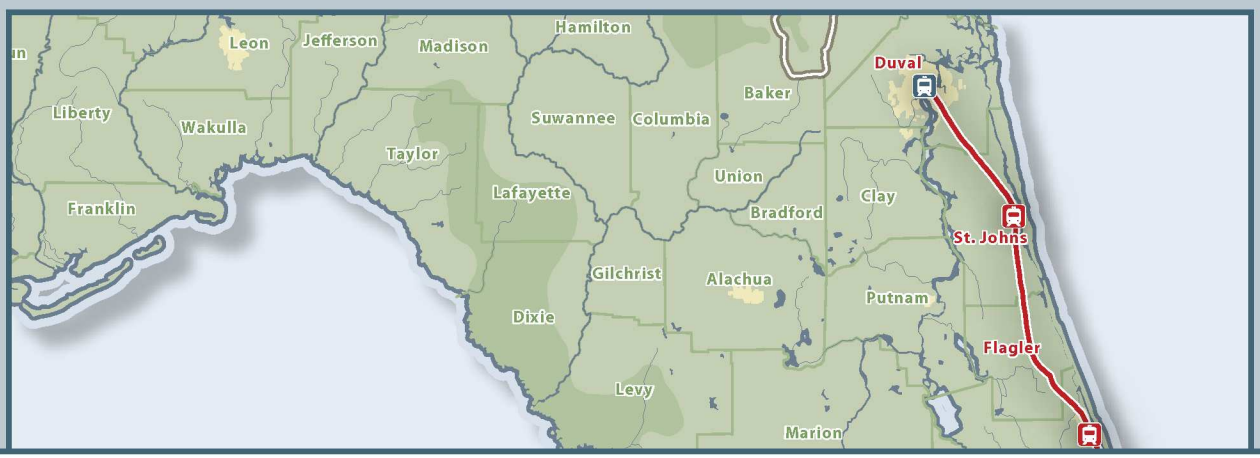
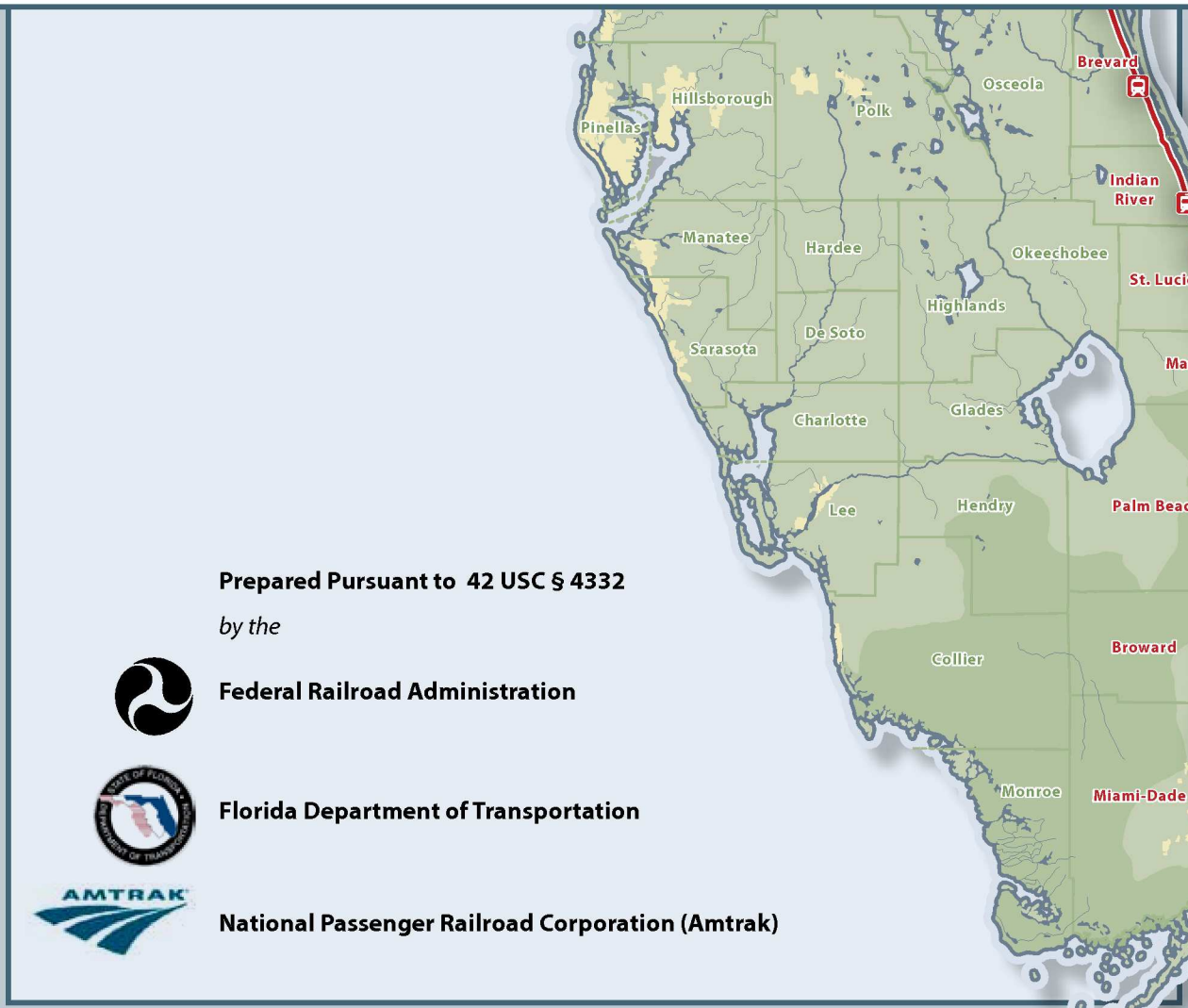


Programmatic Environmental Assessment

For the High-Speed Intercity Passenger Rail on Florida East Coast Amtrak Service

Jacksonville, Duval County, Florida to Miami, Miami-Dade County, Florida



Prepared Pursuant to 42 USC § 4332

by the

Federal Railroad Administration

Florida Department of Transportation

National Passenger Railroad Corporation (Amtrak)

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Date of Approval

District Secretary
Florida Department of Transportation

Date of Approval

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Contents

Exhibits v

Glossary ix

Acronyms xix

Chapter 1 Purpose and Need 1

1.1 Introduction 1

1.1.1 Florida East Coast Amtrak Service Project 2

1.1.2 Programmatic Documents and What This Document is to Achieve 4

1.1.3 Tiering and Future NEPA Evaluations 6

1.1.4 Background on Florida High-Speed Rail 7

1.2 Project Description 10

1.2.1 Description of the Intercity Corridor Service 12

1.2.2 Mainline Alternatives 13

1.2.3 Crossover Alternatives 13

1.2.3.1 Northwood Crossover 13

1.2.3.2 71st Street Crossover 14

1.2.4 Stations 14

1.3 Study Area 15

1.4 Purpose and Needs 16

1.4.1 Purpose 16

1.4.2 Needs 18

1.4.2.1 Connectivity 18

1.4.2.2 Mobility 20

1.4.2.3 Economic Development 22

1.5 Project Benefits 23

1.5.1 Economic Recovery 23

1.5.2 Transportation Benefits 25

1.5.3 Environmental Benefits 27

1.5.4 Livable Communities 30

1.6 Scoping 31

1.7 Connected Actions 32

1.8 Decision to Be Made **37**
1.9 Applicable Regulations and Permits **38**
1.9.1 Federal Regulations 38
1.9.2 State Regulations 39
1.9.3 Permits 40

Chapter 2 Alternatives Analysis **43**
2.1 Introduction **43**
2.2 No-build Alternative **43**
2.3 Build Alternatives **44**
2.3.1 Mainline Alternative 44
2.3.1.1 Mainline Alternative 1 44
2.3.1.2 Mainline Alternative 2 44
2.3.2. Crossover Alternatives 44
2.3.2.1 Northwood Crossover 46
2.3.2.2 71st Street Crossover 46
2.3.3 Stations 46
2.3.3.1 St. Augustine 47
2.3.3.2 Daytona Beach 48
2.3.3.3 Titusville 50
2.3.3.4 Cocoa 51
2.3.3.5 Melbourne 52
2.3.3.6 Vero Beach 53
2.3.3.7 Fort Pierce 54
2.3.3.8 Stuart 55

Chapter 3 Affected Environment and Environmental Consequences **57**
3.1 Introduction **57**
3.2 Natural Environment **58**
3.2.1 Geology and Soils 58
3.2.2. Water Quality 59
3.2.3 Water Bodies and Waterways 61
3.2.4 Floodplains 63
3.2.5 Wetlands 65
3.2.6 Coastal Zones 68
3.2.7 Ecological Systems 69

3.2.8 Threatened and Endangered Species 71
3.2.8.1 Federally- Listed Species 71
3.2.8.2 State-Listed Species 73
3.2.9 Essential Fish Habitat 76
3.3 Atmospheric Environment 77
3.3.1 Air Quality 77
3.3.2 Noise 78
3.3.3 Vibration 84
3.4 Social Environment 89
3.4.1 Land Use, Zoning and Property Acquisition 89
3.4.1.1 Existing Land Use 89
3.4.1.2 Future Land Use 93
3.4.2 Neighborhoods and Communities 95
3.4.3. Parks and Recreation 98
3.4.4 Environmental Justice 98
3.4.5 Economics 102
3.4.6 Public Health and Safety 106
3.5 Contaminated Sites and Hazardous Waste 106
3.6 Cultural Resources 108
3.6.1 Historic Resources 108
3.6.2 Potential Consulting Parties 109
3.7 Properties Afforded Consideration and Protection Under Section 4(f) of the USDOT Act of 1966 121
3.8 Energy 124
3.9 Transportation 125
3.9.1. Passenger Rail 125
3.9.2 Freight Rail 125
3.9.3 Roadway Conditions and Operations 126
3.9.4 Other Modes of Public Transportation 126
3.10 Construction Impacts 128
3.11 Cumulative Effects 130

Chapter 4 Coordination and Consultation 135

4.1 Introduction 135
4.2 Corridor-Wide Outreach and Support 135
4.3 Stations 138
4.3.1 St. Augustine 138

4.3.2 Daytona Beach 139
4.3.3 Titusville 140
4.3.4 Cocoa 141
4.3.5 Melbourne 141
4.3.6 Vero Beach 141
4.3.7 Fort Pierce 142
4.3.8 Stuart 142
4.4 Letters of Resolution from Station Alternative Cities 142
4.5 Consultation with Regulatory and Resource Agencies 143

Chapter 5 Preparers 145
Federal Railroad Administration 145
Florida Department of Transportation 145
Amtrak 145
Florida East Coast Railway 145
Treasure Coast Regional Planning Council 146
Gannett Fleming, Inc. 146
Janus Research 146
AECOM 146

Chapter 6 Distribution List 147
Federal Agencies 147
State Agencies 150
Regional Organizations 152
County Agencies 152
Local Governments 154
Other Interested Parties 157

Chapter 7 References 159

Exhibits

1.1 Amtrak Service on FEC Railway 3
1.2 FHSRA network 8
1.3 Rail Vision Plan 9
1.4 Small Station Layout 15
1.5 Small Station Elevation 15
1.6 Projected Population Growth, Florida vs. U.S. 19
1.7 Annual Hours of Delay on Florida's Highways 20
1.8 Florida Highway Congestion, 1998 Level of Service Estimates 21
1.9 Florida Highway Congestion, 2020 Level of Service Estimates 21
1.10 Monthly, Not Seasonally-Adjusted Labor Force, Employment and Unemployment, June 2009 22
1.11 Jacksonville Transportation Center 33
1.12 Miami International Center in relation to the Miami International Airport 34
1.13 Miami Intermodal Center 35
1.14 SFECC Transit Analysis study area 36

2.1 Amtrak Service on FEC Railway With Crossovers 45
2.2 Conceptual Layout Plan Site 1, US 1 @ San Marco Avenue 47
2.3 Conceptual Layout Plan Site 2, US 1 @ Carrera Street 47
2.4 Conceptual Layout Plan Site 3, St. Augustine/St. Johns County Airport 48
2.5 Conceptual Layout Plan Site 1, Magnolia Avenue 48
2.6 Conceptual Layout Plan Site 2, Orange Avenue 49
2.7 Conceptual Layout Plan Site 3, Live Oak Avenue 49
2.8 Conceptual Layout Plan Site 4, ISB Northeast Quadrant 50
2.9 Conceptual Layout Plan Site 1, Julia Street 50
2.10 Conceptual Layout Plan Site 2, Space Center Executive Airport 51
2.11 Conceptual Layout Plan Site 1, West King Street (SR 520) 51
2.12 Conceptual Layout Plan Site 2, Rosa L. Jones Boulevard 52
2.13 Conceptual Layout Plan Site 1, Melbourne International Airport 52
2.14 Conceptual Layout Plan Site 2, Prospect Avenue 53
2.15 Conceptual Layout Plan Site 1, 19th Place 53
2.16 Conceptual Layout Plan Site 2, 20th Place 54

2.17 Conceptual Layout Plan Site 1, Orange Avenue....54
2.18 Conceptual Layout Plan Site 2, Avenue A....54
2.19 Conceptual Layout Plan Ocean Boulevard....55

3.1 Station area 100-year floodplains....64
3.2 Mainline 100-year floodplains....64
3.3 Mainline NWI Wetlands....66
3.4 Station area NWI Wetlands....66
3.5 Federally-Listed Endangered and Threatened Species Potentially Occurring in the Study Area....72
3.6 Essential Fish Habitat along the Mainline....77
3.7 National Ambient Air Quality Standards....78
3.8 Land Use Categories and Metrics for Transit Noise Impact Criteria....80
3.9 Typical Transit and Background L_{dn} Sound Levels....80
3.10 Noise Impact Criteria for Transit Projects....81
3.11 Noise Levels Defining Impact for Transit Projects....82
3.13 Summary of Existing Sound Levels within the FEC Railway....83
3.12 Summary of Noise Impact Distances (feet)....84
3.14 Typical Ground-Borne Vibration Levels....85
3.15 Ground-Borne Vibration and Noise Impact Criteria....86
3.16 Ground-Borne Vibration and Noise Impact Criteria for Special Buildings....87
3.17 Flow Chart of Vibration Screening Process....87
3.18 Heavy Freight Vibration Levels within the FEC corridor....88
3.19 Amtrak Rail Operations Vibration Levels....89
3.20 Land Use Along the FEC Mainline....90
3.21 Land Use within 500 feet of the proposed stations (Acres)....91
3.22 Future Land Use within 200 Feet of the Mainline by County....94
3.23 Future Land Use within 500 Feet of the Proposed stations....94
3.24 Population by County....95
3.25 Population Centers....96
3.26 Parks and Recreational Resources....99
3.27 Minority Data Summarized by Proposed stations....101
3.28 Low Income Data Aggregated by Proposed Stations....102
3.29 Public Health and Safety Facilities along the Mainline....106
3.30 Mainline Contaminated Sites and Hazardous Waste Concerns....107

3.31 Station Alternatives Contaminated Sites and Hazardous Waste Concerns 107
3.32 NRHP Listed and Potentially Eligible Resources along the Mainline 113
3.33 NRHP Listed and Potentially Eligible Resources at each Station Alternative 119
3.34 Potentially Affected Section 4(f) Resources 124
3.35 Station Area Roadway Volumes – 2007 127
3.36 Reasonably Foreseeable Developments of Regional Impact 131
3.37 Summary Emissions Factors by Mode 134

4.1 Adopted Resolutions & Letters of Support (As of 9/23/2009) 135

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 effected 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), would not have a significant effect on the human environment and, therefore, for which an environmental impact statement would not be prepared. It would include the environmental assessment or a summary of it and would 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. FEC 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.

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.

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
ACHP	Advisory Council on Historic Preservation
ARRA	American Recovery and Reinvestment Act
BTU	British Thermal Unit
CAAA	Clean Air Act Amendments
CBD	Central Business District
CEQ	Council on Environmental Quality
CSXT	CSX Transportation
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBA	A-weighted sound levels
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
ETDM	Environmental Transportation Decision Making
FAC	Florida Administrative Code
FCMA	Florida Coastal Management Act
FCMP	Florida Coastal Management Program
FDA	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
FMSF	Florida Master Site File
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration

FTA	Federal Transit Administration
FTE	Full Time Equivalent
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
GIS	Geographic Information System
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
L_{dn}	Day-Night Sound Level
L_{eq}	Equivalent Sound Level
MCS	Miami Central Station
MIA	Miami International Airport
MIC	Miami Intermodal Center
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
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
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PPV	Peak Particle Velocity
RMS	Root Mean Square
ROD	Record of Decision
ROW	Right-of-Way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SFECCTA	South Florida East Coast Corridor Transit Analysis
SFRC	South Florida Rail Corridor

SFRTA	South Florida Regional Transportation Authority
SHPO	State Historic Preservation Office
SOV	Single-occupant Vehicle
TEA-21	Transportation Equity Act for the 21st Century
TMDL	Total Maximum Daily Load
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 to which the project sponsors are responding in studying the alternatives in Chapter 2. Chapter 1 provides an overview of the decision-makers and decision-making process and provides a foundation for the remainder of the document.

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 Federal Railroad Administration (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 country. To initiate the fulfillment of this vision, the Obama administration has 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.

On June 23, 2009, 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. The evaluation and selection criteria established are 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.

The High-Speed Intercity Passenger Rail program is intended to make major capital investments to support intercity passenger and high-speed rail services.

The HSIPR program established multiple funding paths for projects at different stages of development. The Florida East Coast Amtrak Service project is seeking funding under Track 2 – High-Speed Rail/Intercity Passenger Rail Service Development Programs of the HSIPR program. The Track 2 funding process is aimed at developing new high-speed rail corridor and intercity

passenger rail services, or substantial upgrades to existing corridor services. It is intended to fund development of a set of interrelated projects that constitute the entirety or a distinct phase of a long-range service development plan—projects which collectively produce benefits greater than the sum of each individual project.

1.1.1 Florida East Coast Amtrak Service Project

The proposed project consists of restoring intercity passenger rail service along nearly 350 miles of Florida's east coast between Jacksonville and Miami via the existing Florida East Coast (FEC) railway, a connector track (crossover) to the existing South Florida Rail Corridor (SFRC) in either West Palm Beach via the Northwood crossover or Miami via the 71st Street crossover, and a small portion of the existing SFRC in and around Miami, depending on which crossover is used (exhibit 1.1).

The northern terminus would be the existing Jacksonville Amtrak station, with an ultimate terminus at the future Jacksonville Regional Transportation Center (JRTC) (see section 1.7). The southern terminus would be at the Miami Central Station (MCS), which is a part of the Miami Intermodal Center (MIC) project (http://www.micdot.com) currently under construction and scheduled for completion by 2012 (see section 1.7).

The proposed passenger service would consist of two southbound and two northbound trains per day, with a total trip time between Jacksonville and Miami of less than seven hours. As a program of rail improvements, the project would use a phased approach to developing intercity passenger rail service. The first phase would provide the infrastructure, stations/facilities, and equipment (fleet) to extend Amtrak service from Jacksonville to Miami by 2012. Ensuing 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. This project would be completed without regard to race, color, national origins, age, sex, religion, disability, or family status.

Existing track, signals, and grade crossings would be upgraded as needed to accommodate passenger train speeds up to 90 miles per hour (mph). Minor right-of-way acquisition would be required at the proposed crossover in either West Palm Beach or Miami. Approximately 29 miles of replacement track work along the existing rail line would be completed to accommodate

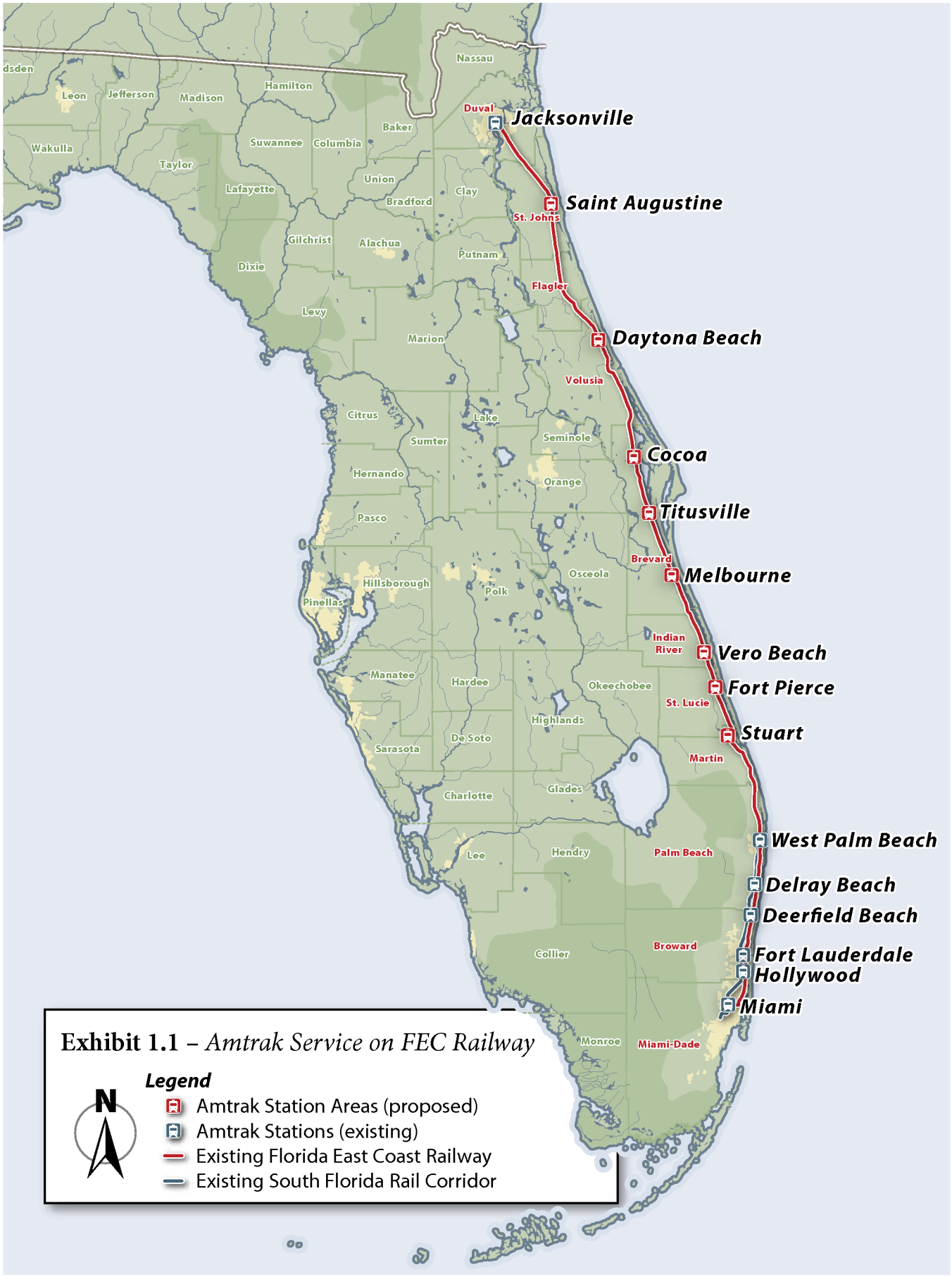


Exhibit 1.1 – *Amtrak Service on FEC Railway*

90 mph speeds. Existing highway and pedestrian crossings of the corridor would also be upgraded to enhance safety.

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

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

1.1.2 Programmatic Documents and What This Document is to Achieve

Under the HSIPR program, projects seeking funding must comply with the National Environmental Policy Act (NEPA), codified at 42 United States Code (USC) 4322, by considering the environmental impacts of proposed projects which could significantly affect the environment. Agencies applying under Track 2 must complete "Service NEPA" for consideration for funding (FRA, August 2009). For the FRA, Service NEPA typically addresses broad questions related to the type of service(s) being proposed, including cities and stations served, route alternatives, service levels, types of operations, ridership projections, and major infrastructure components. To accomplish Service NEPA compliance, the FRA recommends a programmatic or tiered approach. The concept of preparing a Service NEPA level of documentation to support decision-making complies with the Council on Environmental Quality (CEQ) model of "tiering" under their regulations implementing NEPA.

For the FRA, Service NEPA typically addresses broad questions related to the type of service(s) being proposed, including cities and stations served, route alternatives, service levels, types of operations, ridership projections, and major infrastructure components.

Under this approach, a Programmatic or Tier 1 NEPA review is completed for planning-level decisions and evaluation of broad environmental effects of a proposed rail program. Under the FRA Procedures for Considering Environmental Impacts (64 FR 28545), a programmatic (or Tier I) environmental document should identify program-level alternatives and assess the program-wide environmental impacts. To the extent that information is available, it should also identify the alternatives to and impacts of compo-

CEQ NEPA Regulations

Tiering Concept (40 CFR Part 1502.20)

Agencies are encouraged to tier their environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review (Sec. 1508.28). Whenever a broad environmental impact statement has been prepared (such as a program or policy statement) and a subsequent statement or environmental assessment is then prepared on an action included within the entire program or policy (such as a site specific action) the subsequent statement or environmental assessment need only summarize the issues discussed in the broader statement and incorporate discussions from the broader statement by reference and shall concentrate on the issues specific to the subsequent action. The subsequent document shall state where the earlier document is available. Tiering may also be appropriate for different stages of actions. (Section 1508.28).

Definition of Tiering (40 CFR Part 1508.28)

"Tiering" refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basinwide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared. Tiering is appropriate when the sequence of statements or analyses is:

a. From a program, plan, or policy environmental impact statement to a program, plan, or policy statement or analysis of lesser scope or to a site- specific statement or analysis.
b. From an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe.

nent FRA actions within the program, and the implications on alternative transportation systems [64 FR 28548, 4(g)(2)].

This Programmatic Environmental Assessment (PEA) for the Florida East Coast Amtrak Service project was conducted to perform a Service NEPA-level assessment of project impacts, identify the individual actions to pursue for Project NEPA analysis, and to propose the associated Classes of Action. Completion of a Programmatic Environmental Assessment (PEA) was determined as the appropriate class of action for NEPA compliance for the Florida East Coast Amtrak Service project because the impacts from the project (i.e., nominal additional trains to an existing freight corridor,

stations in urban settings that are demanding intercity service, limited adverse impacts with opportunities for further avoidance and minimization) have not been fully evaluated, but early scoping suggests that the impacts do not appear to be significant. This Service NEPA-level review provides a broad collective analysis of each of the project components to determine the potential for significant adverse environmental impacts. Subsequent "Project-level" NEPA compliance would be completed for specific, individual components of the program and tiered against the Service NEPA addressing the entire program.

1.1.3 Future NEPA Evaluations

Project impacts have not been fully evaluated, but early scoping and analysis suggests that impacts do not appear to be significant. Classes of action for project components would be formalized through consultation with FRA. FDOT proposes the following actions and associated Project-level NEPA Classes of Action:

- Corridor from Bowden Yard in Jacksonville to the Northwood Connection in West Palm Beach — Categorical Exclusion
- Northwood (West Palm Beach) or 71st Street (Miami) Connection – Environmental Assessment
- St. Augustine Station – Categorical Exclusion
- Daytona Beach Station – Categorical Exclusion
- Titusville – Categorical Exclusion
- Cocoa – Categorical Exclusion
- Melbourne – Categorical Exclusion
- Vero Beach – Categorical Exclusion
- Ft. Pierce – Categorical Exclusion
- Stuart – Categorical Exclusion
- Miami Central Station – NEPA clearance obtained

For the Florida East Coast Amtrak Service project, it is anticipated that no additional NEPA review would be required for the mainline component. Project NEPA evaluations necessary for complete evaluation of the project, tiered against the Service NEPA review, would be completed for the proposed stations and crossover options.

Project-level NEPA would evaluate site-specific location and design alternatives for the preferred station locations, corridor improvements, and crossovers, including avoidance and minimization alternatives, to fully disclose potential environmental impacts not already in the Service NEPA review. Project-level NEPA would continue to utilize the Florida Department of Transportation's Efficient Transportation Decision Making (ETDM)

process for environmental streamlining. Florida's ETDM process defines the procedures for planning transportation projects, conducting environmental reviews, and developing and permitting projects.

For the Florida East Coast Amtrak Service project, it is proposed that the mainline component be classified as a Categorical Exclusion. The improvements are largely contained inside the FEC Railway right-of-way. Associated impacts will be largely related to construction and certain federally-listed species that can be minimized or avoided (see Section 2.3.1).

It is proposed that the eight new stations between St. Augustine and Stuart would be classified and processed as Categorical Exclusions, as the projected environmental impacts from construction of each station do not appear to be significant (see section 2.3.2).

It is anticipated that the proposed stations would be classified and processed as Categorical Exclusions, as the projected environmental impacts from construction of each station do not appear to be significant

Additionally, the project would require the construction of a crossover to connect the FEC Railway with the existing Amtrak service which currently uses the SFRC. NEPA compliance for the evaluation of these crossover options would likely be classified and processed as Environmental Assessments (EAs), as the significance of potential impacts are unknown at the Service-level.

NEPA compliance for the evaluation of these crossover options would likely be classified and processed as Environmental Assessments, as the significance of potential impacts are unknown at the service level.

The proposed JRTC, the South Florida East Coast Corridor Transportation Analysis (SFECCTA) (http://www.sfeccstudy.com), and the rail connection with MIC are being proposed and developed by others and are 'connected actions' (see section 1.7).

1.1.4 Background on Florida High-Speed Rail

The potential for high-speed intercity passenger rail service to address a portion of the transportation needs for the state of Florida has a long history. Current efforts to evaluate high-speed rail's potential were initiated following approval by Florida voters. In November 2000, 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.

The purpose of Article 10, Section 19 of the Constitution of the State of Florida was "…to reduce traffic congestion and provide alternatives to the traveling public." In June 2001, the Florida State Legislature enacted the

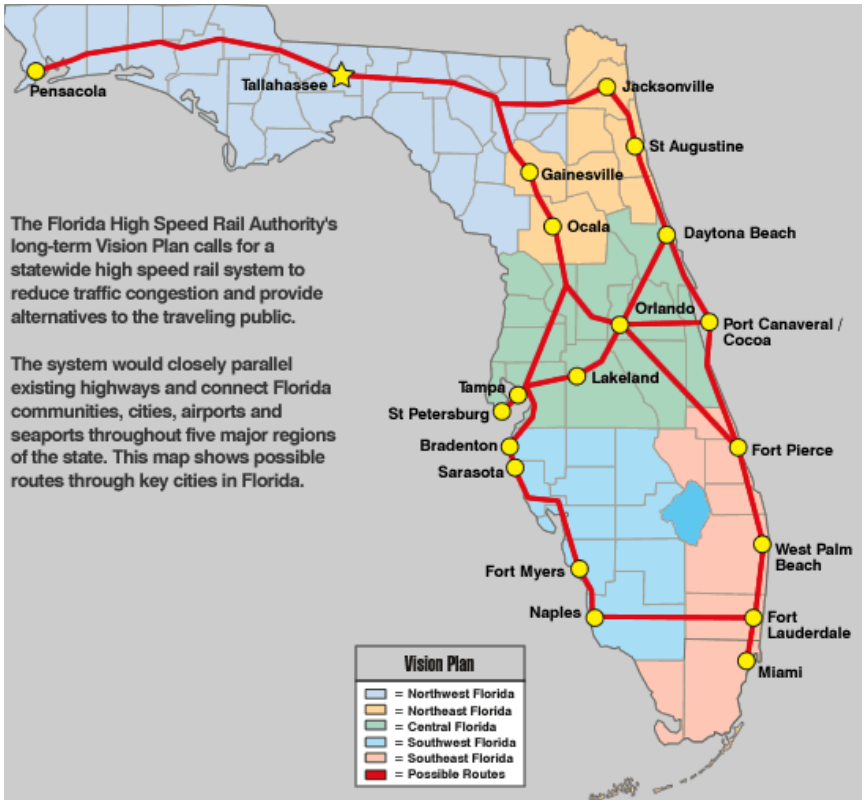
Florida High Speed Rail Authority Act and created the Florida High Speed Rail Authority (FHSRA). The FHSRA was charged with the responsibility for planning, administering, and implementing a high-speed rail system.

Following its creation in 2001, the FHSRA proceeded to implement its responsibilities. The FHSRA crafted a vision for a high-speed rail network linking the major population centers of Florida (exhibit 1.2). 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.

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 on to the Orlando International Airport, along with a future extension into St. Petersburg. A Draft EIS was prepared in 2003, and a Final EIS was released in 2005 and is now being reevaluated.

Growing concern over the costs of implementing a high-speed rail network led to efforts to repeal the amendment. In November 2004, Florida

Exhibit 1.2 – *FHSRA network*

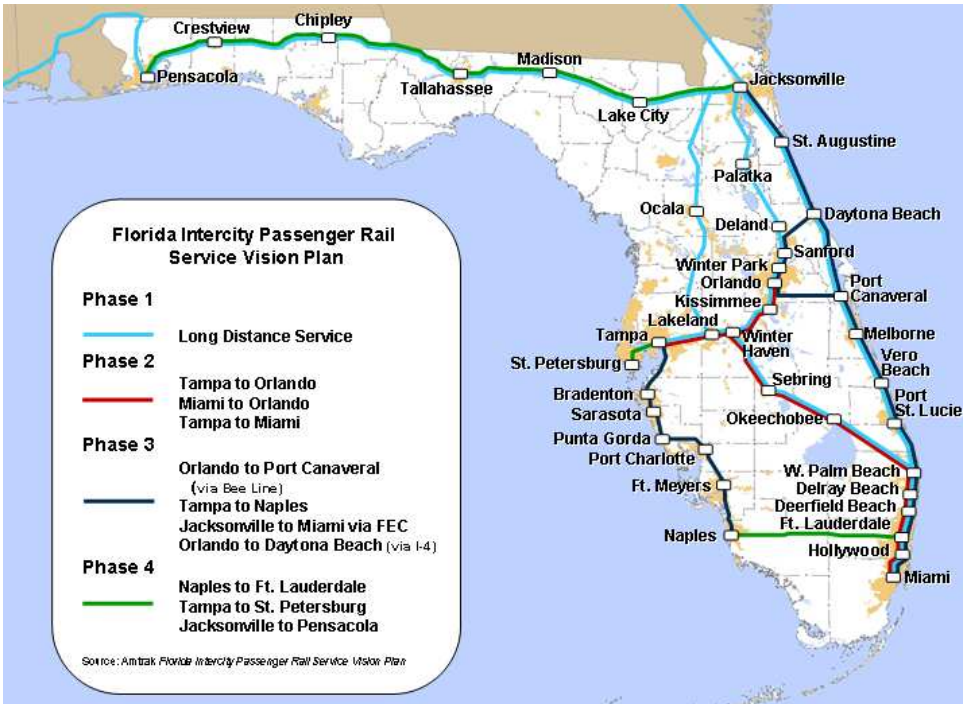


Source: *2004 Passenger Rail Component of the Florida Rail Plan*

voters chose to overturn the original amendment, resulting in the removal of the constitutional mandate.

Building upon the groundwork laid by the FHSRA, the Florida Department of Transportation (FDOT) developed the *Florida Intercity Passenger Rail "Vision Plan."* The plan found that the intercity travel market would grow from slightly over 100 million trips in 2006 to nearly 200 million trips by 2020, and 320 million trips by 2040. 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). Additional significant travel is anticipated between Jacksonville (northeast Florida) and Orlando (central Florida). The *Florida Intercity Passenger Rail Service "Vision Plan"* proposed four phases of improvements (exhibit 1.3). Phases 1 and 2 would be implemented within the first five years of the program, and Phases 3 and 4 during the subsequent 15 years. Direct service from Jackson-

Exhibit 1.3 – *Rail Vision Plan*



Source: *2004 Passenger Rail Component of the Florida Rail Plan*

ville to Miami via the FEC Railway was programmed as a part of Phase 1 and Phase 3 of the plan (FDOT, August 2006).

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

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 proposed Florida East Coast Amtrak Service project has been developed in response to this policy plan.

1.2 Project Description

The FRA, FDOT, and Amtrak are proposing to restore intercity passenger rail service along nearly 350 miles of Florida's east coast via the FEC Railway by expanding Amtrak's long-distance passenger rail service from Jacksonville to West Palm Beach, with continuation to Miami. Built by Henry Flagler in the early 1900s, passenger rail service on the FEC Railway was available between Jacksonville and Miami until service was discontinued in 1968.

The proposed project is being considered for FRA HSIPR Program Track 2 funding in response to the ARRA. The proposed project would extend along the FEC Railway from south of Jacksonville to West Palm Beach,

where the project would continue south on either the existing FEC Railway or the SFRC to Miami. The southern terminus would be the MCS, which is a part of the MIC project at Miami International Airport (MIA), under construction and scheduled for completion by 2012.

As a corridor development program, a phased approach would be used to develop intercity passenger rail service between Jacksonville and Miami. The first phase would provide the infrastructure, stations/facilities, and equipment (fleet) to extend Amtrak service south from Jacksonville to Miami by 2012. The proposed service plan would consist of two southbound and two northbound trains per day, with a total trip time between Jacksonville and Miami in less than seven hours, inclusive of the eight station stops. Ensuing phases of development would expand passenger rail service along the corridor, such as relocating Amtrak's northern terminus to the downtown JRTC, adding corridor service south from the JRTC to St. Augustine, and extending existing Tri-Rail Commuter Rail service north from West Palm Beach to Jupiter.

A plan for developing passenger service has been jointly developed by FDOT, Amtrak, the FEC Railway, and the South Florida Regional Transit Authority (SFRTA). The proposed project would use the existing rail lines and right-of-way, to the extent possible, and provide improvements needed to operate the passenger service trains at 90 mph and continue FEC Railway's freight service on the corridor. The proposed improvements consist of:

- eight new stations between Jacksonville and Miami—St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart
- new track sidings (2,500-foot) at the new stations
- track signal control
- 29 curve miles of replacement track work of existing rail line for increased speed (90 mph)
- upgrades at existing highway and pedestrian crossings
- new railroad crossings at sidings only
- crossover track improvements at either Northwood or 71st Street

Track replacement along an existing railway typically does not impact an area larger than that railway already occupies. The areas disturbed by track replacement work rarely extend beyond those previously distubed by the railway's construction.

Station location alternatives have been identified in each of the eight communities and interagency meetings have been conducted with local officials

of these cities. The stations would be unstaffed and consist of a platform, canopy, signage, lighting, and a semi-enclosed shelter.

Parking would be available at some of the stations, however, as most of the stations are in highly-urbanized areas, patrons would walk, use shuttles or taxis, or use existing parking facilities to access the stations. New passing track (rail sidings) would be added at stations to move Amtrak trains off the mainline tracks while serving the proposed stations.

1.2.1 Description of the Intercity Corridor Service

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 seven hours. The FEC Amtrak service program would use a phased approach to developing intercity passenger rail service. The first phase would provide the infrastructure, stations, and equipment (fleet) to extend Amtrak service from Jacksonville to Miami by 2012. Ensuing 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.

Currently, the state of Florida is served by two Amtrak auto trains which provide service between Lorton, VA and Sanford, FL and four Amtrak intercity service trains (two northbound and two southbound) which provide service between New York and Miami: Numbers 91 and 92 – the Silver Star, and 97 and 98 – the Silver Meteor.

Three versions of the proposed Amtrak passenger service are being considered which splits the Silver Star and/or Silver Meteor at Jacksonville. These consist of routing only the Amtrak's Silver Star, only the Silver Meteor, or both the Star and Meteor daily via the FEC Railway.

Additional passenger trains would be required to support the proposed service both to accommodate growth anticipated from expansion of service to new cities, and to provide the different types of cars for both portions of a train when it is divided or split in Jacksonville; 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.

1.2.2 Mainline Alternatives

There are two alternatives for the mainline. Common to both alternatives is the use of the FEC Railway from Jacksonville to West Palm Beach. The alternatives differ from West Palm Beach to Miami.

Alternative 1 would use the FEC Railway from Jacksonville to West Palm Beach, and diverge via the Northwood crossover to connect to the existing SFRC. Alternative 1 would then use the SFRC south from West Palm Beach to the MCS. This alternative requires realignment of the existing crossover to allow for "head on" travel of trains through the crossover.

Alternative 2 would use the FEC Railway from Jacksonville to Miami, and diverge west using the 71st Street crossover to connect to the existing SFRC. Alternative 2 would travel south on the SFRC a short distance to the MCS. This alternative requires construction of an interconnection of the FEC and SFRC at the existing Iris Interlocking in Hialeah.

1.2.3 Crossover Alternatives

Two alternatives were evaluated for realignment of the existing crossover track to connect the FEC Railway with the SFRC: the Northwood crossover in West Palm Beach and the 71st Street crossover in Miami. The Northwood crossover would be used only in conjunction with Mainline Alternative 1. The 71st Street crossover would be used only in conjunction with Mainline Alternative 2.

1.2.3.1 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 as 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 replaced and reconstructed immediately south of its current alignment to accommodate train traffic to and from points north on the FEC Railway.

1.2.3.2 71st Street Crossover

The 71st Street crossover is an existing track that connects the FEC Railway to points inland within Miami. The distance between the FEC Railway and the SFRC is approximately 4.5 miles. The 71st Street crossover intersects over the SFRC approximately 500 feet west of NW 37th Avenue. The crossover runs in an east/west orientation between the two rail lines roughly parallel to and approximately 500 feet north of 71st Street. While the spur track exists at this location, it is not usable in its current configuration due to missing connections to the SFRC. It is proposed that a wye track be constructed to allow connections between the FEC Railway and the SFRC.

1.2.4 Stations

The location of new stations along the FEC Railway was developed by the FDOT in consultation with local government agencies, regional planning councils, metropolitan planning organizations, Amtrak, and the FEC Railway. New stations are proposed within eight communities along the existing FEC Railway between Jacksonville and Miami: St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart. The stations would be unstaffed and consist of a platform, canopy, signage, lighting, and a semi-enclosed shelter (exhibits 1.4 and 1.5).

Paved parking may be provided at the proposed stations. The number of parking spaces would vary by location. As 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 be compliant with the Americans with Disabilities Act.

Exhibit 1.4 – *Small Station Layout*

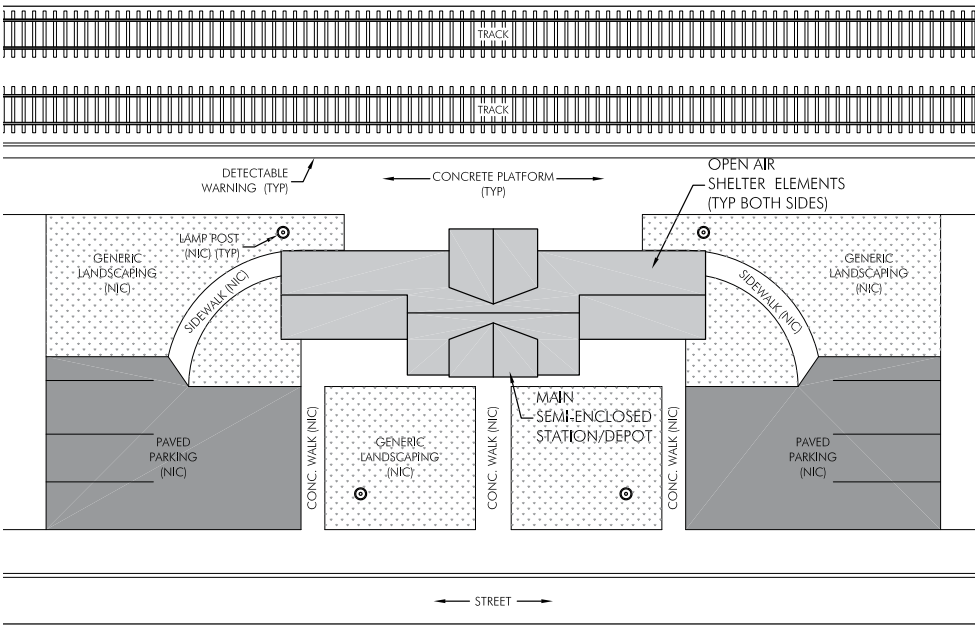


Exhibit 1.5 – *Small Station Elevation*

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.

1.3 Study Area

The study area for the Florida East Coast Amtrak Service project centers on the existing FEC Railway between Jacksonville and Miami, the two potential alternative connector tracks (crossovers) to the existing SFRC in either West Palm Beach or Miami, and a small portion of the existing SFRC in Miami, depending on which crossover is selected. The study area 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. The northern terminus of the project would be the existing Jacksonville Amtrak

Station. The southern terminus would be the MCS, a part of the MIC project currently under construction and scheduled for completion by 2012.

For the determination of the affected environment and environmental consequences, the study area encompasses a 400-foot-wide corridor centered on the existing FEC Railway from the Jacksonville Amtrak Station to the 71st Street crossover and on the SFRC from the Northwood crossover to the MCS. A 1,000-foot-wide corridor was designated as the study area along each of the two crossover options. At the proposed station locations, the study area encompasses a 500-foot radius surrounding each location alternative.

General Requirements for a Discussion of Purpose and Needs in an Environmental Assessment (40 CFR 1502.13)

- The requirement for a discussion of purpose and needs in an Environmental Assessment is to "briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action."
- The purpose and needs section is in many ways the most important part of a study and chapter:
  - It establishes why agencies are proposing to spend potentially large amounts of money while at the same time causing environmental impacts.
  - A clear, well-justified purpose and need section explains that the expenditure of money is necessary and worthwhile and the priority that the action resulting from the study would be given relative to other needed highway projects.
  - Although environmental impacts are expected to be caused by the project implemented resulting from the study, the purpose and needs section should justify why impacts are acceptable based on the project's importance.
- The discussion of purpose and needs should be as concise and understandable as possible. This discussion, which can be as short as one or two paragraphs, is important for general context and understanding, as well as to provide the framework in which "reasonable alternatives" to the proposed action would be identified. The discussion does not include a description of alternatives.

1.4 Purpose and Needs

1.4.1 Purpose

The purpose of the project is to restore Amtrak long-distance passenger rail service, enhance intercity transportation connectivity and mobility, augment the on-going redevelopment of compact development patterns in historic downtowns and stimulate the potential for transit-oriented economic development along Florida's east coast between Jacksonville and Miami as part of the *Florida Intercity Passenger Rail System "Vision Plan."*

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, 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.

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 reduce travel on the congested I-95 corridor and on the congested airways serving Orlando and Southeast Florida.

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, 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. These communities are aggressively restoring their historic downtowns and have assumed Amtrak depots in their core areas to stimulate development of compact urban patterns.

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), and 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

1.4.2 Needs

The characteristics of the transportation system and population/land use trends affect current and future connectivity and mobility throughout Florida. Specifically, current and projected future population and employment growth trends place increasing demands on transportation facilities. As a result, traffic congestion is expected to worsen on major highways as well as connecting roads over the next several decades. Concurrent with increasing demand from population and employment growth, the transportation network in Florida must accommodate increasing freight traffic demands.

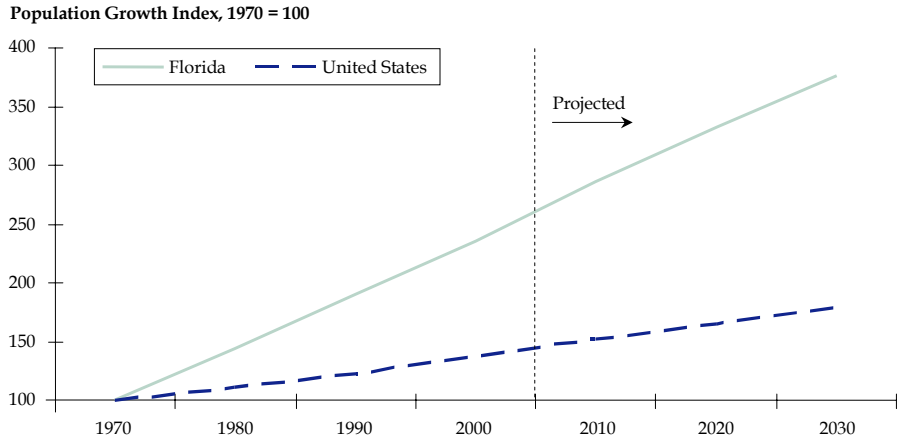
1.4.2.1 Connectivity

Intercity connectivity to Florida's east coast between Jacksonville and West Palm Beach relies 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.

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, 2005).

Florida is the fourth largest state in the country. By 2015, Florida is expected to have a population of approximately 18.5 million. By 2025 the population is forecast to increase to 20.7 million, potentially surpassing New York State. This would make Florida the third most populous state in the nation, trailing only California and Texas. Florida's population is expected to increase at a rate more than double the national average for the foreseeable future (exhibit 1.6) (FDOT, 2005). In spite of recent slowing of population growth due to a downturn in the national and state economy, by 2030 more than 25 million people are projected to call Florida home, an increase of over 35 percent since 2007 (FDOT, 2009). Florida also has the largest tourist

Exhibit 1.6 – *Projected Population Growth, Florida vs. U.S.*



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

and visitor population in the United States, with 71 million visitors each year. Both resident and visitor populations are expected to grow significantly during the next 20 years. With this expected growth, travel around the state would become more difficult.

The influx of new residents is so significant, the state, despite careful planning and strategic investments in infrastructure, simply cannot adequately support transportation demand. This is especially true in its urban areas. In Florida and other high-growth states, highways cannot be constructed fast enough and airports operate at or above capacity (FDOT, 2005).

A growing travel market is associated with baby-boomers and retirees who are selecting Florida's east coast communities for second homes. St. Augustine, Vero Beach, Melbourne, Ft. 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 stress of Southeast Florida.

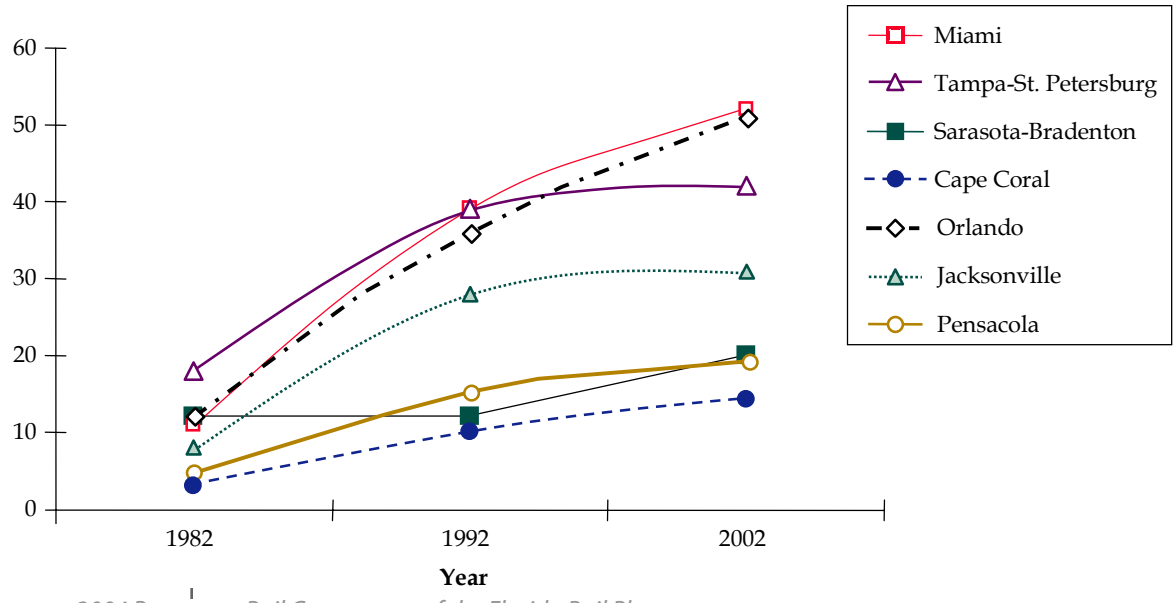
City-to-city travel is on the rise. One key city pair for intercity travel is Jacksonville and Miami. The stretch between this city pair is densely populated with several major population centers, including St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart. There is no passenger rail service along 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 however, only freight traffic moves on this rail corridor at this time.

1.4.2.2 Mobility

As the population grows, traffic congestion in Florida worsens, especially in the state's booming urban areas (exhibit 1.7) (FDOT, 2005). Many urban and inter-regional highway corridors are currently heavily congested during peak periods or are expected to be by 2020, even after planned capacity improvements are made (exhibits 1.8 and 1.9). Likewise, 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. 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 freight within and between urban areas, investments in additional passenger and freight rail capacity would also be needed (FDOT, 2009).

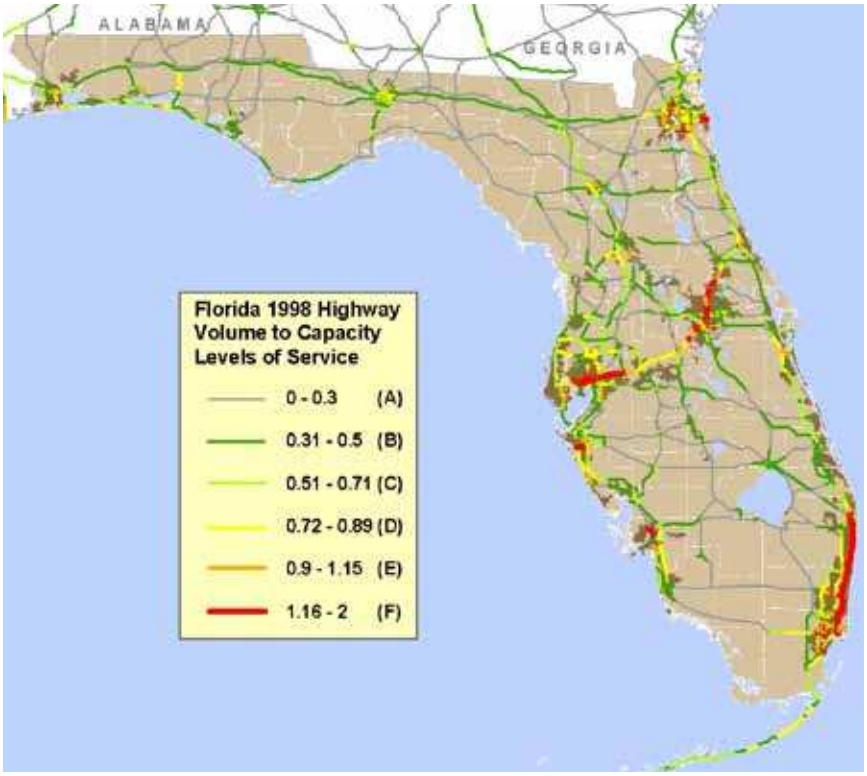
From a passenger rail perspective, public interest in rail alternatives to meet intra-Florida, intercity and regional mobility needs is rising. "Staycations" in the cities along Florida's east coast are becoming more popular. More than 100 local governments, agencies, and other groups have adopted resolutions and letters of support requesting passenger service be established 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, 2009).

Exhibit 1.7 – *Annual Hours of Delay on Florida's Highways*



Source: *2004 Passenger Rail Component of the Florida Rail Plan*

Exhibit 1.8 – *Florida Highway Congestion, 1998 Level of Service Estimates*



Source: *2004 Passenger Rail Component of the Florida Rail Plan*

Exhibit 1.9 – *Florida Highway Congestion, 2020 Level of Service Estimates*

Source: *2004 Passenger Rail Component of the Florida Rail Plan*

1.4.2.3 Economic Development

Florida's economy has been battered by falling home prices, a spike in the number of foreclosures statewide, the collapse of national financial markets and the subsequent credit freeze, and the effects of a global recession. Florida's unemployment rate continues its upward trend, with the seasonally-adjusted rate for June 2009 hitting 10.6 percent. That translates to 970,000 unemployed residents out of a labor force of 9.2 million, according to the Florida Agency for Workforce Innovation. The June 2009 rate is up 0.3 percent from the May 2009 rate of 10.3 percent, when 943,000 Floridians were unemployed, and is 4.6 percent higher than a year ago in 2008. Florida's unemployment rate of 10.6 percent is higher than the national rate, which hit 9.5 percent in May 2009. The last time the unemployment rate was higher was in October 1975, when it was 11 percent (South Florida Business Journal, 2009).

Within the counties of the study area, unemployment ranges from a low of 8.7 percent in St. Johns County to a high of 15.6 percent in Flagler County (exhibit 1.10).

Investments in Florida's rail system can support and spur desired economic growth. From a policy perspective, Florida seeks to invest in rail system capacity improvements to enhance the interstate and intrastate movement of people and goods (FDOT, 2009). Florida's Strategic Plan for Economic

Exhibit 1.10 – *Monthly, Not Seasonally-Adjusted Labor Force, Employment and Unemployment, June 2009*

County	Civilian Labor Force	Employment	Unemployment	Unemployment Rate (%)
Brevard County	268,910	239,856	29,054	10.8
Broward County	1,008,628	912,919	95,709	9.5
Duval County	454,644	403,712	50,932	11.2
Flagler County	31,376	26,474	4,902	15.6
Indian River County	61,254	52,560	8,694	14.2
Martin County	63,618	56,472	7,146	11.2
Miami-Dade County	1,232,361	1,089,151	143,210	11.6
Palm Beach County	624,918	555,125	69,793	11.2
St. Johns County	93,538	85,372	8,166	8.7
St. Lucie County	123,624	106,167	17,457	14.1
Volusia County	256,051	227,005	29,046	11.3

Source: *Labor Market Statistics, Local Area Unemployment Statistics Program*
Florida Research and Economic Database
http://fred.labormarketinfo.com

Development, which is developed by Enterprise Florida, Inc. pursuant to Section 288.905(2), Florida Statutes, envisions Florida creating high-paying jobs in the service, information, and technology markets. These types of businesses demand faster and more reliable transportation options—a role that rail can play for the movement of both passengers and freight (FDOT, 2009).

1.5 Project Benefits

1.5.1 Economic Recovery

The Florida East Coast Amtrak Service program would provide the opportunity not only to move people more efficiently, but would enhance development opportunities at and beyond station areas and strengthen 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. The program is a strategic investment for the future growth of the region:

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

With implementation of the Florida East Coast Amtrak Service program, land use policies and resumed economic growth, total value of commercial and residential development could reach $419 billion in 2021. This compares to a total parcel value baseline (no-build) forecast of $417 billion in 2021. Property taxes attributable to the Florida East Coast Amtrak Service program generate a cumulative $52.2 million in local tax revenues by 2021 growing from $4.4 million in the opening year (2012) of the program. Sales taxes from job earnings generate $56 million in state revenue and $5 million in local revenue in 2021. Over the analysis period from 2012 through 2021, these revenues exceed $580 million (AECOM, 2009).

With the exception of St. Johns County, the other eight counties exceed the unemployment rate for the U.S. 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 operations and maintenance would have a direct effect on job creation, and indirect and induced effects that create employment opportunities across the occupational spectrum.

Direct employment for implementation and continuing operations would total 1,048 jobs; another 1,079 indirect jobs are created from the household spending of those workers involved with program implementation and rail operations and maintenance. This indicates a leveraging of 103 percent with regard to the stimulus of jobs created (AECOM, 2009).

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 due to an increase in demand for labor, and an increase in spending on supplies and materials. The US BEA 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 the construction lifetime. The analysis forecasts that future development from implementation of the Florida East Coast Amtrak Service program could contribute up to $141 million in household earnings and 3,753 person-year jobs to the study area in 2012. This 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).

Finally, considering increased commercial density in the study area, an estimate was made of potential permanent jobs from the Florida East Coast Amtrak Service program. With the addition of new office and retail space to the existing parcels, the passenger service could attract up to 331 permanent jobs in Duval, St. Johns, Flagler, Volusia, Brevard, St. Lucie, Indian River, Martin, and Palm Beach Counties in 2012 increasing to 3,322 by 2021. These new jobs and earnings would have impacts on the local economy. Using US 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 Florida East

Coast Amtrak Service program and up to 6,334 permanent jobs by 2021 (AECOM, 2009).

1.5.2 Transportation Benefits

The proposed corridor service 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/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 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.

In St. Augustine, connections would be provided to St. Augustine/St. John County Airport, a car rental facility at the airport, Sunshine Bus service, Old Town Trolley and future commuter rail. In Daytona Beach, intermodal connections are available to regional Votran bus service and a Greyhound bus terminal. In Titusville, intermodal connections are available to the Space Center Executive Airport, car rental at the airport, local bus service run by Space Coast Area Transit, and private shuttle service to nearby Port Canaveral. In Cocoa, intermodal connections are available to local bus service run by Space Coast Area Transit and private shuttle service to Port Canaveral. In Melbourne, intermodal connections are available to the Melbourne Airport, private shuttle service to Port Canaveral, and regional bus service provided by Space Coast Area Transit. In Vero Beach, intermodal connections are available to local GoLine bus service. Indian River County's public transit service. In Fort Pierce, intermodal connections are available to Treasure Coast Connector bus service. In Stuart, intermodal connections are available to the Stuart Shuttle, and the Treasure Coast Connector bus service.

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 first phase would consist of two northbound and two southbound trains per day. Future phases would include corridor service along the FEC Railway with additional new trains between Jacksonville and Miami. Improvements to the FEC Railway would include upgrades to the track structure and wayside signaling systems, new track structure, and grade crossing improvements. These improvements would enable passenger trains to achieve 90 mph throughout a significant portion of the FEC Railway resulting in better on-time performance and travel time savings. Travel time savings have been modeled at approximately 70 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, 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 in excess of 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 can expect crossing warning devices to give the same warning time to both freight and passenger trains irrespective 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 the motoring public.

Providing intercity rail passenger service along the FEC Railway would generate a multitude of cross-modal benefits. Opportunities for intercon-

nectivity 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, and the proposed commuter rail service by the JTA in Jacksonville.

The project 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 the 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 to I-95 would provide a passenger rail mobility option for motorists travelling 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 meeting expected growth in freight and cruise activity. The project would play a substantial role is assisting seaports in meeting growth related to cruise activity. The proposed stations in Titusville and Cocoa are in proximity to Port Canaveral, a major passenger cruise port. 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/from Port Canaveral. Planned improvements along the line that would benefit rail traffic would assist the FEC Railway in better meeting expected growth in freight activities at nearby seaports in Jacksonville, Fort Pierce, Port Canaveral, Everglades, Palm Beach and Miami.

As stated in the 2009 Florida Rail System Plan: Policy Element, "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."

1.5.3 Environmental Benefits

The Florida East Coast Amtrak Service 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 travel 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 as compared to 3,514 BTUs for personal cars, 3,101 BTUs for airplanes and 4,315 BTUs for buses (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, "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." (FDOT, March 2009)

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. In 2007, the Governor's Action Team on Energy and Climate Change released its findings and recommendations in a Phase 1 report, 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, 2007; 2008). Among the findings and recommendations related to addressing energy and climate change in relation to transportation were:

- 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 (Governor's Action Team on Energy and Climate Change, 2008)

The project is consistent with the findings and recommendations of the Florida Energy and Climate Change Action Plan. 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 toward the reduction in VMT and the subsequent reduction of GHGs and would consume less energy and use less fuel, thus reducing the Nation's dependence on oil.

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 station.

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, MPOs, and other agencies. Specifically, these entities emphasize the expansion of mass transit, particularly on the FEC rail corridor, 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.

1.5.4 Livable Communities

The restoration of intercity passenger rail service and future corridor service on the FEC Railway supports compact redevelopment activity undereway along Florida's east coast, specifically in the eight communities proposed for Amtrak stations, and would help complete the state's multimodal transportation network. 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. Each of the eight station cities has 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 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. 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. In St. Augustine connections would exist to the city airport, local bus and trolley service for the historic district, and future commuter rail. In Daytona Beach, connections exist to regional bus service and terminal. In Titusville and Cocoa, intermodal connections exist to the Space Center Executive Airport, local bus service and private shuttle service to nearby Port Canaveral cruise terminals. In Melbourne connections exist to the Melbourne Airport,

regional bus and private shuttle service to Port Canaveral. Local buses service Vero Beach, and Fort Pierce and Stuart are served by local trolley, local and regional bus, and park-and-ride facilities. The southern terminus in the Miami Intermodal Center provides connections to MIA via the MIA People Mover, local Metrobus service, and the Tri-Rail commuter rail station.

1.6 Scoping

During initial development of the project, the FDOT and Amtrak coordinated with federal and state regulatory and resource agencies, the cities where stations are proposed and regional and other special-interest groups (see section 4.0). Alternative sites were considered for each station. The major issues identified which are important considerations for decisions on station location and design were:

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).

- alternative sites should be easily accessible, whether by bus, trolley, car, bike, or on foot
- safety issues for pedestrians related to busy roadways and congested areas
- alternative sites should be accessible from major highways
- alternative sites should have parking areas or access to overnight parking facilities
- acquisition of some alternative sites could have problems
- station design should consider the need for manned facilities
- beaches near some alternatives are considered "all natural" and a wildlife refuge
- some alternative sites are on a track curve
- stations should be in proximity to residential uses
- stations should use available vacant land, preferably publicly owned
- alternative sites which are adjacent to historical and cultural resources
- alternative sites with potential adverse impacts to physical and/or biological resources

No issues related to the natural environment were raised during scoping and outreach. The FRA, FDOT, and Amtrak would continue to work with stakeholders during 'Project-level' NEPA compliance to further avoid, minimize, or mitigate impacts.

1.7 Connected Actions

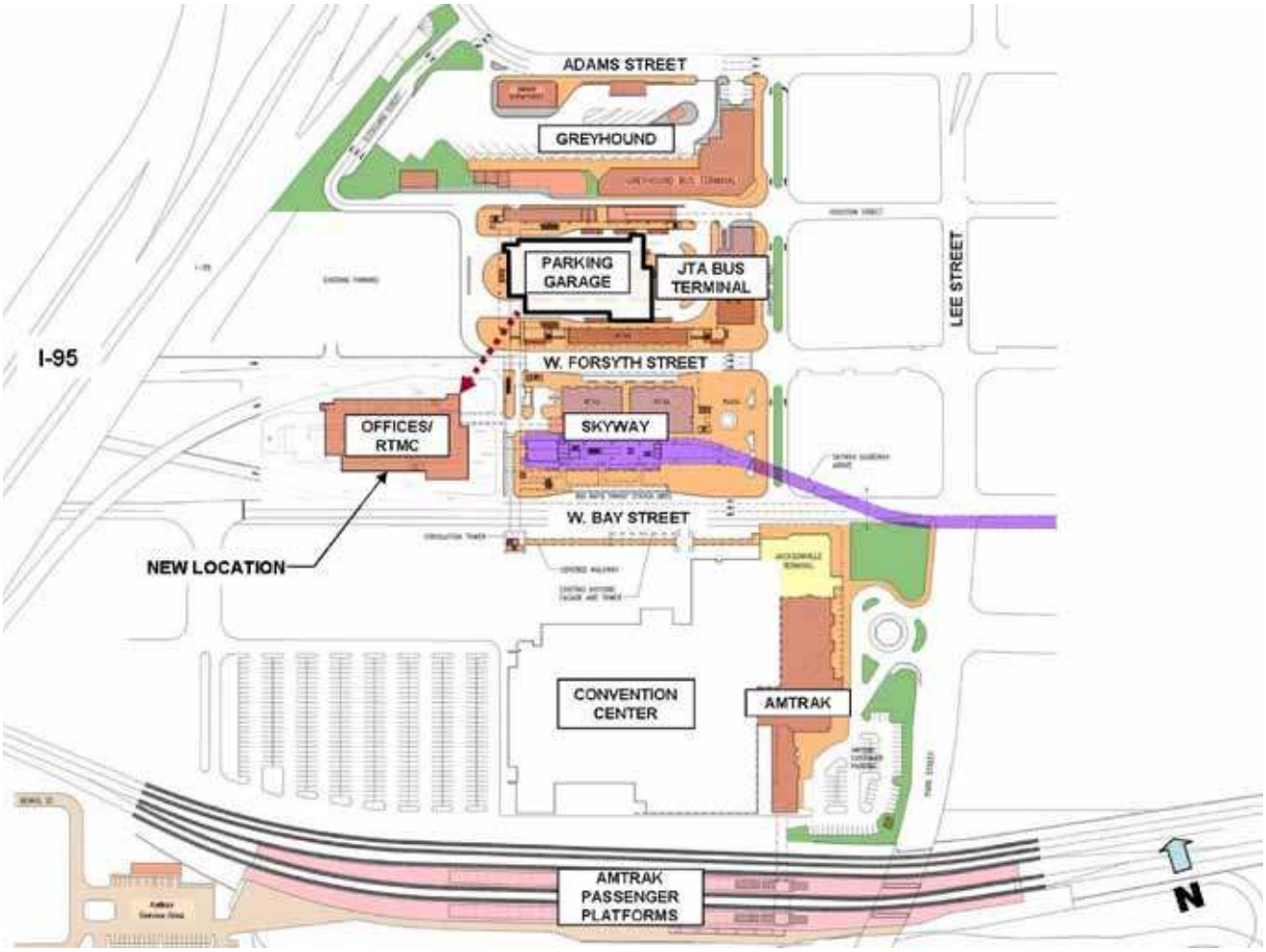
Three other projects have been proposed by others and are connected actions. These three projects are:

- the Jacksonville Amtrak Station
- the Miami Amtrak Station
- the SFECCTA

Jacksonville Amtrak Station – The existing Jacksonville Amtrak station is located at 3570 Clifford Lane, approximately five miles northwest of the city's center. The FDOT, the Federal Highway Administration (FHWA), and the FTA have proposed that the existing station be relocated to the proposed JRTC in downtown Jacksonville and prepared an EA and FONSI in support of the project. 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 both intracity and intercity transportation systems into 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 such as an Automated Skyway Express, 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 1.11) (FDOT, 2007). FDOT and FHWA have completed an EA/FONSI for the JRTC. 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

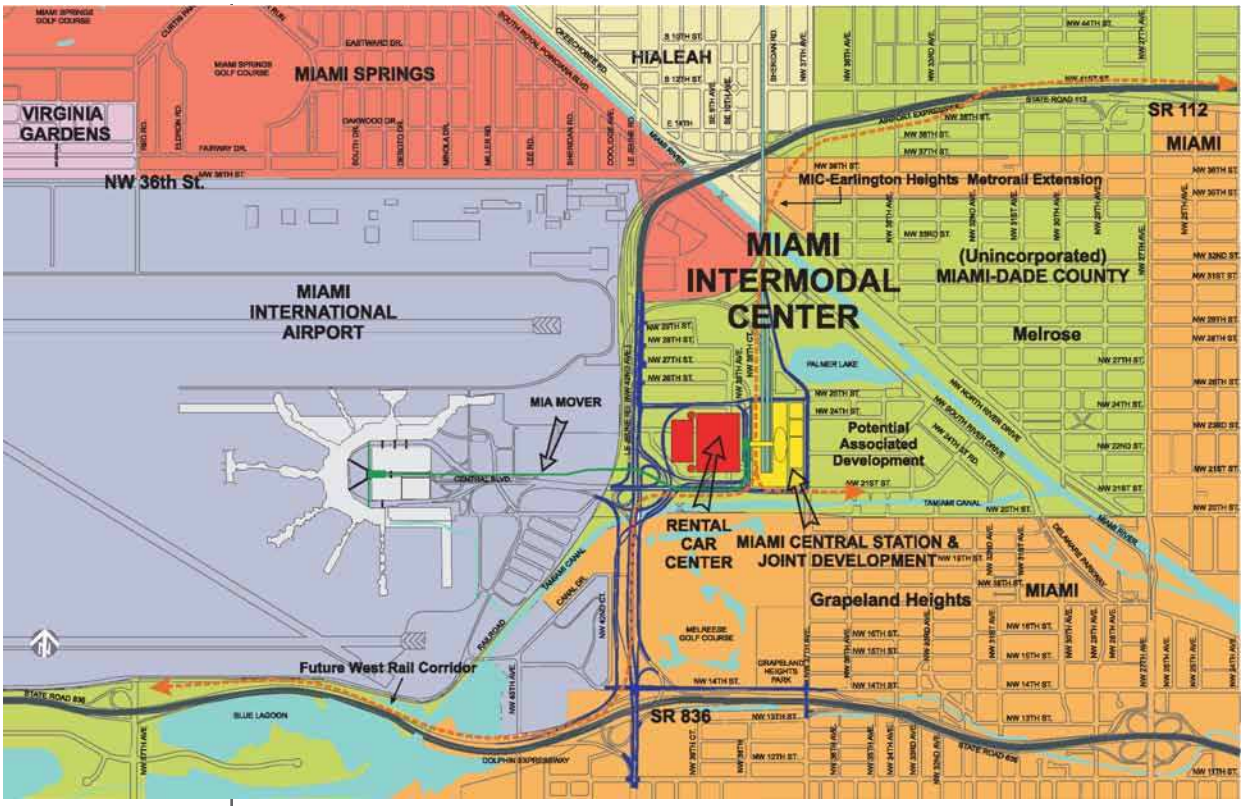
Exhibit 1.11 – *Jacksonville Transportation Center*



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).

Miami Station – The existing Miami Amtrak station is located at 8303 NW 37th Avenue in Hialeah. The FDOT and the FHWA have proposed that the existing station be relocated to the proposed MIC (http://www.micdot.com). The MIC is located immediately east of MIA in Miami-Dade County (exhibit 1.12). 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 a consolidated rental car facility; area roadway improvements; the MIA Mover, an automated people mover system linking the MIC to the MIA terminal; the MCS, including

Exhibit 1.12 – *Miami International Center in relation to the Miami International Airport*

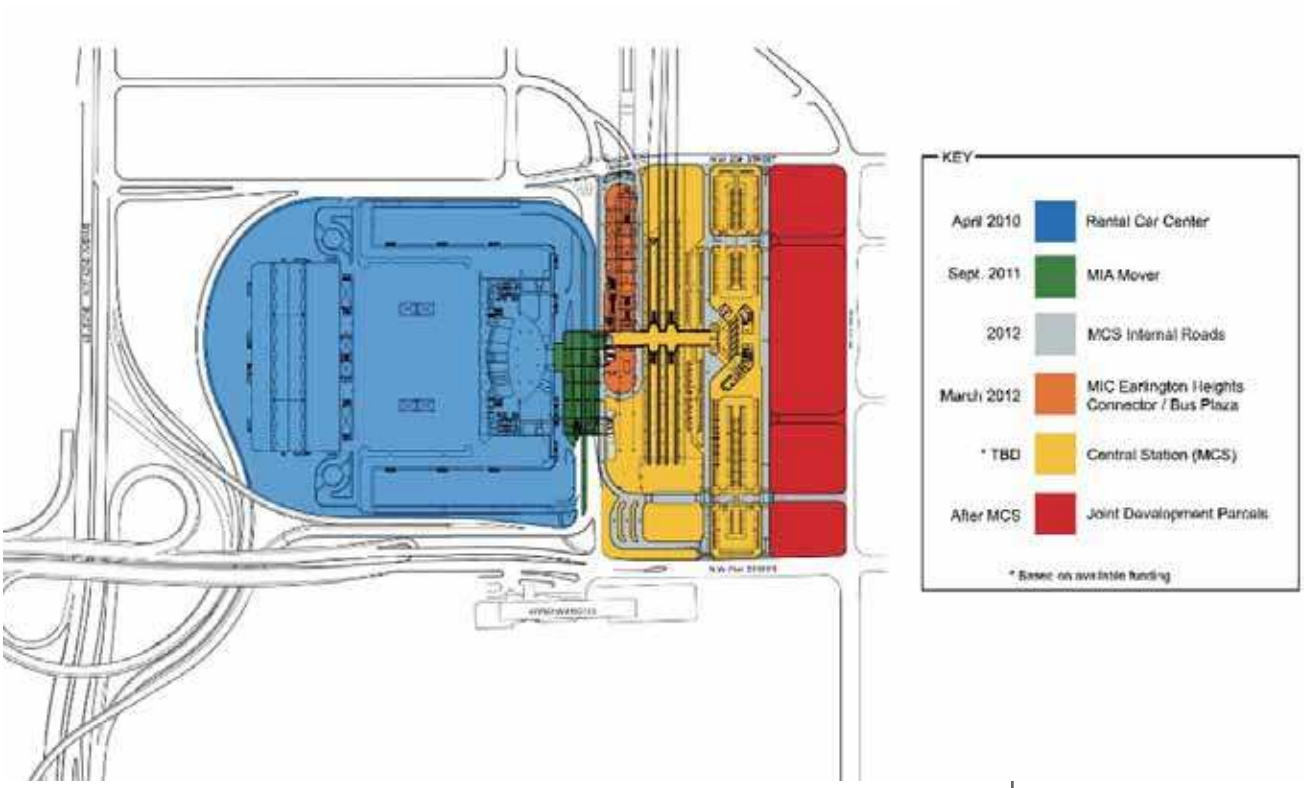


a rail hub, parking, bus terminals, and the MIA Mover Station serving the MIC; and 8.5 acres of proposed on-site joint development, adjacent to and immediately east of the MCS site (FDOT, 2009).

The FDOT and the FHWA prepared the EIS and Record of Decision (ROD) in support of the MIC. The rental car facility is under construction with a scheduled opening date of April 2010. The MIA Mover Station (located at the MIC) is under construction with a scheduled completion date of March 2011. Area roadway improvements have been completed and are open to traffic. The MCS is scheduled to begin construction in the summer of 2010, if funds are available, with a scheduled completion date of August 2012 (exhibit 1.13) (FDOT, 2009).

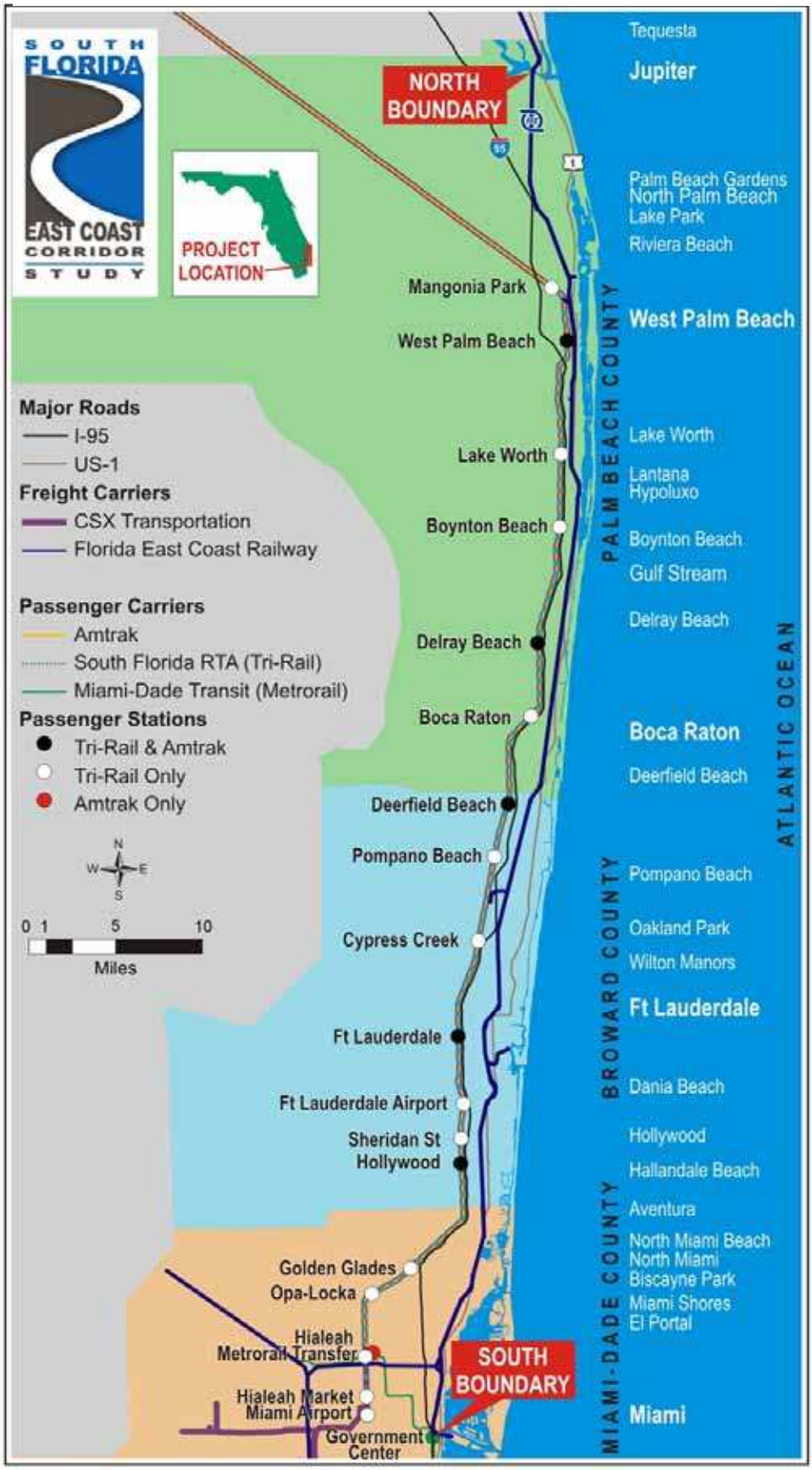
The SFECCTA – The FDOT and the Federal Transit Authority (FTA) are evaluating the potential use of a portion of the FEC Railway for future regional commuter rail or transit service in southeast Florida as a part of the SFECCTA study (http://www.sfeccstudy.com). The SFECCTA study area is centered along 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

Exhibit 1.13 – *Miami Intermodal Center*



the MIC (exhibit 1.14). The portion of the FEC Railway under study within the SFECCTA is approximately 85 miles long (100 miles with connections to the MIC, seaports, etc.). The 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. Within each of the CBDs there are major activity and employment centers, recreational facilities, educational centers, hospital/medical complexes, tourist destinations, and major retail/mixed-use developments. Three seaports connect to this portion of the FEC Railway (Port Everglades in Ft. Lauderdale, Port of Palm Beach, and Port of Miami) and there is the potential to connect three international airports: Palm Beach International Airport, Ft. Lauderdale-Hollywood International Airport, and the MIA. This project includes a connection in Northwood; the Northwood connection would link the Florida East Coast Amtrak Service project to the FEC railway serviced by Tri-Rail to extend corridor service to Jupiter.

Exhibit 1.14 – *SFECC Transit Analysis study area*



The project is following an Early Scoping / Alternatives Analysis process to be completed in mid 2010. The approach for the early consideration of environmental factors for this study was developed in consultation with resource agencies via the FDOT's ETDM streamlined process and the public. From the onset, FTA and FDOT agreed that the goal was to develop sufficient information to select a corridor and general alignment for transit among the three counties.

1.8 Decision to Be Made

As proponents of an action supported by federal funds, the FRA, FDOT, and Amtrak must comply with NEPA for the HSIPR program. 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. CEQ further encourages agencies to use program environmental documentation for planning decisions and the use of tiered statements from broader scope (Service NEPA) to those of narrower scope (Project NEPA) for specific actions for the HSIPR program. 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 PEA is to provide the FRA and the public with a full accounting of the potential environmental impacts from the type of service(s) being proposed, including cities and stations served, route alternatives, service levels, types of operations (speed, electric, or diesel powered, etc.), ridership projections, and major infrastructure components. The PEA serves as the primary document to facilitate review of the proposed project by federal, state and local agencies and the public.

The decisions at hand include:

1. The PEA confirms that ensuing actions are consistent with Environmental Assessment requirements
2. Individual actions and associated classifications:
    a. Corridor from Bowden Yard in Jacksonville to the Northwood Connection in West Palm Beach — Categorical Exclusion
    b. Northwood (West Palm Beach) or 71st Street (Miami) Connection – Environmental Assessment
    c. St. Augustine Station – Categorical Exclusion

d. Daytona Beach Station – Categorical Exclusion
e. Titusville – Categorical Exclusion
f. Cocoa Station – Categorical Exclusion
g. Melbourne Station – Categorical Exclusion
h. Vero Beach Station – Categorical Exclusion
i. Ft. Pierce Station – Categorical Exclusion
j. Stuart Station – Categorical Exclusion

3. Construction of the Amtrak station at the MCS is covered by the MIC Record of Decision

1.9 Applicable Regulations and Permits

1.9.1 Federal Regulations

The following Federal statutes, Presidential 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

1.9.2 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)
- Wild Animal Life (ss. 379.3001-379.305)
- Bald Eagle (Haliaeetus leucocephalus)(FAC 68A-16.002)
- Environmental Land And Water Management (ss. 380.012-380.12)
- Offenses Concerning Dead Bodies And Graves (ss. 872.01-872.06)

1.9.3 Permits

The proposed action may be required to obtain the following permits and approvals prior to the start of construction:

- Section 404 General or Individual Permit — The U.S. Army Corps of Engineers (USACE) administers Section 404 of the Clean Water Act (CWA) on behalf of the U.S. Environmental Protection Agency (EPA). Section 404(b)(1) regulates activities in Waters of the U.S, defined as navigable waterways and their tributaries. Waters of the U.S. may include wetlands with a surface water connection to a navigable waterway. A Section 404 individual permit would be required from the USACE for the discharge of dredged or fill material into Waters of the United States.
- Section 401 Water Quality Certification — Section 401 of the CWA requires that an applicant for a federal permit that may result in a discharge to Waters of the U.S. must first obtain certification from the state.
- U.S. Coast Guard (USCG) Bridge Permit – Federal law prohibits the construction of any bridge across navigable waters of the United States unless first authorized by the USCG. The USCG approves the location and clearances of bridges through the issuance of bridge permits or permit amendments, under the authority of Section 9 of the Rivers and Harbors Act of 1899, the General Bridge Act of 1946, and other statutes. This permit is required for new construction, reconstruction

or modification of a bridge or causeway over navigable waters of the United States.

- St. Johns River Water Management District and South Florida Water Management District Environmental Resource Permit (ERP) – An ERP must be obtained before beginning any activity that could affect wetlands, alter surface water flows, or contribute to water pollution.
- South Florida Water Management District Right-of-Way (ROW) Permit – A ROW Occupancy Permit is actually a revocable license granted pursuant to the District's proprietary interest in the rights of way acquired for the canal and levee system which makes up the USACE Central and Southern Florida Flood Control Project, and for certain other canals and works.
- National Pollutant Discharge Elimination System (NPDES) – The EPA developed the federal NPDES stormwater permitting program in two phases. Phase I, promulgated in 1990, addresses the following sources:
  - » "Large" and "medium" municipal separate storm sewer systems (MS4s) located in incorporated places and counties with populations of 100,000 or more, and
  - » Eleven categories of industrial activity, one of which is large construction activity that disturbs 5 or more acres of land.
- NPDES Phase II, promulgated in 1999, addresses additional sources, including MS4s not regulated under Phase I, and small construction activity disturbing between 1 and 5 acres. In October 2000, EPA authorized the Florida Department of Environmental Protection (FDEP) to implement the NPDES stormwater permitting program in the State of Florida (in all areas except Indian Country lands).
- Florida Fish and Wildlife Conservation Commission (FWC) Site-Specific Relocation Permits – Authorize trapping & relocation of tortises eithe within the boundaries of the area being developed (on-site) or from one specific area to a certified recipient site (off-site).
- FWC Eagle Permit – If any development or construction activity occurs within 660 feet of a bald eagle's nest and the guidelines cannot be followed, a FWC Eagle Permit would be required. The FWC would work with the U.S. Fish and Wildlife Service (USFWS) to implement a single permit framework for bald eagles. The USFWS may finalize this permitting process by time of the design/permitting project phases,

therefore there may be additional, federal eagle nest permitting requirements should bald eagles be found nesting within specified distances (such as the FWC specified 660 feet) of proposed project activities.

Chapter 2

Alternatives Analysis

Chapter 2 presents the alternatives analysis. It introduces the range of reasonable alternatives developed to meet the project purpose and needs.

2.1 Introduction

This chapter identifies and describes the range of reasonable alternatives. Alternatives discussed in this chapter are the no-build alternative and build alternatives comprised of specific components: mainline alternatives, crossover alternatives and station alternatives. Because this is a 'Service-level' analysis considering the entire corridor program, it is intended to define broad differences between alternatives. The level of detail for alternatives is conceptual or general rather than project-specific; project specific information on alternatives and specific components would be assessed and described in greater detail in future 'Project-level' analysis (see section 1.1.3).

The proposed station alternatives were considered and developed in coordination with each of the eight cities where the stations are proposed (see section 4.2).

Because this is a 'Service-level' analysis considering the entire corridor program, it is intended to define broad differences between alternatives. The level of detail for alternatives is conceptual or general rather than project-specific; project specific information on alternatives and specific components would be assessed and described in greater detail in future 'Project-level' analysis.

2.2 No-build Alternative

The No-build Alternative would consist of the operation of the current track, with the present level of maintenance and no change to the current track configuration or operating conditions, for freight traffic on the FEC Railway from Jacksonville to Miami. This alternative would not provide intercity passenger rail service for communities along Florida's east coast between Jacksonville and Miami. The No-build Alternative would include already 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 and need because it would not enhance connectivity, mobility or encourage economic development along Florida's east coast from Jacksonville to Miami.

The No-build Alternative was retained for detailed analysis to more fully comprehend the potential benefits and impacts associated with the proposed action and taking no action.

The regulations implementing the NEPA (40 CFR 1502.14) require that the lead agencies:

a. Rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
b. Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
c. Include reasonable alternatives not within the jurisdiction of the lead agency.
d. Include the alternative of no action.
e. Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference.
f. Include appropriate mitigation measures not already included in the proposed action or alternatives.

2.3 Build Alternatives

The Build Alternatives consist of three components - mainline alternatives, crossover alternatives and station alternatives – which together form the range of reasonable alternatives considered (exhibit 2.1).

2.3.1 Mainline Alternative

There are two Build Alternatives for the mainline between Jacksonville and Miami. Common to both alternatives is the use of the FEC Railway from Jacksonville to West Palm Beach. The alternatives differ only in alignment from West Palm Beach to Miami (see section 1.7).

2.3.1.1 Mainline Alternative 1

Alternative 1 would use the FEC Railway from Jacksonville to West Palm Beach and diverge to the west using the Northwood crossover to connect to the existing SFRC. Alternative 1 follows the SFRC from West Palm Beach to the MCS.

2.3.1.2 Mainline Alternative 2

Alternative 2 would use the FEC Railway from Jacksonville to West Palm Beach and continue on the FEC Railway from West Palm Beach south to Miami. Alternative 2 would diverge from the FEC Railway west along the 71st Street crossover in Miami to connect to the existing SFRC. Alternative 2 would use the SFRC a short distance to reach the MCS.

2.3.2. Crossover Alternatives

Two alternatives were evaluated as potential "crossovers" to connect the FEC Railway with the SFRC. Implementation of at least one of the crossovers is necessary to connect the proposed rail service with the existing Amtrak station in Miami. The Northwood crossover is in West Palm Beach and the 71st Street crossover in Miami (exhibit 2.1). The Northwood crossover would be used in conjunction with Mainline Alternative 1. The 71st Street crossover would be used in conjunction with Mainline Alternative 2.

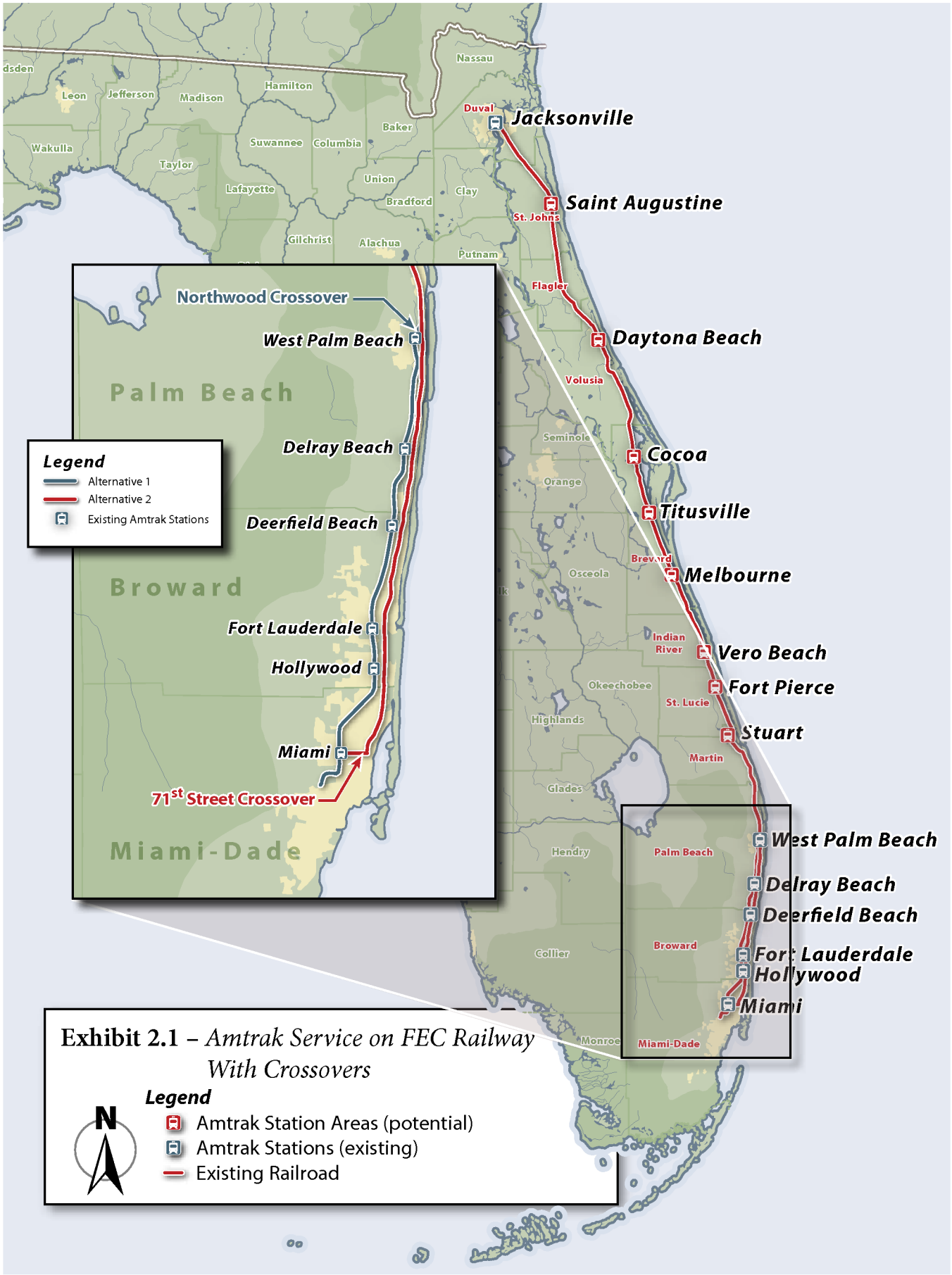


Exhibit 2.1 – *Amtrak Service on FEC Railway With Crossovers*

2.3.2.1 Northwood Crossover

The Northwood crossover is an existing track connecting the FEC Railway with the SFRC in the Northwood section of West Palm Beach (exhibit 2.1). This is a short connector track as the FEC Railway is located approximately 2,100 feet east of the SFRC. The existing connector runs in a northwest/southeast orientation between the two rail lines, which are not usable in its current configuration due to a missing connection in the northeast quadrant leading to and from the FEC Railway and points north. This would not allow for head on movement of Amtrak trains. The no-build option would require a compromised operating condition where Amtrak and future corridor trains would need to reverse directions. This would require an additional 20 minutes of additional travel time plus additional costs for flagmen, which is untenable as a permanent operating condition. The Northwood crossover would be relocated from its current location to avoid impacts to a cemetery and to better accommodate train traffic to and from points north on the FEC Railway. Acquisition of 10 low-quality industrial parcels and associated business relocations would be needed. This would facilitate the redevelopment efforts in the adjacent Old Northwood Historic district to upgrade uses to a mixed-use retail, commercial and entertainment area.

2.3.2.2 71st Street Crossover

The 71St Street crossover is an existing track that connects the FEC Railway to points inland within Miami (exhibit 2.1). The distance between the FEC Railway and the SFRC is approximately 4.5 miles. The 71St Street crossover intersects the SFRC about 500 feet west of NW 37th Avenue. The 71St Street crossover runs in an east/west orientation between the two rail lines roughly parallel to and approximately 500 feet north of 71st Street. While the spur track exists at this location, it is not usable in its current configuration due to missing connections to the SFRC. One option was developed to add a wye and allow connections between the FEC Railway and the SFRC.

2.3.3 Stations

Station alternatives consist of enhancements proposed at the termini stations in Jacksonville and Miami and new passenger stations along the FEC Railway. The improvements to the Jacksonville and Miami Amtrak stations are proposed by others and are connected actions (see section 1.7). New passenger stations are proposed within eight communities along the exist-

ing FEC Railway between Jacksonville and Miami: St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce and Stuart. At least one station location alternative was developed for each community.

2.3.3.1 St. Augustine

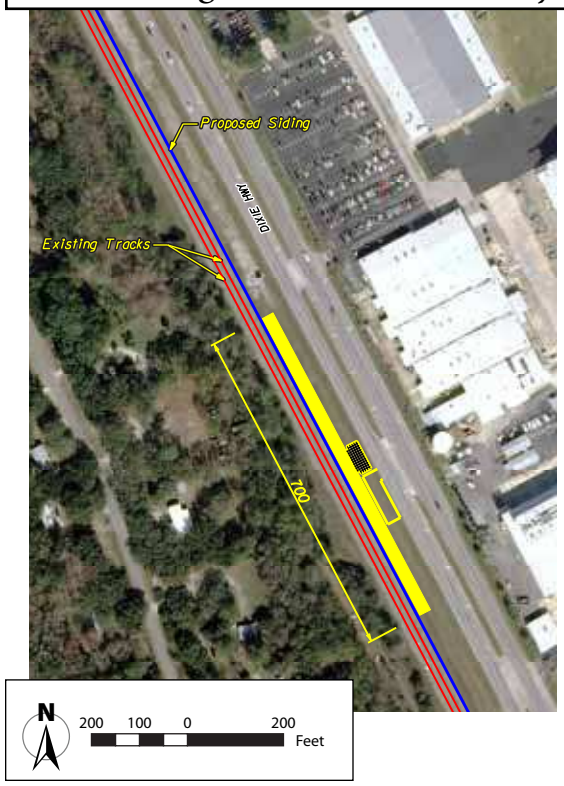
Site 1 – US 1 @ San Marco Avenue – Site 1 is located north of the downtown to the west of Route 1 near its intersection with San Marco Avenue (exhibit 2.2). This site was the location of a former passenger rail station and turnaround for the FEC Railway and is owned by the FEC Railway. This site is not walkable from the downtown, but several shopping centers, offices and residential neighborhoods are within a one-quarter-mile walk. Transit service is available in the vicinity from the Sunshine Bus service.

Site 2 – US 1 @ Carrera Street – Site 2 is located on the western edge of the downtown to the west of Route 1 across from Lemon Street and Carrera Street (exhibit 2.3). This site is an open field along the east bank of the San Sebastian River and is walkable from the downtown. Transit service is available in the vicinity from Sunshine Bus, Old Town Trolley and proposed future local commuter rail service between Jacksonville and St. Augustine.

Exhibit 2.2 – *Conceptual Layout Plan Site 1, US 1 @ San Marco Avenue*

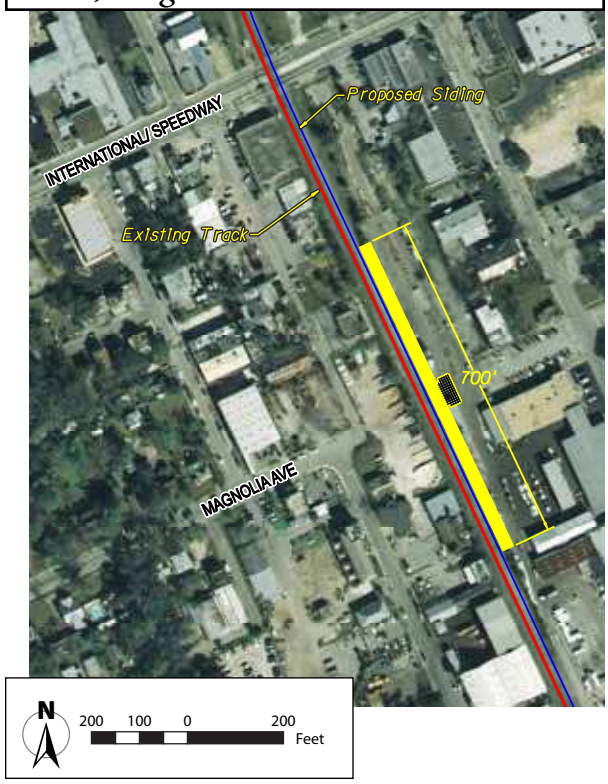
Exhibit 2.3 – *Conceptual Layout Plan Site 2, US 1 @ Carrera Street*

Exhibit 2.4 – *Conceptual Layout Plan*
Site 3, St. Augustine/St. Johns County Airport



Site 3 – St. Augustine/St. Johns County Airport – Site 3 is located north of St. Augustine to the west of Route 1 across from the St. Augustine/St. Johns County Airport (exhibit 2.4). This site is a vacant wooded area west of Route 1 and opposite the airport. This land is owned by the airport authority. This site is not walkable from the downtown, and service is available in the vicinity from the St. Augustine/St. Johns County Airport, a car rental facility at the airport, Sunshine Bus, and a proposed future local commuter rail service between Jacksonville and St. Augustine.

Exhibit 2.5 – *Conceptual Layout Plan*
Site 1, Magnolia Avenue



2.3.3.2 Daytona Beach

Site 1 – Magnolia Avenue – Site 1 is located on the east side of the FEC Railway between International Speedway Boulevard and Magnolia Street (exhibit 2.5). This site is developed. This site is not walkable from the downtown, but is situated near several resi-

dential, commercial and industrial areas. Transit service is available in the vicinity from the regional Votran bus service and to the adjacent Greyhound bus terminal.

Site 2 – Orange Avenue – Site 2 is located on the east side of the FEC Railway between Orange Avenue and Live Oak Avenue (exhibit 2.6). This site is developed. This site is not walkable from the downtown, but is situated near several residential, commercial and industrial areas. Transit service is available in the vicinity from the regional Votran bus service and the nearby Greyhound bus terminal.

Exhibit 2.6 – *Conceptual Layout Plan Site 2, Orange Avenue*

Site 3 – Live Oak Avenue – Site 3 is located on the west side of the FEC Railway between Live Oak Avenue and Loomis Avenue (exhibit 2.7). This site is occupied by Live Oak Park. This site is not walkable from the downtown, but is situated near several residential, commercial and industrial areas. Transit service is available in the vicinity from the regional Votran bus service.

Exhibit 2.7 – *Conceptual Layout Plan Site 3, Live Oak Avenue*

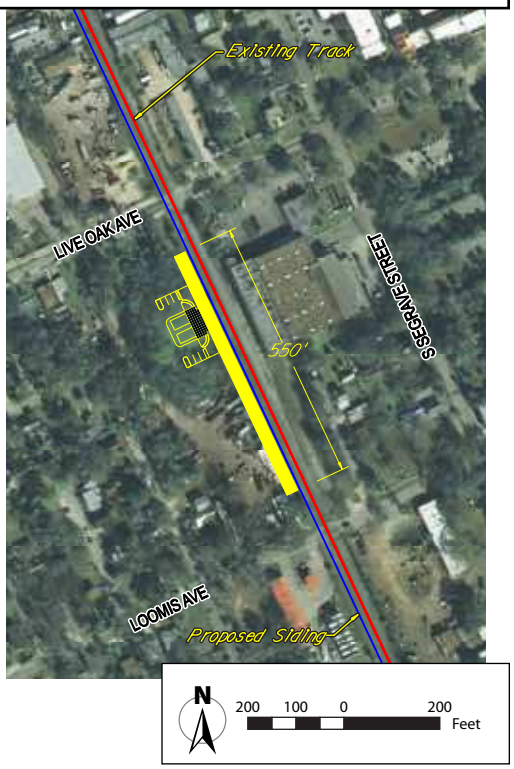
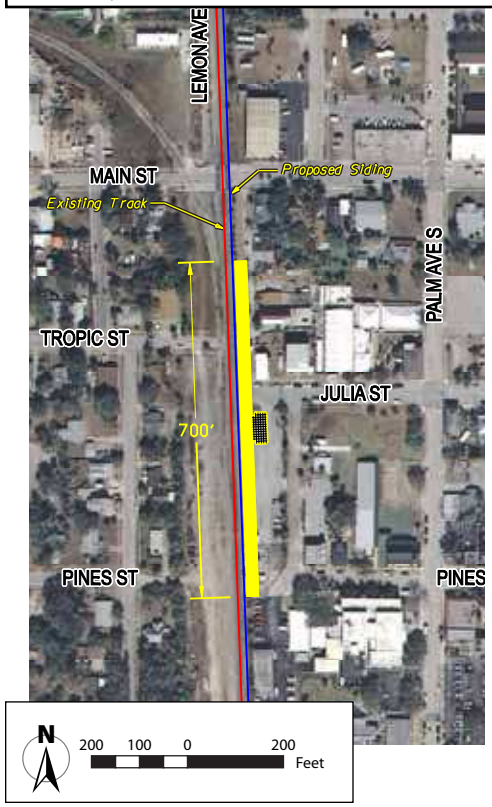


Exhibit 2.8 – *Conceptual Layout Plan Site 4, ISB Northeast Quadrant*

Site 4 – International Speedway Boulevard – Site 4 is located on the east side of the FEC Railway north of International Speedway Boulevard (exhibit 2.8). This site is currently developed. This site is not walkable from the downtown, but is situated near several residential, commercial and industrial areas. Transit service is available in the vicinity from the regional Votran bus service and the nearby Greyhound bus terminal.

Exhibit 2.9 – *Conceptual Layout Plan Site 1, Julia Street*

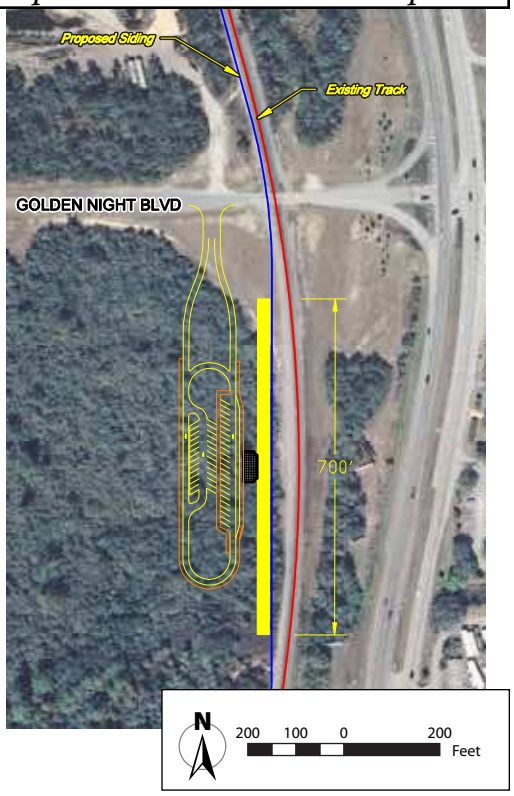


2.3.3.3 Titusville

Site 1 – Julia Street – Site 1 is located in the downtown to the east of the FEC Railway in the vicinity of Julia Street (exhibit 2.9). This site is occupied by an FEC Railway storage and maintenance yard. This site was the former location of the passenger rail station in Titusville. This site is walkable from the downtown. Transit service is available in the vicinity from the local bus service run by Space Coast Area Transit, and a private shuttle service to Port Canaveral.

Site 2 – Space Center Executive Airport – Site 2 is located at the Space Center Executive Airport west of Route 1 (exhibit 2.10). This site is an undeveloped wooded area. This site is not walkable from the downtown. Transit service is available in the area from the Space Center Executive Airport, car rental at the airport, local bus service run by Space Coast Area Transit, and a private shuttle service to Port Canaveral.

Exhibit 2.10 – *Conceptual Layout Plan Site 2, Space Center Executive Airport*



2.3.3.4 Cocoa

Site 1 – West King Street – Site 1 is located in the downtown to the west of the FEC Railway and south of State Route 520 and east of Washington Avenue (exhibit 2.11). This site is developed. This site is walkable from the downtown. Transit service is available in the vicinity from the local bus service run by Space Coast Area Transit and private shuttle service to Port Canaveral.

Exhibit 2.11 – *Conceptual Layout Plan Site 1, West King Street (SR 520)*

Exhibit 2.12 – *Conceptual Layout Plan Site 2, Rosa L. Jones Boulevard*

Site 2 – Rosa L. Jones Boulevard – Site 2 is located in the downtown near the intersection of Railroad Boulevard and Rosa L. Jones Boulevard (exhibit 2.12). This area is predominantly developed and includes the site of the former Cocoa passenger rail station. This area is walkable from the downtown. Transit service is available in the vicinity from the local bus service run by Space Coast Area Transit and a private shuttle service to Port Canaveral.

Exhibit 2.13 – *Conceptual Layout Plan Site 1, Melbourne International Airport*

2.3.3.5 Melbourne

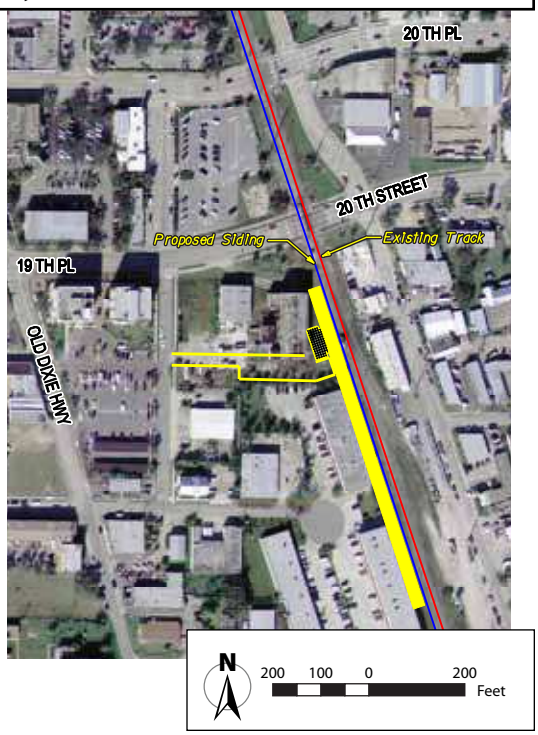
Site 1 – Melbourne International Airport – Site 1 is located on the west side of FEC Railway and east of South Apollo Boulevard (exhibit 2.13). This site partially wooded and partially developed. The site is not walkable from the downtown, but is situated near several residential neighborhoods. Transit service is available in the vicinity from the Melbourne Airport, a car rental facility at the airport, a Greyhound bus

terminal at the airport, private shuttle service to Port Canaveral, and regional bus service provided by Space Coast Area Transit.

Site 2 – Prospect Avenue – Site 2 is located on the west side of the FEC Railway south of Prospect Avenue and east of Stone Street (exhibit 2.14). This site is currently developed. This site is walkable from the downtown. Transit service is available in the vicinity from the regional bus service provided by Space Coast Area Transit.

Exhibit 2.14 – *Conceptual Layout Plan Site 2, Prospect Avenue*

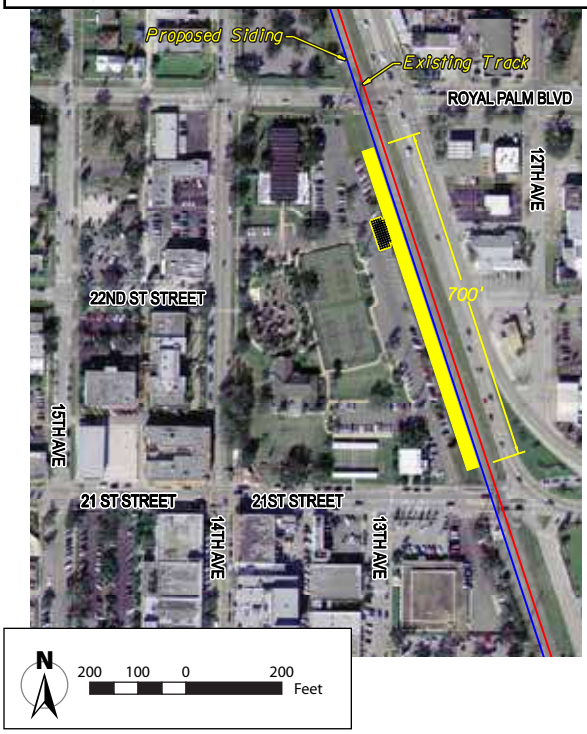
Exhibit 2.15 – *Conceptual Layout Plan Site 1, 19th Place*



2.3.3.6 Vero Beach

Site 1 – 19th Place – Site 1 is located on the west side of the FEC Railway and south of 19th Place (exhibit 2.15). This site is occupied by a former diesel plant. This site is walkable from the downtown. Transit service is available in the vicinity from the local GoLine bus service, Indian River County's public transit service.

Exhibit 2.16 – *Conceptual Layout Plan Site 2, 20th Place*



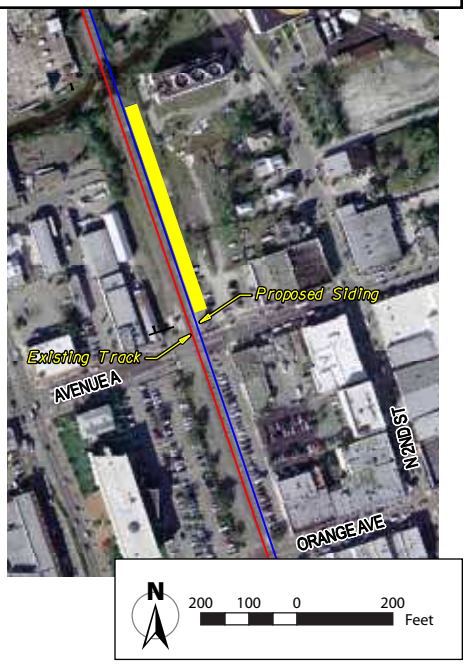
Site 2 – 20th Place – Site 2 is located on the west side of the FEC Railway and north of 20th Place (exhibit 2.16). This site is occupied by the Vero Beach Community Center. This site is walkable from the downtown. Transit service is available in the vicinity from GoLine bus service and Indian River County's public transit service.

Exhibit 2.17 – *Conceptual Layout Plan Site 1, Orange Avenue*

2.3.3.7 Fort Pierce

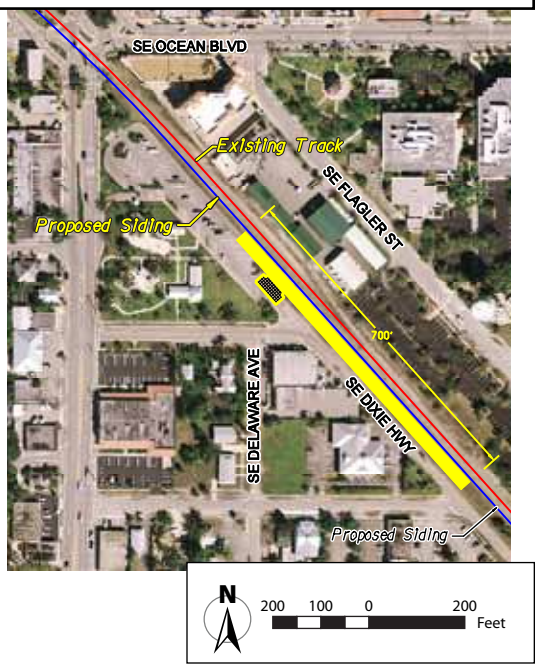
Site 1 – Orange Avenue – Site 1 is located south of Orange Avenue and north of Citrus Avenue, east of South Federal Highway (exhibit 2.17). This area is currently developed. This area is walkable from the downtown, and transit service is available in the vicinity from the Treasure Coast Connector bus service run by Community Transit, a division of Council on Aging of St. Lucie, Inc.

Exhibit 2.18 – *Conceptual Layout Plan Site 2, Avenue A*



Site 2 – Avenue A – Site 2 is located on the east side of the FEC Railway and north of Avenue A (exhibit 2.18). This site is currently developed. This site is walkable from the downtown. Transit service is available in the vicinity from the Treasure Coast Connector bus service run by Community Transit, a division of Council on Aging of St. Lucie, Inc.

Exhibit 2.19 – *Conceptual Layout Plan Ocean Boulevard*



2.3.3.8 Stuart

Ocean Boulevard – This site is located in downtown Stuart along Ocean Boulevard (exhibit 2.19). The site is currently occupied by a park and ride lot, a playground, and East Coast Lumber. The site is walkable to the downtown. Transit service is available in the vicinity from the Stuart Shuttle run by Community Coach, a service of the Council on Aging of Martin County, the Treasure Coast

Connector bus service run by Community Transit, a division of Council on Aging of St. Lucie, Inc., and a park and ride lot.

Chapter 3

Affected Environment and Environmental Consequences

3.1 Introduction

This section identifies the affected environment and potential environmental consequences associated with construction and operation of the Build Alternatives retained for further consideration and detailed analysis. Potential impacts – both beneficial and adverse – were identified at a 'Service-level' and, where possible, quantified through studies of the natural, social, and economic environments. Potential impacts consist of the direct impacts, secondary or indirect impacts, and cumulative impacts of the No-build and Build Alternatives.

Additional analysis of the proposed crossovers and stations would be performed at a 'Project-level' and tiered against this PEA (see section 1.1.3). It is anticipated that the proposed crossovers would be classified and processed as EAs, as their potential impacts are unknown, but do not appear to be significant, based on the analysis performed for this PEA. It is anticipated that the proposed stations would be classified and processed as Categorical Exclusions, as their potential impacts are known and, individually and cumulatively, Do not appear to be significant. The project-level analysis would be processed through FDOT's ETDM process, which would result in the fi-

Chapter 3 is an inventory of the affected environment and a discussion of consequences and potential mitigation measures resulting from the alternatives retained for detailed study. It succinctly describes the physical, biological, social, and economic environments of the area to be affected by the alternatives. It describes the impacts of the alternatives; 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 an alternative is implemented (40 CFR part 1502.16).

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

Secondary (or indirect) impacts — The impacts that are caused by the project and are later in time 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.

nal class of action in coordination with federal and state agencies and other interested parties.

At proposed crossovers at Northwood and 71st street, little impact to the natural environment would occur. The impacts to the social environment would consist primarily of residential displacements. When considering the context and intensity of the potential residential displacements, the impacts do not appear to be significant.

At the proposed stations, little adverse impact to the natural and social environment would occur and the majority of the impacts, particularly to the social environment, would be positive. The majority of the stations have been planned and proposed as 'infill' development adjacent to the existing FEC Railway on previously disturbed areas. At some stations, no property or 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 the development of transit-oriented development in the adjoining areas.

For the proposed crossovers and stations, public involvement and agency coordination would continue at the 'Project-level'.

3.2 Natural Environment

3.2.1 Geology and Soils

The physical geography, or physiography, of an area is a description of the physical features of its natural landscape. The following sub-sections describe the physical geography and soils of the study area that may influence the alternatives development and selection process. The study area is in the Eastern Valley physiographic region which consists of lowlands, gaps, and valleys; and in the Atlantic Coastal Ridge region, particularly in the southern portion of the study area.

The Eastern Valley is characteristically flat and elevationally low, with land surface elevations varying between zero and 35 feet above mean sea level. Surficial sediments are predominantly marine terrace sands and shelly sands and clay, deposited during the Pleistocene epoch. Relict beach ridges, paralleling the modern coast, are common features throughout the Eastern Valley (FDEP, June 2003).

The Atlantic Coastal Ridge extends intermittently along Florida's east coast from Jacksonville Beach to just south of Miami. Elevations along the ridge in the study area average approximately 30 to 35 feet above mean sea

level, and isolated sand hills on the ridge may attain elevations of 50-60 feet above mean sea level. These higher elevations appear to represent now quiescent dunes built up on the ridge core. The Atlantic Coastal Ridge has a foundation composed of calcareous sandstone and sandy coquina of the Pleistocene Anastasia Formation, and is believed to have been developed on former offshore bars of the prehistoric Pamlico Sea (FDEP, June 2003).

Most of the soils of the study area are comprised of sands and urban lands, with small inclusions of muck lands.

The No-build Alternative would not impact soils in the study area.

The Build Alternatives would not permanently impact soils in the study area, but could cause temporary impacts during construction activities at station sites, along the mainline where upgrades to existing track are proposed, and during improvements to proposed crossovers.

No significant impacts are anticipated to soils as a result of project activities, the Project-level NEPA will include agency consultation through the ETDM process and will conduct additional analysis and coordination as appropriate.

3.2.2. Water Quality

Overall, the majority of Florida's surface waters are of good quality, but problems exist around densely populated urban areas. In rivers, nutrient enrichment, low dissolved oxygen, organic matter, siltation, and habitat alteration degrade water quality. In lakes, the leading problems result from metals and other toxics, ammonia, and nutrients. In estuaries, nutrient enrichment, habitat alteration, and siltation degrade quality.

Impaired waters are Florida's waterbodies that do not meet or are not expected to meet applicable water quality standards with technology-based controls alone. The FDEP must develop pollutant loading limits known as Total Maximum Daily Loads (TMDL) for these waters. A TMDL is the maximum amount of a pollutant that a waterbody can receive and remain healthy. It identifies the amount of a pollutant that must be removed from an impaired waterbody to restore its health. 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.

The vast majority of public water systems in Florida use ground water as their source. There are approximately 12,000 wells associated with ground water systems used for public water supply in Florida. These wells produce

water from five major aquifers or aquifer systems. The major source of groundwater supply in Florida is the *Floridan Aquifer System*. This aquifer system is comprised of a sequence of limestone and dolomite, which thickens from approximately 250 feet in Georgia to approximately 3,000 feet in south Florida. The Floridan aquifer system is divided into an upper and lower aquifer separated by a unit of lower permeability. The upper Floridan aquifer is the principal source of water supply in most of northern and central Florida. In the southern portion of the state where the aquifer is deeper and contains brackish water, the aquifer has been used for the injection of sewage and industrial waste. Groundwater flow is generally from highs near the center of the state towards the coast (FDEP, 2009c).

From Duval County to the northern portion of Palm Beach County, the shallower surficial aquifer system is used for domestic, commercial, and small municipal supplies. The surficial aquifer system is generally under unconfined, or water table, conditions and is made up of mostly unconsolidated sand, shelly sand, and shell. The aquifer thickness is typically less than 50 feet but can range up to 400 feet in Indian River and St. Lucie Counties. Groundwater in the surficial aquifer generally flows from areas of higher elevation towards the coast or streams where it can discharge as baseflow. Water enters the aquifer from rainfall and exits through baseflow to streams, discharge to the coast, evapotranspiration, and downward recharge to deeper aquifers.

The southern portion of Palm Beach County to Miami-Dade County is underlain by the shallower Biscayne aquifer which is the sole source of potable water for these counties. The aquifer consists of highly permeable limestone and less permeable sand and sandstone. The northern part of the aquifer has more sand and grades northward and westward into the sandy deposits that are part of the surficial aquifer system. In most places, the highly permeable rocks of the Biscayne aquifer are covered by a thin veneer of porous soil and aquifer water levels rise rapidly in response to rainfall. Water in the Biscayne aquifer is unconfined and generally flows toward streams, the ocean and the extensive system of canals in south Florida (FDEP, 2009c).

Data from over 1,900 wells in Florida's ambient monitoring network indicate generally good water quality, but local groundwater contamination problems exist. Agricultural chemicals have caused local and regional problems (University of Florida, 2009).

The No-build Alternative would not impact existing water quality.

The Build Alternatives would not permanently impact water quality, but could cause temporary minor impacts during construction activities along the mainline where upgrades to existing track are proposed.

No significant impacts are anticipated to water quality as a result of project activities, the Project-level NEPA will include agency consultation through the ETDM process and will conduct additional analysis and coordination as appropriate.

3.2.3 Water Bodies and Waterways

From north to south through the study area, the FEC Railway crosses the St. Johns River, Tomoka River, Spruce Creek, Melbourne Harbor, Fort Pierce Harbor, St. Lucie River, Loxahatchee River, West Palm Beach Canal, Hillsboro Canal, New River, Tarpon River, Dania Cut-Off Canal, and the Atlantic Intracoastal Waterway in Miami-Dade County. The St. John River, Melbourne Harbor, Fort Pierce Harbor, St. Lucie River, New River, the Dania Cut-Off Canal, and the Atlantic Intracoastal Waterway are considered navigable waters.

The St. Johns River is the longest river in Florida and is most significant for commercial and recreational use. At 310 miles long, it winds through or borders 12 counties. The elevation drop from the headwaters to the mouth is less than 30 feet. Like most Florida waterways, the St. Johns has a low velocity at one-third of a mile an hour. Numerous lakes are formed by the river or flow into it, but as a river its widest point is three miles (4.8 km) across. The narrowest point is in the headwaters, an unnavigable marsh located in Indian River County (SJRWMD, 2009).

The Tomoka River is a north-flowing river in Volusia County. It drains an area of approximately 150 square miles and is the longest river in Volusia County (excluding the St. Johns River) with a length of 18 miles. The Tomoka rises in the forests near Daytona Beach at an elevation of 23 feet. The river flows north-northeast, passing through the cities of Daytona Beach and Ormond Beach until it empties into the Halifax River (FDEP, 2009a).

Spruce Creek is in Volusia County near New Smyrna Beach. It forms in wetlands west of New Smyrna Beach and flows north, and then turns east and discharges to the Atlantic Intracoastal Waterway. Spruce Creek is approximately 20 miles long and is a second-order stream that is tidally influenced in its lower reaches (FDEP, March 2008).

The St. Lucie River is in St. Lucie and Martin Counties. Its North Fork flows south from St. Lucie County into Martin County where it joins the north-flowing South Fork in Stuart to form the main St. Lucie River. It passes under the FEC Railway drawbridge and flows east until it reaches the northern end of the Sewall's Point peninsula. From there it flows into the Indian River Lagoon directly west of the St. Lucie Inlet, ultimately draining into the Atlantic Ocean (FDEP, 2009d).

The Loxahatchee River is a 7.6-mile long river on the southeast coast of Florida. It is a National Wild and Scenic River, one of only two in the state. Approximately one mile of the river serves as the Palm Beach/Martin County border. The headwaters of the river are in Grassy Waters Preserve. The Loxahatchee River meanders through freshwater creeks, down into a brackish estuary, and empties through the Jupiter Inlet into the Atlantic Ocean (LRD, 2009).

The West Palm Beach Canal was originally dug in the early 1900s to lower Lake Okeechobee and drains a part of the Everglades to farm the land. This area is now known as the Everglades Agricultural Area. West Palm Beach Canal is part of the Central and South Florida flood control system (FDEP, July 1999).

The Hillsboro Canal is between Broward and Palm Beach Counties. It begins in the Loxahatchee National Wildlife Refuge and flows southeast from there along Loxahatchee Road in a rural, lightly populated area. When it reaches the more heavily developed region further east, it bends to head due eastward, forming the county line (SWFWMD, 2006).

The New River originates in the Everglades and flows east. After passing through Fort Lauderdale, the river enters the Atlantic Ocean at Port Everglades Cut. The river is entirely within Broward County and is formed by the junction of three main canals which originate in the Everglades, splitting off from the Miami Canal. The Tarpon River is a part of the intricate canal system in Fort Lauderdale.

The Dania Cut-Off Canal is a working waterfront located in Broward County.

The Atlantic Intracoastal Waterway consists of a canal which runs along the Atlantic coast from Virginia to the Florida Keys. The canal is one to two miles wide, with land on one side and islands, some natural, some man-made, on the other. It connects to open sea, and is partially man-made to accommodate commercial vessels. The Atlantic Intracoastal Waterway is

made up of rivers, bays, sounds, and marshes, and important artificial waterways (AIWA, 2009).

The No-build Alternative would not impact water bodies and waterways.

The Build Alternatives would not permanently impact water bodies and waterways, but could cause temporary impacts during construction activities along the mainline where upgrades to existing track are proposed. These temporary impacts would be minimized by the use of best management practices.

No significant impacts are anticipated to water bodies as a result of project activities, the Project-level NEPA will include agency consultation through the ETDM process and will conduct additional analysis and coordination as appropriate. If permitting is required, all necessary agency coordination would take place at the project-level analysis stage.

3.2.4 Floodplains

According to the Federal Emergency Management Agency (FEMA) geographic information system (GIS) floodplains layer, a digital representation of certain Flood Insurance Rate Maps (FIRMs), portions of the study area fall within 100-year floodplain areas. A 100-year floodplain includes land that could be inundated by a flood of a magnitude that has a one-percent chance of being equaled or exceeded in any given year (i.e., 100-year floodplain). Locations in the study area lying within these special flood hazard areas generally correspond to drainage basins of rivers, creeks, and canals.

Federal protection of floodplains is afforded through Executive Order 11988, "Floodplain Management," and by implementation of federal regulations under 44 CFR 9.00. These regulations direct federal agencies to undertake actions to avoid impacts on floodplain areas by structures built in flood-prone areas. The Federal Emergency Management Agency (FEMA) has primary responsibility for identifying flood-prone areas.

Along the mainline, approximately 3,050 acres of the study area are within a designated 100-year floodplain (exhibit 3.1), with the highest acreage of floodplains being in Brevard and Volusia Counties.

For the proposed stations, only the St. Augustine and one of the Fort Pierce station alternatives are in the 100-year floodplain (exhibit 3.2).

Floodplains are protected by Executive Order 11988: Floodplain Management, which requires federal agencies to avoid construction or management practices that would adversely affect floodplains unless that agency finds that (1) there is no practical alternative, and (2) the proposed action has been designed or modified to minimize harm to or within the floodplain.

The intent of these requirements is to reduce the risk of flood loss; minimize the impact of floods on human safety, health and welfare; and restore and preserve the natural and beneficial values served by floodplains. Compliance with the order is necessary to ensure that work within the 100-year floodplain does not increase downstream flooding. Floodplains are regulated by the FEMA and administered by local floodplain management ordinances within individual localities.

The No-build Alternative would not impact the 100-year floodplains.

Exhibit 3.1 – *Mainline 100-year floodplains*

County	100-year floodplain (ac.)
Duval	45
St. Johns	355
Flagler	375
Volusia	695
Brevard	695
Indian River	20
St. Lucie	55
Martin	65
Palm Beach	80
Broward	435
Miami-Dade	185

The Build Alternatives would not permanently impact the 100-year floodplains, but could cause temporary impacts during construction activities at station sites and at the crossover options where improvements are proposed. These temporary impacts would be restored once construction is complete.

No significant impacts are anticipated to the 100-year floodplains as a result of project activities, the Project-level NEPA will include agency consultation through the ETDM process and will conduct additional analysis and coordination as appropriate. If permitting is required, agency coordination would take place at the project-level analysis stage.

Exhibit 3.2 – *Station area 100-year floodplains*

Station Alternatives	100-year floodplain (ac.)
St. Augustine Site 1 - US 1 @ San Marco Ave.	1
St. Augustine Site 2 - US 1 @ Carrera St.	18
St. Augustine Site 3 - St. Augustine/St. Johns County Airport	18
Daytona Site 1 - Magnolia Ave.	0
Daytona Site 2 - Orange Ave.	0
Daytona Site 3 - Live Oak Ave.	0
Daytona Site 4 - International Speedway Blvd.	0
Titusville Site 1 - Julia St.	0
Titusville Site 2 - Space Center Executive Airport	0
Cocoa Site 1 - West King St (SR 520)	0
Cocoa Site 2 - Rosa L. Jones Blvd.	0
Melbourne Site 1 - Melbourne International Airport	0
Melbourne Site 2 - Prospect Ave.	0
Vero Beach Site 1 - 19th Place	0
Vero Beach Site 2 - 20th Place	0
Fort Pierce Site 1 - Orange Ave.	0
Fort Pierce Site 2 - Avenue A	3
Stuart - Ocean Blvd.	0

3.2.5 Wetlands

In accordance with Executive Order 11990, Protection of Wetlands, federal agencies shall avoid undertaking or providing assistance for new construction in wetlands unless:

- there is no practicable alternative to such construction
- the proposed action includes all practicable measures to minimize harm to wetlands, which may result from its use

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 includes 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.

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.

Approximately 1,510 acres of wetlands exist in the study area (exhibit 3.3). The presence of wetlands at the station alternatives is limited to St. Augustine and Cocoa (exhibit 3.4).

Palustrine wetlands refers to a system of wetlands which includes "all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 percent"(Mitsch and Gosleink, 2007). Historic or traditional names for palustrine wetlands include marsh, swamp, bog, fen, and prairie, and other water bodies such as ponds (USFWS, 1979). These wetlands are fairly evenly distributed throughout the study area, occurring mostly in Flagler and St. Johns Counties. Approximately 1,140 acres of the study area are classified as palustrine wetlands.

Exhibit 3.3 – *Mainline NWI Wetlands*

County	Palustrine (ac.)					Estuarine (ac.)					Riverine (ac.)	Lacustrine (ac.)	Total Wetlands (ac.)
	AB[1]	EM[1]	FO[1]	SS[1]	UB[1]	AB	EM	SS	UB	US[1]			
Duval	0	10	110	0	5	0	0	3	1	0	0	0	129
St. Johns	0	30	300	2	0	0	40	0	2	0	0	0	397
Flagler	0	10	175	25	1	0	0	0	15	0	0	0	226
Volusia	0.5	20	115	5	5	0	70	0	0.5	0	0	0	216
Brevard	3	40	60	55	15	24	100	4	45	10	10	0	366
Indian River	0	10	5	5	5	0	0	0	0	0	0	0	25
St. Lucie	0	20	20	15	1	0	0	0	2	0	0	0	58
Martin	1	30	5	5	5	0	0	0	0	0	0	0.5	46.5
Palm Beach	0	3	0	1	1	0	0	0	2	0	24	0	31
Broward	0	0	0	0	0	0	0	0	7	0	2	0	9
Miami-Dade	0	0	0	0	0	2	0	0	3	0	2	0	7
Total Wetland Acreage	***4.5***	***173***	***790***	***136***	***38***	***26***	***210***	***7***	***77.5***	***10***	***38***	***0.5***	***1510[2]***

Notes:
[1] AB - Aquatic Bed, EM – Emergent, FO – Forested, SS - Scrub-Shrub, UB-Unconsolidated Bottom, US - Unconsolidated Shore
[2] Sum may not equal total due to rounding.

Exhibit 3.4 – *Station area NWI Wetlands*

Station Alternatives	NWI wetland type*	NWI wetland (ac.)
St. Augustine Site 1 - US 1 @ San Marco Ave.	-	0
St. Augustine Site 2 - US 1 @ Carrera St.	PEM	4
St. Augustine Site 3 - St. Augustine/St. Johns County Airport	PFO PUB	3 2
Daytona Site 1 - Magnolia Ave.	-	0
Daytona Site 2 - Orange Ave.	-	0
Daytona Site 3 - Live Oak Ave.	-	0
Daytona Site 4 - International Speedway Blvd	-	0
Titusville Site 1 - Julia St.	-	0
Titusville Site 2 - Space Center Executive Airport	-	0
Cocoa Site 1 - West King St (SR 520)	-	0
Cocoa Site 2 - Rosa L. Jones Blvd.	-	0
Melbourne Site 1 - Melbourne International Airport	-	0
Melbourne Site 2 - Prospect Ave.	-	0
Vero Beach Site 1 - 19th Place	-	0
Vero Beach Site 2 - 20th Place	-	0
Fort Pierce Site 1 - Orange Ave.	-	0
Fort Pierce Site 2 - Avenue A	-	0
Stuart - Ocean Boulevard	-	0

***Note:** PEM = palustrine emergent, PFO = palustrine forested, PUB = palustrine unconsolidated bottom*

Estuarine wetlands consist of deepwater tidal habitats and adjacent tidal wetlands, usually semi-enclosed by land but having open, partly obstructed or sporadic access to the open ocean, where ocean is at least occasionally diluted by freshwater runoff from the land. Estuarine wetlands consist of both subtidal and intertidal subsystems. A variety of wetlands develop in estuaries because of differences in salinity and duration and frequency of tidal inundation. Major wetland types consist of emergent wetlands, intertidal unconsolidated shores, and scrub-shrub wetlands. Other coastal wetlands consist of intertidal coral and mollusk reefs, rocky shores, streambeds, and forested wetlands (Mitsch and Gossleink, 2007).There are approximately 330 acres of estuarine wetlands, mostly occurring in Brevard County.

Riverine wetlands include "all wetlands and deep water habitats contained within a channel with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens; and (2) deep water habitats with water containing ocean-derived salts in excess of 0.5 parts per thousand "(Mitsch and Gossleink, 2007). Upland islands or palustrine wetlands may occur in the channel, but they are not part of the riverine system (USFWS, 1979). Approximately 40 acres of riverine wetlands occur in the study area in Palm Beach, Brevard, and Indian River Counties.

Approximately 0.5 acre of lacustrine wetlands occur within the Martin County portion of the study area. A lacustrine system includes wetlands and deep-water habitats with all of the following characteristics (USFWS, 1979):

- wetlands are situated in a topographic depression or a dammed river channel
- wetlands are lacking trees, shrubs, persistent emergents, or emergent mosses or lichens with more than 30 percent area coverage
- wetlands total area exceeds 20 acres

The No-build Alternative would not impact wetlands.

The Build Alternatives would not permanently impact wetlands. Wetlands would be temporarily impacted during construction activities at station sites St. Augustine Site 2, St. Augustine Site 3 and Cocoa Site 2. These temporary impacts would cease once construction activities were completed. At this time not wetland impacts are anticipated as a result of proposed improvements to the mainline ; however, the Project-level NEPA will include agency consultation through the ETDM process and will conduct additional

analysis and coordination as appropriate. If permitting is required, agency coordination would take place at the project-level analysis stage.

3.2.6 Coastal Zones

The federal Coastal Zone Management Act (CZMA) of 1972 aims to preserve, protect, develop and where possible, restore and enhance the resources of the nation's coastal zone. Section 307 of the CZMA stipulates that federal activities that affect any land or water use or natural resource of the coastal zone be consistent, to the maximum extent practicable, with the enforceable policies of the state's federally-approved management program.

The Florida Coastal Management Act (FCMA) of 1978 authorized the development of the Florida Coastal Management Program (FCMP), consisting of a collection of 23 Florida statutes administered by nine state agencies and the five water management districts of the state. The program is designed to ensure the wise use and protection of the state's water, cultural, historic, and biological resources; minimize the state's vulnerability to coastal hazards; ensure compliance with the state's growth management laws; protect the state's transportation system; and protect the state's proprietary interest as the owner of sovereign submerged lands.

The coastal zone of Florida is defined as the entire State, with two management tiers. Local governments eligible to receive coastal management funds are limited to those Gulf and Atlantic coastal cities and counties which include or are contiguous to state water bodies where marine species of vegetation constitute the dominant plant community. Florida's seaward boundary is three nautical miles in the Atlantic.

Review of federal proposals for consistency with the CZMA and corresponding Florida statutes is coordinated by the Florida Department of Environmental Protection's Florida State Clearinghouse; transportation projects using federal funds are subject to coastal zone consistency review. To establish compliance with the CZMA, projects must address the requirements of the following Florida statutes:

- Chapter 161: Beach and Shore Preservation
- Chapter 163, Part II: Intergovernmental Programs: Growth Policy; County and Municipal Planning; Land Development Regulation
- Chapter 186: State and Regional Planning
- Chapter 252: Emergency Management

- Chapter 253: State Lands
- Chapter 258: State Parks and Preserves
- Chapter 259: Land Acquisitions for Conservation or Recreation
- Chapter 260: Florida Greenways and Trails Act
- Chapter 267: Historical Resources
- Chapter 288: Commercial Development and Capital Improvements
- Chapter 334: Transportation Administration
- Chapter 339: Transportation Finance and Planning
- Chapter 370: Saltwater Fisheries
- Chapter 372: Wildlife
- Chapter 373: Water Resources
- Chapter 375: Outdoor Recreation and Conservation Lands
- Chapter 376: Pollutant Discharge Prevention and Removal
- Chapter 377: Energy Resources
- Chapter 380: Land and Water Management
- Chapter 381: Public Health: General Provisions
- Chapter 388: Mosquito Control
- Chapter 403: Environmental Control
- Chapter 582: Soil and Water Conservation

The No-build Alternative would not impact the coastal zone of Florida.

The Build Alternatives would not permanently impact the coastal zone of Florida, but could cause temporary impacts during construction activities at station sites, along the mainline where upgrades to existing track are proposed and during improvements to proposed crossovers. Temporary impacts would cease once construction is complete. Federal consistency review of the CZMA will occur during the Project-level NEPA. This will include agency consultation through the ETDM process. Additional analysis and coordination will be conducted as appropriate.

3.2.7 Ecological Systems

Important ecological systems have been defined as federal and state threatened and endangered species, state species of special concern, state consultation areas for the Manatee, Piping Plover, Red-Cockaded Woodpecker, Johnson Seagrass, Scrub-Jay, and the Snail-Kite (see section 3.1.8), Outstanding Florida Waters, aquatic preserves, the National Estuarine Research Reserve System, and Florida's managed areas.

Outstanding Florida Waters (OFW) are waters designated worthy of special protection because of their natural attributes. This special designation is applied to certain waters, and is intended to protect existing water quality. Most OFWs are areas managed by the state or federal government as parks, including wildlife refuges, preserves, marine sanctuaries, estuarine research reserves, certain waters within state or national forests, scenic and wild rivers, or aquatic preserves. Generally, the waters within these managed areas are OFWs because the managing agency has requested this special protection.

Surface water bodies in the study area that are classified as OFW include portions of the Tomoka River, Spruce Creek, and the Loxahatchee River Aquatic Preserve. The waters of Biscayne Bay Aquatic Preserve, which is part of the Atlantic Intracoastal Waterway, are classified as OFW. Other water bodies classified as OFW are in Jonathan Dickinson State Park and Savannas State Reserve.

Aquatic preserves protect the living waters of Florida to ensure that they would always provide habitat for bird rookeries and fish nurseries, freshwater springs and salt marshes, seagrass meadows and mangrove forests and provide recreation and cultural heritage. The study area crosses four aquatic preserves: (1) the Indian River – Marlabar to Vero Beach Aquatic Preserve in Brevard and Indian River Counties; (2) the Jensen Beach to Jupiter Inlet Aquatic Preserve in St. Lucie and Martin Counties; (3) the Loxahatchee River – Lake Worth Creek Aquatic Preserve in Palm Beach County; and (4) the Biscayne Bay in Miami-Dade County.

The National Estuarine Research Reserve System is a network of protected areas established for long-term research, education and stewardship. This partnership program between National Oceanic Atmospheric Administration (NOAA) and coastal states protects estuarine land and water, which provides essential habitat for wildlife; offers educational opportunities for students, teachers and the public; and serves as living laboratories for scientists. An estuarine research reserve does exist in the mainline study area — the Guana Tolomato Matanzas National Estuarine Research Reserve located in St. Johns and Flagler Counties.

Florida's managed areas consist of national parks, state forests, wildlife management areas, and local and private preserves. Along the mainline, approximately 75 acres in St. Johns County, 40 acres in Flagler County, 140 acres in Volusia, 75 acres in Brevard County, 25 acres in Indian River County, 130 acres in St. Lucie County, 200 acres in Martin County, 45 acres

in Palm Beach, eight acres in Broward County, and three acres in Miami-Dade County are part of Florida's managed areas.

The proposed station locations and the adjoining areas in St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart are not managed areas and do not include OFWs, aquatic preserves, or areas within the National Estuarine Research Reserve System.

The No-build Alternative would not impact ecological systems.

The Build Alternatives would not permanently impact ecological systems in the study area, but could cause temporary impacts during construction activities at station sites, along the mainline where upgrades to existing track are proposed and during improvements to proposed crossovers. Temporary impacts would cease once construction is complete. Temporary impacts to ecological systems would be minimized using best management practices.

No significant impacts are anticipated to ecological systems as a result of the project; however, as part of the ETDM process and project-level NEPA, additional analysis and coordination would occur as appropriate. If permitting is required, agency coordination would take place at the project-level analysis stage.

3.2.8 Threatened and Endangered Species

3.2.8.1 Federally- Listed Species

The federal Endangered Species Act of 1973 (ESA), as amended, provides protection for those species that are listed as endangered or threatened under the act. The ESA grants the USFWS prime responsibility in administering the species designations and protections granted under the ESA. Species designated as "endangered" are in danger of extinction throughout all or a significant portion of its range. Species designated as "threatened" means that a species is likely to become endangered in the foreseeable future.

There are species that are federally listed as endangered or threatened and potentially occurring in the study area (exhibit 3.5). Consultation with the USFWS would confirm species which may occur in the study area.

3.2.8.2 State-Listed Species

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, and 68A-27.005, respectively, Florida Administrative Code (F.A.C.). The state lists of plants which are designated as endangered,

Exhibit 3.5 – *Federally-Listed Endangered and Threatened Species Potentially Occurring in the Study Area*

Species	Scientific Name	Status	County	Habitat
Mammals				
Anastasia Island Beach Mouse	*Peromyscus polionotus phasma*	E	St. Johns	
Florida panther	*Puma (= Felis) concolor coryi*	E	Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	High pine, Tropical hardwood hammock, Scrub, Maritime hammock, Mesic temperate hammock, Pinerockland, Scrubby flatwoods, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Wet prairie, Freshwater marsh, Seepage swamp, Pond swamp, Mangrove
Puma (=mountain lion)	*Puma (= Felis) concolor (all subsp. except coryi)*	T	Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Same as Florida panther
Southeastern Beach Mouse	*Peromyscus polionotus nineiventris*	T	Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward	Sea Oats community, sandy areas of adjoining coastal strand vegetation.
West Indian (Florida) Manatee	*Trichechus manatus latirostris*	E	Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Fresh and saltwater habitats, Mangroves
Birds				
Audubon's Crested Caracara	*Polyborus plancus audubinii*	T	Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Improved pastures, Mesic temperate hammock, Mesic pine flatwoods, Hydric pine flatwoods, Dry prairie, Wet prairie.
Bachman's Warbler	*Vermivora bachmanii*	E	Miami-Dade	
Cape Sable Seeside Sparrow	*Ammodramus maritimus mirabilis*	E	Miami-Dade	Wet prairie, Freshwater marsh
Everglade Snail Kite	*Rostrhamus sociabilis plumbeus*	E	Volusia, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Hydric pine flatwoods, Freshwater marsh, Pond swamp
Florida Scrub-jay	*Aphelocoma coeruluscens*	T	St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Scrub, Scrubby flatwoods and adjacent areas.
Florida Grasshopper Sparrow	*Ammodramus savannarum floridanus*	E	Miami-Dade	Dry prairie, Wet prairie, Last documented in 1968
Ivory-billed Woodpecker	*Campephilus principalis*	E	Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Historic date unknown
Kirtland's Warbler	*Dendroica kirtlandii*	E	St. Lucie, Martin, Palm Beach, Miami-Dade	
Piping Plover	*Charadrius melodus*	T	Duval, St. Johns, Volusia, Brevard, Indian River, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Sandy beaches, mudflats, sandflats, spoil islands, areas adjacent to inlets and passes. Historic date unknown

Exhibit 3.5 – *Federally-Listed Endangered and Threatened Species Potentially Occurring in the Study Area (Continued)*

Species	Scientific Name	Status	County	Habitat
Red-cockaded Woodpecker	*Picoides borealis*	E	Duval, Flagler, Volusia, Brevard, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	High pine, Mesic pine flatwoods, Hydric pine flatwoods
Wood Stork	*Mycteria americana*	E	Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Hydric pine flatwoods, Wet prairie, Freshwater marsh, Seepage swamp, Flowing water swamp, Pond swamp, Mangrove, Saltmarsh, Seagrass
Fishes				
Gulf Sturgeon	*Acipenser oxyrhynchus desotoi*	T	Flagler, Miami-Dade	
Shortnose Sturgeon	*Acipenser brevirostrum*	E	Duval	
Smalltooth sawfish	*Pristis pectinata*	E	Indian River, St. Lucie, Palm Beach, Broward, Miami-Dade	
Reptiles				
American Crocodile	*Crocodylus acutus*	T	Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Mangrove, Seagrass
American Alligator	*Alligator mississippiensis*	T	St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	
Atlantic Salt Marsh Snake	*Nerodia clarkii (=fasciata)taeniata*	T	Volusia, Brevard, Indian River	Saltmarsh
Eastern Indigo Snake	*Drymarchon corais couperi*	T	Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	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
Green Sea Turtle	*Chelonia mydas*	E	Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Beach dune/Coastal strand, Seagrass, Nearshore reef
Hawksbill Sea Turtle	*Eretmochelys imbricata*	E	Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Beach dune/Coastal strand, Seagrass, Nearshore reef
Kemp's ridley Sea Turtle	*Lepidochelys kempii*	E	Duval, St. Johns, Flagler, Volusia, Brevard	
Leatherback Sea Turtle	*Dermochelys coriacea*	E	Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Beach dune/Coastal strand, Seagrass, Nearshore reef

Exhibit 3.5 – *Federally-Listed Endangered and Threatened Species Potentially Occurring in the Study Area (Continued)*

Species	Scientific Name	Status	County	Habitat
Loggerhead Sea Turtle	*Caretta caretta*	T	Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	Beach dune/Coastal strand, Seagrass, Nearshore reef
Amphibians				
Flatwoods salamander	*Ambystoma cingulatum*	T	Duval	
Plants				
Beach jacquemontia	*Jacquemontia reclinata*	E	Martin, Palm Beach, Broward, Miami-Dade	
Carter's Mustard	*Warea carteri*	E	Brevard, Miami-Dade	
Crenulate lead-plant	*Amorpha crenulata*	E	Miami-Dade	
Deltoid spurge	*Chamaesyce deltoidea deltoidea*	E	Miami-Dade	
Florida perforate cladonia	*Cladonia perforata*	E	Martin, Palm Beach	
Four-petal pawpaw	*Asimina tetramera*	E	Martin	
Fragrant prickly-apple	*Cereus eriophorus var. fragrans*	E	Indian River, St. Lucie	
Garber's spurge	*Chamaesyce garberi*	T	Miami-Dade	
Johnson's seagrass	*Halophila johnsonii*	T	Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	
Lakela's mint	*Dicerandra immaculata*	E	Indian River, St. Lucie, Martin	
Okeechobee gourd	*Cucurbita okeechobeensis ssp. okeechobeensis*	E	Volusia, Palm Beach, Broward, Miami-Dade	
Rugel's Pawpaw	*Deeringothamus rugelii*	E	Volusia	
Small's Milkpea	*Galactia smallii*	E	Miami-Dade	
Tiny polygala	*Polygala smallii*	E	Indian River, St. Lucie, Martin, Palm Beach, Broward, Miami-Dade	

Source: *USFWS North Florida Field Office, Federally Listed Species by County, June 2007: USFWS South Florida Ecological Services Office, Federally Listed Species by County, February 2008.*

threatened, or commercially exploited are administered and maintained by the Florida Department of Agriculture and Consumer Services (FDA) via Chapter 5B-40, F.A.C.

A state endangered species is defined as 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.

A state 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.

A state 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.

USFWS has designated portions of the study area as consultation areas for the Manatee, Piping Plover, Red-cockaded Woodpecker, Johnson Seagrass, Scrub-Jay, Wood Stork, and the Snail-Kite. The Manatee, Wood Stork and Piping Plover consultation areas are found throughout the entire study area. The Scrub-Jay and Red-cockaded Woodpecker consultation areas are primarily found in Brevard County and the Snail-Kite consultation areas are primarily found in St. Lucie County. The Johnson Seagrass consultation area is found in Martin County.

Consultation with the FWC and the FDA would be completed to determine state-listed endangered, threatened, or species of concern which may potentially occur in the study area.

The No-build Alternative and the Build Alternatives are not anticipated to impact USFWS-listed threatened or endangered species.

No impacts are anticipated to federal or state listed threatened or endangered species as a result of the project; however, as part of the ETDM process and project-level NEPA, additional analysis and coordination would occur as appropriate. If permitting is required, agency coordination would take place at the project-level analysis stage.

3.2.9 Essential Fish Habitat

Essential fish habitat (EFH) is defined in the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801-1884) as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." "Waters" refers to the physical, chemical, and biological properties of aquatic areas currently or historically used by fish. "Substrate" refers

to sediment, hard bottom, or other underwater structures and their biological communities. The term "necessary" indicates that the habitat is required to sustain the fishery and support the fish species' contribution to a healthy ecosystem. These regulatory requirements are intended to minimize, to the extent practicable, adverse effects on habitat caused by fishing or other non-fishing activities, and to identify other actions to encourage the conservation and enhancement of EFH.

According to the South Atlantic Fishery Management Council, EFH is found throughout portions of the study area for the following species (exhibit 3.6) (SAFMC, 2009):

- Snapper Grouper Complex – includes 21 species of sea bass and groupers (family *Serranidae*), the wreckfish *(Polyprion americanus)*,

Exhibit 3.6 – *Essential Fish Habitat along the Mainline*

County	Habitat	Essential Fish Habitat
St. Johns		
	Estuarine emergent wetlands	Snapper Grouper complex; Shrimp
Volusia		
	Tomoka River	Snapper Grouper complex; Shrimp
	Estuarine emergent wetlands	Snapper Grouper complex; Shrimp; Spiny Lobster
	Spruce Creek	Spiny Lobster; Shrimp
Brevard		
	Estuarine emergent wetlands	Snapper Grouper complex; Shrimp; Spiny Lobster
	Melbourne Harbor	Snapper Grouper complex; Shrimp; Spiny Lobster
St. Lucie		
	Fort Pierce Harbor	Snapper Grouper complex; Shrimp; Spiny Lobster
Martin		
	St. Lucie Canal	Snapper Grouper complex; Spiny Lobster
Palm Beach		
	Loxahatchee River	Snapper Grouper complex; Shrimp; Spiny Lobster
	Estuarine emergent wetlands	Snapper Grouper complex; Shrimp; Spiny Lobster
	Hard-bottom shallow waters	Snapper Grouper complex; Shrimp; Spiny Lobster
Broward		
	Hillsboro Canal	Snapper Grouper complex; Shrimp; Spiny Lobster
	Estuarine emergent wetlands	Snapper Grouper complex; Shrimp; Spiny Lobster
	New River	Snapper Grouper complex; Spiny Lobster
	Dania Cut-Off Canal	Snapper Grouper complex; Shrimp; Spiny Lobster
Miami-Dade		
	Estuarine emergent wetlands	Snapper Grouper complex; Shrimp; Spiny Lobster
	Atlantic coastal waters	Snapper Grouper complex; Spiny Lobster

14 species of snappers (family *Lutjanidae*), nine species of porgies (family *Sparidae*), 11 species of grunts (family *Haemulidae*), eight species of jacks (family *Carangidae*), three species of tilefishes (family *Malacanthidae*), three species of triggerfishes (family *Balistidae*), two species of wrasses (family *Labridae*), and the Atlantic spadefish *(Chaetodipterus faber)*.

- 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)*

The proposed stations and the adjoining areas in St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, and Stuart do not contain EFH.

The No-build Alternative would not impact EFH. Ongoing coordination efforts with NMFS would continue to Avoid or minimize potential impacts to EFH during project-level NEPA.

3.3 Atmospheric Environment

3.3.1 Air Quality

Transportation sources that use fossil fuels for power produce pollutants. The primary mode of transportation in the study area is the personal automobile and the FEC freight trains. A project that affects overall VMT or changes the distribution of trips by mode would affect fuel use and the amount of pollutants emitted.

The EPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), particulate matter (PM), and sulfur dioxide (SO_2) (exhibit 3.7). Primary standards set emission limits to protect public health, and secondary standards to protect public welfare. Transportation sources, particularly motor vehicles, are the primary source of CO, oxides of nitrogen (NO_x), and hydrocarbons (also referred to as volatile organic compounds or VOC). In the presence of heat and sunlight, NO_x and VOC chemically react to form O_3. Particulate matter and SO_2 are primarily emitted from stationary sources that burn fossil fuels (e.g., power plants).

Exhibit 3.7 – *National Ambient Air Quality Standards*

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
CO	9 ppm (10 mg/m^3) 35 ppm (40 mg/m^3)	8-hour 1-hour	None	
Lead (Pb)	0.15 µg/m^3 1.5 µg/m^3	Rolling 3-Month Average Quarterly Average	Same as Primary Same as Primary	
NO_2	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM_{10})	150 µg/m^3	24-hour	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3 35 µg/m^3	Annual (Arithmetic Mean) 24-hour	Same as Primary Same as Primary	
O_3	0.075 ppm (2008 std) 0.08 ppm (1997 std) 0.12 ppm	8-hour 8-hour 1-hour	Same as Primary Same as Primary Same as Primary	
SO_2	0.03 ppm 0.14 ppm	Annual (Arithmetic Mean) 24-hour	0.5ppm (1300 µg/m^3)	3-hour

Source: *http://www.epa.gov/air/criteria.html.*

All areas of the U.S. have been assigned a designation to comply with the NAAQS. Based on air quality monitoring data, an area that has not shown a violation of the NAAQS is designated as "in attainment." An area that has shown a violation of the NAAQS may be designated as "non-attainment." Areas that were designated non-attainment subsequent to the Clean Air Act Amendments of 1990 (CAAA), but have since been re-designated as in attainment by the EPA, are referred to as "maintenance areas". All counties within the study area are designated as in attainment of the NAAQS (EPA, 2009).

The No-build Alternative would not impact air quality.

The Build Alternatives, with an increased number of train trips per day, would result in a negligible increase in air emissions. The Build Alternatives are not anticipated to have a significant adverse impact to current or future air quality standards along the east coast of Florida.

3.3.2 Noise

Noise is typically defined as unwanted or undesirable sound, where sound is characterized by small air pressure fluctuations above or below the atmospheric pressure. The basic parameters of noise that affect human subjective response are: (1) intensity or level; (2) frequency content; and (3) variation with time. Intensity or level of noise is determined by how great the sound pressure fluctuates above or below the atmospheric pressure, and is expressed on a compressed scale in units of decibels. By using this scale, the

range of normally encountered sound can be expressed by values between 0 and 120 decibels. On a relative basis, a 3-decibel change in sound level generally represents change which is barely perceptible to the human ear, whereas a 10-decibel change in sound level would typically be perceived as a doubling (or halving) in the loudness of a sound.

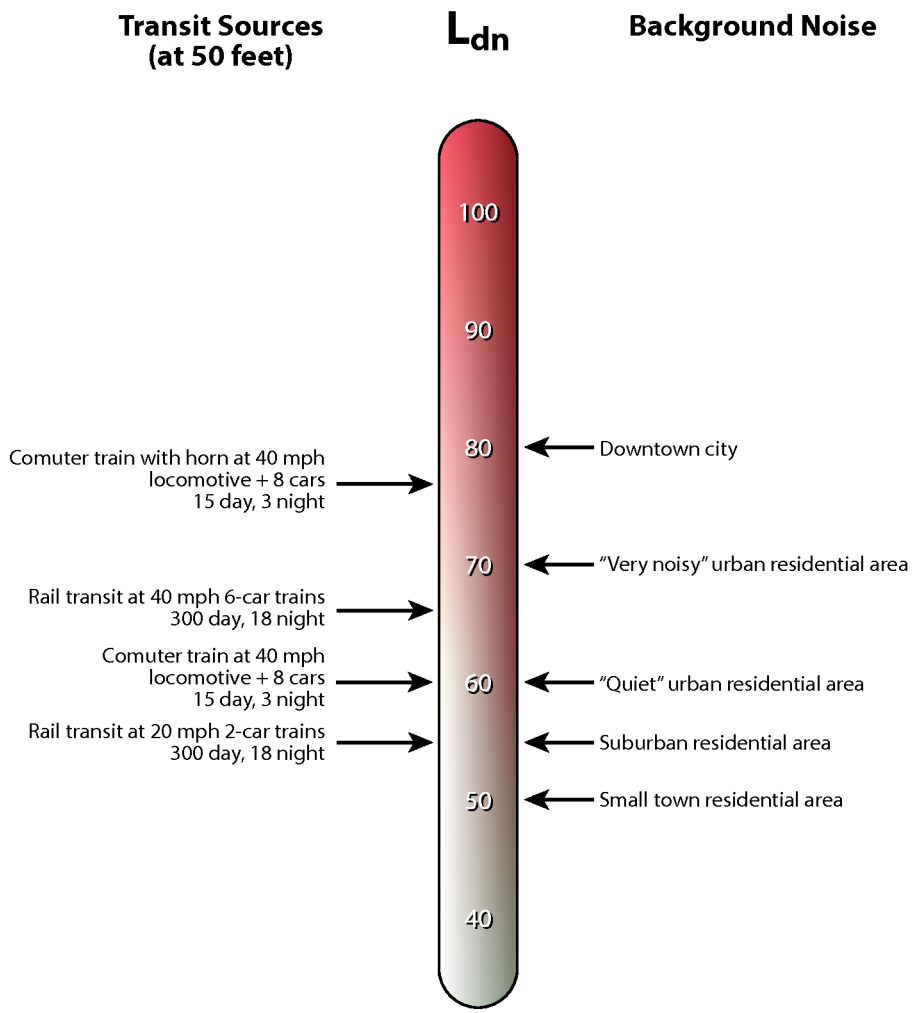
The frequency content of noise is related to the tone or pitch of the sound, and is expressed based on the rate of the air pressure fluctuation in terms of cycles per second, called Hertz (Hz). The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. However, because the sensitivity of human hearing varies with frequency, the A-weighting system is commonly used when measuring environmental noise to provide a single number descriptor that correlates with human subjective response. Sound levels measured using this weighting system are called "A-weighted" sound levels (dBA). The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise.

Because noise fluctuates over time, it is common practice to condense this information into a single number called the "equivalent" sound level (L_{eq}). L_{eq} can be thought of as the steady sound level that represents the same sound energy as the varying sound levels experienced over a specified time period (typically 1 hour or 24 hours). Often the L_{eq} values over a 24-hour period are used to calculate cumulative noise exposure in terms of the Day-Night Sound Level (L_{dn}). L_{dn} is the A-weighed L_{eq} for a 24-hour period with an added 10-decibel penalty imposed on noise that occurs during the night-time hours (between 10 PM and 7 AM). Many surveys have shown that L_{dn} is well correlated with human annoyance and this descriptor is widely used for noise impact assessment (exhibit 3.8). While the extremes of L_{dn} range from 50 dBA in a small residential environment to 80 dBA in noisy urban environments, L_{dn} is generally found to range between 55 dBA and 75 dBA in most communities.

The noise criteria and descriptors used to determine impact assessment depend on land use (exhibit 3.9). Residences are in Land Use Category 2. Category 2 includes buildings where people normally sleep (e.g., residences, hospitals); nighttime sensitivity to noise is of utmost importance.

The noise metric used for Category 2 land use is the L_{dn}, the day-night sound level. The L_{dn} descriptor is commonly used to determine the cumulative noise impact for residential land uses. L_{dn} is defined as the cumulative

Exhibit 3.8 – *Typical Transit and Background L_{dn} Sound Levels*



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

Exhibit 3.9 – *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 and such land uses as outdoor theater and concert pavilions.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This category includes homes, hospitals and hotels where a nighttime sensitivity to noise is assumed to be 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 also included.

Note: *L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.*

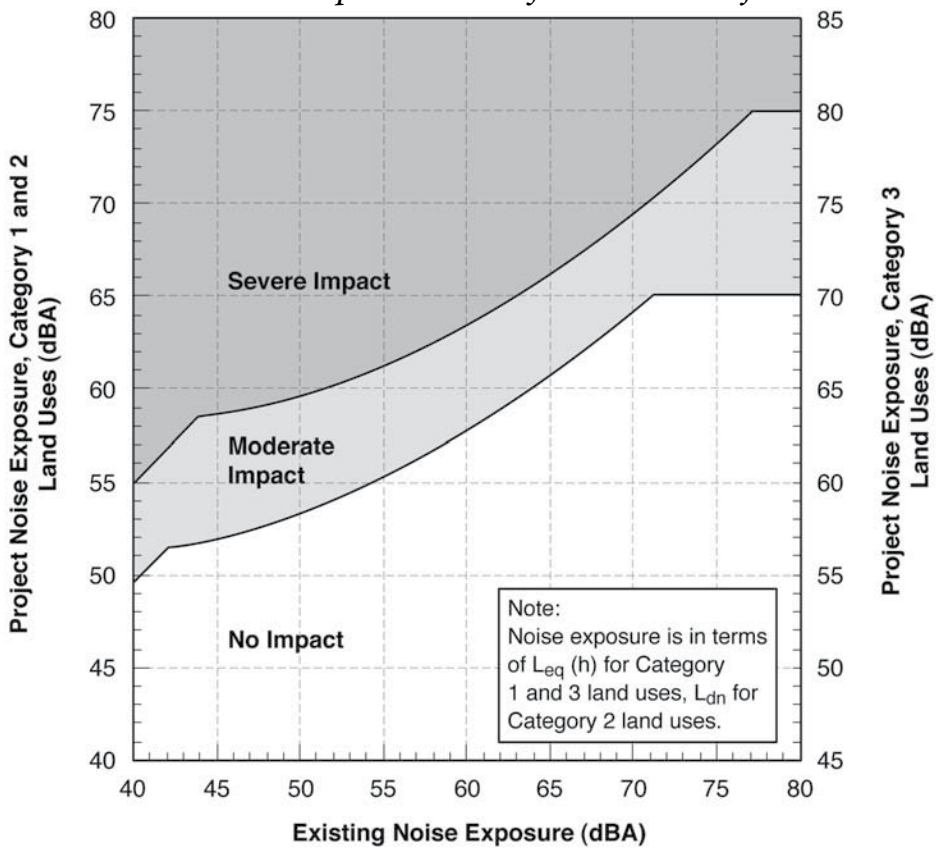
Source: *Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006*

24-hour noise exposure that accounts for the moment to moment fluctuations in A-weighted levels from all sound sources during a 24-hour period.

The L_{dn} is the descriptor of choice because it correlates well with surveys measuring the public attitude towards noise impacts, increases with the duration of transit events, and considers the number of transit events over a full day. The L_{dn} accounts for increased sensitivity to noise at night by increasing nighttime noise (between 10:00 PM and 7:00 AM) by 10 decibels before totaling.

The FTA Noise Impact Criteria define the severity of impact for various noise exposure levels for Category 2 land uses (exhibit 3.10 and 3.11). 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 3.10 – *Noise Impact Criteria for Transit Projects*



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

Exhibit 3.11 – *Noise Levels Defining Impact for Transit Projects*

Existing Noise Exposure* $L_{eq}(h)$ or L_{dn} (dBA)	Project Noise Impact Exposure,* Leq(h) or Ldn (dBA)					
	Category 1 or 2 Sites			Category 3 Sites		
	No Impact	Moderate Impact	Severe Impact	No Impact	Moderate Impact	Severe Impact
<43	< Ambient+10	Ambient + 10 to 15	>Ambient+15	<Ambient+15	Ambient + 15 to 20	>Ambient+20
43	<52	52-58	>58	<57	57-63	>63
44	<52	52-58	>58	<57	57-63	>63
45	<52	52-58	>58	<57	57-63	>63
46	<53	53-59	>59	<58	58-64	>64
47	<53	53-59	>59	<58	58-64	>64
48	<53	53-59	>59	<58	58-64	>64
49	<54	54-59	>59	<59	59-64	>64
50	<54	54-59	>59	<59	59-64	>64
51	<54	54-60	>60	<59	59-65	>65
52	<55	55-60	>60	<60	60-65	>65
53	<55	55-60	>60	<60	60-65	>65
54	<55	55-61	>61	<60	60-66	>66
55	<56	56-61	>61	<61	61-66	>66
56	<56	56-62	>62	<61	61-67	>67
57	<57	57-62	>62	<62	62-67	>67
58	<57	57-62	>62	<62	62-67	>67
59	<58	58-63	>63	<63	63-68	>68
60	<58	58-63	>63	<63	63-68	>68
61	<59	59-64	>64	<64	64-69	>69
62	<59	59-64	>64	<64	64-69	>69
63	<60	60-65	>65	<65	65-70	>70
64	<61	61-65	>65	<66	66-70	>70
65	<61	61-66	>66	<66	66-71	>71
66	<62	62-67	>67	<67	67-72	>72
67	<63	63-67	>67	<68	68-72	>72
68	<63	63-68	>68	<68	68-73	>73
69	<64	64-69	>69	<69	69-74	>74
70	<65	65-69	>69	<70	70-74	>74
71	<66	66-70	>70	<71	71-75	>75
72	<66	66-71	>71	<71	71-76	>76
73	<66	66-71	>71	<71	71-76	>76
74	<66	66-72	>72	<71	71-77	>77
75	<66	66-73	>73	<71	71-78	>78
76	<66	66-74	>74	<71	71-79	>79
77	<66	66-74	>74	<71	71-79	>79
>77	<66	66-75	>75	<71	71-80	>80

** L_{dn} is used for land use where nighttime sensitivity is a factor;*
L_{eq} during the hour of maximum transit noise exposure is used for land use involving only daytime activities.

The FRA recommends using a screening procedure to determine the likelihood of a noise impact. The areas defined by the screening distances are meant to be sufficiently large to encompass potentially impacted locations. The FTA screening distance is 750 feet for an area with unobstructed line of sight to the rail project and the screening distance is 1,600 feet for grade crossings where the train would blow the horn as a safety measure.

There are significant sources of existing noise along the mainline from FEC operations. The FEC Railway is primarily used for heavy freight transport and long train consists which make the existing conditions the dominant vibration source. The heavy freight operations typically consist of eighteen trains per day.

Nine 24-hour measurements conducted for the SFECCTA study were used as the baseline for this project. Nine additional measurements were taken (exhibit 3.12). Three 24-hour noise measurements were taken in Palm Beach, Broward, and Miami-Dade Counties on different land uses to provide an evaluation of the background baseline sound levels.

The No-build Alternative would not impact noise.

The future noise levels with the Build Alternatives were predicted based on the proposed gas turbine train technologies and the following assumptions:

- One power car and eight passenger cars
- Two additional roundtrips per day
- Operating period is between 7:00 AM and 10:00 PM
- Maximum train speed of 90 mph
- Train speed approaching the station is 10 mph
- Train would sound its horn at all grade crossings and no quiet zones exist

The future noise impacts distances were calculated for the Build Alternatives with and without the horn at grade crossings and at stations (exhibit 3.13).

The distances for moderate and severe noise impacts are within the existing FEC Railway ROW; the Build Alternatives would result in no moderate or severe noise impacts when the trains are operating on the mainline or near

Exhibit 3.12 – *Summary of Existing Sound Levels within the FEC Railway*

County	Location	L_{dn} (dBA)
Palm Beach	Intersection of Lakeview Ave and Alabama Ave	81
Palm Beach	502 Park Place	75
Palm Beach	591 Valley Forge Rd	80
Broward	Hardy Park	79
Broward	130 W. Broward Blvd.	75
Broward	210 SW 11th Ct	79
Miami-Dade	19392 W. Dixie Hwy	78
Miami-Dade	NE 101 St and Park Drive	77
Miami-Dade	9076 NE 4th Ave	75

Exhibit 3.13 – *Summary of Noise Impact Distances (feet)*

Land Use	Service without Horn (Speed 90 mph)		Service with Horn (Speed 90 mph)		At stations (Speed 10 mph)	
	Severe	moderate	Severe	moderate	Severe	moderate
Quiet Outdoors	3	12	20	91	4	16
Residential	2	9	14	66	3	12
Institutional	1	6	9	42	2	8

stations. When the trains approach grade crossings and blow the horn, there is a potential for moderate impacts to land uses with nighttime sensitivity (e.g., houses, hotels, hospitals) and land uses where quiet is important (e.g., meditation places). The potential area of moderate impacts, measured from the FEC Railway centerline, is 66 feet for land uses with nighttime sensitivity and 91 feet for land uses where quiet is important. As a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed.

3.3.3 Vibration

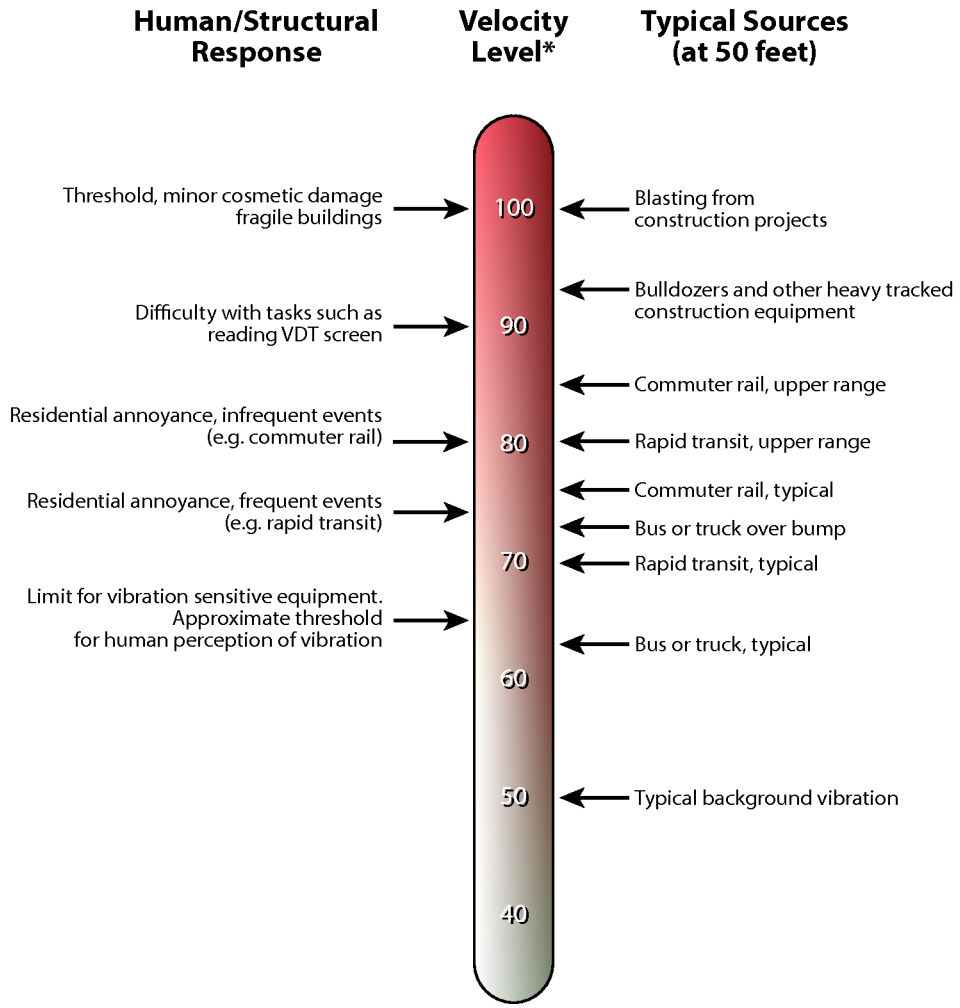
Ground-borne vibration is the oscillatory motion of the ground surrounding some equilibrium position described in terms of displacement, velocity, or acceleration. Because sensitivity to vibration typically corresponds to the amplitude of vibration velocity within the low-frequency range of most concern for environmental vibration (roughly 5-100 Hz), velocity is the preferred measure for evaluating ground-borne vibration from rail projects.

Vibration consists of rapidly fluctuating motions with an average motion of zero. Several descriptors can be used to quantify vibration amplitude. The most common measure used to quantify vibration amplitude is the peak particle velocity (PPV), defined as the maximum instantaneous peak of the vibratory motion. PPV is typically used in monitoring blasting and other types of construction-generated vibration, since it is related to the stresses experienced by buildings. Although PPV is appropriate for evaluating building damage, it is less suitable for evaluating human response, which is better related to the average vibration amplitude. In a sense, the human body responds to average vibration amplitude. Because the net average of a vibration signal is zero, the root mean square (rms) vibration velocity level, in decibels (VdB), 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} in/sec.). This is not a universally accepted notation; it is used to reduce the confusion with sound decibels.

Typical ground-borne vibration levels for common sources, as well as criteria for human and structural response to ground-borne vibration, range from approximately 50 to 100 VdB (exhibit 3.14). Although the approximate threshold of human perception to vibration is 65 VdB, annoyance is usually not significant unless the vibration exceeds 70 VdB.

Exhibit 3.14 – *Typical Ground-Borne Vibration Levels*



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

The FRA ground-borne vibration impact criteria are based on land use and train frequency (exhibit 3.15). Vibration sensitive receptors are classified in three categories:

Exhibit 3.15 – *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 w ill 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 sti ffened floors.
5 Vibration-sensitive equipment is not sensitive to ground-borne noise.

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

- 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.

There are some buildings, such as concert halls, recording studios, and theaters, which can be very sensitive to vibration, but do not fit into the three categories (exhibit 3.16). Due to the sensitivity of these buildings, they usually warrant special attention during the assessment of a rail project.

The FRA recommends the following screening procedure to determine if there is a likelihood of vibration impact from a project (exhibit 3.17).

The FRA guidelines require a screening distance of 200 feet for evaluation of Category 2 receivers. This means, in the absence of measurements or in-

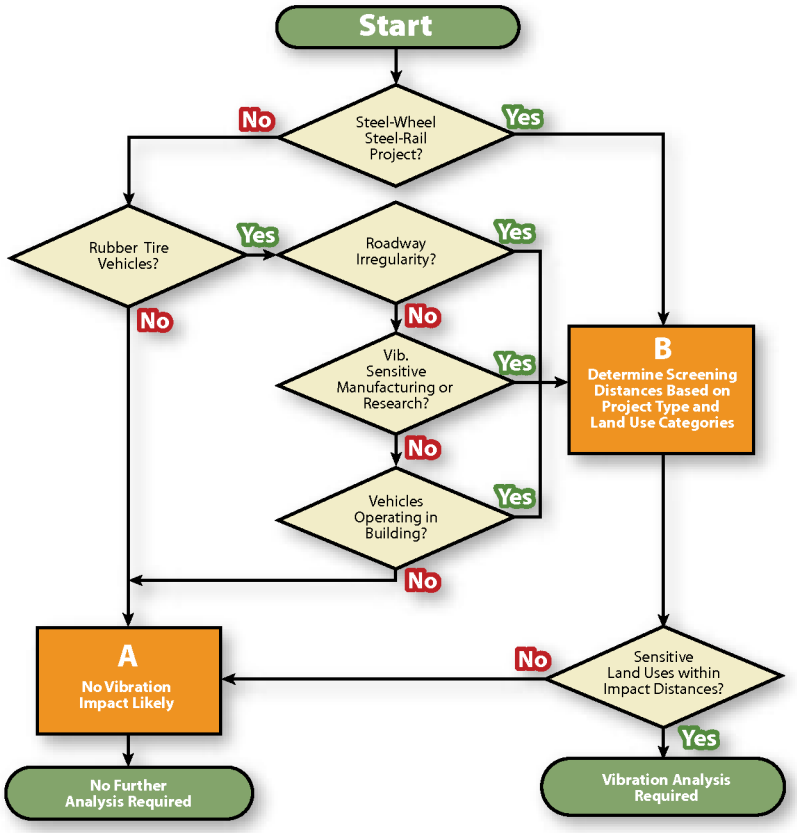
Exhibit 3.16 – *Ground-Borne Vibration and Noise Impact Criteria for Special Buildings*

Type of Building or Room	Ground-Borne Vibration Impact Levels	(Vdb Re 1 Micro-Inch/Sec)
	Frequent Events[1]	Occasional or Infrequent Events[2]
Concert Halls	65 VdB	65 VdB
TV Studios	65 VdB	65 VdB
Recording Studios	65 VdB	65 VdB
Auditoriums	72 VdB	80 VdB
Theaters	72 VdB	80 VdB

Notes:
1 "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
2 "Occasional or Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
3 If the building would rarely be occupied when the trains are operating, there is no need to consider impact. As an example consider locating a commuter rail line next to a concert hall. If no commuter trains would operate after 7 pm, it should be rare that the trains interfere with the use of the hall.

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

Exhibit 3.17 – *Flow Chart of Vibration Screening Process*



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

situ testing, that vibration levels beyond 200 feet from the track would not cause an impact to residences. For the Florida East Coast Amtrak Service Project, residences exist within 200 feet and may be susceptible to vibration impacts. Sources of existing ground-borne vibration in the study area are the FEC Railway and Amtrak trains. In-situ testing of both train operations on the FEC has been conducted to assess vibration levels caused by commuter and freight trains. Existing vibration levels were measured and used as a baseline to predict future vibration levels.

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. The heavy freight operations typically include eighteen trains per day (exhibit 3.18). The FEC Railway heavy freight operations were measured and found to produce vibration levels of approximately 95 VdB at 130 feet from the track.

The No-build Alternative would not impact vibration.

The Build Alternatives are not anticipated to impact vibration. The median vibration level (VdB) at each distance measured decreases as distance increases (exhibit 3.19).

No significant noise and vibration impacts are anticipated as a result of the project; however, as part of the ETDM process and project-level NEPA, additional analysis and coordination would occur as appropriate.

The FTA vibration level for infrequent operations and residential receivers is 80 VdB. Measurements indicate that Amtrak service results in vibration levels of 80 VdB within approximately 130 feet of the track. Beyond this distance, the vibration levels are lower than 80 VdB and do not cause

Exhibit 3.18 – *Heavy Freight Vibration Levels within the FEC corridor*

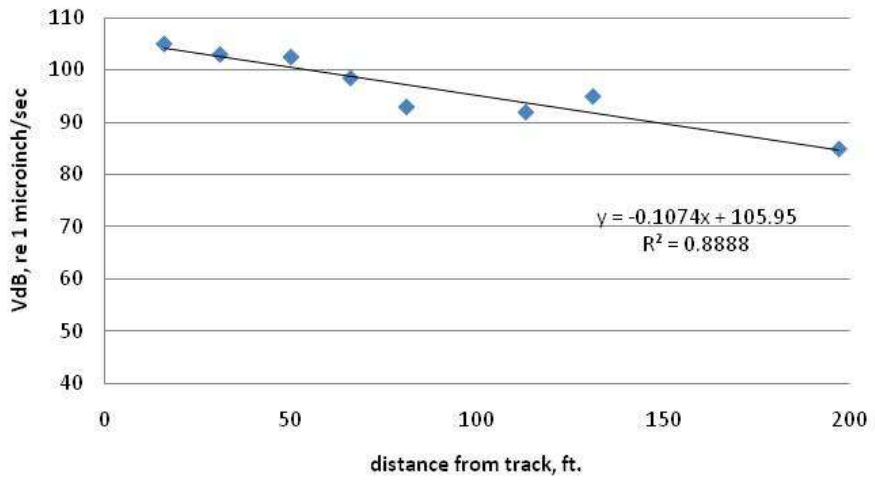
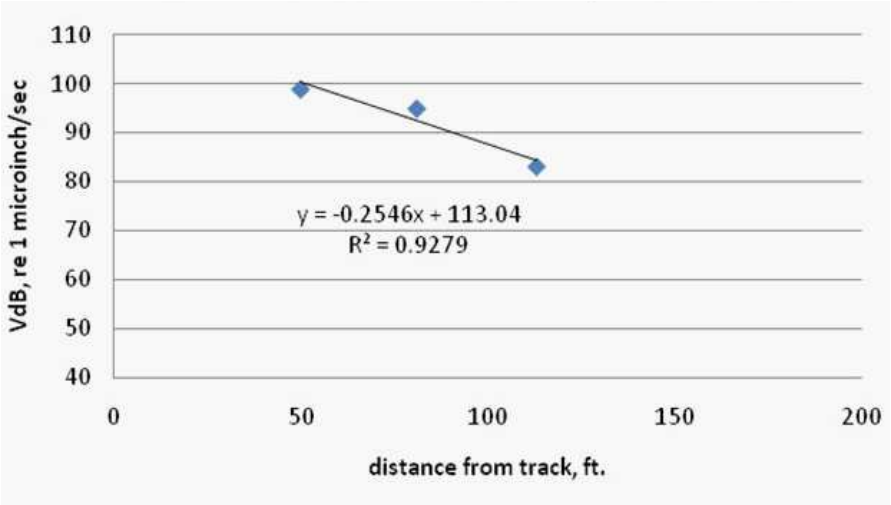


Exhibit 3.19 – *Amtrak Rail Operations Vibration Levels*



a residential impact. According to the FTA guidelines, the criteria is based on a speed of 50 mph and a speed correction to 90 mph results in a 5 VdB increase in the baseline vibration level to 85 VdB at 130 feet.

The additional passenger service was compared to the existing conditions on the FEC Railway. The proposed passenger service is short duration and less impact than freight operations. Heavy freight operations produce vibration levels of approximately 95 VdB at 130 feet from the track. The FTA guidelines state, if new passenger service is predicted to be 5 VdB below existing levels, there is no impact from the new service. As the freight rail operations generate vibration levels 10 VdB higher than the proposed service, the build alternatives would not result in vibration impacts. As a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed.

3.4 Social Environment

3.4.1 Land Use, Zoning and Property Acquisition

3.4.1.1 Existing Land Use

The most common land use in the study area is retail/office (exhibit 3.20). Retail/office land use comprises about 16 percent of the total land in the study area. Palm Beach, Broward, and Miami-Dade Counties contain the largest percentages of retail/office land in the study area with about 31 percent, 22 percent, and 16 percent, respectively.

Approximately 2,079 acres (15 percent) of the study area along the FEC Railway are classified as residential. Palm Beach County counts for approximately 30 percent of the residential in the study area, followed by Brevard County with 15 percent.

Exhibit 3.20 – *Land Use Along the FEC Mainline*

Land Use	Duval (ac.)	St. Johns (ac.)	Flagler (ac.)	Volusia (ac.)	Brevard (ac.)	Indian River (ac.)	St. Lucie (ac.)	Martin (ac.)	Palm Beach (ac.)	Broward (ac.)	Miami-Dade (ac.)
Agriculture/Forested	52	317	409	111	41	23	0	3	136	25	11
Industrial	111	30	42	177	225	120	14	65	138	51	31
Institutional	4	6	1	5	63	9	23	11	27	18	4
Public/Semi-Public	52	167	15	283	305	71	82	133	21	21	12
Recreation	3	0	1	37	4	38	103	204	75	8	43
Residential	68	103	32	230	301	67	271	115	634	117	141
Retail/Office	92	26	25	112	263	101	31	78	729	520	379
ROW	2	35	0	1	3	6	9	13			
Vacant Nonresidential	57	54	38	187	394	159	35	41			
Vacant Residential	7	47	30	138	201	21	95	30			
Water	0	3	0	2	0	0	0	3	40	10	43
Other	15	119	20	106	1148	0	219	26	425	434	73
Undetermined	135	799	5	285	16	7	118	4			
TOTAL	***599***	***1,704***	***618***	***1,676***	***2,965***	***622***	***999***	***727***	***2,225***	***1,204***	***737***

Public/semi-public land accounts for about eight percent of the study area. St. Johns, Volusia, and Brevard Counties contain the largest percentages of public/semi-public land in the study area with about 16 percent, 24 percent, and 26 percent, respectively.

Approximately eight percent of the study area is classified as agriculture or forested. St. Johns, Flagler, and Volusia Counties contain approximately 75 percent of the agriculture/forested area in the study area.

Vacant residential and vacant nonresidential land comprise about six and ten percent of the study area, respectively. Vacant nonresidential includes vacant parcels that are considered institutional, industrial, or commercial. Volusia and Brevard Counties contain about 60 percent of the vacant residential and vacant nonresidential land in the study area.

Approximately seven percent of the study area is used for industrial purposes. Volusia and Brevard Counties contain more than 40 percent of the industrial acreage in the study area.

About four percent of the land in the study area is used for recreation. Approximately 40 percent of this land is in Martin County. Another 20 percent is in St. Lucie County.

Institutional and ROW land uses each only comprise about one percent of the land in the study area. ROW includes streets, roads, and canals. Brevard

County contains about 50 percent of the institutional acreage and St. Johns contains about 51 percent of the ROW acreage in the study area.

There are 101 acres of land covered by water in the study area. This accounts for less than one percent of the total area.

Land use within 500 feet of the proposed stations was summarized (exhibit 3.21). The most common land use in this study area is public/semi-public. This land use comprises approximately 21 percent of the total area surrounding the proposed stations. The study area around the St. Augustine, Vero Beach, and Fort Pierce locations contains the most public/semi-public

Exhibit 3.21 – *Land Use within 500 feet of the proposed stations (Acres)*

Proposed Station Sites	Land Use											
	Industrial	Institutional	Public/Semi-Public	Recreation	Residential	Retail/Office	ROW	Vacant Nonresidential	Vacant Residential	Other	Undetermined	Total
St. Augustine												
Site 1 (US 1@ San Marco Ave)	0	0	0	0	0	0	0	5	0	10	3	18
Site 2 (US 1 @ Carrera St)	0	0	0	0	2	3	0	0	0	8	5	18
Site 3 (St. Augustine/St Johns County Airport)	0	0	9	0	0	0	0	4	0	0	5	18
Daytona Beach												
Site 1 (Magnolia Ave)	7	0	3	0	0	5	0	3	0	0	0	18
Site 2 (Orange Ave)	4	3	2	0	0	4	0	3	0	0	2	18
Site 3 (Live Oak Ave)	5	0	0	2	4	0	0	4	1	0	2	18
Site 4 (Intl Speedway Blvd)	3	0	5	0	0	6	0	0	0	0	4	18
Cocoa												
Site 1 (Julia St)	0	0	3	0	2	5	0	3	2	3	0	18
Site 2 (Space Center Executive Airport)	1	0	7	0	0	6	0	0	0	4	0	18
Melbourne												
Site 1 (Melbourne Intl Airport)	2	0	8	0	2	0	0	3	0	3	0	18
Site 2 (Prospect Ave)	0	3	0	0	6	4	0	5	0	0	0	18
Vero Beach												
Site 1 (19th Place)	1	0	7	0	0	5	0	0	0	0	5	18
Site 2 (20th Place)	5	0	3	0	0	5	0	2	0	0	3	18
Ft. Pierce												
Site 1 (Orange Ave)	0	0	6	0	0	6	0	2	0	3	1	18
Site 2 (Avenue A)	2	0	5	0	0	7	0	0	0	2	2	18
Stuart												
Ocean Blvd	2	0	6	0	0	5	0	0	0	0	5	18

land. These sites are surrounded by ten acres, nine acres and nine acres of public/semi-public land, respectively.

Retail/office is the second most common land use in the study. It comprises about 19 percent of the land surrounding the proposed stations. The proposed stations in Daytona Beach and Ft. Pierce are surrounded by the largest amount of retail/office land with 11 and ten acres, respectively.

Approximately 11 percent of the land in the study area surrounding the proposed stations is vacant nonresidential. Another one percent of this land is vacant residential. The study area surrounding the proposed stations in St. Augustine and Daytona Beach contains the largest amount of vacant nonresidential land with nine and ten acres, respectively. The proposed stations in Daytona Beach and Cocoa are each surrounded by one acre of vacant residential land. These are the only proposed stations surrounded by vacant residential land in the study area.

Approximately ten percent of the study area acreage surrounding the proposed stations is industrial. The proposed station location in Daytona Beach is surrounded by the most industrial land (15 acres) in the study area.

Six percent of the study area surrounding the proposed stations is residential. The proposed locations in Daytona Beach and Melbourne are surrounded by the most residential land. The study area around the proposed station location in Daytona Beach contains four acres of residential land and the study area around the proposed station location in Melbourne contains five acres of residential land.

Institutional and recreation land uses each only comprise about one percent of the study area that surrounds the proposed stations. The proposed station location in Melbourne is surrounded by one acre of institutional land. The proposed station location in Daytona is surrounded by one acre of institutional land and one acre of recreation land. The proposed station location in Daytona Beach is the only location in the study area surrounded by recreation land.

There is no land covered by water in the study area surrounding the proposed stations.

Land use planning and growth management are coordinated among counties through regional planning councils. The regional planning councils in the study area are:

- Northeast Florida Regional Planning Council – includes Duval, St. Johns and Flagler Counties
- East Central Florida Regional Planning Council – includes Volusia and Brevard Counties
- Treasure Coast Regional Planning Council – includes Indian River, St. Lucie, Martin and Palm Beach Counties
- South Florida Regional Planning Council – includes Broward and Miami-Dade Counties

Each of these councils is required to prepare a Strategic Regional Policy Plan which sets broad goals and policies for five regional topics of concern: affordable housing, economic development, emergency preparedness, natural resources of regional significance, and regional transportation.

The No-build alternative would not impact existing land use.

The Build Alternatives would impact land use. The proposed crossovers at Northwood and 71st Street may require approximately 12 displacements, respectively. The proposed stations consist primarily of infill development on previously disturbed areas adjacent to existing railways. Over time, additional transit-oriented development may develop in proximity to the proposed stations. Overall, the Build Alternatives would benefit residents by providing additional inter-city transportation service to popular destinations along the east coast of Florida.

3.4.1.2 Future Land Use

The most common future land uses in the study area include single family residential and commercial. Each comprise about a quarter of the total acreage, accounting for approximately 23 percent and 30 percent along the FEC Railway (exhibit 3.22).

Only ten percent of the land in the study area is for multi-family residential development. More than 90 percent of multi-family residential use occurs in Volusia, Palm Beach, and Miami-Dade Counties.

Approximately 15 percent of the land in the study area is for industrial purposes. Approximately 37 percent of this land is in Brevard County. Another 18 percent of this land is in Duval County.

Agriculture, preservation, and estate lands each comprise about seven percent of the acreage in the study area. Flagler County contains about 70 percent of the agricultural land in the study area. Volusia and Brevard Coun-

Exhibit 3.22 – *Future Land Use within 200 Feet of the Mainline by County*

Land Use	Duval (ac.)	St. Johns (ac.)	Flagler (ac.)	Volusia (ac.)	Brevard (ac.)	Indian River (ac.)	St. Lucie (ac.)	Martin (ac.)	Palm Beach (ac.)	Broward (ac.)	Miami-Dade (ac.)	All counties
Agriculture	105	35	889	0	51	7	5	0	109	57	4	1,262
Commercial	229	246	2	223	813	927	363	223	1310	424	182	4,942
Estate	0	614	3	37	0	0	303	146	0	0	0	1,104
Industrial	469	138	149	58	963	2	78	154	124	186	253	2,574
Multi-Family	25	70	0	466	197	22	3	116	345	323	175	1,742
Preserve	0	21	0	369	311	0	196	299	1	4	50	1,251
Single Family	70	578	111	993	995	74	116	283	321	181	75	3,797
Water Bodies	0	0	0	15	76	0	0	0	0	0	0	91
TOTAL	***898***	***1,704***	***1,154***	***2,161***	***3,407***	***1,031***	***1,063***	***1,221***	***2,210***	***1,175***	***739***	***16,763***

ties contain approximately half of the preservation lands in the study. More than half of the estate lands in the study are located in St. Johns County.

Water comprises about one percent of the acreage in the study area. Volusia and Brevard Counties are the only counties with acreage for water. These counties contain 15 acres and 76 acres of water, respectively.

Future land use within 500 feet of the proposed stations along the FEC Railway was summarized (exhibit 3.23). The majority (66 percent) of the land in the study area surrounding the proposed stations is commercial. Commercial acreage is generally evenly distributed across the proposed stations; however, the proposed stations surrounded by the most commercial land are those in Daytona Beach, Vero Beach, and Ft. Pierce.

Single family residential comprises about a quarter of the land in the study area surrounding the proposed stations. Proposed stations in St. Augustine, Daytona Beach, and Melbourne are surrounded by 35 acres, 30 acres, and 3

Exhibit 3.23 – *Future Land Use within 500 Feet of the Proposed stations*

Land Use	St. Augustine	Daytona	Cocoa	Melbourne	Vero Beach	Ft. Pierce	Stuart	All Stations
Commercial	13	35	29	19	36	36	18	186
Industrial	0	0	6	5	0	0	0	11
Multi-Family	1	3	1	8	0	0	0	14
Preserve	5	0	0	0	0	0	0	5
Single Family	35	30	0	3	0	0	0	68
TOTAL*	***54***	***68***	***36***	***36***	***36***	***36***	***18***	***284***

***Note:** *Stations are summed together*

acres of single family residential land, respectively. These are the only proposed stations in the study area surrounded by single family residential land.

Five percent of the land in the study area surrounding the proposed stations is for multi-family residential development. More than 60 percent of this land (eight acres) surrounds the proposed station location in Melbourne.

Land for industrial use and preservation comprise four and two percent of the land in the study area surrounding the proposed stations, respectively. Cocoa and Melbourne are the only proposed stations surrounded by industrial acreage with six and five acres, respectively. St. Augustine is the only proposed station location surrounded by preservation acreage. The study area contains a total of five acres of preservation lands.

Future land uses in the study area surrounding the proposed stations do not include agriculture, estate, or water bodies.

The No-build alternative would not impact future land use.

The Build Alternatives would impact land use as the proposed stations consist primarily of infill development on previously disturbed areas adjacent to existing railways. Over time, additional transit-oriented development may develop in proximity to the proposed stations.

3.4.2 Neighborhoods and Communities

There is a wide diversity of communities and neighborhoods along the FEC Railway (exhibits 3.24 and 3.25). Major cities along the corridor are St. Augustine, Daytona Beach, Titusville, Cocoa, Melbourne, Vero Beach, Fort Pierce, Stuart, West Palm Beach, Delray Beach, Deerfield Beach, Fort Lauderdale, and Hollywood.

In St. Johns and Flagler Counties, there is more open space with a number of smaller communities. In Volusia County, the FEC Railway is adjacent to many of Florida's famous beach resorts, including Ormond Beach, Daytona Beach and New Smyrna Beach. In Brevard County, development is concentrated near the coast and is closely tied to the Kennedy Space Center. The FEC Railway follows the shore of the Indian River and there is a wide

Exhibit 3.24 – *Population by County*

County	2000 Population	2008 Estimate	% Change
Duval	778,879	904,971	16%
St. Johns	123,135	181,180	47%
Flagler	49,832	95,512	91%
Volusia	443,343	510,750	15%
Brevard	476,230	556,213	17%
Indian River	112,947	141,667	25%
St. Lucie	192,695	276,585	43%
Martin	126,731	143,868	13%
Palm Beach	1,131,191	1,294,654	14%
Broward	1,623,018	1,758,494	8%
Miami-Dade	2,253,779	2,477,289	10%

Source: *Bureau of Economic and Business Research, University of Florida*

Exhibit 3.25 – *Population Centers*

Community	2000 Population	2008 Estimate	% Change
Jacksonville	753,617	859,421	14%
St. Augustine	11,592	13,874	20%
Daytona Beach	64,112	64,927	1%
Titusville	40,670	45,664	12%
Cocoa	16,412	16,971	3%
Melbourne	71,382	78,308	10%
Vero Beach	17,705	17,889	1%
Fort Pierce	37,516	44,227	18%
Stuart	14,633	16,577	13%
West Palm Beach	82,103	103,663	26%
Delray Beach	60,020	64,220	7%
Deerfield Beach	64,585	73,227	13%
Fort Lauderdale	152,397	180,400	18%
Hollywood	139,368	143,172	3%
Miami	362,470	406,242	12%

Source: *Bureau of Economic and Business Research, University of Florida*

range of communities, including the City of Titusville. This development continues south through Rockledge to the City of Melbourne. South of Melbourne, the FEC Railway travels along the coast, through Indian River, St. Lucie, and Martin Counties which progressively become more developed moving south. Further south, in Palm Beach, Broward and Miami-Dade Counties, development is even more intense. Hundreds of communities and neighborhoods are found along the southern end of the corridor, with less open space.

St. Augustine is situated approximately 35 miles south of Jacksonville and 45 miles north of Daytona Beach. Being the nation's oldest city, St. Augustine has a variety of cultural attractions including the Castillo de San Marcos, the St. Augustine Lighthouse and the St. Augustine Downtown Historic District home to several popular museums. St. Augustine is the county seat for Flagler County and is home to Flagler College.

Daytona Beach is the regional commercial and cultural hub of the Deltona-Daytona Beach-Ormond Beach Metropolitan Statistical Area of Volusia County. The city and its beaches, lined with hotels, motels, condominiums and houses, attract over 8 million tourists each year. Daytona Beach is home to the Daytona International Speedway, one of the world's finest racing facilities and the home of the world-famous Daytona 500. Daytona Beach is home to several colleges and universities such as Bethune-Cookman College, Daytona State College, Embry-Riddle Aeronautical University, Keiser College, Stetson University and the University of Central Florida at Daytona Beach.

Titusville is situated about 50 miles south of Daytona Beach. NASA's John F. Kennedy Space Center at Cape Canaveral is located about 5 miles east of Titusville. As such, many of Titusville's major employers are aerospace companies. Titusville is situated about 20 miles northwest of Port Canaveral, the

second busiest cruise port in the world. Titusville is also home to a campus of Brevard Community College.

Cocoa is located about 10 miles west of Port Canaveral. Cocoa is home to the Brevard Community College's Cocoa Campus, the University of Central Florida's Brevard Campus, the Florida Solar Energy Center, and the Brevard Community College Planetarium and Observatory.

Melbourne is approximately 25 miles south of Cocoa in the southern portion of Brevard County. The city is part of the "Space Coast" high-tech area and is home to major employers such as the Florida Institute of Technology, GE Transportation Systems, Harris Corporation, and Northrop Grumman Corporation. Two major health centers, the Holmes Regional Medical Center and the Wuesthoff Medical Center, are also located in Melbourne.

Vero Beach is the county seat for Indian River County. Vero Beach is home to general aviation manufacturer Piper Aircraft, which is the largest private employer in Indian River County. Aside from Piper, the bulk of commercial and industrial activity in Vero Beach centers on tourism and citrus fruit packing. Vero Beach is also home to Indian River State College's Mueller Campus.

Fort Pierce is the county seat for St. Lucie County. Modern educational and research facilities are found here, such as the Indian River State College's Main Campus, the Smithsonian Institution Research Center, the Manatee Observation and Education Center and Harbor Branch Oceanographic Institute. The city is undergoing a revitalization of its downtown area, which is home to the completely renovated 1925 City Hall and the current restoration of the historic, 1,200 seat Sunrise Theatre, which would serve as a regional performing arts center.

Stuart, the "Sailfish Capital of the World", is the county seat of Martin County. Stuart is home to Indian River State College's Chastain Campus. The community is a smaller city that retains much of its historic charm and a thriving downtown area. Tourism is a major part of the local economy, especially activities and services related to fishing and boating.

The No-build Alternative would not impact neighborhoods and communities.

The Build Alternatives would impact neighborhoods and communities. Specifically, the proposed crossovers at Northwood and 71st Street may require approximately 12 displacements, respectively. Overall, the Build Alternatives would benefit residents by providing additional inter-city trans-

portation service to popular destinations along the east coast of Florida. Neighborhood and community impacts, as result of project activities, would be further assessed during project-level analysis.

3.4.3. Parks and Recreation

FDOT public park information and data on National Wildlife Refuges, National Marine Sanctuaries, state parks, and trails were reviewed to determine those public recreational resources in the study area.

Most recreational and wildlife refuge sites are protected by Section 4(f) of the Department of Transportation Act of 1966 which is further addressed in Section 3.7.

For the FEC Railway, the majority of resources are located in Volusia and Brevard Counties (exhibit 3.26).

Only two public recreation facilities are in the study area for the station alternatives: Daytona Beach Site 3 – Live Oak Avenue and Vero Beach Site 1 – 19th Place.

The No-build Alternative would not impact parks and recreation.

The Build Alternatives are not anticipated to permanently impact parks and recreation, but could cause temporary impacts during construction activities at station sites and along the FEC Railway where improvements are proposed. These temporary impacts would be restored once construction and improvement activities are completed.

No significant impacts are anticipated to parks and recreation as a result of project activities; however, as part of the ETDM process and project-level NEPA, additional analysis and coordination would occur as appropriate.

3.4.4 Environmental Justice

Environmental justice refers to the concept of social equity across socioeconomic groups in the sharing of both the benefits and the burdens of specific public projects and programs. *Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations* (EO 12898), issued in 1994, directs that each federal agency shall make achieving environmental justice part of its mission.

EO 12898 requires 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

Exhibit 3.26 – *Parks and Recreational Resources*

Recreation Facility	County
Southside Park	Duval
Baker-Skinner Park	Duval
FEC Park	Duval
Chase Field	St. Johns
Tomoka River State Recreational Canoe Trail	Volusia
Spruce Creek State Recreational Canoe Trail	Volusia
Live Oak Playground	Volusia
Mary Street Park	Volusia
Municipal Ballpark	Volusia
Park Av-Bicycle/Pedestrian Trail	Volusia
Piggotte Community Park	Volusia
30th St Bike Path	Volusia
Hawks Park Recreation Complex	Volusia
Hollyland	Volusia
Indian River Blvd-Bicycle/Pedestrian Trail	Volusia
James Park	Volusia
Whistle Stop Park	Volusia
Go Kart City	Volusia
Rose Bay Travel Park	Volusia
Florida Circumnavigational Paddling Trail	Brevard
Merritt Island National Wildlife Refuge	Brevard
Mims Launch Ramp	Brevard
Andrew Jackson Marina Park	Brevard
Space Coast Community Sports Complex	Brevard
Top Prospects Baseball	Brevard
Southern Park & Play Systems Inc	Brevard
Rockledge Park	Brevard
South Mainland Community Center	Brevard
Pelican Island National Wildlife Refuge	Indian River
Pocahontas Park	Indian River
St. Lucie Village Open Space	St. Lucie
The Old Dixie Heritage Trail	St. Lucie
Savannas Preserve State Park	St. Lucie County
Zora Neale Hurston Dust Tracks Heritage Trail	St. Lucie
St Lucie Village Heritage Park	St. Lucie
DJ Wilcox Preserve	St. Lucie
Indrio Scrub Preserve	St. Lucie
Walton Scrub Preserve	St. Lucie
Hobe Sound National Wildlife Refuge	Martin, St. Lucie
Seabranch Preserve State Park	Martin
Jonathan Dickinson State Park	Martin

Exhibit 3.26 – *Parks and Recreational Resources (Continued)*

Recreation Facility	County
Florida National Scenic Trail	Martin
Seabranch Preserve State Park	Martin
Florida Trail	Martin
Martin County Blueways	Martin
Rio Nature Park	Martin
Broward St. Boat Ramp	Martin
Saturn Ave. Park	Martin
Holly Drive Park	Palm Beach
Lake Worth Shuffleboard Courts	Palm Beach
Weeks Preserve	Palm Beach
Sistrunk Park	Broward
Miami Shores Recreation Complex	Miami-Dade
El Portal Tot Lot	Miami-Dade
Woodson/Miami Design	Miami-Dade

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.

Minorities are defined as individuals of American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic racial heritage. Low-Income means a person whose median household income is at or below the Department of Health and Human Services poverty guidelines.

Minority populations are defined as those where the minority population of the affected area exceeds 50 percent. Low income is defined as persons/families with incomes below the Census Bureau poverty level. Low income populations are defined as those where the low income population of the affected area exceeds 25 percent.

Socioeconomic data from the U.S. Census Bureau was used to identify minority and low income populations within the affected area. The data was collected at the Census block group level. The affected area consists of 342 block groups in the study area.

According to 2000 Census data, minorities comprise approximately 19.3 percent of the total population in the study area. Thirty two, or about 9 percent, of the block groups in the study area were identified as having minority populations that exceed 50 percent.

Two of the 32 minority block groups are located in southern Jacksonville in Duval County. Four of the block groups are clustered southwest of the proposed St. Augustine stations in St. Johns County. Eight of the block groups are located in Volusia County; one is north of downtown Daytona, six are clustered around the proposed stations in downtown Daytona, and one is south of Daytona. Twelve of the block groups are located in Brevard County; four are north of Cocoa, four are clustered around the proposed stations in Cocoa, one is north of the proposed station site at the Melbourne Airport, and three are clustered around the proposed station site in downtown Melbourne. Two of the block groups are located northwest of Vero Beach in Indian River County. Three of the block groups are clustered around the proposed stations in downtown Ft. Pierce in St. Lucie County. The remaining block group is in Martin County southeast of the proposed station site in Stuart.

Minorities comprise 33.2 percent of the total population in the portion of the study area surrounding the proposed stations (exhibit 3.27). The proposed stations located in Daytona Beach, Cocoa, and Ft. Pierce are located in block groups where the minority population exceeds 50 percent.

According to 2000 Census data, approximately 12 percent of the population in the study area had an income in 1999 below the poverty level (U.S. Census Bureau, 2000). Forty four, or about 13 percent, of the block groups within the affected area were identified as having low income populations that exceed 25 percent.

Two of the 44 low income block groups are located in southern Jacksonville in Duval County. Four of the block groups are clustered southwest of the proposed St. Augustine stations in St. Johns County. Sixteen of the block groups are located in Volusia County; ten are clustered around the proposed stations in downtown Daytona and six are south of Daytona. Fifteen of the block groups are

Exhibit 3.27 – *Minority Data Summarized by Proposed stations*

Proposed Stations	Total Population	Number of Minorities	Percentage of Minorities
All Stations	27,922	9,269	33.2%
St. Augustine	7,223	531	7.4%
Daytona Beach	4,505	2,720	60.4%
Cocoa	4,240	2,583	60.9%
Melbourne	5,644	1,825	32.3%
Vero Beach	2,621	489	18.7%
Ft. Pierce	592	407	68.8%
Stuart	3,097	714	23.1%

located in Brevard County; five are north of Cocoa; five are clustered near or around the proposed stations in Cocoa; one is north of the proposed station site at the Melbourne Airport; and four are clustered around the proposed station site in downtown Melbourne. Four of the block groups are located in Indian River County; three are clustered north of Vero Beach and one surrounds the proposed Vero Beach station site located north of 20th Place. Two of the block groups are clustered around the proposed stations in downtown Ft. Pierce in St. Lucie County. The last one of these block groups is in Martin County southeast of the proposed station site in Stuart.

Low income populations comprise 21.2 percent of the total population in the portion of the affected area surrounding the proposed stations (exhibit 3.28). Proposed stations located in Daytona Beach, Cocoa, and Ft. Pierce have affected areas where the low income population exceeds 25 percent.

The Northwood Crossover option would be within one mile of approximately 1,500 minority and/or low-income households. The 71st Street crossover would be within one mile of approximately 2,500 minority and/or low-income households.

The No-build Alternative and the Build Alternatives are not anticipated to have disproportionate impacts on minority or low income communities.

No disproportionate impacts are anticipated as a result of project activities; however, as part of the ETDM process and project-level NEPA, additional analysis and coordination would occur as appropriate.

3.4.5 Economics

The economy of Florida's east coast is as diverse as the communities. In the coastal counties, there were over three million employees. Of these,

Exhibit 3.28 – *Low Income Data Aggregated by Proposed Stations*

Proposed Stations	Population for whom Poverty Status is Determined	Number Below Poverty Level	Percentage Below Poverty Level
All Stations	24,383	5,167	21.2
St. Augustine	5,929	671	11.3
Daytona Beach	3,235	1,232	38.1
Cocoa	4,332	1,388	32
Melbourne	4,676	750	16
Vero Beach	2,571	496	19.3
Ft. Pierce	605	201	33.2
Stuart	3,035	429	14.1

more than two thirds (2.2 million), were living in the three southernmost counties (Palm Beach, Broward, and Miami-Dade) and another half million live in Duval County. The health care and social assistance and the retail trade industrial sectors are among the top three major employers in each of the county's along the corridor. Accommodation and food service industries are among the top three in seven of the eleven counties. In Duval County, finance and insurance round out the top three industry sectors in the county, while education services are among the top three in St. Johns and St. Lucie Counties. Manufacturing is among the top three industry sectors in Brevard County.

According to July 2009 data, unemployment rates along the corridor range from a low of 8.5 percent in St. Johns County to a high of 15.9 percent in Flagler County. These rates are reflective of the current national economic downturn. Average weekly wages for the fourth quarter of 2008 ranged from $605 per week in Flagler County to $924 per week in Miami-Dade County.

Each county taxes both personal and real property and the tax rates are the same for each type of property. They range from a low of just over $11 per $1,000 in value in Martin County to a high of just over $17 per $1,000 in Duval and St. Lucie Counties. According to the Florida Research and Economic Database, 2008 real property values in the East Coast Counties ranged from over $355 Billion in Miami-Dade County to just over $15 billion in Flagler County. Broward and Palm Beach Counties each had in excess of $200 billion, while the remaining counties were somewhere in the $25 to $50 billion range.

The No-build Alternative would not impact the economic conditions in and adjacent to the study area.

The Build Alternatives would positively impact the economic conditions in and adjacent to the study area. Investment in the Florida East Coast Amtrak Service program was estimated to cost $141.2 million. The amount of funding that represents new resources for the region is equal to the total of capital expenditures expected to impact the local economy. This means that every dollar of new resources is expected yield an impact. Applying the RIMS II Multipliers to the amount of new funding that would be used for project implementation provides estimates of the earnings and employment impacts generated by the Florida East Coast Amtrak Service program by region. For Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, and Palm Beach Counties the effect of implementation of the

program would result in over $49 million in earnings, and 1,353 person-year jobs within those counties. Employment is measured on a full time equivalent (FTE) basis. Within the rest of the state of Florida, implementation of the program would result in 550 new person-year jobs (FTE) (AECOM, 2009).

Project operations and maintenance represents significant recurring expenditures in the local economies of Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, and Palm Beach Counties. Operations and maintenance expenditures for the first and fifth year are estimated at $23 million. This spending would increase the employment, earnings and output for the duration of the passenger service. For Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, and Palm Beach Counties, the passenger service would result in almost $10 million in earnings, and 201 FTE jobs in Duval, St. Johns, Flagler, Volusia, Brevard, Indian River, St. Lucie, Martin, and Palm Beach Counties. Of the 201 jobs created in the nine counties, 146 are direct employment that creates a stimulus effect of an additional 55 jobs. By contrast the Florida rest-of-state adds 24 jobs as measured by FTE. These impacts are for both the first and fifth year of operations as service levels are assumed to be same for the five year time period.

The direct employment for implementing and operating the Florida East Coast Amtrak Service program creates a substantial number of indirect jobs. These indirect jobs are created from the spending of those employed as a result of the Florida East Coast Amtrak Service project. The indirect jobs include retail and wholesale trade, fire services, health care, etc. Spending from direct employment creates 1,079 indirect jobs (1.03 indirect jobs for every 1.0 direct job), implying the project provides substantial economic stimulus to the nine county region and the state of Florida (AECOM, 2009).

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 occupation categories. Similarly, the recurring employment from rail operations would create spending opportunities that create indirect employment across the occupational spectrum.

The Florida East Coast Amtrak Service program would provide the opportunity not only to move people more efficiently, but would enhance development opportunities at and beyond station areas and strengthen existing communities. The passenger service would encourage increased visi-

tation along the corridor for tourism, business, visits to family and friends, sporting events and personal business activities throughout the nine-county service area. The technological advances associated with passenger rail with later upgrade to high-speed rail promote efficiencies through:

- travel time savings (users and non-users)
- transportation costs savings (freeing/preserving road capacity)
- more efficient land use
- amenity value to residents and business

With implementation of the Florida East Coast Amtrak Service program, land use policies and resumed economic growth, the total value of commercial and residential development could reach $419 billion in 2021. This compares to a total parcel value baseline (no-build) forecast of $417 billion in 2021. The future development associated with implementation of the Florida East Coast Amtrak Service program could contribute up to $141 million in household earnings and 3,753 person-year jobs to the study area in 2012. This grows to a cumulative $1,691 million in household earnings and 44,994 person-year jobs by the tenth year of operations in 2021. With the addition of new office and retail space to the existing parcels, the passenger service could attract up to 331 permanent jobs in Duval, St. Johns, Flagler, Volusia, Brevard, St. Lucie, Indian River, Martin, and Palm Beach Counties in 2012 increasing to 3,322 by 2021. These new jobs and earnings would have impacts on the local economy, similar to those previously described for construction. Using US 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 program and up to 6,334 permanent jobs by 2021 (AECOM, 2009).

The Florida East Coast Amtrak Service program generates substantial gains in jobs and earnings and in so doing expands consumer spending in the nine-counties and the state of Florida. The total sales tax revenues that accrue to the state from project initiation through ten years of operations are estimated to exceed $300 million. The revenues attributable to the program would help to avoid reductions in state-provided essential services. At a smaller scale (in the tens of millions dollars), the revenues to counties would contribute to maintenance of services (AECOM, 2009).

3.4.6 Public Health and Safety

There are 11 public health and safety facilities along the FEC Railway (exhibit 3.29). These facilities consist of emergency operation centers, fire stations, emergency medical services, and law enforcement centers.

The St. Lucie County Sheriff's Office is the only public health and safety facility within 500 feet of the proposed stations. This facility is situated within 500 feet of the Ft. Pierce – Site 1 Orange Ave station alternative.

The No-build Alternative would not impact public health and safety.

The Build Alternatives would have no adverse impacts to public health and safety. The Build Alternatives would beneficially impact public health and safety with improvements to existing grade-crossing signal equipment for vehicular and pedestrian traffic. Agency consultation and additional analysis will be conducted during project-level NEPA as appropriate.

3.5 Contaminated Sites and Hazardous Waste

There are no major (i.e. National Priority List and Superfund Sites) contaminated sites of concern in the study area (exhibits 3.30 and 3.31). Numerous potential generators of hazardous waste are along the mainline and at each of the station alternatives.

The No-build Alternative would not impact contaminated site or hazardous wastes.

The Build Alternatives would not involve major soil disturbance activities. A Phase 1 Environmental Site Assessment would be conducted at each station location. If necessary, remediation would be conducted and a

Exhibit 3.29 – *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	Ft. 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 Rescure 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

Exhibit 3.30 – *Station Alternatives Contaminated Sites and Hazardous Waste Concerns*

Station Alternatives	National Priority List Sites	Superfund Hazardous Waste Sites	Toxic Release inventory Sites	NPDES	RCRA Regulated Facilities
St. Augustine Site 1 - US 1 @ San Marco Ave.	0	0	0	3	15
St. Augustine Site 2 - US 1 @ Carrera St.	0	0	0	7	27
St. Augustine Site 3 - St. Augustine/St. Johns County Airport	0	0	0	4	2
Daytona Site 1 - Magnolia Ave.	0	0	0	11	23
Daytona Site 2 - Orange Ave.	0	0	0	10	24
Daytona Site 3 - Live Oak Ave.	0	0	0	10	20
Daytona Site 4 - International Speedway Blvd	0	0	0	12	27
Titusville Site 1 - Julia St.					
Titusville Site 2 - Space Center Executive Airport					
Cocoa Site 1 - West King St (SR 520)	0	0	0	7	31
Cocoa Site 2 - Rosa L. Jones Blvd.	0	0	0	5	22
Melbourne Site 1 - Melbourne International Airport	0	0	1	13	13
Melbourne Site 2 - Prospect Ave.	0	0	0	8	17
Vero Beach Site 1 - 19th Place	0	0	0	17	30
Vero Beach Site 2 - 20th Place	0	0	1	21	33
Fort Pierce Site 1 - Orange Ave.	0	0	2	5	20
Fort Pierce Site 2 - Avenue A	0	0	2	5	21
Stuart - Ocean Boulevard	0	0	0	10	25

Exhibit 3.31 – *Mainline Contaminated Sites and Hazardous Waste Concerns*

County	National Priority List Sites	Superfund Hazardous Waste Sites	Toxic Release inventory Sites	US EPA NPDES permits	US EPA RCRA Regulated Facilities
Duval	0	0	1	8	6
St. Johns	0	0	0	13	11
Flagler	0	0	0	5	7
Volusia	0	0	4	8	41
Brevard	0	0	2	23	41
Indian River	0	0	0	13	17
St. Lucie	0	0	1	3	16
Martin	0	0	1	10	19
Palm Beach	0	0	1	-	-
Broward	0	0	0	-	-
Miami-Dade	1	0	1	-	-

Contamination Assessment Report would be prepared. Proper hauling and disposal of material would be handled using best management practices. Potential impacts due to contamination as a result of project activities would be further assessed during project-level analysis.

3.6 Cultural Resources

3.6.1 Historic Resources

The National Historic Preservation Act (NHPA) of 1966, as amended (16 USC § 470 et seq.), established a national program to preserve the country's historical and cultural resources. Section 106 of the NHPA requires federal agencies to consider the effects of their actions on historic properties and provide the President's Advisory Council on Historic Preservation (ACHP) an opportunity to comment on a proposed action before it is implemented.

Under NHPA Section 106 (36 CFR § 800.16), a historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the NRHP." Districts include the property types known as cultural landscapes (historic, rural, designed, etc.).

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)

Regulations for implementing the Section 106 process (36 CFR § 800) includes steps to(1) identify consulting parties; (2) define an area of potential effect; (3) identify and evaluate historic properties; (4) assess the impacts of

an undertaking on the historic properties; and (5) consult with appropriate agencies for techniques to avoid, minimize, or mitigate any adverse effects.

Historic properties were defined as (1) properties that are either listed on or formally determined eligible for the NRHP by the Florida Division of Historical Resources; and (2) properties that may be potentially eligible for listing.

3.6.2 Potential Consulting Parties

To complete Section 106 consultation, consulting parties with potential interest in the Florida East Coast Amtrak Service project have been identified. Future Section 106 efforts would include coordination with the State Historic Preservation Office (SHPO) and may include consultation with the following potential interested organizations:

Statewide

- Florida Historical Society, Cocoa
- Florida Trust for Historic Preservation, Tallahassee
- Florida Lighthouse Association, Naples
- Florida Department of State, Division of Historical Resources, Tallahassee
- Miccosukee Tribe of Indians of Florida
- Mississippi Band of Choctaw Indians
- Muscogee Creek Indians
- Poarch Band of Creek Indians
- Seminole Tribe of Florida
- Seminole Nation of Oklahoma

Duval County

- Barnett Historic Preservation Foundation Inc, Jacksonville
- Beaches Area Historical Society, Jacksonville Beach
- City of Jacksonville Historic Commission, Jacksonville
- Durkeeville Historical Society, Jacksonville
- Jacksonville Genealogical Society, Jacksonville
- Jacksonville Historical Society, Jacksonville
- Jacksonville Maritime Museum Society, Jacksonville
- Karpeles Manuscript Museum, Jacksonville
- Mandarin Museum & Historical Society, Jacksonville

- Museum of Southern History, Jacksonville
- Museum of Science and History, Jacksonville
- Murray Hill Preservation Association, Jacksonville
- Old Arlington, Jacksonville
- Riverside-Avondale Preservation Inc., Jacksonville
- Springhill Preservation and Restoration, Jacksonville

St. Johns County

- City of St. Augustine, St. Augustine
- Fort Mose Historical Society, St. Augustine
- Hastings Genealogical Society, Hastings
- Historic St. Augustine Preservation Board, St. Augustine
- The Lightner Museum, St. Augustine
- St. Augustine Genealogical Society, St. Augustine
- St. Augustine Historical Society, St. Augustine
- St. Augustine Lighthouse & Museum, St. Augustine
- Spanish Quarter Museum, St. Augustine
- Ximenez-Fatio House, St. Augustine
- Flagler County
- City of Palm Coast Historical Society, Palm Coast
- Flagler Beach Museum, Flagler Beach
- Flagler County Historical Society, Bunnell
- Florida Agricultural Museum, Palm Coast

Volusia County

- Black Heritage Museum, New Smyrna Beach
- DeBary Hall, DeBary
- Deltona Arts & Historical Society, Deltona
- Florida Baptist Historical Society, Deland
- Halifax Genealogical Society, Ormond Beach
- Halifax Historical Society Museum, Daytona
- Museum of Arts and Sciences, Daytona Beach
- New Smyrna Museum & Historical Society, New Smyrna
- Orange City Historic Preservation Society, Orange City
- Orange City Historical Society, Orange City
- Ormond Beach Historical Trust, Ormond Beach

- Pioneer Settlement for the Creative Arts, Barberville
- Southeast Volusia Historical Society, New Smyrna
- Volusia County Community Services, Parks, Recreation & Culture Division, Deland
- West Volusia Historical Society, Deland

Brevard County

- Brevard County Historical Commission, Cocoa
- Brevard Genealogical Society, Cocoa
- Brevard Museum of History and Natural Sciences, Cocoa
- City of Melbourne Planning and Economic Development, Melbourne
- Genealogical Society of North Brevard, Titusville
- Genealogical Society of South Brevard, Melbourne
- Historical Museum of North Brevard, Titusville
- Old Town Hall History Center, Melbourne Beach
- North Brevard Historical Society, Titusville
- South Brevard Historical Society, Melbourne

Indian River County

- Indian River Genealogical Society, Vero Beach
- Indian River County Historical Society, Vero Beach
- Sebastian Area Historical Society, Sebastian
- Vero Heritage Inc., Vero Beach

St. Lucie County

- City of Fort Pierce Historical Preservation Office, Fort Pierce
- Indian River Citrus Museum, Vero Beach
- Port St. Lucie Historical Society, Port St. Lucie
- St. Lucie County Historical Society, St. Lucie
- St. Lucie Preservation Association, Fort Pierce
- Treasure Coast Genealogical Society, Fort Pierce

Martin County

- Black Heritage Association of Martin County, Stuart
- Martin County Genealogical Society, Stuart
- Historical Society of Martin County, Stuart
- Stuart Heritage Museum, Stuart

Palm Beach County

- Black History Preservation Society, West Palm Beach
- Boca Raton Historical Society, Boca Raton
- City of Delray Beach Historic Preservation Board, Delray Beach
- City of West Palm Beach Historic Preservation Division, West Palm Beach
- Delray Beach Historical Society, Delray Beach
- Glades Historical Society, Belle Glade
- Greenacres Historical Society, Inc, Greenacres
- Historical Society of Palm Beach County, Palm Beach
- Henry Morrison Flagler Museum, Palm Beach
- Loxahatchee River Historical Society, Jupiter
- Morikami Museum & Japanese Gardens, Delray Beach
- Museum of the City of Lake Worth, Lake Worth
- Northwood Hills Neighborhood Association, West Palm Beach
- Palm Beach County Genealogical Society, West Palm Beach
- Palm Beach County Historic Resources Review Board, West Palm Beach
- Preservation Foundation of Palm Beach, Palm Beach

Broward County

- Black Historical Society of Broward County, Ft. Lauderdale
- Broward County Genealogical Society, Ft. Lauderdale
- Broward County Historical Commission, Ft. Lauderdale
- Broward Trust for Historic Preservation, Inc., Ft. Lauderdale
- Davie Historical Society, Davie
- Deerfield Beach Historical Society, Deerfield Beach
- Flamingo Historical Society, Davie
- Fort Lauderdale Historical Society, Ft. Lauderdale
- Genealogical Society of Broward County, Ft. Lauderdale
- Hillsboro Lighthouse Preservation Society, Pompano Beach
- Hollywood Historical Society, Hollywood
- Oakland Park Historical Society, Oakland Park
- Pembroke Pines Historical Museum, Pembroke Pines
- Plantation Historical Society and Museum, Plantation
- Pompano Beach Historical Society, Pompano Beach

Miami-Dade County

- Bay of Pigs Museum & Library, Miami
- City of Miami Historic Preservation Program, Miami
- Coral Gables Historical Resources Department, Coral Gables
- Dade Heritage Trust, Miami
- Genealogical Society of Greater Miami, Miami
- Greater North Miami Historical Society, North Miami
- Historical Association of Southern Florida, Miami
- Historic Homestead Town Hall Museum, Homestead
- Jewish Museum of Florida, Miami Beach
- Miami-Dade County Office of Historic & Archaeological Resources, Miami
- Miami Springs Historical Society, Miami Springs
- Renaissance Historical Society, Miami
- The Black Archives, History and Research Foundation of South Florida, Miami

The area of potential effect was defined as a 400-foot wide corridor centered on the existing FEC Railway. At the proposed stations, the area of potential effect was defined as a 500 feet radius around each location alternative.

Based on the Florida Master Site File (FMSF) database and the Florida Geographic Data Library (FGDL) GIS information, historic resources in the study area were identified (exhibit 3.32). Resources listed in the NRHP, determined to be potentially eligible by the SHPO, and those resources not

Exhibit 3.32 – *NRHP Listed and Potentially Eligible Resources along the Mainline*

Name	Location	Resource type	Resource date	NRHP Listed/ SHPO Status
Duval County				
Historic Resources Listed in the NRHP (None)				
Potential Historic Resources				
Craig Swamp Cemetery	Jacksonville	Cemetery	1867	Not evaluated
Fletcher Park	Jacksonville	Historic district	Circa 1920	Not evaluated
Kings Road	Jacksonville	Linear resource	1763-1783	Potentially eligible
St. Elmo W. Acosta Bridge		Transportation	Unknown	Not evaluated
60 residential structures	NA	Residence	NA	Not evaluated
3 government structures	Jacksonville	Governmental office	Circa 1913-1915	Not evaluated
Moyer Marble and Tile	Jacksonville	Commercial	Circa 1930	Not evaluated
Baptist Temple	Jacksonville	Religious	Circa 1930	Not evaluated

Exhibit 3.32 – *NRHP Listed and Potentially Eligible Resources along the Mainline(Continued)*

Name	Location	Resource type	Resource date	NRHP Listed/ SHPO Status
Beautyrest Cabins Motorcourt, Cabin 15	Jacksonville	Commercial	Circa 1925	Potentially eligible
Beautyrest Cabins Motorcourt Office	Jacksonville	Commercial	Circa 1925	Potentially eligible
Beautyrest Cabins Motorcourt, Cabin 1	Jacksonville	Commercial	Circa 1925	Potentially eligible
Beautyrest Cabins Motorcourt, Cabin 2	Jacksonville	Commercial	Circa 1925	Potentially eligible
Beautyrest Cabins Motorcourt Restaurant	Jacksonville	Commercial	Circa 1925	Potentially eligible
St. Johns County				
Historic Resources Listed in the NRHP				
Model Land Company	St. Augustine	Historic district	19th century (1821-1899)	2-Aug-83
Potential Historic Resources				
Old King's Road	Jacksonville	Linear resource	1763-1783	Potentially eligible
Nine Mile Road	East Palaka	Mixed district	1700-1763	Insufficient information
King Street	St. Augustine	Linear resource	1821-1899	Potentially eligible
Leo C. Chase Park	St. Augustine	Designed historic landscape	20th century	Not evaluated
Railway Park	St. Augustine	Designed historic landscape	1821-1899	Potentially eligible
Florida East Coast Railway	St. Johns County	Designed historic landscape	19th century (1821-1899)	Potentially eligible
FDOT 784006 bridge		Transportation	1927	Not evaluated
48 residential structures	NA	Residence	various	Not evaluated
3 commercial structures	NA	Commercial	various	Not evaluated
2 institutional structures	NA	Private institutional	various	Not evaluated
1 office structure	NA	Business office	1959	Not evaluated
Flagler County				
Historic Resources Listed in the NRHP				
Old Bunnell State Bank Building	Bunnell	Commercial	1917	25-Jun-92
Potential Historic Resources				
Florida East Coast Railway	Bunnell	Designed historic landscape	1892-1957	Potentially eligible
Bunnell Overpass	Bunnell	Transportation	1935	Not evaluated
13 residential structures	NA	Residence	Various	Not evaluated
4 commercial structures	NA	Commercial	Various	Not evaluated
Volusia County				
Historic Resources Listed in the NRHP				
Port Orange FEC Railway Freight Depot	Port Orange	Commercial	1894	5-Feb-98

Exhibit 3.32 – *NRHP Listed and Potentially Eligible Resources along the Mainline(Continued)*

Name	Location	Resource type	Resource date	NRHP Listed/ SHPO Status
Dunlawton Avenue Historic District	Port Orange	Historical district	1885-1941	5-Feb-98
Southwest Daytona Beach Black Heritage	Daytona Beach	Historical district	1884-1948	23-May-97
Potential Historic Resources				
Woodland Cemetery	Port Orange	Private institutional	1875	Not evaluated
Old King's Road	Ormond Beach	Linear transportation	1861-1865	Potentially eligible
Rose Bay Causeway	Harbor Oaks/ Port Orange	Linear transportation	1821-1899	Potentially eligible
Florida East Coast Railway Buildings	New Smyrna Beach	Historical district	1921-1929	Insufficient information
Lake Helen to Daytona Road	Samsula	Linear transportation	1821-1899	Insufficient information
Holly Land Park	Holly Hill	Designed historic landscape	Unknown	Not evaluated
Westside Community	New Smyrna Beach	Historical district	1903-1946	Not evaluated
Florida East Coast Railway	New Smyrna Beach	Designed historic landscape	1892-present	Not evaluated
507 North Duss Street (Former Dunn Lumber Company)	New Smyrna Beach	Industrial building complex	1880-1940	Not evaluated
86 residential structures	Various	Residential	Various	Not evaluated
22 commercial structures	Various	Commercial	Various	Not evaluated
8 industrial structures	Various	Industrial	Various	Not evaluated
City Water Works		Governmental	Unknown	Not evaluated
2 houses of worship	Various	Religious	Various	Not evaluated
2 monuments	Various		Various	Not evaluated
Daytona Beach Wastewater Storage Facility	Daytona Beach	Governmental	1909	Not evaluated
2 other structures	Various	Unknown	Various	Not evaluated
Brevard County				
Historic Resources Listed in the NRHP				
St. Gabriel's Episcopal Church		Religious	1887	5-Dec-72
Marion S. Whaley Citrus Packing House		Agricultural/ industrial	1930	8-Apr-93
Jorgensen's General Store		Shop	1894	25-Jun-99
Valencia Subdivision Residential District	Rockledge	Historical district	1921-1929	21-Aug-92
Potential Historic Resources				
Historic Canal	Malabar	Linear resource	Early 20th century	Not evaluated
Florida East Coast Railway	Unspecified	Linear transportation	1821-1899	Potentially eligible

Exhibit 3.32 – *NRHP Listed and Potentially Eligible Resources along the Mainline(Continued)*

Name	Location	Resource type	Resource date	NRHP Listed/ SHPO Status
Union Cypress Saw Mill Historic District	Melbourne	Mixed district	1912-1932	Not evaluated
Hilltop Cemetery	Cocoa	Private cemetery	1887	Potentially eligible
Cocoa Cemetery	Cocoa	Cemetery	1890	Potentially eligible
16 Residential structures	Various	Residential	Various	Not evaluated
12 Commercial structures	Various	Commercial	Various	Not evaluated
Grace Bible Church		Religious	1914	Potentially eligible
Terminal - 1301 Jernigan Avenue		Transportation	1926	Not evaluated
Reynolds Oil Office/Warehouse		Industrial	Circa 1927	Potentially eligible
Reynolds Oil Gasoline Tanks		Industrial	Circa 1927	Potentially eligible
Reynolds Oil Pump House		Industrial	Circa 1927	Potentially eligible
Indian River County				
Historic Resources Listed in the NRHP				
Vero Beach Railway Station	Vero Beach	Transportation	1903	6-Jan-87
Vero Beach Diesel Power Plant	Vero Beach	Industrial	1926	26-Feb-99
Old Town Sebastian Historic District East	Sebastian	Residential	19th and 20th century	6-Jan-04
Old Town Sebastian Historic District West	Sebastian	Residential	19th and 20th century	4-Aug-03
Potential Historic Resources				
Dinky Line	Sebastian	Transportation	19th and 20th century	Not evaluated
32 Residential structures	Various	Residential	Various	Not evaluated
James Gray House Barn		Barn	1910	Not evaluated
5 Commercial structures	Various	Commercial	Various	Not evaluated
Winter Beach School		Educational	Circa 1920	Not evaluated
Church of God		Religious	1935	Not evaluated
Sebastian River Baptist	Sebastian	Religious	1950	Not evaluated
601 US 1		Industrial	Circa 1930	Not evaluated
St. Lucie County				
Historic Resources Listed in the NRHP				
Sunrise Theater	Fort Pierce	Commercial	1925	1-Dec-01
Old Fort Pierce City Hall	Fort Pierce	Governmental	1924	20-Dec-01
Potential Historic Resources				
Dixie Highway	Fort Pierce	Linear transportation	20th century	Not evaluated
Downtown Historic District	Fort Pierce	Historical district	1910-1957	Not evaluated
Edgar Town Historic District	Fort Pierce	Historical district	Circa 1880-1957	Not evaluated
River's Edge Historic District	Fort Pierce	Historical district	Circa 1900-1957	Not evaluated
Bethel Memorial Park	Fort Pierce	Cemetery	1950	Not evaluated

Exhibit 3.32 – *NRHP Listed and Potentially Eligible Resources along the Mainline(Continued)*

Name	Location	Resource type	Resource date	NRHP Listed/ SHPO Status
28 Residential structures	Various	Residential	Various	Not evaluated
Frank Tyler House		Residential	1924	Potentially eligible
Barn on FEC Railway Tracks		Barn	1910	Not evaluated
Harbortown Marina and Boatyard		Industrial	1947	Not evaluated
21 Commercial structures	Various	Commercial	Various	Not evaluated
2 Industrial structures		Industrial	1950	Not evaluated
Outbuilding		Outbuilding	1945	Not evaluated
Shadetre Studio		Warehouse	1950	Potentially eligible
Martin County				
Historic Resources Listed in the NRHP				
Lyric Theater		Commercial	1926	12-Nov-93
Potential Historic Resources				
Camp Murphy Railway Spur	Hobe Sound	Linear transportation	1942-1944	Insufficient information
Florida FEC Bridge		Transportation	1938	Potentially eligible
Hobe Sound AME Church Cemetery	Hobe Sound	Religious	Circa 1937	Not evaluated
15 residential structures	Various	Residential	Various	Not evaluated
8 commercial structures	Various	Commercial	Various	Not evaluated
Palm Beach County				
Historic Resources Listed in the NRHP				
Lake Lucerne Commercial Historic District	Lake Worth	Historic district	NA	22-Sep-01
Northwest Historic District	West Palm Beach	Historic district	1915-1941	22-Jan-92
Clematis Street Historic Commercial District	West Palm Beach	Historic district	1918-1929	8-Oct-98
Grandview Heights Historic District	West Palm Beach	Historic district	1914-1948	8-Jul-99
Potential Historic Resources				
Evergreen Cemetery	West Palm Beach	Cemetery	1916	Not evaluated
Northwood Hills Historic District	West Palm Beach	Historical district	Circa 1920	Potentially eligible
Hillsboro Canal	Boca Raton	Designed historic landscape	1914 to present	Potentially eligible
West Palm Beach Canal	West Palm Beach	Designed historic landscape	1917 to present	Potentially eligible
FEC Railway	Boca Raton	Designed historic landscape	1821-1899	Insufficient information
El Rio Canal	Boca Raton	Designed historic landscape	1917-1920	Insufficient information

Exhibit 3.32 – *NRHP Listed and Potentially Eligible Resources along the Mainline(Continued)*

Name	Location	Resource type	Resource date	NRHP Listed/ SHPO Status
Old Dixie Highway	Jupiter	Linear transportation	1900 to present	Insufficient information
Kelsey City Layout	Lake Park	Historic district	1921-1929	Not evaluated
Community Redevelopment Boundary	Boca Raton	Historic district	1821-1899	Not evaluated
Del-Ida Park Historic District	Delray Beach	Historic district	1921-1929	Not evaluated
Broward County				
Historic Resources Listed in the NRHP				
Hollywood Boulevard Historic District	Hollywood	Historic District	1921-1929	18-Feb-99
Valencia Subdivision Residential District	Rockledge	Historic District	1921-1929	21-Aug-92
Potential Historic Resources				
Dixie Highway Bridge	Fort Lauderdale	Transportation	1928	Not evaluated
Fort Lauderdale Historic District	Fort Lauderdale	Historic District	1923-1952	Potentially eligible
Hillsboro Canal	Various	Linear transportation	Early 20th century	Potentially eligible
East Coast Lines Railway	Fort Lauderdale	Linear transportation	1896-1959	Insufficient information
Griffin Road	Davie	Designed historic landscape	1913 to present	Insufficient information
Historic Canal	Malabar	Linear transportation	Early 20th century	Not evaluated
FEC Railway	Various	Linear transportation	1821-1899	Potentially eligible
Union Cypress Saw Mill District	Melbourne	Mixed district	1912-1932	Not evaluated
Miami-Dade County				
Historic Resources Listed in the NRHP (None)				
Potential Historic Resources				
Name	Location	Resource	Date	SHPO Status
City of Miami Cemetery	Miami	Public cemetery	1897	Potentially eligible
FEC Railway	Miami	Designed historic landscape	1896-1959	Insufficient information

evaluated by the SHPO were considered to be historic resources of interest. Resources evaluated by the SHPO and found to be ineligible for listing in the NRHP were not considered as historic resources of interest.

There are no resources in the Duval County portion the mainline listed in the NRHP.

A cultural resources reconnaissance survey of potential stations was conducted to locate NRHP listed, determined eligible, and potentially eligible resources.

For each station location, background research was conducted, which involved an analysis of the GIS and FMSF data. In August of 2009, an architectural historian visually inspected each potential station locations (exhibit 3.33).

The No-build Alternative would not impact cultural and historic resources.

Coordination with SHPO is in progress to ensure no adverse impacts to cultural and historical resources would occur as a result of proposed mainline improvements, crossover improvements, or during construction at the proposed station sites.

Exhibit 3.33 – *NRHP Listed and Potentially Eligible Resources at each Station Alternative*

Site Name / Address	Style/Resource Type	SHPO Eval.	Survey
St. Augustine Site 1 – US 1 @ San Marco Avenue			
Florida East Coast Railway (FEC)	Linear Resource	NRHP–eligible	More research and coordination is necessary
FEC Railway (Spur)	Linear Resource	N/A	More research and coordination is necessary
FEC Freight Station Structure: North	Structure	N/A	Potentially NRHP-eligible
FEC Freight Station Structure: Center	Structure	N/A	Potentially NRHP-eligible
FEC Freight Station Structure: South	Structure	N/A	Potentially NRHP-eligible
St. Augustine Site 2 – US 1 @ Carrera Street			
Model Land Company Historic District/ Bounded by King Street, US 1, the San Sebastian River, Orange Street, and Cordova Street	Historic District	NRHP–Listed	NRHP–Listed
Railway Park/ Between Malaga Street and US 1	Designed Historic Landscape	NRHP-eligible	NRHP-eligible
FEC Railway	Linear Resource	NRHP–eligible	More research and coordination is necessary
Historic Preservation (HP-5)	Local Historic Preservation Zone	N/A	More research and coordination is necessary
Fixed Railway Bridge	Bridge	N/A	Potentially NRHP-eligible
St. Augustine Site 3 – St. Augustine/St. Johns County Airport			
FEC Railway	Linear Resource	NRHP–eligible	More research and coordination is necessary
Daytona Site 1 – Magnolia Avenue			
Dunn Lumber and Hardware/ 204 S. Seagrave Street	Moderne	Not Evaluated by SHPO	Potentially NRHP–eligible
Old Malby & Conrad Lumber Company #2/ 415 Orange Avenue	Industrial Vernacular	Not Evaluated by SHPO	Potentially NRHP–eligible
FEC Railway	Linear Resource	Not Evaluated by SHPO	More research and coordination is necessary
410 Magnolia Avenue	Warehouse	N/A	Potentially NRHP–eligible

Exhibit 3.33 – *NRHP Listed and Potentially Eligible Resources at each Station Alternative (Continued)*

Site Name / Address	Style/Resource Type	SHPO Eval.	Survey
Daytona Site 2 – Orange Avenue			
Old Malby & Conrad Lumber Company #2/ 415 Orange Avenue	Industrial Vernacular	Not Evaluated by SHPO	Potentially NRHP–eligible
FEC Railway	Linear Resource	Not Evaluated by SHPO	More research and coordination is necessary
Daytona Site 3 – Live Oak Avenue			
Southwest Daytona Beach Black Heritage District/ Roughly bounded by S. Dr. Martin Luther King Boulevard, Foote Court, FEC Railway, and South Street	Historic District	NRHP–Listed	NRHP–Listed
FEC Railway	Linear Resource	Not Evaluated by SHPO	More research and coordination is necessary
Daytona Site 4 – International Speedway Boulevard			
FEC Railway	Linear Resource	Not Evaluated by SHPO	More research and coordination is necessary
Brevard County Courthouse / 506 S. Palm Avenue	Neo-Classical Revival	Not Evaluated by SHPO	Not included in current visual survey, but previous surveyor identified as Potentially NRHP-eligible
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
Titusville FEC Station / Pine Street and Crofton Avenue	Structure	Not Evaluated	Not included in current visual survey, more information needed
Titusville Site 2 – Space Center Executive Airport			
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
Cocoa Site 1 – West King Street (SR 520)			
Lamar, Mattie House/ 361 Stone Street S.	Frame Vernacular	NRHP–Eligible	NRHP–Eligible
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
Cocoa Site 2 – Rosa L. Jones Boulevard			
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
FEC Transload Facility Structure	Structure	N/A	Potentially NRHP–Eligible
Melbourne Site 1 – Melbourne International Airport			
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
Melbourne Site 2 – Prospect Avenue			
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
Vero Beach Site 1 – 19th Place			
Pocahontas Apartments/ 1402 21st Street	Mediterranean Revival	Not Evaluated by SHPO	Potentially NRHP–Eligible
Indian River County Courthouse/ 2145 14th Avenue	Masonry Vernacular	NRHP–Listed	NRHP–Listed

Exhibit 3.33 – *NRHP Listed and Potentially Eligible Resources at each Station Alternative (Continued)*

Site Name / Address	Style/Resource Type	SHPO Eval.	Survey
Vero Beach Community Building, Old/ 2146 14th Avenue	Frame Vernacular	NRHP–Listed	NRHP–Listed
FEC Railway	Linear Resource	N/A	More research and coordination is necessary
Vero Beach Site 2 – 20th Place			
Palmetto Hotel, Charlton Apartments/ 1889 Old Dixie Highway	Frame Vernacular	NRHP–Listed	NRHP–Listed
Vero Beach Diesel Power Plant/ 1246 19th Street	Masonry Vernacular	NRHP–Listed 02/26/1999	NRHP–Listed
FEC Railway	Linear Resource	N/A	More research and coordination is necessary
Fort Pierce Site 1 – Orange Avenue			
Downtown Historic District/ Bounded by Citrus Avenue, S Indian River Drive, Avenue C, Avenue A to 13th Street, US 1	Historic District	Not Evaluated by SHPO	Potentially NRHP–Eligible
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
Fort Pierce Site 2 – Avenue A			
Downtown Historic District/ Bounded by Citrus Avenue, S Indian River Drive, Avenue C, Avenue A to 13th Street, US 1	Historic District	Not Evaluated by SHPO	Potentially NRHP–Eligible
FEC Railway	Linear Resource	NRHP–Eligible	More research and coordination is necessary
Fixed Railway Bridge	Bridge	N/A	Potentially NRHP–Eligible
Stuart Site 1 – Ocean Boulevard			
FEC Railway	Linear Resource	NRHP–eligible	More research and coordination is necessary
Frazier Addition	Historic District	Not evaluated by SHPO	Potentially NRHP–eligible
East Coast Lumber and Supply / 416 Flagler Avenue	Frame Vernacular	Not Evaluated	Potentially NRHP–eligible
Martin County Courthouse / 80 E. Ocean Boulevard	Art Deco	NRHP–Listed	NRHP–Listed
FEC Railway	Linear Resource	NRHP–eligible	More research and coordination is necessary

3.7 Properties Afforded Consideration and Protection Under Section 4(f) of the USDOT Act of 1966

Section 4(f) of the Department of Transportation Act of 1966, codified at 23 USC 138 and 49 USC § 303, declares that "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 land, wildlife and waterfowl refuges, and historic sites."

Section 4(f) 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. 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.

As defined under Section 4(f), use can 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.

Based on the inventory of public park and recreation lands, wildlife and waterfowl refuges, and historic sites within the proposed stations, the following resources may be subject to Section 4(f) evaluation, dependent upon the resource use determined (exhibit 3.34). No Section 4(f) resource evaluation is anticipated for the mainline.

The No-build Alternative and the Build Alternatives are not anticipated to impact Section 4(f) resources.

No impacts are anticipated to section 4(f) resources as a result of project activities; however, as part of the ETDM process and project-level NEPA, additional analysis and coordination would occur as appropriate.

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 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. When assessing whether a proposed project would make use of an eligible Section 4(f0 property, the corollary effects of the project must be accounted for. A constructive use can occur even 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. The determination of whether constructive use would be generated upon a Section 4(f) property is made through: (1) identification of the current activities, features, or attributes of the resource which may be sensitive to proximity impacts; (2) analysis of the potential proximity impacts on the resource; and (3) consultation with the appropriate officials having jurisdiction over the resource.

Exhibit 3.34 – *Potentially Affected Section 4(f) Resources*

Station Alternatives	Section 4(f) Resources Potentially Used by the Project
St. Augustine Site 1 - US 1 @ San Marco Ave.	FEC Railway; FEC Railway Spur; FEC Freight Structure North; FEC Freight Structure Center; FEC Freight Structure South
St. Augustine Site 2 - US 1 @ Carrera St.	Model Land Company Historic District; Railway Park; FEC Railway; Fixed Railway Bridge
St. Augustine Site 3 - St. Augustine/St. Johns County Airport	FEC Railway
Daytona Site 1 - Magnolia Ave.	Dunn Lumber and Hardware; Old Malby & Conrad Lumber; FEC Railway; 410 Magnolia warehouse
Daytona Site 2 - Orange Ave.	Old Malby & Conrad Lumber; FEC Railway
Daytona Site 3 - Live Oak Ave.	Live Oak Playground; Southwest Daytona Beach Black Heritage District; FEC Railway
Daytona Site 4 - International Speedway Blvd	FEC Railway
Titusville Site 1 - Julia St.	Brevard County Courthouse; FEC Railway; Titusville FEC Station
Titusville Site 2 - Space Center Executive Airport	FEC Railway
Cocoa Site 1 - West King St (SR 520)	Lamar, Mattie House; FEC Railway
Cocoa Site 2 - Rosa L. Jones Blvd.	FEC Railway; FEC Transload Facility Structure
Melbourne Site 1 - Melbourne International Airport	FEC Railway
Melbourne Site 2 - Prospect Ave.	FEC Railway
Vero Beach Site 1 - 19th Place	Pocahontas Apartments; Pocahontas Park; Indian River County Courthouse; Vero Beach Community Building; FEC Railway
Vero Beach Site 2 - 20th Place	Palmetto Hotel/Charlton Apartments; Vero Beach Diesel Power Plant; FEC Railway
Fort Pierce Site 1 - Orange Ave.	Downtown Historic District; FEC Railway
Fort Pierce Site 2 - Avenue A	Downtown Historic District; FEC Railway; Fixed Railway Bridge
Stuart - Ocean Boulevard	FEC Railway; Frazier Addition Historic District; East Coast Lumber & Supply; Martin County Courthouse

3.8 Energy

During construction of the alternatives, additional energy would be expended beyond what would be used for the normal operation. This additional energy would be consumed on a short-term basis by construction of improvements required to implement the high-speed rail service and by construction-related delays to existing freight and Amtrak passenger service. However, once high-speed rail service begins, long-term energy savings would be realized. 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 No-build Alternative would have no impact to energy resources.

The Build Alternatives would not permanently impact energy resources, but could cause temporary impacts during construction activities at station sites and along the mainline and at the crossover options where improvements are proposed. These temporary impacts would be restored once construction and improvement activities are completed. No negative impacts are expected related to energy resource issues as a result of project activities: however, as a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed. No negative impacts are expected related to energy resource issues as a result of project activities: however, as a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed.

3.9 Transportation

3.9.1. Passenger Rail

There is no passenger rail service on the FEC Railway between Jacksonville and Miami along Florida's east coast. Amtrak provides 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 Miami. Amtrak runs two roundtrip trains per day as a part of the Silver Meteor and Silver Star service. The Silver Meteor makes 14 stops between Jacksonville and Miami with a trip time of approximately eight hours and 30 minutes each way. The Silver Star makes 21 stops between Jacksonville and Miami with a trip time of approximately ten hours and 30 minutes each way. Positive impacts are expected related to transportation services as a result of project activities: however, as a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed.

3.9.2 Freight Rail

There are two freight rail operations on railways in the study area: the FEC Railway and CSX transportation (CSXT) railways.

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 FEC Railway also provides a drayage leg in its portfolio of services to intermodal customers (FEC Railway, 2009).

The typical FEC Railway freight train requires approximately nine and one half to ten hours for travel between Jacksonville and Miami for a commercial velocity of approximately 39 miles per hour. 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. CSXT is a Class I railway operating in 23 eastern states over a 22,000 mile route. The FDOT purchased the SFRC from CSXT in 1998, but CSXT retained a perpetual and exclusive easement to operate freight service on this line under the terms of the sale. CSXT operations on the line consist of two to four manifest trains of carload commodities predominantly destined for warehouses along the SFRC line 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 two hours to travel between West Palm Beach and Miami for a commercial velocity of approximately 35 miles per hour. 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). No negative impacts are expected related to freight transportation as a result of project activities: however, as a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed.

3.9.3 Roadway Conditions and Operations

Traffic congestion is a problem in Florida's major urban areas (exhibit 1.8) and congestion is projected to increase in the future (exhibit 1.9). I-95 and US-1 are parallel north-south corridors that serve communities along

Florida's east coast between Jacksonville and Miami. These corridors are congested during peak hours, with congestion projected to worsen in the future. Traffic congestion results in increased fuel consumption, impacts air quality and hinders emergency response and evacuation.

Local roads are available to access and egress the proposed stations. Annual average daily traffic volumes (AADTs) from 2007 on key roadways in the vicinity of each station alternative are summarized in exhibit 3.35. These

Exhibit 3.35 – *Station Area Roadway Volumes – 2007*

Station Alternatives	Roadway	AADT
St. Augustine Site 1 – US 1 @ San Marco Ave.	US 1	23,000
St. Augustine Site 2 – US 1 @ Carrera St.	US 1	35,000
St. Augustine Site 3 – St. Augustine/St. Johns County Airport	US 1	23,000
Daytona Site 1 – Magnolia Ave.	US 1	30,000
	International Speedway Blvd	26,000
Daytona Site 2 – Orange Ave.	US 1	30,000
	International Speedway Blvd	26,000
Daytona Site 3 – Live Oak Ave.	US 1	30,000
	International Speedway Blvd	26,000
Daytona Site 4 – International Speedway Blvd	US 1	30,000
	International Speedway Blvd	26,000
Titusville Site 1 – Julia St.	US 1	27,000
Titusville Site 2 - Space Center Executive Airport	US 1	25,500
	Columbia Blvd (SR 405)	15,000
Cocoa Site 1 – West King St (SR 520)	US 1	37,500
	W King St (SR 520)	28,500
Cocoa Site 2 – Rosa L. Jones Blvd.	US 1	37,500
Melbourne Site 1 – Melbourne International Airport	US 1	39,500
Melbourne Site 2 – Prospect Ave.	US 1	39,500
Vero Beach Site 1 – 19th Place	US 1	39,500
	19th Pl	15,500
Vero Beach Site 2 – 20th Place	US 1	39,500
	21st St	28,500
Fort Pierce Site 1 – Orange Ave.	US 1	31,000 – 34,000
	Orange Ave	6,700
Fort Pierce Site 2 – Avenue A	US 1	31,000 – 34,000
	Avenue A	2,200
Stuart – Ocean Boulevard	US 1	42,500
	S Colorado Ave	30,000

Source: *Florida Department of Transportation, Transportation Statistics Office (TRANSTAT), 2008*

roadways have the functional classification of "urban local." No negative impacts are expected related to local roadway conditions and operations as a result of project activities: however, as a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed.

3.9.4 Other Modes of Public Transportation

Public transportation services exist in the communities along Florida's east coast (see sections 1.7.2, 1.7.3, and 2.3.3.2).

The No-build Alternative and the Build Alternatives are not anticipated to impact other existing modes of public transportation.

No impacts are anticipated to public transportation as a result of project activities; however, as part of the ETDM process and project-level NEPA, additional analysis and coordination would occur as appropriate.

3.10 Construction Impacts

Construction of the alternatives may result in localized short-term air, noise, vibration, water quality, traffic, visual, vegetation, utility and public safety impacts. With proper planning and sequencing, construction related impacts to sensitive natural resources such as wetlands, floodplains, and critical habitats and to cultural resources should be essentially avoided.

Air quality impacts from construction activities would be temporary and are primarily associated with the operation of diesel-powered equipment and the generation of fugitive dust from excavation and earth moving 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 earth moving 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, excavating, grading, embankment formation, and stockpiling, would be required during the construction of the stations. Exposed soils may result in the potential for increased site erosion and sedimentation impacts to nearby water resources. Some of the best management practices that may be implemented are:

- conducting earthwork activities during a known dry season
- diverting stormwater that originates off-site away from the construction site
- minimizing the extent and duration of exposed soils by using temporary or permanent seeding or mulching
- constructing appropriately sized temporary sedimentation basins
- establishing a designated equipment cleaning/washing area that is bermed and includes some measures for the treatment of runoff prior to discharge
- conducting in-stream construction activities during periods of low flow
- using cofferdams for work in the water
- establishing an emergency response spill contingency plan

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. Appropriate signing could be used to notify motorists of road closures and detours. Access to local residences and businesses in the vicinity of the con-

struction site could be maintained to the greatest extent practicable. Temporary disruptions in access would be coordinated with residents and business owners. Residents along designated truck haul routes may have to contend with the day-to-day hauling activities associated with the construction site. Traffic sequencing is often used to allow safe passing between oncoming traffic during construction.

Temporary visual impacts attributed to construction activities would be greatest for those residents immediately adjacent to the construction site. Views of heavy equipment and material stockpiles would be commonplace for the duration of the construction activities. Fugitive dust may also impede visual quality during limited periods.

Construction disturbances and re-vegetation have the potential to introduce and/or spread noxious and invasive weed species.

Construction of the stations could require utility relocations. Temporary service disruptions may be experienced during the relocation process. Construction activities would be planned and scheduled to minimize utility service disruptions.

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. No permanent impacts are expected from construction as a result of project activities: however, as a part of the ETDM process and project-level NEPA, additional analysis and coordination will occur as needed.

3.11 Cumulative Effects

The consideration of cumulative effects consists of an assessment of the total effect on a resource, ecosystem or community from past, present and future actions which have altered the quantity, quality or context of those resources within a broad geographic scope. Under the CEQ regulations, cumulative effects are defined as "…the impact on the environment which results from the incremental impact of the actions regardless of what agency (federal or non-federal) 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 effects are the total impacts to a particular resource from past, present, and reasonably foreseeable future actions. The cumulative effects analysis considers the aggregate effects of direct and indirect impacts – from federal, non-federal, public, or private actions – on the quality or quantity of a resource. Cumulative impacts also may include the effects of natural processes and events, depending on the specific resource in question. Cumulative impacts include the total of all impacts on a particular resource that have occurred, are occurring, and would likely occur as a result of any action or influence, including the direct and indirect impacts of a federal activity. Accordingly, there may be different levels of cumulative impacts on different environmental resources.

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 aggregate effects. Contributions to cumulative effects from the preferred alternative on resources would be primarily limited to those substantially impacted.

Because of the broad regional nature of the proposed project and the programmatic nature of this PEA, consideration of cumulative effects was confined to the consideration of GHG effects from a regional perspective. Subsequent analysis of cumulative effects for other resources would be assessed at Project-Level NEPA review, where a more comprehensive assessment of direct and indirect impacts which may contribute to a resource-specific cumulative effect can be assessed.

For this analysis, the list of regional projects considered incorporates reasonably foreseeable, relevant projects and focuses on those that, when combined with the proposed Florida East Coast Amtrak Service project, could contribute to cumulative effects on GHG emissions. A timeframe of 1997 to 2030 was used for the identification of reasonably, foreseeable relevant projects of cumulative effects. These projects are those developments of regional impacts for which applications where submitted from 1997 to the present and that intersect with a two-mile wide corridor centered on the FEC Railway (exhibit 3.36).

Between 1990 and 2005, Florida's GHG emissions increased by 35 percent, from 248.8 million metric tons in 1990 to 336.6 million metric tons in 2005 (FDOT, Center for Urban Transportation Research-USF, 2009). Statewide GHG emissions are projected to continue to grow steadily to about 474 million metric tons of CO_2 equivalence by 2025 – an increase of 94 percent

Exhibit 3.36 – *Reasonably Foreseeable Developments of Regional Impact*

Name	Vicinity	Location	Build-out date	Total acreage	Description
Marshall Creek	St. Augustine	St. Johns	2009	2,680	300,000 sf retail 600,000 sf office 2,774 residential units 18-hole golf course 45 ac park 733 ac open space
Bartram Park	Jacksonville	Duval & St.Johns	2015	2,650	374,084 sf retail 44,380 sf office 367 residential units 3 ac community facilities 48 ac open space
Nocatee	Ponte Vedra	St. Johns & City of Jacksonville	2031	13,300	968,000 sf retail 2,872,000 sf office 14,920 residential units 710 hotel rooms 3 golf courses 5,500 ac recreation/open space
Palm Coast Park	Palm Coast	Flagler	2025	4,750	1,500,000 sf retail 800,000 sf office 3,600 residential units 800,000 sf industrial 2,140 ac open space
Twin Creeks	St. Augustine	St. Johns	2010	3,050	600,000 sf retail 300,000 sf office 5,000 residential units 175 hotel rooms 2,000,000 sf light industrial 304 ac recreation/open space
Ormond Crossing	Ormond Beach	Volusia & Flagler	2025	6,800	900,000 sf retail 1,800,000 sf office/business 1,000,000 sf industrial 1,100,000 warehouse 4,200 residential units 250,000 sf community institutional 2,000 ac open space
Cordova Palms	St. Augustine	St. Johns	2017	580	600,000 sf retail 100,000 sf office 200,000 sf industrial 1,7000 residential units 180 acres open space
St. Lucie County International Airport	Fort Pierce	St. Lucie	NA	750 acres of 4,100-acre site	Airport conversion from general to commercial aviation
Old Brick Township	Palm Coast	Flagler	TBD	5,250	100,000 sf retail 50,000 sf office 1,000,000 sf industrial 5,000 residential units
Durbin	Durbin	St. Johns	2022	1,690	2,048,000 sf retail 1,220,000 sf office 480 hotel rooms 2,466 residential units

Exhibit 3.36 – *Reasonably Foreseeable Developments of Regional Impact (Continued)*

Name	Vicinity	Location	Build-out date	Total acreage	Description
Village at Gulfstream Park	Hallandale City	Broward	2014	86 acres	750,000 sf retail 140,000 sf office 500 hotel rooms 1,500 residential units 1.2 acres open space
Waterway Village	Vero Beach	Indian River	2012	696	30,000 sf retail 1,740 residential units

above 1990 levels. Statewide, approximately 36 percent of GHG emissions are derived from the transportation sector, with electric generation and use accounting for approximately 42 percent of total GHG emissions. Therefore, future increases in GHG emissions are essentially tied to providing consumer energy and transportation services to a growing population base.

The transportation sector's GHG emissions in Florida are predominantly derived from personal vehicle travel in cars and light trucks, accounting for almost 2/3 of the total transportation sector GHG emissions. The primary source of growth in transportation-related GHG emissions is increased travel in Florida. Annual VMT in 1990 was 110 billion and in 2007 VMT grew to over 206 billion. Reducing transportation's contributions to climate change involves a four-part strategy: improve vehicle fuel efficiency, reduce carbon content of fuel, increase transportation system efficiency, and reduce growth in travel. As part of these efforts, an increase in the use of rail, accompanied by a reduction in the use of the personal automobile, can help to reduce overall GHG emissions from the transportation sector.

Florida Executive Order 07-127, Establishing Immediate Actions to Reduce Greenhouse Gas Emissions within Florida, established the following state GHG emission reduction targets:

- by 2017, reduce GHG emissions to 2000 levels
- by 2025, reduce GHG emissions to 1990 levels
- by 2050, reduce GHG emissions by 80 percent of 1999 levels.

Florida's Energy and Climate Change Action Plan, completed in 2008, contained 50 policy recommendations to reduce GHG emissions (FDOT, Center for Urban Transportation Research-USF, 2009). The Action Plan recommends a set of seven policies for the transportation and land use sector that offer opportunities for major economic benefits and GHG emission

reductions. Many of these recommendations reinforce ongoing activities within FDOT that seek to address climate change:

- increasing transportation system efficiency by reducing congestion and delay
- reducing growth in vehicle miles traveled by funding alternative modes
- piloting pricing strategies that reduce congestion and vehicle miles traveled
- working cooperatively with partners on regional visioning efforts that encourage sustainable development patterns that reduce greenhouse gas emissions
- improving and making agency operations more efficient
- supporting transit "new starts" projects and transit studies

On a comparative basis, shifting travel to conventional or high speed rail from personal automobile travel reduces the overall emission of GHG approximately 50 percent per equivalent passenger mile (exhibit 3.37). Considering a round trip of 700 miles between Jacksonville and Miami, the potential GHG reduction is substantial.

Considering the potential for new land use policies which strive to concentrate development and reduce overall VMT and potential efficiency improvements in rail technology, the potential for reduction in GHG emissions from the transportation sector through the expansion of high speed rail technology could play a key role in helping Florida achieve its transportation-sector GHG reduction goals.

Exhibit 3.37 – *Summary Emissions Factors by Mode*

Mode	Emissions Per Passenger Mile (lbs CO_2)	Emissions Per Vehicle Mile (lbs CO_2)	Passengers Per Vehicle
Bus	0.14	4.87	35
Conventional rail	0.21	66.96	322
High Speed Rail	0.26	25.10	97
Automobile	0.53	0.85	1.6
Airplane	0.62	48.04	77

Source: *Center for Clean Air Policy and Center for Neighborhood Technology, January 2006*

Chapter 4

Coordination and Consultation

Chapter 4 summarizes the coordination and consultation activities performed for this study among the federal, state, and local agencies and the public.

4.1 Introduction

Throughout this study, Amtrak and the FDOT coordinated with federal and state regulatory and resource agencies, the cities where the stations are located and regional and other special-interest groups. Public involvement would continue under project-level NEPA compliance.

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).

4.2 Corridor-Wide Outreach and Support

To date, 113 resolutions and letters of support for the project have been received from Governor Charlie Crist, local governments, MPO Boards, agencies, and state-wide organizations, including both public and private entities (exhibit 4.1).

Exhibit 4.1 – *Adopted Resolutions & Letters of Support (As of 9/23/2009)*

	County	Res #	Date Adopted
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
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
Davie, Town of	Broward	2009-134	3-Jun-09
Delray Beach, City of	Palm Beach	19-09	21-Apr-09

Exhibit 4.1 – *Adopted Resolutions & Letters of Support (As of 9/23/2009) (Continued)*

	County	Res #	Date Adopted
Delray Beach CRA	Palm Beach	09-02	28-May-09
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
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 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
Greenacres, City of	Palm Beach	2009-15	1-Jun-09
Gulf Stream, Town of	Palm Beach	009-2	9-Apr-09
Hobe Sound Chamber of Commerce	Martin	2009-1	18-May-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 MPO	Indian River	2009-05	8-Jul-09
Indian River Shores, Town of	Indian River	09-02	25-Jun-09
Jacksonville Transit Authority	Duval	2009-20	25-Jun-09
Jensen Beach Chamber of Commerce	Martin	5-19-09	19-May-09
Juno Beach, Town of	Palm Beach	2009-09	22-Apr-09
Jupiter, Town of	Palm Beach	16-09	7-Apr-09
Kennedy Space Center Visitors Complex	Brevard	Letter	16-Sep-09
Lantana, Town of	Palm Beach	R-07-2009	22-Jun-09
Malabar, Town of	Brevard	09-2009	18-May-09
Main Street Vero Beach	Indian River	09-08	8-Sep-09
Maitland, City of	Orange	Letter	11-Aug-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

Exhibit 4.1 – *Adopted Resolutions & Letters of Support (As of 9/23/2009) (Continued)*

	County	Res #	Date Adopted
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
Metroplan Orlando	Orange, Osceola & Seminole	09-20	12-Aug-09
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
Ocean Ridge, Town of	Palm Beach	2009-03	6-Jul-09
Orange County Government (BOCC)	Orange	2009-M-35	11-Aug-09
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
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
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
Rockledge, City of	Brevard	652-2009	3-Jun-09
St. Augustine, City of	St Johns	2009-13	22-Jun-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 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

Exhibit 4.1 – *Adopted Resolutions & Letters of Support (As of 9/23/2009) (Continued)*

	County	Res #	Date Adopted
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
Space Coast Association of Realtors, Inc.	Brevard	Letter	25-Sep-09
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
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
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

4.3 Stations

Alternative sites were considered for each station. Within each city, Amtrak and the FDOT consulted with each of the eight cities where the stations are to be located.

4.3.1 St. Augustine

The issues identified for the proposed Site 1 – US 1 @ San Marco Avenue station alternative site were:

- alternative site is not walkable because of the distance from the downtown area

- alternative site is serviceable by the bus but not by the trolley (trolley cannot travel on US-1)
- alternative site has accessibility and safety that are better than other alternative sites

The issues identified for the proposed Site 2 – US 1 @ Carrera Street station alternative site were:

- alternative site has no current bike or pedestrian path
- alternative site is the most pedestrian friendly
- alternative site has a poor roadway network, near a congested area, curve, and roadway bridge

The issues identified for the proposed Site 3 – St. Augustine/St. Johns County Airport station alternative site were:

- alternative site is more intermodal than other alternative, where there is car rental services, Sunshine Bus services, and parking available at the airport
- alternative site is outside the city limits on county property

4.3.2 Daytona Beach

The issue identified for the proposed Site 1 – Magnolia Avenue station alternative site was:

- alternative site needs caretaker due to the designation of "small station" at this location

No issues were identified for the proposed Site 2 – Orange Avenue or Site 3 – Live Oak Avenue alternative sites.

The issue identified for the proposed Site 4 – International Speedway Boulevard station alternative site was:

- alternative site is a narrow parcel and with current business on this parcel

4.3.3 Titusville

The issues identified for the proposed Site 1 – Julia Street station alternative site were:

- alternative site needs to be a manned station due to baggage needs of cruise ship passengers leaving from Port Canaveral
- alternative site needs parking area to accommodate other transit means (buses, taxis, etc.); Space Center visitors need to be accommodated
- alternative site is located in Brevard County, which is officially a distressed area
- beach near alternative site is "all natural", meaning there is no development
- eco-tourism is an important draw for the area in which the alternative site is located and the beach is a wildlife refuge
- alternative site is near regional recreation facility close by on waterfront
- alternative site may only be large enough for a caretaker station

The issues identified for the proposed Site 2 – Space Center Executive Airport station alternative site were:

- alternative site needs to be a manned station due to baggage needs of cruise ship passengers leaving from Port Canaveral
- alternative site needs parking area to accommodate other transit means (buses, taxis, etc.); Space Center visitors need to be accommodated
- alternative site is located in Brevard County, which is officially a distressed area
- beach near alternative site is "all natural", meaning there is no development
- eco-tourism is an important draw for the area in which the alternative site is located and the beach is a wildlife refuge
- alternative site would require a land swap between city, which owns 20 acres , with private owner but no dialogue started yet
- alternative site is eight miles closer to port than downtown site (20 minute ride)

4.3.4 Cocoa

The issues identified for the proposed Site 1 West King Street (SR 520) station alternative site were:

- Brownfield exists on both sides of track near alternative site
- Stone Street, which bisects the alternative site, is already closed to auto and foot traffic
- Lemon Street , south of Stone Street, is not a through grade crossing (dead ends on both sides of track)

The issues identified for the proposed Site 2 – Rosa L. Jones Boulevard station alternative site were:

- area to immediate west of alternative site is unfavorable
- alternative site has unfavorable access to downtown and other places

4.3.5 Melbourne

The issues identified for the proposed Site 1 – Melbourne International Airport station alternative site were:

- alternative site is on airport authority property
- alternative site is adjacent to Babcock Corridor, a tract of retail and residential uses

The issue identified for the proposed Site 2 – Prospect Avenue station alternative site was:

- alternative site is on a track curve

4.3.6 Vero Beach

The issues identified for the proposed Site 1 – 19th Place station alternative site were:

- city has lease hold with private entity for alternative site
- alternative site is problematic due to current tenant lease as well as platform would obstruct other warehouses to the south

- alterative site has groundwater contamination with onsite-monitoring wells

The issue identified for the proposed Site 2 – 20th Place station alternative site was:

- alternative site would need a comprehensive plan change for zoning

4.3.7 Fort Pierce

No issues were identified for the proposed Site 1 – Orange Avenue station alternative site. The issue identified for the proposed Site 2 – Avenue A station alternative site was:

- alternative site has restriction for the platform size due to canal crossing

4.3.8 Stuart

The issue identified for the proposed Ocean Boulevard station alternative site was:

- safety is an issue for passengers on foot crossing "confusion corner" because alternative site has no pedestrian crossing in place currently

4.4 Letters of Resolution from Station Alternative Cities

Each of the eight cities where the stations are proposed submitted a letter of resolution. 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

4.5 Consultation with Regulatory and Resource Agencies

During the course of the study, packages containing maps of historical and cultural resources, water resources, and land resources were sent to the National Marine Fisheries Service (NMFS), the SHPO, the USACE, and the USFWS for consultation.

- The NMFS's response letter, in reference to the entire corridor and all station areas, states that potential impacts to NMFS trust resources could occur at station sites 1 and 2 in St. Augustine. All impacts to salt marshes within these areas should be avoided. Additionally, if modifications and/or the construction of new bridges are later proposed along the mainline and transverse tidal waters, it would likely effect EFH and an EFH Assessment would be required. The NMFS would continue to review the project as it progresses and provide comments as necessary.
- The SHPO's response letter indicated that they would continue consultation as the project continues and develops.
- The USACE's response letter in District 2 stated that no impacts would occur to waters of the U.S. in Duval County. The sites in St. Johns County would not directly impact waters of the U.S., but Site 2 – US 1 @ Carrera Street station alternative in St. Augustine could indirectly impact waters of the U.S. The USACE would review the proposed project in futher detail when more information and time permit.
- The USACE's response letter in Districts 4 and 6 stated that they reviewed the project and understand its purpose. They would provide additional comments as the project develops.
- The USACE's response letter in District 5 stated, of the eight station sites proposed in District 5, the TICO airport entrance (south of SR 405) may have moderate to high quality wetland resources in

proximity to the station; these resources should be avoided to the maximum extent practicable and any unavoidable impacts mitigated. The Melbourne airport site appears to have a jurisdictional surface water (ditch) which would need Department of the Army authorization should impacts to the ditch be proposed. Mitigation should be proposed for any unavoidable impacts to the surface water. The remaining six station sites did not appear have any substantial resources of concern, however may have jurisdictional surface waters that are not apparent on the aerials reviewed. Secondary issues would need to be addressed. They would provide additional comments as the project develops.

- The USFWS's response letter in Districts 4, 5, and 6 stated, the USFWS encourages and supports the revitalization of existing rail lines to promote multi-modal use within the state of Florida. Upon the initial review of the proposed action, the USFWS anticipates a low to moderate impact on federally listed species and natural resources held in "trust" by the federal government along the existing railway. USFWS would continue to coordinate on the proposed action.

Chapter 5

Preparers

Federal Railroad Administration

[To be completed]

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Chapter 6

Distribution List

This PEA was distributed to federal, state, and local agencies with jurisdiction by law or special expertise, and agencies, tribes, and local entities, which may be interested in the study.

Federal Agencies

U.S. Army Corps of Engineers
Jacksonville District
701 San Marco Boulevard
Jacksonville, Florida 32207-0019

U.S. Coast Guard, Seventh District Commander
USCG Seventh District
Brickell Plaza Federal Building
909 SE 1st Avenue
Miami, Florida 33131-3050

U.S. Department of Agriculture
Natural Resources Conservation Service
Florida State Office
2614 N.W. 43rd Street
Gainesville, Florida 32606-6611

U.S. Department of Commerce
National Marine Fisheries Service
Southeast Regional Office
263 13th Avenue South
Saint Petersburg, Florida 33701

U.S. Department of Interior
Fish and Wildlife Service
Jacksonville Ecological Services Field Office
7915 Baymeadows Way, Suite 200
Jacksonville, Florida 32256-7517

U.S. Department of Interior
Fish and Wildlife Service
South Florida Ecological Services Field Office
1339 20th Street
Vero Beach, Florida 32960-3559

U.S. Department of Interior
National Park Service
1 South Castillo Drive
St Augustine, Florida 32084-3252

U.S. Department of Interior
United States Geological Survey
State representative
227 North Bronough Street, Suite 3015
Tallahassee, Florida 32301

U.S. Department of Transportation
Federal Aviation Administration
Federal Aviation Administration Orlando Airports District Office
5950 Hazeltine National Drive, Suite 400
Orlando, Florida 32822-5024

U.S. Department of Transportation
Federal Highway Administration
1200 New Jersey Ave., SE.
Room E72-214
Washington, DC 20590

U.S. Department of Transportation
Federal Railroad Administration Region 3
61 Forsyth Street, SW - Suite 16T20
Atlanta, GA 30303-3104

U.S. Department of Transportation
Federal Transit Administration
230 Peachtree, NW
Suite 800
Atlanta, GA 30303

U.S. Department of Housing and Urban Development
Miami Field Office
909 SE First Avenue
Miami, Florida 33131

U.S. Department of Housing and Urban Development
Jacksonville Field Office
Charles E. Bennett Federal Building
400 West Bay Street, Suite 1015
Jacksonville, Florida 32202

U.S. Environmental Protection Agency
Office of Federal Activities
EIS Filing Section
Ariel Rios Building (South Oval Lobby)
1200 Pennsylvania Avenue, NW
Washington, DC 20004

U.S. Department of Health and Human Services Region 4
Sam Nunn Atlanta Federal Center (SNAFC)
61 Forsyth Street, SW
Atlanta, GA 30303-8909

Advisory Council on Historic Preservation
1100 Pennsylvania Avenue NW, Suite 803
Old Post Office Building
Washington, DC 20004

Federal Emergency Management Agency
3003 Chamblee Tucker Road
Atlanta, GA 30341

Federal Emergency Regulation Commission
Environmental Evaluation Branch
825 North Capital Street Room 7102
Washington, DC 20426

Miccosukee Indian Village
Mile Marker 70
U.S. 41 Tamiami Trail
Miami, Florida 33144

Seminole Nation of Florida
6300 Stirling Road
Hollywood, Florida 33024

State Agencies

Florida Department of Agriculture and Consumer Services
Charles H. Bronson, Commissioner
The Capitol
Tallahassee, Florida 32399-0800

Florida Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Florida Department of Environmental Protection
Land Use & Biological Services
3900 Commonwealth Boulevard
MS 130
Tallahassee, Florida 32399

Florida Department of Environmental Protection
Office of Siting Coordination
3900 Commonwealth Boulevard
Tallahassee, Florida 32399

Florida Department of Transportation District 2
2198 Edison Avenue
Jacksonville, Florida 32204-2730

Florida Department of Transportation District 4
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309

Florida Department of Transportation
District 5
719 South Woodland Boulevard
DeLand, Florida 32720

Florida Department of Transportation District 6
1000 N.W. 111 Avenue
Miami, Florida 33172

Florida Department of Transportation
Stephanie C. Kopelousos, Secretary of Transportation
605 Suwannee Street
Tallahassee, Florida 32399-0450

Florida Department of State
Division of Historical Resources
PL-02, The Capitol
Tallahassee, Florida 32399

Florida Fish and Wildlife Conservation Commission
Office of Environmental Services
Ferris Bryant Building
620 S. Meridian Street
Tallahassee, Florida 32399

Florida Game & Fresh Water Fish
Commission
620 South Meridian Street
Tallahassee, Florida 32399

Florida Land & Water
Adjudicatory Commission
Office of the Governor
The Capitol
Tallahassee, Florida 32399

Regional Organizations

Florida Metropolitan Planning Organization
605 Suwannee Street
Tallahassee, Florida 32399-0450

South Florida Regional Planning Council
3440 Hollywood Blvd. Suite 140
Hollywood, Florida 33021

South Florida Regional Transportation Authority
Tri-Rail EDP
P.O. Box 5148
Lighthouse Point, Florida 33074-5148

South Florida Water Management District
P.O. Box 24680
West Palm Beach, Florida 33416-4680

Treasure Coast Regional Planning Council
Camden Avenue
Stuart, Florida 34994

County Agencies

- Brevard County - Engineering (Public Works Department Director)
- Brevard County - Planning (Director)
- Brevard County - Planning (Planning & Development Director)

- Brevard County - Public Works (Director)
- Brevard County MPO
- Flagler County Chamber of Commerce
- Indian River County - Senior Resource Association (Community Coach)
- Indian River County Chamber of Commerce
- Indian River County Community Dev't (Community Development Director)
- Indian River County Historical Society (President)
- Indian River County MPO (Executive Director)
- Indian River County Planning (Planning Director)
- Indian River County Public Works (PW Director)
- Martin County - Airport Director
- Martin County - Business Development Board
- Martin County - Convention & Visitors Bureau
- Martin County - Engineering Director
- Martin County - Growth Management Director
- Martin County Council on Aging
- Martin County MPO (Director)
- Martin County Tourist Development Council
- St. Johns County Chamber of Commerce
- St. Johns County Transit
- St Lucie Chamber Chamber of Commerce
- St Lucie County - Engineering
- St Lucie County - Planning (Assistant Director)
- St Lucie County - Planning (Director)
- St Lucie County Tourist Development Council
- St Lucie TPO (Executive Director)
- St Lucie TPO (Senior Planner - Transit)
- St. Lucie County Transit
- Volusia County - Economic Development (Interim Director)
- Volusia County - Engineering
- Volusia County - Growth & Resource Management (Director)
- Volusia County Administration (Manager)
- Volusia County MPO (Executive Director)
- Volusia County MPO (FDOT Liaison)
- Volusia County Transit (Interim General Manager)

- Southeast Volusia Chamber of Commerce

Local Governments

- Boca Raton CRA
- Boynton Beach CRA
- City of Atlantis
- City of Belle Glade
- City of Boca Raton
- City of Boynton Beach
- City of Bunnell
- Cocoa - City Administration (City Manager)
- Cocoa - City Administration (Deputy City Manager)
- Cocoa - Community Development Director
- Cocoa - Deputy Community Development Director
- Cocoa - Economic Development (Manager)
- Cocoa - Engineering/Public Works (Director)
- Cocoa - Planning Dept (Planning Manager)
- Daytona Beach - City Manager
- Daytona Beach - Deputy CM/Public Works Director
- Daytona Beach - Development Svcs (Development Services Director)
- Daytona Beach - Economic Development (Director)
- Daytona Beach - Engineering/Public Works
- Daytona Beach Planning (Planning Director)
- City of Daytona Beach Shores
- City of DeBary
- City of DeLand
- City of Delray Beach
- City of Deltona
- City of Edgewater
- City of Fellsmere
- City of Flagler Beach
- Fort Pierce (Assistant City Manager)
- Fort Pierce (City Engineer)
- Fort Pierce (City Manager)
- Fort Pierce (Community Development - Director)
- Fort Pierce (Director - Planning Dept)
- City of Greenacres

- City of Holly Hill
- City of Indian Harbor Beach
- City of Jacksonville
- Jensen Beach Chamber of Commerce
- City of Lake Helen
- City of Lake Worth
- Melbourne - Economic Development (Economic Development Coordinator)
- Melbourne - Planning Dept (Planning & Economic Development Director)
- Melbourne (Assistant City Manager)
- City of New Smyrna Beach
- City of Oak Hill
- City of Orange City
- City of Ormond Beach
- City of Pahokee
- City of Palm Bay
- City of Palm Beach Gardens
- City of Palm Coast
- City of Pierson
- City of Ponce Inlet
- City of Port Orange
- City of Port St Lucie - CRA
- City of Riveria Beach
- City of Rockledge
- City of Satellite Beach
- City of Sebastian
- City of South Bay
- City of South Daytona
- City of St Augustine
- City of St Augustine Beach
- Stuart - Administration (Manager)
- Stuart - City Development (CRA Manager)
- Stuart - Interim Planning Director
- Stuart - Public Works (Director)
- Vero - City Manager
- Vero - Public Works (PW Director)

- Vero (Planning Director)
- Vero- Airport (Director)
- City of West Melbourne
- City of West Palm Beach
- Delray Beach CRA
- Titusville - City Administration (City Manager)
- Titusville - ED (Executive Dir / SEDC)
- Titusville - Planning
- Titusville - Planning (Executive Director)
- Titusville - Public Works/Engineering
- Town of Briny Breezes
- Town of Cloud Lake
- Town of Glen Ridge
- Town of Grant-Valkaria
- Town of Gulf Stream
- Town of Haverhill
- Town of Highland Beach
- Town of Hypoluxo
- Town of Indialantic
- Town of Indian River Shores
- Town of Juno Beach
- Town of Jupiter
- Town of Jupiter Inlet Colony
- Town of Lake Clarke Shores
- Town of Lake Park
- Town of Lantana
- Town of Loxahatchee Groves
- Town of Malabar
- Town of Manalapan
- Town of Mangonia Park
- Town of Melbourne Beach
- Town of Melbourne Village
- Town of Ocean Ridge
- Town of Orchid
- Town of Palm Beach
- Town of Palm Beach Shores
- Town of Palm Shores

- Town of South Palm Beach
- Village of Golf
- Village of North Palm Beach
- Village of Palm Springs
- Village of Royal Palm Beach
- Village of Tequesta
- Village of Wellington

Other Interested Parties

- 1000 Friends of Florida
- Business Development Board of Palm Beach County
- Daytona Beach Airport
- Daytona CVB
- Delray Beach CRA
- ECFRPC
- Economic Council of Palm Beach County
- Ft Pierce CRA
- Historic St Augustine Council
- IRC Chamber
- IRC MPO
- IRC Realtors
- Jacksonville Economic Development Commission
- Jacksonville Regional Chamber of Commerce
- Jacksonville Transit
- Jacksonville Transit
- Jacksonville Transit
- Jacksonville & the Beaches Convention and Visitor's Bureau
- Jupiter CRA
- Lake Park CRA
- Lake Worth CRA
- Martin - HS Chamber
- Realtors' Association of Martin County
- Martin County Tourist Development Council
- Melbourne Airport Authority
- Melbourne Airport Authority (Director of Operations)
- Melbourne Airport Authority (Executive Director)
- NEFRPC

- New Smyrna Beach CRA
- North Florida MPO
- Palm Beach Convention and Visitors' Bureau
- Delray Beach CRA
- Palm Beach County Hotel & Lodging Association
- Ponte Vedra Chamber of Commerce
- Port Canaveral (Director of Planning)
- Sebastian River Area Chamber of Commerce
- Sewall's Point - Town Manager
- SFRTA - Director of Planning
- SFRTA - Director of Real Estate & Planning
- SFRTA - Planning Manager
- SFRTA (Director of Planning & Engineering)
- SFRTA (Manager of Planning & Capital Development)
- SFRTA (Transportation Planning Manager)
- Space Coast Regional Airport (Executive Director)
- Space Coast Area Transit (Manager of Planning & Communications)
- Space Coast Area Transit (Operations Manager)

Chapter 7

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