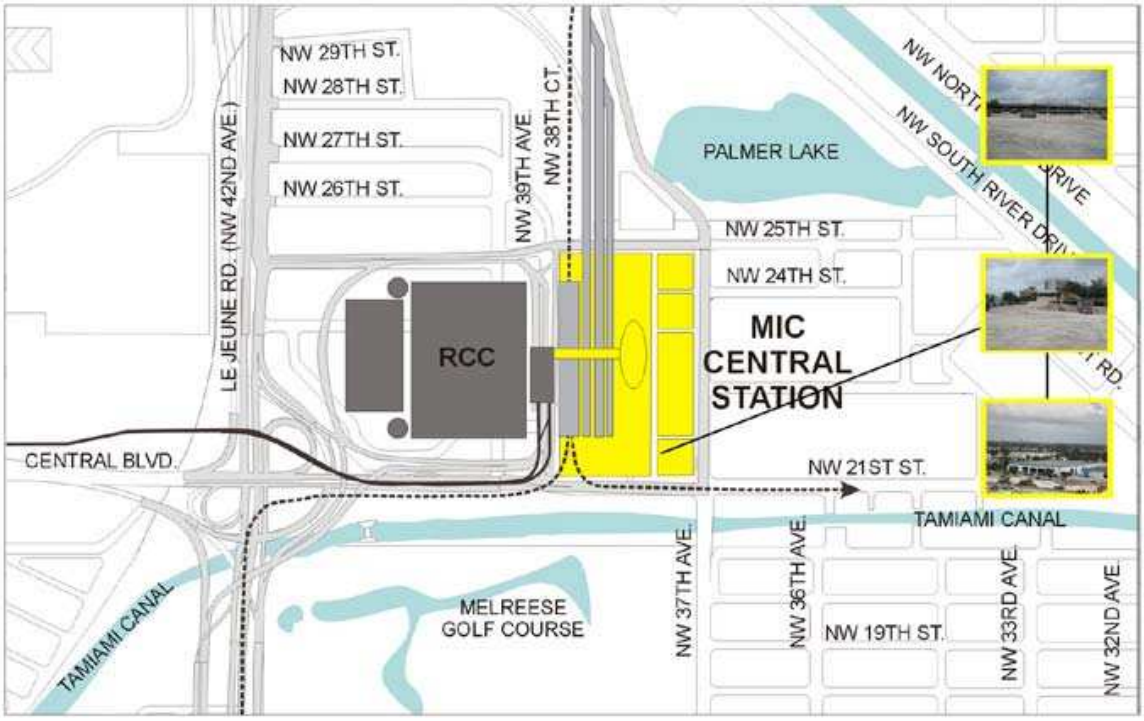
EXHIBIT 1.20
Miami Intermodal Center and MIA Site Map



The MIC Program includes the Rental Car Center, Miami Central Station, MIA Mover, access roads and major highway improvements, all to be completed by 2012.

Source: http://www.micdot.com/mic_program/
November 2, 2009 Update Project Overview

EXHIBIT 1.21
Miami Intermodal Center Location



Source: FDOT, 2010 (http://www.micdot.com/mic_program/)

1.7.3 Tri-Rail Double Track Corridor Improvement Program

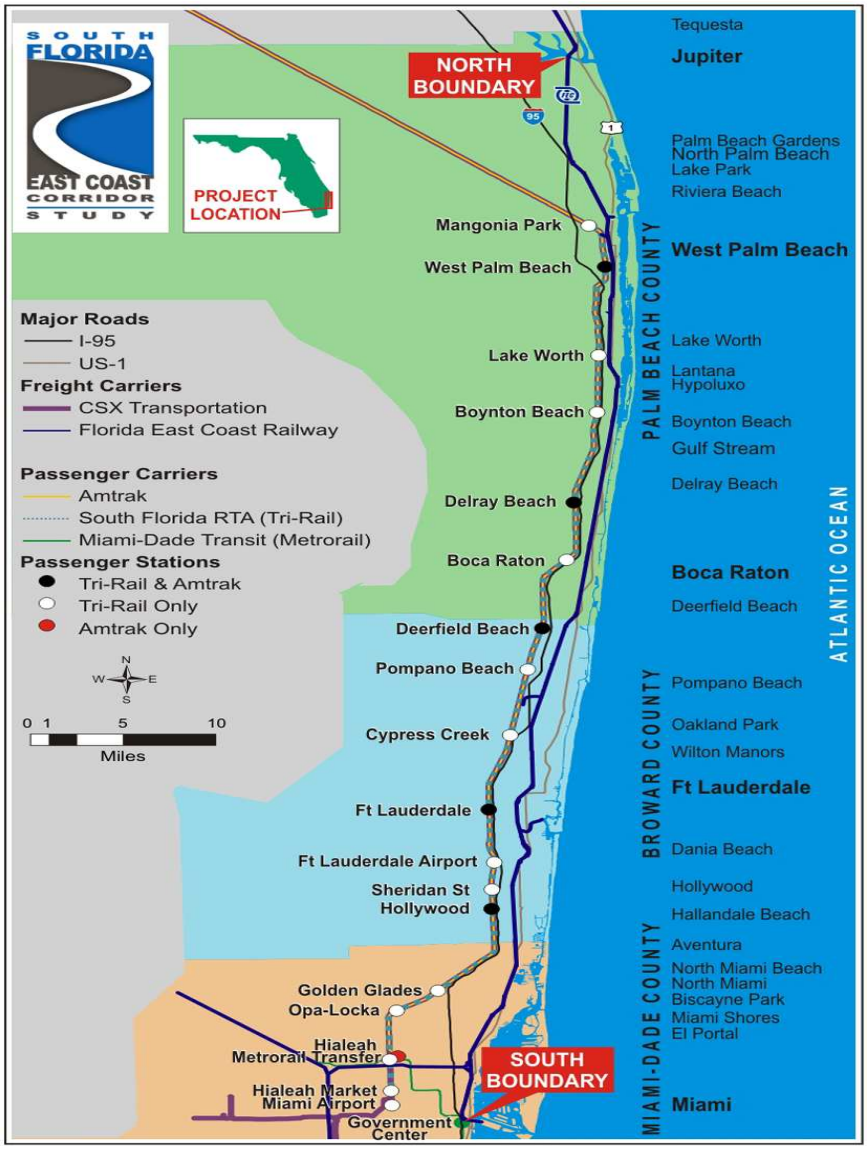
Tri-Rail is Florida's only commuter rail service. It is operated by South Florida Regional Transportation Authority (SFRTA) and covers a 72-mile corridor between West Palm Beach and Miami. The Tri-Rail Double Track Corridor Improvement Program was completed in 2007 and involved construction of a second mainline track parallel to the existing track along the entire SFRC from the Mangonia Park Station (1415 45th Street) in West Palm Beach south to the existing Miami Amtrak Station. The project included upgrades to the existing signal system; replacement and/or rehabilitation of bridges; modification and renovation of stations; grade crossing enhancements and an expanded fleet. As a result, in 2007 the SFRTA expanded Tri-Rail operations from 30 to 40 trains per day (SFRTA, 2010). The infrastructure improvements completed as part of this double-tracking project will accommodate the proposed action. Furthermore, the proposed project will enable long-term expansion of Tri-Rail service north into northern Palm Beach County and potentially further north into Martin and St. Lucie counties.

1.7.4 South Florida East Coast Corridor Study

The FDOT and the Federal Transit Administration (FTA) are evaluating the potential use of a portion of the FEC Railway for future regional commuter rail or transit service in southeast Florida as a part of the SFECCTA study (FDOT, 2010: http://SFECCStudy.com/). The SFECCTA study area (Exhibit 1.22) is centered along a portion of the existing FEC Railway, bounded on the north by the City of Jupiter in Palm Beach County and on the south by the CBD of the City of

Miami in Miami-Dade County with potential connections west to the MIC. The portion of the FEC Railway under study within the SFECCTA is approximately 85 miles long (100 miles with connections to the MIC, seaports, and the like). The SFECCTA study area is located in the highly urbanized eastern portions of Palm Beach, Broward, and Miami-Dade counties, which constitutes southeast Florida and is known as the Tri-County area. This portion of the FEC Railway traverses 28 cities along the southeast coast, mostly through CBDs, including Jupiter and West Palm Beach in Palm Beach County and south through Ft. Lauderdale and the current southern terminus in downtown Miami. The project includes a connection in Northwood to extend Tri-Rail corridor service to Jupiter on the FEC Railway. Any proposed improvements to the Northwood Connection included in the SFECCTA study will be coordinated with this proposed action. The SFECCTA project is expected to be complete in 2010.

EXHIBIT 1.22
SFECC Study Area Map



Source: FDOT, 2010 (http://www.sfeccstudy.com/)

1.8 Applicable Regulations and Permits

1.8.1 Federal Regulations

The following federal statutes, executive orders, and regulations apply to the proposed action and were considered during the preparation of the PEA:

- Bald and Golden Eagle Protection Act (16 USC 668)
- Coastal Zone Management Act of 1972 (16 USC 1461)
- Endangered Species Act of 1973 (16 USC 1531)
- Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801)
- Farmland Protection Policy Act (7 USC 4201)
- National Environmental Policy Act of 1969 (42 USC § 4321 et seq)
- Clean Water Act of 1977 (33 USC § 1251-1376)
- Sections 9 and 10 of the Rivers and Harbors Act of 1899 (33 USC 401)
- Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470)
- Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 USC 303 and 23 USC 138)
- Section 404 of the Federal Water Pollution Control Act (CWA) (33 USC 1251)
- Section 6(f) of the Land and Water Conservation Act of 1965 (16 USC 460)
- Title VI of the Civil Rights Act of 1964
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 USC 61)
- Executive Order 11988, Floodplain Management (42 FR 26951, signed May 24, 1977)
- Executive Order 11990, Protection of Wetlands (42 FR 26961, signed May 24, 1977)
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629, signed February 11, 1994)
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency (65 FR 50121, signed August 11, 2000)
- Federal Register, Federal Railroad Administration Procedures for Considering Environmental Impacts (49 CFR Part 260.35, May 26, 1999)
- Federal Register, Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR parts 1500-1508, November 29, 1978)
- Federal Register, Use of Locomotive Horns at Highway-Rail Grade Crossings; Final Rule (49 CFR parts 222 and 229, April 27, 2005)

1.8.2 State Regulations

The following Florida Statutes apply to the proposed action and were considered during the preparation of the PEA:

- Florida's Government in the Sunshine Law (Chapter 236, F.S.)
- Intergovernmental Programs (ss. 163.01-163.65)
- Supplemental And Alternative Method Of Making Local Municipal Improvements (ss. 170.01 – 170.21)
- Community Development Districts (ss. 190.001-190.049)
- Motor And Other Fuel Taxes (ss. 206.41, 206.87)
- Tax On Sales, Use, And Other Transactions (ss. 212.055)

- Florida Greenways And Trails Act (ss. 260.0161)
- Historical Resources (Chapter 267)
- State Highway System (ss. 335.065)
- County Road System (ss. 336.021-336.025)
- Contracting; Acquisition, Disposal, And Use Of Property (ss. 337.251-337.273)
- Transportation Finance And Planning (Chapter 339)
- Railroads (ss. 351.03)
- State Water Resource Plan (ss. 373.012-373.200)
- Management And Storage Of Surface Waters (ss. 373.403-373.468)
- Florida Inland Navigation District Law (ss. 374.980-374.989)
- Outdoor Recreation And Conservation Lands (ss. 375.011-375.314)
- Pollutant Discharge Prevention And Removal (ss. 376.011-376.021)
- Marine Life (ss. 379.2401-379.26)
- Freshwater Aquatic Life (ss. 379.28-379.295)
- Bald Eagle (*Haliaeetus leucocephalus*)(FAC 68A-16.002)
- Wild Animal Life (ss. 379.3001-379.305)
- Environmental Land And Water Management (ss. 380.012-380.12)
- Offenses Concerning Dead Bodies And Graves (ss. 872.01-872.06)

1.9 Potential Permits

The proposed action will require federal, state and local permits as outlined in Exhibit 1.23. Further discussion of the regulatory authority is provided in Chapter 3 (Affected Environment and Environmental Consequences).

EXHIBIT 1.23
Potential Regulatory Requirements

Permit/Approval	Agency	Regulated Activity	Authority	Comment
Clean Water Act	FDEP or SJRWMD	Section 401—water quality certifications	33 USC 1251 et seq.	Included with the State ERP process below
Section 404 Permit, Clean Water Act	USACE	Section 404—dredge and fill permit	33 USC 1251 et seq.	May be required for impact to waters of the United States
Environmental Resource Permit (ERP)	SJRWMD	Stormwater, wetlands	40C-4, 40C-40, 40C-41, 40C-42, F.A.C., 40C-400 F.A.C.	Stations and mainline work within Duval, St. Johns, Brevard, and Indian River Counties
	SFWMD	Stormwater, wetlands	40E-4, 40E-40, 40E-400, F.A.C.	Stations and mainline work within St. Lucie, Martin and Palm Beach Counties
Right-of-way Occupancy Permit	SFWMD	SFWMD canal and levee system	40E-4, F.A.C.	Occupancy

EXHIBIT 1.23
Potential Regulatory Requirements

Permit/Approval	Agency	Regulated Activity	Authority	Comment
National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities	FDEP	Construction of 1 acre or larger	Chapters 62-620 and 62-621, F.A.C.	Construction
Construction Dewatering Permit	SJRWMD SFWMD	Dewatering for Construction	Rule 40C-22, F.A.C.	Construction
Permitting requirements imposed by local regulatory agencies also will need to be considered. These may include requirements mandated by local building, fire, health, and environmental departments and typically include zoning reviews and approvals, building permits, fire and health department approvals, and environmental reviews.				

Notes:
FDEP – Florida Department of Environmental Protection
SFWMD – South Florida Water Management District
SJRWMD – St. Johns River Water Management District
USACE – U.S. Army Corps of Engineers

Chapter 2

Alternatives Development and Analysis

2.1 Introduction

Chapter 2 presents the development and analysis of alternatives. It introduces the range of alternatives developed to meet the project purpose and need. This chapter identifies those alternatives selected for more detailed study and the alternatives eliminated from further evaluation. The reasons why alternatives were eliminated from detailed study are also presented in this chapter.

This chapter identifies and describes the range of alternatives that were identified to address the purpose and need for the project. The description of alternatives includes the No-Build Alternative and the Build Alternative which involve the FEC Railway (from Jacksonville to West Palm Beach), the Northwood Crossover to the SFRC, and eight proposed stations (St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart). As part of the Service NEPA-level in 2009 (Section 1.3.2), the cities where stations are proposed were determined based on an evaluation of ridership and population density studies conducted by Amtrak. During the public involvement outreach for the project, other municipalities requested consideration of a proposed station within their jurisdiction. Amtrak representatives have indicated any additional stations would depend on projected ridership and would need to be considered in future development phases (subsequent to this proposed action). Station alternatives in each of these eight cities were identified and evaluated to analyze satisfaction of purpose and need, ability to meet engineering design criteria and technical feasibility, and avoidance and minimization of environmental resource impacts.

As a result of the alternatives analysis, a locally recommended station alternative (referred to as the "Preferred Alternative") in each city was identified for detailed study. Chapter 3 documents the affected environment and any potential environmental consequences as a result of implementing the Preferred Alternative. The Preferred Alternative was identified based on agency and public involvement which involved consultation with FEC, Amtrak, local interested agencies and individuals, and each of the eight cities (local government jurisdictions) where the stations are proposed. The alternatives considered but eliminated from detailed analysis are discussed in Section 2.3 (by location).

2.2 No-Build Alternative

The No-Build Alternative, which involves no changes to the transportation facilities within the study area beyond currently planned and programmed (tentatively funded) projects, was evaluated in this study. The No-Build Alternative would involve no infrastructure improvements to the existing FEC Railway (from Jacksonville to the existing Northwood Crossover in West Palm Beach). The existing freight operations (and maintenance infrastructure) on the FEC Railway would be maintained with the No-Build Alternative.

The No-Build Alternative would include future planned and programmed roadway, transit, rail, air, and other intermodal improvements within the study area. The No-Build Alternative would not meet the project purpose to provide intercity passenger rail service on

Florida's east coast from Jacksonville to Miami or address the need to improve connectivity for intercity and intermodal travel. The No Build Alternative also would not enhance mobility or stimulate economic development along Florida's east coast. Although the No-Build Alternative does not meet the purpose and need for the project, it was retained for detailed analysis in order to evaluate potential benefits and impacts associated with the proposed action in comparison to taking no action.

2.3 Build Alternative

The Build Alternative consists of three distinct components – the FEC mainline, the Northwood Crossover, and the eight proposed stations.

2.3.1 FEC Mainline

The Build Alternative was identified to provide intercity passenger rail service for Florida's east coast from Jacksonville to Miami. The Build Alternative would restore passenger service on the existing FEC Railway (see Exhibit 1.1, referenced previously) from Jacksonville to West Palm Beach. In West Palm Beach, the alternative would use the Northwood Crossover (Section 2.3.2) to connect to the SFRC, which is an existing railway located approximately 2,100 feet west of the FEC Railway. The Build Alternative would follow the existing Amtrak route on the SFRC from West Palm Beach to Miami. The segment of the FEC Railway from Jacksonville to West Palm Beach is a single-track railroad while the segment of the SFRC from West Palm Beach to Miami is a double-track railroad.

The existing FEC Railway freight corridor south of the Northwood Crossover was considered as an alternative alignment for the proposed passenger rail service from West Palm Beach to Miami. This alignment would require additional infrastructure and stations along the freight corridor within highly urbanized areas. This alternative alignment would involve substantially higher capital costs, right-of-way costs and environmental impacts as compared to the Preferred Alternative (the existing Amtrak route) and was consequently eliminated from detailed analysis.

2.3.2 Northwood Crossover

An existing Amtrak route is located along the SFRC from West Palm Beach to Miami. A connection (or "crossover") from the FEC Railway to the SFRC would be required to provide continuous intercity passenger rail service from Jacksonville to Miami. The existing Northwood Crossover (Exhibit 2.1) from the FEC to the SFRC was evaluated. The Northwood Crossover (described in Section 1.4.3) is an existing track connecting the two railways in the Northwood section of West Palm Beach. This existing connector track located parallel to 27th Street is not usable for the proposed intercity passenger rail service because of a missing connection in the northeast quadrant leading to and from the FEC Railway and points north. Rebuilding the existing Northwood Crossover to provide the missing northern connector track would impact the Shalow Memorial Park (Evergreen Cemetery), which is potentially eligible for listing on the National Register of Historic Places (NRHP). These cultural resources are described in more detail in Section 3.6 of the document. As a result of the potential social effects, cultural impacts, and community disruption associated with impacts to the historically significant Evergreen Cemetery, this alternative was eliminated from detailed study. The Build Alternative was identified to realign the Northwood Crossover (Exhibit 2.2) just south of the existing alignment and generally parallel to (and north of) 25th Street.

EXHIBIT 2.1
Northwood Crossover

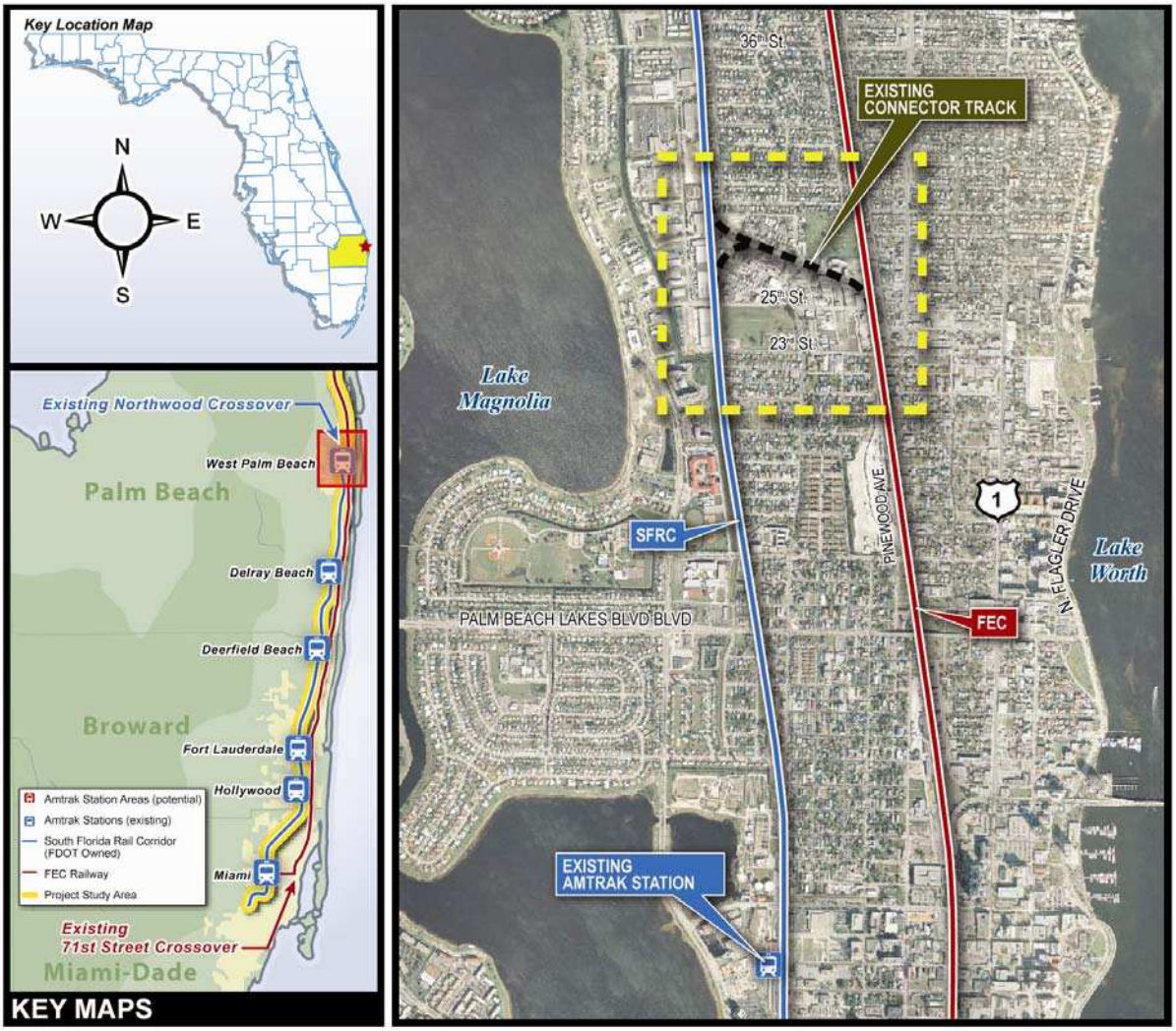
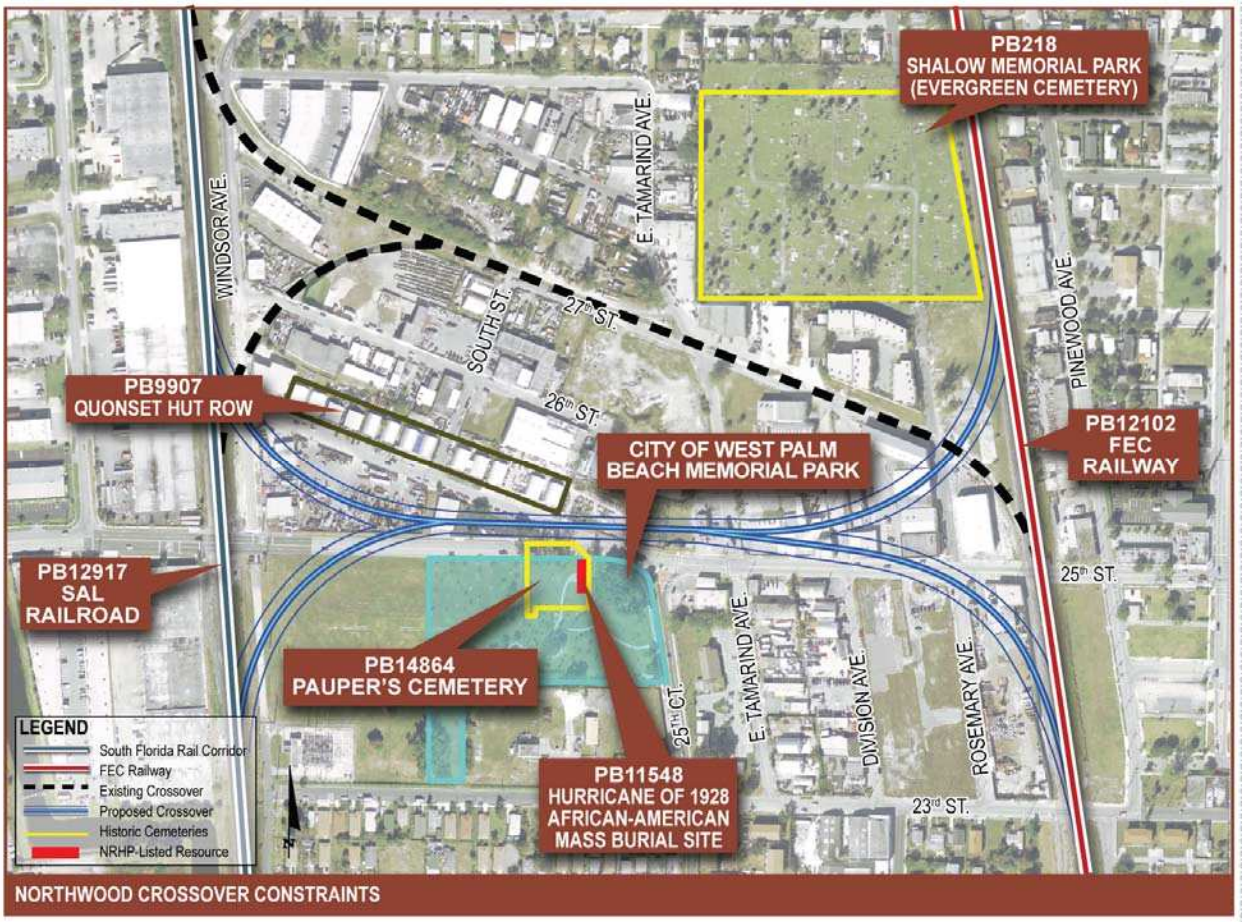


EXHIBIT 2.2
Northwood Crossover Constraints



2.3.3 Station Alternatives

There are no existing passenger stations in operation on the existing FEC Railway freight corridor. Eight new passenger stations along the FEC Railway between Jacksonville and Stuart are proposed as part of the project, at locations in the following cities:

- St. Augustine
- Daytona Beach
- Titusville
- Cocoa
- Melbourne
- Vero Beach
- Fort Pierce
- Stuart

The proposed stations may involve construction of new station buildings or the remodeling of former station buildings. Station alternatives in each of these eight cities were identified for further evaluation. The station alternatives were identified based on an extensive agency and public involvement program which involved consultation with FEC Railway, Amtrak, interested agencies and individuals, and each of the eight cities (local government jurisdictions)

where the stations are proposed. Local agency and government meetings (open to the public) in each of the eight station cities were held to identify potential station location alternatives. As a result of the agency and public involvement, in each of the cities at least two potential station alternatives were identified for further evaluation. Exhibit 2.3 lists the evaluation factors and scope of issues considered during the identification of station alternatives. The relocation of the existing Amtrak stations in Jacksonville and Miami are separate related actions proposed by others as discussed in Section 1.7. The potential environmental effects associated with each of the station alternatives in each city were evaluated using the potential effects and agency input provided through the FDOT's ETDM process, additional desktop research, a review of GIS databases for environmental resources, and field surveys. In some cases, the station alternatives screened through the ETDM process were refined based on geometric criteria or to use historic stations. However, these modifications involved the same parcels that were screened through ETDM. Environmental analyses of the station alternatives are provided in the following subsections.

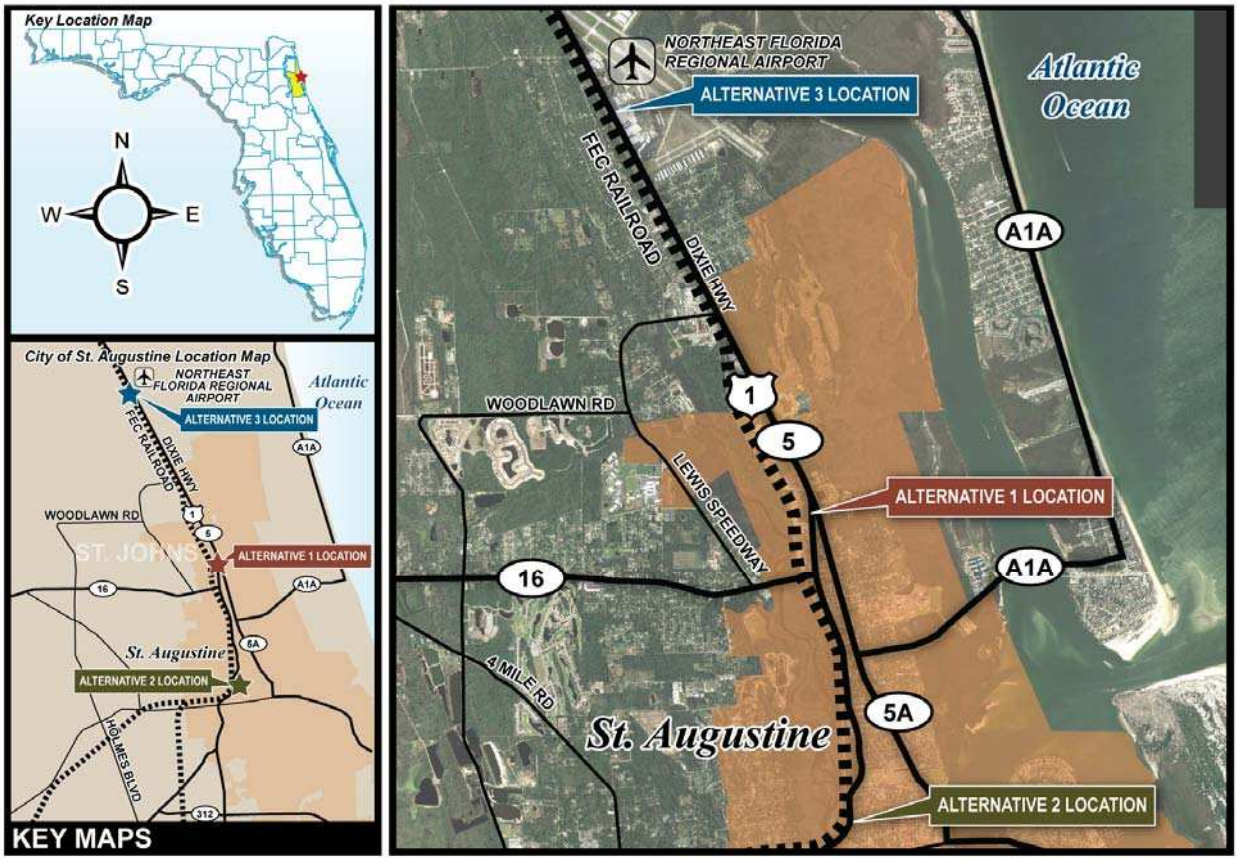
EXHIBIT 2.3
Alternatives Development – Station Considerations

Purpose and Need Element	Station Considerations
Transportation Connectivity	• Linked to regional and statewide multi-modal transportation network (major highways, mass transit, etc.) • Provides access to major intermodal hubs (airports, seaports, etc.) • Interconnection with local and regional transit services • Potential for near-term transportation connectivity and mobility
Mobility	• Proximity to major tourist destinations along Florida's East Coast • Pedestrian-friendly (access to multi-modal paths, pedestrian centers, pedestrian safety, etc.) • Accessible to entire population (disadvantaged, transit dependent, physically challenged, etc.) • Near major population centers or downtown areas • Available parking • Potential for transit-oriented development (TOD) • Ridership potential
Economic Development	• Near historic downtowns with compact development patterns • Within areas identified for economic redevelopment • Introduces and reinforces sustainable development • Jurisdiction of local government authority responsible for operation/maintenance • Potential reuse of historic stations
Other Considerations	• Consistency with local, regional, and state comprehensive plans • Existing/future land use • Minimal right-of-way footprint/available vacant land • Ability to meet station design criteria • Environmental context

2.3.3.1 St. Augustine

The City of St. Augustine is a major international tourist destination, attracting more than six million visitors annually. It is the oldest city in the United States and contains a substantial historic district with hundreds of properties and structures listed on the National Register of Historic Places. The community also contains Flagler College and the Florida School for the Deaf and Blind, both of which are identified for ridership potential, with the School for the Deaf and Blind anticipated to generate weekend ridership throughout the year. Three station alternatives (shown on Exhibit 2.4) were evaluated for the proposed station location in St. Augustine. Given the anticipated volume of tourist traffic, a station in St. Augustine is characterized with high ridership potential. Therefore, a medium station (see Section 1.4.4) is planned for St. Augustine.

EXHIBIT 2.4
St. Augustine Project Location Map

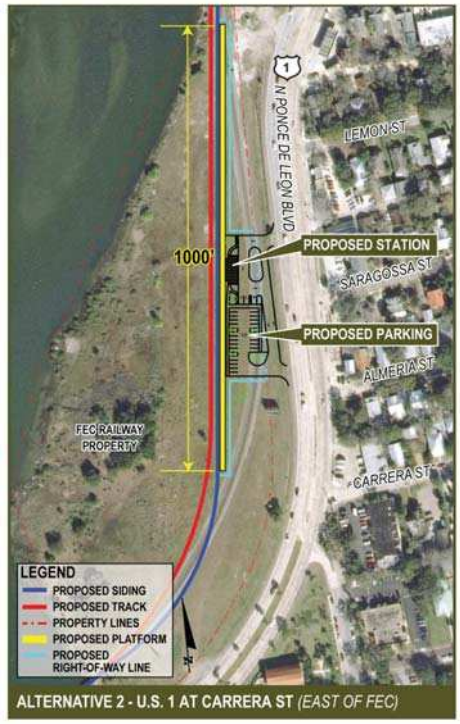


Alternative 1 (U.S. 1 at San Marco Avenue) is located north of historic downtown St. Augustine east of the FEC Railway, and west of U.S. 1 near the intersection of U.S. 1/San Marco Avenue. This site (Exhibit 2.5) was the location of a former FEC passenger rail station (circa 1960) and turnaround for the FEC Railway. The property, maintenance yard, and existing on-site buildings are owned by the FEC Railway. Alternative 1 proposes to restore the existing station building to its former use as a passenger rail station. Alternative 1 is located near the historic city gates approximately 0.5 miles north of the St. Augustine historic district.

Alternative 2 (U.S. 1 at Carrera Street) is located within historic downtown St. Augustine, west of U.S. 1 and across from Lemon Street and Carrera Street (Exhibit 2.6). This site is an open field along the east bank of the San Sebastian River. Based on discussions with FEC Railway, Alternative 2 would require replacement of the existing San Sebastian River bridge to accommodate the proposed concept.

EXHIBIT 2.5
St. Augustine Concept Alternative 1

EXHIBIT 2.6
St. Augustine Concept Alternative 2



Alternative 3 (St. Augustine/St. Johns County Airport) is located north of the City of St. Augustine to the west of U.S. 1 across from the Northeast Florida Regional Airport (Exhibit 2.7). This site is located between the FEC Railway and U.S. 1. The property west of the FEC Railway and east of U.S. 1 is owned by the St. Augustine/St. John's Airport Authority.

Exhibit 2.8 summarizes the results of the environmental analysis. The potential environmental impacts associated with Alternative 2 (U.S. 1 at Carrera Street) were higher than the impacts associated with the other two alternatives because of the shoreline habitat and environmental resources associated with the adjacent San Sebastian River.

EXHIBIT 2.7
St. Augustine Concept Alternative 3

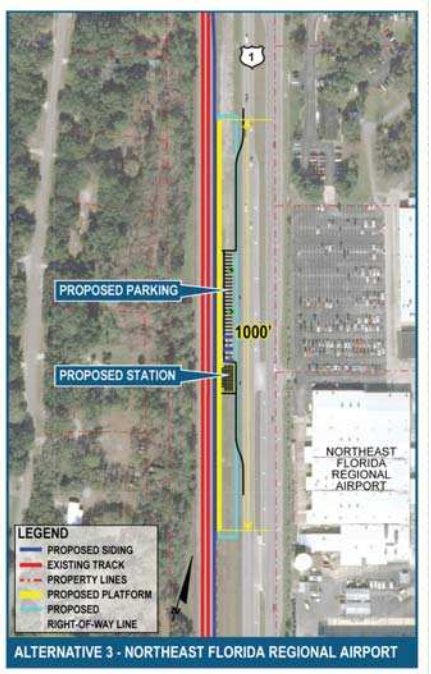


EXHIBIT 2.8
Preliminary Evaluation Matrix - Station Alternatives (St. Augustine)

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3
	U.S. 1 at San Marco Avenue	U.S. 1 at Carrera St.	Northeast Florida Regional Airport
Sociocultural Environment			
Right-of-Way Impacts (acres)	1.54	1.15	1.10
Number of Parcels Impacted	6 (2 FEC)	2 (1 FEC)	1(FEC)
Potential Relocations			
Residential	0	0	0
Non-Residential	0	0	0
Community Facilities (Number Potentially Affected)[1]	0	4	1
Recreation Areas Involvement[1]	Minimal	Minimal	No
Potential Scenic Highway Involvement[1] (Yes/No)	No	No	No
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	No	No	No

EXHIBIT 2.8
Preliminary Evaluation Matrix - Station Alternatives (St. Augustine)

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3
	U.S. 1 at San Marco Avenue	U.S. 1 at Carrera St.	Northeast Florida Regional Airport
Natural Environment			
Wetlands (acres)	.35	2.82	0
100-year Floodplain Impacts (acres)	10.9	6.0	0
Waterway Bridges Involved (number)	0	2	0
Prime and Unique Farmlands (acres)	0	0	0
Threatened and Endangered Species Involvement	Minimal	Moderate	Minimal
Critical Wildlife Habitat Identified (Yes/No)	No	No	No
Physical Environment			
Potential Contamination Sites[2] (Yes/No)	No	Yes (Minimal)	Yes (Minimal)

Notes: [1] Within 1,000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

Extensive agency and public outreach (summarized in Chapter 4) was conducted to obtain input on the station alternatives. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.9) provides a comparison of the site characteristics for each of the station alternatives. Station Alternative 2 (U.S. 1 at Carrera Street) was initially recommended by city officials during the public outreach based on the close proximity to the core historic downtown area. However, the preliminary environmental impacts indicated substantive concerns with natural environment impacts. Based on the recommendations from agency ETDM comments, this station alternative was not identified as an environmentally preferred alternative. Station Alternative 1 (U.S. 1 at San Marco Avenue) was selected as the Preferred Alternative because of the proximity to the historic downtown area and the anticipated lower capital costs with the use of the historic train station.

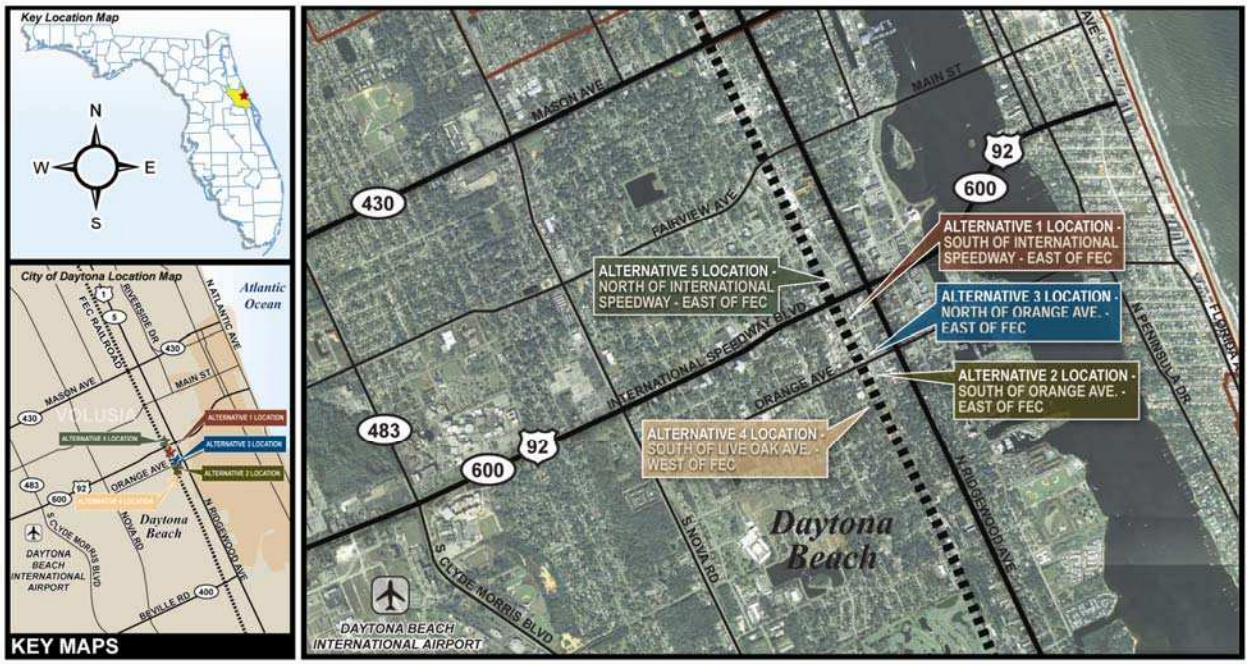
EXHIBIT 2.9
Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3
	U.S. 1 at San Marco Avenue	U.S. 1 at Carrera St.	Northeast Florida Regional Airport
Transportation Connectivity	Sunshine Bus and proposed future local commuter rail service between Jacksonville and St. Augustine	Sunshine Bus, Old Town Trolley, other private trolley/ tour trains and horse-drawn carriages, and proposed future local commuter rail service between Jacksonville and St. Augustine	Northeast Florida Regional Airport, a car rental facility at the airport, Sunshine Bus, and a proposed future local commuter rail service between Jacksonville and St. Augustine
Mobility	Walkable from downtown	Within downtown	Not walkable from downtown
Economic Development/ Ridership Potential	Approximately 1/2 mile north of historic downtown	Nearest to historic downtown (key tourist destination)	Farthest distance to core population center/tourist area - approximately three miles north of city of St. Augustine, with limited adjacent commercial development in immediate vicinity of airport property
Other Considerations	Existing mid-1950s (FEC) station building could be retrofitted for use as passenger station; minimal capital expenses to renovate existing building as station	Potential funding from St. Augustine CRA to offset capital station costs	Future airport and private development could likely include significant job centers which would result in favorable land use pattern for commuter rail or other employment-based transit

2.3.3.2 Daytona Beach

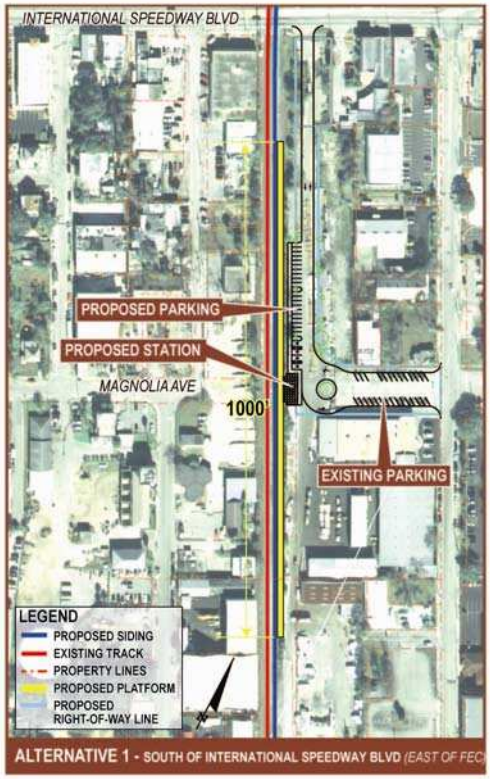
Daytona Beach represents another major international tourist destination along the FEC corridor. However, unlike St. Augustine's year-round tourist traffic, Daytona Beach experiences high tourist volumes that correspond to key special events in the community. The Daytona Beach area also contains several colleges and universities that are anticipated to contribute to ridership volumes, especially for key events. Five station alternatives (shown on Exhibit 2.10) were evaluated for a proposed station location in Daytona Beach. A seasonally-staffed medium station (see Section 1.4.4) is planned for Daytona Beach to accommodate increased ridership during the tourist season and during key community events.

EXHIBIT 2.10
Daytona Beach Project Location Map



Alternative 1 (South of International Speedway Boulevard) is located adjacent to the east side of the FEC Railway between International Speedway Boulevard and Magnolia Avenue (Exhibit 2.11). This site is developed and located within the city's community redevelopment area, proximate to several residential, commercial, and industrial areas.

EXHIBIT 2.11
Daytona Beach Concept Alternative 1



Alternative 2 (South of Orange Avenue) is located adjacent to the east side of the FEC Railway between Orange Avenue and Live Oak Avenue (Exhibit 2.12). This site is developed, also in the city's community redevelopment area, and situated near several residential, commercial, and industrial areas.

Alternative 3 (North of Orange Avenue) is located adjacent to the east side of the FEC Railway and north of Orange Avenue (Exhibit 2.13). This site is developed, within the city's community redevelopment area, and situated near several residential, commercial, and industrial areas.

EXHIBIT 2.12
Daytona Beach Concept Alternative 2

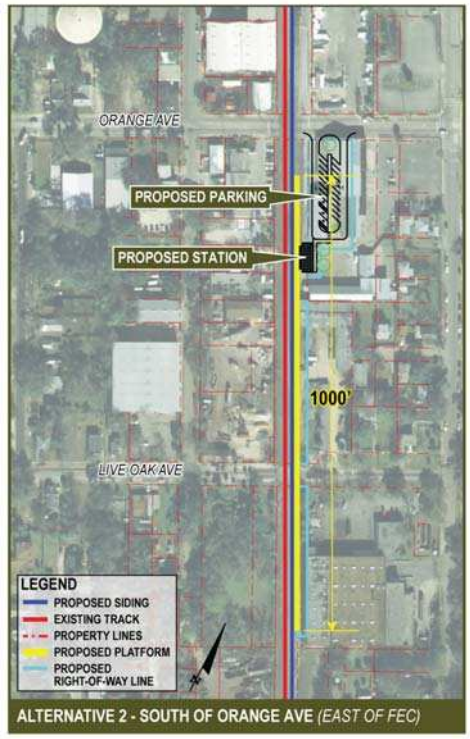
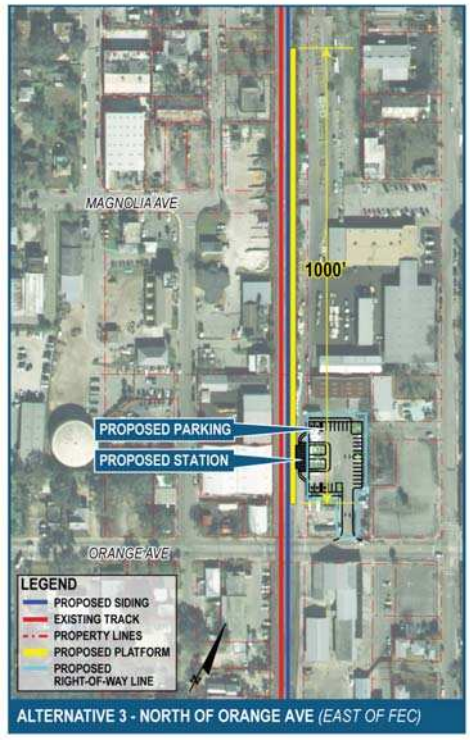


EXHIBIT 2.13
Daytona Beach Concept Alternative 3



Alternative 4 (South of Live Oak Avenue) is located adjacent to the west side of the FEC Railway between Live Oak Avenue and Loomis Avenue (Exhibit 2.14). This site is developed and adjacent to Live Oak Park (a public recreational facility). Several residential, commercial and industrial areas are located near the site. Alternative 4 was eliminated from consideration as it involved potential Section 4(f) impacts and was located farther from the downtown pedestrian activity and the Greyhound terminal.

Alternative 5 (North of International Speedway Boulevard) is located adjacent to the east side of the FEC Railway north of International Speedway Boulevard (Exhibit 2.15). This site is developed, within the city's community redevelopment area, and situated near several residential, commercial, and industrial areas. A major electric transmission facility hub is located directly adjacent to the site. Alternative 5 was eliminated from further consideration because of the potential utility impacts associated with the proximate transmission lines and infrastructure.

Exhibit 2.16 summarizes the results of this analysis of potential environmental effects. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.17) provides a comparison of the site characteristics for each of the station alternatives. Based on these analyses, Alternative 1 (South of International Speedway Blvd.) was selected as the Preferred Alternative because the Magnolia Avenue location provides advantageous access, additional on-street parking, and includes an existing closed grade-crossing for enhanced pedestrian safety.

EXHIBIT 2.14
Daytona Beach Concept Alternative 4

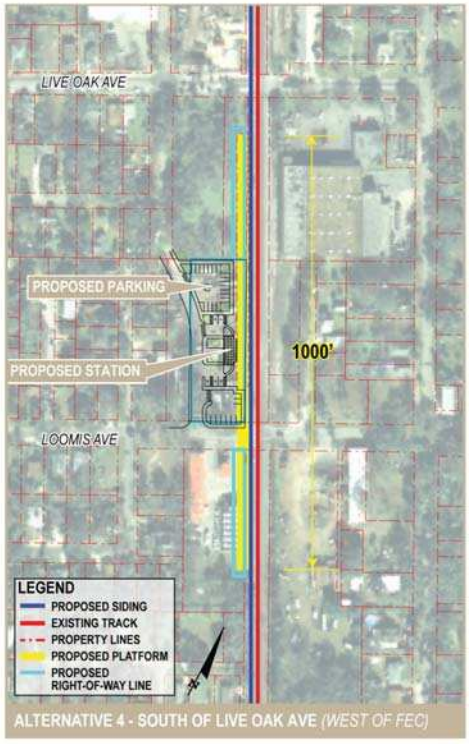


EXHIBIT 2.15
Daytona Beach Concept Alternative 5

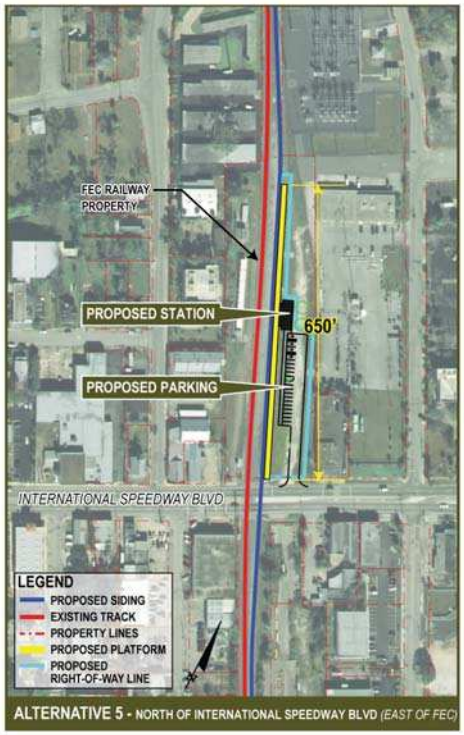


EXHIBIT 2.16
Preliminary Evaluation Matrix - Station Alternatives (Daytona)

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3	Station Alternative 4	Station Alternative 5
	South of International Speedway Blvd	South of Orange Avenue	North of Orange Avenue	South of Live Oak Avenue	North of International Speedway Blvd
Sociocultural Environment					
Right-of-Way Impacts (acres)	1.47	1.4	.63	1.10	.94
Number of Parcels Impacted	2	3	3	2	1(FEC)
Potential Relocations					
Residential	0	0	0	0	0
Non-Residential	1	1	1	1	0
Community Facilities (Number Potentially Affected)[1]	1	2	2	2	0
Recreation Areas Involvement[1]	None	Minimal	None	Yes (Substantial)	None
Potential Scenic Highway Involvement[1] (Yes/No)	No	No	No	No	No
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes	Yes	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	No	No	No	No	No
Natural Environment					
Wetlands (acres)	0	0	0	0	0
100-year Floodplain Impacts (acres)	0	0	0	0	0
Waterway Bridges Involved (number)	0	0	0	0	0
Prime and Unique Farmlands (acres)	0	0	0	0	0
Threatened and Endangered Species Involvement	Minimal	Minimal	Minimal	Minimal	Minimal
Critical Wildlife Habitat Identified (Yes/No)	No	No	No	No	No
Physical Environment					
Potential Contamination Sites[2] (Yes/No)	Yes (Moderate)	Yes (Moderate)	Yes (Moderate)	Yes (Substantial)	Yes (Moderate)

Notes: [1] Within 1,000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

EXHIBIT 2.17

Daytona Beach Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3	Station Alternative 4	Station Alternative 5
	South of International Speedway Blvd	South of Orange Avenue	North of Orange Avenue	South of Live Oak Avenue	North of International Speedway Blvd
Transportation Connectivity	Nearby regional Votran bus service on U.S. 1 and adjacent Greyhound bus terminal (one block away)	Nearby regional Votran bus service on U.S. 1 and nearby Greyhound bus terminal	Nearby regional Votran bus service on U.S. 1	Nearby regional Votran bus service on U.S. 1 and nearby Greyhound bus terminal	Regional Votran bus service and nearby Greyhound bus terminal
Mobility	Walkable from downtown	Walkable from downtown	Walkable from downtown	Walkable from downtown	Walkable from downtown; Farthest from core historic downtown
Economic Development/ Ridership Potential	Within the primary CRA district	Within the primary CRA district	Within the primary CRA district	Within the primary CRA district	Within the CRA district
Other Considerations	Less parcels involved (common property ownership along the east side of the FEC from International Speedway Blvd to Orange Avenue; CRA is potential funding source for local match)	CRA is potential funding source for local match	CRA is potential funding source for local match	CRA is potential funding source for local match	International Speedway Blvd is a constrained facility during tourist events which may impact viability of mobility and access to this site; Proximity to transmission lines infrastructure

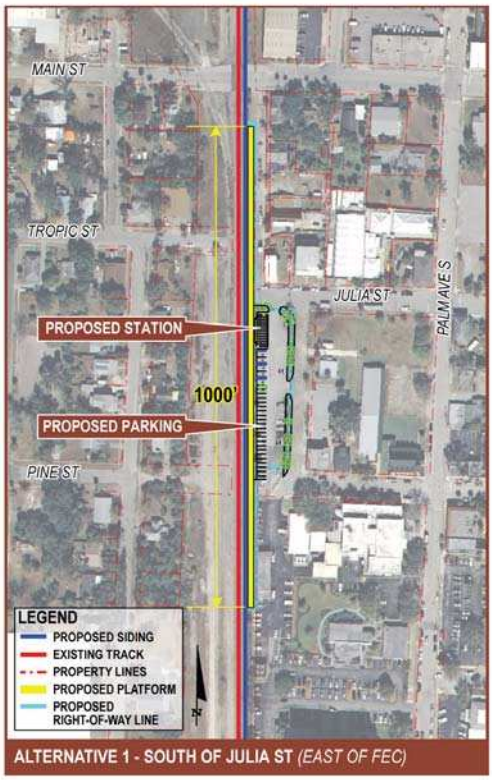
2.3.3.3 Titusville

Titusville is a historic city with a considerable concentration of historic structures within its redeveloping downtown. Located along the banks of the Indian River Lagoon across from the Kennedy Space Center, the community includes extensive waterfront parks and vistas that have historically been prime viewing spots for the launching of rockets and shuttles from the Space Center. As restructuring for the NASA program is evaluated, national emphasis has been placed on the economic restructuring needs of Titusville and neighboring communities, including the need for the expanded mobility offered by the FEC/Amtrak project. Within the city, four station alternatives (shown on Exhibit 2.18) were evaluated for the proposed station location in Titusville. Based on ridership projections estimated by Amtrak, a small station is planned for Titusville.

EXHIBIT 2.18
Titusville Project Location Map

Alternative 1 (South of Julia Street) is located in downtown Titusville to the east of the FEC Railway in the vicinity of Julia Street (Exhibit 2.19), and within the city's community redevelopment agency boundaries. This site is owned by FEC Railway and occupied by a FEC Railway storage and maintenance yard.

EXHIBIT 2.19
Titusville Concept Alternative 1



Alternative 2 (North of Pine Street) is located in downtown Titusville to the east of the FEC Railway in the vicinity of Pine Street (Exhibit 2.20) and within the City's community redevelopment area boundaries. Alternative 2 is just south of Alternative 1 within the FEC Railway storage and maintenance yard. This site was the former location of the passenger rail station in Titusville. Alternative 2 proposes to restore the existing station building (420 Pine Street) to its former use as a passenger rail station. This historic structure (Titusville Train Station) is potentially eligible for NRHP listing. Existing parking would be upgraded in compliance with ADA standards.

Alternative 3 (Space Coast Regional Airport) is located west of the FEC Railway and U.S.1 near the Space Coast Regional Airport in Brevard County (Exhibit 2.21). This site is an undeveloped wooded property and the surrounding area is mostly undeveloped.

EXHIBIT 2.20
Titusville Concept Alternative 2

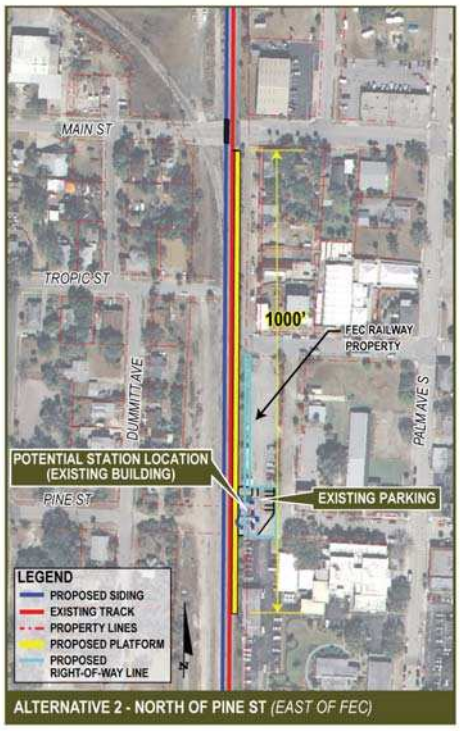
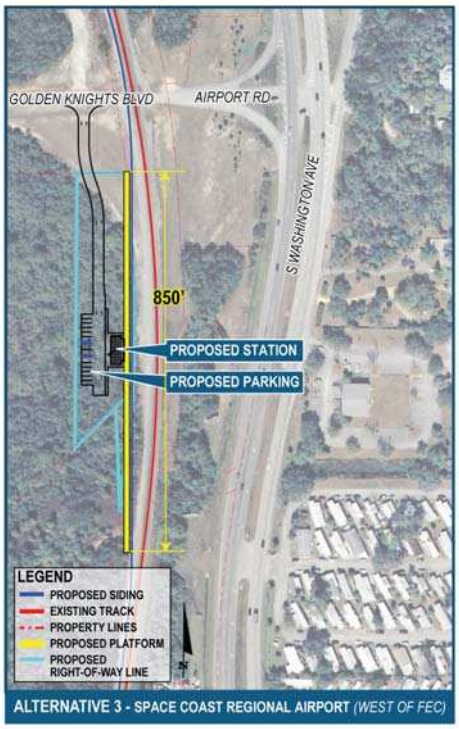


EXHIBIT 2.21
Titusville Concept Alternative 3



Alternative 4 (South of S.R. 50) is located in Brevard County west of U.S. 1, east of the FEC Railway, north of the NASA Causeway and approximately 1 mile south of S.R. 50 (Exhibit 2.22).

Exhibit 2.23 summarizes the results of this analysis of potential environmental effects. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.24) provides a comparison of the site characteristics for each of the station alternatives. Based on these analyses, Alternative 2 (North of Pine Street) was selected as the Preferred Alternative because of the proximity to the historic downtown area, fewer parcel impacts, and the anticipated lower capital costs with the use of the historic train station.

EXHIBIT 2.22
Titusville Concept Alternative 4

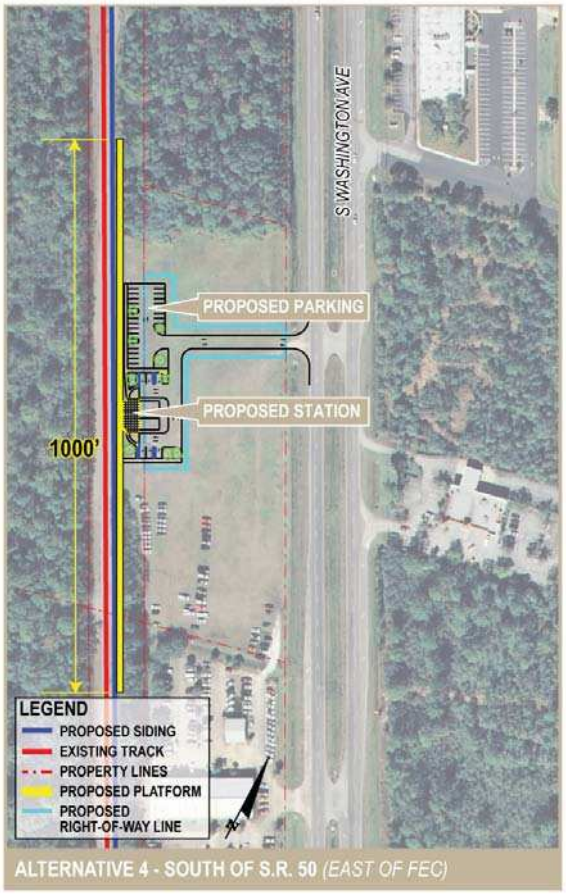


EXHIBIT 2.23
Preliminary Evaluation Matrix - Station Alternatives (Titusville)

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3	Station Alternative 4
	South of Julia Street	North of Pine Street	Space Coast Regional Airport	North of NASA Cswy
Sociocultural Environment				
Right-of-Way Impacts (acres)	.52	.23	1.65	.72
Number of Parcels Impacted	1 (FEC)	1(FEC)	2	1
Potential Relocations				
Residential	0	0	0	0
Non-Residential	0	0	0	0
Community Facilities (Number Potentially Affected)[1]	9	9	1	1
Recreation Areas Involvement[1]	Minimal	Minimal	Minimal	Moderate
Potential Scenic Highway Involvement[1] (Yes/No)	No	No	No	No
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	Yes (Minimal)	Yes (Minimal)	No	No
Natural Environment				
Wetlands (acres)	0	0	0	0
100-year Floodplain Impacts (acres)	0	0	0	0
Waterway Bridges Involved (number)	0	0	0	0
Prime and Unique Farmlands (acres)	0	0	0	0
Threatened and Endangered Species Involvement	Minimal	Minimal	Moderate	Minimal
Critical Wildlife Habitat Identified (Yes/No)	No	No	No	No
Physical Environment				
Potential Contamination Sites[2] (Yes/No)	Yes (Minimal)	Yes (Minimal)	No	Yes (Minimal)

Notes: [1] Within 1000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

EXHIBIT 2.24
Titusville Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1 South of Julia Street	Station Alternative 2 North of Pine Street	Station Alternative 3 Space Coast Regional Airport	Station Alternative 4 North of NASA Cswy
Transportation Connectivity	Space Coast Area Transit (SCAT) regional bus service and private shuttle service to Port Canaveral	SCAT regional bus service and private shuttle service to Port Canaveral	Airport, car rental at airport, SCAT regional bus service, and private shuttle service to Port Canaveral	SCAT regional bus service and private shuttle service to Port Canaveral
Mobility	Within downtown Approximately .25 miles east of proposed East Regional Rail Trail	Within downtown Approximately .25 miles east of proposed East Regional Rail Trail	Not walkable from downtown	Not walkable from downtown
Economic Development/ Ridership Potential	Within CRA	Within CRA Historic preservation of former passenger station will enhance historic district		
Other Considerations				

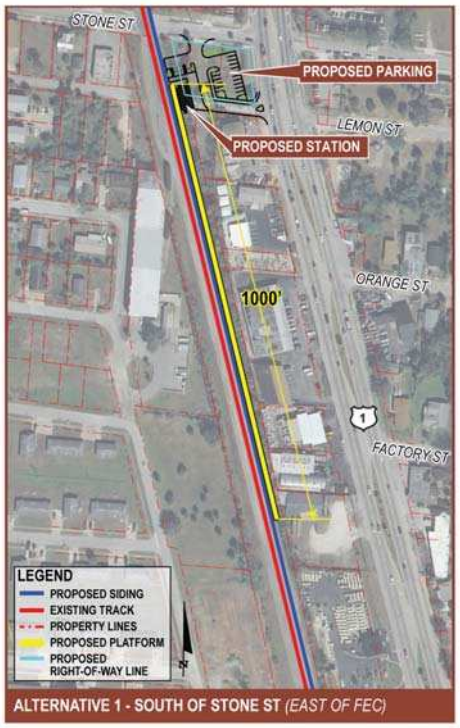
2.3.3.4 Cocoa

The City of Cocoa is a historic community along the banks of the Indian River with a well-established and redeveloped historic downtown. In addition to high tourist ridership, Cocoa offers a convenient access point for future Amtrak riders to access Port Canaveral, which attracts more than two million annual cruise ship passengers. Two station alternatives (shown on Exhibit 2.25) were evaluated for the proposed station location in Cocoa. As a major tourist destination and point of conveyance for cruise ship passengers, a station in Cocoa is characterized with high ridership potential. Therefore, a medium station (see Section 1.4.4) is planned for Cocoa.

EXHIBIT 2.25
Cocoa Site Location Map

Alternative 1 (South of Stone Street) is located in downtown Cocoa east of the FEC Railway, west of U.S. 1, and south of S.R. 520 (Exhibit 2.26). The station site is located at the western terminus of Lemon Street adjacent to the FEC Railway. There is no existing railroad grade crossing at Lemon Street and the FEC Railway in this location. Alternative 1 involves parcels south of Stone Street that are vacant and undeveloped. There are several residential and commercial areas near the site. The existing Stone Street/FEC Railway intersection to the north is a former grade crossing that was closed to vehicle/pedestrian traffic as a result of safety concerns related to crash data and fatalities. Alternative 1 would not require the reopening of this former grade crossing as part of the proposed action. During public involvement activities, the surrounding community strongly indicated its desire for the reopening of the Stone Street grade crossing. It was clarified to the public and local officials that any requested openings of former grade crossings (such as Stone Street) are not required for the proposed action and would need to be addressed by FEC Railway. Discussions with FEC Railway indicated that the Stone Street grade crossing was closed because of safety concerns and that there are no proposals to reopen the closed grade crossing.

EXHIBIT 2.26
Cocoa Concept Alternative 1



Alternative 2 (South of Rosa L. Jones Boulevard) is located south of downtown Cocoa, west of U.S. 1, and south of Rosa L. Jones Boulevard (Exhibit 2.27). This site is owned by FEC Railway and occupied by an FEC Railway storage and maintenance yard. One of the existing on-site buildings is the location of the former Cocoa passenger rail station. Alternative 2 would involve either the renovation of this historic rail station or the construction of a new station building depending on the viability of relocating the transload operations on-site. Alternative 2 involves the parcels east and west of the FEC to accommodate future parking needs and the potential maintenance of both the existing transload operations and the FEC turnout.

EXHIBIT 2.27
Cocoa Concept Alternative 2

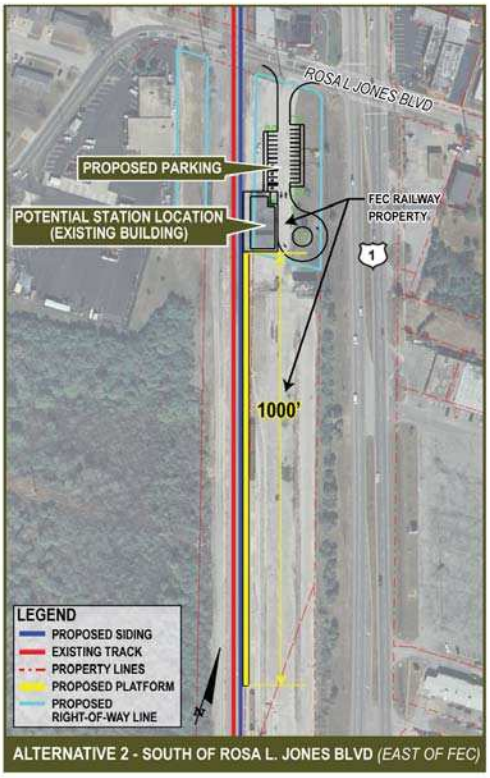


Exhibit 2.28 summarizes the results of this analysis of potential environmental effects. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.29) provides a comparison of the site characteristics for each of the station alternatives. Based on these analyses, Alternative 2 (South of Rosa L. Jones Blvd.) was selected as the Preferred Alternative because of the proximity to the historic downtown area, presence of four-way lighted intersection to facilitate vehicular and pedestrian access, consideration of potential funding partnerships, and the anticipated lower capital costs with the use of the historic train station.

EXHIBIT 2.28
Preliminary Evaluation Matrix - Station Alternatives (Cocoa)

Evaluation Criteria	Station Alternative 1 (South of Stone St.)	Station Alternative 2 (South of Rosa L. Jones Blvd)
Sociocultural Environment		
Right-of-Way Impacts (acres)	.45	1.59
Number of Parcels Impacted	4	3 (2 FEC)
Potential Relocations		
Residential	0	0
Non-Residential	1	1
Community Facilities (Number Potentially Affected)[1]	5	1

EXHIBIT 2.28
Preliminary Evaluation Matrix - Station Alternatives (Cocoa)

Evaluation Criteria	Station Alternative 1 (South of Stone St.)	Station Alternative 2 (South of Rosa L. Jones Blvd)
Recreation Areas Involvement[1]	No	No
Potential Scenic Highway Involvement[1] (Yes/No)	Yes	Yes
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	No	No
Natural Environment		
Wetlands (acres)	0	0
100-year Floodplain Impacts (acres)	0	0
Waterway Bridges Involved (number)	0	0
Prime and Unique Farmlands (acres)	0	0
Threatened and Endangered Species Involvement	No	No
Critical Wildlife Habitat Identified (Yes/No)	No	No
Physical Environment		
Potential Contamination Sites[2] (Yes/No)	Yes (Minimal)	Yes (Minimal)

Notes: [1] Within 1000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

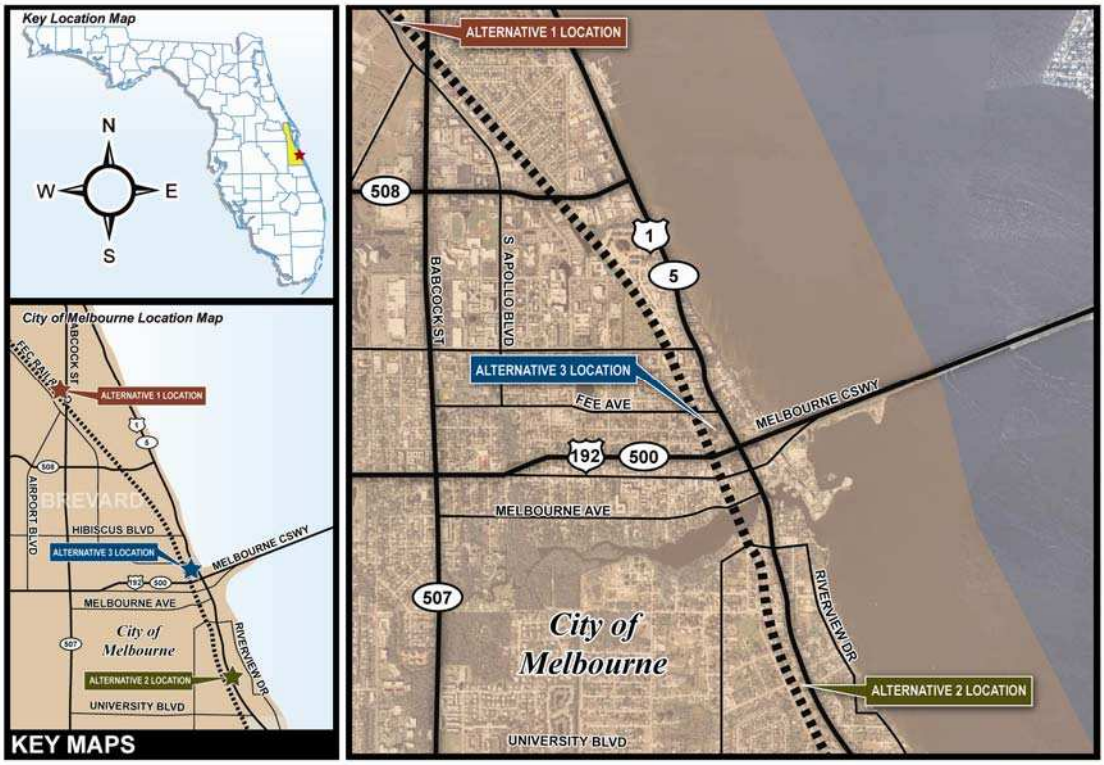
EXHIBIT 2.29
Cocoa Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1 South of Stone Street	Station Alternative 2 South of Rosa L. Jones Blvd
Transportation Connectivity	SCAT regional bus service and private shuttle service to Port Canaveral	SCAT regional bus service and private shuttle service to Port Canaveral
Mobility	Within downtown	Within downtown
Economic Development/ Ridership Potential	Within Cocoa CRA and adjacent to Diamond Square CRA	Within Cocoa CRA, adjacent to Diamond Square CRA, and within City of Rockledge and Rockledge CRA
Other Considerations	Heavy bus traffic on S.R. 520 accessing port will need to be considered in future project phases; Modifications to recent median improvements on U.S.1 may be required	Potential partnership with City of Rockledge and Rockledge CRA is potential funding source; Existing historic FEC Station (Cocoa/Rockledge) may reduce capital costs

2.3.3.5 Melbourne

Melbourne is a historic community also located on the banks of the Indian River that contains an extensively redeveloped historic downtown. Three station alternatives (shown on Exhibit 2.30) were evaluated for the proposed station location in Melbourne. Based on ridership projections estimated by Amtrak, a small station is planned for Melbourne.

EXHIBIT 2.30
Melbourne Site Location Map



Alternative 1 (Melbourne International Airport) is located north of the City of Melbourne, east of the Melbourne International Airport, and west of the FEC Railway (Exhibit 2.31). This site is mostly undeveloped vacant property located between South Apollo Boulevard and the FEC Railway. The site is situated near several residential neighborhoods.

Alternative 2 (South of U.S. 192) is located east of the FEC Railway, west of U.S. 1, and south of U.S. 192 (Exhibit 2.32). The station site is located just south of Jernigan Avenue in downtown Melbourne and within the Melbourne CRA. This site is developed and situated near several residential, commercial and industrial areas.

EXHIBIT 2.31
Melbourne Concept Alternative 1

EXHIBIT 2.32
Melbourne Concept Alternative 2

Alternative 3 (North of U.S. 192) is located east of the FEC Railway, west of U.S. 1, and north of U.S. 192/Melbourne Causeway (Exhibit 2.33). The station site is located just north of Palmetto Avenue in downtown Melbourne within the Melbourne CRA. This site is a vacant property owned by FEC Railway, abutting a city-owned parking lot, and situated near several residential and commercial/retail areas. Implementing Alternative 3 would involve the closure of two existing grade crossings (Lincoln Avenue and Palmetto Avenue) to accommodate the proposed platform.

Exhibit 2.34 summarizes the results of this analysis of potential environmental effects. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.35) provides a comparison of the site characteristics for each of the station alternatives. Based on these analyses, Alternative 3 (North of U.S. 192) was selected as the Preferred Alternative because of the proximity to the downtown area, fewer parcel impacts, and the anticipated lower capital costs with the use of FEC property.

EXHIBIT 2.33
Melbourne Concept Alternative 3

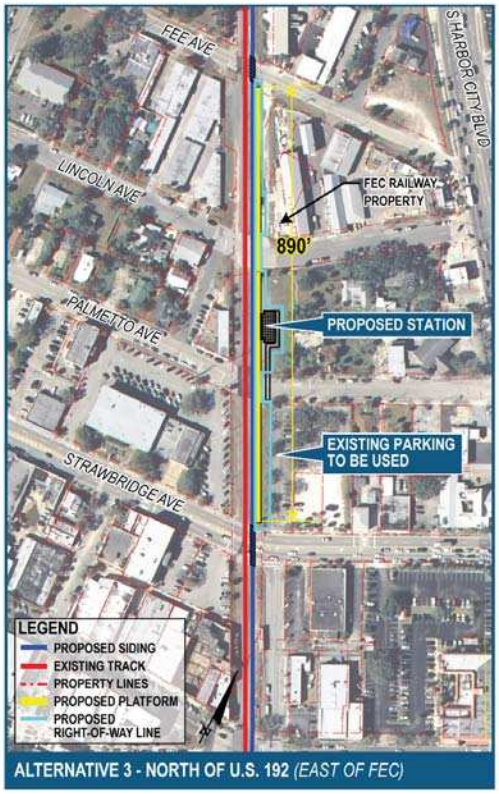


EXHIBIT 2.34
Preliminary Evaluation Matrix - Station Alternatives (Melbourne)

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3
	Melbourne International Airport	South of U.S. 192 (Jernigan Avenue)	North of U.S. 192
Sociocultural Environment			
Right-of-Way Impacts (acres)	.76	.60	.55
Number of Parcels Impacted	1	3	2 (1 FEC)
Potential Relocations			
Residential	0	0	0
Non-Residential	0	0	1
Community Facilities (Number Potentially Affected)[1]	2	6	7
Recreation Areas Involvement[1]	None	Minimal	Minimal
Potential Scenic Highway Involvement[1] (Yes/No)	No	No	No
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	No	No	No
Natural Environment			
Wetlands (acres)	0	0	0
100-year Floodplain Impacts (acres)	0	0	0
Waterway Bridges Involved (number)	0	0	0
Prime and Unique Farmlands (acres)	0	0	0
Threatened and Endangered Species Involvement	Minimal	Minimal	Minimal
Critical Wildlife Habitat Identified (Yes/No)	No	No	No
Physical Environment			
Potential Contamination Sites[2] (Yes/No)	Yes (Minimal)	Yes (Moderate)	Yes (Minimal)

Notes: [1] Within 1000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

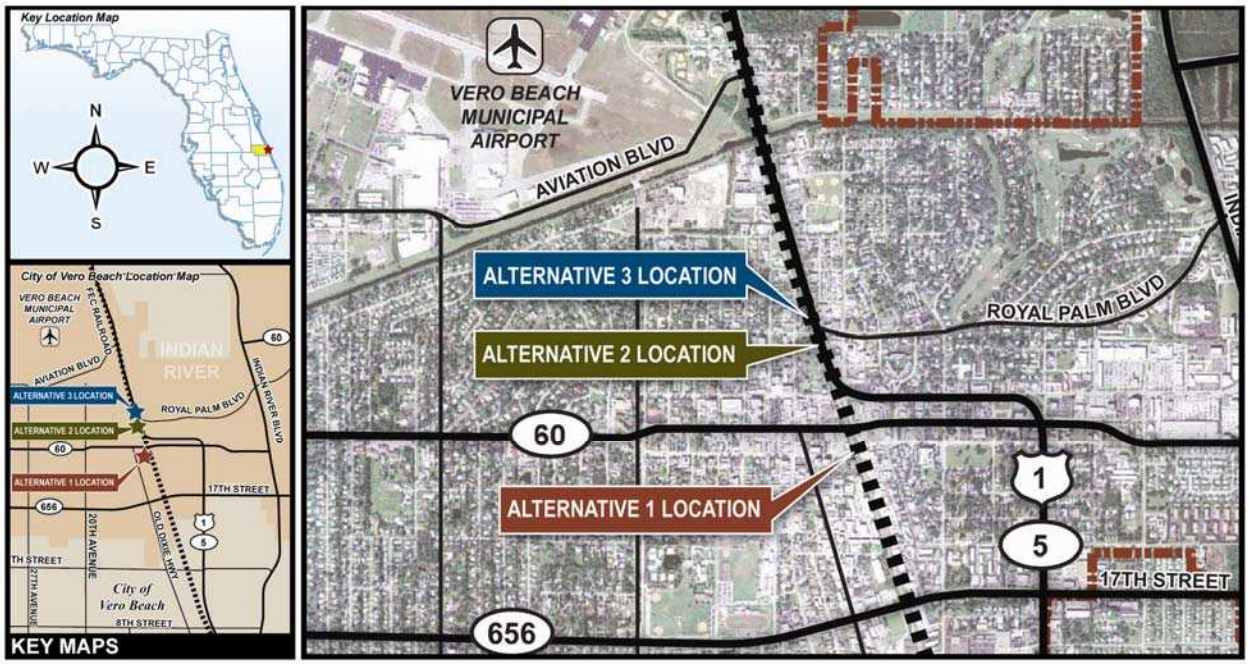
EXHIBIT 2.35
Melbourne Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1 Melbourne International Airport	Station Alternative 2 South of U.S. 192 (Jernigan Avenue)	Station Alternative 3 North of U.S. 192
Transportation Connectivity	Airport, a Greyhound bus terminal and car rental facility at airport, private shuttle service to Port Canaveral, and SCAT regional bus service; Would require shuttle connection into airport terminal as multi-modal destination; Existing SCAT bus route would need to be modified to include Apollo Blvd	SCAT regional bus service and private shuttle service to Port Canaveral	SCAT regional bus service and private shuttle service to Port Canaveral
Mobility	Not walkable from downtown	Not walkable from downtown	Within downtown
Economic Development/ Ridership Potential	Limited surrounding development in area (outside city limits); Surrounding economic development restricted by flight path limitations	Within City of Melbourne CRA; Land use pattern is predominately industrial and commercial, with limited transit-oriented uses	Within Downtown CRA and urban mixed-use neighborhoods and districts; and near several key redevelopment parcels
Other Considerations	Long-term future economic development activity, including larger conference areas, hotels, entertainment uses, and other mixed-use development is planned near airport; Substantial undeveloped land for future expanded station	Right-of-way needs (not city owned property which increases capital costs and local cost share; CRA potential funding source	Continuous platform would require closure of two at-grade crossings; CRA potential funding source for capital improvements and/or operating/maintenance costs

2.3.3.6 Vero Beach

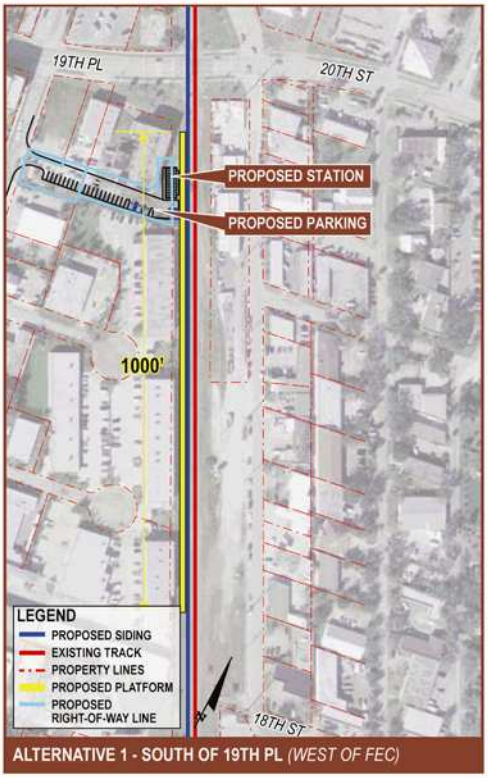
Vero Beach is a historic community on the banks of the Indian River that includes a well-established redeveloped downtown. Three station alternatives (shown on Exhibit 2.36) were evaluated for the proposed station location in Vero Beach. Based on ridership projections estimated by Amtrak, a small station is planned for Vero Beach.

EXHIBIT 2.36
Vero Beach Project Location Map



Alternative 1 (South of 19th Place) is located in downtown Vero Beach west of the FEC Railway, and south of 19th Place (Exhibit 2.37). This site is occupied by a refurbished historical diesel plant building that has been renovated for mixed-use occupancy and situated near industrial land uses.

EXHIBIT 2.37
Vero Beach Concept Alternative 1



Alternative 2 (North of 21st Street) is located in downtown Vero Beach west of the FEC Railway and north of 21st Street (Exhibit 2.38). This site is occupied by the Vero Beach Community Center which provides on-site public recreational facilities. The surrounding land uses are primarily commercial/retail and residential.

Alternative 3 (North of 23rd Street) is located in downtown Vero Beach, west of the FEC Railway and north of 23rd Street approximately 1 block north of Alternative 2 (Exhibit 2.39). This site is occupied by the Indian River County Historical Society Museum. The historic Vero Beach Railroad Station building is NRHP-listed and was relocated onsite for use as the Historical Society museum/office. Alternative 3 would involve a proposed ancillary structure to accommodate station facilities and operations adjacent to the historic passenger station. The museum is anticipated to be maintained in the historic station building. The project would not involve use of the museum for Amtrak operations. The surrounding land uses are primarily commercial/retail and residential.

Exhibit 2.40 summarizes the results of this analysis of potential environmental effects. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.41) provides a comparison of the site characteristics for each of the station alternatives. Based on these analyses, Alternative 3 (North of 23rd Street) was selected as the Preferred Alternative because of the proximity to the downtown area, historical connectivity of the proposed passenger rail station with the historic museum and building, fewer parcel impacts, and the anticipated lower capital costs with the use of the city-owned property.

EXHIBIT 2.38
Vero Beach Concept Alternative 2

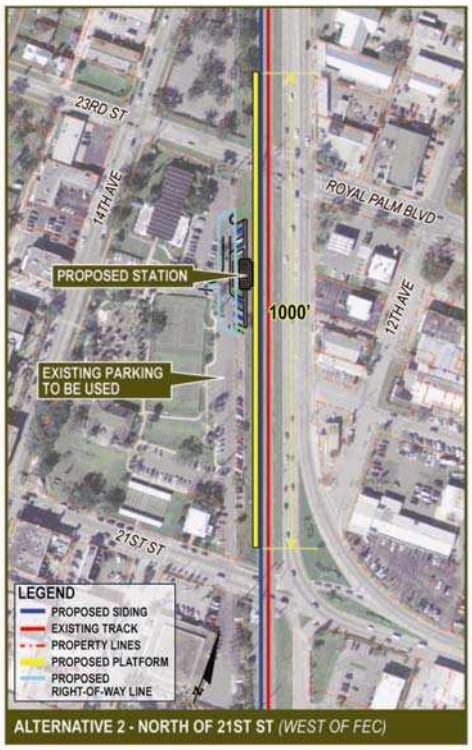


EXHIBIT 2.39
Vero Beach Concept Alternative 3

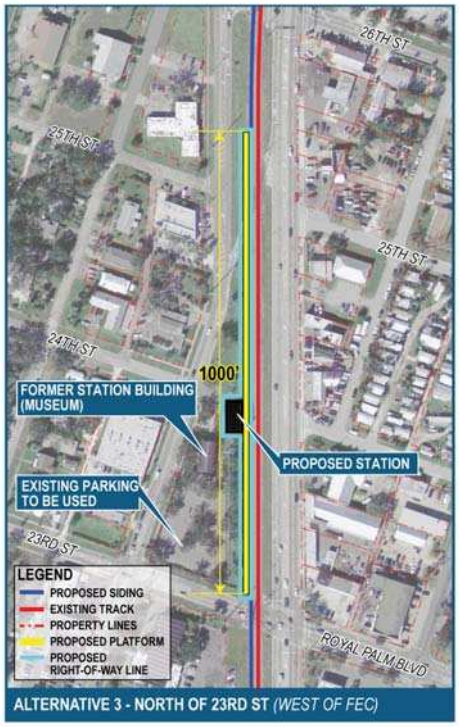


EXHIBIT 2.40
Preliminary Evaluation Matrix - Station Alternatives (Vero Beach)

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3
	South of 19th Place	North of 21st Street	North of 23rd Street
Sociocultural Environment			
Right-of-Way Impacts (acres)	.55	.21	.69
Number of Parcels Impacted	3	1	1
Potential Relocations			
Residential	0	0	0
Non-Residential	1	0	0
Community Facilities (Number Potentially Affected)[1]	6	9	12
Recreation Areas Involvement[1]	Minimal	Moderate	Minimal
Potential Scenic Highway Involvement[1] (Yes/No)	No	No	No
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	No	No	No
Natural Environment			
Wetlands (acres)	0	0	0
100-year Floodplain Impacts (acres)	0	0	0
Waterway Bridges Involved (number)	0	0	0
Prime and Unique Farmlands (acres)	0	0	0
Threatened and Endangered Species Involvement	Minimal	Minimal	Minimal
Critical Wildlife Habitat Identified (Yes/No)	No	No	No
Physical Environment			
Potential Contamination Sites[2] (Yes/No)	Yes (Moderate)	Yes (Minimal)	Yes (Minimal)

Notes: [1] Within 1000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

EXHIBIT 2.41
Vero Beach Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1 South of 19th Place	Station Alternative 2 North of 21st Street	Station Alternative 3 North of 23rd Street
Transportation Connectivity	Regional GoLine bus service and Indian River County Transit	Regional GoLine bus service and Indian River County Transit	Regional GoLine bus service and Indian River County Transit
Mobility	Within downtown	Within downtown	Within downtown
Economic Development/ Ridership Potential	Site is within boundaries of Vero Beach Main Street, the city's focal redevelopment entity	Site is within boundaries of Vero Beach Main Street, the city's focal redevelopment entity	Site is within boundaries of Vero Beach Main Street, the city's focal redevelopment entity
Other Considerations			

2.3.3.7 Fort Pierce

The City of Fort Pierce is a historic community on the banks of the Indian River, with a successful redevelopment program underway that celebrates the city's inventory of historic structures. Downtown redevelopment is supported by the city's community redevelopment agency and the Fort Pierce Main Street organization. Two station alternatives (shown on Exhibit 2.42) were evaluated for the proposed station location in Fort Pierce. Based on ridership projections estimated by Amtrak, a small station is planned for Fort Pierce.

EXHIBIT 2.42
Fort Pierce Project Location Map

Alternative 1 (Orange Avenue – East of FEC) is located in downtown Fort Pierce south of Orange Avenue, north of Citrus Avenue, and east of both U.S. 1 and the FEC Railway (Exhibit 2.43). The proposed station site is located within a parking area of a retail strip mall. The surrounding land uses are primarily commercial/retail. Proposed parking areas would not be provided for this alternative because a new municipal parking garage is located on the northwest corner of the adjacent intersection of Orange Avenue/FEC Railway.

Alternative 2 (Orange Avenue – West of FEC) is located in downtown Fort Pierce south of Orange Avenue, north of Citrus Avenue, east of U.S. 1, and west of the FEC Railway (Exhibit 2.44). The proposed station site is located on an industrial property. This industrial site is the location of Rinker Industries which is serviced by FEC Railway via an onsite railroad spur to accommodate existing freight operations. The surrounding land uses are primarily commercial/retail and industrial.

Exhibit 2.45 summarizes the results of this analysis of potential environmental effects. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.46) provides a comparison of the site characteristics for each of the station alternatives. Based on these analyses, Alternative 1 (Orange Avenue – East of FEC) was selected as the Preferred Alternative because of the proximity to the downtown area, availability of nearby existing parking, and proximity to existing developments.

EXHIBIT 2.43
Fort Pierce Concept Alternative 1

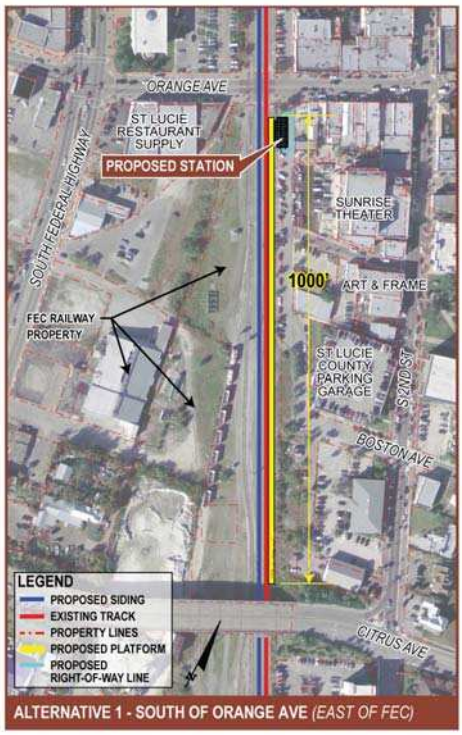


EXHIBIT 2.44
Fort Pierce Concept Alternative 2

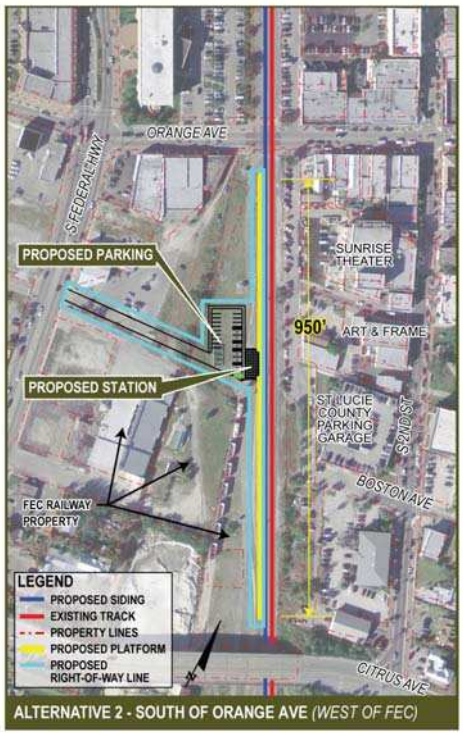


EXHIBIT 2.45
Preliminary Evaluation Matrix - Station Alternatives (Fort Pierce)

Evaluation Criteria	Station Alternative 1 (South of Orange Avenue East of FEC)	Station Alternative 2 (South of Orange Avenue West of FEC)
Sociocultural Environment		
Right-of-Way Impacts (acres)	.036	.64
Number of Parcels Impacted	1	3 (1 FEC)
Potential Relocations		
Residential	0	0
Non-Residential	0	0
Community Facilities (Number Potentially Affected)[1]	3	3
Recreation Areas Involvement[1]	Minimal	Minimal
Potential Scenic Highway Involvement[1] (Yes/No)	Minimal	No
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	No	No
Natural Environment		
Wetlands (acres)	0	0
100-year Floodplain Impacts (acres)	0	0
Waterway Bridges Involved (number)	0	0
Prime and Unique Farmlands (acres)	0	0
Threatened and Endangered Species Involvement	Minimal	Minimal
Critical Wildlife Habitat Identified (Yes/No)	No	No
Physical Environment		
Potential Contamination Sites[2] (Yes/No)	Yes (Minimal)	Yes (Moderate)

Notes: [1] Within 1000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

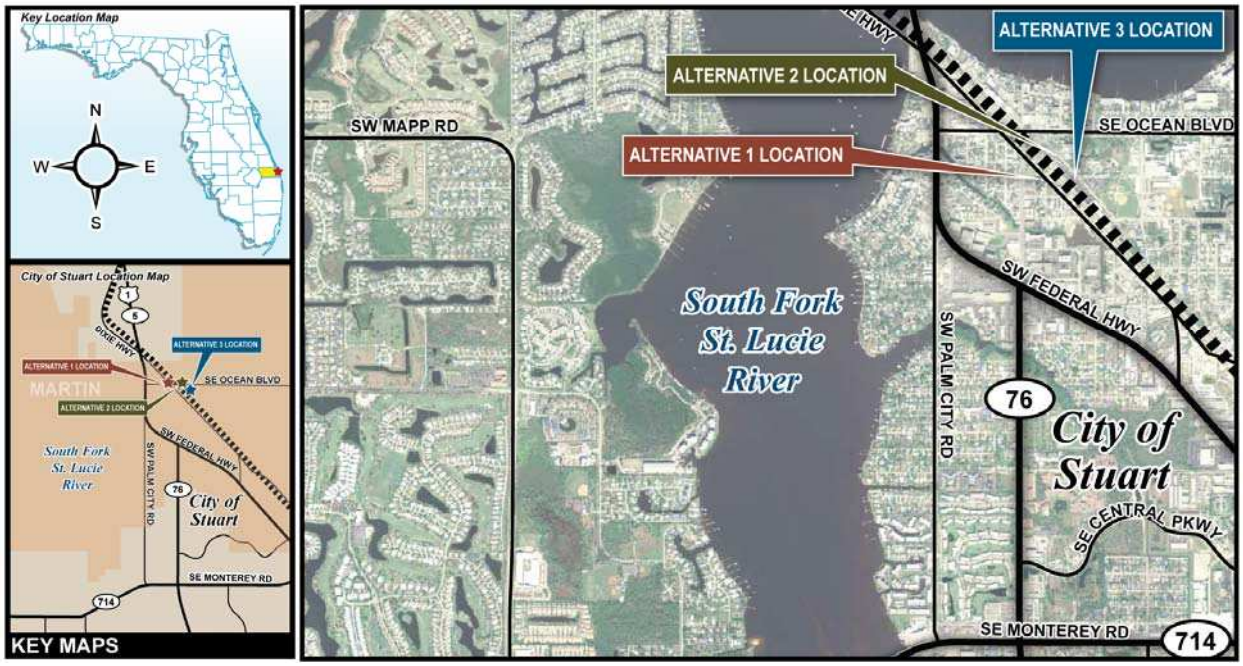
EXHIBIT 2.46
Fort Pierce Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1 (South of Orange Avenue East of FEC)	Station Alternative 2 (South of Orange Avenue West of FEC)
Transportation Connectivity	Regional Treasure Coast Connector bus service; local Community Coach bus service; seasonal downtown trolley service	Regional Treasure Coast Connector bus service; local Community Coach bus service; seasonal downtown trolley service
Mobility	Within downtown	Within downtown
Economic Development/ Ridership Potential	Within Fort Pierce CRA	Within Fort Pierce CRA; greater potential for economic redevelopment on portions of undeveloped property
Other Considerations	New Federal Courthouse adjacent to site; across street from new municipal parking structure adjacent to City Hall and new municipal parking structure	FEC owned property; on-property railroad spurs serve industrial freight operations serviced by FEC;

2.3.3.8 Stuart

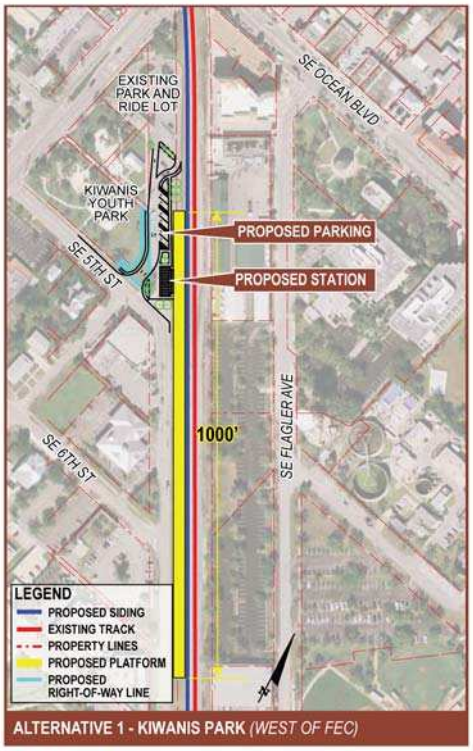
The City of Stuart is a historic community on the banks of the St. Lucie River at its crossroads with the Okeechobee canal system. Stuart's successfully redeveloped historic downtown is augmented by the City's community redevelopment agency and the Stuart Main Street program. Three station alternatives (shown on Exhibit 2-47) were evaluated for the proposed station location in Stuart. Based on ridership projections estimated by Amtrak, a small station is planned for Stuart.

EXHIBIT 2.47
Stuart Project Location Map



Alternative 1 (Kiwanis Park) is located in downtown Stuart adjacent and west of the FEC Railway just north of the intersection of SE Dixie Highway and SE 5th Street (Exhibit 2.48) within the city's CRA. The Kiwanis Park (a public playground/recreational facility) is located just west of this potential station location. Proposed parking areas would not be provided for this alternative because an adjacent park-and-ride lot is located north of SE 5th Street.

EXHIBIT 2.48
Stuart Concept Alternative 1



Alternative 2 (East Coast Lumber) is located in downtown Stuart east of the FEC Railway, south of Ocean Boulevard, and west of SE Flagler Avenue (Exhibit 2.49), within the city's CRA. The existing land use is commercial/industrial and the site is occupied by East Coast Lumber. Proposed parking areas would not be provided for this alternative because a park-and-ride lot is located to the south, adjacent to the FEC Railway.

Alternative 3 (Stypmann Boulevard) is located in downtown Stuart east of the FEC Railway, south of Ocean Boulevard, and just south of the intersection of Stypmann Boulevard/SE Flagler Avenue (Exhibit 2.50), within the boundaries of the city's CRA. The proposed station operations would be located within a portion of the proposed Martin County Transit Depot. The transit hub is a 4000 sq. ft. building proposed to accommodate office spaces, existing bus transit, a planned Greyhound bus route, and the proposed Amtrak passenger service. The city was awarded funding for the transit center through ARRA, and the project is under design with anticipated construction by 2011. Alternative 3 would involve the proposed siding, platform, and any modifications to the future transit center necessary to accommodate proposed passenger service at the future Martin County Transit Depot. As the transit center received NEPA approval for a bus transit site only, a small station footprint is included as part of the proposed action to obtain environmental clearance for any potential federal funds. The site is occupied by a park and ride lot adjacent to the FEC Railway that is owned by Martin County. Therefore, additional parking areas would not be provided for this alternative.

EXHIBIT 2.49
Stuart Concept Alternative 2

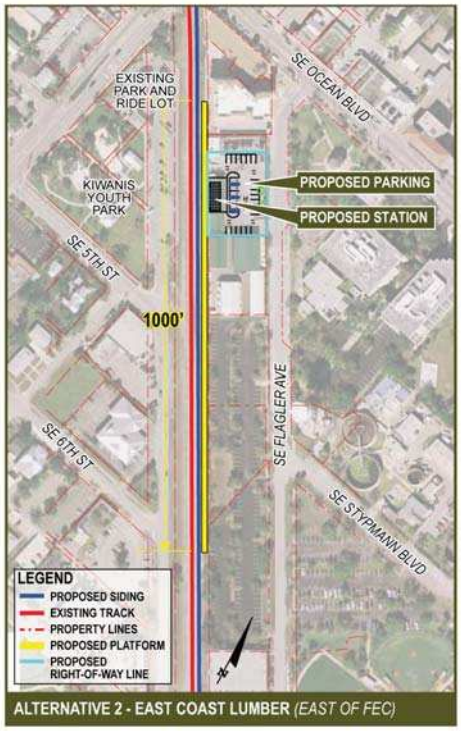


EXHIBIT 2.50
Stuart Concept Alternative 3

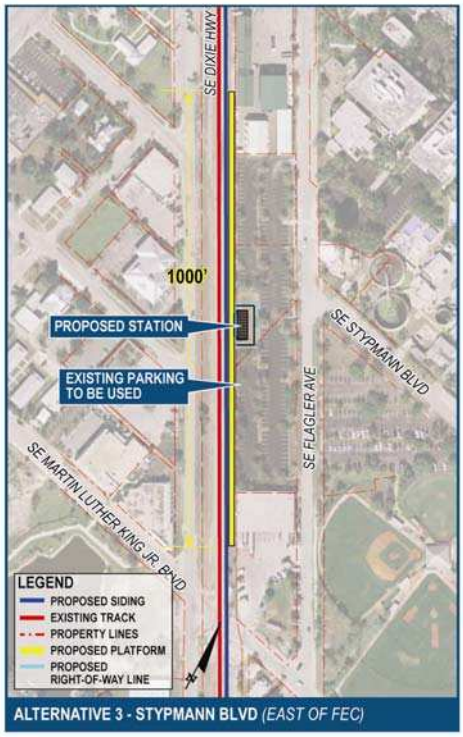


Exhibit 2.51 summarizes the results of this analysis of potential environmental effects. As a result of the agency and public input and the alternatives analysis, the following summary (Exhibit 2.52) provides a comparison of the site characteristics for each of the station alternatives. Based on these analyses, Alternative 3 (Stypmann Blvd.) was selected as the Preferred Alternative because of the lower capital costs and property impacts with the proposed transit center.

EXHIBIT 2.51
Preliminary Evaluation Matrix - Station Alternatives (Stuart)

Evaluation Criteria	Station Alternative 1	Station Alternative 2	Station Alternative 3
	Kiwanis Park	East Coast Lumber	Stypmann Blvd
Sociocultural Environment			
Right-of-Way Impacts (acres)	0.06	.53	.09
Number of Parcels Impacted	1	1	1
Potential Relocations			
Residential	0	0	0
Non-Residential	0	1	0
Community Facilities (Number Potentially Affected)[1]	4	4	4
Recreation Areas Involvement[1]	Moderate	No	No
Potential Scenic Highway Involvement[1] (Yes/No)	No	No	No
Potential Historical Resources Involvement[1] (Yes/No)	Yes	Yes	Yes
Potential Archaeological Resources Involvement (Yes/No)	No	No	No
Natural Environment			
Wetlands (acres)	0	0	0
100-year Floodplain Impacts (acres)	0	0	0
Waterway Bridges Involved (number)	0	0	0
Prime and Unique Farmlands (acres)	0	0	0
Threatened and Endangered Species Involvement	Minimal	Minimal	Minimal
Critical Wildlife Habitat Identified (Yes/No)	No	No	No
Physical Environment			
Potential Contamination Sites[2] (Yes/No)	Yes (Minimal)	Yes (Minimal)	Yes (Minimal)

Notes: [1] Within 1000 ft. buffer. [2] Within 500 ft. buffer. This evaluation matrix represents potential impacts for each station alternative based on ETDM reviews and project evaluations. More detailed information on the identification of environmental resources and the potential impacts associated with the Preferred Alternative is documented in Chapter 3 of this report.

EXHIBIT 2.52
Stuart Station Alternatives Comparison – Site Characteristics

Evaluation Criteria	Station Alternative 1 Kiwanis Park	Station Alternative 2 East Coast Lumber	Station Alternative 3 Stypmann Blvd
Transportation Connectivity	Stuart Shuttle (Community Coach), regional Treasure Coast Connector bus service, downtown trolley, and a park-and-ride lot	Stuart Shuttle (Community Coach), regional Treasure Coast Connector bus service, downtown trolley, and a park-and-ride lot	Stuart Shuttle (Community Coach), regional Treasure Coast Connector bus service, downtown trolley, and a park-and-ride lot
Mobility	Within downtown	Within downtown	Within downtown
Economic Development/ Ridership Potential	Within downtown CRA	Within downtown CRA	Within downtown CRA
Other Considerations	Property owned by City of Stuart with existing parking available for station use; sufficient space to accommodate multi-modal circulation; presence of significant underground utilities at the northeastern corner of the site; potential Section 4(f) impacts to park	Spur east of FEC on-property may be impacted	Planned transit center at location would accommodate station design and increase multi-modal opportunities

2.3.3.9 Summary of Station Alternatives

As a result of the alternatives analysis for the stations presented in Section 2.3.3 and the agency/public input, Exhibit 2.53 presents a summary of the station alternatives and the eight passenger station locations that were selected as the Preferred Alternative.

EXHIBIT 2.53
Summary of Station Alternatives and Recommendations

Station Location		ETDM Alternatives	East or west of FEC	Potential Historic Station Location (Yes/No)	Locally Recommended Alternative	Benefits	Limitations
St. Augustine (Medium Station)	1	**U.S. 1 at San Marco Avenue**	East	YES	#1	Proximity to downtown	
	2	U.S. 1 at Carrera Street	East	NO			Potential New Bridge over River
	3	St. Augustine/St. Johns County Airport	East	NO			Not proximate to downtown
Daytona Beach (Peak Events May Warrant Seasonally Staffed Medium Station)	1	**South of International Speedway Blvd (Magnolia Avenue)**	East	NO	#1	Easier to access and develop, adjacent parking	
	2	South of Orange Avenue	East	NO		Proximity to downtown	Increased parcel impacts
	3	North of Orange Avenue	East	NO		Proximity to downtown	Increased parcel impacts
	4	South of Live Oak Avenue	West	NO		Proximity to downtown	Potential impacts to public park
	5	North of International Speedway Blvd	East	NO			Constrained access
Titusville (Small Station)	1	South of Julia Street	East	NO		Proximity to downtown	Site is privately owned
	2	**North of Pine Street**	East	YES	#1	Proximity to downtown; site owned by FEC; historic station	
	3	Space Coast Regional Airport	West	NO			Not proximate to downtown
	4	South of S.R. 50 (N. of NASA Cswy)	East	NO			Not proximate to downtown
Cocoa (Medium Station)	1	South of Stone Street	East	NO		Supported by local residents	Increased capital costs and right-of-way acquisition
	2	**South of Rosa L. Jones Boulevard**	East	YES	#1	Existing station building; potential partnership with City of Rockledge	

EXHIBIT 2.53
Summary of Station Alternatives and Recommendations

Station Location	ETDM Alternatives		East or west of FEC	Potential Historic Station Location (Yes/No)	Locally Recommended Alternative	Benefits	Limitations
Melbourne (Small Station)	1	Melbourne International Airport	West	NO			Within airport flight zones
	2	S. of U.S.192 (Jernigan Ave)	East	NO		Within CRA	Involves street closures
	3	**North of U.S. 192**	East	NO	#1	Site owned by FEC	Involves street closures
Vero Beach (Small Station)	1	South of 19th Place	West	NO		Old Diesel Plant site	Increased right-of-way costs/business damages
	2	North of 21st Street	West	NO			Will not accommodate platform length
	3	**North of 23rd Street**	West	YES	#1	Historic location; location of historic station building; existing parking	
Fort Pierce (Small Station)	1	**Orange Avenue/East of FEC**	East	NO	#1	Proximity to existing development and parking garage	
	2	Orange Avenue/West of FEC	West	NO			Existing property uses and rail spurs west of FEC limit engineering feasibility
Stuart (Small Station)	1	Kiwanis Park	West	NO			May involve Section 4(f) impacts to Kiwanis Park
	2	East Coast Lumber	East	NO		East Coast Lumber site has existing sidings	Potential Section 106 resource
	3	**Stypmann Boulevard**	East	NO	#1	At proposed transit center	

2.4 Preferred Alternative

The Preferred Alternative consists of restoring passenger service on the existing FEC Railway from Jacksonville to West Palm Beach, with service continuing south to Miami on the existing SFRC via the proposed Northwood Crossover. The following infrastructure improvements are included in the Preferred Alternative to provide intercity passenger rail service, accommodate the passenger trains at speeds up to 90 mph and continue FEC Railway's freight service.

2.4.1 Proposed Stations

As indicated in Exhibit 2.53, the following stations are identified as the Preferred Alternative:

- St. Augustine - Alternative 1: U.S. 1 at San Marco Avenue
- Daytona Beach - Alternative 1: South of International Speedway Boulevard **(Magnolia Avenue)**
- Titusville - Alternative 2: North of Pine Street
- Cocoa - Alternative 2: South of Rosa L. Jones Boulevard
- Melbourne - Alternative 3: North of U.S. 192
- Vero Beach - Alternative 3: North of 23rd Street
- Fort Pierce - Alternative 1: Orange Avenue – East of FEC Railway)
- Stuart - Alternative 3: Stypmann Boulevard

Three of these locations (Daytona Beach, Melbourne, and Ft. Pierce) will consist of new station buildings. The approximate building size for the small and medium stations is 1,000 square feet and 2,500 square feet, respectively. Typical station layouts are provided in Appendix B. The Preferred Alternative for Stuart would utilize a portion of the proposed Martin County transit center. The remaining four locations are anticipated to involve the renovation of existing buildings (three former historic train stations in St. Augustine, Titusville, and Cocoa) and the addition of an ancillary structure for Amtrak operations adjacent to the historic railroad station building in Vero Beach.

The small stations would be unstaffed and consist of a platform, canopy, signage, lighting, and a semi-enclosed shelter. The medium stations would include a building to support ticket operations and provide restroom facilities. These medium stations would be accessible to the public during necessary operating times based on the Amtrak route schedules. The proposed stations and parking areas would comply with the Americans With Disabilities Act (ADA). Any medium station involving Amtrak staffing is subject to a signed agreement. Conceptual renderings of the Preferred Alternative stations are provided in Appendix B.

2.4.2 Proposed Platforms

The Preferred Alternative consists of new platforms at each of the proposed stations. The platforms are approximately 1,000 feet long and located adjacent to the proposed stations. In Melbourne, the platform length was reduced to 890 feet because of site constraints and geometric criteria. The typical platform width is 12 feet. The proposed platforms are generally

located within the existing FEC Railway right-of-way as shown on the concept plans provided in Appendix B.

2.4.3 Proposed Sidings

As part of the Preferred Alternative, new rail sidings (that is, passing tracks) are required at the proposed stations to move the Amtrak trains off the mainline railway to service the loading/unloading of passengers. The rail sidings consist of a single track (approximately 2,500 feet in length) parallel and connected to the mainline track. The sidings are generally located within the existing FEC Railway right-of-way as shown on the concept plans in Appendix B.

2.4.4 Surface Replacement Track

The Preferred Alternative includes approximately 29 miles of surface replacement track work on the existing FEC rail line (from Jacksonville to West Palm Beach) within existing horizontal curves. These curve improvement locations are shown on the track charts provided in Appendix B. This will involve adding 6 inches of grade to the rail bed to accommodate the increased speeds up to 90 mph. The upgraded curves may involve minor spiral transitions upstream and downstream of the curves to accommodate the changes in superelevation. At these curve locations, this may involve the replacement of the existing track to accommodate the curve radius modifications and the lengthened spiral transitions. Generally, any surface replacement track within the existing horizontal curves will be replaced in the same location. Minor alignment shifts within the right-of-way may be needed to accommodate curve transitions. During the subsequent design phase for this project, the limits of the surface replacement track within existing curves and any alignment shifts within the right-of-way will be defined. Exhibit 2.54 lists the approximate locations of the proposed curve improvements.

2.4.5 Track Signal Control

The Preferred Alternative involves upgrades at existing highway and pedestrian crossings on the FEC Railway corridor to enhance safety.

2.4.6 Grade Crossings

The Preferred Alternative will not result in any new railroad grade crossing locations at intersecting roadways along the FEC Railway mainline. Seven new grade crossings are proposed at the realigned Northwood Crossover including: 25th Street (two crossings), 25th Court, Windsor Avenue, Division Avenue, and Rosemary Avenue (two crossings). Also, two existing grade crossings (Windsor Avenue and E. Tamarind Avenue) are proposed to be relocated to accommodate the realigned Northwood Crossover. The Windsor Avenue crossing will move approximately 200 feet south of its current location and the E. Tamarind Avenue crossing will relocate two blocks south from 27th Street to 25th Street. Fifteen of the existing FEC mainline grade crossings will be modified to include a second rail track for the siding at the proposed stations.

EXHIBIT 2.54
Proposed Curve Improvements

County	Location	Description
St. Johns	Site 1	St. Augustine near S.R. 16
	Site 2	St. Augustine near Old Moultrie Junction
	Site 3	St. Augustine near S.R. 214
Flagler	Site 4	Dorena near S.R. 100
	Site 5	Bunnell near S.R. 11
	Site 6	Dupont near CR 304
	Sites 7, 8, and 9	Between Dupont and Korona between CR 304 and Cemetary Road
Volusia	Site 10	Turnbull near Turnbull Bay Road
	Site 11	Turnbull near Whispering Pine Drive
	Site 12	New Smyrna Beach near Eleanor Avenue
	Site 13	Fullerton near Turnbull Creek
Brevard	Site 14	Titusville near U.S. 1 and S.R. 406
	Site 15	Roseland near S.R. 514
St. Lucie	Site 16	Fort Pierce near Ave D
St. Lucie / Martin	Site 17	Jensen Beach near Skyline Drive
Martin	Site 18	Jensen Beach near Palmetto Avenue
	Site 19	Stuart near Alice Street
	Site 20	Stuart over St. Lucie River
	Site 21	Salerno near Cove Road
	Site 22	Salerno near S.R. A1A
	Site 23	Hobe Sound near U.S. 1
	Site 24	Hobe Sound within Jonathon Dickinson State Park near Park Road
Palm Beach	Sites 25 and 26	Jupiter between Tequesta Drive and Center Street
	Site 27	Earman River near Richard Road

The Preferred Alternative will result in the closure of three existing grade crossings to accommodate proposed platforms. These grade crossing closures include Lincoln Avenue and Palmetto Avenue in Melbourne and 14th Avenue in Vero Beach. The local access streets in Melbourne provide east-west access to surrounding land uses. The closure of these two grade crossings is not anticipated to adversely impact local circulation as alternate routes are located approximately 150 feet north (Fee Avenue) and 300 feet south (U.S. 192). In Vero Beach, access to 14th Avenue would be accommodated 400 ft. to the north at the St. Lucie Avenue/26th Street

intersection. In the existing condition, St. Lucie Avenue transitions to 14th Avenue. The availability of alternative routes in close proximity to the proposed grade crossing closures will result in minimal changes to the existing traffic patterns. Access to existing properties will not be affected by the proposed closure of these grade crossings. The existing grade crossings, proposed grade crossings for sidings, and the proposed grade crossing closures are identified on the concept plans provided in Appendix B.

2.4.7 Northwood Crossover

As previously discussed in Section 2.3.2, the Preferred Alternative includes the realignment of the Northwood Crossover (Exhibit 2.2) just south of the existing alignment and generally parallel to (and north of) 25th Street. The concept plans are provided in Appendix B.

Chapter 3

Affected Environment and
Environmental Consequences

3.1 Introduction

This section identifies the existing resources within the affected environment and potential environmental impacts associated with the construction and operation of the proposed action. Potential impacts – both beneficial and adverse – were identified and, where possible, quantified through studies of the natural, social, physical and economic environments. Potential impacts consist of the direct impacts, secondary or indirect impacts, and cumulative impacts of the No-build Alternative and the Preferred Alternative retained for detailed study.

As part of FDOT's ETDM process, the project was screened in the programming phase, which provides federal and state agencies and other interested parties the opportunity to comment on the project purpose and need, proposed improvements and alternatives (Section 1.3.3).

Chapter 3 is an inventory of the affected environment and a discussion of consequences and potential mitigation measures. It succinctly describes the natural, social, physical and economic environments of the area that may be affected by the proposed action. It describes the impacts of the preferred alternative; the adverse effects that cannot be avoided if implemented; the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity; and any irreversible or irretrievable commitments of resources that would result if the proposed action is implemented (40 CFR part 1502.16)

For purposes of the analysis, the study area encompasses a 400-foot-wide corridor centered on the existing FEC Railway from the Jacksonville Amtrak Station to the Northwood Crossover near West Palm Beach, and on the SFRC from the FEC Railway/SFRC Northwood Crossover to the MIC. A 1,000-foot-wide corridor was designated as the study area along the FEC Railway/SFRC Northwood Crossover. At the proposed station locations, the study area encompasses a 500-foot radius surrounding each location alternative (outside the proposed construction limits). Because the existing Amtrak passenger service is provided on the SFRC between West Palm Beach and the existing Miami Amtrak Station, no infrastructure improvements are required on the SFRC south of the Northwood Crossover to accommodate the proposed action. Impacts to the environment were evaluated for the 100-foot-wide FEC Railway right-of-way from the existing Jacksonville Amtrak Station to the Northwood Crossover in West Palm Beach (Section 1.4.1). The Area of Potential Effect for cultural resources is defined in more detail in Section 3.6.

This EA focuses on those resources that have a reasonable likelihood to be affected by, or to affect, the proposed action. Generally, no significant impacts are anticipated to the environment as a result of the proposed action and the majority of the impacts, particularly to the social environment, would be positive. The majority of the stations were planned and proposed as "infill" development adjacent to the existing FEC Railway on previously disturbed areas. At some stations, only a small amount of property would be acquired for use as part of the stations. The cities where stations are proposed view the stations as community assets and would continue to promote transit-oriented development in the adjoining areas.

Direct impacts – The immediate effects on the social, natural, physical and economic environment caused by the construction and operation of transportation improvements. These impacts are usually experienced within the right-of-way or the in the immediate vicinity of the highway or another element of the proposed action.

Indirect (or secondary) impacts – The impacts that are caused by the project and are later or farther removed in distance but are still reasonably foreseeable. Secondary impacts may include induced changes to land use patterns, population density or growth rate, and related effects on natural systems, including ecosystems.

Cumulative impacts – The impacts on the environment that result from the incremental impact of a project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

3.2 Natural Environment

3.2.1 Water Bodies and Waterways

From north to south through the study area, the FEC Railway crosses 31 waterways, 28 of which support navigation. A total of 11 of the 31 waterways have special designations, as summarized in Exhibit 3.1. The No-build Alternative would not impact water bodies and waterways. The Preferred Alternative includes potential mainline curve improvements only throughout the existing FEC Railway. No modifications to FEC Railway bridges over water bodies and waterways are proposed. Potential impacts to water bodies and waterways as a result of the Preferred Alternative are not significant and are discussed in the following subsections.

The Environmental Resource Permit (ERP) process includes environmental, runoff water quality and quantity, and floodplain requirements for projects in Florida. The ERP provides water quality certification for Federal Section 404 permitting with the U.S. Army Corps of Engineers (USACE). The ERP requirements address any changes to impervious areas and resulting runoff quality and quantity as well as maintaining discharge locations. In addition, erosion and sediment control best management practices during construction are part of the ERP as well as the National Pollutant Discharge Elimination System (NPDES) Generic Permit for Construction Activities, which applies to construction greater than 1 acre, to avoid degradation of water quality.

3.2.1.1 Navigation

The Rivers and Harbors Act of 1899 (33 USC 401) provides authority to the U.S. Coast Guard (USCG) with respect to navigation requirements for waters of the United States. The FEC Railway corridor traverses 28 waterways that are considered navigable waters and fall under the jurisdiction of the USCG as identified in Exhibit 3.1.

No changes to the bridges are proposed for the mainline improvements and station locations. Any mainline modifications to accommodate the increase in train speeds will occur on the existing bridge structures; therefore, no changes to the navigation clearances are proposed. The U.S. Coast Guard (USCG) reviewed the project alternatives during the ETDM screening. Based on the ETDM coordination, no involvement with USCG is anticipated with the proposed project as no bridge modifications or replacements are proposed.

EXHIBIT 3.1
Surface Water Designations

County	FEC Bridge Crossings of Water Body / Waterway	Special Designation	Navigable	Effect
Duval	St. Johns River	Class I OFW	Y	None
	Pottsburg Creek		N	None
	Julington Creek		Y	None
	Sweetwater Creek		Y	None
	Big Davis Creek		Y	None
St. Johns	Durbin Creek		N	None
	San Sebastian River		Y	None [1]
	Moultrie Creek		Y	None
	Moses Creek		Y	None
	Cracker Branch		Y	None
	Pellicer Creek (Pellicer Creek Aquatic Preserve and Guana Tolomato Matanzas National Estuarine Research Reserve)	Class II OFW Aquatic Preserve National Estuarine Research Reserve	Y	None
Flagler	Black Branch		N	None
Volusia	Tomoka River (Tomoka Marsh Aquatic Preserve East of US 1 & FEC)	OFW	Y	None
	Rose Bay	OFW	Y	None
	Spruce Creek	OFW	Y	None
	Turnbull Bay	OFW	Y	None
	Turnbull Creek	OFW	Y	None [1]
Brevard	Horse Creek		Y	None
	Eau Gallie		Y	None
	Crane Creek (Melbourne Harbor)		Y	None
	Turkey Creek	Class II OFW	Y	None
	Goat Creek	Class II OFW	Y	None
Indian River	Sebastian River (Indian River – Malabar to Vero Beach Aquatic Preserve)	Class II OFW	Y	None
	North Canal		Y	None
	Main Canal		Y	None
St. Lucie	Taylor Creek (Ft. Pierce Harbor)		Y	None
	Moores Creek		Y	None
Martin	St. Lucie River		Y	None [1]
	Manatee Creek		Y	None
Palm Beach	Jupiter River (Loxahatchee River - Lake Worth Aquatic Preserve)	Class II OFW Aquatic Preserve	Y	None [1]
	Earman River		Y	None

1. Proposed action includes potential mainline curve improvements only; no modifications to railway bridges are proposed.
2. Additional named and unnamed tributaries of the listed waterways occur along the corridor, which may have pipe crossings.

3.2.1.2 Special Designations

FDEP classifies existing surface waters according to a targeted designated use and then defines impaired water bodies based on observed water quality conditions. Chapter 62-302, F.A.C., defines Class I waters, Class II waters, and Outstanding Florida Waters (OFW). OFWs may include aquatic preserves, state reserves/preserves, and National Wild and Scenic River Systems, among other general categories. Exhibit 3.1 shows the special water classifications for the FEC mainline. The remaining surface water bodies are Class III.

Chapter 62-302 F.A.C. defines Class I and Class II waters, with any remaining waters not listed designated as Class III. The surface water use classifications are as follows:

- Class I waters are specifically designated potable water supplies.
- Class II waters are suitable for shellfish propagation or harvesting.
- Class III waters are surface waters that are primarily used for recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife.
- Outstanding Florida Waters, which generally include the following surface waters within areas acquired through donation, trade, or purchased under the Environmentally Endangered Lands Bond Program, Conservation and Recreation Lands Program, Land Acquisition Trust Fund Program, and Save Our Coast Program".

In the vicinity of two of the existing FEC Railway bridges over waters with special designations, mainline modifications may be required to accommodate the increase in train speeds; these locations are Turnbull Creek in Volusia County (OFW) and Jupiter River in Palm Beach County (Class II, OFW, and within an Aquatic Preserve). The project will not have an impact on the OFW or aquatic preserve for two reasons. First, no bridge-related work or construction is proposed directly in the waters with special designations. Second, the special designation will require increased attention for the ERP required for construction related to water quality and quantity; therefore, the Preferred Alternative will result in no effect to the involved waterways as a result of temporary construction activities. The preferred station locations and the adjoining areas do not include waters with special designations.

This project traverses the Pellicer Creek Aquatic Preserve, Indian River – Malabar to Vero Beach Aquatic Preserve, and the Loxahatchee River - Lake Worth Aquatic Preserve. No improvements are proposed in the vicinity of these aquatic preserves; therefore, it has been determined that the project will have no impact to water bodies with special designations. During the design phase of the project, further coordination with FDEP will occur to ensure the ERP requirements include best management practices during construction to preserve (or enhance) the water quality within these surface waters.

3.2.2 Water Quality

Water quality relates to both surface waters and sole source aquifers. A Water Quality Impact Evaluation (WQIE) was conducted for the proposed project and is provided in Appendix A. Based on this evaluation, the proposed mainline improvements will not increase the existing impervious surface area or alter the existing drainage system. The proposed station improvements will involve minor changes to impervious surface areas for proposed parking facilities and

The project corridor is regulated by St. Johns Water Management District (SJRWMD) from Duval to Indian River County (Chapters 40C-4, 40C-40, 40C-41, and 40C-42, F.A.C.) and South Florida Water Management District (SFWMD) from St. Lucie to Palm Beach County (40E-4 and 40E-40, F.A.C.).

platforms. Most of the proposed stations and parking facilities are located on developed parcels. Minimal upgrades to the existing drainage system (conveyance structures) are anticipated as a result of the proposed stations and facilities. The existing drainage systems in the vicinity of the proposed stations are located in urban areas. The proposed stormwater facility design will include, at a minimum, the water quantity requirements for water quality impacts as required by the SJRWMD and SFWMD. No significant impacts are anticipated to water quality as a result of project activities. Impacts to water quality would be avoided and minimized through the use of best management practices and permitting requirements.

3.2.2.1 Surface Water Quality

Chapter 62-303, F.A.C., defines the verified impaired water bodies within Florida. Five surface water bodies in the study area are impaired: portions of the St. Johns River, the Tomoka River, Spruce Creek, the St. Lucie River, and portions of the Loxahatchee River. In addition, the proposed station sites at Daytona, Titusville, Cocoa, and Melbourne are within designated impaired basins for nutrients or dissolved oxygen.

The proposed improvements associated with the Preferred Alternative would not impact surface water quality. The nutrient impairment for the identified impaired water bodies and basins will require increased attention for the ERP required for construction; therefore, the Preferred Alternative will result in no impact to water quality as a result of temporary construction activities.

3.2.2.2 Sole Source Aquifers

The Safe Drinking Water Act (Public Law 93-523, as amended) requires protection of sole-source aquifers. The existing FEC Railway and proposed Daytona Beach Station site are within the Volusia-Floridan Sole Source Aquifer. Portions of the existing FEC Railway and all of the proposed Northwood Crossover are within the Biscayne Aquifer and Recharge Area. The remainder of the FEC Railway mainline in Palm Beach County is within the Biscayne Aquifer Streamflow Source Zone.

Sole Source Aquifers in Florida.
The EPA published the notice of determination that the Volusia-Floridan and Biscayne Aquifers are sole sources in the *Federal Register* on November 18, 1987s and October 11, 1979, respectively.

- The Volusia-Floridan Aquifer and Recharge Area includes all of Volusia County and the southeast portion of Flagler County at Flagler Beach State Park.
- Biscayne Sole Source Aquifer and Recharge Zone includes all of Miami-Dade County and parts of Broward, Monroe and Palm Beach Counties. The Streamflow Source Zone includes the remainder of Palm Beach County as well as all or portions of several other counties west of the existing FEC Railway.

Mainline modifications may be required to accommodate the increase in train speeds for the areas associated with sole source aquifer designations identified above, as well as for the proposed Daytona Beach station and Northwood Crossover. The proposed improvements will not change the existing runoff points of discharge, nor significantly increase the existing amount of impervious area, or the pollutant loading of the runoff. Potential water quality impacts resulting from erosion and sedimentation will be controlled in accordance with best management practices. This proposed project contains no known significant contamination sources. The Preferred Alternative is not anticipated to involve major soil disturbance activities.

ERP requirements protect the discharge water quality, which avoids impact. Therefore, the Preferred Alternative would not impact sole source aquifers. According to EPA comments received through ETDM, the project is anticipated to result in minimal effect to water quality and drinking water. Further consultation with EPA was initiated due to the presence of sole source aquifers in the study area. A copy of the EPA coordination letter is included in Appendix E.

3.2.3 Floodplains

In accordance with Executive Order 11988 "Floodplain Management" as amended by Executive Order 12148, USDOT Order 5650.2, and Title 23, Code of Federal Regulations (23 CFR) Part 635A, the project corridor was evaluated for possible impacts to floodplains.

Executive Order 11988 as amended by Executive Order 12148 requires federal agencies to avoid construction or management practices that would adversely affect floodplains unless:

(1) There is no practical alternative, and

(2) The proposed action has been designed or modified to minimize harm to or within the floodplain.

Compliance with the order is necessary to ensure that work within the 100-year floodplain does not increase downstream flooding.

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), including available updates (FEMA, 2010), portions of the FEC Railway are within mapped 100-year floodplain as shown in Exhibit 3.2. Of the Preferred Alternative stations, only the St. Augustine station improvements are located within the 100-year floodplain. The No-build Alternative would not impact existing floodplain.

The Preferred Alternative will have minimal impact to the floodplain, if any. Any improvements on the mainline would occur within existing FEC Railway right-of-way at existing flood elevations; therefore, although this project could involve work within the horizontal limits of the 100-year floodplain in areas throughout the FEC Railway corridor, no work would be performed below the 100-year flood elevation and, as a result, this project would not encroach upon the base floodplain. Similarly, any modifications to drainage structures included in this project would result in an insignificant change in their capacity to carry floodwater. These changes would cause minimal increases in flood heights and flood limits. These minimal increases would not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. There would not be a significant change in the potential for interruption or termination of emergency service or emergency evacuation routes. Therefore, the potential for floodplain impact is minimal.

EXHIBIT 3.2
Mainline 100-year Floodplains

County	FEMA-mapped 100-year Floodplain (Acres)	
	Total (Acres)	Within 100 ft Right-of-Way (Acres)
Duval	45	16.0
St. Johns	355	7.4
Flagler	375	6.0
Volusia	695	150.2
Brevard	695	183.9
Indian River	20	4.9
St. Lucie	55	11.6
Martin	65	14.5
Palm Beach	80	13.4
Total	2385	407.9

A portion of the preferred station alternative at St. Augustine (U.S. 1 at San Marco Avenue) lies within the 100-year floodplain (10.9 acres); however, improvements will be made within the existing FEC Railway and on property already developed above the 100-year floodplain. Any impacts to flood elevations will be addressed by applying the FDOT's drainage design standards and following the SJRWMD procedures to achieve results that will not increase or significantly change the flood elevations and/or limits. For the remaining preferred station locations (including proposed sidings), there would be no floodplain involvement. No bridge modifications or new bridge structures are proposed; therefore, no regulated floodways are affected by the proposed improvements.

Although this project involves work within the FEMA-mapped floodplain, work is not expected to impact the function of the 100-year floodplain because work is generally expected to be above the 100-year floodplain elevation. If work is found to be necessary below the 100-year elevation, demonstration of no adverse impact will be required as part of the ERP process.

3.2.4 Wetlands

Executive Order 11990, Protection of Wetlands, was signed in 1977 in furtherance of NEPA, as amended, to avoid adverse impacts from destruction or modifications of wetlands and to avoid new construction in wetlands wherever there is a practicable alternative.

Jurisdictional wetlands in the study area were identified using National Wetlands Inventory (NWI) mapping. The NWI is a program administered by the USFWS for mapping and classifying wetlands resources. Based on the NWI mapping, approximately 282 acres of jurisdictional wetlands exist within the FEC Railway's 100-foot right-of-way as shown in Exhibit 3.3. The No-build Alternative would not impact wetlands.Potential wetland impacts are limited to fringe wetlands within the 100-foot FEC Railway right-of-way associated, in most cases, with larger wetland systems. The impact results from potential curve upgrades to compensate for the increased speeds. Twenty-seven (27) curves within the study limits will be upgraded or modified. Eight (8) of these curves have associated wetland involvement. Wetlands were mapped at these 8 curve locations. The potential impact area (direct and indirect impact areas) included the curve length plus 1,000 linear feet of approach on each end of the curve, and the full 100-foot width of the FEC Railway right-of–way. Direct impacts to wetlands based on the engineered designs are anticipated to be much less. As summarized in Exhibit 3.4, the potential direct impacts total 14.4 acres of wetland impacts.

EXHIBIT 3.3
Mainline NWI Wetlands within 100-ft Right-of-Way

County	Palustrine (Acres)					Estuarine (Acres)				Riverine (Acres)	Total Wetlands (Acres)
	AB	EM[1]	FO[1]	SS[1]	UB[1]	AB	EM	SS	UB		
Duval	0	2.6	12.7	0	0.4	0	0	0	4.7	0	20.4
St. Johns	0	5.6	73.9	1.5	0	0	8.2	0	1.1	0	90.3
Flagler	0	1.2	44.2	1.6	0	0	0	0	0	0	47
Volusia	0	1.2	24.1	0	0.2	0	21.7	0	2.7	0	49.9
Brevard	0	1.8	6.4	9.4	0	3	10.9	1.3	2.2	2.4	37.4
Indian River	0	1.3	0.9	0.1	1.1	0	0	0	1.8	0.3	5.5
St. Lucie	0	4.5	4.8	7.4	0	0	0	0	0.5	0	17.2
Martin	0.1	3.2	1.1	0.1	0	0	0	0.2	4.3	0	9.0
Palm Beach	0	0	0	0	0	0	0	0	1.7	3.6	5.3
Total	0.1	21.4	168	20.1	1.7	3	40.8	1.5	19	6.3	282.0

Notes:

1. Abbreviations:
   AB – Aquatic Bed
   EM – Emergent
   FO – Forested
   SS – Scrub Shrub
   UB – Unconsolidated Bottom

EXHIBIT 3.4
Mainline Potential Wetland Impact

County	Mainline Wetland Impact (Acres)		Comment
	Total (Acres)	Direct Impact (Acres)	
Duval	20.4	0	- No proposed curve improvements
St. Johns	90.3	5.8	- Curves 1-3 near St. Augustine. - Estuarine emergent, Estuarine deepwater, Palustrine emergent, Palustrine scrub/shrub
Flagler	47.0	1.3	- Curve 8 north of CR 325 in Korona. - Palustrine Forested.
Volusia	49.9	6.5	- Curve 13 south of Turnbull Creek near Fullerton. - Estuarine emergent and deepwater.
Brevard	37.4	0	- No wetland involvement with proposed curve improvements.
Indian River	5.5	0	- No proposed curve improvements

EXHIBIT 3.4
Mainline Potential Wetland Impact

County	Mainline Wetland Impact (Acres)		Comment
	Total (Acres)	Direct Impact (Acres)	
St. Lucie	17.2	0	- No wetland involvement with proposed curve improvements.
Martin	9.0	0.8	- Curve 19 near Alice Street in Stuart, Curve 21 near Manatee Creek tributary in Salerno, and Curve 23 near US 1 at Hobe Sound. - Palustrine emergent, Palustrine scrub shrub, Palustrine Aquatic Bed, Estuarine scrub shrub.
Palm Beach	5.3	0	- No wetland involvement with proposed curve improvements.
Total	282.0	14.4	

The potential wetland impacts for stations are shown in Exhibit 3.5. The only preferred station location with wetland involvement is St. Augustine. The wetlands are classified as saltwater marsh and deepwater tidal habitats with potential impact of 0.35 acres.

Every opportunity to avoid impacts to wetlands will be explored to the extent practicable in the selection of alignments and designs. Although some impacts to jurisdictional wetlands associated with the improvements will be unavoidable, minimization of these impacts will be ensured through innovative design, including cross-sections of minimum practicable width. It is anticipated that wetland impacts that would result from the construction of this project would be mitigated pursuant to S. 373.4137 F.S. to satisfy all mitigation requirements of Part IV, Chapter 373, F.S. and 33 U.S.C.s. 1344. Any mitigation requirements would be coordinated further during permitting.

Federal Wetlands Protection and Definitions

- Executive Order 11990, "Protection of Wetlands," requires federal agencies to avoid, to the extent practicable, long- and short-term impacts associated with the destruction or modification of wetlands. More specifically, it directs federal agencies to avoid new construction in wetlands unless there is no practical alternative. It further states that where wetlands cannot be avoided, the proposed action must include all practical measures to minimize harm to the wetlands.
- Section 404 of the Clean Water Act provides protections for waters of the United States and wetlands, including special aquatic sites. The definition of special aquatic sites including mudflats, which are vegetated shallows harboring areas of permanently inundated, rooted aquatic vegetation such as eelgrass. Work in or affecting navigable waters is regulated under Section 10 of the U.S. Rivers and Harbors Act of 1899.

The total impact to wetlands will be less than 15 acres. Because of the wetland mitigation required for state and federal permit efforts, the potential wetland impact provides nominal effect on the environment. Detailed information is included in the *Wetland Evaluation Report* prepared for this study (Appendix A).

EXHIBIT 3.5
Station Alternatives Wetland Impact

Preferred Station	Inside 100-foot Mainline Right-of-way	
	Type	Direct Impact (Acres)
St. Augustine #1 - US 1 @ San Marco Ave.(East of FEC)	Estuarine Emergent Marsh	0.07
	Estuarine Unconsolidated Bottom	0.28
Daytona Beach #1 - South of International Speedway Blvd (East of FEC)	None	
Titusville #2 - North of Pine Street (East of FEC)	None	
Cocoa #2 - South of Rosa L. Jones Boulevard (East of FEC)	None	
Melbourne #3 - North of U.S. 192 (East of FEC)	None	
Vero Beach #3 - North of 23rd Street (West of FEC)	None	
Fort Pierce #2 – Orange Ave. (West of FEC)	None	
Stuart #3 - Stypmann Boulevard (East of FEC)	None	
Total	0.35	

3.2.5 Essential Fish Habitat

The proposed project was evaluated for potential impacts to Essential Fish Habitat (EFH) as required by the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended through 1996 (Magnuson-Stevens Act). The 1996 amendments to the Magnuson-Stevens Act set forth a number of mandates for the National Marine Fisheries Service (NMFS), eight regional Fishery Management Councils (FMCs), and other federal agencies to identify and protect important marine and anadromous fish habitat. The EFH identified in Fishery Management Plan Amendments of the South Atlantic FMC includes estuarine areas, estuarine emergent wetlands, estuarine scrub/shrub mangroves, submerged aquatic vegetation, oyster reefs and shell banks, intertidal flats, palustrine emergent and forested wetlands, aquatic beds and estuarine water column.

The rules also direct FMCs to consider a second, more limited habitat designation for each species in addition to EFH. Habitat Areas of Particular Concern (HAPCs) are described in the rules as subsets of EFH which are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. In general, HAPCs include high value intertidal and estuarine habitats, offshore areas of high habitat value or vertical relief, and habitats used for migration, spawning and rearing of fish and shellfish.

EFH and HAPCs are found throughout portions of the study area for the following species as shown in Exhibit 3.6 (SAFMC, 2009):

- ***Snapper Grouper Complex.*** Includes 21 species of sea bass and groupers (family Serranidae), the wreckfish (Polyprion americanus), 14 species of snappers (family Lutjanidae), 9 species of porgies (family Sparidae), 11 species of grunts (family Haemulidae), 8 species of jacks (family Carangidae), 3 species of tilefishes (family Malacanthidae), 3 species of triggerfishes (family Balistidae), 2 species of wrasses (family Labridae), and the Atlantic spadefish (Chaetodipterus faber).
- ***Penaeid Shrimp.*** Includes White shrimp (Litopenaeus setiferus), Pink shrimp (Farfantepenaeus duorarum), Brown shrimp (Farfantepenaeus aztecus), Rock shrimp (Sicyonia brevirostris), and Royal red shrimp (Pleoticus robustus).
- ***Spiny Lobster (Panulirus argus).***
- ***Coral Reef and Hard Bottom.*** Varied coral species and coral reef communities

EXHIBIT 3.6
Mainline and Preferred Stations Potential Essential Fish Habitat

County	Location	EFH Type	HAPC Type	Habitat Type	Potential Effect
St. Johns	San Sebastian River	SG, SL	SG, PS	Estuarine Deepwater Subtidal	- St. Augustine station 0.28 ac impact
Volusia	Tomoka River	SG, SL	--	Estuarine Deepwater Subtidal & Intertidal	- None
	Rose Bay	SG, SL,	--	Estuarine Deepwater Subtidal	- None
	Turnbull Bay	SG, SL	--	Estuarine Deepwater Subtidal	- None
	Turnbull Creek	SG, SL	--	Estuarine Deepwater Intertidal	- Curve improvement 0.33 ac impact
Brevard	Eau Gallie River	SG, SL,		Riverine Tidal	- None
	Crane Creek	SG,SL		Riverine Tidal	- None
	Turkey Creek	SG, SL,		Riverine Tidal	- None
Indian River	Sebastian River	SG, SL		Estuarine Deepwater Intertidal	- None
St. Lucie	Taylor Creek	SG, SL,		Estuarine Deepwater Subtidal	- None
Martin	St. Lucie River	SG, SL,	SG, PS	Estuarine Deepwater Sub-tidal	- None
Palm Beach	Jupiter River	SG, SL,	SG, PS, CR	Estuarine Deepwater Subtidal	- None

Notes:
1. Abbreviations:
   SG - Snapper Grouper Complex
   PS – Penaeid Shrimp
   SL - Spiny Lobster
   CR – Coral Reef and Hard Bottom
2. Study area does not include EFH in Duval and Flagler Counties

The proposed stations and the station facilities (sidings, parking areas, etc.) in Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce and Stuart do not contain EFH or HAPCs. The areas of proposed improvements associated with the realigned Northwood Crossover do not contain EFH or HAPCs.

The San Sebastian River contains EFH and HAPCs in the vicinity of the Preferred Alternative St. Augustine station location (the former St. Augustine freight station). Based on conceptual station design plans, rail improvements as part of the station development may impact 0.28 acres of estuarine deepwater subtidal habitat within the FEC Railway right-of-way. The proposed improvements at the Preferred Alternative St. Augustine station may modify the existing bank along the waterway which provides shelter and substrate to which algae and invertebrate food sources can affix. However, it is anticipated that this bank area will be replaced with similar substrate so that algae and invertebrate food sources will once again be able to affix and shelter would be available. Therefore, any impact to EFH would be considered temporary.

EFH and HAPCs within the project corridor are associated with the bridge crossings as identified in Exhibit 3.6 (previously referenced). Bridge improvements are not proposed under this proposed action; however, the curved approach to Turnbull Creek bridge may require realignment. Approximately 0.33 acres of intertidal estuarine deepwater EFH within the FEC Railway right-of-way are traversed by the bridge and are not anticipated to be impacted by the proposed curve improvements. No additional EFH or HAPCs would be impacted due to proposed rail improvements.

In summary, the No-build Alternative would not impact EFH or HAPCs. The Preferred Alternative will potentially impact a total of 0.61 acres of EFH (0.28 acres as a result of the St. Augustine Station and 0.33 acres as a result of the proposed curve improvements). The project is not anticipated to have adverse effects to EFH or HAPCs as a result of the proposed improvements. An EFH Assessment has been prepared and documented in the Wetland Evaluation Report (provided in Appendix A) for the project and consultation has been conducted in accordance with the Magnuson-Stevens Fishery Conservation and Management Act.

On July 28, 2010, a conference call was held with FDOT and NMFS to discuss the potential impacts to EFH at the proposed St. Augustine station. Based on a review of the project improvements, NMFS noted the South Atlantic Fishery Management Council (SAFMC) identifies the salt marsh at the St. Augustine station as EFH for larval and juvenile brown shrimp (Farfantepenaeus aztecus) and white shrimp (Litopenaeus setiferus). According to NMFS, the project area also likely includes bluefish (Pomatomus saltatrix). Bluefish are managed by the Mid-Atlantic Fishery Management Council (MAFMC), and that council designates estuarine areas as EFH for this species.

The following bullets summarize the results of the NMFS consultation for the project:

- No threatened or endangered species or critical habitat under the purview of NMFS occurs within the project area
- Detailed design and permitting plans would be necessitated to determine if the EFH impacts at the proposed St. Augustine station are unavoidable.

- Avoidance, minimization and mitigation measures would be required for any unavoidable impacts.
- NMFS does not object to the proposed project.
- NMFS recommends that formal consultation be continued during the permitting phase of the project.

A copy of the NMFS coordination letter dated August 2, 2010 is included in Appendix E. Ongoing coordination efforts with NMFS would continue during the design phase in order to minimize or eliminate potential impacts to EFH as a result of the project.

3.2.6 Coastal Zones

Congress enacted the Coastal Zone Management Act (CZMA) in 1972 to "preserve, protect, develop, and where possible, to restore and enhance the resources of the nation's coastal zone" (16 U.S.C., § 1452). The CZMA encouraged coastal states to develop management programs, which if approved by the National Oceanic and Atmospheric Administration (NOAA), would authorize those individual states to review certain federal activities for consistency with the CZMA. In accordance with the CZMA, the Florida Coastal Management Program (FCMP) was approved by NOAA in 1981 and is codified at Chapter 380, Part II, F.S., with FDEP as the lead agency with coordination through the State Clearinghouse. Through the ETDM process using the EST, the FDEP and the State Clearinghouse determined that the project is consistent with the FCMP.

The Coastal Barrier Resources Act (CBRA), Public Law 97-348 (96 Stat. 1653; 16 U.S.C. 3501 et seq.), enacted October 18, 1982, designated various undeveloped coastal barrier islands, depicted by specific maps, for inclusion in the Coastal Barrier Resources System (System). Coastal barrier resources are associated with unconsolidated shorelines and are on the east side of the Intracoastal Waterway/Indian River Lagoon; therefore, there is no involvement for coastal barrier resources.

The No-build Alternative and Preferred Alternative would not impact coastal zones. The Department of Community Affairs has determined that this project is consistent with the Florida Coastal Zone Management Plan.

3.2.7 Threatened and Endangered Species

The Endangered Species Act of 1973 (ESA) (Public Law 93-205, as amended, 16 *U.S.C.* § 1536), provides protection for imperiled species and the ecosystems on which they depend. ESA covers plants, vertebrates, and invertebrates whose populations are at risk of becoming extinct and is administered by two federal agencies: the USFWS and NOAA (which includes the NMFS).

Pursuant to 16 *U.S.C.* §§ 1536(a)–(d) of the ESA, as amended, federal agencies impose specific requirements to protect federally listed endangered or threatened species of fish, wildlife, or plants (listed species) and habitat of such species that has been designated as critical habitat under Section 7(a) of the ESA. These specific requirements include the protection of all federally listed species (and their habitats) found in federally funded projects.

The FWC maintains the state list of animals designated as endangered, threatened, or species of special concern, in accordance with Rules 68A-27.003, 68A-27.004, F.A.C., and 68A-27.005, F.A.C., respectively. The state lists of plants that are designated as endangered, threatened or commercially exploited is administered and maintained by the Florida Department of Agriculture and Consumer Services (FDACS) via Chapter 5B-40, F.A.C.

A literature review was conducted to determine those possible threatened or endangered species which may inhabit the project area. This search resulted in findings that listed species are unlikely to be affected by the proposed action. This determination was made after review of the advance notification responses and field survey of the project area by a biologist. An Endangered Species Biological Assessment (ESBA) survey was conducted between May and July2010 and is included in Appendix A. The existing FEC Railway track crosses through or close to nearly every habitat type found along Florida's east coast. Along the FEC Railway corridor are FWC Biodiversity Hot Spots, FWC Priority Wetlands Habitats, and USFWS Consultation Areas for West Indian Manatee, Atlantic Salt Marsh Snake, Red-cockaded Woodpecker, Florida Scrub Jay, Piping Plover, Crested Caracara, Southeastern Beach Mouse and Snail Kite. As would be expected with a project extending through nine counties and such a variety of habitat types, a large number of protected species may occur along the project corridor as shown in Exhibit 3.7 through 3.12 along with the potential for impact or effect.

Endangered, Threatened, or Species of Special Concern are Federally and State Regulated.

- Endangered Species are any species of fish or wildlife naturally occurring in Florida, whose prospects of survival is in jeopardy due to modification or loss of habitat; overutilization for commercial, sporting, scientific, or educational purposes; disease; predation; inadequacy of regulatory mechanisms; or other natural or manmade factors affecting its continued existence.
- Threatened Species is defined as any species of fish or wildlife naturally occurring in Florida which may not be in immediate danger of extinction, but which exists in such small populations as to become endangered if it is subjected to increased stress as a result of further modification of its environment.
- Florida Species of Special Concern is a species or population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming threatened.

EXHIBIT 3.7
Mainline and Preferred Stations Potential Protected Mammals

Mammal	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
Anastasia Island Beach Mouse *Peromyscus polionotus phasma*		X								X								E	E	Anastasia Island and beaches to the north. Primary, secondary, and occasionally tertiary sand dunes with a moderate cover of grasses and forbs, including sea oats, bitter panicum, and beach dropseed. High, stable areas supporting sand live oak may be important following hurricanes that remove substantial dune habitat.	None - outside project
Florida black bear Ursus americanus floridanus	X	X	X	X						X	X							N/A	T	A wide variety of forested communities is needed to support the varied seasonal diet of black bears. Forested wetlands are particularly important for diurnal cover. Baygalls (bayheads) are important for cover and dens.	None - proposed improvements not in habitat type
Florida mouse *Podomys floridanus*			X	X	X	X	X	X	X		X	X	X	X	X	X	X	N/A	SSC	Xeric upland communities with sandy soils, including scrub, sandhill, and ruderal sites where they inhabit burrows of the gopher tortoise (Gopherus polyphemus; see species account). In the absence of gopher tortoises, Florida mice will dig their own burrows or use those of oldfield mice.	Low
Florida panther *Puma (= Felis) concolor coryi*									X									E	E	High pine, Tropical hardwood hammock, Scrub, Maritime hammock, Mesic temperate hammock, Pine rockland, Scrubby flatwoods, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Wet prairie, Freshwater marsh, Seepage swamp, Pond swamp, Mangrove	Low

EXHIBIT 3.7
Mainline and Preferred Stations Potential Protected Mammals

Mammal	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
Puma (=mountain lion) *Puma (= Felis) concolor (all subsp. except coryi)*						X	X	X	X						X	X	X	T/SA	N/A	High pine, Tropical hardwood hammock, Scrub, Maritime hammock, Mesic temperate hammock, Pine rockland, Scrubby flatwoods, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Wet prairie, Freshwater marsh, Seepage swamp, Pond swamp, Mangrove	Moderate
Sherman's fox squirrel *Sciurus niger shermani*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Sandhills (high pine), pine flatwoods, and pastures and other open, ruderal habitats with scattered pines and oaks. Depends on a variety of oak trees for seasonal food and nest material. Longleaf pine cones and seeds are important foods.	Low
Southeastern beach mouse *Peromyscus polionotus nineiventris*					X	X	X	X	X			X	X	X	X	X	X	T	T	Sea Oats community, sandy areas of adjoining coastal strand vegetation	Minimal - outside preferred habitat
West Indian (Florida) manatee *Trichechus manatus floridanus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	Critical Habitat, Fresh and saltwater habitats, Mangroves	Minimal - no in-water work (FWC Standard Manatee Construction Conditions for In-Water Work)

Notes:
1. Abbreviations: T= Threatened, T/SA=Threatened/Similar in Appearance, E = Endangered, SSC = Species of Special Concern.
2. State and federal listed species part of the ERP and/or Section 404 process.
3. Further information available in the Endangered Species Biological Assessment prepared for this project.

EXHIBIT 3.8
Mainline and Preferred Stations Potential Protected Birds

Bird	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
American Oystercatcher *Haematopus palliates*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Large areas of beach, sandbar, mud flat, and shellfish beds for foraging. They use sparsely vegetated, sandy areas for nesting, but also will use beach wrack and marsh grass.	Low
Bald Eagle *Haliaeetus leucocephalus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P	N/A	Five nest sites identified within 700-ft of the FEC rail and proposed stations: Nest VO097 south of Strickland Bay, Nest VO121 on Lake Ave. in New Smyrna Beach, Nest VO040 at US 1 crossing north of Turnbull Creek (inactive since 1993), Nest VO103 within the golf course at Wilder Blvd/Country Club Road (Daytona Beach), Nest BE061 north of Enchanted Forest Sanctuary in Titusville.	Moderate
black skimmer *Rynchops niger*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Coastal waters, including beaches, bays, estuaries, sandbars, tidal creeks (foraging), and also inland waters of large lakes, phosphate pits, and flooded agricultural fields. Nests primarily on sandy beaches, small coastal islands, and dredge spoil islands, but also on gravel rooftops. Inland nesting record along a road in an agricultural area.	Low
brown pelican *Pelecanus occidentalis*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Mainly coastal, feeding in shallow estuarine waters, and (less often) far offshore. Makes extensive use of sand spits, sand bars, and islets for nocturnal roosting and daily loafing. Nests principally on small islands in bays and estuaries, in small bushes or trees, or on ground. Mangrove islands are used frequently for roosting and nesting in central and southern Florida.	Low

EXHIBIT 3.8
Mainline and Preferred Stations Potential Protected Birds

Bird	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
burrowing owl *Athene cunicularia*					X	X	X	X	X	X		X	X	X	X	X	X	N/A	SSC	High, sparsely vegetated, sandy ground. Natural habitats include dry prairie and sandhill. Makes extensive use of ruderal areas such as pastures, airports, ball fields, parks, school grounds, university campuses, road right-of-ways, and vacant spaces in residential areas.	Low
Crested caracara *Caracara cheriway*					X	X	X	X	X	X		X	X	X	X	X	X	T	T	Improved pastures, Mesic temperate hammock, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Wet prairie.	Low
Everglades snail kite *Rostrhamus sociabilis plumbeus*						X	X	X	X						X	X	X	E	E	Critical Habitat (Indian River, St. Lucie, Palm Beach), Hydric pine flatwoods, Freshwater marsh, Pond swamp	Low
Florida sandhill crane *Grus canadensis pratensis*				X	X	X	X	X	X		X	X	X	X	X	X	X	N/A	T	Prairies, freshwater marshes, and pasture lands. Avoids forests and deep marshes but uses transition zones and edges between these and prairies or pasture lands. Will frequent agricultural areas like feed lots and crop fields, and also golf courses and other open lawns, especially in winter and early spring. Nest is a mound of herbaceous plant material in shallow water or on the ground in marshy areas. Favors wetlands dominated by pickerelweed and maidencane	Low
Florida scrub jay *Aphelocoma coerulescens*			X	X	X	X	X	X	X		X	X	X	X	X	X	X	T	T	Scrub, Scrubby flatwoods and adjacent areas	Moderate

EXHIBIT 3.8
Mainline and Preferred Stations Potential Protected Birds

Bird	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
Ivory-billed woodpecker *Campephilus principalis*						X	X	X	X						X	X	X	E	E	Old growth cypress hammocks	None
Kirtland's warbler *Dendroica kirtlandii*							X	X	X							X	X	E	E	Fire managed jack pine forest with well drained soils.	Low
least tern *Sterna antillarum*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	T	Coastal areas throughout Florida, including beaches, lagoons, bays, and estuaries. Increasingly use artificial nesting sites, including gravel rooftops, dredge spoil islands or other dredged material deposits, construction sites, causeways, and mining lands. Nesting areas have a substrate of well-drained sand or gravel and usually have little vegetation	Low
limpkin *Aramus guarauna*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Inhabits mangroves, freshwater marshes, swamps, springs and spring runs, and pond and river margins. Also lake margins in peninsular Florida and swales, strand swamps, sloughs, and impoundments in south Florida. May also forage in ruderal areas such as sugarcane fields and banks of irrigation canals. Wide range of nesting sites, including mounds of aquatic vegetation and marsh grasses, among cypress knees, and high in trees.	Low

EXHIBIT 3.8
Mainline and Preferred Stations Potential Protected Birds

Bird	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
little blue heron *Egretta caerulea*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Feeds in shallow freshwater, brackish, and saltwater habitats. Largest nesting colonies occur in coastal areas, but prefers foraging in freshwater lakes, marshes, swamps, and streams. Nests in a variety of woody vegetation types, including cypress, willow, maple, black mangrove, and cabbage palm. Usually breeds in mixed-species colonies in flooded vegetation or on islands.	Low
piping plover *Charadrius melodus*	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	T	T	Critical Habitat (Martin), Sandy beaches, mudflats, sandflats, spoil islands, areas adjacent to inlets and passes.	Low
reddish egret *Egretta rufescens*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Almost exclusively coastal. In Florida, typically nests on coastal mangrove islands, or in Brazilian pepper on manmade dredge spoil islands, near suitable foraging habitat. Generally forages in shallow water (typically < 6 in. [15 cm]) of variable salinity. Broad, open, marine tidal flats and shorelines with little vegetation are ideal feeding areas. Also important are salt evaporation pools and lagoons, often located inside mangrove keys or just inside shoreline on mainland.	Low
red-cockaded woodpecker *Picoides borealis*	X				X		X	X	X			X	X	X		X	X	E	SSC	High pine, Mesic pine flatwoods, Hydric pine flatwoods	Moderate

EXHIBIT 3.8
Mainline and Preferred Stations Potential Protected Birds

Bird	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
roseate spoonbill *Ajaia ajaja*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Primarily nests in mixed-species colonies on coastal mangrove islands or in Brazilian pepper on man-made dredge spoil islands near suitable foraging habitat. Occasionally nests in willow heads at freshwater sites. Forages in shallow water of variable salinity, including marine tidal flats and ponds, coastal marshes, mangrove-dominated inlets and pools, and freshwater sloughs and marshes.	Low
snowy egret *Egretta thula*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Nests both inland and in coastal wetlands with nests placed in many types of woody shrubs, especially mangroves and willows. Almost all nesting is over shallow waters or on islands that are separated from shoreline by extensive open water. Feeds in many types of permanently and seasonally flooded wetlands, streams, lakes, and swamps, and in manmade impoundments and ditches. Usually prefers calm waters. A wide variety of wetland types must be available within 5 - 7 mi. (8 - 11 km) to support breeding colonies. Breeding success is tied to water-level fluctuations.	Low
Southeastern American kestrel *Falco sparverius paulus*	X			X			X	X			X					X	X	N/A	T	Found in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. Availability of suitable nesting sites is key during breeding season. Nest sites are tall dead trees or utility poles generally with an unobstructed view of surroundings. Sandhill habitats seem to be preferred, but may also occur in flatwoods settings. Open patches of grass or bare ground are needed in flatwoods settings, since thick palmettos prevent detection of prey.	Low

EXHIBIT 3.8
Mainline and Preferred Stations Potential Protected Birds

Bird	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
tricolor heron *Egretta tricolor*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Most nesting colonies occur on mangrove islands or in willow thickets in fresh water, but nesting sites include other woody thickets on islands or over standing water. Prefers coastal environments. Feeds in a variety of permanently and seasonally flooded wetlands, mangrove swamps, tidal creeks, ditches, and edges of ponds and lakes. Seasonal variation in water levels are particularly critical to nesting success, so alteration of wetlands used during breeding season can have negative consequences	Low
white ibis *Eudocimus albus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Found in a wide variety of habitats, including freshwater and brackish marshes, salt flats and salt marsh meadows, many types of forested wetlands, wet prairies, swales, seasonally inundated fields, and man-made ditches. Adults prefer foraging in freshwater areas when feeding young. Young birds do not grow when fed a salty diet or when access to fresh water	Low
wood stork *Mycteria americana*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	Hydric pine flatwoods, Wet prairie, Freshwater marsh, Seepage swamp, Flowing water swamp, Pond swamp, Mangrove, Saltmarsh, Seagrass	Moderate

EXHIBIT 3.8
Mainline and Preferred Stations Potential Protected Birds

Bird	Location																	Status			
Common Name *Scientific Name*	Counties									Stations										Habitat	Impact
	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		

Notes:

1. Abbreviations: T= Threatened, T/SA=Threatened/Similar in Appearance, E = Endangered, SSC = Species of Special Concern, P=Protected under Bald and Golden Eagle Protection Act.
2. State and federal listed species part of the ERP and/or Section 404 process.
3. Further information available in the Endangered Species Biological Assessment prepared for this project.
4. Any additional eagle nests be identified requires additional coordination would occur with the USFWS Office of Migratory Birds under Bald and Golden Eagle Protection Act

EXHIBIT 3.9
Mainline and Preferred Stations Potential Protected Reptiles

Reptile	Location																	Status			
	Counties									Stations											
Common Name Scientific Name	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State	Habitat	Impact
American alligator *Alligator mississippiensis*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	T/SA	SSC	Most permanent bodies of fresh water, including marshes, swamps, lakes, and rivers. Occasionally wanders into brackish and salt water but rarely remains there	Moderate
Atlantic salt marsh water snake *Fasciata Nerodia clarkii taeniata*				X							X							T	T	Coastal Saltmarsh	Low
Eastern indigo snake *Drymarchon corais couperi*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	T	T	High pine, Tropical hardwood hammock, Scrubby high pine, Beach dune/Coastal strand, Maritime hammock, Mesic temperate hammock, Pine rockland, Scrubby flatwoods, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Cutthroat grass, Freshwater marsh, Seepage swamp, Flowing water swamp, Pond swamp, Mangrove	Moderate
Florida pine snake *Pituophis melanoleucus mugitus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	T	Habitats with relatively open canopies and dry sandy soils, in which it burrows. Especially sandhill and former sandhill, including oldfields and pastures, but also sand pine scrub and scrubby flatwoods. Often coexists with pocket gophers and gopher tortoises	Moderate
gopher tortoise *Gopherus polyphemus*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	T	Typically found in dry upland habitats, including sandhills, scrub, xeric oak hammock, and dry pine flatwoods; also commonly uses disturbed habitats such as pastures, oldfields, and road shoulders.	Moderate
green sea turtle *Chelonia mydas*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	Beach dune/Coastal strand, Seagrass, Nearshore reef	Low

EXHIBIT 3.9
Mainline and Preferred Stations Potential Protected Reptiles

Reptile	Location																	Status			
	Counties									Stations											
Common Name Scientific Name	Duval	St. Johns	Flagler	Volusia	Brevard	Indian River	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State	Habitat	Impact
hawksbill sea turtle *Eretmochelys imbricata*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	Beach dune/Coastal strand, Seagrass, Nearshore reef	Low
Kemp's ridley sea turtle *Lepidochelys kempii*	X	X	X	X	X					X	X	X	X	X				E	E	Marine coastal waters, usually with sand or mud bottoms; nests (rarely in Florida) on sandy beaches. Juveniles frequent bays, inlets, and lagoons.	Low
leatherback sea turtle *Dermochelys coriacea*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E	E	Beach dune/Coastal strand, Seagrass, Nearshore reef	Low
loggerhead sea turtle *Caretta caretta*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	T	T	Beach dune/Coastal strand, Seagrass, Nearshore reef	Low

Notes:

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EXHIBIT 3.10
Mainline and Preferred Stations Potential Protected Amphibians

Amphibian	Location																	Status		Habitat	Impact
	Counties									Stations											
Common Name Scientific Name	Duval	St. Johns	Flagler	Volusia	Brevard	Indian Rive	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State		
flatwoods salamander *Ambystoma cingulatum*	X																	T	SSC	Pine flatwoods (longleaf or slash) communities with wiregrass groundcover and scattered wetlands often dominated by cypress or gum. Usually breeds in ponds that lack predatory fish and which usually have some emergent herbaceous vegetation.	None - No proposed improvements in Duval, corridor is outside of known range
gopher frog *Lithobates capito*	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	SSC	Dry, sandy uplands, chiefly sandhill and scrub, that include isolated wetlands or large ponds within about 1 mi. (1.7 km). Occasional in dry pine flatwoods, xeric hammock, and disturbed examples of above. Breeds chiefly in seasonally flooded, temporary ponds, but also in some permanent waters. Nocturnal, normally spending daytime in stumpholes, tunnels, or burrows, especially those of gopher tortoise (Gopherus polyphemus).	Moderate

Notes:

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EXHIBIT 3.11
Mainline and Preferred Stations Potential Protected Fish

Fish	Location																	Status			
	County									Stations											
Common Name Scientific Name	Duval	St. Johns	Flagler	Volusia	Brevard	Indian Rive	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State	Habitat	Impact
Atlantic sturgeon *Acipenser oxyrinchus*	X	X	X	X	X					X	X	X	X	X				N/A	SSC	Rivers and lower estuaries	None – impact limited to water bodies, no in-water work proposed
Rivulus *Rivulus marmoratus*					X	X	X	X	X			X	X	X	X	X	X	N/A	SSC	Inhabits marginal habitats and obscure areas prefers unimpounded, high marsh habitats inside the burrows of Cardisoma guanhumi, the great land crab. These areas are flooded only seasonally, after very high tides, or by heavy rainfall.	None
shortnose sturgeon *Acipenser brevirostrum*	X	X	X	X						X	X							E	E	Most of the life cycle is spent in lower portions of large rivers and in brackish habitats along the Atlantic coast.	Low –no in-water work proposed
smalltooth sawfish *Pristis pectinata*						X	X	X	X						X	X	X	E	N/A	Inhabits shallow coastal waters of tropical seas and estuaries throughout the world. They are usually found in shallow waters very close to shore over muddy and sandy bottoms. They are often found in sheltered bays, on shallow banks, and in estuaries or river mouths.	Low –no in-water work proposed

Notes:

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EXHIBIT 3.12
Mainline and Preferred Stations Potential Protected Plants

Plant	Location																	Status			
	County									Stations											
Common Name Scientific Name	Duval	St. Johns	Flagler	Volusia	Brevard	Indian Rive	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State	Habitat	Impact
Beach jacquemontia *Jacquemontia reclinata*								X	X								X	E	E	Lee side of stable, vegetated dunes; disturbed openings in maritime hammock, coastal strand, and coastal scrub, often with sea grape, sand spurs, poisonwood, and prickly pear cactus	None - outside preferred habit
Carter's Mustard *Warea carteri*					X							X	X	X				E	E	Sandhill, scrubby flatwoods, inland and coastal scrub	Moderate
Florida perforate cladonia *Cladonia perforata*									X									E	E	Rosemary scrub on FL Panhandle coasts, Lake Wales Ridge, and Atlantic Coastal Ridge	Moderate
Four-petal pawpaw *Asimina tetramera*								X	X								X	E	E	Openings in sand pine scrub on south-central Atlantic Coastal Ridge.	Moderate
Fragrant prickly-apple *Cereus eriophorus var. fragrans*							X									X		E	E	Scrubby flatwoods and xeric hammocks on the Atlantic Coastal Ridge, with sand live oak, myrtle oak, cabbage palm, and prickly pear	Moderate
Johnson's seagrass *Halophila johnsonii*						X	X	X	X						X	X	X	T	N/A	Critical Habitat - Tidal deltas inside inlets, sandy shoals, and mouths of canals; at water depths from shallow intertidal to 9 feet deep	Low
Lakela's mint *Dicerandra immaculata*						X	X	X							X	X	X	E	E	Martin County - Hobe Sound National Wildlife Refuge only - scrub on the Atlantic Coast Ridge	None - outside of known range

EXHIBIT 3.12
Mainline and Preferred Stations Potential Protected Plants

Plant	Location																	Status			
	County									Stations											
Common Name Scientific Name	Duval	St. Johns	Flagler	Volusia	Brevard	Indian Rive	St. Lucie	Martin	Palm Beach	St. Augustine	Daytona Beach	Titusville	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	Federal	State	Habitat	Impact
Okeechobee gourd *Cucurbita okeechobeensis ssp.okeechobeensis*				X					X		X							E	E	Pond apple swamps and mucky soils on Lake Okeechobee shores and islands; floodplain forests along the St. Johns River	None - proposed improvements outside of preferred habitat
Rugel's Pawpaw *Deeringothamus rugelii*				X							X							E	E	Open slash pine or longleaf pine flatwoods with wiregrass and saw palmetto in the understory	Low
Tiny polygala *Polygala smallii*							X	X	X							X	X	E	E	Pine rockland, scrub, sandhill, and open coastal spoil piles	Moderate

Notes:

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2. State and federal listed species part of the ERP and/or Section 404 process.
3. Further information available in the Endangered Species Biological Assessment prepared for this project.
4. Additional state-listed plant species are identified in the ESBA as having low potential for occurrence and impact.

The No-build Alternative and Preferred Alternative would not have significant impact to federal- or state-listed or proposed threatened or endangered species. Primary wildlife issues associated with this project include: potential effects to listed species and their habitat from construction of the curve replacement track and proposed stations, and the potential for increased wildlife mortality due to collisions with high-speed trains. The increase in the number of trains and in speeds would be minimal and is not expected to result in a significant increase of wildlife mortality. The following bullets summarize the anticipated species involvement and existing habitat quality along the existing FEC Railway:

- ***Duval County.*** The majority of rail corridor in Duval County is low quality wildlife habitat but crosses areas of medium quality habitat in the southern portion of the county. No rail improvements are proposed in Duval County.
- ***St. Johns County.*** The north part of the rail corridor traverses high quality habitat with the remainder of the corridor traversing mostly medium quality habitat. Rail modifications may occur near the San Sebastian River; however, no work within the water is expected. The remainder of the potential rail improvements are in areas identified as low quality habitat with a low potential for species involvement.
- ***Flagler County.*** The northern and southern portions of Flagler County cross high quality habitat; however, the segments of potential mainline rail improvements are within low quality habitat with a low potential for species involvement.
- ***Volusia County.*** Potential rail modifications are in areas of medium to high quality habitat in the vicinity of Turnbull Creek. A moderate potential exists for species involvement associated with the shoreline habitat; however, no work within the water is expected. The remainder of the areas where potential rail modifications may occur is in areas of low to medium density residential land use and generally is considered to be low quality habitat with a low potential for species involvement.
- ***Brevard County.*** The available habitat along the rail corridor within Brevard County is predominantly low quality; consequently, the potential rail modification locations are in low quality habitat with a low potential for species involvement.
- ***Indian River County.*** The available habitat along the rail corridor within Indian River County is predominantly low quality with a low potential for species involvement. No rail modifications are proposed for the mainline within Indian River County.
- ***St. Lucie County.*** The majority of rail corridor traverses low quality habitat. The rail corridor is adjacent to medium quality habitat in the southern portion of St. Lucie County. Potential rail improvements would be within low quality habitat with a low potential for species involvement.
- ***Martin County.*** In the northern portion of the county, the rail corridor crosses through low quality habitat; however, the southern portion of the county provides high quality habitat adjacent to the Hobe Sound National Wildlife Refuge and within the Jonathon Dickinson State Park, which provide higher habitat value. Rail modifications may occur along the mainline including adjacent to and within the Jonathon Dickinson State Park. An existing pipe provides crossing for small animals, and this pipe will remain. For larger animal and birds, the increase train speed is not expected to provide a significant increase in wildlife mortality. For the St. Lucie River (Hobe Sound

National Wildlife Refuge), no work within the water is expected. The remainder of the potential rail improvements is in areas identified as low quality habitat with a low potential for species involvement.

- ***Palm Beach County.*** The rail corridor is within an urban environment of Palm Beach County, and thus provides low quality habitat and low potential for species involvement for rail improvements. The Northwood Crossover is in a developed urban corridor with limited habitat availability. No significant fish or wildlife resources were identified in the proposed project area for the Northwood Crossover. Rail improvements may be required in the vicinity of the Jupiter River, which offers higher habitat value; however, no work within the water is expected. The remainder of the potential rail improvements is in areas identified as low quality habitat with a low potential for species involvement.

The preferred station alternatives are predominantly in developed upland areas with limited habitat availability with limited or no significant species involvement. Based on the evaluation conducted for the ESBA, the following bullets summarize the potential project effects to wildlife and habitat resources:

- A total of 35 species listed as federally endangered or threatened may occur within the nine counties along the FEC corridor. Of the species considered, the puma, West Indian manatee, bald eagle, Florida scrub jay, red-cockaded woodpecker, eastern indigo snake, Carter's mustard, Florida perforate cladonia, four-petal pawpaw, fragrant prickly-apple, and tiny polygala have a moderate potential of occurring along the project corridor. All the others have a low potential of occurrence in the project corridor.
- No Threatened or Endangered species of the plant or animal were observed during site visits.
- The FEC mainline proposed improvements are within the FEC right of way and primarily within developed areas. Ecologically-sensitive natural areas and designated wildlife or waterfowl refuges occur adjacent to the existing FEC Railway. Track improvements within the FEC right-of-way through the Jonathan Dickinson State Park, adjacent to Hobe Sound National Wildlife Refuge, and adjacent to the Merritt Island National Wildlife Refuge result in minimal modifications to the existing rail line. No designated critical habitat areas are located within the proposed improvements.
- The proposed stations are within urban redevelopment areas. Minor impact to mixed pine-hardwood forest at the proposed St. Augustine station may occur; however, the saltwater marsh is avoided.
- Potential for increased wildlife mortality due to conflicts with high-speed trains are not anticipated because a high level of wildlife mortality has not been reported along this corridor, the increase in the number of trains and train speeds would be relatively minimal, and the schedule is primarily daylight operations.

No adverse effects to individuals or to regional populations of federally or state-listed species are anticipated as a result of the proposed project. Based on these results, FDOT requested USFWS concurrence with a determination of no adverse effect. A copy of the coordination letter dated July 26, 2010 is included in Appendix E. As a result of this consultation, USFWS noted that the project may affect federally listed species that naturally occur along the existing railway corridor. During the design and permitting phase of the proposed project, consultation with USFWS will be reinitiated and specific surveys, as

necessary, will be conducted to determine if any federally listed species are routinely using the areas proposed for construction. At this time, USFWS will review the design plans to determine the project effects on involved species. If any federal or state-listed species are affected, the appropriate standard provisions permit conditions and/or mitigation will occur in consultation with USFWS. Based on the project commitment to reinitiate USFWS consultation during the design and permitting phases, USFWS provided concurrence with FDOT's determination of no adverse effect in a coordination letter dated August 3, 2010.

3.2.8 Farmlands

Through coordination with the Natural Resources Conservation Service, it has been determined that no farmlands as defined by 7 CFR 658 are located in the project vicinity. As a result, no involvement with farmlands is anticipated as part of the project due to the No-build Alterative or Preferred Alternative.

3.3 Atmospheric Environment

3.3.1 Air Quality

All counties within the project study area are designated as in attainment for all of the National Ambient Air Quality Standards (EPA, 2009) under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to the project. Transportation sources, particularly motor vehicles, are the primary source of carbon monoxide (CO), oxides of nitrogen (NOx), and hydrocarbons (also referred to as volatile organic compounds [VOCs]). In the presence of heat and sunlight, NOx and VOCs chemically react to form ozone (O_3). Particulate matter and sulfur dioxide (SO_2) are primarily emitted from stationary sources that burn fossil fuels (for example, power plants).

The No-build Alternative would not worsen air quality in the near future. Over time, air quality would worsen as congestion increases on the roads and highways along Florida's east coast.

The Preferred Alternative, with an increased number of train trips per day, would result in a significant reduction in air emissions for both criteria pollutants and greenhouse gases (GHGs), and would also greatly reduce the amount of energy consumed. Even with the small increase in rail intersection interruption, the minimal increase in emissions from vehicles in queue will be insignificant when compared to the emissions reductions from the decrease in total traffic. The increase in train traffic will account for up to a 90+ percent reduction in total emissions for criteria pollutants for the project area, which amounts to approximately 8 million tons per year.

Complete analysis overview and methodology are documented in the Air Quality Report prepared for this project. A brief overview of the analysis for the emission inventory, GHG and energy is provided below.

3.3.1.1 Emissions Inventory

The emissions inventory for this project consists of emissions from all potentially eliminated automobiles as they travel the proposed 350-mile route, twice per day (approximately 1,400 miles per day or 81,710,000 passenger miles per year) between Jacksonville and Miami. Emissions factors for all automobiles were generated using MOBILE6.2

using site-specific vehicle miles traveled (VMT) and other site-specific parameters. The emissions outlined for automobiles in Exhibit 3.13 are those emissions that will be eliminated with the addition of the proposed rail service. The locomotive total emissions shown in Exhibit 3.14 outline the emissions from the proposed locomotive additions. These numbers show up to a 90+ percent reduction in criteria pollutant emissions per year. Emissions from the locomotives were calculated using EPA emission factors for locomotives and the horsepower rating of the locomotive for two additional trips per day.

EXHIBIT 3.13
Pollutant Emissions Analysis

Pollutant	Eliminated Automobile Total Emissions (10^3 tons/year) - 2010	Locomotive Total Emissions (10^3 tons/year) - 2010	Percentage Reduction in Emissions
VOC	853.7	6.83	99.20%
NOx	1,755.3	184.96	89.46%
CO	5,354.5	18.21	99.66%
PM_{10}	62.3	4.55	92.69%
$PM_{2.5}$	45.8	4.55	90.1%

3.3.1.2 Greenhouse Gas Emissions Analysis

GHG emissions were also analyzed for the project area. Anytime the number of passenger vehicles traveling on the nation's roadways can be reduced, a positive effect can be anticipated. Using a the same methodology as described above with emission factors from *High Speed Rail and Greenhouse Gas Emissions in the U.S. (*Center for Clean Air Policy and Center for Neighborhood Technology, 006), Exhibit 3.14 outlines GHG emissions for the project area. The "Auto No-Build" column lists the total GHG emissions for automobiles that could potentially be eliminated due to the proposed passenger trains. The "Locomotive Full Build" column, alternatively, shows GHG emissions from the train traffic only. This allows for comparison between auto and train emissions. As before, there is a substantial reduction in GHG emissions for the full build alternative. CO_2 emissions are reduced by more than half.

EXHIBIT 3.14
Greenhouse Gas Emissions Analysis

Pollutant	Auto No-Build: Total Emissions (10^3 tons/year) 2010*	Locomotive Full Build: Total Emissions (10^3 tons/year) 2010
CO_2	21.42	9.61
N_2O	NA	2.46×10^{-4}
CH_4	NA	7.57×10^{-4}

*Note: Automobiles are not significant sources of N_2O and CH_4 emissions; *reflects the automobile emissions that could potentially be eliminated*

3.3.1.3 Energy Analysis

Travel by rail is more energy-efficient than travel by air or private automobile. Since rail capacity can be increased at a relatively small incremental cost, any substantial increase in rail ridership that would arise from implementation of high-speed rail service would result in conservation of travel-related energy. The energy analysis for this project is performed in terms of thermal equivalence. For comparison, a comparison is conducted of the equivalent amounts of energy used for automobiles (assuming a reduction in automobiles due to passenger trains) and for trains in millions of British thermal units (MMBtu). EPA's emission factor source, AP-42, gives thermal equivalence values for diesel fuel and gasoline. One gallon of gasoline combusted is equal to 0.13 MMBtu, whereas one gallon of diesel fuel combusted yields 0.137 MMBtu. Given these factors, the fuel consumption rate of the trains (1.7 gal/mi) and an average mile per gallon for passenger vehicles and diesel trucks, it is possible to create an energy balance. Exhibit 3.15 shows that locomotive travel is significantly more energy-efficient than automobiles over the same project area. The locomotives are more than 12.5 times more efficient.

EXHIBIT 3.15
Energy Analysis

Form of Transportation	Gallons of Gasoline (Gallons/Yr)	Gallons of Diesel (Gallons/Yr)	Thermal Equivalence (MMBtu/Yr)
Automobile	3,908,376	30,876	512,3196
Locomotive	0	297,152	40,709

Note: Assumes reduction in automobile vehicle miles due to proposed passenger trains.

3.3.2 Noise and Vibration

In accordance with the Noise Control Act of 1972 (Public Law 92-574, 86 Stat. 1234), a detailed noise and vibration assessment was performed along the project corridor. These analyses were performed in accordance with FRA criteria outlined in the *High Speed Ground Transportation Noise and Vibration Impact Assessment* (FRA, 2005) and the *Transit Noise and Vibration Impact Assessment Manual* (FTA, 2006) and are documented in the *FEC Amtrak High Speed Rail Noise and Vibration Assessment* prepared for this project (provided in Appendix A). The project proposes to add four Amtrak passenger trains (two northbound and two southbound trains per day) on the existing FEC Railway from Jacksonville to West Palm Beach and on the existing SFRC Amtrak route from West Palm Beach to Miami.

FTA Noise and Vibration Manual

Noise is generally considered to be unwanted sound. Sound is what we hear when our ears are exposed to small pressure fluctuations in the air. There are many ways in which pressure fluctuations are generated, but typically they are caused by vibrating movement of a solid object.

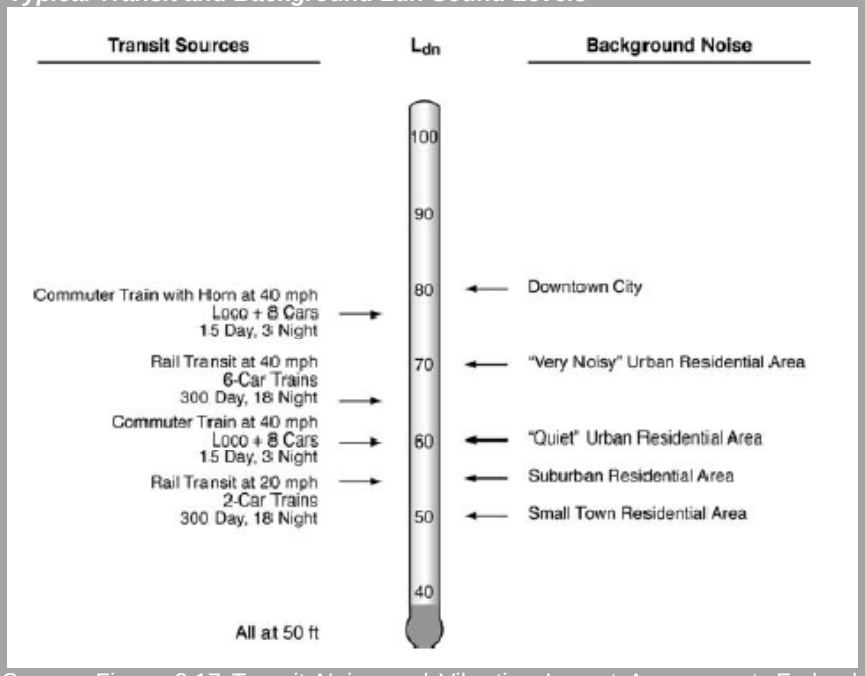
Terminology:

- The *A-weighted Sound Level*, which describes a receiver's noise at any moment in time.
- The *Sound Exposure Level (SEL)*, which describes a receiver's cumulative noise exposure from a single noise event.
- The *Hourly Equivalent Sound Level (Leq(h))*, which describes a receiver's cumulative noise exposure from all events over a one-hour period.
- The *Day-Night Average Sound Level (Ldn)*, which describes a receiver's cumulative noise exposure from all events over a full 24 hours, with events between 10pm and 7am increased by 10 decibels to account for greater nighttime sensitivity to noise.

3.3.2.1 Noise

Within the study limits as of July 2010, the FEC Railway corridor serves up to 24 freight trains per day, mostly at night. The SFRC currently serves CSXT trains, Tri-Rail commuter trains and Amtrak. Freight rail activity at existing crossings and vehicular traffic on adjacent roadways account for the majority of the existing noise levels present in the project study area.

EXHIBIT 3.16
Typical Transit and Background Ldn Sound Levels



Source: Figure 2.17 Transit Noise and Vibration Impact Assessment, Federal Transit Administration. May 2006

Noise Criteria Summary

Noise-sensitive areas and receivers of interest within the project area were identified based on FTA screening procedures for determining potential impacts, a review of available information and aerial mapping. The Typical Transit and Background L_{dn} Sound Levels are represented in Exhibit 3.16. FTA characterizes noise-sensitive uses in three categories as shown in Exhibit 3.17.

EXHIBIT 3.17
Land Use Categories and Metrics for Transit Noise Impact Criteria

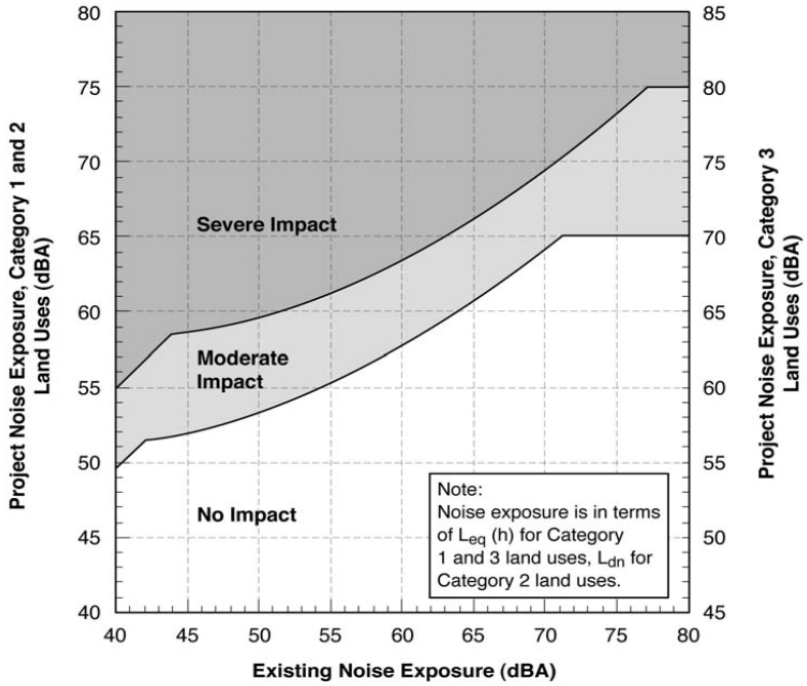
Land Use Category	Noise Metric(dBA)	Description of Land Use Category
1	Outdoor $L_{eq(h)}$*	Land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet such as outdoor theater and concert pavilions.
2	Outdoor L_{dn}	Residences and buildings where people sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is of utmost importance.
3	Outdoor $L_{eq(h)}$*	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches where it is important to avoid interference with such activities as speech, meditation and concentration on reading material. Active parks. Buildings with interior spaces where quiet is important, such as medical offices and conference rooms, recording studios and concert halls, fall into this category. Places of worship, meditation or study associated with cemeteries, monuments, museums and certain historical sites are included.

**Note: L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity*
Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006

Category 1 uses are those where quiet is essential; Category 2 includes residences and buildings where nighttime sensitivity to noise is important; and Category 3 uses are those in which activity is generally during daylight and evening hours. Because Category 2 uses are most noise-sensitive during the nighttime hours, the FTA Noise Impact Criteria define the severity of impact for various noise exposure levels for Category 2 land uses as shown in Exhibit 3.18. The criteria are based on a comparison of existing and future project-related outdoor noise levels.

They incorporate both absolute criteria (noise from the proposed project), and relative criteria (annoyance as a result of project-induced changes in noise levels). Impacts are assessed based on a combination of the existing ambient noise exposure and the additional noise exposure from the project, which have been determined to be noise levels exceeding 65 dBA and an increase of 3 dBA above existing sound levels.

EXHIBIT 3.18
Noise Impact Criteria for Transit Projects



Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006

Methododology and Assumptions

For the approximately 350-mile-long study corridor, certain project assumptions were employed to develop the methodology for the noise analysis. The noise analysis and estimated existing noise levels are described in detail in the *FEC Amtrak High Speed Rail Noise and Vibration Assessment* prepared for this project. The following discussion summarizes the methodology and assumptions performed for the noise assessment.

Noise monitoring locations - Representative noise levels for existing passenger trains were obtained by utilizing existing sites in West Palm Beach on the SFRC and on the FEC corridor in Jacksonville. These representative noise monitoring locations were selected to determine whether future noise impacts are likely to occur along the corridor or at locations of proposed improvements. It is expected the predicted noise levels from these noise monitoring locations will be representative of the proposed improvements. The noise monitoring locations include the northern project terminus (Jacksonville), a representative location on the SFRC (West Palm Beach), and a representative location on the FEC Railway (Vero Beach). The existing Jacksonville and West Palm Beach stations were assumed to be representative of the proposed stations. Also, the West Palm Beach location is assumed to be representative of the Northwood

Crossover due to proximity and similar industrial land uses. Noise levels were measured for the grade crossings at the noise monitoring locations and included in the analysis. Existing noise and vibration levels were measured at the following specific locations:

- The existing Amtrak station and the SFRC in West Palm Beach
- FEC freight corridor located in West Palm Beach
- The Amtrak existing high speed mainline located on the CSXT railway in Indiantown
- The FEC freight corridor mainline located in Vero Beach
- The Amtrak and FEC freight corridor mainline and station located in Jacksonville

The CSXT location in Indiantown is outside of the study area but was used for existing noise data as it involves existing Amtrak passenger trains. As part of this analysis, the noise monitoring and predicted noise levels were evaluated at approximately 70 feet from the track centerline to evaluate the noise effects associated with the proposed project. At typical locations, the FEC right-of-way is 100 feet so the existing and predicted noise levels correspond to approximately 20 feet from the FEC mainline. This baseline noise monitoring distance was evaluated to determine if any potential noise effects were anticipated before increasing the screening distances.

Existing noise measurements - The existing condition noise measurements were taken over a full hour at each measurement location during the noisiest hour of transit-related activity during hours of noise sensitivity and the approximate 24 hour noise level was estimated using the procedures contained in the *Transit Noise and Vibration Impact Assessment Manual* (FTA, 2006).

Predicted noise scenarios - For the purposes of the noise assessment, the Leq (h) and the Ldn noise metrics were evaluated for the Amtrak passenger cars and the FEC Railway freight trains under their normal operating conditions, which are as follows:

- Track crossing locations with horn
- Mainline track locations with horn
- High speed mainline locations with horn

Pass-by time - The estimated pass-by time for a single Amtrak passenger train is approximately 1 minute, while FEC Railway freight train pass-by times are approximately 2 to 5 minutes. This time depends on the number of cars per train. The overall sound levels of the Amtrak passenger trains are approximately 1 to 5 dBA less than the sound levels of FEC Railway freight trains.

Train speed – The existing Amtrak passenger trains travel up to 79 mph while the freight trains travel approximately 49 mph. The proposed high speed Amtrak Passenger Trains will operate at speeds of up to 90 mph on the FEC Railway. The existing Amtrak speeds on the SFRC (up to 79 mph) would be maintained in the proposed condition. The future noise levels were predicted for speeds up to 90 mph on the FEC Railway and up to 79 mph on the SFRC.

Horn Noise - Horn noise was modeled from the FEC Corridor freight trains on approach to the track crossing.

Operations - Under the proposed conditions, the Amtrak passenger trains would share the FEC corridor during the daytime and nighttime hours and the FEC corridor freight trains would generally operate during the nighttime hours with the possibility of daytime freight train

operations. The passenger trains were assumed to consist of 2 engines and 9 to 14 passenger cars which is representative of the existing Amtrak passenger trains.

The existing and future noise levels expected from the proposed improvements were documented with field measurements using the procedures described above and were verified to be consistent with the computer predicted noise levels that were generated for the existing and future project conditions. The computer predicted noise levels were generated using the FTA Noise Model (Create Rail Noise Model).

Noise Assessment Results

The results of the comparative noise assessment for the existing Amtrak passenger cars and the FEC freight trains are presented in Exhibit 3.19. The predicted noise levels provide the basis for establishing the future predicted ambient noise conditions during the noisiest hour of transit-related activity during hours of noise sensitivity. The FTA has established impact criteria for both Category 1 or 2 Sites and Category 3 Sites for the purposes of establishing the levels of noise impacts as a result of a proposed transit projects. There are three categories which define the level of impact from a transit project. The categories are: No Impact, Moderate Impact, and Severe Impact. These impact ratings for each of the predicted noise levels are shown in Exhibit 3.19.

Noise Impact Summary

The No-build Alternative would not create additional noise impacts. Based on the results of the noise assessment conducted for the project, the proposed improvements will result in increased noise levels; however, the increased noise levels will not result in a change in the impact rating for any land use categories. Based on the data presented, the measured noise levels from the FEC Railway freight trains appear to be greater than the measured noise levels from the proposed Amtrak passenger cars. Also, the estimated daytime noise levels associated with the passenger trains will be approximately 5 dBA less than the existing nighttime noise levels associated with the existing freight trains throughout the FEC corridor. The Preferred Alternative would provide minimal noise impact over the existing freight train noise levels.

The proposed project does not generate a significant increase in noise since there are already up to 24 freight trains operating daily on the study corridor and the project will result in a nominal increase (two trains per direction daily) in train traffic on the corridor.

Based on FRA and FTA criteria, the existing noise levels due to the freight trains create a moderate to severe impact rating and the predicted noise levels will not result in a change in the existing impact rating. Therefore, noise effects are not anticipated to land uses adjacent to the FEC mainline as a result of the proposed action. As the noise analysis results resulted in the absence of noise effects at 70 feet from the track centerline, noise contours at distances greater than 70 feet were not necessitated. In summary, the noise analyses indicated the proposed project will have no effect on adjacent land uses.

EXHIBIT 3.19
Noise Level Comparison for Amtrak Passenger Cars and FEC Railway Freight Trains on the FEC Railway Corridor (Proposed Future Conditions)

Transit Event Location	Type of Transit Event	Amtrak Passenger Cars Measured Noise Levels (dBA)		FEC Freight Trains Measured Noise Levels (dBA)		Noise Level Difference Amtrak vs. FEC Freight Trains (dBA) Impact Y/N		Computer Predicted Noise Levels (dBA) Decibels A-Weighted (FTA Rail Noise Model)		Project Noise impact Exposure Category 1 or 2 sites $L_{eq(h)}$	Project Noise impact Exposure Category 3 sites $L_{eq(h)}$	Change in FTA impact rating (yes/no)
		$L_{eq(h)}$ Measured	L_{dn} Estimated	$L_{eq(h)}$ Measured	L_{dn} Estimated	$L_{eq(h)}$ Measured	L_{dn} Estimated	$L_{eq(h)}$ Predicted	L_{dn} Predicted			
WPB Amtrak Station	ML Train # 98-000	68**	66**	71	74	3/N	8/N					
	ML Train # 92-002	71**	69**	72	80	1/N	11/N	71	69	Severe	Moderate	No
	CR Train # 91-004	69**	67**	74	77	5/N	10/N					
	CR Train # 97-005	69**	67**	73	76	4/N	9/N	69	67	Severe	Moderate	No
JAX Amtrak Station	CR Train # 98-000	79***	77***									
	CR Train # 92-004	79***	87***									
	CR Train # 52-002	81***	79***									
	ML Train # 91-007	69	77	72	80	3/N	3/N	70	76	Severe	Severe	No
	ML Train # 97-009	73***	71***					70	76	Severe	Severe	No
	ML Train # 53-006	67	75	72	80	5/N	5/N					
Amtrak HS-ML (outside study area)	ML Train # 98-000	71	69	70	78	1/Y	9/N	69	75	Severe	Severe	No
	ML Train # 92-001	69	67	70	78	1/N	11N					
2 Amtrak Trains	ML Train # 91-003 ML Train # 97-003	70	68	70	78	0/N	10/N	72	78	Severe	Severe	No

Notes:
**Amtrak noise levels include Tri-Rail Trains for WPB Station, 79 mph in proposed condition
*** Amtrak noise levels include FEC Trains for Jacksonville Station
**** FEC noise levels include Amtrak Trains for Jacksonville Station
ML=Mainline Train, CR= Track Crossing Train, HS= Higher Speed

3.3.2.2 Vibration

The FEC Railway is primarily used for heavy freight transport and long train consists which make the existing conditions of the heavy freight the dominant vibration source on this line. A vibration assessment was performed to evaluate the effects of vibration on the FEC Railway corridor due to the addition of four Amtrak passenger trains (two northbound trains and two southbound trains). It is expected that the Amtrak passenger cars will only serve the FEC Railway corridor during the daytime hours and that the existing FEC Railway freight trains will continue to operate during the nighttime hours with approximately 24 trips per night.

FEC Amtrak High Speed Rail Noise and Vibration Assessment

The preferred vibration metric for the assessment of transit related ground-borne vibration is commonly called the vibration velocity level, in decibels (VdB), which is used to describe the "smoothed" vibration amplitude. Thus, ground-borne vibration levels are stated in units of vibration decibels (VdB). This unit is equivalent to a velocity of one micro-inch per second (10^{-6} inches per second). This is not a universally accepted notation; it is used to reduce the confusion with sound decibels.

Based on the vibration impact summary for the assessment of the four proposed Amtrak passenger trains on the existing FEC Railway corridor, it was determined that there should be no impact due to vibration levels on the FEC Railway corridor as a result of the four proposed transit events from the Amtrak passenger trains, except that the Amtrak passenger trains travel at higher speeds than the FEC Railway freight trains in rural areas. This is not expected in the areas where the number of track crossings are relatively near to each other. The estimated pass-by time for a single Amtrak passenger train is approximately 1 minute, while the FEC Railway freight train pass-by time is approximately 2 to 5 minutes and depends on the number of train car per trip. The overall vibration levels of the Amtrak passenger trains are approximately 3 to 8 VdB lower than those of the FEC Railway freight trains. The overall vibration levels for the high-speed mainline locations produced vibration levels approximately 2 to 5 VdB greater than the vibration levels from the FEC Railway freight trains because of the differences in speed. The existing Amtrak passenger trains travel at speeds up to 79 mph while the freight trains travel at approximately 49 mph. According to the FTA guidelines, a speed correction to 90 mph for the proposed Amtrak passenger trains would produce an additional 5 VdB increase in the baseline vibration levels when compared to an Amtrak passenger train traveling at a speed of 50 mph. Based upon the results presented in this assessment, such a correction factor appears to be reasonable when compared to the Amtrak passenger trains traveling at speeds of up to 79 mph. The vibration analysis for the project is documented in the *FEC Amtrak High Speed Rail Noise and Vibration Assessment* prepared for this project. The following discussion summarizes the assessment performed for this study.

Vibration Criteria Summary

The FRA ground-borne vibration impact criteria are based on land use and train frequency as shown in Exhibit 3.20. Vibration-sensitive receptors are classified in three categories:

- Category 1 receptors are those buildings where low ambient vibrations are essential for the operations conducted within the building. An example of Category 1 receptor is a building in which research using electron microscopes is conducted.
- Category 2 receptors consist of single family residences, apartments, and townhouses.
- Category 3 receptors consist of churches, schools and other commercial buildings that do not house vibration sensitive equipment.

EXHIBIT 3.20
Ground-Borne Vibration and Noise Impact Criteria

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro inch/sec)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78VdB	83 VdB

Notes:

1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category.
2. Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have this many operations.
3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail lines.
4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
5. Vibration-sensitive equipment is not sensitive to ground-borne noise.

Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006

Vibration Impact Summary

To assess the effects of vibration from the proposed Amtrak operations, the existing Amtrak passenger cars serving the West Palm Beach and Jacksonville stations and Indiantown and Vero Beach high-speed mainlines were evaluated to establish the expected vibration levels from the passenger cars that would operate on the FEC Railway corridor under the proposed future conditions. The No-build Alternative would not impact vibration.

The Preferred Alternatives are not anticipated to impact vibration. For the purposes of the vibration assessment, the VdB (Velocity re 10^{-6} inches per second) vibration metric was evaluated for the Amtrak passenger cars and the FEC freight trains under their normal operating conditions, which are as follows:

- Track crossing locations
- Mainline track locations
- High-speed mainline locations

The results of the vibration assessment for the proposed future conditions at the West Palm Beach locations show that the FEC Railway freight trains will generate vibration levels 3 to 8 VdB greater than those of the Amtrak passenger cars.

The results of the vibration assessment for the proposed future conditions at the Jacksonville locations show that the FEC Railway freight trains will generate vibration levels 2 to 4 VdB greater than those of the Amtrak passenger cars. There was one transit event where the Amtrak passenger cars traveling at 71 mph created a vibration level 5 VdB greater than that of a similar freight train transit event. There was also one freight train transit event that generated a vibration level approximately 16 VdB greater than that of a similar Amtrak Auto Train transit event.

The results of the vibration assessment for the high speed mainline rail locations show that the Amtrak passenger cars will exceed a similar freight train transit event by 1 to 4 VdB because of the differences in speed. Amtrak's train speed was verified to be approximately 71 to 72 mph at the Indiantown location. The FEC Ralway freight train speed at the mainline track in Vero Beach was verified to be approximately 40 to 49 mph. However, it is not expected that the Amtrak passenger cars would ever reach such a speed in urban and developed areas because of safety concerns and track crossings. Based on the data presented, the measured vibration levels from the FEC Railway freight trains appear to be greater than the measured vibration levels from the proposed Amtrak passenger cars that would make four daily trips on the FEC Railway corridor. The exception is in the high-speed rural areas, where the Amtrak trains would generate greater vibration levels.

The results of the comparative vibration assessment for the proposed Amtrak passenger cars on the FEC Railway corridor are presented in Exhibit 3.21.

EXHIBIT 3.21
Existing Vibration Level Comparison for the Amtrak Passenger Cars and FEC Railway Freight Trains on the FEC Railway Corridor Proposed Future Conditions

Transit Event Location	Type of Transit Event ML=Mainline Train CR= Track Crossing Train HS=Higher Speed	Amtrak Passenger Cars Measured Vibration Levels (VdB)	FEC Freight Trains Measured Vibration Levels (VdB)	Vibration Level Difference Amtrak vs. FEC Freight Trains (VdB) Impact Y/N
		VdB (Measured)	VdB (Measured)	VdB (Measured)
WPB Amtrak Station	ML Train # 98-000	76	83	7/N
	ML Train # 92-003	76	84	8/N
	CR Train # 91-006	76	79	3/N
	CR Train # 97-007	72	80	8/N
JAX Amtrak Station	CR Train # 98-001	73	75	2/N
	CR Train # 92-008	69	73	4/N
	CR Train # 52-002	72*	75	3/N
	ML Train # 91-012	75	78	3/N
	ML Train # 97-017	84	79	5/Y (Amtrak Speed 71 mph)
	ML Train # 53-011	66	82	16/N
Amtrak HS-ML	ML Train # 98-000	81	79	2/Y (Amtrak Speed 71 mph)
	ML Train # 92-002	83	79	4/Y (Amtrak Speed 71 mph)
	ML Train # 91-004	80	79	1/Y (Amtrak Speed 72 mph)
	ML Train # 97-005	81	79	2/Y (Amtrak Speed 72 mph)
WPB FEC - TC	CR Train –000		**79**	
	CR Train –002		**80**	
WPB FEC - ML	ML Train –004		**83**	
	ML Train –005		**84**	
JAX FEC - TC	CR Train - 000		**75**	
	CR Train- 005		**73**	
JAX FEC ML	ML Train- 014		**78**	
	ML Train- 015		**79**	
	ML Train - 016		**82**	
FEC HS-ML	ML Train - 000		**79**	
	ML Train - 003		**79**	

Notes:
* Velocity vibration level includes one FEC Transit Event

3.4 Social Environment

The proposed action was evaluated to consider the potential sociocultural effects of the project on the social (or human) environment. This evaluation considered the potential effect to the affected communities and the quality of life to the human population within these communities. The evaluation focused on the potential effects to social, economic, land use, mobility, aesthetic, and relocation issues in consideration of the community characteristics. This project has been developed in accordance with the Civil Rights Act of 1964, as amended.

The sociocultural effects evaluation described in the following sections was based on the ETDM Sociocultural Effects (SCE) Evaluation (FDOT, June 2010) for the study area, additional desktop research, public involvement outreach and field reconnaissance of land uses. The input received during the public involvement activities documented in Chapter 4 was used to guide the sociocultural evaluation. The interested public attended public workshops and actively participated in design sessions that were held in each of the station cities. These design sessions were formatted as charrettes to solicit meaningful public input during alternatives analysis and development. The community values and concerns were vetted through these public meetings.

The FEC Railway and SFRC cross through urban and rural settings within the existing right-of-way along the 350-mile project corridor from Jacksonville to Miami. The SCE of the mainline corridor through the counties along the FEC Railway corridor (Duval, St. Johns, Volusia, Brevard, Indian River, St. Lucie, Martin, and Palm Beach) was conducted during the ETDM process and documented in the ETDM Programming Summary Report. As discussed in Chapter 2, minimal surface track work is proposed along the existing FEC Railway freight corridor and this work is within the existing right-of-way. No right-of-way impacts to surrounding land uses are associated with the FEC Railway mainline improvements.

South of the Northwood Crossover, no rail infrastructure improvements are proposed on the existing SFRC. While the rail mainline improvements are planned to occur within the existing right-of-way, the potential sociocultural effects related to the increased frequency of train traffic and higher speeds at which the trains may travel through the area were considered. The air quality analysis conducted for the project concluded the proposed project would result in improved air quality. The noise and vibration analysis determined that the proposed project would not result in adverse effects from increases in noise levels or vibration impacts compared to the No-build Alternative (where freight rail activity is the dominant noise and vibration source). From an aesthetic standpoint, the existing viewshed of the rail corridor from the surrounding land uses will be maintained in the proposed condition. The proposed action includes increased train speeds (up to 90 mph) on the FEC Railway. FRA has conducted previous research studies on the aerodynamic effects of increased train speeds. The research concluded that Amtrak-shaped passenger trains operating at speeds up to 90 mph are not anticipated to produce adverse wind effects beyond 23 feet from the rail line. With the existing 100-foot rail corridor, no effect from increased wind speeds is anticipated to adjacent land uses or outdoor activities adjacent to the rail corridor.

Based on these analyses, the proposed project is anticipated to result in no effect to sociocultural resources along the FEC Railway or SFRC within the mainline corridor. Sociocultural effects are anticipated due to the proposed stations and the realignment of the Northwood Crossover. For the purposes of this evaluation summary, the sociocultural effects

discussion focuses on resources within 500 feet of the proposed stations and the Northwood Crossover.

The sociocultural effects evaluation of the proposed action resulted in the following conclusions:

- Social (Section 3.4.1) – The project will improve the quality of life in affected communities by enhancing transportation connectivity, improving mobility, and stimulating the economy. The proposed improvements will not disrupt or divide existing neighborhoods or minority communities. No community facilities will be adversely affected by the proposed project. The project is not anticipated to involve adverse effects to historic resources. Based on the public involvement conducted for the project (Chapter 4), no public controversy is anticipated. The project received an overwhelming display of support by local residents, special interest groups and local agencies. More than 380 comments were received (as of June 2010) from interested individuals in support of the project.
- Economic (Section 3.4.2) – The project is anticipated to enhance the local, state and regional economy.
- Land Use (Section 3.4.3) – The proposed project is consistent with statewide policy and the goals and objectives of local government comprehensive plans (documented in Section 3.8.4 – Transportation Plan Consistency). Coordination with local governments is ongoing to amend the comprehensive plans to incorporate the proposed improvements. All the communities with proposed stations have adopted resolutions supporting the project (Section 4.3). The proposed stations are primarily located within Community Redevelopment Areas (CRAs) and are consistent with the redevelopment objectives for each of the communities.
- Aesthetics (Section 3.4.4) –The proposed station concepts include aesthetic features (such as architectural components and landscaping), ADA-compliant parking and pedestrian features. These improvements are anticipated to result in an enhancement to the existing communities.
- Mobility (Section 3.4.5) – The project is anticipated to involve a minimal increase in traffic as a result of the proposed action (adding four passenger trains - two northbound and two southbound trains daily). The proposed improvements are anticipated to result in enhanced mobility, especially for the transit-dependent population.

  Relocation (Section 3.4.6) – The proposed improvements along the FEC Railway mainline will be constructed within the existing 100-foot FEC Railway right-of-way. No rail infrastructure improvements (or associated parcel impacts) are required on the SFRC (existing Amtrak route) from West Palm Beach to Miami. The proposed Northwood Crossover will involve minimal right-of-way (3.32 acres) within 19 parcels. Minimal right-of-way impacts (approximately 5.6 acres) are anticipated to accommodate the proposed stations. A total of approximately 9.52 acres of right-of-way and 13 non-residential relocations are anticipated for the project along the project corridor from Jacksonville to Miami. No residential relocations are anticipated. In summary, the sociocultural effects for the proposed action are anticipated to be minimal. Opportunities to further avoid, minimize and mitigate sociocultural effects will be investigated during the design phase of the project.

3.4.1 Social Demographics

3.4.1.1 Population

Significant population growth is anticipated along the FEC Railway corridor from Jacksonville (Duval County) to West Palm Beach (Palm Beach County) as shown in Exhibit 3.22.

The project is intended to provide an alternative mode of travel to support the expected growth in population and intercity travel demand to Florida's eastern communities. The University of Florida estimates that 25 million people will live in the state by 2035, compared to the current population of approximately 17 million. The project corridor between Jacksonville and Miami has the potential to serve more than 8.6 million people by 2035.

EXHIBIT 3.22
Population by County

County	2009 Population	2035 Estimated Population	% Change
Duval	778,000	1.2 million	54%
St. Johns	183,572	342,800	87%
Flagler	94,901	200,300	111%
Volusia	507,105	636,600	26%
Brevard	555,657	727,200	31%
Indian River	141,634	210,500	49%
St. Lucie	272,864	469,600	72%
Martin	143,856	179,000	24%
Palm Beach	1,287,344	1,606,900	25%

Source: ETDM Sociocultural Effects Evaluation (FDOT, 2010)

3.4.1.2 Community Disruption and Environmental Justice

In accordance with the U.S. DOT Final Order on Environmental Justice in Executive Order 12898, an analysis was performed as part of the ETDM SCE evaluation for this project. The resulting analysis of the socioeconomic data is shown as Exhibit 3.23, which was developed from the U.S. Census Bureau data (U.S. Census Bureau, 2010). The data were collected at the Census block group level to identify minority, low income, and transit dependent populations and any potential effects to these populations.

Minority populations were identified by defining areas within 0.25 mile of the project where the minority demographics exceed 40 percent. The median family income for the block groups in each county range from $31,383 to $51,210 per year based on the SCE analysis performed for this project, which is above the poverty guideline for a family size of 6 or less.

The project is anticipated to have no adverse effects to adjacent neighborhoods or communities (including minority and low-income populations) since the communities were built around the historic FEC Railway that operates freight service today. The existing neighborhoods and communities would not involve community cohesion impacts as land uses were build adjacent to the railroad and right-of-way impacts are minimal for the proposed stations and realigned Northwood Crossover. Based on the public outreach conducted, the surrounding communities are extremely supportive of the restored passenger service as the proposed project integrates enhanced mobility to the existing infrastructure. The increased train frequency (two northbound and two southbound trains) was evaluated to consider proximity effects to the surrounding neighborhoods. Based on the analysis presented in Section 3.3, the proposed action is anticipated to have no effect due to the projected noise impacts or vibrations impacts and the air quality is anticipated to be improved.

The realigned Northwood Crossover would result in impacts to approximately 10 non-residential properties within, or adjacent to, the Northwood Industrial Park. These properties are vacant or located near the industrial/commercial land uses and do not involve disproportionately high or adverse impacts to minority or low-income populations. The existing social demographics for the Northwood Crossover study area were documented during the ETDM screening. Based on this analysis, the realigned Northwood Crossover is located in an area designated with a minority concentration of 0-6% of the population; therefore no minority populations are involved.

Property impacts to surrounding industrial/commercial land uses are unavoidable because the existing Northwood Crossover is not usable in the existing configuration for the proposed passenger rail service. The Preferred Alternative for the Northwood Crossover was selected to avoid impacts to cultural resources described in Section 3.6. The avoided cultural resources involve cemeteries and parks of intrinsic value to the surrounding community. The anticipated parcel impacts are located outside the core Northwood community designated as the Northwood District.

Environmental Justice regulations require federal agencies to incorporate consideration of environmental justice into their planning processes. The executive order prohibits federal financial assistance for programs and activities that use criteria, methods or practices that discriminate on the basis of race, color or national origin. Its goal is to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations.

An adverse effect on minority and/or low-income populations occurs when: 1) the adverse effect occurs primarily on a minority and/or low-income population, 2) the adverse effect suffered by the minority and/or low income is more severe or greater in magnitude than the adverse effect suffered by the non-minority and/or non-low-income populations.

Definitions.

Minorities: Individuals of American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic racial heritage.

Low-Income: Individuals with median household income is at or below the Department of Health and Human Services poverty guidelines, as shown below.

The 2009 Poverty Guidelines for the 48 Contiguous States and the District of Columbia (http://aspe.hhs.gov/poverty/09poverty.shtml

Persons in family	Poverty guideline
1	$10,830
2	14,570
3	18,310
4	22,050
5	25,790
6	29,530
7	33,270
8	37,010

For families with more than 8 persons, add $3,740 for each additional person.

The proposed stations in Daytona and Cocoa do not involve disproportionate impacts as a result of the minimal property impacts associated with the use of public right-of-way in Daytona at Magnolia Avenue and the FEC property in Cocoa. The No-build Alternative and the Preferred Alternative would not result in disproportionate adverse impacts to minority or low income populations. The Preferred Alternative would benefit residents and business owners by providing additional public transportation services between communities on Florida's east coast and long-distance transportation connectivity to existing Amtrak routes. In addition, the Preferred Alternative would encourage or provide increased public transportation improvements that may be of value to low-income residents who may not be able to afford reliable personal transportation to travel to employment opportunities.

EXHIBIT 3.23
Minority and Low Income Information Summary

Preferred Alternative Location	Demographic Composition				Census Blocks with Greater than 40% Minority Population		Median Income
	White	Other Race	African American	Hispanic	Number of Census Blocks	Total Minority Population	
St Augustine - Alt. 1	96.9%	2.8%	0.3%	1.1%	2	14	$51,210
Daytona - Alt. 1	48.1%	3.4%	48.5%	3.1%	18	655	$27,525
Titusville - Alt. 2	62.4%	4.1%	33.4%	2.2%	23	331	$37,752
Cocoa - Alt. 2	29.3%	3.1%	67.5%	3.9%	13	653	$37,829
Melbourne - Alt. 3	92.4%)	3.1%	4.5%	2.5%	3	28	$45,536
Vero - Alt. 3	91.7%	4.4%	3.9%	6.7%	4	73	$37,252
Fort Pierce - Alt. 1	71.8%	10.5%	17.7%	24.6%	9	193	$31,796
Stuart - Alt. 3	77.0%	1.6%	21.4%	8.8%	7	118	$47,051
Northwood Crossover	19.4%	10.9%	69.8%	10.8%	55	3,968	$31,383

Notes: Data represents population demographics within 0.25 mile project buffer

3.4.1.3 Parks and Recreation

Parks and recreational areas within 500 ft. of the proposed improvements were reviewed to determine potential effects to these community resources. The No-build Alternative would not impact parks or recreational facilities. No impacts to existing publicly-owned parks or recreation areas are associated with the Preferred Build Alternative. Proximity effects (air, noise, vibration, visual) were evaluated for the existing parks and recreational facilities (including trails) within 500 feet of the FEC Railway mainline and the proposed improvements. These locations are subject to existing noise, vibration and air pollutants from the freight trains. As stated previously, no adverse noise, vibration or air quality effects are associated with the Preferred Alternative.

It should be noted, within the study area U.S. 1 is generally parallel to, and east of, the FEC Railway. U.S. 1 is a designated scenic highway from Titusville south to Melbourne. U.S.1 would serve as a primary north-south route for access to the Titusville, Cocoa and Melbourne stations. No modifications to the U.S. 1 roadway are proposed for the project. Pursuant to Section 335.093, F.S., the purpose of designating a highway segment as a Florida Scenic Highway is "to preserve, maintain, protect, and enhance Florida's outstanding cultural, historical, archaeological, recreational, natural, and scenic resources." Designation as a scenic highway does not preclude transportation improvements. During the subsequent design phase, any supplemental signage on U.S. 1 for the proposed Amtrak stations would need to be coordinated with the scenic highway coordinator management entity.

The existing and planned facilities within 500 ft. of the proposed stations are shown in Exhibit 3.24. Temporary construction activities are anticipated to occur on the parcels impacted by the proposed stations and would avoid nearby parks or recreational facilities.

EXHIBIT 3.24
Recreational Facilities Potentially Affected by Preferred Alternative

Station	Recreation Facility	Primary Recreation Use	Direct Impact	Potential Effects	Potential Section 4(f) Involvement	Comments
St. Augustine (Alternative 1: U.S. 1 at San Marco)	Northeast Florida Blueway Florida Forever BOT project	Planned conservation with primitive camping, nature trails	No	No noise, visual or atmospheric effects	No – No constructive use	Planned conservation lands (not acquired) west of FEC Railway adjacent to railroad right-of-way and second property east of U.S. 1 (adjacent to Fort Mose Historic State Park)
	San Sebastian (River) Paddling Trail	Canoeing/Kayaking	No	No noise, visual or atmospheric effects	No – No constructive use	Paddling trail from Joe Pomar Park connecting to Downtown St. Augustine (west of FEC)
	Multi-use trail priorities: Flagler to Jacksonville Corridor and East Coast Greenway North Corridor	Multi-use recreation trail	N/A	No noise, visual or atmospheric effects	No – No constructive use	No public ownership or easements as of July 2010, Planned parallel to FEC Railway or within right-of-way; No trail alignments are established.
Titusville (Alternative 2: North of Pine Street)	Proposed St. Johns River-to-Sea Loop (East Regional Rail Trail)	Multi-use recreation trail	No	No noise, visual or atmospheric effects	No – No constructive use	Approximately .25 miles from proposed station
Melbourne (Alternative 3: North of U.S. 192)	OGT Multi-use trail priorities	Multi-use recreation trail	No	No noise, visual or atmospheric effects	No – No constructive use	No public ownership or easements as of July 2010, Planned parallel to FEC Railway or within right-of-way; No trail alignments are established.
Vero Beach (Alternative 3: North of 23rd Street)	Vero Beach Community Center	Recreational facility – tennis, community center	No	No noise, visual or atmospheric effects	No – No constructive use	Publicly owned land with recreational facilities; Recreational uses are a minimum of 100 ft. from FEC railway and will not involve noise effects
Fort Pierce	OGT Multi-use trail priorities	Multi-use recreation trail	N/A	No noise, visual or atmospheric effects	No – No constructive use	No public ownership or easements as of July 2010, Planned parallel to FEC Railway or within right-of-way; No trail alignments are established.

As shown in Exhibit 3.24, several FDEP Office of Greenway and Trails (OGT) multi-use trail priorities are located adjacent to the FEC Railway. These priorities are established by OGT to prioritize funding for trail development based on eligibility criteria such as recreational attributes, ecological factors and associated environmental resources. Because these priority greenways and trails are defined by large corridors and pathways, the potential direct impact to the planned trails cannot be determined without an established trail alignment. These OGT multi-use trail priorities are not considered officially designated greenways and trails as of June 2010. Also, no public ownership or public easements are associated with the OGT multi-use trail priorities. The proposed project does not preclude any future trail alignments planned within the FEC right-of-way.

The compatibility of existing or planned trails adjacent to (or near) the proposed passenger service with increased speeds on the FEC Railway up to 90 mph was investigated. Based on a prior research study (USDOT, 2002), design considerations such as a minimum setback distance and potential separation techniques (landscaping, vertical distance, topography changes, etc.) are effective in eliminating potential adverse effects from wind speed. The setback distance should be determined on a case-by-case basis in consideration of site-specific conditions. Based on this documentation, any future trails would not be adversely affected by the proposed action.

3.4.1.4 Public Health and Safety

The project study area is approximately 350 miles in length from Jacksonville to Miami and crosses numerous roadways with various forms of at-grade crossing control. The No-build Alternative would have no benefits to public health and safety because vehicular, bicycle and pedestrian traffic safety would not be enhanced since the grade-crossing signals would not be upgraded. The Preferred Alternative would result in an enhancement to public safety with the proposed improvements to existing grade-crossing signal equipment for vehicular and pedestrian traffic. Additionally, the Preferred Alternative is expected to provide an alternative mode of travel for long-distance travel through Florida and is expected to result in decreased congestion and potential safety benefits from reduced crashes on existing parallel roadways such as U.S. 1 and I-95.

There are 11 public health and safety facilities along the FEC Railway (Exhibit 3.25). These facilities consist of emergency operation centers, fire stations, emergency medical services, and law enforcement centers. No property impacts are associated with any of these facilities. Proximity impacts (noise, vibration, and air quality) were evaluated to determine the potential effect to these public resources. Based on this analysis documented in Section 3.3, the Preferred Alternative would have no effect on these facilities. At the proposed stations and the Northwood Crossover realignment, there are no public facilities located within 500 ft. of the Preferred Alternative and therefore, no impacts to public health and safety facilities are anticipated. No community facilities are impacted by the proposed project.

Impacts to public safety for residential and recreational land uses adjacent to the proposed improvements are not anticipated for the project. The proposed improvements for the FEC would involve minimal track realignments in high-speed curve sections outside of the urban areas. The existing grade crossings would maintain existing safety devices. Upgraded crossing devices would be implemented at the proposed and modified grade crossings. The proposed sidings within the FEC right-of-way would involve low-speed trains at approaches to stations for the departure/arrival of passengers and would employ standard Amtrak safety equipment.

EXHIBIT 3.25
Public Health and Safety Facilities along the Mainline

Name	Facility Type	City/Town	County
St. Johns Emergency Management Center	Emergency Operation Center (EOC)	St. Augustine	St. Johns
Edgewater Department of Fire Rescue Station 57	Fire Station	Edgewater	Volusia
Emergency Medical Foundation Inc. EVAC Ambulance	Emergency Medical Service (EMS)	Holly Hill	Volusia
Rockledge Police Department	Law Enforcement	Rockledge	Brevard
Brevard County Fire Rescue Station 86	Fire Station	Micco	Brevard
St. Lucie County Sheriff's Office	Law Enforcement	Fort Pierce	St. Lucie
Palm Beach County Fire Rescue Station 68	Fire Station	Lake Park	Palm Beach
Boca Raton Fire and Rescue Station 8	Fire Station	Boca Raton	Palm Beach
Miami-Dade County Fire Rescue Station 20	Fire Station	North Miami	Miami-Dade
El Portal Police Department	Law Enforcement	Miami	Miami-Dade
City of Miami Department of Fire-Rescue Station 2	Fire Station	Miami	Miami-Dade

3.4.1.5 Controversy Potential

The public involvement outreach for the project was conducted to provide opportunities for agency and public input throughout the project (Chapter 4). As a result of the public meetings held within the affected communities, extensive support of the project was documented. In Cocoa, the minority community (known as the Diamond Square district) provided more than 300 individual letters of support for the project. It should be noted the Diamond Square community residents indicated vast support for the station adjacent to their community and east of the FEC Railway (Alternative 1 - Stone Street) because this station is centrally located within the minority population. The community strongly supported the reopening of the Stone Street grade crossing. It was clarified to the public and local officials that any requested openings of former grade crossings (such as Stone Street) are not required for the project and would need to be addressed by FEC Railway. Discussions with FEC Railway indicated that the Stone Street grade crossing was closed because of safety concerns; there are no proposals to reopen the closed grade crossing.

After a thorough evaluation of the engineering and environmental analyses conducted during the alternatives analysis of the stations (Chapter 2), Alternative 2 (Rosa L. Jones Boulevard) was identified as the Preferred Alternative. The Preferred Alternative, which is primarily located on FEC Railway property, resulted in fewer parcel impacts and relocations. Additionally, the Rosa L. Jones Boulevard location is situated within the boundaries of both the City of Cocoa and the City of Rockledge CRA, which increases the viability of available project funding. Alternative 2 (Rosa L. Jones Boulevard) is approximately five blocks south of Alternative 1 (0.3 miles) and is adjacent to the southeastern boundary of the Diamond Square Redevelopment Area. The proximity of the Preferred Alternative to this community will

provide enhanced mobility and encourage economic vitalization, which are desired by the community residents.

3.4.2 Economic

The economic benefits of the project are detailed in Section 1.5.3.1 of this report. These economic benefits include 550 immediate construction jobs within Florida. The local, state and regional economy is anticipated to benefit from the employed labor force needed to construct, maintain and operate the proposed facilities and passenger service. With the implementation of the project, land use policies and resumed economic growth, anticipated economic benefits to the state economy include up to 6,334 permanent jobs by 2021, increased property tax revenues of $4.4 million, and $2 billion in commercial and residential development potential.

The restoration of intercity passenger rail service from Jacksonville to Miami along Florida's east coast supports ongoing compact redevelopment activity, specifically in the eight communities proposed for Amtrak stations. The proposed intercity passenger rail service is planned as a strategic investment to support and guide future economic growth within the region, as well as within the individual station cities. The service is anticipated to enhance development opportunities and economic activities at and beyond station locations, because it will:

- Provide reliable service and connections to airports, seaports and mass transit facilities between the Jacksonville and Miami travel markets (thereby encouraging increased visitation throughout the corridor for tourism, sporting events, business activities and personal trips)
- Interconnect Florida's east coast cities, as well as connect the Northeast, Mid-Atlantic, Southeast and Midwest United States to major tourist destinations along Florida's east coast
- Augment the ongoing redevelopment and urban infill development activities of the communities along Florida's east coast (specifically stimulating transit-oriented development opportunities).

In most of the cities (Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce and Stuart), the proposed stations are located within established CRAs designated for reinvestment through urban infill development and redevelopment. These cities are currently revitalizing their downtown areas with the ultimate goal of restoring classic urban form, including gridded street networks and mixed-use neighborhoods that help reinforce sustainable patterns of development. The communities have assumed Amtrak passenger stations in their core areas to stimulate development of compact urban patterns. Overall, the rail project will be critical in providing a sustainable growth strategy for the region and individual station cities by allowing redevelopment/development trends to continue and accelerate, supported by a well-connected, accessible and balanced multi-modal transportation system.

These estimated economic project benefits exceed the estimated project cost of approximately $250 million dollars for design, right-of-way acquisition, construction of the proposed improvements and equipment procurement. As of June 2010, no funding is designated for the proposed project. Potential funding sources include ARRA HSIPR funds and other federal, state and local funds. If funded, Amtrak would operate the passenger service and stations. It is anticipated the proposed passenger stations would be maintained by local governments within each station jurisdiction. Also, it is anticipated FEC Railway would

maintain ownership of existing buildings proposed for stations or lease the buildings for use as passenger stations.

3.4.3 Land Use

The project is anticipated to result in an enhancement to existing and future land uses adjacent to the project corridor as a result of improved mobility and connectivity to both regional activity centers and the surrounding transportation network. The proposed project is a strategic investment for the future growth of the region. The proposed passenger service is anticipated to encourage tourism in additon to augmenting the ongoing redevelopment of compact development patterns in the historic town centers along Florida's east coast and encouraging transit-oriented development and the integration of livable communities. As such, this project will be critical in providing a sustainable growth strategy for the region by allowing redevelopment/development trends to continue and accelerate through a well-connected, accessible and balanced multi-modal transportation system. The area's character and land use vision are expected to be enhanced as a result of the stations.

The historic FEC Railway was built to promote economic development and tourism in Florida. Historically, developed land uses were concentrated around the railroad because it was the primary mode of long-distance travel until the early 20TH century. The FEC Railway continues to service industrial land uses adjacent to the corridor through freight operations. Historic downtown areas were built surrounding the historic passenger stations. Urban sprawl and the use of the automobile as the primary mode of travel have resulted in the economic decline of several of these historic downtown areas. In recent years, jurisdictional agencies have emphasized a renewed focus on the redevelopment, revitalization and historic preservation of these historic downtown areas. Any potential secondary and cumulative development would likely occur adjacent to the existing FEC Railway corridor. The proposed stations are anticipated to result in enhanced land use changes due to secondary and cumulative effects of potential urban infill and development surrounding the proposed passenger rail stations. The following paragraphs summarize the anticipated land uses associated with the Preferred Alternative proposed stations. Concept plans depicting the proposed stations and the surrounding land uses are included in Appendix B.

St. Augustine station in St. Johns County (Alternative 1: U.S. 1 at San Marco Avenue) would result in enhanced land use, zoning consistency and minimal property acquisition. The Preferred Alternative includes restoring the FEC Railway passenger station to its former use. The existing land use is industrial and as a storage/maintenance location for the FEC Railway. The proposed platform and siding would be located adjacent to the existing freight corridor. The proposed station, siding and platform would involve approximately 1.54 acres of potential right-of-way impacts. The former station is within FEC Railway property that is mostly vacant land with a few onsite buildings (partially occupied). Based on preliminary discussions, FEC Railway may support the lease of the station/parking footprint (in lieu of property acquisition) for use as a passenger rail station. During the design phase of the project, formal lease agreements with FEC Railway would need to be developed and would need to include an employee relocation plan.

Surrounding land uses include a commercial shopping center to the north and commercial/residential areas to the south. The proposed passenger station would be consistent with these existing land uses east of the FEC Railway. West of the FEC Railway, the land is

undisturbed pinelands that transition to tidal wetlands associated with the San Sebastian River. The natural environmental resources west of the FEC Railway will not be impacted by the proposed project east of the existing FEC Railway freight corridor. This area is anticipated to transition from a rural to urban environment as residential development continues to increase.

Daytona Beach Station in Brevard County (Alternative 1: South of International Speedway Boulevard) would result in enhanced land use, zoning consistency and minimal property acquisition. The project is consistent with the existing and future land uses. The proposed platform and siding would be located within the existing freight corridor. The proposed station and parking facilities would involve approximately 1.47 acres of potential right-of-way impacts on existing commercial/industrial properties. Additional on-street parking opportunities exist near the site along Magnolia Avenue. During the subsequent design phase, interlocal agreements with FRA, FEC Railway, Amtrak and the City of Vero Beach would need to be finalized for the proposed station at the Magnolia Avenue terminus. Surrounding existing and future land uses include residential, commercial/retail, and industrial properties. The proposed passenger station would support these surrounding land uses. The Preferred Alternative is located within the City of Daytona Beach CRA and is consistent with the CRA plan to encourage urban infill development and redevelopment.

Titusville Station in Brevard County (Alternative 2: North of Pine Street) would result in enhanced land use, zoning consistency and minimal property acquisition (approximately 0.23 acres of FEC Railway right-of-way is involved). The Preferred Alternative includes restoring the historic passenger station to its former use. The existing land use is industrial and a storage/maintenance facility for the FEC Railway in historic downtown Titusville. The existing building is used by FEC Railway maintenance/facility employees. The existing FEC Railway property has a parking area of adequate size to accommodate the anticipated parking needs. Additional on-street parking opportunities exist near the site. Historic walking tours of the core historic downtown routinely include the existing historic station, with three museums located within several blocks. Based on preliminary discussions, FEC Railway may support the lease of the property (in lieu of property acquisition) for use as a passenger rail station. During the design phase of the project, formal lease agreements with FEC Railway would need to be developed and would need to include an employee relocation plan.

The surrounding land uses are primarily commercial/retail. This site is within 250 feet of the St. Gabriel's Episcopal Church (414 Pine Street), which is NRHP-listed. The Titusville Commercial District is a NRHP-listed historic district located approximately 700 feet to the northeast and is roughly bounded by Hopkins Avenue (western boundary), Indian River Avenue (eastern boundary), Main Street (northern boundary) and Julia Street (southern boundary). Much of the early historic downtown was established subsequent to the construction of the FEC Railway in 1885. The railroad is acknowledged as the primary factor contributing to the historical influx of permanent settlers and tourists in downtown Titusville (Historical Society of North Brevard, Inc. [HSNB[, 2010). The restoration of passenger service is anticipated to spur similar economic revitalization. The historic downtown includes 12 to 18 events annually that draw thousands of patrons. This Preferred Alternative for the Titusville station would provide an alternate mode of travel for these tourists and potentially support an increased tourist base. The site is located within the Titusville CRA and is consistent with the CRA plan to encourage urban infill development and redevelopment. In addition, the historic

station is adjacent to a rails-to-trails improvement (part of a separate action) that will ultimately connect to a 260-mile trail loop and provide modal interconnectivity.

Cocoa Station in Brevard County (Alternative 2: South of Rosa L. Jones Boulevard) would result in enhanced land use, zoning consistency and minimal property acquisition. The Preferred Alternative includes restoring the historic passenger station to its former use or the construction of a new station building to accommodate the proposed passenger service. The proposed platform and siding would be located within the existing freight corridor. The proposed station and parking facilities would involve approximately 1.59 acres of potential right-of-way impacts on existing commercial/industrial properties. The existing property east of the railroad is owned by FEC Railway and is used for rail-to-truck transload operations and FEC Railway operations as a turnout for the Cocoa area. The former station building is leased by a tenant for bulk transfer operations and used by FEC Railway employees. Based on preliminary discussions, FEC Railway may support the lease of the station/parking footprint (in lieu of property acquisition) for use as a passenger rail station. The viability of either restoring the passenger station or constructing an adjacent station building would depend on the engineering feasibility of maintaining transload operations and turnout operations with the proposed passenger operations. The estimated property acquisition includes a right-of-way footprint adequate to accommodate either scenario. Surrounding existing and future land uses include mixed residential, commercial/retail and industrial uses. The proposed passenger station would support these surrounding land uses. The Preferred Alternative is located within the City of Cocoa CRA. The affected FEC Railway property is also located within the City of Rockledge CRA and is consistent with the CRA plan to encourage urban infill development and redevelopment.

Melbourne Station in Brevard County (Alternative 3: North of U.S. 192) would result in enhanced land use, zoning consistency and minimal property acquisition. The Preferred Alternative includes the construction of a new station building to accommodate the proposed passenger rail service. The proposed platform and siding would be located within the existing freight corridor. The proposed station would involve approximately 0.55 acres of potential right-of-way impacts on the existing commercial property. Surrounding existing and future land uses include mixed residential, commercial/retail and industrial uses. Implementing Alternative 3 would involve the closure of two existing grade crossings (Lincoln Avenue and Palmetto Avenue) to accommodate the proposed platform. These local access streets provide east-west access to surrounding land uses. The closure of these two grade crossings is not anticipated to adversely impact local circulation as alternate routes are located approximately 150 feet north (Fee Avenue) and 300 feet south (U.S. 192). The proposed passenger station would support these surrounding land uses. The Preferred Alternative is located within the City of Melbourne CRA and is consistent with the CRA plan to encourage urban infill development and redevelopment.

Vero Beach Station in Indian River County (Alternative 3: North of 23rd Street) would result in enhanced land use, zoning consistency and minimal property acquisition (0.69 acres of right-of-way is impacted). The Preferred Alternative involves a proposed ancillary structure to accommodate station facilities and operations adjacent to the historic passenger station. The Preferred Alternative would not include the use of the museum. While the property it resides on is not the location of the historic station, it was purchased by the City of Vero Beach in 1924 as a potential station site (Indian River County Historical Society [IRCHS], 2010). The project is

consistent with the existing and future land uses and would fulfill the intended historic preservation use of the site. The existing property has a parking area of adequate size to accommodate the anticipated parking needs. The City of Vero Beach owns the existing property and is anticipated to maintain and operate the proposed station. During the subsequent design phase, interagency agreements with FRA, FEC Railway, Amtrak and the City of Vero Beach would need to be finalized. Surrounding existing and future land uses include residential, commercial/retail, industrial, institutional and public uses. The proposed passenger rail station would support these surrounding land uses. The Preferred Alternative is located within the City of Vero Beach CRA and is consistent with the CRA plan to encourage urban infill development and redevelopment.

Fort Pierce Station in St. Lucie County (Alternative 1: Orange Avenue – East of FEC Railway) would result in enhanced land use, zoning consistency and minimal property acquisition. The Preferred Alternative includes the construction of a new station building to accommodate the proposed passenger rail service. The proposed platform and siding would be located within the existing freight corridor. The proposed station would involve approximately 0.036 acres of potential right-of-way impacts on the existing commercial property. Surrounding existing and future land uses include mixed residential, commercial/retail and industrial uses. The proposed passenger station would support these surrounding land uses. The Preferred Alternative is located within the City of Fort Pierce CRA and is consistent with the CRA plan to encourage urban infill development and redevelopment.

Stuart Station in Martin County (Alternative 3: Stypmann Boulevard) would result in enhanced land use, zoning consistency and minimal property acquisition (0.09 acres of right-of-way impacts estimated). The Preferred Alternative includes the use of the proposed Martin County Transit Depot to accommodate the proposed passenger rail service. The proposed platform and siding would be located within the existing freight corridor. The project is consistent with the existing and future land uses and would fulfill the intended use of the site as a regional transit hub. The existing property has a parking area of adequate size to accommodate the anticipated parking needs. Martin County owns the existing property and is anticipated to maintain and operate the proposed station. During the subsequent design phase, interagency agreements with FRA, FEC Railway, Amtrak, the City of Stuart and Martin County would need to be finalized. Surrounding existing and future land uses include residential, commercial/retail, industrial, institutional and public uses. The proposed passenger rail station would support these surrounding land uses. The Preferred Alternative is located within the City of Stuart CRA and is consistent with the CRA plan to encourage urban infill development and redevelopment.

The Northwood Crossover Realignment in West Palm Beach, Palm Beach County, would not have a significant impact on land use, zoning consistency or property acquisition. The realigned Northwood Crossover would involve approximately 3.32 acres of potential right-of-way impacts. The area immediately surrounding the Northwood Crossover consists primarily of industrial uses because the existing track is located within the Old Northwood Industrial Park. The industrial park is approximately 75.0 acres in size and contains mostly older industrial and commercial uses, including several recycling facilities with substantial open storage areas. The industrial park also contains a row of 1940s Quonset huts, currently utilized for industrial and commercial businesses. The Preferred Alternative for the Northwood Crossover realignment is an avoidance alternative for significant cultural resources including

the Hurricane of 1928 African-American Mass Burial Site and memorial (NRHP- listed), and the Evergreen Cemetery, a historic African-American cemetery eligible for listing on the NRHP. These cultural resources are integral to the character of the surrounding Northwood community. On June 24, 2010, FDOT held a Cultural Resource Committee meeting as part of the Section 106 consultation process for the Northwood Crossover realignment. The meeting was attended by West Palm Beach Planning, Historic Preservation and CRA Departments, and the *Storm of '28 Coalition* representing the Northwood Hurricane Memorial citizens' group (FDOT District Four, 2010). As a result of the Section 106 consultation, no concerns of adverse effects to the Northwood community or its resources were identified.

Other surrounding existing and future land uses include residential and commercial/retail land uses. According to the future land use visions of the City of West Palm Beach and Palm Beach County, the land uses within the vicinity of the crossover are targeted for reinvestment through urban infill development and redevelopment and are located within a designated Brownfield area, the Palm Beach County Enterprise Zone and the established Northwood/Pleasant City CRA.

3.4.4 Aesthetics

The existing viewshed of the rail corridor from the surrounding land uses will be maintained in the proposed condition. The proposed station concepts include aesthetic features such as architectural components, landscaping, and ADA-compliant parking and pedestrian features. These improvements are anticipated to result in an enhancement to the existing communities. It is anticipated proposed station construction would be compatible with surrounding land uses. During the design phase of the project, complete engineering and architectural details for station facilities (including canopy columns and railings), platforms, signing, lighting and landscaping plans will be developed.

Additionally, three of the proposed stations involve the renovation of former passenger rail stations which will result in an enhancement to the aesthetics of the existing industrial uses and result in historic preservation. The stations located in or near historic downtown areas (St. Augustine, Titusville, Fort Pierce and Stuart) are anticipated to incorporate aesthetic features consistent with the historic architecture of the surrounding community.

3.4.5 Mobility

As discussed in Section 1.5 of this report, intercity travel along Florida's east coast communities is constrained by limited mobility options. These communities are currently accessed by sparse commercial air service and rental cars from distant major airports, limited intercity bus service, and congested I-95. While there is no passenger rail service along the FEC Railway to serve intercity travel between these communities, the existing intercity passenger rail service from West Palm Beach to Miami is limited to two round trip trains per day with limited stops. During the public outreach, the communities noted that the transit-dependent population is underserved with the existing mobility options. Transit-dependent populations were estimated by the age distribution and percentage of households without automobile access as shown in Exhibit 3.26.

EXHIBIT 3.26
Transit Dependent Population

	Age 65+	Under Age 18	Households without Automobile Access
St Augustine – Alt. 1	18.2%	16.8%	3.0%
Daytona – Alt. 1	19.5%	15.4%	43.8%
Titusville – Alt. 2	16.9%	26.1%	20.7%
Cocoa – Alt. 2	14.5%	25.7%	18.5%
Melbourne – Alt. 3	48.9%	5.8%	32.7%
Vero – Alt. 3	21.1%	16.1%	15.9%
Fort Pierce – Alt. 1	10.5%	28.1%	13.3%
Stuart – Alt. 3	18.5%	20.4%	17.1%
Northwood Crossover	11.6%	30.3%	28.1%

Source: ETDM Programming Summary Report (June 2010)

The proposed project will provide an alternative mode of travel for the transit-dependent population. Rail mobility is a significant enhancement to the transit-dependent population along the FEC Railway between Jacksonville and West Palm Beach where intercity mobility is limited. During the public outreach, several organizations representing the transit-dependent population (including senior citizens, disabled citizens and members of the National Federation of the Blind) attended public meetings to show support for the project.

All of the proposed stations are located within CRAs, historic districts, or central business areas in the eight station cities and are supported by a variety of local and regional transit services (documented in Section 1.5.3). The project is anticipated to result in enhanced mobility throughout Florida by integrating existing transportation networks, particularly bus transit, commuter rail lines, urban rail transit lines, highways, seaports and airports. According to the traffic analysis conducted for the project, local traffic patterns will not be adversely affected by the proposed action, which involves two northbound/southbound trains daily.

3.4.6 Relocation

The No-build Alternative would not involve the displacement of individuals, residences or businesses. The proposed project involves minimal property acquisition (9.52 acres) for the proposed stations and the realignment of the Northwood Crossover. The actual property acquisition may be reduced to approximately 5.63 acres in consideration of potential lease agreements and property agreements with joint development partners (including FEC Railway and the jurisdictional municipalities for the proposed stations). The anticipated property acquisition due to the proposed project is estimated at 13 potential displacements (10 as a result of the Northwood Crossover realignment [including 10 non-residential displacements] and 3 associated with the proposed stations). No residential displacements are associated with the proposed project. All of the non-residential displacements associated with the realigned Northwood Crossover involve light-industrial/manufacturing land uses.

Exhibit 3.27 lists the estimated right-of-way impacts and corresponding residential and non-residential displacements (business, commercial, industrial, etc.) for the Preferred Alternative. The acquisition and relocation program will be conducted in accordance with the Uniform Relocation

Assistance and Real Property Acquisition Policies Act of 1970, as amended, and relocation resources will be available to all relocated business and property owners without discrimination.

EXHIBIT 3.27
Estimated Property Impacts and Relocations for Preferred Alternative

Location	Estimated Parcel Impacts (acres)	Parcel Impacts Exclusive of Joint Development partners (acres)	Number of Parcels Impacted	Potential Displacements	
				Residential	Non-Residential
St. Augustine (Station Alt. 1: U.S. 1 at San Marco Ave.)	1.54	.16	6 (2 FEC)	0	0
Daytona Beach (Station Alt. 1: South of International Speedway Blvd.)	1.47	1.47	2	0	1
Titusville (Station Alt. 2: North of Pine St.)	.23	0	1 (FEC)	0	0
Cocoa (Station Alt. 2: South of Rosa L. Jones Blvd.)	1.59	.49	3 (2 FEC)	0	1
Melbourne (Station Alt. 3: North of U.S. 192)	.55	.15	2 (1 FEC)	0	1
Vero Beach (Station Alt. 3: North of 23rd St.)	.69	0	1 (FEC)	0	0
Fort Pierce (Station Alt. 1: Orange Avenue)	.036	.036	1	0	0
Stuart (Station Alt. 3: Stypmann Blvd.)	.09	0	1 (County-owned)	0	0
Northwood Crossover	3.32	3.32	19	0	10
Project Total	**9.52**	**5.63**	**36**	**0**	**13**

The proposed project is not anticipated to have an adverse effect on property values along the project corridor because there are no projected adverse effects due to proximity impacts. The secondary and cumulative effects of potential urban infill and redevelopment surrounding the proposed stations are anticipated to result in enhanced property values.

To minimize the unavoidable effects of right–of-way acquisition and displacement of people, FDOT will carry out a right–of-way and relocation program in accordance with Florida Statute 339.09 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646 as amended by Public Law 100-17).

FDOT provides advance notification of impending right–of-way acquisition. Before acquiring right–of-way, all properties are appraised on the basis of comparable sales and land use values in the area. Owners of property to be acquired will be offered and paid fair market value for their property rights.

No person lawfully occupying real property will be required to move without at least 90 days written notice of the intended vacation date, and no occupant of a residential property will be required to move until decent, safe and sanitary replacement housing is made available. "Made available" means that the affected person has either by himself obtained and has the right of possession of replacement housing, or that FDOT has offered the relocatee decent, safe and sanitary housing which is within his financial means and available for immediate occupancy.

At least one relocation specialist is assigned to each transportation project to carry out the relocation assistance and payments program. A relocation specialist will contact each person to be relocated to determine individual needs and desires, and to provide information, answer questions, and give help in finding replacement property. Relocation services and payments are provided without regard to race, color, religion, sex, or national origin.

All tenants and owner-occupant displacees will receive an explanation regarding all options available to them, such as (1) varying methods of claiming reimbursement for moving expenses; (2) rental replacement housing, either private or publicly subsidized; (3) purchase of replacement housing; and (4) moving owner-occupied housing to another location.

Financial assistance is available to the eligible relocatee to:

1. Reimburse the relocatee for the actual reasonable costs of moving from homes, businesses, and farm operations acquired for a transportation project.
2. Make up the difference, if any, between the amount paid for the acquired dwelling and the cost of a comparable decent, safe and sanitary dwelling available on the private market.
3. Provide reimbursement of expenses, incidental to the purchase of a replacement dwelling.
4. Make payment for eligible increased interest cost resulting from having to get another mortgage at a higher interest rate. Replacement housing payments, increased interest payments, and closing costs are limited to $22,500 combined total.

A displaced tenant may be eligible to receive a payment, not to exceed $5,250, to rent a replacement dwelling or room, or to use as down payment, including closing costs, on the purchase of a replacement dwelling.

The brochures that describe in detail FDOT's relocation assistance program and right–of-way acquisition program are "Your Relocation: Residential," "Your Relocation: Business, Farms and Nonprofit Organizations," "Your Relocation: Signs," and "The Real Estate Acquisition Process." All of these brochures are distributed at all public hearings and made available upon request to any interested persons. Title VIII of the Civil Rights Act of 1968 guarantees each person equal opportunity in housing.

3.5 Contaminated Sites and Hazardous Waste

No high risk contaminated sites of concern are present in the study area. A preliminary evaluation of the Preferred Alternative was conducted to determine potential contamination concerns along the project corridor for the proposed construction improvements. This evaluation was based on visual reconnaissance of the project area; review of aerial photographs spanning a 30-year period; and review of an Environmental Database Report with the most recently available state and federal databases from the FDEP and United States Environmental Protection Agency (USEPA). Field reviews were conducted to verify potential contamination sites at the proposed station sites and within the areas of proposed construction (sidings, platforms and Northwood Crossover realignment). A Contamination Screening Evaluation Report (CSER) was prepared to document the Level 1 investigation conducted in compliance with Part 2, Chapter 22 (Contamination Impacts) of the FDOT PD&E Manual and is included in Appendix A.

Each potential site was given a "Risk" rating in accordance with Part 2, Chapter 22, Section 2.2.3. (1-17-08 revision) of the FDOT's PD&E Manual. The contamination rating system is divided into four degrees of Risk: No, Low, Medium and High. This system expresses the degree for potential contamination problems. Known problems may not necessarily present a high cause for concern if regulatory agencies are aware of the situation and actions, where necessary, are either complete or under way, and these actions will not have an adverse impact on the proposed project. Exhibit 3.28 presents the ranked sites near the proposed improvements. Exhibit 3.29 presents the sites along the project corridor within the standard regulatory search radii documented in the CSER. Several sites are listed on both the federal and state environmental databases and site visits indicate a potential for some of these sites along the mainline and at each of the station alternatives to generate contamination. Sites ranged from No to Medium risk to the proposed improvements as discussed in this document.

Each potential site was given a "Risk" rating in accordance with Part 2, Chapter 22, Section 2.2.3. (1-17-08 revision) of the FDOT's PD&E Manual. The contamination rating system is divided into four degrees of Risk.

No	No records to indicate contamination would be a problem.
Low	Former or current operation has hazardous waste generator identification number, or deals with hazardous materials; however, based on all available information there is no expectation that there would be any involvement with contamination.
Medium	Indications are found (reports, Notice of Violations, consent orders, etc.) that identify known soil and/or water contamination and that the problem does not need remediation, is being remediated (i.e., air stripping of the ground water, etc.), or that continued monitoring is required.
High	Potential for contamination problems. Further Assessment will be required to determine the actual presence and /or levels of contamination and the need for remedial action. A recommendation must be included for what further assessment is required.

The surrounding properties along the mainline consist of a mix of commercial, residential, light industrial and rural settings that present a Low or No risk rating due to proximity to proposed impacts. A number of facilities include aboveground and underground storage tanks, some with documented contamination, located along the mainline in the vicinity of proposed curve improvements near St. Augustine, Titusville and Ft. Pierce. Because of their distance from the proposed improvements (greater than 200 feet) and the ongoing existing cleanup activities, these are considered Low risk sites.

EXHIBIT 3.28
Mainline Contamination and Hazardous Waste Impact

Mainline Location	Contamination Site of Concern	Database	Concern	Distance (Feet)	Risk
St. Johns County	Edward R. Fisher 210 Ponce de Leon Blvd	Registered UST Non-retail	Petroleum	225	Low
	Mano a Mano 606 Ponce de Leon	Registered UST/ Leaking UST	Petroleum	200	Low
Brevard County	Watkins Oil Company 175 Fisher Ave	Registered UST/ Leaking UST	Petroleum	200	Low
	Qwest Communications 520 Main Street	Registered AST	Petroleum	150	Low
St. Lucie County	BP Gas 439 North 4th Street	Registered UST	Petroleum	250	Low
	Seaway Plaza 610 N US Hwy 1	Registered AST	Petroleum	150	Low
Northwood Crossover/West Palm Beach	Southern Industrial Tire Co. 2616 E. Tamarind Ave	RCRA SQG	Hazardous Waste	50	Low
	Safety Disposal Systems 1100 25th Street, Bay 7B	Solid Waste Facilities	Miscellaneous contaminants	A	Medium
	Economy Tire Sales, Inc. 820 25th St	Solid Waste Facilities	Miscellaneous contaminants	A	Medium
	Prime Time 901 25th St	Registered UST/ Leaking UST	Petroleum	50	Medium
	Banana Supply Company 2617 Division Ave	Registered UST	Petroleum	75	Medium
	Dorphil, Inc 1100 25th Street Bay #8	Registered AST	Petroleum	*1	Low
	United Iron & Metal 714 25th St	RCRA Non-generator Stores Hazardous Waste	Hazardous Waste	*1	Low

A = Adjacent to Northwood Crossover

EXHIBIT 3.29
Preferred Station Contamination and Hazardous Waste Impact

Station	Contamination Site of Concern	Database	Concern	Distance (Feet)	Risk
St. Augustine #1 - US 1 @ San Marco Ave.(East of FEC)	None	--	--	--	No
Daytona Beach #1 - South of International Speedway Boulevard (East of FEC)	Daytona Beach Water Plant	Registered UST & AST	Petroleum	50	Low
	Bens Auto Marine Supply 132 Seagrave St	RCRA SQG	Hazardous Waste	100	Low
	Wilson's Motors 425 Volusia Ave	Registered UST/ Leaking UST	Petroleum	200	Low
	Bryson Crane 225 Marion St	Registered AST	Petroleum	50	Low
	Sprint Communications 141 S. Charles St	Registered UST	Petroleum	150	Low
	Halifax Wrecking Co 327 Marion St	Solid Waste Facilities	Miscellaneous contaminants	100	Low
	Dunn Corporation 415 Orange Ave	Registered AST	Petroleum	100	Low
	Daytona CV Axles 529 Orange Ave	RCRA SQG	Hazardous Waste	200	No
	Dunn Corporation 414 Orange Ave	Registered AST	Petroleum	100	Low
	B&F Supply Property 421 Live Oak	Registered UST/ Leaking UST	Petroleum	100	Medium
	Wilson Motors 425 Volusia Ave	Registered UST/ Leaking UST	Petroleum	50	Medium
	FPL Daytona 132 N. Seagrave Ave	Registered UST	Petroleum	75	Medium
	Epik communications 123 N. Charles St	Registered AST	Petroleum	75	Low
	Stan's Transmission 511 Int'l Speedway	Registered UST	Petroleum	50	Medium
	Spanos Imports 520 W. Int'l Speedway	RCRA Non-generator Stores Hazardous	Hazardous Waste	100	Low
	Brevard County 475 Pine St	Registered UST/ Leaking UST	Petroleum	150	Low
	Level 3 Communications 435 Dummitt Ave	Registered AST	Petroleum	100	Low
Titusville #2 - North of Pine Street (East of FEC)	Marble Designs of Florida 550 tropic St	RCRA SQG	Hazardous Waste	100	Low
	Brevard County 475 Pine St	Registered UST/ Leaking UST	Petroleum	150	Low
	Level 3 Communications 435 Dummitt Ave	Registered AST	Petroleum	100	Low
	CITGO 5155 S. Washington Ave	Registered UST	Petroleum	200	Low
Cocoa #2 - South of Rosa L. Jones Boulevard (East of FEC)	New Rockledge Drycleaners	RCRA SQG	Hazardous Waste	200	Low
	CEMEX, Inc 324 Poinsettia Dr	Registered UST/AST	Petroleum	100	Low
	Florida East Coast Railway	Registered UST	Petroleum	T	Medium

EXHIBIT 3.29
Preferred Station Contamination and Hazardous Waste Impact

Station	Contamination Site of Concern	Database	Concern	Distance (Feet)	Risk
	FPL Service Center 335 Poinsettia Dr	Registered UST	Petroleum	150	Low
	Florida East Coast Railway, LLC	RCRA Non-generator Stores Hazardous	Hazardous Waste	100	Low
	Fina Station 2731 S. Harbor City Blvd	Leaking UST	Petroleum	125	Medium
Melbourne #3 - North of U.S. 192 (East of FEC)	Kemper Business Systems	RCRA SQG	Hazardous Waste	125	Low
	Melbourne City Hall 900 E. Strawbridge Ave	Registered UST	Petroleum	125	Low
	K&B Foreign Car Service 2300 Commerce Ave	Leaking UST	Petroleum	75	Medium
Vero #3 - North of 23rd Street (West of FEC)	Hanson's Furniture Repair 2020 Commerce Ave	RCRA SQG	Hazardous Waste	50	Low
	Neely's Repair Shop 2016 Commerce Ave	Leaking UST	Petroleum	50	Medium
	Sunrise Theatre 117 S. 2nd St	Registered AST	Petroleum	200	Low
	Harbor Federal Savings & Loan	Registered AST	Petroleum	200	Low
Fort Pierce #2 – – Orange Ave. (West of FEC)	Florida East coast Railway 353 Florida Ave	Leaking UST	Petroleum	T	Medium
	Eagan Packing 304 Boston Ave	Leaking UST	Petroleum	A	Medium
Stuart #3 - Stypmann Boulevard (East of FEC)	City of Stuart Sewer Plant 301 Stypmann Blvd	Leaking UST	Petroleum	50	Medium

Notes:
T – Target station property.
A – Adjacent to station property.

The No-build Alternative would not impact potential contamination sites. The Preferred Alternative is not anticipated to involve major soil disturbance activities. Proper hauling and disposal of any hazardous materials during construction would be handled using best management practices. Potential impacts from contamination as a result of project activities would be further assessed during the design phase. Any identified contamination involvement will be coordinated with appropriate regulatory agencies and, prior to right-of-way acquisition, appropriate action will be taken, where applicable.

3.6 Cultural Resources

A Cultural Resource Assessment Survey (CRAS) was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (Public Law 89-665, as amended), as implemented by 36 CFR, Part 800 (Protection of Historic Properties), and Executive Order 11593. Background research and field surveys coordinated with the Florida Division of Historical Resources (DHR), Florida's State Historic Preservation Officer (SHPO), were performed for the project.

As a result of the assessment, the sites listed below and summarized in Section 3.6.2 were identified and determined to be eligible or potentially eligible for listing on (or are already listed on) the National Register of Historic Places. Through the application of the Criteria of Adverse Effect, the Federal Railroad Administration (FRA), in cooperation with the Florida Department of Transportation (FDOT), and in consultation with the SHPO, has determined that the effects of the proposed action do not constitute an adverse effect on any of the properties listed below. The SHPO concurrence letter dated August 3, 2010 is provided in Appendix E.

Cultural resources or "historic properties," as defined by the National Historic Preservation Act of 1966 (as amended), are any "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP)." Cultural resources are found both above and below ground. Archaeological sites, also referred to as "archaeological resources," represent the locations of prehistoric or historic activities. The term "historic structures" includes bridges, houses, buildings, and constructed features which, with few exceptions, are at least fifty years old. Historic districts consist of historic buildings and other elements which retain identity and integrity as a whole. Cemeteries and burial places are also considered cultural resources.

- The following sites were found to be listed on the NRHP: BR177, BR215, BR1710, FL86, IR68, IR624, IR975, IR1048A, MT86, MT348, PB11548, SJ2462, SL0289, SL0799, VO7188, VO697, VO7125, and VO7056.
- The following sites were previously found to be eligible or potentially eligible for listing on the NRHP by DHR (previously recorded): BR1870, FL298, IR1497, MT1450, PB12102, SJ5036, SL3014, VO8606 (all components of the FEC Rail Line), BR1163, BR1569, BR1777, DU13284, DU17719, DU17729, DU6573, IR1048B, MT1382, PB9906, SJ147, SJ2492, SJ3482, SJ5298, SL0826, VO255, and VO7195.
- The following sites were recommended potentially eligible for listing on the NRHP as a result of the assessment (newly recorded): BR2173, BR425, BR426, BR430, BR465, BR468, MT130, MT131, MT84, PB00218, PB09907, PB14830, PB14843, PB14844, PB14845, PB14846, PB14847, PB14848, PB14849, PB14850, PB14851, PB14854, PB14855, PB14864, SJ5476, SJ5477, SJ5478, VO5571, VO 5904 and VO 5988.
- Three bridges without site numbers were also found to be potentially eligible for listing on the NRHP.

The following discussions summarize the Section 106 consultation, CRAS methodology, Area of Potential Effect (APE), finding of effects, and commitments that were developed that would result in a No Adverse Effect finding on the sites listed above.

Section 106 Consultation

In compliance with Section 106 of the National Historic Preservation Act, preliminary consultation with the SHPO resulted in a methodology for the CRAS to locate, document, evaluate, and assess effects on potentially affected resources. SHPO consultation occurred on the following dates:

- December 2009 (CRAS Methodology)
- April 2010 (Area of Potential Effect)
- June 10, 2010 (Northwood Crossover Field Visit)
- June 24, 2010 (Cultural Resource Meeting attended by local parties including West Palm Beach Planning, Historic Preservation and CRA Departments; and the Storm of '28 Coalition representing the Northwood Hurricane Memorial citizens' group
- July 2010 (Effects)

CRAS Methodology and Area of Potential Effect

In April 2010, preliminary consultation was held with the SHPO to define the Area of Potential Effect (APE) for cultural resources and guide field methods for the CRAS. During this consultation with SHPO, the following project considerations associated with the Preferred Alternative were reviewed to aid in the determination of the APE:

- Along the FEC Railway mainline, surface track, work will be limited to approximately 29 miles of the FEC Railway corridor. Primarily, the proposed improvements involve the addition of up to 6 inches of grade to the railbed at particular locations to superelevate existing horizontal curves for the high-speed passenger trains. These minor FEC Railway mainline infrastructure improvements will be confined to the existing right-of-way.
- The proposed action includes the addition of two northbound and two southbound trains daily at increased speeds up to 90 mph on the FEC Railway, compared to approximately 60 mph for existing freight rail traffic.
- Existing railway bridges will not be altered by the proposed action.
- Proximity effects to be assessed along the FEC Railway mainline include noise, vibration, air and visual impacts to adjacent land uses.
- Proximity effects to be assessed along the FEC Railway mainline include noise impacts at railroad grade crossings resulting from the required blowing of horns immediately prior to and after the crossings.
- The addition of two passenger trains to the existing Amtrak route on the SFRC south of West Palm Beach will not involve proximity impacts (noise, vibration, air or visual) to adjacent land uses.
- Other infrastructure improvements include the realignment of the Northwood Crossover and eight proposed passenger stations (documented in Chapter 2).

During consultation with the SHPO, the APE for archaeological and historic resources was defined to include:

- FEC Railway mainline: The APE was limited to the existing 100-foot right-of-way. Previously recorded archaeological and historic resources within 100 m (328 feet) of the FEC Railway centerline were also documented to focus the field survey efforts to grade crossings with NRHP-eligible or potentially eligible resources. It should be noted, previously recorded archaeological sites located adjacent to the FEC Railway mainline corridor were documented, but were not required to be reassessed through additional subsurface testing or surface inspection.
- Grade crossings (historic resources only): The APE for the historic architecture would ideally be based on noise contours at grade crossings. Given that the noise study was not yet completed at the time of the cultural resource reconnaissance survey, a general 1 block radius around grade crossings was surveyed. This is consistent with methodology discussions during coordination with SHPO.
- Stations: The APE included the parcels where proposed stations are located and immediately adjacent land uses. The limits of the proposed sidings and platforms associated with each of the proposed stations were also included in the APE.
- Historic districts: The CRAS included a focus on the identification of recorded or potential historic districts near the APE for the proposed stations and grade crossings.

To be eligible for the NRHP, these property types must meet at least one of the NRHP significance evaluation criteria (36 CFR § 60.4) to be considered a historic property, and the property must also possess integrity. NRHP historic properties meet one or more of the following evaluation criteria:

- the property is associated with events that have made a significant contribution to the broad patterns of our history (Criterion A)
- the property is associated with the lives of persons significant in our past (Criterion B)
- the property embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction (Criterion C)
- the property has yielded, or may be likely to yield, information important to prehistory or history (Criterion D)

- Northwood Crossover: The APE included cultural resources within 0.5 miles of the existing and realigned Northwood Crossover.

The cultural resources within the APE were identified through a background investigation, historic document search and field surveys. The background investigation included a review of the relevant archaeological literature including previous archaeological work in Florida and a discussion of previous survey work undertaken near the project area. The Florida Master Site File was checked for any previously recorded sites within the project area and to provide an indication of the prehistoric settlement and land-use patterns for the region. Soil surveys, vegetation maps, and relevant literature were consulted to provide a description of the physiographic and geological region of the project area. The historic document search involved a review of both primary and secondary historic sources. Relevant historical sources were

checked for any information pertaining to the existence of historic structures, sites of historic events, and historically occupied or noted aboriginal settlements within the project limits.

3.6.1 Archaeological Resources

Archaeological fieldwork was not possible within the FEC Railway right-of-way due to its current use as an active railway. The Northwood Crossover project area is heavily developed and disturbed, so surface inspection was conducted to identify resources and sites for archaeological testing within the APE. Surface collection and shovel testing were conducted within sites identified through a pedestrian survey (where possible and as appropriate). Additionally, a ground penetrating radar (GPR) survey was conducted within the vicinity of the recorded location of the NRHP-listed Hurricane of 1928 Mass Burial Site and surrounding the paupers cemetery in the Northwood area. The archaeological research resulted in the identification of numerous potential archaeological resources within the APE. Exhibit 3.30 summarizes the archaeological resources potentially affected by the Preferred Alternative. Surface inspection and shovel testing were conducted at station alternative sites wherever possible.

The No-build Alternative would not impact archaeological resources. No archaeological sites were identified within the Preferred Alternative station sites. Based on a review of the limited proposed surface track work, no impacts to archaeological resources are anticipated with the Preferred Alternative FEC Mainline. One potentially NRHP-eligible archaeological site is present in the Northwood Crossover APE (the 25th Street Scatter [PB14830]) due to the potential for information in understanding the development of West Palm Beach in the 20th century. The specific area of impact (0.33 acres of direct use impacts) contains only mid-century fill material and lacks integrity. Therefore, construction of the Northwood Crossover in this portion of the site does not constitute an adverse effect.

3.6.2 Historic Resources

As a result of the assessment, the sites listed in Exhibits 3-31, 3.32 and 3.33 were identified, and were determined to be eligible or potentially eligible for listing on (or are already listed on) the NRHP. The resources listed in Exhibits 3-31, 3.32 and 3.33 are for the FEC Railway mainline, Northwood Crossover and the proposed stations, respectively. The No-build Alternative would not impact historic resources.

Based on the noise and vibration analysis documented in Section 3.3, the Preferred Alternative would not result in adverse effects from increases in noise levels or vibration impacts compared to the No-build Alternative (where freight rail activity is the dominant noise and vibration source). From an aesthetic standpoint, the existing viewshed of the rail corridor from the surrounding land uses will be maintained in the proposed condition. In consideration of these analyses, proximity effects are not anticipated to the historic resources identified within the APE of the FEC Railway mainline, the Northwood Crossover and the proposed stations.

EXHIBIT 3.30
Archaeological Resources Potentially Affected by Preferred Alternative (Intersected by FEC Mainline and Northwood APE)

Site No.	Name	Type	Cultures	Survey Evaluation	SHPO Evaluation	Near Crossing
8DU35	Low Mound A	Destroyed; Prehistoric mound(s)	St. Johns I	Not Evaluated	Not Evaluated	yes
8DU36	Low Mound B	Destroyed; Prehistoric burial mound(s)	St. Johns Ib	Not Evaluated	Not Evaluated	yes
8DU19847	Gary Street	Historic refuse / Dump	Nineteenth century American; Twentieth century American	Ineligible for NRHP	Ineligible for NRHP	yes
8IR846	Railroad	Prehistoric shell midden; Variable density scatter of artifacts	Malabar	Ineligible for NRHP	Not Evaluated	no
8MT20	Jonathan Dickinson State Park		Historic; Prehistoric; Spanish-First Period	Not Evaluated	Not Evaluated	no
8MT1287	Hobe Sound National Wildlife Refuge #3	Campsite (prehistoric); Prehistoric shell midden	Prehistoric	Insufficient Information	Not Evaluated	no
8SJ5005	Miller Shops	Building remains	Twentieth century American	Ineligible for NRHP	Ineligible for NRHP	no
8SJ5034	Waste Transfer - 1	Land-terrestrial	Twentieth century American; Late Archaic; Orange; Prehistoric	Ineligible for NRHP	Ineligible for NRHP	no
8SL1174	M-8 Historic Scatter 2	Building remains; Subsurface features are present; Homestead; Historic refuse / Dump; Artifact scatter-low density	Twentieth century American	Ineligible for NRHP	Ineligible for NRHP	no
8SL1175	M-8 Historic Scatter 3	Subsurface features are present; Historic refuse / Dump	Twentieth century American	Ineligible for NRHP	Ineligible for NRHP	no
8SL1720	Indian River Dr (site #4)	Campsite (prehistoric); Specialized site for procurement of raw materials	Malabar I	Insufficient Information	Potentially Eligible for NRHP	no
8VO627	J D	Homestead; Prehistoric burial mound(s); Prehistoric shell midden; Historic refuse / Dump	Twentieth century American; American, 1821-present; Early Archaic; St. Johns I; St. Johns II; Early Woodland	Insufficient Information	Insufficient Information	no
PB14830	25th Street Scatter Site (Northwood area)	Archaeological Site	American-20th Century	Potentially eligible	Not Evaluated	yes

EXHIBIT 3.31
Summary of Cultural Resources Evaluated for FEC Mainline (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Prior SHPO Evaluation	Potential Impacts to Resource	Adverse Impacts?
FEC Mainline Linear Resource						
8BR1870, FL298, IR1497, MT1450, PB12102, SJ5036, SL3014, VO8606	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
FEC Mainline Grade Crossings						
BR1163	Mattie Lamar House	Historic Structure	Potentially eligible	Potentially eligible	Viewshed, noise	No adverse effects
BR1569	Martha Hankins House of Triumph	Historic Structure	Potentially eligible	Potentially eligible	Viewshed, noise	No adverse effects
BR1710	Jorgensen's General Store	Historic Structure		Listed 1999	Viewshed, Noise	No adverse effects
BR1777	Cocoa Cemetery	Cemetery	Potentially eligible	Potentially eligible	Viewshed, noise	No adverse effects
BR2173	Hopkins Union Cypress Sawmill Historic District	Historic District	Potentially Eligible		Viewshed, noise	No adverse effects
DU17719	Railroad Segment - 8SX	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
DU17729	Seaboard Airline Railway	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
DU6573	Old Jacksonville City Hall	Historic Structure	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
FL86	Bunnell State Bank Building, Old	Historic Structure		Listed 1992	Viewshed, Noise	No adverse effects
IR1048A	Old Town Sebastian Historic District, West	Historic Structure		Listed 2004	Viewshed, Noise	No adverse effects

EXHIBIT 3.31
Summary of Cultural Resources Evaluated for FEC Mainline (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Prior SHPO Evaluation	Potential Impacts to Resource	Adverse Impacts?
IR1048B	Old Town Sebastian Historic Dist East	Historical District	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
IR68	Vero Railroad Station/IRC History Society Museum	Historic Structure		NRHP-listed	Viewshed, noise	No adverse effects
IR975	Vero Beach Diesel Power Plant/Vero Municipal Power Plant	Historic Structure		Listed 1999	Viewshed, Noise	No adverse effects
MT84	Feroe Building	Historic Structure	Potentially Eligible		Viewshed, noise	No adverse effects
MT86	Lyric Theatre	Historic Structure		Listed 1993	Viewshed, Noise	No adverse effects
PB09906	Northwood Hills Historic District	Historical District	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
SJ2462	Model Land Company Historic District	Historic District		NRHP-listed	Viewshed, noise	No adverse effects
SJ2492	FEC Railroad Park	Designed Historic Landscape	Potentially Eligible	Potentially Eligible	Viewshed, noise	No adverse effects
SJ3482	Old King's Road	Linear Resource	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
SJ5298	King Street	Linear Resource	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
VO255	Old King's Road	Linear Resource	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
VO697	Port Orange Florida East Coast Railway Freight Depot	Historic Structure		Listed 1998	Viewshed, Noise	No adverse effects

EXHIBIT 3.31
Summary of Cultural Resources Evaluated for FEC Mainline (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Prior SHPO Evaluation	Potential Impacts to Resource	Adverse Impacts?
VO7056	Turnbull Canal System	Canal; Historic earthworks; Inundated land site; Land-terrestrial; Other; Freshwater submerged site		Listed 2007	Viewshed, Noise	No adverse effects
VO7125	Dunlawton Avenue Historic District	Historic District		Listed 1998	Viewshed, Noise	No adverse effects
VO7188	Southwest Daytona Beach Black Heritage District	Historic District		Listed 1997	Viewshed, Noise	No adverse effects
VO7195	Rose Bay Causeway	Linear Resource	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
VO5988	New Mount Zion Baptist Church	Historic Structure	Potentially Eligible		Viewshed, Noise	No adverse effects
FEC Mainline Bridges						
DU13284	Myrtle Avenue Subway Bridge	Bridge	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
MT1382	St. Lucie Bascule Bridge	Bridge	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
Not Requested	St. Johns River Bascule Bridge	Bridge	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
Not Requested	San Sebastian River Bridge	Bridge	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects
Not Requested	Loxahatchee River Bascule Bridge	Bridge	Not Reevaluated	Potentially Eligible	Viewshed, Noise	No adverse effects

EXHIBIT 3.32
Summary of Cultural Resources Evaluated for Northwood Crossover (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Potential Impacts to Resource	Adverse Impacts?
PB00218	Evergreen Cemetery	Cemetery	Potentially eligible (Not evaluated by SHPO)	Viewshed, noise	No adverse effects
PB09907	Quonset Hut Row	Historical District	Potentially eligible (Not evaluated by SHPO)	Viewshed, noise	No adverse effects
PB11548	Hurricane of 1928 African American Mass Burial Site	Cemetery	NRHP-Listed (Prior to SHPO evaluation)	Viewshed, noise	No adverse effects
PB12102	Florida East Coast Railroad	Linear Resource	Not Reevaluated (Potentially Eligible prior to SHPO evaluation)	None, per DHR determination	
PB14830	25th Street Scatter Site	Archaeological Site	Potentially eligible	Removal of fill materials along northwest corner	Disturbance in this portion of site does not constitute an adverse effect to the site.
PB14843	Miotto 2000 Sales Fabrication and Installation	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14844	Miotto 2000 Tile and Marble Works	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14845	Miotto 2000	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14846	955 25th Court	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14847	957 25th Court	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14848	O'Hara Landscape & Maintenance/East Building	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14849	O'Hara Landscape & Maintenance/West Building	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects

EXHIBIT 3.32
Summary of Cultural Resources Evaluated for Northwood Crossover (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Potential Impacts to Resource	Adverse Impacts?
PB14850	Bernard Auto Storage	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14851	Delisca Auto Repairs and Sales	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14854	1025 25th Court	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14855	Allen Cabinetry	Historic Structure	Potentially eligible; element of PB9907	Viewshed, noise	No adverse effects
PB14864	Pauper's Cemetery	Cemetery	Potentially eligible	Viewshed, noise	No adverse effects

EXHIBIT 3.33
Summary of Cultural Resources Evaluated for Stations (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Prior SHPO Evaluation	Potential Impacts to Resource	Adverse Impacts?
St. Augustine Alternate 1 (preferred alternate)						
SJ5476	FEC Freight Building A	Historic Structure	Potentially Eligible		Adaptive Reuse	No adverse effects
SJ5477	FEC Freight Building B	Historic Structure	Potentially Eligible		Viewshed, Noise	No adverse effects
SJ5478	FEC Freight Building C	Historic Structure	Potentially Eligible		Viewshed, Noise	No adverse effects
SJ147	79 Almeria Street	Historic Structure	Potentially Eligible	Potentially Eligible	Viewshed, noise	No adverse effects
SJ5036	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
Daytona Beach Alternate 1 (preferred alternate)						
VO8606	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
VO5571	Dunn Lumber & Hardware	Historic Structure	Potentially Eligible		Viewshed, Noise	No adverse effects
VO5904	DB Water Softening Plant	Historic Structure	Potentially Eligible		Viewshed, Noise	No adverse effects
Titusville Alternate 2 (preferred alternate)						
8BR1870	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
BR177	St. Gabriel's Episcopal Church	Historic Structure		Listed 1972	Viewshed, Noise	No adverse effects
BR425	Hill Hotel and Apartments	Historic Structure	Potentially Eligible		Viewshed, noise	No adverse effects
BR426	428 Julia Street	Historic Structure	Potentially Eligible		Viewshed, noise	No adverse effects
BR430	423 Main Street	Historic Structure	Potentially Eligible		Viewshed, noise	No adverse effects

EXHIBIT 3.33
Summary of Cultural Resources Evaluated for Stations (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Prior SHPO Evaluation	Potential Impacts to Resource	Adverse Impacts?
BR465	Brevard County Courthouse	Historic Structure	Potentially Eligible		Viewshed, noise	No adverse effects
BR468	Titusville Train Station	Historic Structure	Potentially Eligible		Adaptive Reuse	No adverse effects
Cocoa Alternate 2 (preferred alternate)						
8BR1870	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
Melbourne Alternate 3 (preferred alternate)						
8BR1870	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
BR215	Florida Power and Light Company Ice Plant	Historic Structure		NRHP-listed	Viewshed, noise	No adverse effects
Vero Alternate 3 (preferred alternate)						
IR68	Vero Railroad Station/IRC History Society Museum	Historic Structure		NRHP-listed	Viewshed, noise	No adverse effects
IR624	Old Vero Beach Community Building	Historic Structure		NRHP-listed	Viewshed, noise	No adverse effects
IR1497	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
Ft. Pierce Alternate 1 (preferred alternate)						
SL0826	Frank Tyler House	Historic Structure	Potentially Eligible	Potentially Eligible	Viewshed, noise	No adverse effects
SL0799	Sunrise Theatre	Historic Structure		NRHP-listed	Viewshed, noise	No adverse effects
SL3014	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	
SL0289	Old Fort Pierce City Hall	Historic Structure		Listed 2001	Viewshed, noise	No adverse effects

EXHIBIT 3.33
Summary of Cultural Resources Evaluated for Stations (NRHP-listed, Potentially NRHP-Eligible and NRHP-Eligible Resources)

FMSF Number	Site Name	Resource Type	Surveyor Evaluation	Prior SHPO Evaluation	Potential Impacts to Resource	Adverse Impacts?
Stuart Alternate 3 (preferred alternate)						
MT130	East Coast Lumber & Supply	Historic Structure	Potentially Eligible		Viewshed, noise	No adverse effects
MT131	Hobe Sound Cabinetry	Historic Structure	Potentially Eligible		Viewshed, noise	No adverse effects
MT348	Old Martin County Court House	Historic Structure		NRHP-listed	Viewshed, noise	No adverse effects
MT1450	Florida East Coast Railroad	Linear Resource	Not Reevaluated	Potentially Eligible	None, per DHR determination	

3.6.2.1 FEC Railway Mainline

As documented in the *FEC Amtrak Passenger Rail CRAS: Volume 1* (June 2010), fieldwork for the FEC Railway mainline focused on the existing grade crossings and bridges. Fieldwork at the grade crossings was conducted in May and June 2010, and the documentation of existing bridges was performed in May 2010. A total of 288 grade crossings and 22 bridges are documented along the mainline. The results of the grade crossing assessment showed that the proposed action is not expected to cause any adverse effects to resources within the APE. Of the 22 bridges, 2 were previously determined to be NRHP-eligible, 3 are potentially NRHP-eligible, and 14 are considered to be contributing elements to the linear historic resource. Existing bridges will not be altered by the proposed project and no effect to historic bridges is expected.

As noted in Exhibit 3.31, the FEC Railway is a potentially NRHP-eligible linear resource. It has been previously determined that restoring passenger rail on the mainline would not constitute an adverse effect to the FEC Railway linear resource because the FEC railway is already within a corridor used for transportation. Based on preliminary consultation with the SHPO, the project is not anticipated to result in an adverse effect to the historic linear resource or historic bridges.

3.6.2.2 Northwood Crossover

As documented in the *FEC Amtrak Passenger Rail CRAS*: *Volume 2* (June 2010), fieldwork within the APE for the Northwood Crossover was conducted in May and June 2010. A SHPO field review meeting was held on June 10, 2010.

A total of 39 cultural resources were recorded and evaluated within the APE for the Northwood Crossover (1 historic district includes 13 individual resources), as listed in Exhibit 3.32. Five resources were previously recorded, including Quonset Hut Row (PB09907), the FEC Railway (PB12102), the SAL Railroad (PB12917), the Evergreen Cemetery (PB00218), and the Hurricane of 1928 African American Mass Burial site (PB11548) (shown in Exhibit 2-2, previously referenced).

Of these five previously recorded sites, only the mass burial site has been formally nominated for listing in the NRHP for its local and statewide significance by the Florida DHR in 2002. Other historic cemeteries in the vicinity of the Northwood Connection project corridor include the previously recorded Evergreen Cemetery (PB218). It still preserves its historic significance as an intact African American cemetery from the early 1900s. For these reasons it is being recommended as potentially eligible for the NRHP under Criteria A. The newly recorded Pauper's Cemetery (PB14864) is potentially eligible for NRHP listing. Human burials, cemeteries, and other internments are afforded many protections under Florida Statutes Section 872.

Quonset Hut Row is considered potentially eligible for listing in the NRHP as a historic district for its local significance under Criteria C in the category of Architecture.

The FEC Railway has been determined to be eligible for listing by DHR in December 2009 (Source: Northwood CRAS, Appendix A). A linear resource related to the commercial/industrial development of this area of West Palm Beach, the FEC-SAL Rail Connector, has been recorded and evaluated as part of this study. While remnants of the rail

spur lines exist in the project area, it severely lacks integrity and is better documented and understood through archival research. It is not recommended for listing on the NRHP. The project is not anticipated to result in an adverse effect to the historic linear resources.

These cultural resources are integral to the character of the surrounding Northwood community. The realigned Northwood Crossover would involve approximately 3.32 acres of potential right-of-way impacts. The Preferred Alternative for the Northwood Crossover realignment is an avoidance alternative for NRHP-listed and potentially eligible NRHP-listed cultural resources; therefore, no direct or secondary impacts to these resources are expected due the proposed action. Noise, vibration, air quality, and visual impacts are not significant given the long history of rail activity in the vicinity of these resources without evident negative impacts. Construction activities related to the development of the Northwood Crossover are not expected to include extensive ground disturbances south of the northern limits of 25th Street in the vicinity of the Pauper's Cemetery and Hurricane of 1928 African American Mass 93 Burial site. Construction methods using geotechnical fabric or other artificial surfaces and materials to support the railbed above the present ground level are being considered to further reduce potential impacts to human remains that may be in the project corridor. The proposed improvements will not change the NRHP-eligibility of these resources. On June 24, 2010, FDOT held a Cultural Resource Committee meeting as part of the Section 106 consultation process for the Northwood Crossover realignment. The meeting was attended by West Palm Beach Planning, Historic Preservation and CRA Departments, and the Storm of '28 Coalition representing the Northwood Hurricane Memorial citizens' group (FDOT District Four, 2010). As a result of the Section 106 consultation, no concerns of adverse effects to the Northwood community or its resources were identified; therefore, the project is not anticipated to result in an adverse effect to the historic resources in the Northwood APE.

3.6.2.3 Proposed Stations

As documented in the *FEC Amtrak Passenger Rail CRAS: Volume 3* (June 2010), fieldwork for the proposed stations and associated sidings and platforms was conducted at each station alternative. A total of 303 cultural resources were recorded during the project, 130 of which were previously recorded and 173 of which newly recorded. Historical resources recorded within the APE for the proposed stations are listed in Exhibit 3.33.

It has been previously determined that returning passenger rail back on the mainline would not constitute an adverse effect to the NRHP-eligible FEC Railway.

The Preferred Alternative involves the renovation of three former historic train stations (in St. Augustine, Titusville and Vero Beach) and the addition of an ancillary structure for Amtrak operations adjacent to the historic railroad station building in Vero Beach. St. Augustine Station Alternative 1 involves adaptive reuse of SJ5476, a potentially eligible train station, which should be done in consultation with the SHPO. Similarly, Titusville Station Alternative 2, while not having an adverse effect on any historic properties, involves adaptive reuse of 8BR468, a potentially eligible train station, which should be done in consultation with the SHPO. Based on preliminary consultation with the SHPO, the project is not anticipated to result in an adverse effect to these historic station buildings.

The proposed improvements will not impact the character or diminish the integrity of the resources' historical features; therefore, the Preferred Alternative and will not change the

NRHP-eligibility of the historic train stations. Proposed renovations will be made in conformance with the U.S. Secretary of Transportation's "Standards for Rehabilitation and Guidelines for Rehabilitating Buildings" that preserves the historical and architectural value of historic resource. As a result of the Section 106 consultation, no adverse effects are anticipated as a result of the proposed action.

Vero Railroad Station/ History Society Museum (IR68) is NRHP-listed. The Preferred Alternative will not involve the use of the Vero Beach historic railroad station building. The Preferred Alternative will involve direct impacts to the publicly-owned property that on which it resides (2336 14th Avenue), on an existing parking lot. This historic building was relocated to city-owned property and is owned by the Indian River County Historical Society (a private, non-profit organization). The Historical Society leases the existing property from the City of Vero Beach. The project proposes to build an ancillary structure adjacent to the former railroad station building to accommodate the proposed station in Vero Beach.

3.6.3 Commitments for No Adverse Effects Findings

In consultation with SHPO in July 2010 (SHPO letter dated August 2010 in Appendix E), the following commitments were developed that would result in a No Adverse Effect finding. As a result of those and other discussions, FDOT, in cooperation with the FRA, will fulfill the following commitments before project construction activities are undertaken:

- Provide monitoring by a qualified archaeologist of the archaeological resources at the Northwood Crossover, including the entire segment of the new construction between the FEC Railway and Tri-Rail lines. In addition, staging/stockpiling will not occur in the Northwood Crossover area that contains sensitive archaeological resources.
- Develop an Unanticipated Finds Plan for construction in the Northwood Crossover area.
- Utilize special geo-cloth and construction methods at a shallow depth to avoid possible impacts during construction at the Northwood Crossover area.
- Notify the SHPO as soon as possible if there are modifications to this proposed project that may result in effects to historic rail-related infrastructure, including resources removed, altered, or destroyed.
- Provide more project information as it becomes available for proposed at-grade crossings, and will demonstrate to the SHPO that these improvements will avoid effects to adjacent historic resources with better assurances regarding potential effects to historic resources.
- Continue to consult with the SHPO during the development of plans at the station locations and improvements that are near historic districts to ensure that there will be no adverse effects to historic districts.
- Consult with the SHPO to ensure that Secretary of the Interior Standards for the Treatment of Historic Properties are followed when rehabilitating and adaptively re-using historic stations/buildings for St. Augustine, Titusville and Vero Beach Preferred Station Locations.

3.7 Potential Section 4(f) and Section 6(f) Resources

3.7.1 Section 4(f)

Potential Section 4(f) resources are defined as public park and recreation lands, wildlife and waterfowl refuges, and historic and archaeological sites of significance protected under Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. 303 and 23 CFR §774) as amended. Impacts to Section 4(f) resources must be avoided unless there is no feasible and prudent avoidance alternative to use of land and all possible planning to minimize harm is implemented or there is a *de minimus* determination under 23 CFR §774.17. The applicability of Section 4(f) to resources and any Section 4(f) findings are determined by FRA. As defined by Section 4(f) statutes and regulations, "use" of a Section 4(f) resource may occur under three circumstances:

1. When protected land is permanently acquired for a transportation facility,
2. When a temporary use is considered adverse, or
3. When there is constructive use of the resource.

For historic sites, a *de minimus* finding means that FRA has determined, in accordance with 36 CFR part 800 and Section 106 Consultation with SHPO, that the project will have no adverse effect on the resource. In several cities, the proposed stations are within or near historic downtown areas requiring special consideration of the applicability of Section 4(f) to historic properties. Cultural resources must be listed, or eligible for listing, on the NRHP to be considered for protection as a Section 4(f) resource. Based on preliminary consultation with SHPO, there are no adverse effects expected to historic resources as a result of the proposed action (refer to SHPO letter dated August 3, 2010, in Appendix E). As the existing transportation use of the potentially NRHP-eligible FEC Railway is not changed in the proposed action, rehabilitation of this potential historic linear resource is not anticipated to include Section 4(f) involvement in accordance with 23 CFR 774.13(a).

49 U.S.C. 303 specifies that:

(a) It is the policy of the United States government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

(b) The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.

(c) Approval of Programs and Projects.--Subject to subsection (d), The Secretary may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if (1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Based on the review of public park and recreation lands (existing or planned and formally designated), wildlife and waterfowl refuges, and significant historic sites potentially affected by the Preferred Alternative (within 500 ft. of the proposed stations), the types of resources listed in Exhibit 3.34 were evaluated for Section 4(f) involvement. Potential Section 4(f) resources adjacent to the existing freight corridor along the project were excluded from this detailed evaluation because there are no direct use impacts and no proximity effects anticipated to adjacent land uses along the mainline. The noise, visual and atmospheric project effects documented in Section 3.3 and 3.4 are not anticipated to involve proximity effects as compared to the No-build Alternative. Therefore, no constructive use of potential Section 4(f) resources is anticipated.

The No-build Alternative would not involve any impacts to Section 4(f) resources. Based on these analyses, the Preferred Alternative would not have an adverse effect on Section 4(f) resources.

Direct Use

A direct use of a Section 4(f) resource takes place when property is permanently incorporated into a proposed transportation project. This may occur as a result of partial or full acquisition of a fee simple interest, permanent easements, or temporary easements that exceed regulatory limits as noted below (see 23 CFR §771.135(p)(7)).

Temporary Use

A temporary use of a Section 4(f) resource occurs when there is a temporary occupancy of property that is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. A temporary occupancy of property does not constitute a use of a Section 4(f) resource when the following conditions are satisfied: (1) the occupancy must be of temporary duration (i.e., shorter than the period of construction) and not involve a change in ownership of the property; (2) the scope of work must be minor, with only minimal changes to the protected resource; (3) there are no anticipated permanent adverse physical effects on the protected resource, nor would there be temporary or permanent interference with activities or purpose of the resource; (4) the property being used must be fully restored to a condition which is at least as good as that which existed prior to the proposed project; and (5) there must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

Constructive Use

The third circumstance that is considered in whether "use" would be made of an eligible Section 4(f) property is the potential for constructive use. Constructive use occur when a transportation project does not permanently incorporate land from the Section 4(f) resource, but the proximity of the project to the resource results in impacts (i.e., noise, vibration, visual, access, and/or ecological impacts) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished.

EXHIBIT 3.34
Potential Section 4(f) Resources

Potential Section 4(f) Resources	Direct Use (Yes/No)	Proximity Effects	Constructive Use Anticipated (Yes/No)	Temporary Adverse Effects Anticipated (Yes/No)	Section 4(f) Involvement Anticipated	Notes
Historic Linear Resource						
Florida East Coast Railroad; Potentially potentially NRHP-eligible linear resource	Yes	N/A	N/A	N/A	No	Existing transportation use; SHPO concurs with no adverse effect
Historic Station Sites						
St. Augustine - FEC Freight Station – Building A (SJ5476) Potentially NRHP-eligible	Yes	N/A	N/A	N/A	De minimus finding	Adaptive reuse of historic building; SHPO concurs with no adverse effect
Titusville Train Station (BR468); 420 Pine Street; Potentially NRHP-eligible	Yes	N/A	N/A	N/A	De minimus finding	Adaptive reuse of historic building; SHPO concurs with no adverse effect
Vero Railroad Station/Indian River County Historical Museum (IR68); NRHP-listed	No	Yes – adjacent ancillary structure	No	No	De minimus finding	SHPO concurs with no adverse effect
Other Historic Resources adjacent to FEC Mainline and Stations						
Potentially NRHP-eligible; NRHP-eligible and NRHP-listed	No	No	No	No	No	No proximity effects; SHPO concurs with no adverse effect
Northwood Crossover Historic and Archaeological Resources						
Quonset Hut Row Historic District (8PB09907); Potentially NRHP-eligible	No	No	No	No	No	No proximity effects; SHPO concurs with no adverse effect
Evergreen Cemetery (8PB218); Potentially NRHP-eligible	No	No	No	No	No	No proximity effects; SHPO concurs with no adverse effect
Hurricane of 1928 African American Mass Burial Site (8PB11548); NRHP-listed	No	No	No	No	No	No proximity effects; SHPO concurs with no adverse effect

EXHIBIT 3.34
Potential Section 4(f) Resources

Potential Section 4(f) Resources	Direct Use (Yes/No)	Proximity Effects	Constructive Use Anticipated (Yes/No)	Temporary Adverse Effects Anticipated (Yes/No)	Section 4(f) Involvement Anticipated	Notes
25th Street Scatter Site (PB14830); Potentially NRHP-eligible	Yes (0.33 acres)	N/A	N/A	N/A	De minimus finding	Disturbance in this portion of site does not constitute an adverse effect to the site; SHPO concurs with no adverse effect
Park & Recreational Resources (Non-Historic Resources)						
Refer to Section 3.4.1.3 for list of facilities	No	No	No	No	No	No proximity effects
City of West Palm Beach Memorial Park (in Northwood)	No	No	No	No	No	No proximity effects

3.7.2 Section 6(f) – Land and Water Conservation Fund

Two parks identified along the project corridor were purchased, in part, with Federal Land and Water Conservation funds: Lake Monroe Park on the St. Johns River in Volusia County (located to the east of the corridor across Routes 17/92) and Lakefront Park in Kissimmee in Osceola County (located to the southeast of the corridor). The No-build Alternative and the Preferred Build Alternative will not impact these parks; therefore, Section 6(f) of the Land and Water Conservation Act of 1965 does not apply to this project.

3.8 Transportation

3.8.1 Existing Rail Operations

The project corridor involves approximately 280 miles of the FEC Railway (existing freight rail) from Jacksonville to West Palm Beach and approximately 65 miles of the SFRC from West Palm Beach to Miami (existing freight and passenger rail).

3.8.1.1 Passenger Rail

There is no passenger rail service on the FEC Railway between Jacksonville and Miami along Florida's east coast. The Preferred Alternative would enhance Amtrak passenger rail operations by providing new passenger rail service on the FEC Railway from Jacksonville to West Palm Beach. This would result in improved system connectivity for Amtrak through the enhancement of the existing Amtrak Atlantic Coast Service route from New York to Miami to include multiple new tourist destination cities (St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero, Fort Pierce, and Stuart).

Amtrak operates existing intercity passenger rail service between Jacksonville and Miami via the CSX railroad that runs inland from Jacksonville to Orlando and continues southeastward from Orlando to West Palm Beach, with continuing service on the SFRC to

Miami. The SFRC is generally parallel to, and west of, I-95 from West Palm Beach to Miami. Both Amtrak and Tri-Rail operate existing passenger rail service on the SFRC, as shown in Exhibit 1.2 (presented previously).

Amtrak operates two roundtrip trains per day as a part of the Silver Meteor and Silver Star service. The Silver Meteor makes 14 stops (Jacksonville, Palatka, Deland, Winter Park, Orlando, Kissimmee, Winter Haven, Sebring, West Palm Beach, Delray Beach, Deerfield Beach, Ft. Lauderdale, Hollywood, and Miami) between Jacksonville and Miami with a trip time of approximately 8 hours and 30 minutes each way. The Silver Star makes 17 stops between Jacksonville and Miami with a trip time of approximately 10 hours and 30 minutes each way (Amtrak, 2010). The additional stops on the Silver Star provide service on the west coast of Florida between Lakeland and Tampa. As part of the Service Development Plan (FDOT, 2010), a Train Performance Calculator (TPC) analysis was performed to estimate travel times for the Preferred Alternative. The proposed high speed intercity passenger rail along the mainline corridor involves a top train speed on the FEC up to 90 mph. The existing top train speed on the SFRC would be maintained at 79 mph. End-to-end travel times are estimated to be 6:34 for long distance trains and 6:08 for corridor trains assuming an increase in the highest maximum authorized speeds (MAS) on the FEC to 90 MPH and one minute dwell times at each of thirteen intermediate stations (Amtrak, 2010). The Preferred Alternative would enhance mobility by reducing travel time for the Amtrak service from Jacksonville to Miami.

In compliance with the Rail Safety Improvement Act of 2008 (RSIA) (signed by the President on October 16, 2008, as Public Law 110-432), the proposed project will include track control technology to ensure that the proposed passenger trains operate with a form of Positive Train Control (PTC). PTC refers to technology that is capable of preventing train-to-train collisions, excessive speeds and faulty train movements due to switch errors (FRA, February 2009). The existing wayside signal system on the FEC Railway primarily consists of a cab signaling system with speed control, known as Automatic Train Control (ATC). ATC is in service on the FEC from Sunbeam, MP 9.8 just south of Bowden Yard, to North Miami, MP 359. It is expected that ATC will likely meet the FRA requirements on this corridor.

The Preferred Alternative will not adversely affect existing Tri-Rail commuter service (documented in Section 1.7.3). In a project coordination letter dated October 1, 2009, SFRTA documented support for the project and indicated the increased frequency (two northbound and two southbound) of the Amtrak trains would not significantly impact Tri-Rail service. Amtrak representatives attended the public workshops conducted for the project and publicly indicated support for the project. As part of the Service Development Plan (August, 2010), initial operating plans were coordinated with Amtrak. During the design phase of the project, further coordination between SFRTA and Amtrak will be needed to coordinate rail operations (SFRTA2, 2009).

3.8.1.2 Freight Rail

There are two existing freight rail operations within the study area: the FEC Railway and CSX Transportation (CSXT) operations. The FEC Railway is an independent Class II railway operating a 351-mile single-track mainline between Jacksonville and Miami. Operations for the FEC Railway are based in St. Augustine. The FEC Railway moves major carload commodities of aggregate, automobiles, lumber, farm products, food and kindred, machinery, pulp and paper, petroleum products, and stone, clay and glass. Volumes for the FEC Railway exceeded 118,000

units in 2007. The FEC Railway serves five intermodal terminals with volumes for 2007 exceeding 300,000 units.

The typical FEC Railway freight train requires approximately 9 hours and 30 minutes to 10 hours for travel between Jacksonville and Miami for a commercial velocity of approximately 39 mph. The line is maintained as a single track railway with numerous passing sidings to accommodate the bidirectional movement of trains and work for local customers. The track is generally maintained to a standard that allows freight trains to operate at a maximum allowable speed of 60 mph. The FEC Railway operates trains on the railway at all times, but the density of operations is greatest after 4:00 p.m. until 9:00 a.m. the following morning. The slow midday period allows the FEC Railway to serve local customers and perform maintenance work with reduced interference (FDOT, January 2009).

CSXT conducts freight operations on the SFRC through a perpetual and exclusive easement to operate freight service under the terms of the FDOT purchase of this segment of the former CSX railroad. CSXT operations on the SFRC consist of two to four manifest trains of carload commodities predominantly destined for warehouses along the SFRC in Broward and Miami-Dade counties and up to two daily trains moving aggregate from Miami-Dade County to points north (FDOT, January 2009). The typical CSXT freight train requires 2 hours to travel between West Palm Beach and Miami for a commercial velocity of approximately 35 mph. The line is maintained as a double-track railway with numerous crossovers. The track is generally maintained to a standard that allows freight trains to operate at a maximum allowable speed of 60 mph. On weekdays CSXT operates two to three northbound and two to three southbound trains (FDOT, January 2009).

The Preferred Alternative would maintain the existing freight operations on the FEC Railway and the SFRC. Surface replacement track work would be performed according to best management practices to result in minimal temporary impacts to existing freight rail operations during construction.

As part of the study, the station alternatives were reviewed by representatives of FEC Railway, LLC. Input from FEC Railway was used to evaluate the feasibility of station alternatives and considered in the identification of the Preferred Alternative stations. Based on this consultation, potential lease agreements and land use considerations for each of the recommended stations is documented in Section 3.4.3 and will be coordinated further with FEC during the design phase.

3.8.2 Roadway Conditions and Operations

Throughout the approximately 350-mile study corridor, minimal impacts to existing roadway facilities would occur as a result of new or modified grade crossings (documented in Section 2.4.6), potential traffic impacts or the access to proposed stations.

3.8.2.1 Traffic Impacts

The potential traffic impacts as a result of the proposed passenger cars on the FEC Railway/Amtrak rail corridor were assessed. As a result of the projected ridership distribution documented in Section 3.8.3.4, minimal traffic volume increases are anticipated with the two proposed passenger trains. Minimal changes in traffic patterns are anticipated south of West

Palm Beach because the existing Amtrak passenger stations will be used from West Palm Beach to Miami.

An evaluation was performed to assess the traffic impacts of the at-grade street crossings in the vicinity of the proposed eight Amtrak stations. These at-grade street crossing locations are identified on the station concept plans (Appendix B). The proposed station operations were evaluated to analyze potential traffic impacts on the cross streets when the gates are closed. The degree of interruption of vehicular traffic depends on how long the gates would remain closed as the trains enter or leave these stations. The anticipated dwell time for the passenger trains on the FEC Railway is approximately 1 minute while the existing dwell time for freight trains on the FEC Railway is 3 to 4 minutes. The passenger trains are approximately 7 to 10 cars in length while the freight trains may involve 100 or more transport cars.

Given the overall shorter lengths and greater acceleration/deceleration compared to FEC Railway freight trains, the proposed Amtrak trains would likely have less traffic impact than the current FEC Railway freight trains. As indicated by the estimated Amtrak train schedule (Version 2 schedule included in the Service Development Plan [FDOT, 2009]), there will be two daily round trips for the Amtrak service, implying four arrivals and departures of the Amtrak trains throughout the day.

An examination of the estimated Amtrak train schedule (Version 2) revealed that the greatest traffic impact would be incurred by Silver Star 992 that travels in the northbound direction in the afternoon and arrives at the proposed stations between 4:00 p.m. and 8:00 p.m., overlapping with the typical PM peak period of adjacent street traffic (4:00 p.m. to 6:00 p.m.). Therefore, the impacts of Silver Star 992 on the adjacent street traffic would represent the worst-case scenario and hence were evaluated.

Data Acquisition

Traffic data, such as annual average daily traffic (AADT), peak-to-daily factors (K factor) and directional split factors (D factor), were obtained from the 2008 FDOT FTI DVD, and the involved county and city websites, as applicable. The peak hour directional volumes were derived by multiplying the AADT with K and D factors and used to estimate the queues and delays at the proposed at-grade street crossings. It should be noted that traffic volumes on some minor crossing streets are not available. These streets were eliminated from this evaluation as a result of missing data. However, given the expected low traffic on these minor streets, the impacts of train crossings are expected to be minimal compared to the worst-case scenario documented.

Study Approach

Two measures reflecting the impacts of train crossing on the adjacent street traffic were specifically considered:

1) Queue length: The crossing of trains at the at-grade intersections would cause vehicles on the cross streets to accumulate until the gates are raised. To estimate the maximum queue length during the gate-down time, Poisson distribution was assumed for vehicle arrivals and 95th percentile queue was reported. As an inference, possible street blockings were also reported as the estimated queue is long enough to block the next street.

2) Delays: Similar to the queue formed after the gates are closed, another negative impact of train crossing is the delays to the street traffic. In this case, the cumulative delays were estimated based on a uniform mean arrival rate derived from the estimated peak hour volumes and a uniform departure rate.

Assumptions

- Following the same assumption in the SDP that an Amtrak train consists of one locomotive and six cars, the overall length of an Amtrak train would be approximately 700 feet assuming both the length of the locomotive and cars are 100 feet (including the gaps between the cars).
- Silver Star 992 was evaluated as it represents the worst-case scenario in terms of the impacts to the adjacent street traffic. Silver Star 992 arrives at six stations (Stuart, Fort Pierce, Vero Beach, Melbourne, Cocoa Beach, and Titusville) between 4:00 p.m. and 6:07 p.m., coinciding with the typical PM peak period from 4:00 p.m. to 6:00 p.m. Going further north, the train will arrive at Daytona Beach station at about 6:45 p.m. and at St. Augustine at about 7:37 p.m. Given that there were no proposed at-grade street crossings at the St. Augustine station, no evaluation was undertaken for the St. Augustine station. Because the train arrival time at Daytona Beach station (6:45 p.m.) is not far from the typical peak period, to be conservative, the derived peak hour traffic volumes were used consistently across the stations to estimate the queue lengths and delays of the cross streets.
- To estimate queue lengths in feet, the length of a passenger car, including the space between cars, was assumed to be 25 feet. The average length of heavy vehicles was assumed to be 2.5 times the length of a passenger car. In addition, when multi-lane facilities are crossed, default lane utilization factors recommended in the Highway Capacity Manual (HCM 2000, TRB) were applied to derive the longest lane queue.
- To estimate the departure delays when gate is raised, a uniform departure headway of 2 seconds was assumed.

Results

Based on these assumptions, the 95th percentile queue lengths and average cumulative delays were estimated at the identified crossing locations. For convenience of comparison, average delay and the number of street blockings were summarized in Exhibit 3.35 for different sites/options at each station. Exhibits 3.36 and 3.37 present the detailed information on queuing and street-blocking for arrival and departure of Silver Star 992, respectively. As a result of trains entering and leaving the stations, the adjacent streets would likely be blocked by the queues forming after the gates closed. However, these blockings would be temporary.

As shown in Exhibit 3.35, a maximum delay of approximately 2,563 seconds would be incurred at Daytona Beach station while the train is approaching. During this period, an average of 74 vehicles would arrive at International Speedway Boulevard and Orange Avenue (48 vehicles arriving in the eastbound direction and 26 vehicles arriving in the westbound direction). Therefore, an average delay of 34.6 seconds per vehicle (2,563 seconds/74 vehicles=34.6 seconds per vehicle) would be expected. According to the LOS criteria for signalized intersections (HCM Exhibit 16-2), an average control delay in the range of 20 to 35 seconds per vehicle indicates LOS C. Thus, the proposed Amtrak train stations would add additional delays to the adjacent street network across the day; however, these delays are not expected to significantly impact traffic on the adjacent streets.

EXHIBIT 3.35
Traffic Impact Assessment of the New Amtrak Stations

Station	Site	Northbound Arrival		Northbound Departure		Total	
		Cumulative Delay (1)	# of Blocking (2)	Cumulative Delay (1)	# of Blocking (2)	Cumulative Delay (1)	# of Blocking (2)
St. Augustine	Site 1	n/a	n/a	n/a	n/a	n/a	n/a
Daytona Beach	Site 1	2,563	3	1,077	2	3,640	5
Titusville	Site 2	608	0	52	0	660	0
Cocoa	Site 2	0	0	0	0	0	0
Melbourne	Site 3	1,408	0	0	0	1,408	0
Vero Beach	Site 3	1,714	2	864	1	2,578	3
Fort Pierce	Site 1	390	0	195	0	585	0
Stuart	Site 3	1,096	2	485	2	1,581	4

Notes:
(1) Estimated average cumulative delays in seconds, assuming uniform arrivals and 2-second departure
(2) The number of locations that street blocking occurs.
(3) n/a: no adjacent grade crossings.
(4) The analysis results were based on the major crossing locations where traffic data are available. The impacts on some minor street crossings were excluded due to the absence of traffic data.

EXHIBIT 3.36
Queue Length and Delay Estimates – Arrival (Silver Star 992)

Train Station	Cross Street	95% Queue		Street Blocking?				Est. Total Delays (sec.)	
		EB/NB	WB/SB	West/South Street	Street Name	East/North Street	Street Name	EB/NB	WB/SB
St. Augustine									
Daytona Beach	Dr. Mary Mclead Bethune Blvd	237	158	Yes	N Charles St	No	N Seagrave St	209	107
	International Speedway Blvd	681	395	Yes	S Charles St	Yes	S Seagrave St	1,368	742
	Orange Ave	361	206	Yes	Marion St	No	S Seagrave St	294	159
# of Blockings									
Titusville	Main St	77	103	No	Dummitt Ave	No	S Palm Ave	44	60
	South St	145	189	No	Dummitt Ave	No	S Palm Ave	212	291
Cocoa	King St	449	589	Yes	Washington Ave	Yes	US 1	817	1,118
Total Delays (sec.)									
# of Blockings									
Melbourne	Strawbridge Ave	444	344	No	Waverly Pl	No	US 1	814	594
	S Babcock St	488	366	Yes	S Apollo Blvd	Yes	Nieman Ave	1,310	886
Vero Beach	21st St	207	181	No	14th Ave	Yes	Curve	163	126
	20th PL	0	201	No	n/a	No	11th Ave	0	812
	20th St	289	0	Yes	12th Ct	No	n/a	613	0
Fort Pierce	Avenue A	143	143	No	US 1	No	N 2nd St	87	71
	Orange Ave	200	172	No	US 1	No	N 2nd St	128	104
Stuart	SE Ocean Blvd	392	548	Yes	SW Camden Ave	Yes	SE Flagler Ave	382	592
	Martin Luther King Jr	103	129	No	S Colorado Ave	No	SE Flagler Ave	49	73

Notes:
(1) "X" entry for site/option indicates the corresponding cross street (to the right) is impacted by this site/option.
(2) The street name entries under the "Street Blocking" column are those next and parallel to the train track. "Yes" on the left indicates that the street would be blocked by the 95th percentile queue.

EXHIBIT 3.37
Queue Length and Delay Estimates – Departure (Silver Star 992)

Train Station	Cross Street	95% Queue		Street Blocking?				Est. Total Delays (sec.)	
		EB/NB	WB/SB	West/South Street	Street Name	East/North Street	Street Name	EB/NB	WB/SB
St. Augustine									
Daytona Beach	Dr. Mary Mclead Bethune Blvd	184	132	Yes	N Charles St	No	N Seagrave St	104	53
	International Speedway Blvd	504	300	Yes	S Charles St	Yes	S Seagrave St	698	379
	Orange Ave	258	155	Yes	Marion St	No	S Seagrave St	148	80
# of Blockings									
Titusville	Main St	77	77	No	Dummitt Ave	No	S Palm Ave	22	30
	South St	116	145	No	Dummitt Ave	No	S Palm Ave	108	148
Cocoa	King St	337	435	Yes	Washington Ave	Yes	US 1	417	570
Melbourne	Strawbridge Ave	344	258	No	Waverly Pl	No	US 1	415	303
	S Babcock St	366	285	Yes	S Apollo Blvd	Yes	Nieman Ave	668	452
Vero Beach	21st St	155	129	No	14th Ave	Yes	Curve	82	64
	20th PL	0	147	No	n/a	No	11th Ave	0	410
	20th St	220	0	No	12th Ct	No	n/a	309	0
Fort Pierce	Avenue A	115	115	No	US 1	No	N 2nd St	43	35
	Orange Ave	172	143	No	US 1	No	N 2nd St	64	52
Stuart	SE Ocean Blvd	313	418	Yes	SW Camden Ave	Yes	SE Flagler Ave	190	295
	Martin Luther King Jr	77	103	No	S Colorado Ave	No	SE Flagler Ave	24	36

Notes:
(1) "X" entry for site/option indicates the corresponding cross street (to the right) is impacted by this site/option.
(2) The street name entries under the "Street Blocking" column are those next and parallel to the train track. "Yes" on the left indicates that the street would be blocked by the 95th percentile queue.

3.8.3 Passenger Operations

The anticipated operations for the proposed passenger rail service are documented in the SDP for the project. The following sections summarize the key components of the daily operations related to the project. According to the SDP, the proposed passenger service is anticipated to occur primarily during daytime hours (FDOT, 2010). The need for safety and security measures are not anticipated for the proposed stations or passenger service consistent with existing Amtrak operations.

3.8.3.1 Access

All of the proposed stations involve developed parcels with existing roadway access. Proposed driveway/access modifications at these stations are shown on the concept plans in Appendix B. The Preferred Alternative would involve modifying the existing Magnolia Avenue terminus to a roundabout (at the proposed Daytona Beach station). Modifications to existing rail maintenance yards/facilities are not required to accommodate the proposed passenger service, with the exception of the proposed stations at St. Augustine, Cocoa and Titusville that are located at existing FEC facilities.

3.8.3.2 Parking Facilities

The planned parking facilities are described in Chapter 2 and shown on the concept plans provided in Appendix B. Due to the small and medium station facilities, parking facilities of approximately 10-12 spaces are anticipated to be required. Parking facilities are proposed at three of the new passenger stations (St. Augustine, Daytona Beach, and Cocoa). Existing parking facilities (on-property or on adjacent parcels) in Titusville, Melbourne, Fort Pierce, Vero Beach and Stuart would be used to support the station operations. The existing and proposed parking facilities include ADA accommodations. All the existing parking facilities provide adequate handicapped parking for the proposed stations.

3.8.3.3 Transit Services

Existing transit services that support the proposed station locations are summarized in Section 1.5.3.2. These transit services will provide pedestrian-oriented mobility options and allow for limited-parking facilities at the proposed stations. The No-build Alternative and the Preferred Alternative are not anticipated to impact other existing modes of public transportation.

3.8.3.4 Ridership projections

The existing (2008) Amtrak ridership from Jacksonville to Miami consisted of 689,600 annual passenger trips. The Amtrak service from West Palm Beach to Miami would serve Tri-Rail passengers as in the existing condition. According to the ridership projections documented in the SDP (FDOT, 2010), the proposed project will result in an increase in 222,600 annual passenger trips in the first full year of operation. No significant traffic impacts or changes in traffic patterns are anticipated as a result of these increased daily passenger trips.

3.8.4 Transportation Plan Consistency

The proposed project is consistent with the State Comprehensive Plan (s. 187.201(19)(b)(8), F.S.) which includes the following policy: "Encourage the construction and utilization of a public transit system, including, but not limited to, a high-speed rail system, in lieu of the expansion of the highway system, where appropriate." The proposed action will provide passenger rail service in the communities where stations are proposed. The transportation elements of the local government comprehensive plans for each station city would need to be amended to include the proposed passenger rail service on the FEC Railway. These local comprehensive plan amendments would be consistent with state policy to implement land use and transportation strategies to support and fund mobility, including alternative modes of transportation (s.163.3180(5)(b)(4), F.S). The project is consistent with transportation elements included in the Strategic Regional Policy Plans for Northeast Florida Regional Council (Duval, St. Johns and Flagler counties), East Central Florida Regional Planning Council (Volusia and Brevard counties), Treasure Coast Regional Planning Council (Indian River, St. Lucie, Martin and Palm Beach counties), and South Florida Regional Planning Council (Broward County). Based on ETDM agency comments, the Department of Community Affairs is "highly supportive" of the project. Coordination with the local governments in each of the eight station cities will be conducted to amend the required local comprehensive plans. Based on the agency and public outreach conducted, the involved local governments have adopted resolutions in support of the project.

3.9 Construction Impacts

Construction of the alternatives may result in localized short-term air, noise, vibration, water quality, traffic flow, visual, vegetation, utility and public safety impacts for those residents and travelers within the immediate vicinity of the project. With proper planning and sequencing, construction related impacts to sensitive natural resources (such as wetlands and habitats) and to cultural resources should be essentially avoided.

Air quality impacts from construction activities would be temporary and are primarily associated with emissions from the operation of diesel-powered construction equipment and the generation of fugitive dust from excavation and earthmoving activities. Air emissions from construction equipment can be minimized by properly maintaining engines. Fugitive dust is also generated as trucks travel to and from the construction site along temporary haul roads, and from the handling of cement, aggregate and other materials. The effect of fugitive dust would vary depending on local weather conditions during periods of extensive earthmoving activities. Requiring the contractor to implement dust control measures can substantially minimize fugitive dust impacts.

Noise impacts from construction activities are a function of the noise generated by construction equipment, the location of construction, the sensitivity of adjacent land uses, and the timing and duration of the noise generating activity. Typically, a construction project is carried out in stages, each of which generates a certain level of noise based on the mix of equipment in use. The dominant source of noise from most construction equipment is the diesel engine. Impact pile driving, pavement breaking, and blasting are the primary exceptions to this generalization.

Construction can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes vibrations that spread through the ground and diminish in strength with distance. Buildings in the immediate vicinity of the construction site respond to these vibrations with varying results ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage to foundations at the highest levels. The construction activities that typically generate the most severe vibrations are impact pile driving and blasting.

Earthwork, including clearing and grubbing, grading, and stockpiling, would be required during the construction of the stations. Because exposed soils may result in the potential for increased site erosion and sedimentation impacts to nearby water resources, best management practices are required in the permit process.

Construction of the stations could result in temporary interruptions to local traffic patterns. Maintenance of traffic and construction staging could be planned and scheduled to minimize traffic delays to the greatest extent practicable with appropriate signing to notify motorists of road closures and detours. Access to local residences and businesses in the vicinity of the construction site could be maintained to the greatest extent practicable and any temporary disruptions coordinated with residents and business owners.

Particular attention should be given to the maintenance of public safety during the duration of construction, given the normal hazards associated with construction. Public access to construction sites should be limited to the greatest extent possible. This can be accomplished with temporary fencing, warning signs, or other safety precautions.

Under the CEQ regulations, secondary impacts are defined as those that are "…caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects would include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8b).

3.10 Secondary and Cumulative Effects

3.10.1 Secondary Impacts

Secondary impacts refer to indirect effects resulting from the proposed action and differ from impacts directly associated with the construction and operation of a facility. Changes in local access or mobility from the proposed project may result in secondary impacts associated with consequences of land-use development, commonly referred to as "induced development." Induced development would include alterations such as changes in land use, economic vitality, property value and population density. The potential for secondary impacts to occur is determined in part by local land-use and development-planning objectives and the physical location of a proposed action.

The No-build Alternative would result in a slight secondary impact in that the lack of passenger rail service would reduce the economic competitiveness of the project area municipalities and would hinder economic development along Florida's east coast from Jacksonville to West Palm Beach. The Preferred Alternative would result in secondary impacts by creating the potential for development of additional platforms, as well as further transit-oriented development near the proposed stations. This transit-oriented development would likely occur in already built-up areas. Local review boards would be responsible for

investigating the impacts to water, sewer, and traffic from future transit oriented development. The secondary effects of potential urban infill and redevelopment surrounding the proposed stations are anticipated to result in enhanced property values and economic development.

For this project, secondary impacts are not expected for the following resources:

- Secondary impacts to water quality are not expected with this project because the stormwater treatment system will be designed to satisfy current stormwater management criteria, including special basin criteria for the stations.
- Secondary impacts due to shading from bridge spans are not expected because no changes to bridge structures are proposed for the mainline improvements, new Northwood Crossover, and proposed stations.
- Secondary impacts to forested wetlands from removal of existing tree canopy are not expected because the rail improvements will remain within the existing, cleared right-of-ways or urbanized areas.
- Secondary impacts to cultural resources (including NRHP-eligible and listed resources, and Section 4(f) protected resources) because no adverse noise, vibration, air quality or visual impacts are associated with the Preferred Alternative.

Wherever possible, a setback will be provided per the provision in the SJRWMD *Applicant's Handbook 12.2.7(a),* which states: "Secondary impacts to the habitat functions of wetlands associated with adjacent upland activities will not be considered adverse if buffers, with a minimum width of 15 feet and an average of 25 feet, are provided abutting those wetlands." When setbacks are not practicable, additional mitigation acreage may be required to offset secondary impacts. The amount of mitigation acreage required for the secondary impact is determined during the permitting process."

3.10.2 Cumulative Impacts

Under the CEQ regulations, cumulative effects are defined as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

Cumulative impacts are the total effect on a resource, ecosystem, or community from past, present, and future actions that have altered the resource within a broad geographic scale. The cumulative effects assessment considers the comprehensive effects of direct and indirect impacts—from federal, nonfederal, public, or private actions—on the quality or quantity of a resource. The intent of the cumulative effects analysis is to determine the magnitude and significance of cumulative effects, both beneficial and adverse, and to determine the contribution of the proposed action to those effects. Cumulative effects associated with the Preferred Alternative would include the direct and secondary impacts of the proposed action.

The planned JRTC and MIC (under construction) were identified as reasonably foreseeable future actions that could contribute to cumulative impacts. These projects would create additional travel demand, and generally increase the density of commercial and retail enterprises in the project area.

The No-build Alternative would involve negative cumulative impacts. The No-build Alternative would not provide any benefits to regional air quality because it would continue the state's dependence on personal automobiles on highways for travel between Jacksonville and West Palm Beach.

The Preferred Alternative would have slight beneficial contributions to cumulative impacts. The proposed extension of passenger rail service is expected to provide an overall benefit to air quality. The rail service is expected to provide service to motorists who would otherwise travel between Jacksonville and West Palm Beach by motor vehicle. This shift in travel mode is expected to reduce overall vehicle emissions. The addition of passenger rail service would also encourage the transit-oriented development already occurring adjacent to the proposed stations.

Cumulative impacts are considered unacceptable when the proposed project (considered in conjunction with past, present and future activities) would:

- Result in a violation of state water quality standards
- Result in significant adverse impacts to functions of wetlands or other surface waters within the same drainage basin, when considering the basin as a whole

History has shown that transportation improvement projects usually have cumulative effects in terms of new residential and new commercial development; however, some of the changes in land use patterns, population density and growth rate are projected to occur in the study area regardless of this project. In this case, the stations are in historic town centers in areas targeted for revitalization. Combined with the improved connectivity between cities, the infill development encourages the transit-oriented development that serves to facilitate achievement of the goal to preserve Florida's natural environment; therefore, the proposed action provides a benefit.

Further, during the ETDM coordination for this project, DCA recognized the benefit to stimulate immediate and long-term job growth through construction and transit oriented development, and is highly supportive of this project.

Finally, the project is consistent with state comprehensive planning goals and regional planning council policies, which indicates no adverse effect, and potential significant benefit from the project as follows:

- This project is consistent with s. 187.201(19)(b)(8), F.S., which states: "Encourage the construction and utilization of a public transit system, including, but not limited to, a high-speed rail system, in lieu of the expansion of the highway system, where appropriate."
- Rail is one component for local governments to address comprehensive plan requirements such as to implement land use and transportation strategies to support and fund mobility, including alternative modes of transportation (s.163.3180(5)(b)(4), F.S.) as well as to establish GHG reduction strategies (s. 163.3177(6)(j), F.S.).
- This project is consistent with strategies and policies in the adopted Strategic Regional Policy Plan of the following regional planning councils:
    - Northeast Florida Regional Council (Duval, St. Johns and Flagler counties)

Policy 5.3.10: *All planning for the Florida High Speed Rail System must provide for future links to northeast Florida for eventual completion of a statewide High Speed Rail system by 2020.*

Policy 7.1.3.4: *Reduce VMT per capita by private automobile within the Region through a combination of the following:…(9) expansion of commuter rail and intermodal connections.*

- East Central Florida Regional Planning Council (Volusia and Brevard counties)

  Policy 5.1.3: *The High Speed Rail system should support the continuation and expansion of multi-modal transit facilities to ensure integration of high speed rail into the region's transit system.*

- Treasure Coast Regional Planning Council (Indian River, St. Lucie, Martin and Palm Beach counties)

  Strategy 7.1.1: *Develop a balanced, complete and fully integrated transportation system which, as a minimum, includes the following:…(3) commuter rail service with stations linking the coastal cities and towns of the Region. (4) a regional mass transit system linking commuter rail stations, major commercial airports, seaports, colleges, and principle urban areas within the Region.*

- South Florida Regional Planning Council (Broward County)

  Policy 8.4 *Expand use of public transportation, including buses, commuter rail, waterborne transit, and alternative transportation modes that provide services for pedestrians, bikers, and the transportation disadvantaged, and increase its role as a major component in the overall regional transportation system.*

These reasons, particularly the consistency with future planning requirements to preserve our environment, verify that cumulative effects are not adverse. In fact, the cumulative effects will likely provide a synergy between future land development and transportation planning efforts to support growth and economic development in conjunction with maintaining the natural and cultural resources of Florida's unique environment.

Chapter 4

Coordination and Consultation

Throughout this study, early and continual opportunities for involvement in project development were provided to agencies, project stakeholders, and the interested public. In consultation with FRA, FDOT coordinated the public involvement program with participation from joint development partners FEC Railway and Amtrak. This chapter summarizes the public involvement program conducted. The program included extensive public outreach, coordination with local governments, and consultation activities with federal, state and local regulatory and resource agencies. The following sections summarize the coordination and consultation activities conducted during project development.

4.1 Scoping

> **Scoping.** There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process shall be termed "scoping" (40 CFR 1501.7).

The initial process through which the scope (or range) of project issues is discussed and significant issues are identified through the participation of agencies, project stakeholders, and the interested public is called scoping. Scoping is required early in the project development process to provide an opportunity to identify significant issues, exchange information and identify consultation requirements. The scoping process for this project was initiated during the "Service NEPA" phase of the project. The "Service NEPA" level review provided a broad collective analysis of each project component to determine the potential for significant adverse environmental impacts. The subsequent "Project NEPA" phase was initiated to analyze and identify the potential engineering and environmental impacts anticipated as a result of the proposed action to reach a decision on the type and location of any proposed improvements in compliance with NEPA. At the onset of this "Project NEPA" phase, additional scoping activities were conducted through the Advance Notification process and the ETDM programming screen.

4.1.1 Service NEPA (August 2009)

In August 2009, local agency and government meetings (open to the public) in each of the eight station cities were held to garner input on the proposed project, recognize project concerns, identify potential station location alternatives, and ascertain evaluation factors to be considered during the next phase ("Project NEPA") of project development. These potential station alternatives and the scope of issues identified as a result of this effort are summarized in Chapter 2 (Alternatives Analysis). As a result of these meetings, in each of the cities at least two potential station alternatives were identified for further evaluation.

4.1.2 Project NEPA (March 2010)

4.1.2.1 Advance Notification

Advance Notification (AN) is the process through which FDOT informs federal, state and local agencies of a proposed action. The AN process provides opportunity for early agency involvement in the project development phase by inviting agencies to submit comments and/or concerns on the proposed action. This process is required pursuant to *Presidential Executive Order 12372* and the *Governor's Executive Order 95-359*. On March 10, 2010, the AN package was distributed to approximately 150 federal, state, regional and local agencies having interest or direct involvement in the project. The AN package advised agencies of the proposed action and the initiation of this study. The AN transmittal letter and the list of agencies to which it was distributed are provided in Appendix C. The agency comments received as a result of the AN distribution are summarized in Exhibit 4.1.

EXHIBIT 4.1
Advance Notification Responses

Date of Response	Agency	Agency Representative	Response
March 24, 2010	Palm Beach MPO	Randy Whitfield (Director)	Indicated support for the project Consistent with Palm Beach MPO 2035 LRTP
March 30, 2010	East Central Florida Regional Planning Council (ECFRPC)	Philip Laurien (Executive Director)	Indicated support for the project ECFRPC will review station alternatives during project development
April 6, 2010	Orlando Airports District Office	Vernon Rupinta (Program Manager)	No objection to construction activities within navigable airspace Further coordination with Melbourne International Airport required for Alt. 1
April 14, 2010	City of St. Augustine	Karen Rogers (City Clerk)	Indicated support for the project and noted Carrera Street as the City of St. Augustine's preferred station alternative
April 16, 2010	Treasure Coast Regional Planning Council	Marlene Brunot (ICR Coordinator)	Indicated support for the project Consistent with key policies in Strategic Regional Policy Plan

4.1.2.2 ETDM Programming Screen

At the initial stages of this study, FDOT invited public involvement opportunities through the ETDM process which allows for input during the programming phase of the project. Through the ETDM process, early agency and public comments were obtained to provide project information on environmentally sensitive areas and project issues. During the ETDM programming screen, the project was entered into FDOT's Environmental Screening Tool (EST). The EST is a mapping tool that uses GIS databases to identify the environmental features within and adjacent to the study area. Next, the EST data are submitted to more than 30 planning, regulatory and resource agencies comprising the Environmental Technical Advisory Team (ETAT) for review. Through the ETDM public access Web site (http://etdmpub.fla-etat.org/) and the ETAT secured access Web site, these federal, state and local agencies are provided the

opportunity to submit comments on the purpose and need and the potential effects of the proposed action. The public is not directly able to send comments through the public Web site; however, project information can be viewed, contact information is provided and comments can be given to the ETDM Coordinator, project manager, or through traditional public involvement activities. The ETDM Preliminary Programming Summary Report (PSR) documents the identified environmental resources and agency comments on the proposed action. The PSR is available on the ETDM public Web site. These agency comments were used to guide the scope for project development and evaluate project alternatives.

4.2 Public Involvement Program

During this study, a comprehensive public involvement program was initiated in compliance with Titles VI and VIII of the Civil Rights Acts as well as applicable federal and state regulations. The purpose of the public involvement program is to identify, involve and inform the project stakeholders. The following sections summarize agency coordination meetings, opportunities for agency and public involvement, and the techniques employed to communicate to and receive input from the agency stakeholders and affected or interested public. Section 4.2.1 summarizes the public outreach performed for the study corridor while Section 4.2.2 describes the agency outreach in the cities where station alternatives were located.

4.2.1 Public Outreach

In addition to the scoping activities discussed in Section 4.2, several public meetings were held in the study area to provide an overview of the project and obtain agency and public input on the station alternatives. Exhibit 4.2 summarizes these public meetings. The project received an overwhelming display of support by local residents, special interest groups and local agencies. More than 380 comments were received (as of June 2010) from interested individuals in support of the project. A summary of the specific public input received is provided in Section 4.2.5.

4.2.2 Agency Coordination Meetings

A project kick-off meeting was held on March 26, 2010, in Cocoa, Florida, to discuss the project background and the initiation of this "Project NEPA" study. Meeting presenters included FDOT Secretary Stephanie C. Kopelousos, Todd Stennis (Director of Governmental Affairs South, Amtrak) and local government representatives and officials. More than 150 elected officials, agency representatives, local organizations and other interested public attended the meeting. The meeting summary and list of attendees are provided in Appendix D.

In addition to the agency involvement at the public meetings, local agency coordination meetings were held during the project to receive input from agency stakeholders. These local agency meetings were open to the public and advertised on local government Web sites. Exhibit 4.3 lists the meetings held with local agency representatives. The agency coordination meetings provided the study team with extensive information to evaluate the project alternatives (Chapter 2) and resulted in consensus for the locally recommended station alternative (Section 4.3).

EXHIBIT 4.2
Summary of Public Meetings

Meeting Location	Meeting Format	Meeting Site	Date/Time	Meeting Notification Format: Posted on local govt., Web site	Meeting Notification Format: Posted on FDOT Web site	Meeting Notification Format: Other	Attendees (excluding study team members)	Number of Comments Received
St. Augustine	Public Workshop (Open House/Live Presentation/Q&A)	St. Augustine City Hall 75 King St. St. Augustine, FL 32084	May 11, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	28	7
	Design Session		May 12, 2010 (9 am – Noon)	✓	✓	Announcement at Public Workshop/local govt. Web site post	40	
Daytona Beach	Public Workshop (Open House/Live Presentation/Q&A)	Daytona Beach City Hall 301 S. Ridgewood Ave. Daytona Beach, FL 32114	May 12, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	72	14
	Design Session		May 13, 2010 (11 am – 2 pm)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	70	
Titusville	Public Workshop (Open House/Live Presentation/Q&A)	Titusville City Hall 555 S. Washington Ave Titusville, FL 32796	May 18, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	68	3
	Design Session		May 19, 2010 (9 am – Noon)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	35	
Cocoa	Public Workshop (Open House/Live Presentation)	Cocoa City Hall 65 Stone Street Cocoa, FL 32922	May 3, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	30	344
	Design Session		May 4, 2010 (1 – 3 pm)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	30	
Melbourne	Public Workshop (Open House/Live Presentation/Q&A)	Melbourne City Hall 900 East Strawbridge Ave Melbourne, FL 32901	May 17, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	33	12
	Design Session		May 18. 2010 (9 am – noon)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	15	
Vero Beach	Public Workshop (Open House/Live Presentation/Q&A)	Vero Beach City Hall 1053 20th Place Vero Beach, FL 32960	May 20, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	33	0

EXHIBIT 4.2
Summary of Public Meetings

Meeting Location	Meeting Format	Meeting Site	Date/Time	Meeting Notification Format			Attendees (excluding study team members)	Number of Comments Received
				Posted on local govt., Web site	Posted on FDOT Web site	Other		
	Design Session		May 21, 2010 (2 – 4 pm)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	25	
Fort Pierce	Public Workshop (Open House/Live Presentation/Q&A)	River Walk Center 600 North Indian River Dr. Fort Pierce, FL 34950	May 6, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	34	15
	Design Session	Old City Hall 315 Avenue A Fort Pierce, FL 34950	May 7, 2010 (10 am – 1 pm)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	40	
Stuart	Public Workshop (Open House/Live Presentation/Q&A)	Stuart City Hall (City Commission Chambers) 121 SW Flagler Ave Stuart, FL 34994	May 25, 2010 (6 – 8 pm)	✓	✓	Newspaper ads; Press Release	32	4
	Design Session	Stuart City Hall (City Commission Chambers) 121 SW Flagler Ave Stuart, FL 34994	May 26, 2010 (1 – 3 pm)	✓	✓	Announcement at Public workshop/ local govt. Web site post	35	
Jacksonville	Public Workshop (Open House/Live Presentation/Q&A)	FDOT D2 Training Room 2198 Edison Ave Jacksonville, FL 32204-2730	June 18, 2010 (2-4 PM)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	50	0
West Palm Beach	Public Workshop (Open House/Live Presentation/Q&A)	West Palm Beach City Hall (Flagler Gallery) 401 Clematis Street West Palm Beach, FL 33401	June 24, 2010 (6 -8 pm)	✓	✓	Announcement at Public Workshop/ local govt. Web site post	33	0
Total							**703**	**399**

EXHIBIT 4.3
Local Agency Meetings (Open to the Public)

Meeting Location	Site Location	Date/Time	Participating Agencies/Organizations
St. Augustine	St. Augustine City Hall 75 King St St. Augustine, FL 32084	June 15, 2010 11:00 am	City of St Augustine, St Augustine CRA, St Johns County, North Florida Regional Council, St Johns County Transit, Jacksonville Transportation Authority, North Florida TPO
Daytona Beach	Daytona Beach City Hall 301 S. Ridgewood Ave Daytona Beach, FL 32114	June 09, 2010 5:00 pm	City of Daytona Beach, Daytona Beach CRA, Daytona Downtown Partnership (Main Street), Volusia County, East Central Florida Regional Planning Council, Volusia County MPO, VoTran (transit provider), Daytona Beach Chamber of Commerce
Titusville	Titusville City Hall 500 S. Washington Ave Titusville, FL 32796	June 03, 2010 3:00 pm	City of Titusville, Titusville CRA, Brevard County, East Central Florida Regional Planning Council, Space Coast TPO, Space Coast Area Transit, Port Canaveral, Historical Society of North Brevard, Space Coast Economic Development Commission, Space Coast Regional Airport
Cocoa	Cocoa City Hall 65 Stone St Cocoa, FL 32922	June 17, 2010 5:00 pm	City of Cocoa, Cocoa Redevelopment Agency, Brevard County, City of Rockledge, East Central Florida Regional Planning Council, Space Coast TPO, Space Coast Area Transit, Port Canaveral
Melbourne	Melbourne City Hall 900 E. Strawbridge Ave Melbourne, FL 32901	June 04, 2010 8:00 am	City of Melbourne, Melbourne CRA, Brevard County, East Central Florida Regional Planning Council, Space Coast TPO, Space Coast Area Transit, Port Canaveral, Melbourne Regional Chamber of East Central Florida,

EXHIBIT 4.3
Local Agency Meetings (Open to the Public)

Meeting Location	Site Location	Date/Time	Participating Agencies/Organizations
Vero Beach	Vero Beach City Hall 1053 20th Place Vero Beach, FL 32960	June 10, 2010 4:00 pm	City of Vero Beach, Vero Beach Main Street, Indian River County, Treasure Coast Regional Planning Council, Indian River County MPO, Indian River County Council on Aging (transit provider), Indian River County Historical Society
Fort Pierce	Fort Pierce Historic City Hall 315 Avenue A Fort Pierce, FL 34950	June 11, 2010 11:00 am	City of Fort Pierce, Fort Pierce Redevelopment Agency, St. Lucie County, St. Lucie TPO, Treasure Coast Regional Planning Council, St. Lucie Council on Aging (transit provider), St. Lucie County Historical Society, Steam Locomotive Association 253
Stuart	Stuart City Hall 121 SW Flagler Ave Stuart, FL 34994	June 11, 2010 2:00 pm	City of Stuart, Stuart CRA, Stuart DDA, Stuart Main Street, Martin County, Treasure Coast Regional Planning Council, Martin County CRA, Martin County MPO, Martin County Council on Aging (transit provider)

4.2.3 Other Communication Methods

Several communication methods were used to notify the public about the project and upcoming meetings including:

- ETDM Web site (discussed in Section 4.1.3)
- FDOT Public Information Office Web site
- Advertisements and Notices
- Other Web site posts

In an effort to communicate to members of the interested public, all public workshop notifications were posted on the FDOT Public Information Web site (http://www.dot.state.fl.us). Also, a display ad was published in local newspapers to advertise the public workshops listed in Exhibit 4.2. Press releases for these public workshops were distributed to local media by FDOT. All the project documentation from the "Service NEPA" phase of the project was available on the SFECCTA Web site

(http://www.sfeccstudy.com/FDOT/Amtrak.html). During this study, the public workshop presentations and other project-related information were posted on an information Web page hosted by the Treasure Coast Regional Planning Council (http://tcrpc.org/special_projects/fec_amtrak/fec_amtrak_home.htm). These Web sites were advertised on the handouts provided at the public workshops.

Due to the widespread support of the project, other initiatives to communicate project information were established by the interested public. The Amtrak/FEC Corridor Coalition is a group of more than 700 individuals who support the proposed project or indicated interest in the project. The coalition provided regular e-newsletter project updates to members. While this organized effort was not initiated by the project sponsors, the attendees at public workshops were provided an opportunity to be included on the Amtrak/FEC Corridor Coalition e-mail list. Similarly, the interested public established a Facebook page in support of the project. As of August 2, 2010, there are 447 fans registered in support of the project. The Facebook page was mentioned at the public workshops; however, the Facebook page was not established or monitored by the study team as a communication technique for the project.

The employed communication techniques and broad grassroots support for the project resulted in substantial media coverage. As of June 2010, more than 50 different local media articles were published concerning the project.

4.2.4 Project Support

In addition to the public support of the project documented in Section 4.2.1, the project is supported by numerous state and local organizations and agencies. As a result of the extensive public outreach conducted in this study and during previous phases of project development, more than 150 letters of support and agency resolutions were received in support of the project. Exhibit 4.4 summarizes this local agency input. Copies of resolutions in support of the project are included in Appendix E. FEC Railway and Amtrak representatives participated in the public workshops and indicated their support of the project to the public during the presentations.

4.2.5 Summary of Public Input

During the public workshops held, verbal comments were solicited at question and answer sessions and written comments were provided on comment forms and by email. Exhibit 4.5 summarizes the general comments and questions on project development that were received as a result of the public outreach documented in the previous sections. The sections within this report where these public concerns are discussed in more detail are noted in the summary table. Additional comments specific to the station alternatives are summarized in Chapter 2 (Alternatives Analysis) of this document. The meeting notes from the review of the station alternatives at the Design Sessions listed in Exhibit 4.2 are included in Appendix D.

EXHIBIT 4.4
Adopted Resolutions & Letters of Support (As of 06/30/2010)

Organization	County	Res. No.	Date Adopted
Beachside Neighborhood Watch	Volusia	Letter	14-Jan-10
Belle Glade, City of	Palm Beach	2009-2744	15-Jun-09
Boca Raton, City of	Palm Beach	54-2009	14-Apr-09
Boynton Beach, City of	Palm Beach	09-090	7-Jul-09
Brevard Community College	Brevard	Letter	16-Sep-09
Brevard County Government (BOCC)	Brevard	09-184	15-Sep-09
Brevard Workforce Development Board, Inc.	Brevard	Letter	9-Sep-09
Bunnell, City of	Flagler	2009-11	7-Jul-09
Business Development Board of Martin County	Martin	09-0506	8-May-09
Canaveral Port Authority	Brevard	2009-04	19-Aug-09
Cape Canaveral, City of	Brevard	2009-29	1-Sep-09
Central Florida MPO Alliance	Brevard, Lake, Marion, Orange, Osceola, Polk, Seminole, Sumter & Volusia	2009-03	16-Oct-09
City of Melbourne Airport Authority	Brevard	9-09	16-Sep-09
Cloud Lake, Town of	Palm Beach	9-01	13-Aug-09
Cocoa Beach Area Chamber of Commerce	Brevard	9-9-2009	9-Sep-09
Cocoa Beach Area Hotel & Lodging Association	Brevard	Letter	1-Sep-09
Cocoa, City of	Brevard	2009-64	23-Jun-09
Cocoa Beach, City of	Brevard	2009-31	17-Sep-09
Cocoa Main Street (Greater Cocoa Community Partnership)	Brevard	09-01	23-Sep-09
Cocoa Redevelopment Agency	Brevard	09-01	1-Sep-09
Crist, Charlie - Governor	Florida	Letter	5-Aug-09
Daytona Beach, City of	Volusia	09-241	9-Sep-09
Daytona Beach Area Convention & Visitors Bureau	Volusia	Letter	17-Dec-09
Daytona Beach “Save Our Neighborhoods”	Volusia	Letter	12-Jan-10
Davie, Town of	Broward	2009-134	3-Jun-09
Delray Beach, City of	Palm Beach	19-09	21-Apr-09
Delray Beach CRA	Palm Beach	09-02	28-May-09
Downtown Melbourne	Brevard	Letter	16-Jul-10
Economic Council of Martin County	Martin	09-2009	8-May-09
Economic Development Commission of Florida's Space Coast	Brevard	Letter	31-Aug-09
East Central Florida Regional Planning Council	Orange, Seminole, Brevard, Lake, Osceola & Volusia	Letter	22-Jul-09
Enterprise Flagler (economic development collaborative)	Flagler	09-04	27-May-09

EXHIBIT 4.4
Adopted Resolutions & Letters of Support (As of 06/30/2010)

Organization	County	Res. No.	Date Adopted
Fellsmere, City of	Indian River	09-H	16-Apr-09
Flagler County Chamber of Commerce	Flagler	2009-01	29-May-09
Flagler County Government (BOCC)	Flagler	2009-24	18-May-09
Flagler County Palm Coast Homebuilders	Flagler	09-01	7-May-09
Florida Association of Counties	State-wide	Letter	23-Jun-09
Florida High Tech Corridor Council	23-county service area of USF, UCF & UF	Letter	30-Sep-09
Florida Historical Society	State-wide	Letter	2-Oct-09
Florida MPO Advisory Council	State-wide	Letter	5-Aug-09
Florida Regional Councils Association	State-wide	09-01	25-Jun-09
Fort Lauderdale, City of	Broward	09-140	2-Jun-09
Fort Pierce, City of	St. Lucie	09-25	6-Apr-09
Fort Pierce Redevelopment Agency	St. Lucie	Letter	24-Aug-09
Friends of the Enchanted Forest	Brevard	Letter	17-Jun-10
Greenacres, City of	Palm Beach	2009-15	1-Jun-09
Gulf Stream, Town of	Palm Beach	009-2	9-Apr-09
Halifax Area Advertising Authority	Volusia	Letter	17-Dec-09
Historical Society of North Brevard	Brevard	Letter	21-May-10
Hobe Sound Chamber of Commerce	Martin	2009-1	18-May-09
Holiday Inn Port St. Lucie	St. Lucie	Letter	13-May-10
Hotel and Lodging Association of Volusia County	Volusia	Letter	17-Dec-09
Hypoluxo, Town of	Palm Beach	09-371	15-Apr-09
Indian River Chamber of Commerce	Indian River	09-5	18-May-09
Indian River County Government (BOCC)	Indian River	2009-120	18-Aug-09
Indian River County Historical Society	Indian River	Letter	25-May-10
Indian River County MPO	Indian River	2009-05	8-Jul-09
Indian River Shores, Town of	Indian River	09-02	25-Jun-09
International Speedway Boulevard (ISB) Coalition	Volusia	Letter	10-Feb-10
ISB Coalition	Volusia	Letter	10-Feb-10
Jacksonville, City of	Duval	210-328-A	25-May-10
Jacksonville Regional Chamber of Commerce	Duval	Resolution	30-Sep-09
Jacksonville Transportation Authority	Duval	2009-20	25-Jun-09
Jensen Beach Chamber of Commerce	Martin	5-19-09	19-May-09
Jess Parrish Medical Foundation	Brevard	Letter	7-Jun-10
Juno Beach, Town of	Palm Beach	2009-09	22-Apr-09
Jupiter, Town of	Palm Beach	16-09	7-Apr-09
Jupiter Island, Town of	Martin	Letter	16-Jul-10

EXHIBIT 4.4
Adopted Resolutions & Letters of Support (As of 06/30/2010)

Organization	County	Res. No.	Date Adopted
Kennedy Space Center Visitors Complex	Brevard	Letter	16-Sep-09
Lantana, Town of	Palm Beach	R-07-2009	22-Jun-09
Main Street Vero Beach	Indian River	09-08	8-Sep-09
Maitland, City of	Orange	Letter	11-Aug-09
Malabar, Town of	Brevard	09-2009	18-May-09
Mangonia Park, Town of	Palm Beach	09-05	16-Jun-09
Margate, City of	Broward	11-460	5-Jun-09
Martin County Countywide Redevelopment Advisory Committee	Martin	Letter	29-Jul-09
Martin County Convention & Visitors' Bureau	Martin	09-5-6-2009	6-May-09
Martin County Government (BOCC)	Martin	09-5.34	19-May-09
Martin County MPO	Martin	Letter	18-May-09
Martin County Economic Council	Martin	09-2009	8-May-09
Martin County Tourist Development Council	Martin	2009	10-Jun-09
Melbourne, City of	Brevard	3060	12-May-09
Merritt Island Redevelopment Agency	Brevard	Letter	24-Sep-09
Merritt Square Mall	Brevard	Letter	21-Sep-09
Metroplan Orlando	Orange, Osceola & Seminole	09-20	12-Aug-09
New Smyrna Beach Board of Realtors	Brevard	Letter (pending)	23-Feb-10
New Smyrna Beach Chamber of Commerce	Brevard	Letter	11-Feb-10
New Smyrna Beach, City of	Brevard	Resolution	23-Feb-10
New Smyrna Beach CRA	Brevard	Letter	9-Feb-10
Northeast Florida Regional Council	Baker, Clay, Duval, Flagler, Nassau, Putnam & St. Johns	2009-05	2-Jul-09
North Florida TPO	Clay, Nassau, St. Johns & Duval	2008-18	13-Nov-08
North Palm Beach, Village of	Palm Beach	2009-30	9-Apr-09
Oak Hill, City of	Volusia	NOV-10	14-Jun-10
Ocean Ridge, Town of	Palm Beach	2009-03	6-Jul-09
Orange County Government (BOCC)	Orange	2009-M-35	11-Aug-09
Orlando, City of	Orange	090810j02	5-Aug-09
Ormond Beach, City of	Volusia	2010-10	19-Jan-10
Osceola County Government (BOCC)	Osceola	09-068R	17-Aug-09
Palm Bay Bayfront CRA	Brevard	2009-01	14-Jul-09
Palm Beach County Government (BOCC)	Palm Beach	2009-0960	16-Jun-09
Palm Beach County League of Cities	Palm Beach	09-03	24-Jun-09

EXHIBIT 4.4
Adopted Resolutions & Letters of Support (As of 06/30/2010)

Organization	County	Res. No.	Date Adopted
Palm Beach County OEDP Committee	Palm Beach	Letter	4-Jun-09
Palm Beach Gardens, City of	Palm Beach	54-2009	4-Jun-09
Palm Beach MPO	Palm Beach	5-09	21-May-09
Palm Coast, City of	Flagler	2009-103	2-Jun-09
Pembroke Pines, City of	Broward	3229	20-May-09
Perfect Drive Golf Villas at PGA Village	St. Lucie	Letter	20-May-10
Pompano Beach, City of	Broward	2009-192	12-May-09
Port St. Lucie, City of	St. Lucie	09-R88	22-Jun-09
Realtors Association of Indian River County	Indian River	09-04	16-Jun-09
Realtors Association of Martin County	Martin	09-07-05	7-May-09
Realtors Association of St. Lucie	St. Lucie	09-01	5-May-09
Riviera Beach, City of	Palm Beach	85-09	15-Jul-09
Road Runner Travel Resort	St. Lucie	Letter	11-May-10
Rockledge, City of	Brevard	652-2009	3-Jun-09
Rockledge, Community Redevelopment Agency	Brevard	Letter	27-Ma7-10
St. Augustine, City of	St. Johns	2009-13	22-Jun-09
St. Augustine/St. Johns County Airport Authority	St. Johns	2009-03	14-Sep-09
St. Johns County Council on Aging	St. Johns	09	11-Aug-09
St. Johns County Government (BOCC)	St. Johns	2009-177	16-Jun-09
St. Lucie County Government (BOCC)	St. Lucie	09-123	14-Apr-09
St. Lucie Hotel and Lodging Association	St. Lucie	Letter	20-Jul-10
St. Lucie Historical Society	St. Lucie	Letter	10-May-10
St. Lucie TPO	St. Lucie	09-04	3-Jun-09
St. Lucie Village, Town of	St. Lucie	2009-08	16-Jun-09
Sebastian, City of	Indian River	R-09-18	8-Apr-09
Sebastian River Area Chamber	Indian River	09-003	13-May-09
Seminole County Government (BOCC)	Seminole	Letter	17-Aug-09
Sewall's Point, Town of	Martin	09-691	22-Jun-09
South Florida Regional Transportation Authority	Palm Beach, Broward & Miami Dade	09-02	July
South Palm Beach, Town of	Palm Beach	05-2009	25-Aug-09
Southeast Volusia Chamber of Commerce	Volusia	Letter	11-Feb-10
Space Coast Association of Realtors, Inc.	Brevard	Letter	25-Sep-09
Space Coast League of Cities	Brevard	06-2010	10-May-10
Space Coast Office of Tourism	Brevard	Letter	18-Sep-09
Space Coast (Brevard County) TPO	Brevard	10-03	9-Jul-09
Stuart, City of	Martin	09-55	18-May-09

EXHIBIT 4.4
Adopted Resolutions & Letters of Support (As of 06/30/2010)

Organization	County	Res. No.	Date Adopted
Stuart Community Redevelopment Agency	Martin	R03-09	22-Jun-09
Stuart Main Street	Martin	09-June 9, 2009	9-Jun-09
Stuart/Martin Chamber of Commerce	Martin	09-222	5-May-09
Tampa Bay Regional Planning Council	Hillsborough, Manatee, Pasco & Pinellas	Letter	9-Jul-09
Titusville, City of	Brevard	27-2009	26-May-09
Treasure Coast Regional Planning Council	Palm Beach, Martin, St. Lucie & Indian River	09-04	20-Mar-09
University of Central Florida	Brevard, Volusia, Orange Lake, Seminole, Marion & Osceola	Letter	16-Sep-09
Vero Beach, City of	Indian River	09-13	7-Apr-09
Vero Heritage, Inc.	Indian River	Letter	25-Sep-09
Volusia County Association for Responsible Development	Volusia	Letter	5-Feb-10
Volusia County Citizens for Responsible Development	Volusia	Letter	5-Feb-10
Volusia County MPO	Volusia	2009-21	25-Aug-09
Wellington, Village of	Palm Beach	2009-71	15-Sep-09
West Melbourne, City of	Brevard	2009-17	19-May-09
West Palm Beach, City of	Palm Beach	200-09	15-Jun-09
West Park, City of	Broward	2009-52	20-May-09

EXHIBIT 4.5
Public and Agency Input: Issues/Concerns

Area of Concern	Issues/ Concerns
Joint Development/ Project Sponsors	Who will own the rail and the stations? (Section 1.4) Is the FEC Railway involved in the alternatives development? (Section 2.1) Do FEC and Amtrak support the project? (Section 4.2.4)
Alternatives Development	How were alternative sites selected? (Section 2.3.3) How is sufficient parking determined? (Section 1.4.4)
Desired Project Enhancements (Section 2.4.1)	New Amtrak stations should make provisions for visually impaired and physically challenged. Need for appropriate landscaping and lighting to attract ridership. Pedestrian path along the FEC corridor to add connectivity to surrounding neighborhoods and mixed-use districts. Interest in on-site eco-friendly features, LEED certification for structures, contained stormwater, electric car recharge facilities, and other green initiatives.
Funding (Section 3.4.2)	What are the potential funding sources? Stipulate anticipated local matching funds. Clarify expected cost split between state and local government. How much does it cost to maintain and operate the rail and the stations?
Construction	How long will the design and construction take?
Operations/Maintenance (Section 3.8.3)	Clarify if only daytime service will be provided. Would train service allow same day turn-around? More trains going back and forth between cities is needed to provide adequate intercity passenger service. Describe interconnectivity to other major cities (such as Orlando/Tampa) and major intermodal connections such as Orlando International Airport. Define ridership costs Describe anticipated security measures at stations. Who will maintain the proposed stations and the rail? What is the projected rate of return on profit?
Potential project benefits (Section 1.5.3)	Improved interstate travel Modal interface for transit-dependent population Enhanced mode of travel for handicapped populations Train travel is perceived as a safer mode of travel (compared to automobiles) Eco-tourism, connectivity with other cities, and access to special events How many job opportunities will the proposed project provide?

4.3 Letters of Resolution from Station Alternative Cities

After the initial public outreach was concluded, it was necessary to gain further agency input from the local government authorities with jurisdiction in the areas of the proposed improvements. To accomplish this, local government meetings were held over a two-week period from June 4, 2010 to June 17, 2010 in each of the cities where stations are proposed to present a summary of the public input received and identify the station alternative recommended by the local government representatives. The local government meetings held were open to the public, communicated to the media, and advertised on local government Web sites and through emails distributed by the Amtrak/FEC Corridor Coalition. Exhibit 4.3 (presented previously) includes a list of these local government meetings. As a result of this agency outreach, each of the eight jurisdictional cities adopted a formal resolution in support of

the project and a locally recommended alternative. These resolutions are noted in Exhibit 4.6 and provided in Appendix E.

EXHIBIT 4.6
Adopted Resolutions on Station Alternatives

Jurisdictional City	Local Agency Recommendation	Res. No.	Date Adopted
St. Augustine (St. Johns County)	U.S. 1 at San Marco Avenue	2010-16	28-Jun-10
Daytona Beach (Volusia County)	South of International Speedway Boulevard (Magnolia Avenue)	10-158	16-Jun-10
Titusville (Brevard County)	North of Pine Street	28-2010	8-Jun-10
Cocoa (Brevard County)	South of Rosa L. Jones Boulevard	2010-083	23-Jun-10
Melbourne (Brevard County)	North of U.S. 192	3143	13-Jul-10
Vero Beach (Indian River County)	North of 23rd Street	2010-16	24-Jun-10
Ft. Pierce (St. Lucie County)	Orange Ave. (East of FEC)	10-31	21-Jun-10
Stuart (Martin County)	Stypmann Boulevard	59-2010	14-Jun-10

The resolutions requested that Governor Charlie Crist and the FDOT make this project a high priority because:

- The FEC Railway was historically operated as a passenger rail service along the east coast of Florida.
- The east coast of Florida was historically developed around train stations along the FEC Railway.
- Local governments and the private sector along the east coast of Florida are in the process of implementing programs to redevelop historic downtowns built around train stations.
- Urban centers are working to improve mobility in their area and rail transit is a key factor, especially between cities.
- The 2006 Florida Rail Plan identified the FEC Railway as a potential "Coastal Route" for passenger transit (see Section 1.1.4).
- Amtrak service along the FEC Railway would provide jobs and economic stimulus for area residents and businesses.

4.4 Consultation with Resource Agencies

During project development, consultation with the permitting and jurisdictional agencies was conducted to ensure that the proposed action complies with necessary environmental regulations and permitting requirements. The ETDM Preliminary PSR documents the agency consultation conducted during the initial stages of the project and includes agency comments for each segment of the FEC Railway (by county) and each station alternative. Exhibit 4.7 summarizes the agency consultation conducted for environmental resources protected by federal regulations. As a result of this consultation, agency concurrence letters (provided in Appendix E) were received from the State Historic Preservation Office (SHPO), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS). Further coordination with the resource agencies where there is anticipated environmental involvement will be required during the subsequent design and permitting phase of the project.

EXHIBIT 4.7
Summary of Agency Consultation

Environmental Involvement	Agency	Summary of Coordination and Consultation	Results of Agency Consultation
Section 106 − Historic and Culturally Significant Properties	SHPO	ETDM comments provided April 29, 2010 – Conference call to discuss methodology June 10, 2010 - Northwood Crossover field visit/coordination meeting July 20, 2010 – FDOT/SHPO coordination meeting to discuss preliminary CRAS results July 22, 2010 – FRA/FDOT/SHPO coordination meeting to discuss potential effects July 26, 2010 - FDOT/SHPO coordination meeting to address SHPO comments August 3, 2010 – SHPO provided No adverse effect concurrence letter	Determination of No Adverse effect
Section 401/404 - Wetlands and Water Quality, Executive Order 11990 - Wetlands	ACOE	ETDM comments provided	According to ACOE, no adverse effects to waters of the United States, including wetlands or tidal waters are anticipated to occur. A jurisdictional determination of wetlands is recommended during the design phase.
USCG 404 - Navigable Waterways	USCG	ETDM comments provided	According to USCG, no further coordination is required as no bridge modifications or replacements are proposed and there is no involvement with navigable waterways.
Executive Order 11988 - Floodplains	USEPA	ETDM comments provided	Project anticipated to result in no effect to floodplains
Executive Order 12898 – Environmental Justice	USEPA	ETDM comments provided	According to EPA, the project anticipated to result in minimal effect to the social environment.
Clean Air Act - Air Quality	USEPA	ETDM comments provided	According to EPA, the project is anticipated to result in an enhanced degree of effect to the air quality.
Endangered Species Act - Threatened and Endangered Biological Resources	USFWS	ETDM comments provided July 28, 2010 – FDOT/USFWS coordination meeting August 3, 2010 – USFWS provided No adverse effect concurrence letter	Determination of No Adverse effect, Further USFWS consultation required during design and permitting phase

EXHIBIT 4.7
Summary of Agency Consultation

Environmental Involvement	Agency	Summary of Coordination and Consultation	Results of Agency Consultation
Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat	NMFS	ETDM comments provided July 28, 2010 – FDOT/NMFS coordination meeting August 2, 2010 – NMFS provided project concurrence letter	No objection to proposed project; Further NMFS consultation required during design and permitting phase
Safe Drinking Water Act	USEPA	ETDM comments provided	According to EPA, the project is anticipated to result in minimal effect to water quality and drinking water.

Chapter 5

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Chapter 6

Distribution List

Upon FRA approval, this EA will be made available for public review during a 30-day public comment period. FRA intends to publish a Notice in the Federal Register explaining how interested parties can comment on the Draft EA and where the document can be accessed. In consultation with FRA, FDOT intends to advertise a Notice of Availability in the local newspapers within the cities where stations are proposed (St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce and Stuart). Additionally, the EA will be uploaded to the ETDM Project Diary with notification of availability provided to the ETAT representatives (federal, state, and local agencies with jurisdiction by law or special expertise, and agencies, tribes, and local entities.) The following locations have been identified as potential locations where copies will be available for public review. Locations where the documents are displayed will be compliant with ADA.

Jacksonville

Florida Department of Transportation
District 2
2198 Edison Avenue
Jacksonville , FL 32204-2730

St. Augustine

St Augustine City Hall
75 King Street
St Augustine, FL 32084

Daytona Beach

Daytona Beach City Hall
Conf Room 149-B
301 S Ridgewood Ave
Daytona Beach, FL 32114

Titusville

Titusville City Hall
555 S. Washington Avenue
Titusville, FL 32796

Cocoa

Cocoa City Hall
65 Stone Street
Cocoa, FL 32922

Melbourne

Melbourne City Hall
900 East Strawbridge Avenue
Melbourne, Florida 32901

Vero Beach

Vero Beach City Hall
1053 20th Place
Vero Beach, FL 32960

Fort Pierce

Fort Pierce City Hall
100 N. U.S. 1
Fort Pierce, FL 34950

Stuart

Stuart City Hall (City Commission Chambers)
121 SW Flagler Ave
Stuart, FL 34994

West Palm Beach

West Palm Beach City Hall
401 Clematis Street
West Palm Beach, FL 33401

Chapter 7

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U.S. Fish & Wildlife Service (USFWS), South Florida Ecological Services Office. "Federally Listed Species by County." February 2008.

Appendix A (Under separate cover**)**

Air Quality Screening Technical Memorandum (June 2010)
Contamination Screening Evaluation Report (July 2010
Cultural Resource Survey Assessment (July 2010)
Endangered Species Biological Assessment (July 2010)
ETDM Programming Summary Report (July 2010)
Noise and Vibration Assessment (July 2010)
Wetland Evaluation Report (July 2010)

Appendix B
Concept Plans

Preferred Alternative Conceptual Renderings (Proposed Stations)
Preferred Alternative Concept Plans (Proposed Stations)
Preferred Alternative Concept Plans (Northwood Crossover)
Concept Plans (Station Alternatives)
Preferred Alternative (FEC Railway Track Charts)
Typical Station Layouts (Small and Medium Stations)

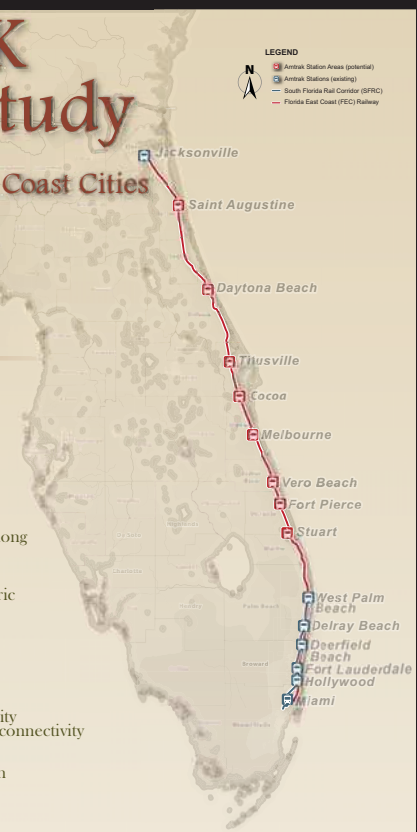
Appendix C
Advance Notification Package

Appendix D
Meeting Summaries

Appendix E
Agency Correspondence

FEC AMTRAK Passenger Rail Study

Restoring Passenger Rail to Florida's East Coast Cities



Serving the Cities

The FEC AMTRAK® Passenger Rail project proposes to restore passenger service, in the form of AMTRAK, on the FEC rail corridor from Jacksonville to West Palm Beach, with service continuing south to Miami on the South Florida Rail Corridor. Eight new stations are proposed, including St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart, as well as an FEC/SFRC rail interconnection in West Palm Beach (Northwood Crossover).

Restore intercity passenger rail service along nearly 350 miles of Florida's east coast

Augment on-going revitalization of historic town centers

Interface with airports, seaports, mass transit

Lighten the transportation system capacity constraints by enhancing rail mobility and connectivity

Stimulate economy through construction and transit-orientated development

Key Stakeholders

Department of Transportation United States of America

State of Florida Department of Transportation

FEC

AMTRAK®

RTA South Florida Regional Transportation Authority

FDOT Secretary Stephanie C. Kopelousos and Gregor Senger, FDOT Project Manager in St. Augustine

The Jacksonville to Miami Intercity Service

- Connects existing FEC railway to the state-owned South Florida Rail
- Adds engines and passenger cars to provide two southbound and two northbound trains per day
- Travels up to 90 mph with total trip time between Jacksonville and Miami at less than seven hours
- Operates while maintaining existing freight service
- Provides a safer and more secure transportation system for residents, businesses and visitors

Creating The Vision

A renewed commitment to the Nation's travelers has resulted in local communities working together to make this project a reality. Support continues to grow for this project, with more than 130 resolutions and letters of support from a wide range of cities, agencies, and other organizations. The AMTRAK Inspection Train on May 1, 2010 from Miami to Jacksonville served to reinforce this vision.

AMTRAK Inspection Train
All Aboard!

Northwood Crossover Field Meeting
June 10, 2010

Pictured from left to right (top row): Shandra Davis-Sanders/FDOT, Jamie Patterson-Brady/FDOT, Jim Ambrosino/PCI, Jennifer Ross/SHPO, Hugo Gutierrez/TYLIN, Gregor Senger/FDOT, Jessie Smiley/FDOT, Ken Hardin/Janus Research, Ann Broadwell/FDOT, Roy Jackson/FDOT, Jorge Provenzali/PCI; (bottom row): Lynn Kelley/FDOT, James Pepe/Janus Research, Brian Yates/SHPO

For More Information

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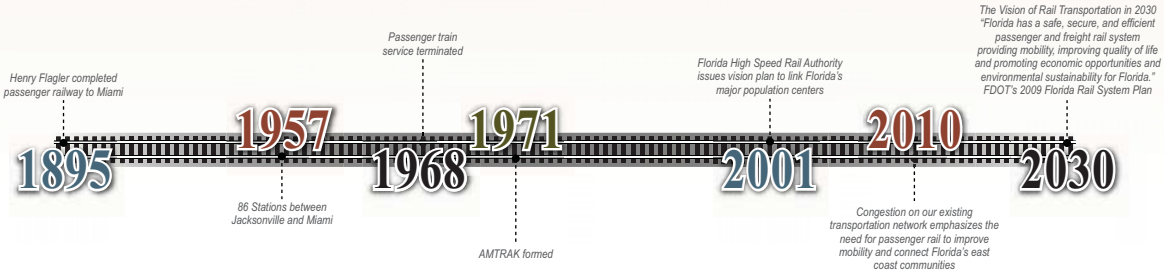
Sources:
- http://www.tcrpc.org/special_projects/fec_amtrak/fec_amtrak_home.htm
- http://www.sfeccstudy.com/FDOT/Amtrak.html



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