

Appendix 1.1-A1

2012 EA, All Aboard Florida Passenger Rail Project – West Palm Beach to Miami, Florida

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LIST OF ACRONYMS

AADT	Average Annual Daily Traffic
AAF	All Aboard Florida – Stations LLC and All Aboard Florida – Operations LLC
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
AIWA	Atlantic Intracoastal Waterway Association
APE	Area of Potential Effect
BEA	U.S. Bureau of Economic Analysis
BEBR	Bureau of Economic and Business Research
BTU	British Thermal Unit
CAAA	Clean Air Act Amendments
CBD	Central Business District
CBRA	Coastal Barrier Resource Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO2	Carbon Dioxide
CRA	Community Redevelopment Area
CRAS	Cultural Resource Assessment Survey
CSXT	CSX Transportation
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dBA	A-weighted sound levels
DHR	Division of Historical Resources
DOE	U.S. Department of Energy
EA	Environmental Assessment
ECFRPF	East-Central Florida Regional Planning Council
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ERP	Environmental Resource Permit
ESA	Endangered Species Act
ESBA	Endangered Species Biological Assessment
FAC	Florida Administrative Code
FCMA	Florida Coastal Management Act
FCMP	Florida Coastal Management Program
FDACS	Florida Department of Agriculture & Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEC	Florida East Coast
FECR	Florida East Coast Railway, L.L.C.
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

FLUCCS	Florida Land Use, Cover, and Forms Classification System
FMC	Fishery Management Council
FONSI	Finding of No Significant Impact
FRA	Federal Railroad Administration
F.S.	Florida Statute
FTA	Federal Transit Administration
FTE	Full Time Equivalent
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
GIS	Geographic Information System
GPR	Ground Penetrating Radar
HAPC	Habitat Areas of Particular Concern
Hz	Hertz
I-95	Interstate 95
ISTEA	Intermodal Surface Transportation Efficiency Act
KG	Kilogram
Ldn	Day-Night Sound Level
LEED™	Leadership in Environmental and Energy Design
Leq	Equivalent Sound Level
LOS	Level of Service
MIA	Miami International Airport
MIC	Miami Intermodal Center
MP	Mile Post
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OFW	Outstanding Florida Water
OGT	Office of Greenway and Trails
PD&E	Project Development and Environmental
PPV	Peak Particle Velocity
PTC	Positive Train Control
RRIF	Railroad Rehabilitation and Improvement Financing
RIMS II	Regional Input-output Modeling System
RMS	Root Mean Square
ROW	Right-of-Way
RSIA	Rail Safety Improvements Act of

SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAFMC	South Atlantic Fishery Management Council
SCE	Sociocultural Effects
SEL	Sound Exposure Level
SFECC	South Florida East Coast Corridor
SFECCTA	South Florida East Coast Corridor Transit Analysis
SFRC	South Florida Rail Corridor
SFRTA	South Florida Regional Transportation Authority
SFWMD	South Florida Water Management District
SHPO	State Historic Preservation Officer
SOV	Single-occupant Vehicle
sqft	Square Feet
TEA-21	Transportation Equity Act for the 21st Century
TMDL	Total Maximum Daily Load
TOD	Transit-oriented Development
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
VdB	Vibration Decibels
VMF	Vehicle Maintenance Facility
VMT	Vehicle Miles Traveled

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1.0 PURPOSE AND NEED

1.1 Introduction¹

This Environmental Assessment (EA) and Section 4(f) Evaluation for the All Aboard Florida West Palm Beach to Miami Passenger Rail Project (Project) was prepared jointly by All Aboard Florida – Stations LLC and All Aboard Florida – Operations LLC (AAF). FRA reviewed and commented on draft versions of the document and approved this version for release for public circulation and comment. The purpose for the Project is to address South Florida’s current and future needs to enhance the transportation system, improve air quality, create jobs, provide a transportation alternative for millions of Floridians and tourists, and support economic development by:

- Returning the existing Florida East Coast (FEC) corridor to a dual-track system to allow for the restoration of fast, dependable and efficient passenger rail service within Southeast Florida; and
- Implementing a privately owned, operated, and maintained intercity passenger rail service that will connect downtown West Palm Beach to downtown Miami with one stop in downtown Fort Lauderdale.

As described in more detail in Section 1.3, Project Description, and Section 2, Alternatives, the following improvements are proposed between West Palm Beach and Miami to provide intercity passenger rail service:

- Three new stations located in the Central Business Districts (CBDs) of West Palm Beach, Fort Lauderdale and Miami;
- New platforms at each proposed station (single 35-foot wide center island platform of 800 feet in length at both West Palm Beach and Fort Lauderdale; 1,000-foot long terminal platforms in Miami);
- New track signal controls;
- 49.2 total miles of new second main track construction within the existing FEC corridor;
- Upgrades at existing highway and pedestrian crossings on the FEC corridor to enhance safety;
- 8.3 miles of siding rehabilitation at the following mile-post (MP) locations: Hypoluxo (MP 309), Villa Rica (MP 321), Pompano (MP 331), and Ojus (MP 353);
- Rehabilitating 3 bridges to add a second track at the following mile-post locations: MP 319.55, MP 334.93 and MP 354.51;
- 7 bridges to remain single track at the following mile-post locations with #24 Turnouts at each end of the bridge to connect the second track to the single main: MP 304.05, MP 311.45, MP 326.58, MP 337.9, MP 338.52, MP 353.74 and MP 356.53; and

¹In drafting this EA, including Section 1, the preparers reviewed the Draft Environmental Assessment and 4(F) Evaluation for The FEC Amtrak Passenger Rail Study Jacksonville (Duval County) to Miami (Miami-Dade County), Florida, by FRA and FDOT. See <http://www.dot.state.fl.us/rail/FECAmtrak/0901%20-%20Draft%20EA%20-%20August%202010.pdf>. This document contains information and language from that draft, which aptly summarized and addressed many issues under consideration here. For further information regarding development in the FEC corridor consistent with the Project plans, see, also, documents issued as part of the South Florida East Coast Corridor Transit Analysis Study managed by FDOT. See, e.g., <http://www.sfecstudy.com/study-process>; <http://www.sfecstudy.com/documents.html>; http://www.sfecstudy.com/draft_docs/Final%20Detailed%20Definition%20of%20Alternative%20Analysis%20Report.pdf.

- New crossovers to be built at the following mile-post locations: MP 351.2, MP 309.3, MP 365.2, MP 289.8, MP 319.5, MP 321.5, MP 330.5, MP 332.3 and MP 360.7.

1.1.1 Project System

AAF has the existing right to develop passenger rail service within the complete 66-mile route, which is entirely privately owned, in place, in use and available. As such, the Project's system is "shovel-ready" and may be completed promptly within the existing FEC right-of-way (ROW). Using this existing ROW – on a corridor that was originally assembled to provide passenger rail service – establishes an ideal platform to reinstate necessary passenger service while minimizing any potential environmental impacts of construction. As shown in this document, the planned mainline improvements are, simply, the restoration of an existing rail ROW for passenger operations in a manner that will (1) not significantly impact ecologically sensitive areas or wetlands; (2) not substantially change levels of noise, vibration, or pollutants; and (3) not impact historic resources. These mainline improvements will primarily take place within a corridor that has existed for more than 100 years and has historically seen heavy freight and passenger traffic, see Existing Typical Section, Figure 1-1.1.

At the highest utilization rate of the ROW, which occurred in 2006, there were 23 through-freight trains per day over this FEC corridor running daily on the existing track (i.e., those trains running through one or more terminals before reaching a final destination, as opposed to local freight trains serving customers along the line). By contrast, and as discussed herein, the operations proposed for the Project – even when combined with existing and future freight operations – will be more limited. This is true because more efficient freight operations with faster, longer trains, have resulted in a reduced usage, with only 10 daily through-freight trains in operation today. See Table 1-1.1.

This reduced freight usage is a permanent condition -- even if projected growth in freight operations is considered. As detailed in Section 1.3, Project Description, the nature of the projected freight growth in traffic is different than in the past because the increasing trend to move freight in containers ("intermodal") has made possible both an increase in capacity and an increase in efficiency for the movement of tonnage growth on the nation's freight railroads. The utilization of the FEC corridor will also be less impactful than the 2006 peak usage because the Project's passenger rail system would provide service with trains that are faster, quieter and lighter than any that have been used within the FEC corridor to date. Thus, as described in more detail in Section 3, Affected Environment and Environmental Consequences, the operations occurring within the FEC corridor in previous years when freight traffic was at its peak in 2006 caused far more impacts than the proposed overall utilization of the FEC corridor. This is true even taking into account AAF's plan to return passenger rail service together and the projected growth of freight train operations. See Table 1-1.2.

Further, adding and replacing tracks within an existing corridor requires no acquisition of ROW property for the mainline and requires less construction than a "green-field" project, thereby resulting in minimal disruption to the environment and local communities. Construction of a rail line on a new corridor typically requires substantial earthwork to prepare the roadbed, including excavation, grading, and clearing and grubbing of vegetation. Alternatively, installing or restoring track on an existing rail right-of-way requires less earthwork and does not implicate water, species, or other more typical

environmental impacts, see Proposed Typical Section, Figure 1-1.2. Maintenance of traffic is also minimized when working within an existing transportation corridor.

**Table 1-1.1
 FEC Corridor Usage
 2006 and Proposed Opening Year of 2015**

Year	Train Type	Frequency	Hours of Service	Speed (MPH)			Average Length (Feet)
				Palm Beach Co	Broward Co	Miami-Dade Co	
2006	Freight (local)	4	24/7/365	28.5 Average; 60 Maximum	22.6 Average; 60 Maximum	29.5 Average; 60 Maximum	6,750
	Freight (through)	23	24/7/365	28.5 Average; 60 Maximum	22.6 Average; 60 Maximum	29.5 Average; 60 Maximum	6,750
	Passenger	0	0	0	0	0	0
2015	Freight (local)	4	24/7/365	30.5 Average; 60 Maximum	30.5 Average; 60 Maximum	31.3 Average; 60 Maximum	8,837
	Freight (through)	10	24/7/365	30.5 Average; 60 Maximum	30.5 Average; 60 Maximum	31.3 Average; 60 Maximum	8,837
	Passenger	12	NB = 6:20 to 20:20 SB = 5:50 to 19:50	60.1 Average; 79 Maximum			725 to 900 ²

² Note that the length of 725 feet contemplates a train set consisting of two locomotives, each 65 feet long, and seven passenger cars, each 85 feet long, while the approximately 900 feet contemplates the possible addition of two passenger cars to the set.

**Table 1-1.2
 Comparative Matrix
 Preferred Build Project Alternative, 2006 Peak, and Current Conditions**

Categories of Consequences	Preferred Build Project Alternative	2006 Peak Freight Activity	Current Conditions
Air Quality	No Impact	No Impact	No Impact
Water Quality	No Impact	No Impact	No Impact
Surface Water Quality	No Impact	No Impact	No Impact
Sole Source Aquifer	No Impact	No Impact	No Impact
Wellfield Protection Zones	No Impact	No Impact	No Impact
Waterbodies and Waterways	No Impact	No Impact	No Impact
Navigation	No Impact	No Impact	No Impact
Special Designations	No Impact	No Impact	No Impact
Floodplains	Minimal	No Impact	No Impact
Wetlands	No Impact	No Impact	No Impact
Essential Fish Habitat	No Impact	No Impact	No Impact
Coastal Zones	Consistent	Consistent	Consistent
Noise	Minimal	Minimal	Minimal
Vibration	Minimal	Minimal	Minimal
Ecological Systems	No Impact	No Impact	No Impact
Threatened and Endangered Species	No Impact	No Impact	No Impact
Rail Transportation and Regional Roadway Network	Minimal/Beneficial	Peak year activity for freight 23 through/4 local	10 through/4 local
Local Vehicular Transportation	No Impact/Minimal	N/A	N/A
Parking	No Impact/Minimal	N/A	N/A
Land Use	Consistent	N/A	N/A
Environmental Justice and Demographics	Minimal	N/A	N/A
Barriers to the Elderly and Handicapped	N/A/Beneficial	N/A	N/A
Public Health and Safety	Beneficial	N/A	N/A
Contaminated Sites and Hazardous Materials	No Change	Weekly transport	Weekly transport
Cultural Resources	Minimal	N/A	N/A
Section 4(f) and Recreational Resources	No Change	N/A	N/A
Municipal Services	Minimal	N/A	N/A
Energy Resources	No Change	N/A	N/A
Aesthetics	No Change/Improvement	N/A	N/A
Construction Impacts	Minimal (Temporary)	N/A	N/A
Potential Secondary Impacts	Minimal/Beneficial	N/A	N/A
Potential Cumulative Impacts	Beneficial	N/A	N/A

Notes on terminology:

- **N/A:** Not applicable because the conditions did not involve or include these resources;
- **No Impact:** No impacts and/or changes expected;
- **Beneficial:** Positive impacts anticipated;
- **Minimal:** Impacts are not expected to be measurable, or are measurable but are too small to cause any change in the environment;
- **Minor:** Impacts that are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated with little effort and few resources so that the impact is not substantial;
- **Moderate:** Impacts that are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated with effort and resources so that the impact is not substantial;
- **Major–**Environmental impacts that, individually or cumulatively, could be substantial.

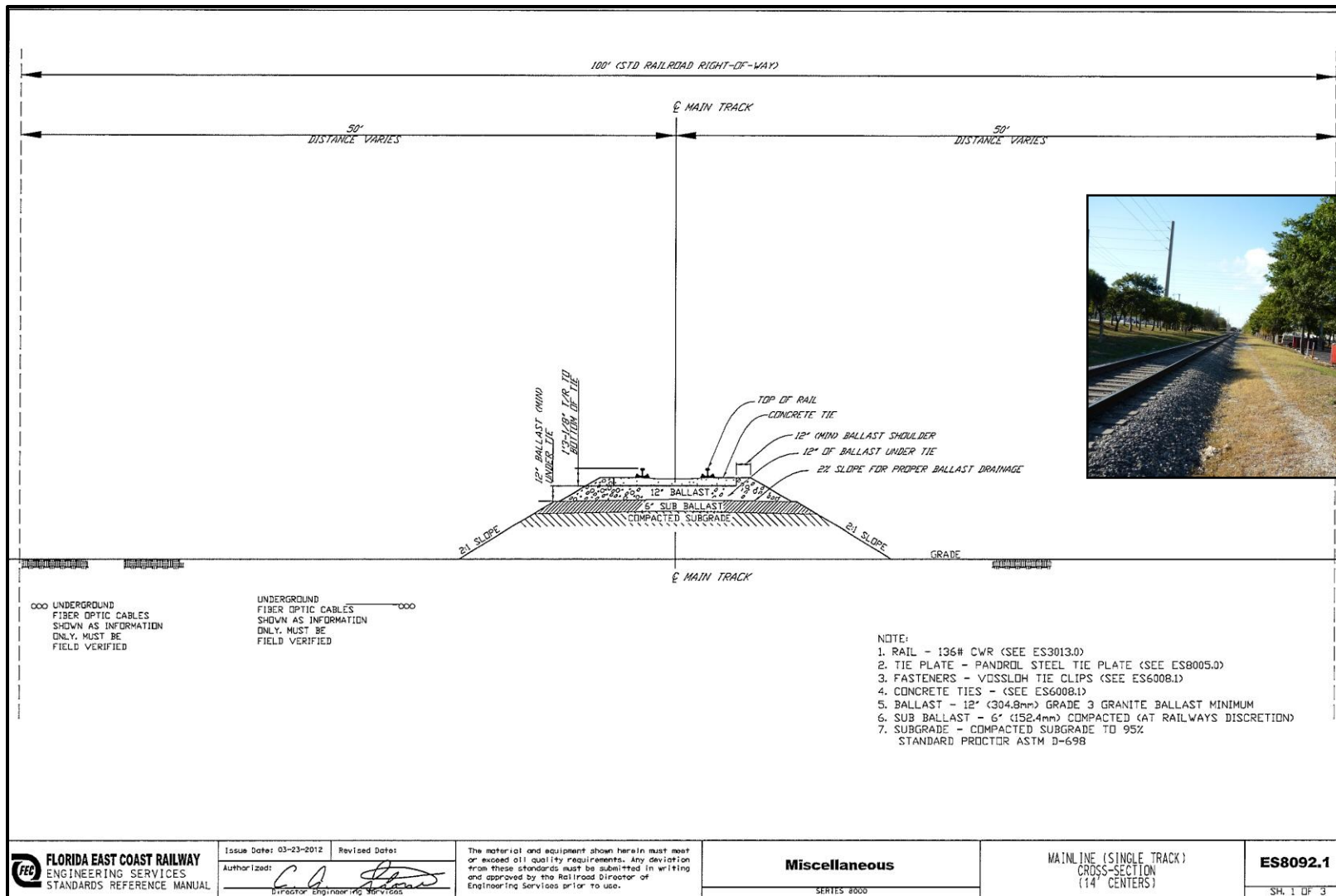


Figure 1-1.1 Existing Typical Section

Not only does the construction of a new passenger line within an existing corridor have limited environmental impacts, any potential impacts are outweighed by the environmental, health and public policy benefits of developing a modern passenger rail network. Building passenger rail lines on existing freight rail corridors that are in use provides benefits for the public and the environment by removing cars, vehicles and attendant emissions from the roadways, while minimizing potentially disruptive impacts of construction. For this reason and others, the re-introduction of intercity passenger rail service on the FEC corridor is consistent with many public policy initiatives.

In addition to fulfilling public policy objectives, the Project provides a solution to South Florida's transportation dilemmas. In June 2010, FDOT prepared the I-95 Transportation Alternatives Study, in consultation with the Department of Law Enforcement, the Department of Environmental Protection, the Division of Emergency Management, the Office of Tourism, Trade and Economic Development and affected metropolitan planning organizations (MPOs) and regional planning councils located along the corridor.³ The study, which provides an assessment of concerns and proposed solutions related to I-95, found that "I-95 is overwhelmed with traffic demand"⁴ and that "[t]ravel within specific urban areas along the I-95 corridor is highly congested in peak travel periods due to single driver automobile use."⁵ This study concluded, among other things, that "[p]assenger rail service presents a mobility option to serve Florida's East Coast along the I-95 corridor" with multiple benefits including the reduction of "fossil fuel use and greenhouse gases (GHGs); job creation and economic development around station locations; and, better connectivity between northern and southern sections of Florida."

The study further concluded that:

Modal options are also important from an emergency management standpoint. Enhanced transportation options will provide additional opportunities for moving people out of [harm's] way during an emergency evacuation or moving supplies into an area during recovery operations. For example, passenger rail options can provide additional capacity to move citizens out of a region.⁶

Notwithstanding these benefits, the study noted that drawbacks existed because there were "[l]imited funds available in transportation budgets" as well as potential "impacts to the human, natural, and physical environment resulting from *new* facilities."⁷

The Project provides an ideal solution to this conundrum. The Project presents a privately owned, maintained and operated railway that will not rely on public operating subsidies to restore a passenger

³ For the complete report, see <http://www.dot.state.fl.us/planning/systems/sm/corridor/corridor%20study/I-95%20Transportation%20Alternatives%20Final%20Report.pdf>.

⁴ *Id.*, at 2.

⁵ *Id.*, at 22.

⁶ *Id.*, at 30.

⁷ *Id.*, at 22 (*emphasis added*).

rail system within an existing ROW that was originally intended for this purpose. Further, the Project will avoid significant negative impacts to the environment, while enhancing the livability, mobility and environmental sustainability of the region.

Also, as this document shows, to simply maintain the *status quo* in the FEC corridor would fail to meet the Project's purpose and need in that the economic health of the local communities through which the Project will travel hinges on efficient mass transit -- the lack of which will only increase traffic congestion and automobile dependence for long commutes, thereby further damaging the environment, including air quality. Traffic and parking is already a recognized problem in the downtown areas the Project would serve, which will intensify over time without a new transportation solution. The Project provides that solution.

1.1.2 Project Stations and Vehicle Maintenance Facility

As described in more detail in Section 1.3, Project Description, the Project proposes three new passenger stations in the following locations:

- West Palm Beach,
- Fort Lauderdale, and
- Miami.

The station location alternatives considered for each of these cities are documented in Section 2, Alternatives. AAF developed the locations of new stations along the FEC corridor with substantial public input and in consultation with local government agencies, regional planning councils, and metropolitan planning organizations. Interagency meetings were conducted with local officials from each of the affected cities and counties to identify, evaluate, and refine the station location alternatives. As described in more detail in Section 1.3, Project Description, all station alternatives are in highly-urbanized areas, and limited or no parking facilities may be required at some locations. Patrons accessing these stations would be anticipated to either walk and/or use adjacent parking facilities to access the station. The proposed stations have been located to facilitate potential future transit-oriented development and intermodal connections. The stations will be developed in a manner that will not preclude future commuter rail service on the FEC corridor, by FDOT or others. With regard thereto, there are no current plans for shared use of the stations for this purpose, but the design of the stations would allow for such development.

As described in more detail in Section 1.3, Project Description, trains would use an existing yard for maintenance, which will be made available because the existing freight service use there will soon be moved to another location.

1.1.3 Project Goals

The Project is being proposed by AAF as a solution to problems faced by residents and visitors to South Florida, who require convenient, fast, dependable transportation within the region. Existing demand will be met by this Project through the development of a privately owned, operated and maintained intercity passenger rail service that AAF plans to have operational before the end of 2015. As it provides

a fast, efficient transportation solution in South Florida, the Project will also protect the environment, generate new revenue for local communities and the State, and create more than 1,200 new construction jobs and approximately 400 new permanent, high-wage jobs (which does not include the additional jobs from property development around the rail system that could create even more employment opportunities).

Millions of people travel annually to, from, and within South Florida for both business and pleasure. Travel by automobile often includes traffic accidents, congestion, pollution, lost time, and increased costs for fuel and road maintenance. Increasing gas prices and traffic challenges within this huge market create a strong demand for new mobility options.

According to *Texas Transport Institute's 2011 Urban Mobility Report*, urban highways are increasingly congested, resulting in travel delays and excessive fuel consumption and air emissions.⁸ As stated in that report:

Congestion is a significant problem in America's 439 urban areas.... In 2010, congestion caused urban Americans to travel 4.8 billion hours more and to purchase an extra 1.9 billion gallons of fuel for a congestion cost of \$101 billion.⁹

The national problem of roadway congestion is a reality in the State of Florida and the need for a solution has been recognized by the Florida Department of Transportation (FDOT). This is described, among other places, in the FDOT's *Florida Intercity Passenger Rail "Vision Plan"* that was released in 2006.¹⁰ Among other things, the plan found that by 2040:

Population will grow by nearly 70 percent and the intercity travel market by over 200 percent. The intercity travel market is projected to expand from just over 100 million trips to nearly 200 million trips by 2020 and 320 million trips by 2040. The size of these increases will put pressure on existing transportation facilities and require the development of substantial new infrastructure to meet the demand.¹¹

In June 2009, FDOT released the *Florida Rail System Plan: Policy Element*¹² to update the 2006 Florida Freight and Passenger Rail Plan and build upon previous rail planning efforts, including the 2006 Florida Intercity Passenger Rail Vision Plan. The 2009 Plan shows that:

- There is a rising public interest in rail options to meet intercity and regional mobility needs;
- The existing congestion on Florida's highways may be mitigated by a passenger rail alternative, which would also serve to increase the mobility of tourists, business travelers, and citizens – especially older Floridians; and

⁸ For the complete report and congestion data, see <http://mobility.tamu.edu/ums>.

⁹ *Id.*, at 1.

¹⁰ For the complete report, see <http://www.dot.state.fl.us/rail/Publications/Plans/06VisionPlan/ExecReportFinal.pdf>.

¹¹ *Id.*, at page 3.

¹² For the complete report, see <http://www.dot.state.fl.us/rail/PlanDevel/Documents/2009PolicyElementoftheRailSystemPlan-webfinal.pdf>.

- Reliance on alternate transit options is expected to increase in light of growing concerns over dependence on foreign oil, fluctuating gas prices, and fuel supply disruptions as a result of natural disasters.

Specifically, the FDOT found that:

In spite of recent slowing of growth due to a downturn in the national and state economy, by 2030 more than 25 million people will call Florida home, an increase of over 35 percent since 2007.... The expected growth in population over the long-term reinforces the value of investing in rail as part of a multimodal transportation strategy to more efficiently accommodate the mobility needs of future populations.¹³

AAF reviewed these findings and analyzed whether passenger rail service would provide a useful approach to resolving the transportation troubles of the State of Florida by commissioning engineering, environmental and investment-grade ridership studies as the first steps in its plan to bring efficient new passenger rail service to South Florida. Through this approach, AAF has developed a plan for the Project with the following benefits:

- Construction and operations will occur within an existing 100-foot rail corridor, thereby minimizing impacts to the environment;
- Location of stations in three major cities in South Florida benefits the local communities by spurring development in these urban centers; and
- Elimination of operating risks to public agencies, which would shoulder zero operating risk because this rail system will be 100% privately owned, operated and maintained.

The service proposed by the Project will cater to South Florida's business travelers, residents, families and tourists alike. AAF plans to have frequent, regularly-scheduled trains traveling daily and offering amenities such as meal service and Wi-Fi that will make the travel time productive for passengers. Easy connections would be expected to bring increased ridership to other local transit systems as well, including effective and efficient connections to modes of transportation such as The Wave Street Car, the Broward County bus terminal, the Miami-Dade County bus system, the existing Metrorail and Metromover in the City of Miami and the existing trolley system and Palm Tran in the City of West Palm Beach. Moreover, this new, fast and convenient travel option can be delivered without any significant negative impacts to South Florida.

The rail system envisioned by AAF could remove up to one million cars from Florida's roadways annually, mitigating traffic congestion and reducing carbon emissions.¹⁴ Additionally, effects to the environment would be limited because the approximately 100-foot wide, 70-mile ROW required for the Project already exists and has been used heavily for approximately 100 years. In addition to connecting Southeast Florida's large metropolitan markets, the Project will generate beneficial economic

¹³ *Id.*, at 1-4 and 1-5.

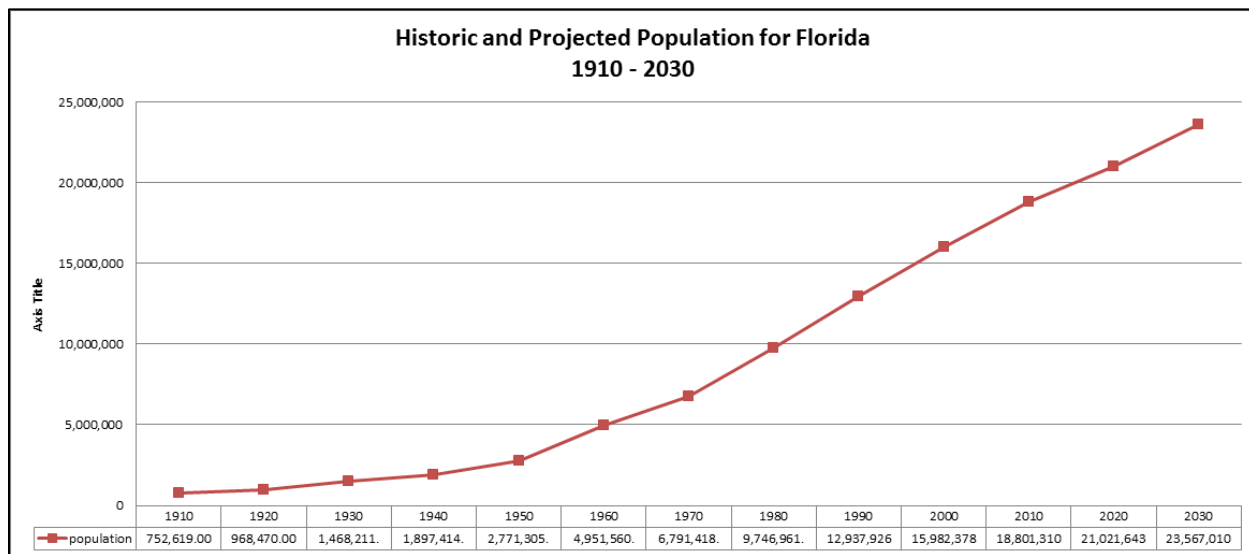
¹⁴ *This calculation was derived from census bureau data on commuters that travel alone, and those that carpool in ratios of 2, 3 and 4 persons in Miami-Dade County, Broward County and Palm Beach County and the information provided in the ridership study commissioned by AAF.*

opportunities for Floridians. By creating jobs, stimulating local economies and reducing tax burdens, the benefits of a new regional passenger rail system will extend beyond the rail’s destination points.

For example, it is expected that:

- Project construction will create more than 1,200 new jobs for Floridians;
- Rail operations will bring hundreds of permanent job opportunities upon completion of construction – which does not include additional jobs from property development around the rail system that could provide additional employment opportunities;
- Reductions in accident rates and greenhouse gas emissions will be realized;
- Savings will be achieved on highway maintenance costs because relieving road congestion will prolong the lives of highway improvements more than if the passenger rail service were not operating;
- Increased revenues will be realized by the State of Florida, including growth in real estate taxes, corporate income taxes and sales taxes, as well as benefits to be realized from reemployment insurance, all of which may be utilized to address community-specific needs (e.g. schools, parks, public works, police and fire protection); and
- Economic benefits will be produced for businesses, workers and residents in the vicinity of train operations.

South Florida has seen major population and employment growth over the years, which is only expected to rise further.



Source: University of Florida – Bureau of Economic and Business Research - 2012

The State’s existing transportation network is deteriorating – especially along the State’s southeast coast, which is often referenced as the oldest contiguous band of development in Florida. The Project offers an alternate mode of travel that would improve transportation connectivity between and among three of Florida’s major east coast cities, which are facing struggles associated with the constrained roadway networks that connect their historic downtowns. The proposed passenger rail service will be

critical to ensure that Florida remains fiscally competitive while enhancing the State's sustainability and livability characteristics, hindering urban sprawl, and providing a needed stimulus for redevelopment of the downtown areas of the City of Miami, the City of Fort Lauderdale and the City of West Palm Beach.

1.2 Project History and Project Area

The existing FEC corridor is steeped in a rich history dating back more than a century, when Henry Flagler pioneered the development of Florida's eastern coast, and brought the first passenger and freight rail services to South Florida. As summarized on the Florida East Coast Railway L.L.C. (FECR) website,

... [the FEC corridor] owes its roots to Henry M. Flagler... a name synonymous with growth and development for the State of Florida. Flagler bought the Jacksonville, St. Augustine, Halifax, and Indian River Railroads that would become, after several name changes, the Florida East Coast Railway in September of 1895. FEC founded West Palm Beach, Palm Beach and, in 1896, Miami, as well as most of the east coast of Florida.¹⁵

By 1896, the rail system operated from Jacksonville to Miami, which inspired the development of the State's east coast as a vital chain of coastal downtowns. By the time that Mr. Flagler died in 1913, the FEC corridor provided the critical transportation network that connected the entire east coast of Florida, from Jacksonville to Key West, through passenger rail service. Then, in 1963, strikes and work stoppages by union employees commenced and extended in some form into 1975. With the stakeholders failing to reach agreement, passenger rail service was discontinued. However, the chord of coastal communities that developed along the FEC corridor as transit-oriented development remains as a key organizing element of land use for Florida's current coastal development pattern.

The existing FEC corridor between Miami and West Palm Beach is approximately 100 feet wide and has supported freight and/or passenger service on a continuous basis for more than 100 years. The FEC corridor was originally built as a double-track railroad, but today it is mostly a single track railroad with several long sidings. The roadbed for the second track in the corridor still exists today and would be used for the additional track improvements (see Figures 1-0.1 and 1-0.2).

In 2006, FECR moved approximately 23 through-freight trains¹⁶ per day over this FEC corridor, in addition to 4 local freight trains serving customers along the line.¹⁷ Those trains averaged 6,750 feet in length and provided service every day, with an average speed of 28.5 mph in Palm Beach County, 22.6

¹⁵ See <http://www.fecrwy.com/about/history>; For further information regarding the history of the FEC corridor and Mr. Flagler, see Bramson, Seth H. *The Greatest Railroad Story Ever Told: Henry Flagler & the Florida East Coast Railway's Key West Extension*, 2011; Bramson, Seth H. *Speedway to Sunshine: The Story of the Florida East Coast Railway*, 1984; Parks, Patricia J. *The Railroad that Died at Sea: the Florida East Coast's Key West Extension*, 1968; Standiford, Les. *Last Train to Paradise: Henry Flagler and the Spectacular Rise and Fall of the Railroad that Crossed an Ocean*; centennial edition with a foreword by John Blades, Director of the Henry Morrison Flagler Museum, 2011.

¹⁶ As noted in the previous section, through-freight trains are those trains running through one or more terminals before reaching a final destination, as opposed to local freight trains serving customers along the line.

¹⁷ This peak usage shall serve as the baseline to the study of the Project in this EA, which shows that even with the projected increase in freight traffic due to the planned growth in the Port of Miami and Port Everglades due to the Panama Canal expansion, the Project's addition of passenger rail service will not significantly exceed impacts seen in 2006.

mph in Broward County and 29.5 mph in Miami-Dade County. Today, the number of daily through-freight trains is 10, which, in part, is a function of more efficient operations (e.g., fewer, longer trains and double-stacking of containers). A reduced freight usage from 2006 is a permanent condition -- even considering projected growth in freight operations. As detailed in Section 1.3, Project Description, the nature of the projected growth in freight traffic is different than in the past because the increasing trend towards intermodal traffic has increased both capacity and efficiency for moving tonnage growth on the nation's freight railroads. The projected utilization of the FEC corridor will also be less impactful than the 2006 peak usage because the Project's passenger rail system will provide service with trains that are faster, quieter and lighter than any that have been used within the FEC corridor to date.

The current FRA Class IV track conditions along the FEC corridor permit passenger trains to operate up to a maximum speed of 79 mph. As more particularly described in Section 1.3, Project Description, the Project will maintain the existing FRA track classification, as a minimum, and will require infrastructure improvements for the main line, including replacement of the second main line track, reconstruction of existing crossovers and the addition of crossovers to facilitate operational efficiencies all within the existing FEC corridor. No land acquisition for the ROW is needed to complete these mainline improvements.

In light of the foregoing facts, the Project Area (as more particularly defined in Section 3.0) encompasses the approximately 70 miles of the FEC corridor from West Palm Beach to Miami, as well as the areas surrounding each of the cities in which station development is being proposed.

1.3 Project Description

1.3.1 Existing System Description

The approximately 70 miles of the FEC corridor between West Palm Beach and Miami is part of a larger existing 365-mile system currently operating as a freight railroad. Originally, the entire system was built and operated as a double track railroad but, since the early 1970's, much of the double track has been removed to balance railroad service needs with capacity and operating and maintenance costs. The railroad subgrade embankments and track bed still exist in most places along the system; and the consolidated sub-base, primary drainage systems and bridge substructures remain for a complete, double-track right-of-way railroad system. Existing right-of-way widths are typically at least 100 ft. throughout the existing system. The existing system was built and maintained to FRA Class IV track standards, permitting 60 mph freight and 79 mph passenger operations. Ruling grades are predominantly 0.3% with the horizontal alignment predominantly tangent, with typical curves 2 degrees or less. In isolated locations where curves exceed 2 degrees, operating speeds are reduced.

1.3.2 Proposed System Description

The proposed intercity passenger rail system would provide hourly service, consisting of approximately 16-19 roundtrip trains that will be approximately 725 feet long for a train set consisting of two locomotives, each 65 feet long, and seven passenger cars, each 85 feet long, or approximately 900 feet long if two additional passenger trains were to be added. Passenger trains will operate at speeds up to

79 mph, but will likely average 60 mph for a variety of reasons. Specifically, certain short sections of the FEC corridor include speed restrictions due to horizontal curvature, spiral lengths and super-elevation.

The Project area covered by this EA begins in the north at MP 299.5, just north of the potential West Palm Beach Station sites. It ends at MP 365.5 at the Miami Station, see Figure 1-3.1. Total Project corridor length is 66 miles. The current system ends at MP 365.15 where the Port of Miami lead turns eastward toward the port. The 66-mile Project corridor includes the single main, and 18 miles of second track sidings along the right-of-way. The planned improvements for the system component of the Project include the following:

- New platforms at each proposed station, a more detailed description of which appears in Section 2.5 of this EA;
- New track sidings at the new stations;
- New track signal controls throughout the corridor;
- 49.2 total miles of new second main track construction within the existing FEC corridor;
- Upgrades at 134 crossings of the 183 total highway and pedestrian crossings encountered from West Palm Beach to Miami on the FEC corridor to enhance safety, a more detailed description of which appears in Section 2.4;
- 8.3 miles of siding rehabilitation at the following mile-post locations: Hypoluxo (MP 309), Villa Rica (MP 321), Pompano (MP 331), and Ojus (MP 353);
- 3 bridges to be rehabilitated to add a second track at the following mile-post locations: MP 319.55, MP 334.93 and MP 354.51;
- 7 bridges to remain single track at the following mile-post locations with #24 Turnouts at each end of the bridge to connect second track to single main: MP 304.05, MP 311.45, MP 326.58, MP 337.9, MP 338.52, MP 353.74 and MP 356.53;
- Control work only for New River Bridge at MP 341.26;



- New approach work in Miami to depart from at-grade construction and transition to an elevated section at the proposed terminal in Miami, which elevated section will pass over the Port of Miami Lead, Metro Mover and Metro Rail as it approaches the station (MP 364.8 to MP 365.5);
- New #24 Universal Crossovers to be built at MP 351.2 and MP 309.3;
- New #10 Universal crossovers planned for MP 365.2;
- New #24 Crossovers planned at MP 289.8, MP 319.5, MP 321.5, MP 330.5 and MP 332.3; and
- New #20 Crossovers planned at MP 360.7.

It should be noted that no bridge foundations located in bodies of water will be modified by the proposed improvements and that no rehabilitation work is proposed for existing mains or for the Fort Lauderdale Siding (MP 343) or the new Port Lead in Miami (MP 365.15).

Aerial photographs of each bridge location are shown in Appendix A, with photographs showing the existing conditions of the three bridges where rehabilitation work is planned set forth below (see Figures 1-3.2, 1-3.3 and 1-3.4). The specific locations of the bridges included within the Project Area are shown in the Bridge Location Map, Figure 1-3.5. In addition, a summary description of the work to be completed at each location is set forth in the Proposed Bridge Work, Table 1-3.1.



Figure 1-3.2 Bridge at MP 319.55



Figure 1-3.3 Bridge at MP 334.93



Figure 1-3.4 Bridge at MP 354.51

Figure 1-3.5
Bridge Location Map

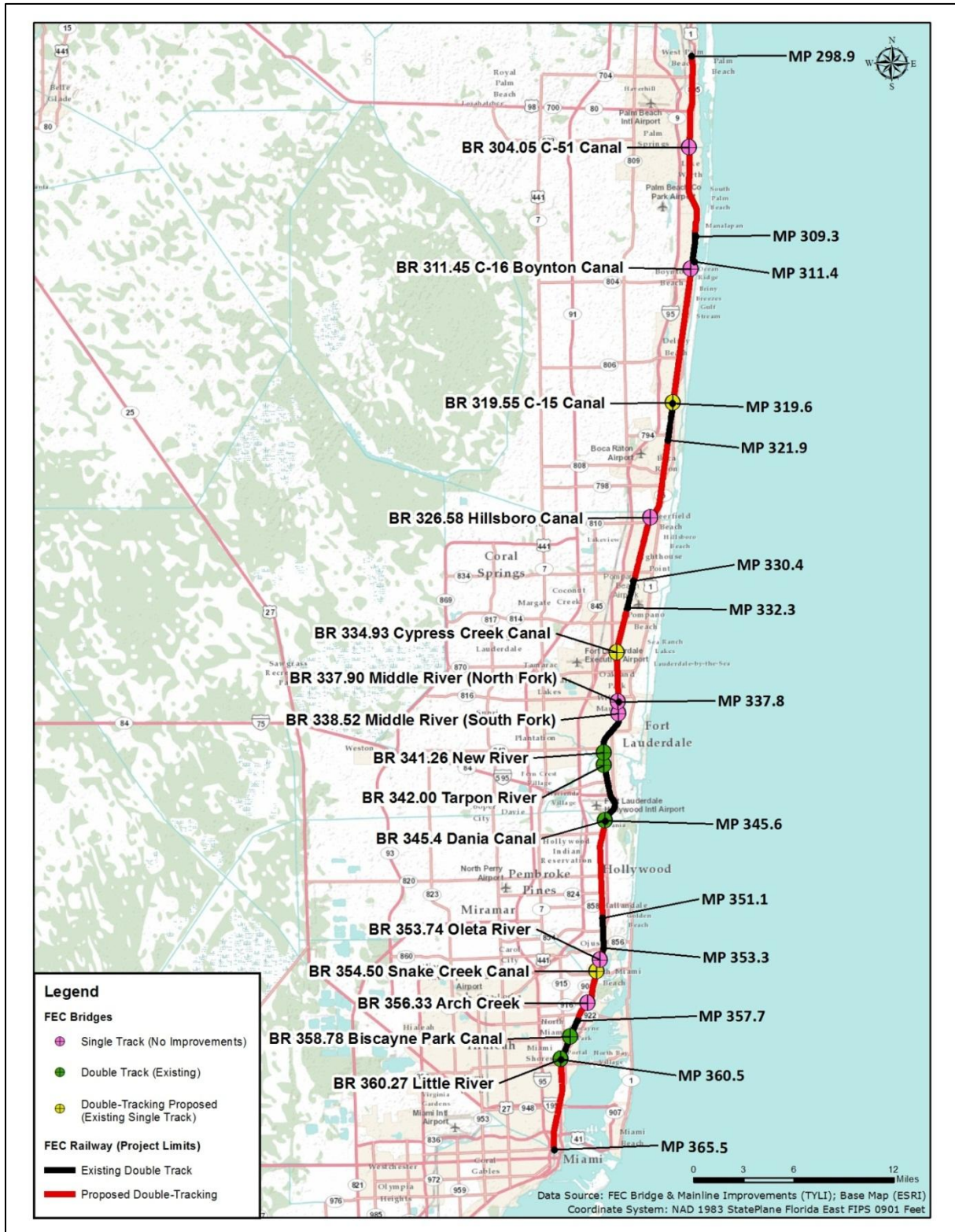


Table 1-3.1
Summary of Bridge Work
West Palm Beach (MP 299.5) to Miami (MP 365.5)

Material	Length	LF of New Work	Mile Post	No Work Proposed	Limited Deck Work or Approaches Proposed	Description of Existing Conditions and Work
Steel	200	0	304.05	√		Existing single track bridge to remain. No work on existing bridge.
Concrete	142	0	311.45	√		Existing single track bridge to remain. No work to existing bridge.
Concrete	173	173	319.55		√	Independent precast concrete ballasted deck structures. Clean off ballast from west bridge, rehab deck, add second ML. No work to existing ML bridge foundation in waterways.
Steel	206	0	326.58	√		Existing single track bridge to remain. No work on existing bridge.
Concrete	148	148	334.93		√	Concrete ballasted deck formerly had two tracks. Add second ML on west on existing bridge. No work to existing ML bridge foundation in waterways.
Concrete	192	0	337.91	√		Existing single track bridge to remain. No work on existing bridge.
Concrete	190	0	338.52	√		Existing single track bridge to remain. No work on existing bridge
Concrete	210	0	341.26	√		Two tracks existing. No work needed.
Concrete	26	0	342.00	√		Two tracks existing. No work needed.
Steel	79	0	345.41	√		No work needed. Second track added by others as part of Fort Lauderdale Airport Project.
Steel	82	0	353.74	√		Existing single track bridge to remain. No work on existing bridge
Concrete	160	160	354.51		√	Concrete ballasted deck formerly had two tracks. Add second ML on west on existing bridge. No work to existing ML bridge foundation in waterways.
Steel	50	0	356.53	√		Existing single track bridge to remain. No work on existing bridge.
Steel	134	0	358.78	√		Two tracks existing. No work needed.
Concrete	120	0	360.27	√		Two tracks existing. No work needed.

Proposed Project operations include the use of both tracks of the double track railroad for freight and passenger service.¹⁸ With regard thereto, it is important to note that the proposed system has been designed taking into account the current freight system operating at increased traffic levels due to the projected growth in intermodal traffic from the ports of Miami and Fort Lauderdale, as well as projected growth in manifest traffic from South Florida.

As noted in Section 1.1, Introduction, and Section 1.2, Project History and Project Area, freight traffic volumes in the FEC corridor peaked in 2006, and growth of freight volumes from current levels is expected but that growth will be different as a result of the increasing trend to move freight through intermodal means. FECR, which uses the FEC corridor, is in a position to benefit from this trend due to its unique geographic position as a linear, coastal and largely point-to-point railroad, with direct and exclusive access to two major ports at its southern end (Port of Miami and Port Everglades) and a direct interchange with two major Class I railroads (NS and CSX) at its northern end. Since 2006, major intermodal investments have been made to both Port Everglades and the Port of Miami. FECR has exclusive rail access to these port facilities. The expanded freight market will largely be intermodal traffic. Port Everglades and the Port of Miami are both expecting increased container/intermodal volumes when the widening of the Panama Canal is completed. The expected increase in freight traffic will likely require longer freight trains, and some additional freight trains.

In the design of the Project, the operation of additional freight trains has been assumed in the fixed plant improvements (e.g., track, signals, etc.) to accommodate future freight growth. Further, the infrastructure capacity necessary to accommodate the future projected freight growth by FECR has been incorporated into the facilities planned to be provided for the Project. The AAF capacity model runs have assumed operation of additional freight trains to accommodate the future freight growth, and these capacity improvements are aimed at keeping the freight service operating at its on-time level, in addition to providing a high degree of reliability for the AAF passenger service. Expanded track and signal infrastructure are being provided to achieve these goals. Further, one new dispatch district is planned between Miami and West Palm Beach for the unified control of the tracks for both freight and passenger services.

The likely routing for passenger train operations will be along the most tangent (straight) track segments in order to maintain attractive travel time. Dispatchers will also control freight train movement, and the added fixed facilities (e.g., double track, crossovers, etc.) will allow freight operations to continue without impact by the introduction of the passenger service. With a station stop in Fort Lauderdale, and the added track facilities that will be in place, the joint operating of freight and passenger service is compatible. FECR dispatchers will direct freight trains on the most expeditious route to keep them moving and on-time, while allowing for the faster passenger trains to continue to operate at their higher speed and with few, if any, diverging moves en route. The faster passenger trains will generally be

¹⁸ For purposes of the noise and vibration analysis set forth in this EA, the railroad centerline of the FEC corridor was used to model the Project, such that the analysis completed takes into account all possible impacts from both freight and passenger rail traffic, regardless of whether such rail traffic would exist on the current tracks within the FEC corridor, or on the new tracks being proposed as part of the Preferred Build System Alternative. The background noise levels and impacts from the No-Build Alternative and Preferred Build Project Alternative detailed in Section 3.1.7 do not change in any perceptible manner on account of variances in distance that might only change by 7 feet or less from the modeled distance. In other words, because each track can't be closer than 7 feet from the modeled distance to possible receptors, the impacts analysis set forth in Section 3 takes into account the full effects of the planned utilization of both freight and passenger rail on the existing and new tracks within the FEC corridor.

routed on the tangent track with the fewest diverging moves, and freight trains will be routed to the adjacent track, clearing the way for the passenger trains, while keeping the freight trains moving and on-time.

1.3.3 Proposed Station Description

The Project has been designed with stops in the downtowns and central business districts of West Palm Beach, Fort Lauderdale and Miami to meet the expected ridership demands. As more particularly described in Section 2, Alternatives, the AAF team evaluated different locations at each of these cities, while taking into account the needs for the stations to attract riders by providing a safe, reliable and convenient service. For example, in West Palm Beach and Fort Lauderdale, each station location would need to accommodate a single, center island (double sided) high-level platform that is 800 feet long and 35 feet wide. In Miami, the terminal configuration would need to consist of four 1,000-foot-long high-level revenue platforms plus low-level service platforms. All stations would need to accommodate platforms located within the FEC ROW.

Further, for the West Palm Beach and Fort Lauderdale stations, on-site customer facilities would need to be located immediately adjacent to the platform, beyond the boundaries of the railroad ROW, with sufficient space to accommodate customer services, including ticketing, a secure waiting area for ticketed passengers located in space above the platform, and retail. These locations would also need to provide a sufficient area for the design of public space surrounding the station building organized to allow for efficient and safe pedestrian circulation and wayfinding, curbside drop-off by private auto, taxi, connecting bus and van service, local transit and bicycle parking. Space would also need to be available for parking facilities to be located within the area to support the retail provided on site, but the location would need to have access to parking facilities in the area in that no dedicated passenger parking would be planned for these stations. For the Miami terminal, the station location would need to provide convenient, multi-modal connectivity between AAF, Metrorail and Metromover, local and regional bus transit, as well as space for ample curbside drop-off, taxi queue, connecting bus and van service, bicycle parking, and significant pedestrian connectivity to the terminal facility.

At each passenger facility, the area would need to be situated and sized in order to allow for the station building's public spaces to be organized around a great hall, with the primary public areas on the ground floor consisting of ticket sales windows, self-service ticketing kiosks, concierge and information desk, train departure and arrival information, concessions, restrooms and circulation areas and with retail space accessible on the ground floor from the great hall.

Each location would also need to enable the design of stations that reflected the plans for services. For example, because the AAF service will be an 'all reserved service,' ticketed customers will pass through a control gate to gain access to the vertical circulation leading to the secure 'ticketed passengers only' spaces. In addition to fully climate-controlled, comfortable seating areas, AAF will provide concessions, restrooms, and a dedicated lounge for Business Class (first class) passengers, including WiFi internet service, and complimentary light snacks and beverages. In all cases, passengers will not be allowed access to the station platforms until approximately 4 or 5 minutes before departure of an arriving train. Train departure and arrival information will be electronically updated both in the public ticketing/information area, as well as in the secure waiting room and Business Class lounge. Access to

the platform will be provided by means of two escalator/stair pairs and ADA compliant elevators, controlled by an AAF usher in the secure waiting room.

Further, as the floor height of the train cars will be the same height as the platform, the entire train will have 'level boarding', with no steps required. The entire train will conform to full ADA access compliance requirements. Additionally, to provide easy and safe train boardings and deboardings – and to minimize the dwell time at stations – passengers will be distributed evenly along the platform. When AAF passengers purchase their tickets, they will select their seat, similar to the experience of airline passengers today. Along with each seat assignment, the tickets will indicate a number that coordinates with large numbering on each coach door location along the platform where the customer should wait to enter the train. These large numbers will be also affixed along the platform edge to assist with wayfinding. Uniform consistency of the AAF trainsets will simplify this procedure, and give comfort to passengers that they have confirmed seating, and exactly where it will be.

Conceptual plans for the stations are provided in Appendix B. As those plans describe, certain at-grade crossing closures will be required at existing grade crossings to accommodate proposed platforms. At each such location, the at-grade crossing to be closed affects a local street rather than a major state or federal thoroughfare. Further, at each such location, the crossing closure will not result in dead-end conditions that would negatively impact local circulation because the availability of alternative routes in close proximity to the proposed crossing closures will result in minimal changes to the existing traffic patterns. Further, access to existing properties is not anticipated to be negatively affected by the proposed crossing closures.

1.3.4 Proposed Vehicle Maintenance Facility:

The Project would exclusively utilize the existing FECR Vehicle Maintenance Facility (VMF) in Fort Lauderdale. Freight maintenance does not take place at the existing FECR VMF and only 24/7/365 intermodal operations take place there today. These intermodal operations would be shifted to the state-of-the-art FECR Intermodal Container Transfer Facility (ICTF) at Port Everglades (Port) being constructed from 2012-2014. See ICTF Renderings, Figure 1-3.6.

The ICTF shall be a new public-private partnership facility consisting of approximately 42.5 acres within the Port facility. No federal funding shall be provided for the ICTF project. Instead, funding for the project is provided by FECR, FDOT, a loan from the State Infrastructure Bank and a 30 year lease and operating agreement with Broward County. The ICTF at the Port will be used to transfer international containers between ship and rail within the Port instead of having trucks haul the containers to and from off-port rail terminals. The ICTF will include separate gate entrances for the domestic and international intermodal operations. The ICTF will accommodate wide span or equivalent cranes to quickly transfer containers to and from railcars, allow for building of 9,000 foot long trains, 18,000 feet of working track; provide adequate storage for trailers, reefer cargos, and containers; and allow throughput of up to 400,000 twenty-foot equivalent units (TEU's) annually. The ICTF project also includes a double track spur from the FECR mainline to the ICTF which will run under the Ellard Drive overpass. Construction on the overpass began during the summer of 2011. These new rail tracks expand into six working tracks totaling approximately 18,000 LF, which will accommodate a train up to 9,000-LF.

Positive environmental benefits are expected in that the ICTF project will result in the reduction of truck traffic on local roadways, including a reduction in Route 84 highway congestion. FDOT's environmental staff reviewed and approved the commencement of the proposed ICTF project.

Figure 1-3.6
ICTF Renderings



1.4 Statement of Purpose and Need

As described in Section 1.1, Introduction, the purpose for the Project is to address South Florida's current and future needs to enhance the transportation system, improve air quality, create jobs, provide a transportation alternative for millions of Floridians and tourists, and support economic development by:

- Returning the existing FEC corridor to a dual-track system to allow for the restoration of fast, dependable and efficient passenger service within Southeast Florida; and
- Implementing a privately owned, operated, and maintained intercity passenger rail service that will connect downtown West Palm Beach to downtown Miami, with one stop in downtown Fort Lauderdale.

Through the Project, AAF plans to enhance mobility and improve safety in the region and along the I-95 corridor by reintroducing passenger rail service to the area between downtown West Palm Beach and downtown Miami with one stop in downtown Fort Lauderdale. The development of this Project will provide a transportation solution for millions of Floridians and tourists, with revenue service for passenger operations projected to begin before the end of 2015.

In December 2005, FDOT initiated the South Florida East Coast Corridor Transit Analysis (SFECCTA) study and, in June 2010, the South Florida East Coast Corridor (SFECC) Purpose and Need statement was prepared by Gannett Fleming in June 2010.¹⁹ The SFECC study area fully encompasses the FEC corridor within which the Project is proposed. As provided in that document with regard to the SFECC study area, there is a fundamental need for a transportation solution within the FEC corridor for the following key issues:

- **Increased Population and Employment:** Southeast Florida has been growing rapidly due to immigration and high birth rates and is expected to continue to grow in the foreseeable future. By 2030, the number of households in the study area is projected to increase by 36% compared to 28% for the overall tri-county region. Population will increase even more with a 34% growth in the region and 46% in the study area, bringing total population within one mile of the FEC corridor to over one million by 2030. Employment is also expected to grow faster in the study area than in the region as a whole, with a 29% increase in the SFECC study area compared to 26% for the region. Automobile ownership and vehicle miles traveled (VMT) are expected to increase even more dramatically than population.
- **Highway Capacity and Traffic Congestion:** Existing north-south highways in southeastern Florida, such as I-95 and US 1, are severely congested today and, as growth takes place, this congestion is expected to get more severe. While the population is expected to increase by 28% by 2030, and highway traffic volume is projected to grow by 35%, the planned increase in

¹⁹ See Appendix D.

highway capacity is only 19%. The entire region is built-out, making the addition of capacity on existing highways extremely impactful and costly. The volume of traffic and the number of lanes on these facilities results in an elevated number of traffic accidents. These incidences lead to delay and decreased safety and make travel time unpredictable for roadway users.

- **Sustainable Economic Development and Land Use:** ... Investment in premium transit, along with new land use and zoning regulations for increased density and mixed use could be expected to help attract redevelopment to these areas. Without additional premium transit service, however, these higher densities may not be realized because the road network is already congested and cannot accommodate the increased travel demand created by denser development.
- **Transit Service Deficiencies:** The local buses that run throughout the study area are slow due to traffic congestion and frequent stopping patterns. The average travel speed of local buses is 11 to 16 mph, which is not competitive with the automobile. This limits local bus ridership to transit-dependent customers and short trips. [Miami-Dade, Broward and Palm Beach Counties] ... are connected in a limited fashion by slow, local bus routes and most travel is carried out by automobile.
- **Large Transit-Dependent Populations:** Large transit-dependent populations in each of the three counties are located within the study area. Increased mobility options are needed to improve the ability of this population to travel to jobs, education, healthcare and leisure activities and improve their opportunities for economic advancement and their quality of life...²⁰

The proposed Project will provide a solution to the foregoing needs by presenting an option for an approximately 70-mile corridor with independent utility that would, at a minimum, serve the following purposes:

- Provide an efficient transportation alternative that addresses highway congestion and current and future travel demand between major South Florida cities through an additional choice in travel modes between West Palm Beach, Fort Lauderdale and Miami;
- Reduce highway maintenance costs and capacity needs;
- Reduce accident rates;
- Reduce greenhouse gas emissions by providing a “green” alternative to automobile and airplane travel;
- Provide a non-invasive, time-advantageous travel option that does not exist today;
- Reduce the cost of travel delays and delay-related costs to users associated therewith;
- Create new transit oriented community development opportunities along the corridor, improving land use benefits;
- Create opportunities for increasing property values, and to generate new tax revenues that can be used for local public programs;

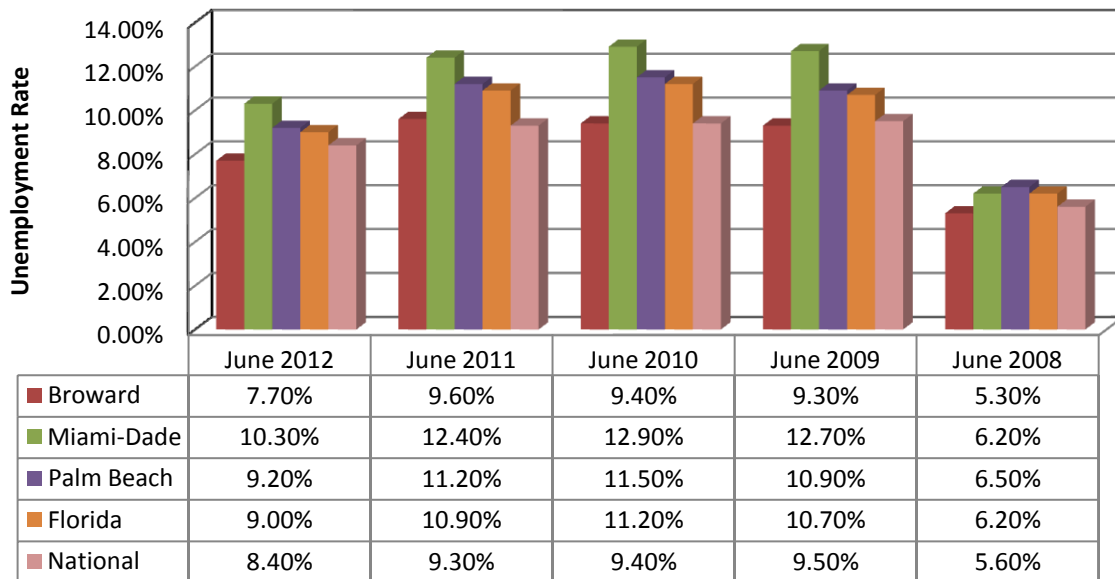
²⁰ *Id.*, at 22-23.

- Create more than 1,200 new construction jobs and hundreds of new permanent jobs, which is needed in these areas, see Figure 1-4.1; and
- Minimize environmental impacts and maximize environmental benefits.

Passenger rail is a national transportation priority. President Obama has emphasized the national need to develop passenger rail. Transportation Secretary LaHood likewise has stated that:

It will seamlessly integrate large metropolitan communities and economies through a safe, convenient and reliable transportation alternative. It will ease congestion on our roads and at our airports. It will reduce our reliance on oil as well as our carbon emissions. And it will provide a much-needed boost to America's hard-hit manufacturing sector during a time of economic struggle.²¹

Figure 1-4.1
Historic Unemployment Rates (2008 - 2012)
County, State, and National



²¹High-speed-rail will be our generation's legacy, *The Orlando Sentinel*, (Dec. 19, 2010), available at http://articles.orlandosentinel.com/2010-12-19/news/os-ed-high-speed-rail-121910-20101217_1_high-speed-rail-high-speed-rail-national-transportation-network.

This national commitment to developing a passenger rail network is reflected in FRA's High-Speed Rail Strategic Plan.²² The Plan explains that the benefits of passenger rail include the creation of "[s]afe and efficient transportation options," the promotion of "[e]nergy efficiency and environmental quality," and the development of more "[i]nterconnected livable communities."²³ Importantly, the High Speed Rail Strategic Plan recognizes that the development of such a network can be greatly facilitated by building infrastructure on existing rights of way.²⁴ Because the Project would involve investment on an existing right-of-way, it would advance our national passenger rail strategy.

1.5 FRA Decision

This study is being conducted in compliance with the National Environmental Policy Act of 1969 (42 U.S.C. §4332) (NEPA) to maintain the ability to apply for a loan under the Railroad Rehabilitation and Improvement Financing (RRIF) Program pursuant to 49 CFR Part 260. NEPA requires federal agencies to consider the impacts of their actions on the human environment and to disclose such impacts in a public document. The NEPA process is intended to ensure that public officials consider the environmental consequences of proposed actions (40 C.F.R. § 1500.1).

The purpose of this environmental assessment (EA) is to provide the FRA, reviewing and cooperating agencies, and the public with information to assess alternatives that will meet the Project's stated purpose and need and to outline the potential environmental impacts and potential avoidance/mitigation measures associated with the proposed Project alternatives. This EA serves as the primary document to facilitate review of the proposed Project by federal, state and local agencies and the public.

Agencies prepare EAs to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.6 Connected Actions

The Project proposes construction of new passenger rail stations in the CBDs of the cities of West Palm Beach (Palm Beach County), Fort Lauderdale (Broward County) and Miami (Miami-Dade County). The following is an overview of the proposed development in association with these stations:

- **West Palm Beach Station**
 - Station Retail: 10,000 square feet (sq. ft.)

- **Fort Lauderdale Station**
 - Station Retail: 10,000 sq. ft.

²²For the complete report, see <http://www.fra.dot.gov/downloads/rrdev/hsrstrategicplan.pdf>.

²³*Id.* at 2-3.

²⁴See *id.* at 3.

- **Miami Station**

- Station Depot: 60,000 sq. ft.
- Station Retail: 30,000 sq. ft.
- TOD Retail: 75,000 sq. ft.
- TOD Office: 300,000 sq. ft.
- TOD Hotel: 200 Rooms
- Residential: 400 Units
- Parking: 1,050 spaces, approximately

The following discussion describes the manner in which the needs of each location are satisfied by adequate service in the area.

1.6.1 West Palm Beach Station Locations

Proposed Program

The two alternatives retained for analysis for the passenger station in the downtown area of the City of West Palm Beach would include the following uses within the fully developed urban area with all standard utility and service provisions generally available for the proposed development:

Station Depot:	30,000 sq. ft.
Accessory Retail:	10,000 sq. ft.

Potable Water

Both analyzed alternatives are located within an area served by the City of West Palm Beach utility system, which independently operates its own potable water plant. The subject area is served by water mains throughout the city, but, more particularly, by a 16-inch water main running along South Quadrille Boulevard. This area has all interconnected mains which ensure adequate fire-flow and domestic water service pressures for the Project. The proposed development program will generate approximately 2,500 gallons per day of water demand.

Future demand is anticipated through a “10 year Water Supply Facility Work Plan” as described in Appendix C. This plan incorporates future projected demand for undeveloped properties in the City, anticipated population growth projections, and increased commercial water demands. The 10 Year Water Supply Facility Work Plan reflects the City’s Annual Allocation of water at 14,346 Million Gallons per Year (MGY). The 2012 annual demand is projected at 11,958.44 MGY, and the 2013 anticipated demand is 12,267.89. As such, the City anticipates a surplus water supply ranging from 1,950.36 MGY in 2013 to 553.68 MGY in 2018. These documents indicate that the impact of the proposed Project can be absorbed by the current capacity.

Sanitary Sewer

Both analyzed alternatives are located within an area served by the City of West Palm Beach utility system which has 8-inch gravity lines that are located within all the major roadways alongside the subject property. These gravity sewer lines are inter-connected to several pump stations throughout the area. The pump stations are connected by a 20-inch force main that leads to the City's East Central Regional Water Reclamation Facility. The proposed development program will generate approximately 2,500 gallons per day of sewage discharge. The current capacity of the facility is 64 million gallons of wastewater per day, of which 21.5 million gallons per day is currently available. The City's Comprehensive Plan requires that the City maintain capacity to meet future demands for a least a 10-year planning horizon, as described in Appendix C. These documents indicate the impact of the proposed Project can be absorbed by the current capacity.

Solid Waste

Both analyzed alternatives are located within the City of West Palm Beach, which requires that commercial developments contract for private solid waste retrieval. All trash "pick-up" and delivery providers utilize the Solid Waste Authority (SWA) of Palm Beach County. The SWA maintains various landfills in Palm Beach County to handle solid waste disposal. The SWA also operates a solid waste-to-energy power generating plant, and maintains a state of the art recycling facility. The Annual SWA Capacity letter (see Appendix C) provides that, as of September 30, 2011, the landfill had an estimated "29,179,846 cubic yards of landfill capacity remaining." The planning forecast notes that the available capacity will be sufficient through the year 2047. These documents indicate that the impact of the proposed Project can be absorbed by the current capacity.

Electrical Systems

Both analyzed alternatives are located within an area served by Florida Power and Light (FPL) currently provides electrical power service to the entire Palm Beach County region. The existing FPL substation, located between Datura and North Clematis Streets at the intersection of the FEC rail line, will serve the Project. The main service for the site is routed through aboveground distribution lines adjacent to the analyzed alternatives. These FPL facilities will serve the proposed Project.

Public Safety and Security

Fire Safety

Both analyzed alternatives are located within the City of West Palm Beach, which operates its own independent Fire and Rescue department. The downtown area, encompassing all proposed station locations, is served by Fire Station #1. The station is located at the intersection of North Dixie Highway and 4th Street. This facility will serve the proposed Project.

Police

Both analyzed alternatives are located within the City of West Palm Beach, which maintains an independent police force. The police headquarters are located at 600 Banyan Boulevard, in the immediate downtown area. This location is within ½ mile of all proposed station locations. This facility will serve the proposed Project.

1.6.2 Fort Lauderdale Station Locations

Proposed Program

The two alternatives retained for analysis for the passenger station in the downtown area of Fort Lauderdale would include the following uses within the fully developed urban area with all standard utility and service provisions generally available for the proposed development:

Station Depot:	30,000 sq. ft.
Station Retail:	10,000 sq. ft.

Potable Water

Both analyzed alternatives are located within an area served by the City of Fort Lauderdale Public Works Department's water utility system which has a 16-inch water main line that runs along Broward Boulevard for the entire frontage of the northern station option property. The main is interconnected to a 12-inch water main which runs north and south along Brickell Avenue and serves the southern station option. This area has all interconnected mains which ensure adequate fire-flow and domestic water service pressures for the Project. The proposed development program will generate approximately 2,500 gallons per day of water demand. Based on the last Water Use Permit report prepared by the City, the utility has an available capacity of 38 million gallons per day (MGD) of water from the treatment plants. These documents indicate that the impact of the proposed Project can be absorbed by the current capacity.

Sanitary Sewer

Both analyzed alternatives are located within an area served by the City of Fort Lauderdale Public Works Department's water utility system, which has 10-inch gravity lines that are located within all the major roadways alongside the subject properties. These gravity sewer lines are inter-connected to several pump stations throughout the area; the pump stations are connected by a 16-inch force main that leads to the City's G. T. Lohmeyer regional sewage treatment plant. The proposed development program will generate approximately 2,500 gallons per day of sewage discharge. Based on the wastewater treatment plant FDEP Operating Permits prepared by the City, the plant has an available capacity of 55.7 million gallons per day (MGD) of treatment of which 18.7 MGD are available for new projects. These documents indicate that the impact of the proposed Project can be absorbed by the current capacity.

Solid Waste

Both analyzed alternatives are located within the City of Fort Lauderdale, which requires that all commercial developments contract for private solid waste pick-up. There are various companies that provide this service and they utilize the Broward County Solid Waste and Recycling Services Department's landfill system. Based on the planning forecast, which includes the accommodation of reasonable growth for the County, the Southwest Regional landfill has current capacity until 2035, in light of the last annual report. These documents indicate that the impact of the proposed Project can be absorbed by the current capacity such that the Project can utilize the landfill without causing it to surpass its capacity.

Electrical Systems

Both analyzed alternatives are located within an area served by Florida Power and Light (FPL), which currently provides electrical power service to the entire Broward County region. The existing FPL substation, located at Northwest 6th Avenue and just north of Northwest 4th Street will serve the Project. The main service for the sites is routed underground from a vault located at Northwest 2nd Street and Brickell Avenue on the North site and an underground vault located at SW 1st Avenue and West Las Olas Boulevard. These FPL facilities will serve the proposed Project.

Public Safety and Security

Fire

Both analyzed alternatives are located within an area served by the City of Fort Lauderdale Fire Department, which provides fire protection, emergency and non-emergency medical services for the Fort Lauderdale station location. In case of a fire or medical emergency, first response will come from Station #2 located at 528 NW 2nd Street. Additional and back-up response will be provided by Station #46 located at 1121 NW 9th Avenue. Response time from the Fire Department to the Project is within acceptable limits. These facilities will serve the proposed Project.

Police

Both analyzed alternatives are located within an area served by the City of Fort Lauderdale Police Department, which provides emergency response service to the properties and the entire area is patrolled by the department's District 1 and District 3 stations. The Fort Lauderdale Police Department Headquarters is located at 1300 W. Broward Boulevard approximately less than one mile from the proposed sites. These facilities will serve the proposed Project.

1.6.3 Downtown Miami Station Locations

Proposed Program

The two alternatives retained for analysis for the passenger station in the downtown area of Miami would include the following uses within a fully-developed urban area with all standard utility and service provisions generally available for the proposed development:

- Station Depot: 60,000 sq. ft.
- Station Retail: 30,000 sq. ft.
- TOD Retail: 75,000 sq. ft.
- TOD Office: 300,000 sq. ft.
- TOD Hotel: 200 Rooms
- Residential: 400 Units

Potable Water

Both analyzed alternatives are located within an area served by the Miami Dade Water and Sewer Department's (MDWASD) utility system which has a 12-inch water main line that runs along NW 1st Ave for the entire length of the property. This water main is inter-connected to a 30-inch water main line on the north side of the property and to a 20-inch water main on the southern portion of the property, which ensures adequate fire-flow and domestic water service pressures for the Project. The proposed development program will generate approximately 110,000 gallons per day of water demand. Based on the last Water Use Permit report prepared by MDWASD (see Appendix C), the utility has an available capacity of 284.40 million gallons per day (MGD) of water from the treatment plants. These documents indicate that the impact of the proposed Project can be absorbed by the current capacity.

Sanitary Sewer

Both analyzed alternatives are located within an area served by the Miami Dade Water and Sewer Department's (MDWASD) utility system, which has 8-inch gravity lines that are located within all the major roadways alongside the subject property. These gravity sewer lines are inter-connected to several pump stations throughout the area, which pump stations are connected by a 60-inch force main that leads to the MDWASD central sewage treatment plant located on Virginia Key. The proposed development program will generate approximately 110,000 gallons per day of sewage discharge. Based on the wastewater treatment plant FDEP Operating Permits prepared by MDWASD, the central plant has an available capacity of 143 million gallons per day (MGD) of treatment of which 29.75 MGD are available for new projects. These documents indicate that the impact of the proposed Project can be absorbed by the current capacity.

Solid Waste

Both analyzed alternatives are located within the City of Miami, which requires that all commercial developments contract for private solid waste pick-up. There are various companies that provide this service and they utilize the Miami-Dade County Public Works and Solid Waste Department's (MDPWWM) landfill system. Based on the planning forecast, the South Dade landfill has current capacity to fill projected needs until 2020 (based on their last annual report). The County is currently undergoing an evaluation of the Solid Waste Master Plan, which includes the use of new available private landfills, which have available capacity until 2060. The proposed Project can be absorbed by the current available capacity such that the Project can utilize the landfill without causing it to surpass its capacity.

Electrical Systems

Both analyzed alternatives are located within an area served by Florida Power and Light (FPL), which currently provides electrical power service to the entire Miami-Dade County region. The existing FPL substation, located at Southwest 2nd Avenue and Southwest 3rd Street, will serve the Project. The main service for the site is routed underground from a vault located at Northwest 2nd Street and NW 1st Avenue. These FPL facilities will serve the proposed Project.

Public Safety and Security

Fire

Both analyzed alternatives are located within an area served by the City of Miami Fire Department, which provides fire protection, emergency and non-emergency medical services for the Miami station location. In case of a fire or medical emergency, first response will come from Station #1 located a quarter of a mile east of the site at 144 NE 5th Street. Any additional and back-up response will be provided by Station #3 located at 1103 NW 7th Street and Station #2 located at 1901 N. Miami Avenue. Response times from the Fire Department to the Project are within acceptable limits. These facilities will serve the proposed Project.

Police

Both analyzed alternatives are located within an area served by the City of Miami Police Department (MPD) and the entire area is patrolled by the MPD's central district. The Miami Police Headquarters is located at 400 NW 2nd Avenue, approximately one block from proposed station location. Response times for any police related calls are within acceptable limits. These facilities will serve the proposed Project.

1.7 Potentially Applicable Regulations and Permits

- The Coastal Zone Management Act of 1972 (16 USC 1461)
- The Endangered Species Act of 1973, 16 U.S.C. § 1531 *et seq.* 50 CFR 17
- The Magnuson-Stevens Fishery Conservation and Management Act 16 U.S.C. § 1801 *et seq.*, 50 CFR part 600
- The National Environmental Policy Act of 1969, 42 USC § 4321 *et seq.*
- Sections 401, 402 and 404 of the Clean Water Act, 33 USC § 1251 *et seq.*
- 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 *et seq.*
- Section 4(f) of the U.S. Department of Transportation Act of 1966, 49 USC § 303
- Section 6(f) of the Land and Water Conservation Act of 1965, 16 USC § 460
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, 42 USC § 61
- Executive Order 11988, Floodplain Management, 42 FR 26951 (May 24, 1977)
- Executive Order 11990, Protection of Wetlands, 42 FR 26961, (May 24, 1977)
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR7629 (February 11, 1994)
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, 65 FR 50121 (August 11, 2000)
- Federal Railroad Administration Procedures for Considering Environmental Impacts, 64 FR 28545 (May 26, 1999) and 49 CFR Part 260.35
- Council on Environmental Quality (CEQ) Regulations for Implementing the National Environmental Policy Act, 40 CFR parts 1500-1508
- Use of Locomotive Horns at Highway-Rail Grade Crossings; Final Rule, 49 CFR parts 222 and 229.

Permitting requirements imposed by local regulatory agencies will also need to be considered. These may include requirements mandated by local building, fire, health, and environmental departments and typically include zoning reviews and approvals, building permits, fire and health department approvals, and environmental reviews. Municipalities with jurisdiction include Palm Beach County, Broward County and Miami-Dade County, as well as the City of West Palm Beach, the City of Fort Lauderdale and the City of Miami. Table 1-7.1 summarizes some of the additional agencies and entities from which permits and/or approvals may be required.

**Table 1-7.1
Potential Permits**

Permit/Approval	Agency
Section 401, CWA	SFWMD
Section 404 Permit, CWA	USACE
Section 408 Permit, CWA	USACE
Bridge Permit	USCG
Environmental Resource Permit (ERP)	SFWMD
Right-of-way Occupancy Permit	SFWMD
Water Use	SFWMD
National Pollutant Elimination System (NPDES) Permit for Construction	FDEP

2.0 ALTERNATIVES

2.1 Introduction

This section of the EA discusses alternatives developed and considered during the NEPA process. For this Project, the alternatives include “system” alternatives for the railway corridor between stations (including improvements to existing tracks and safety equipment) and “station” alternatives that analyze various options for locating stations (and ancillary development) in West Palm Beach, Fort Lauderdale, and Miami. See Appendix E for Proposed Track Charts and Typical Sections; see Appendix B for conceptual plans for the Proposed Stations. As per NEPA and CEQ guidance, a No-Build Alternative was also analyzed and considered.²⁵ The No-Build Alternative represents “no change” from current conditions and a continuation of the present course of planned and funded actions. This EA separates system and station alternatives to simplify the alternatives discussion.

First, however, this Section describes the evaluation criteria developed to identify and consider options that satisfy the purpose and need of the Project, including the ability to meet the necessary design criteria for each Project component as well as feasibility goals – all while avoiding adverse environmental impacts. This evaluation was undertaken following consultation with interested agencies and individuals, including local governmental entities, in each of the three counties where the system will traverse and the stations are proposed. Through these efforts, one system alternative was developed for study and two potential station alternatives were identified for further evaluation in each of the following locations: West Palm Beach, Fort Lauderdale and Miami. The following needs were critical evaluation factors when considering the identification of alternatives deserving further study:

- **Proximity to FEC Corridor and CBDs:** The need for sites within existing community development districts (CBDs) along the FEC corridor will ensure that all sites considered establish opportunities to develop a pedestrian-friendly transportation option providing access to the entire population (including the disadvantaged, transit dependent, physically challenged, etc.) located within major population centers in downtown areas near government buildings with available parking and the potential for further development that would serve to optimize ridership potential. The EA only considered station locations within existing CBDs to meet these Project needs and objectives. The excessive cost, delays and impacts associated with connecting station locations outside of CBDs to the FEC corridor made any such sites unfeasible – especially when those considerations were coupled with the anticipated lack of ridership associated with such sites.
- **Compatibility of Existing Land Use Patterns:** The need for locations within areas near downtowns with compact development patterns that promote economic redevelopment in a manner consistent with local, regional, and state comprehensive plans while also satisfying system and station design criteria was recognized as a Project priority to be accommodated.
- **Feasibility of Development:** The project considered only sites where limited acquisitions would be required, and where no residential displacement would result, in areas that would accommodate a second main line track necessary for the proposed Project and freight

²⁵ See 40 CFR Section 1502.14(d) (requiring that any analysis of alternatives in an EA “include the alternative of No-Build.”).

operations, as well as gauntlet tracks through the platform zones for use by periodic high and wide freight trains – all while avoiding the creation of no-outlet (a.k.a., dead-end) conditions. Further, for the Miami Station, the necessity to maintain railroad infrastructure for continued port lead freight operations, as well as the ability to accommodate the passenger rail track, were identified as important needs to be addressed.

- **Connectivity:** The need to identify locations with existing links to other transportation networks (e.g., major highways, mass transit, etc.), including the potential for interconnection with local and regional transit services, as well as the potential for access to major intermodal hubs (e.g., airports, seaports, etc.).

In light of the foregoing factors, some alternatives were considered but eliminated from detailed analysis, as discussed in Section 2.2, Alternatives Considered but Eliminated from Further Analysis. With the foregoing general parameters serving as guiding principles, the following specific criteria were established for the analysis of each potential viable alternative for the stations to be incorporated within the Project:

Criteria	Issues Analyzed
Right-of-way acquisition	Whether any significant property acquisitions would be required for the right-of-way
Roadway blockage and/or at-grade crossing closures	Whether any street blockage or at-grade crossing closures to accommodate the system or proposed platforms would be required and, if so, whether (a) any such affected street would be a local street or a major state or federal thoroughfare, (b) the anticipated action would impact local circulation adversely, (c) alternate routes were located in close proximity to the proposed action so as to result in minimal changes to the existing traffic patterns and avoid no-outlet/dead-end conditions and (d) access to existing properties would be negatively affected by the proposed action
Vehicular traffic impact	Whether local vehicular traffic would be negatively impacted
Local government plan consistency	Whether the proposed development was consistent with local governmental plans
Local government support	Whether the proposed development was supported by local governments
Ecologically sensitive areas/wetlands	Whether ecologically-sensitive areas/wetlands would be impacted
Floodplains 100-yr	Whether the alternative would impact the function of the 100-year floodplain
Historic Properties	Whether the alternative was within the vicinity of historic properties and, if so, whether negative impacts were expected
Noise impacts	Whether the alternative would result in increased noise impacts
Vibration impacts	Whether the alternative would result in increased vibration impacts
Contamination	Whether the alternative would result in major soil disturbance activities resulting in negative impacts that could not be addressed through best management practices.
Impact to Environmental Justice populations	Whether the alternative would result in negative environmental justice impacts.
Parking impacts	Whether the alternative would result in negative parking impacts.
Engineering complexity	Whether the alternative would require complex design and/or construction work that would affect the feasibility of the proposal.

The alternatives considered in detail are discussed in Section 2.4, System Alternatives, and Section 2.5, Station Alternatives. As a result of the alternatives analysis, a recommended alternative was identified for detailed study for the system (the “**Preferred Build System Alternative**”) and each station location and the vehicle maintenance facility (VMF) (each, the “**Preferred Build Station Alternative**”), such that

this EA presents a recommended alternative for the entire proposed West Palm Beach to Miami Project (the “**Preferred Build Project Alternative**”). The **Preferred Build System Alternative** is more particularly described in Section 2.6.1, and the **Preferred Build Station Alternatives** are more particularly described in Sections 2.6.2 through 2.6.5. Section 3 documents the affected environment and any potential environmental consequences that would result from the implementation of the **Preferred Build Project Alternative**.

2.2 Alternatives Considered but Eliminated from Further Analysis

AAF considered the following system alternatives, and eliminated them from further analysis as being unfeasible, based on the issues outlined in Section 2.1 of this document:

System Alternatives²⁶

- **A system that provided full separation of freight and passenger rail on the same at-grade corridor:** This alternative involves the physical separation of passenger and freight rail on the same corridor, which full-separation concept would require compliance with the FRA’s High Speed and Intercity Passenger rail requirements for a “separate system” that mandate physical and operational separations that cannot be accomplished within the 100 ft. right of way that exists within the FEC corridor. The alternative was considered and discarded as not feasible due to the extensive new track work, bridges, grade crossing widths and communication systems and right of way that would be required. A completely separate system is estimated to cost approximately \$2.5 billion, exclusive of right of way costs, which makes this alternative cost-prohibitive because the proposed shared-use alternative achieves the Project’s needs and objectives at a lower cost with less environmental consequences. The environmental impacts associated with a separate corridor further negated this alternative from consideration because such impacts were considered and found to be more severe than the shared-use corridor concept.
- **A grade-separated system:** This alternative was evaluated and not considered for further evaluation because of its potential for significant environmental impacts, the cost and delay issues associated with a fully grade-separated system and the inability of the alternative to meet the Project’s purpose and needs. A fully grade-separated system would require the elimination of at-grade crossings at speeds of 125 mph or more. The proposed Project does not require speeds above 110 mph to achieve the Project’s needs and objectives. Because the Project does not require this design and because a fully grade-separated system is estimated to cost more than \$4 billion, it was determined that the economies of a shared-use system outweighed any benefits that might be achieved with a fully grade-separated system. Further, the environmental impacts of a fully-elevated system necessary to eliminate at-grade crossings can be extensive in urban centers and would require more invasive construction work than the work required for the restoration of a second track

²⁶ Alignment alternatives that bypass downtown areas were also eliminated from review because such approaches would fail to meet the Project’s goals and objectives, including the need for connectivity to the downtown areas of key station destinations. These alternatives would also require the acquisition of extensive new railroad right-of-way, which would make these alternatives cost-prohibitive for consideration.

within the existing FEC corridor. Finally, because freight rail service would remain at-grade and include grade crossings, the primary benefit of developing a grade-separated system would be negated by the realities of the existing utilization of the FEC corridor.

Station Alternatives

For the stations, only those sites meeting the following essential needs summarized in Section 2.1, Introduction, were subjected to further study:

- Proximity to FEC corridor and CBDs;
- Compatibility of Existing Land Use Patterns;
- Feasibility of Development; and
- Connectivity.

Several sites did not meet the established station criteria and were dismissed from further analysis, including the options described below:

- **West Palm Beach South.** Siting an 800-foot long high-level platform close to the City's CBD would physically block the intersection at either Okeechobee Boulevard (a primary arterial route from the regional highway network) or Hibiscus Street (a key access road for the City Place retail district). These streets were identified as major thoroughfares and it was noted that the blockage of these roads would impact local circulation and could impact access to existing properties in the area. Further, local entities and authorities expressed opposition to such blockage. As such, this alternative was dismissed from further consideration.
- **Miami North At Grade.** Siting an at-grade terminal station north of Fifth Street was explored to consider an alternative to addressing the existing Metromover alignment. Such a concept would require track to share the 100-foot wide FECR port lead ROW on the north side of Eighth Street while preserving the track connection to the port. Accommodating 1,000-foot long high-level platforms on tangent track within this property was deemed technically unfeasible because the required system and station infrastructure could not be accommodated within the site. This option would require significant acquisition of additional land for both the ROW and the stations, which would be cost-prohibitive for this venture.
- **Miami North Elevated.** Siting an elevated terminal station north of Fifth Street, rather than an at-grade condition, was explored but also found to be technically unfeasible in that this option would significantly increase the cost, delays and risks associated with construction.
- **Miami Below Grade.** An underground scheme was explored but dismissed primarily due to constructability and cost challenges related to the site's high water table and buried utilities.

2.3 No-Build Alternative

The **No-Build Alternative**, which involves no changes to the transportation facilities within the FEC corridor beyond those that have been currently planned and funded, was evaluated as part of this

study. Under this scenario, the existing freight operations and maintenance infrastructure by FECR would be maintained. Specifically, the **No-Build Alternative** would maintain FECR's operations as a freight provider within the FEC corridor assuming an annual growth of approximately 5%-7% between today and 2016 due to current FECR projects at the Port Miami and Port Everglades, and 3% per year after 2016. Routine maintenance, safety improvements and as-needed track work would continue as planned. Also, the **No-Build Alternative** would include future planned and funded roadway, transit, air and other intermodal improvements within the study area.

It is important to note that the **No-Build Alternative** includes future growth in freight service and that many of the capacity improvements to the system that are highlighted in this document as part of the Project would likely occur over time as part of the **No-Build Alternative** to accommodate freight growth even without the introduction of passenger service.

In the absence of passenger service within the FEC corridor, there is no need for stations and station-associated development. It is assumed that land use development would continue consistent within the approved and adopted local comprehensive, master and/or visioning plans of each municipality. For the purposes of this analysis, it was also assumed that only planned and funded improvements will be completed. As such, the **No-Build Alternative** consists of:

- The continued vacancy of land and structures in the City of West Palm Beach for which there are also no known development initiatives nor any active development applications or building permits, including the currently unoccupied 19,000 square-foot distribution warehouse;
- The continued operation of the BCT Central Bus Terminal²⁷ on the northeast corner of Broward Boulevard and NW 2nd Avenue at which fifteen bus lines converge;
- The continued operation of the shopping, dining and entertainment venue that currently exists at Las Olas Riverfront, which is not fully occupied; and
- The continued operation of surface-level parking on site in downtown Miami.

The **No-Build Alternative** would miss an opportunity to connect multi-modal forms of transportation at a single site in Broward County, which would improve overall mass transit in the downtown Fort Lauderdale area. Thus, the **No-Build Alternative** does not contribute to the achievement of one objective of the City of Fort Lauderdale and Broward County, which includes an innovative transit system at its core as a means of creating sustainable development and cleaner, more livable communities. In West Palm Beach, the **No-Build Alternative** would not contribute to that City's plans to both improve mass transit in the area and revitalize an area that would create a connection between Clematis Street (downtown's main street) and shopping and entertainment venue CityPlace. When compared with the **Preferred Build Project Alternative**, the **No-Build Alternative** would also, over time, contribute more significantly to increases in the amount of traffic congestion and, as a result, air emissions in all of these areas.

²⁷ The bus terminal may undergo changes, although no established plans have been set forth. Monies have tentatively been allocated for future BCT Terminal redevelopment and/or upgrade projects (i.e., a motion to adopt funds from a federal grant was approved by the Broward County Commission on October 25, 2011, which included improvements to BCT's Central Terminal in the amount of \$730,359). Further, BCT's 2011 Transit Development Plan (TDP) Annual Update reported that redevelopment construction plans for the Central Terminal would possibly begin in 2015.

The **No-Build Alternative**, therefore, would fail to enhance mobility and stimulate economic development along South Florida's east coast when compared to the **Preferred Build Project Alternative**. The **No-Build Alternative** would also fail to meet the Project's purpose and need to provide intercity passenger rail service on South Florida's east coast from Miami to West Palm Beach and fail to fulfill the plans of these cities to improve connectivity for intercity and intermodal travel.

Although the **No-Build Alternative** fails to meet the purpose and need for the Project, it was retained as per NEPA and CEQ guidance in order to evaluate potential benefits and impacts associated with the proposed action in comparison to taking no action.

2.4 System Alternatives

Several system alternatives that were eliminated from further discussion because they failed to meet the Project's purpose and need (as described in more detail in Section 2.2, Alternatives Considered but Eliminated from Further Analysis). Only one system alternative was carried forward for consideration for the corridor between stations and includes the addition of, and/or improvement to, existing tracks and safety equipment. Specifically, the system included within the Project would begin at MP 299.5, just north of the potential West Palm Beach Station sites and would end at MP 365.5 at the Miami Station, see Figure 1-3.1. The total system length is 66 miles. The current system ends at MP 365.15 where the Port of Miami Lead turns eastward toward the Port. The 66-mile proposed system includes the single main, and 18 miles of second track sidings.

As described in more detail in Section 1.3, Project Description, there are certain minimum requirements that would be required by way of infrastructure improvements in order for the Project to be able to be completed in a manner that ensures a safe and reliable passenger rail service from West Palm Beach to Miami. The FEC corridor provides a location for such infrastructure improvements in a manner that will enhance the feasibility of the system and the ridership potential while minimizing or avoiding any environmental impacts. The proposed system alternative will return the existing FEC corridor to its prior dual-track system, allowing for the development and re-introduction of passenger service to Southeast Florida. Because AAF has the right to develop passenger rail service within the complete 66-mile route, which is entirely privately owned, in place, in use and available, the Project may be completed promptly within the existing FEC ROW. Using this existing ROW – on a corridor that was originally designed to provide passenger rail service – meets the Project's purpose and need by reinstating passenger service while minimizing any potential environmental impacts of construction.

As shown in Section 3, the planned mainline improvements constitute the restoration of an existing rail ROW for passenger operations. These mainline improvements will primarily take place within a privately-owned corridor that has existed for more than 100 years and has seen heavier freight traffic in 2006 than the Project's proposed overall utilization of the FEC corridor – even after taking into account the projected growth of freight train operations (see Tables 1-1.1 and 1-1.2).

The planned improvements for the system component of the Project include the following:

- New platforms at each proposed station, a more detailed description appears in Section 2.5 of this EA;
- New track sidings at the new stations;
- New track signal controls;
- 49.2 total miles of new second main track construction within the existing FEC corridor;
- Upgrades at 134 crossings of the 183 total highway and pedestrian crossings encountered from West Palm Beach to Miami on the FEC corridor to enhance safety;
- 8.3 miles of siding rehabilitation at the following mile-post locations: Hypoluxo (MP 309), Villa Rica (MP 321), Pompano (MP 331), and Ojus (MP 353);
- 3 bridges to be rehabilitated to add a second track at the following mile-post locations: MP 319.55, MP 334.93 and MP 354.51;
- 7 bridges to remain single track at the following mile-post locations with #24 Turnouts at each end of the bridge to connect second track to single main: MP 304.05, MP 311.45, MP 326.58, MP 337.9, MP 338.52, MP 353.74 and MP 356.53;
- Control work only for New River Bridge at MP 341.26;
- New approach work in Miami to depart from at-grade construction and transition to an elevated section at the proposed terminal in Miami, which elevated section will pass over the Port of Miami Lead, Metro Mover and Metro Rail as it approaches the station (MP 364.8 to MP 365.5);
- New #24 Universal Crossovers to be built at MP 351.2 and MP 309.3;
- New #10 Universal crossovers planned for MP 365.2;
- New #24 Crossovers planned at MP 289.8, MP 319.5, MP 321.5, MP 330.5 and MP 332.3; and
- New #20 Crossovers planned at MP 360.7.

The specific location of the planned upgrades at 134 crossings of the 183 total crossings encountered from West Palm Beach to Miami are detailed in Appendix E-1. Further, the specific locations of the bridges included within this system are shown in the Bridge Location Map, Figure 1-3.2. Further, aerial photographs of each bridge location are provided in Appendix A, with pictures identifying the three bridges where work would need to be performed set forth in Section 1.3. In addition, a summary description of the work to be completed at each location is set forth in the Proposed Bridge Work, Table 1-3.1.

2.5 Station and VMF Alternatives

Station alternatives are defined as those potential locations for developing stations and ancillary development needed to support the Project in West Palm Beach, Fort Lauderdale, and Miami. Only station locations within existing CBDs were considered in order to meet the Project's purpose, need and objectives. The general design criteria for each of the station locations are more particularly described in Section 1.3, Project Description. Further, Section 1.6, Connected Actions, describes the existing land use patterns surrounding each site, as well as municipal demands and capacity, all to establish that there is sufficient infrastructure to support those needs.

The following sections describe the downtown areas of West Palm Beach, Fort Lauderdale and Miami and the criteria applied to determine the preferred location in each area in light of the Project's objectives at each site. See Appendix B for conceptual plans for the Proposed Stations.

2.5.1 Downtown West Palm Beach

Downtown West Palm Beach is a vibrant center and a collection of charming but disconnected neighborhoods. The Government Center district in the north is composed of predominantly government-related buildings. Immediately south, the Clematis Waterfront district is the city's historical retail corridor. The transitional Quadrille Business District straddles Clematis Street and the CityPlace mixed-use development extending south to Okeechobee Boulevard. The CBD is situated at the eastern end of Okeechobee. The community and elected leaders are working to enhance quality of life for a more sustainable and connected Downtown. There is broad support for a downtown passenger rail station to serve the West Palm Beach market.

Following extensive discussions with interested agencies and individuals, including representatives from the City of West Palm Beach and Palm Beach County, the following additional planning principles were specifically developed for the proposed station within this city's downtown:

- To reinforce City's desire to focus economic development energy on the northern part of downtown;
- To create an urban link between Clematis Street and City Place;
- To spark development in underutilized neighborhoods situated East and West of Quadrille Boulevard; and
- To support economic reinvestment in the Clematis Street corridor.

Based on these principles and the guidelines and criteria established in Section 2.1, Introduction, one site in West Palm Beach was found to be unfeasible (see, South Option in Figure 2-5.1 West Palm Beach Station Alternative Map and discussion in Section 2.2, Alternatives Considered but Eliminated).

Two sites within the City of West Palm Beach were retained after being found to be feasible alternatives (see North Option and Central Option in Figure 2-5.1 West Palm Beach Station Alternative Map).

2.5.1.1 West Palm Beach – North

For this site location alternative, the AAF station would be located in the northern portion of downtown, roughly between Third and Seventh Streets proximate to the 15th Judicial Circuit Courthouse Complex, County Courthouse, County Administration Building and City Hall.

The station's 800-foot long, 35-foot wide high-level platform would be located well north of Third Street because, under this location alternative, the platform must be on a tangent track north of the existing mainline curve. This site would take advantage of an uninterrupted stretch of FEC ROW without the need for at-grade crossing closures, although it would block NW 7th Street. Because local governmental authorities at the City of West Palm Beach have identified NW 7th Street for a circulation improvement study, which has not been completed, the effects on traffic and safety associated with this street blockage cannot be fully determined at this time and opposition may be encountered. For this reason, the need for the blockage of NW 7th Street for this option negatively impacted the analysis.

The analysis was developed for the station to extend to the east side of the FEC ROW on unimproved, publicly controlled properties situated along Quadrille Boulevard including a building parcel with frontage on S. Dixie Highway. The two-story station building would face the east. On-site customer facilities would include ticketing, secure waiting area for ticketed passengers located in space above the platform level, and retail. Parking to support the retail would be provided on site. No dedicated passenger parking would be provided on-site because easily-accessible, long-term parking capacity is available within a close radius of the station. The use of such existing parking facilities is supported by the City of West Palm Beach.

Developing an AAF station on this site would not preclude future commuter rail service on the FEC line, whether operated by FDOT or others. At this time, there are no current plans for shared use of the station for this purpose, but the design of the station would allow for such development.

While this alternative is furthest from the CBD when compared to the other West Palm Beach alternative station sites, the site is attractive because of its proximity to government buildings and its ability to reinforce the City's desire for focused economic development energy on the northern part of Downtown.

2.5.1.2 West Palm Beach – Central

For this site location alternative, the AAF station would be located further south than the north option described above, roughly between Clematis Street and Fern Street. The two-story station building would be located to the west side of the FEC ROW on privately-controlled property fronting Evernia Street, which is currently under contract by AAF's affiliate.

On-site customer facilities would include ticketing, secure waiting area for ticketed passengers located in space above the platform level, and retail. Parking to support the retail would be provided on site. No dedicated passenger parking would be provided on-site because easily-accessible, long-term parking capacity is available within a close radius of the station. The use of such existing parking facilities is supported by the City of West Palm Beach.

The north edge of the 35-foot wide center island platform would commence just south of Clematis Street and end north of Fern Street. The high-level platform would physically block the intersections at Datura and Evernia Streets, thus two at-grade crossing closures would be required due to the short block grid. At each such location, however, the street to be affected is a local street rather than a major state or federal thoroughfare and the crossing closure is not anticipated to impact local circulation. In the existing condition, the availability of alternative routes in close proximity to the proposed crossing closures will avoid dead-end conditions and result in minimal changes to the existing traffic patterns. Further, the Project may benefit from the development of a frontage road on the west side of the ROW, which is supported by the City's Master Plan where it is noted that "[i]ncentives are offered for the dedication of right-of-way (ROW) which will allow for the construction of a new road adjacent to the west side of the FEC ROW between Gardenia Street and Clematis Street." In any event, such a frontage road is not required in that access to existing properties will not be affected by the proposed at-grade crossing closures. A detailed discussion of the lack of negative traffic impacts of such crossing closures appears in Section 3.3.1 Transportation.

Developing an AAF station on this site would not preclude future commuter rail service on the FEC line, by FDOT or others. At this time, there are no current plans for shared use of the station for this purpose, but the design of the station would allow for such development.

This site is attractive due to its proximity to City Hall, the County Courthouse and County Administration Building, and because it would serve as a link between the urban retail corridor of Clematis Street and the mixed use district of CityPlace and the CBD. Investment in this area would reinforce the City's desire to focus economic development energy on the northern part of Downtown. The AAF station development would also spark economic activity in neighborhoods situated both east and west of Quadrille Boulevard. Additionally, this site can provide the most direct and convenient connections to the nearby TriRail commuter station via pedestrian walkway and/or shuttle service.

**Table 2-5.1
West Palm Beach – Comparative Analysis**

Criteria	West Palm Beach			Discussion
	No-Build	North	Central	
Right-of-way acquisition (ac)	0.0	0.0	0.0	Criteria satisfied.
Roadway blockage (#)	0	1	0	Criteria not satisfied in that the effects on traffic and safety associated with the blockage of NW 7 th Street cannot be fully determined at this time and opposition may be encountered, which negatively impacted the analysis of the North option
At-grade crossing closures (#)	0	0	2	Criteria satisfied more appropriately by the Central option in that the crossing closures proposed to accommodate the system or proposed platforms would affect a local street, would not impact local circulation adversely and there are alternate routes were located in close proximity to the proposed crossing closures so as to result in minimal changes to the existing traffic patterns and access to existing properties would not be affected by the proposed crossing closures
Vehicular traffic impact	N/A	None	None	Criteria satisfied.
Local government plan consistency (y/n)	N/A	Y	Y	Criteria satisfied.
Local government support (y/n)	N	Y	Y	Criteria satisfied. Investment in this part of town would reinforce the City's desire to focus economic development energy on the northern part of Downtown.
Ecologically sensitive areas/wetlands (ac)	0.0/0.0	0.0/0.0	0.0/0.0	Criteria satisfied.
Floodplains 100-yr (ac)	0.0	0.0	0.0.	Criteria satisfied.
Historic Properties – Total (#)	0	3	10	As discussed in more detail in Section 3, the West Palm Beach Central Site will have no adverse effect on significant historic resources, based on the condition that consultation with SHPO and the local historic preservation planning staff will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the resources within the station locations' APE. AAF is committed to that coordination.
Archaeological sites (#)	0	0	0	
Historic districts (#)	0	0	1	
Historic buildings (#)	0	2	8	
Linear resources (#)	0	1	1	
Noise impacts (#)	0	0	0	Criteria satisfied.
Vibration impacts (#)	0	0	0	Criteria satisfied.
Contamination (#)	0	1	1	Criteria satisfied through additional assessment and the use of best management practices that will be implemented to avoid impacts to potential contaminated soil and/or groundwater from adjacent sites. See Section 3.3.6 for a more detailed analysis of these issues.
Impact to Environmental Justice populations (y/n)	N	N	N	Criteria satisfied.
Parking impacts (y/n)	N	N	N	Criteria satisfied.
Engineering complexity (H-M-L)	N/A	L	L	Criteria satisfied.

2.5.2 Downtown Fort Lauderdale

Fort Lauderdale's urban center has seen a dramatic transformation over the last decade and the City is committed to promoting investment and commitments to provide an active and livable Downtown. The City is poised to transition from an emerging core into a mature city center with walkable streets, public spaces and high-quality buildings. Elected leaders and government staff in the City and Broward County are working on multiple cutting-edge initiatives to tackle the serious challenges of traffic, parking, transit and infrastructure, among other things. As a result of these realities, there is broad support for a downtown passenger rail station to serve the Fort Lauderdale market.

Following extensive discussions with interested agencies and individuals, including representatives from the City of Fort Lauderdale and Broward County, the following additional planning principles were specifically developed for the proposed station within this city's downtown:

- To develop a site that would be able to promote connectivity between AAF passenger rail, regional and local buses, WAVE and future commuter rail; and
- To stimulate redevelopment in the south of the downtown area to the riverfront.

Based on these principles and the guidelines and criteria established in Section 2.1, Introduction, two sites within the City of Fort Lauderdale were found to be feasible alternatives (see North Option and South Option in Figure 2-5.2 Fort Lauderdale Station Alternative Map).



Figure 2-5.2 Fort Lauderdale Alternatives Map

2.5.2.1 Fort Lauderdale – North

For this site location alternative, the AAF station would be located north of Broward Boulevard. The station's 800-foot long, 35-foot wide platform would be located north of Broward Boulevard and south of NW Fourth Street. The high-level platform would affect one intersection and thus require the at-grade crossing closure at NW Second Street. NW Second Street is a local street rather than a major state or federal thoroughfare and the crossing closure is not anticipated to impact local circulation. In the existing condition, the availability of alternative routes in close proximity to the proposed crossing closure will avoid dead-end conditions and existing traffic patterns may easily be re-routed. Further, access to existing properties will not be negatively affected by the proposed crossing closure. A detailed discussion of the lack of negative traffic impacts of the closure appears in Section 3.3.1, Transportation.

The station would extend to the east side of the FEC ROW onto the existing Broward Transit Center property bounded by Broward Avenue, NW First Avenue and NW Second Street. Along with the County and City, AAF would be amenable to discussions regarding the possible joint redevelopment of the existing bus terminal site and other sites to accommodate, AAF passenger rail, regional and local buses, and future WAVE (light rail) service, but the current Project does not contemplate such development at this stage.

Developing an AAF station on this site would not preclude future commuter rail service on the FEC line, by FDOT or others. At this time, there are no current plans for shared use of the station for this purpose, but the design of the station would allow for such development.

AAF's on-site customer facilities would include ticketing, secure waiting area for ticketed passengers located in space above the platform level, and retail. Parking to support the retail would be provided on site. No dedicated passenger parking would be provided on-site because easily-accessible, long-term parking capacity is available within a close radius of the station. The use of such existing parking facilities is supported by the City.

This site is attractive because of its proximity to the Broward Transit Center, nearby City Hall to the east and a nearby State office building to the west. The station would benefit from high visibility frontage on Broward Boulevard.

2.5.2.2 Fort Lauderdale – South

For this site location alternative, the AAF station would be located just south of Broward Boulevard and north of the existing railroad bridge over the New River. The station would extend to the east side of the FEC ROW onto the privately controlled Las Olas Riverfront property. AAF's on-site customer facilities would include ticketing, a secure waiting area for ticketed passengers located in space above the platform level, and retail. Parking to support the retail would be provided on site. No dedicated passenger parking would be provided on-site. The City supports use of existing parking capacity available within a close radius of the station.

This site is attractive because of its proximity to the existing public esplanade along the river. The station would benefit from high visibility frontage on Broward Boulevard. No track work would be undertaken within 100 feet of the existing bridge and the existing at-grade pedestrian crossing across

the FEC tracks would be preserved. To tie into the existing track alignment over the river crossing, the station would employ a side platform configuration in lieu of the preferred center-island platform described for the Fort Lauderdale-North alternative as well as those alternatives in West Palm Beach. The center-island platform is preferred from a safety perspective, among other reasons.

The center-island platform design is safer because it avoids having passengers cross any live tracks. Access to the passenger platform is possible only by grade-separated means (via escalators/elevators stairs to and from a controlled-access, air-conditioned waiting area). Further, this design ensures that ticketed passengers are always located on the correct platform – even if scheduling changes are made to inbound or outbound trains. When passengers travel to the center-island platform, there is no confusion or question that they are on the correct platform, because all trains in both directions will stop at the same center-island platform (on one side or the other). Electronic signage will indicate the train number, direction, and destination.

By contrast, at stations with side platforms, passengers often need to ‘scurry’ from a platform on one side of the tracks to a platform on the other side of the tracks if a dispatching decision is made for an unscheduled rerouting of a train from one track to the other as it approaches a station with side platforms. This situation creates angst among passengers, and can result in passengers taking risks by crossing main tracks at unsafe locations. The center-island platform works to eliminate these potential risks and hazards for passengers.

In addition to the challenge presented by this site for the platform design, this site is also challenging in that it fails to satisfy a critical criterion because the 800-foot long high-level platforms would result in the possible blockage and/or at-grade crossing closure of one major intersection: either Broward Boulevard or SW Second Street. Closing the at-grade crossing at Broward Boulevard would not be a viable option because it is a major connector to I-95 and the principle feeder to the proposed station and the balance of downtown Fort Lauderdale. Closing the at-grade crossing at SW Second Street would also be problematic because it connects the CBD to the east of the FEC corridor to important sites on the west of the FEC corridor, including the historic areas of the City and the local performing arts center.

**Table 2-5.2
Fort Lauderdale – Comparative Analysis**

Criteria	Fort Lauderdale			Discussion
	No-Build	North	South	
Right-of-way acquisition (ac)	0.0	0.0	0.0	Criteria satisfied.
Roadway blockage (#)	0	0	1	Criteria possibly not satisfied in that the effects on traffic and safety associated with the possible blockage of SW 2nd Street cannot be fully determined at this time and opposition may be encountered, which negatively impacted the analysis of the South option
At-grade crossing closures (#)	0	1	1	Criteria satisfied more appropriately by the North option in that the at-grade crossing closures proposed to accommodate the system or proposed platforms would affect a local street, would not impact local circulation adversely and there are alternate routes were located in close proximity to the proposed crossing closures so as to result in minimal changes to the existing traffic patterns and access to existing properties would not be negatively affected by the proposed crossing closures. By contrast, the proposed at-grade crossing closure for the South option would affect the only local connection between the downtown CBD and important sites, including the historic areas of the City and the local performing arts center.
Vehicular traffic impact	N/A	None	None	Criteria satisfied.
Local government plan consistency (y/n)	N/A	Y	N	Criteria satisfied for the North option.
Local government support (y/n)	N	Y	N	Criteria satisfied for the North option.
Ecologically sensitive areas/wetlands (ac)	0.0/0.0	0.0/0.0	0.0/0.0	Criteria satisfied.
Floodplains 100-yr (ac)	0.0	3.0	3.7	Criteria satisfied more satisfactorily for the North option.
Historic Properties –Total (#)	0	7	8	As discussed in more detail in Section 3, the Fort Lauderdale Site will have no adverse effect on significant historic resources, based on the condition that consultation with SHPO and the local historic preservation planning staff will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the resources within the station locations' APE.
Archaeological sites (#)	0	0	1	
Historic districts (#)	0	1	1	
Historic buildings (#)	0	5	5	
Linear resources (#)	0	1	1	
Noise impacts (#)	0	0	0	Criteria satisfied.
Vibration impacts (#)	0	0	0	Criteria satisfied.
Contamination (# High or Med)	0	0	0	Criteria satisfied.
Impact to Environmental Justice populations (y/n)	N	N	N	Criteria satisfied.
Parking impacts (y/n)	N	N	N	Criteria satisfied.
Engineering complexity (H-M-L)	N/A	L	L	Criteria satisfied.

2.5.3 Downtown Miami

Each alternative for Miami's downtown station would be located on a multi-block, nine-acre site owned by AAF's affiliate. This site was the location of the original Florida East Coast Miami Station built by Henry Flagler. See Figure 2-5.3, Historic Photograph of the Florida East Coast Miami Station.



Figure 2-5.3 Historic Photograph of the Florida East Coast Miami Station

(Circa 1920s with the Courthouse Visible to the Right Background of the Photograph; Photograph Courtesy of Florida Memory).

The site is centrally situated at the heart of the City's Government Center district, an area characterized by a concentration of City, County, State and Federal government facilities, as well as cultural and civic uses. The Overtown neighborhood is located to the north of the site, and the Flagler Street retail corridor is to the south.

The area today possesses strong transit connections to the north and south (there are two Metrorail stations) and excellent connectivity with other destinations in downtown (there are two Metromover stations) plus multiple convenient and well-used bus routes. However, rather than a large urban design gesture that creates a sense of an intermodal gateway that one would expect for a city like Miami, there is currently a proliferation of surface parking lots. The station site currently is used exclusively for parking. As a result, the area lacks a public realm, and there is little character-defining identity to the neighborhood. Privately-held property around the station site is under-utilized, and there is insufficient infrastructure to serve current and future workers, residents and visitors who ultimately will live, work and play in this community.

Following extensive discussions with interested agencies and individuals, the following additional planning principles were specifically developed for the proposed station within this city's downtown:

- To deliver a station with the ability to become an integrated multi-modal transportation hub;
and
- To revitalize the government center neighborhood.

Based on these principles and the guidelines and criteria established in Section 2.1, Introduction, three options in Miami were found to be unfeasible (see Figure 2-5.3 Miami Alternative Map and discussion in Section 2.2, Alternatives Considered but Eliminated).

Two sites within the City of Miami were retained after being found to be feasible alternatives for the actual siting of the platforms, passenger facilities and ancillary development (see Central Option and South Option in Figure 2-5.4 Miami Station Alternative Map).



Figure 2-5.4 Miami Station Alternatives Map

2.5.3.1 Miami – South At Grade

This station alternative is an at-grade option. At the north end, two main line tracks would pass under the Dolphin Expressway overpass at-grade. The port lead would remain in service; the single track would peel off the main line at Eighth Street and head east into the Port Miami. The passenger track arrangement would continue south and fan out to four tracks between Eighth and Fifth Streets, allowing for platforms south of 5th Street.

As in all alternatives, the station layout assumes high-level platforms set at 51 inches above the top of the rail. The Miami layout provides a combination of side and center island platforms. All four tracks would be accessed also by a low-level service platform. The 1,000-foot long platforms would be located between Fifth Street, which would remain open, and Third Street, where the at-grade crossing would need to be closed. This at-grade crossing closure is particularly challenging because it would result in dead-end conditions from both directions. Further, the entire track and station platform footprint would realize its full width at the south edge of Fifth Street. Four tracks would cross Sixth and Fifth Streets at grade. This 4-track-wide crossing is not considered favorable because it would make access (both pedestrian and vehicular) challenging, even while the at-grade crossings would not be closed. With regard thereto, it should be noted that Sixth and Fifth Streets are considered two of the more significant downtown connectors to I-95, that provide access to Port Miami and the American Airlines Arena, among other local attractions and downtown properties.

This alternative would not alter the existing Overtown Metrorail Station or existing Government Center Metrorail and Metromover Stations. The existing Metromover station at NE Fifth Street would also be maintained. However, it would not be possible to squeeze four passenger rail tracks and platforms under the existing Metromover alignment without altering the existing pier spacing; hence, the Metromover span through the property owned by AAF's affiliate would need to be rebuilt in a manner that would allow the existing usage to be maintained. Although this would avoid future traffic ramifications, this would add costs and risks of delays to the development of the Project.

Developing an AAF station on this site would not preclude future commuter rail service on the FEC line, by FDOT or others. At this time, there are no current plans for shared use of the station for this purpose. The station design would allow for such development in the future.

The AAF station at this location would have multiple points of pedestrian access. Passenger facilities would be located at the stub end (south end) of the platforms. Mixed-use development would be situated on the property south of the station platforms, incorporating the station's primary entry at NW First Street and NW First Avenue. The following TOD uses are anticipated, all of which are more particularly described in Section 1.6, Connected Actions:

- Retail
- Office
- Limited Service Hotel
- Residential
- Parking

The architectural program would be accommodated in several building segments. The current plan envisions the following development:

- A fifteen-story office building that would anchor the southern end of the property;
- A thirty-story residential and hotel tower that would front on NW First Avenue at Third Street and be constructed over the tracks; and
- Structured parking garages that would be built in the air rights over the station platforms between Second and Third Streets and between Third and Fourth Streets for the TOD-related uses.

Parking to support the retail would be provided on site. No dedicated passenger parking would be provided on-site because easily-accessible, long-term parking capacity is available within a close radius of the station. The use of such existing parking facilities for passengers is supported by the City.

2.5.3.2 Miami – Central Elevated

This alternative is an elevated option. The station layout assumes the same passenger and service platform configuration as the at-grade alternative described above, except the station platform footprint would be accommodated entirely on an elevated viaduct structure approximately 45 feet above grade. This alternative shifts the platform closer toward the northern portion of the property owned by AAF's affiliate.

At the north end, the main line tracks would pass under the Dolphin Expressway overpass at grade, and the single port lead track would peel off the main line at Eighth Street and head east to the Port Miami. Unlike the previous alternative, the two station lead tracks would then immediately commence a maximum 3% incline onto the viaduct. The existing at-grade crossings at NW Eleventh and NW Tenth Streets would be eliminated due to the climbing passenger tracks; these streets would become blocked by a retaining wall.

The at-grade crossings at NW Eleventh and NW Tenth Streets to be closed affect local streets rather than a major state or federal thoroughfare. Further, at each such location, the availability of alternative routes in close proximity to the proposed closures will avoid no-outlet (a.k.a., dead-end) conditions. Additionally, access to existing properties will not be prevented by the proposed crossing closures.

By Ninth Street the elevated railroad approaching the station would transition from retained embankment to viaduct structure. The port lead track would remain at grade for continued freight operations. A minimum overhead clearance of 23'-6" above the top of the rail would be maintained as the port lead track passes under the elevated Station Lead tracks.

After the station lead tracks fan out into four tracks, the 1,000-foot long platform zone would commence just south of Seventh Street and end just south of Fourth Street. The entire track and station platform footprint thus would pass over Eighth Street, the Port Lead, Sixth Street, Fifth Street, and the Metromover. This alternative would not alter the major through streets of Eighth, Sixth and Fifth Street,

the existing Overtown Metrorail Station or existing Government Center Metrorail and Metromover Stations.

Developing an AAF station on this site would not preclude future commuter rail service on the FEC line, by FDOT or others. At this time there are no current plans for shared use of the station for this purpose, but the design of the station would allow for such development.

The AAF station would have multiple points of pedestrian access. The headhouse's primary entry would front NW First Avenue opposite the Federal Courthouse. Parking to support the retail would be provided on site. Specifically, a three to four story liner of passenger-oriented functions and retail would create a continuous street wall extending to the north and structured parking for the retail uses would be concealed behind the liner, under the tracks and platforms. No dedicated passenger parking would be provided on-site because easily-accessible, long-term parking capacity is available within a close radius of the station. The use of such existing parking facilities for passenger traffic is supported by the City.

Mixed-use development would be situated immediately south of the station headhouse. It is contemplated that the same TOD programs as the at-grade alternative described for the at-grade scenario would be anticipated, in roughly the same massing.

2.5.4 Vehicle Maintenance Facility (VMF)

The AAF Project would exclusively utilize the existing FEC VMF in Fort Lauderdale. Freight maintenance does not take place at the existing FEC VMF and only 24/7/365 intermodal operations take place there today. These intermodal operations would be shifted to the FEC Intermodal Container Transfer Facility (ICTF) at Port Everglades being constructed from 2012-2014. Four AAF trainsets daily would be serviced at the VMF. Maintenance operations would occur between 10:00 pm and 5:00 am with the first trainsets entering the VMF at 8:00 pm then hourly until 10:00 pm. Outbound trainsets would exit beginning at 5:00 am then hourly until 7:00 am.

Through these proposed operations, there will be three train moves added to the total train traffic in the morning, and three in the afternoon, when the trains return to the VMF for servicing during the night. However, these AAF train moves into and out of the Andrews Yard will not disrupt overall freight traffic on the line.

A detailed discussion of the lack of negative impacts associated with the VMF from a noise and vibration perspective, as well as other factors, appears in Section 3.1.7 Noise and Vibration

Table 2-5.3
Miami – Comparative Analysis

Criteria	Miami			Discussion
	No-Build	Central	South	
Right-of-way acquisition (ac)	0.0	0.0	0.0	Criteria satisfied.
Roadway blockage (#)	0	0	0	Criteria satisfied.
At-grade crossing closures (#)	0	2	2	Criteria satisfied more appropriately by the Central elevated option in that the at-grade crossing closures proposed to accommodate this alternative would affect local streets rather than major thoroughfares. Further, there are alternate routes located in close proximity to the proposed crossing closure and dead-end conditions are avoided. By contrast, the proposed crossing closure for the South option would result in dead-end conditions from both directions, and would require a 4-track-wide at-grade crossing that is not standard in the area and would be challenging for the reasons described above.
Vehicular traffic impact	N/A	Minimal	Minimal	Criteria satisfied.
Local government plan consistency (y/n)	N/A	Y	Y	Criteria satisfied.
Local government support (y/n)	N	Y	Y	Criteria satisfied.
Ecologically sensitive areas/wetlands (ac)	0.0/0.0	0.0/0.0	0.0/0.0	Criteria satisfied.
Floodplains 100-yr (ac)	0.0	0.0	0.0	Criteria satisfied.
Historic Properties – Total (#)	0	6	12	As discussed in more detail in Section 3, the Miami Site will have no adverse effect on significant historic resources, based on the condition that consultation with SHPO and the local historic preservation planning staff will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the resources within the station locations' APE. AAF is committed to that coordination.
Archaeological sites (#)	0	0	0	
Historic districts (#)	0	1	1	
Historic buildings (#)	0	4	10	
Linear resources (#)	0	1	1	
Noise impacts (#)	0	0	0	Criteria satisfied.
Vibration impacts (#)	0	0	0	Criteria satisfied.
Contamination (# High or Med)	0	2	2	Criteria satisfied through additional assessment and the use of best management practices that will be implemented to avoid impacts to potential contaminated soil and/or groundwater from adjacent sites
Impact to Environmental Justice populations (y/n)	N	N	N	Criteria satisfied.
Parking impacts (y/n)	N	N	N	Criteria satisfied.
Engineering complexity (H-M-L)	N/A	M	H	Criteria satisfied.

2.6 Preferred Build Project Alternative

Section 2.6.1 summarizes the ***Preferred Build System Alternative***. The tables set forth in Sections 2.5.1.3, 2.5.2.3 and 2.5.3.3 summarize the criteria analyzed for the various station location alternatives in an Evaluation Matrix that served to provide the basis for AAF's selection of its ***Preferred Build Station Alternative*** for each station site, and those ***Preferred Build Station Alternatives*** are described in Sections 2.6.2, 2.6.3, 2.6.4 and 2.6.5.

2.6.1 System

The proposed ***Preferred Build System Alternative*** would return the existing FEC corridor to a dual-track system allowing for the development and re-introduction of passenger service to Southeast Florida. Infrastructure improvements are planned to be completed within the existing right-of-way (i.e. no additional right-of way acquisition is anticipated). Three existing bridge structures will have an additional second main track added to the existing deck, but no improvements to the structure's footprint will need to be made and no work would be required directly within waterbodies and/or waterways. Seven existing bridges will remain single track and will not be expanded to accommodate two tracks. Additionally, 49.2 miles of new track will be constructed in the corridor and 8.3 miles of existing track will be rehabilitated. The scope of the proposed system improvements are described in more detail in Section 1.3, Project Description.

**Table 2-6.2
Project Evaluation Matrix**

Categories of Consequences	Preferred Build Project Alternative	No-Build Alternative	Basis for Decision
Physical Environment			
Air Quality	Enhanced/No Impact	Minor	See Section 3.1.1
Water Quality	No Impact	No impact	See Section 3.1.2
Surface Water Quality	No Impact	No impact	See Section 3.1.2.1
Sole Source Aquifer	No impact	No impact	See Section 3.1.2.2
Wellfield Protection Zones	No Impact	No impact	See Section 3.1.2.3
Waterbodies and Waterways	No Impact	No impact	See Section 3.1.3
Navigation	No impact	No impact	See Section 3.1.3.1
Special Designations	No Impact	No impact	See Section 3.1.3.2
Floodplains	Minimal	No impact	See Section 3.1.4
Wetlands	Minimal	No impact	See Section 3.1.5
Essential Fish Habitat	No impact	No impact	See Section 3.1.5.1
Coastal Zones	No impact	No impact	See Section 3.1.6
Noise	Minor	Minor	See Section 3.1.7
Vibration	No impact	Minor	See Section 3.1.7
Biological Environment			
Ecological Systems	Minimal	No impact	See Section 3.2.1
Threatened and Endangered Species	Minimal	No impact	See Section 3.2.2
Human Environment			
Rail Transportation & Regional Roadway Network	Enhanced	No impact	See Section 3.3.1.1 and 3.3.1.2
Local Vehicular Transportation	No impact	No impact	See Section 3.3.1.3
Parking	No impact	No impact	See Section 3.3.1.4
Land Use	No impact	No impact	See Section 3.3.2
Environmental Justice and Demographics	No impact	No impact	See Section 3.3.3
Barriers to the Elderly and Handicapped	No impact	No impact	See Section 3.3.4
Public Health and Safety	Enhanced	No impact	See Section 3.3.5
Contaminated Sites and Hazardous Materials	Minor	No impact	See Section 3.3.6
Cultural Resources	No impact/Minimal	No impact	See Section 3.3.7
Section 4(f) and Recreational Resources	No impact	No impact	See Section 3.3.8
Municipal Services	No impact	No impact	See Section 3.3.9
Energy Resources	Enhanced/No impact	No impact	See Section 3.3.10
Aesthetics	No impact	No impact	See Section 3.3.11
Construction Impacts	Minimal (temporary)	No impact	See Section 3.4
Potential Secondary Impacts	Enhanced	Minor	See Section 3.5
Potential Cumulative Impacts	Enhanced	Moderate	See Section 3.5

Notes on terminology:

- No Impact—No impacts and/or changes expected
- Minimal—Impacts are not expected to be measurable, or are measurable but are too small to cause any change in the environment
- Minor—Impacts that are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated for with little effort and few resources so that the impact is not substantial
- Moderate—Impacts that are measurable but are within the capacity of the affected system to absorb the change, or the impacts can be compensated for with effort and resources so that the impact is not substantial
- Major—Environmental impacts that, individually or cumulatively, could be substantial
- Enhanced – positive impacts are anticipated
- Temporary – Short-term impacts associated with specific construction activities

2.6.2 West Palm Beach Station

The **West Palm Beach – Central** site alternative (Figure 2-6.1) described in paragraph 2.4.1.2 is the **Preferred Build Station Alternative** for West Palm Beach (see Appendix B for more detailed site plans).

This station location will accommodate a single, center island (double sided) high-level platform that is 800 feet long and 35 feet wide. On-site customer facilities will be located immediately adjacent to the platform, beyond the boundaries of the railroad ROW. Customer services will include ticketing, a secure waiting area for ticketed passengers located in space above the platform, and retail. The public space surrounding the station building will be organized to allow for efficient and safe pedestrian circulation and wayfinding, curbside drop-off by private auto, taxi, connecting bus and van service, local transit and bicycle parking. Parking to support the retail will be provided on site (i.e., parking for 60 cars), but no dedicated passenger parking will be provided on-site because existing parking capacity is available within a close radius.

For this facility, the station building's public spaces will be organized around a great hall. The primary public areas on the ground floor will consist of ticket sales windows, self-service ticketing kiosks, concierge and information desk, train departure and arrival information, concessions, restrooms and circulation areas. Retail space will be accessible on the ground floor from the great hall.

This site accommodates the design for the required level of AAF service that is more particularly described in Section 1.3, Project Description (e.g., a control gate to gain access to the vertical circulation leading to the secure 'ticketed passengers only' spaces and fully climate-controlled, comfortable seating areas, where AAF will provide concessions, restrooms, and a dedicated lounge for Business Class (first class) passengers, including WiFi internet service, complimentary light snacks and beverages).

The ticketed customer amenities will be located above the tracks and platform and passengers will not be allowed access to the station platforms until approximately 4 or 5 minutes before departure of an arriving train. Train departure and arrival information will be electronically updated both in the public ticketing/information area, as well as in the secure waiting room and Business Class lounge. Access to the platform will be provided by means of two escalator/stair pairs and ADA compliant elevators, controlled by the AAF Usher in the secure waiting room. As the floor height of the train cars will be the same height as the platform, the entire train will have 'level boarding', with no steps required. The entire train will conform to full ADA access compliance requirements.

Though it requires the closure of two at-grade crossings, this site location was found to be preferable to the South site described in paragraph 2.5.1.1 for the reasons set forth in the evaluation matrix appearing in Section 2.5.1.3, including the fact that the evaluation criteria regarding crossing closures was satisfied more appropriately by the Central option in that the crossing closures proposed to accommodate the system or proposed platforms would be local, would not impact local circulation adversely and there are alternate routes were located in close proximity to the proposed closures so as to result in minimal changes to the existing traffic patterns and access to existing properties would not be expected to be affected by the proposed crossing closures.

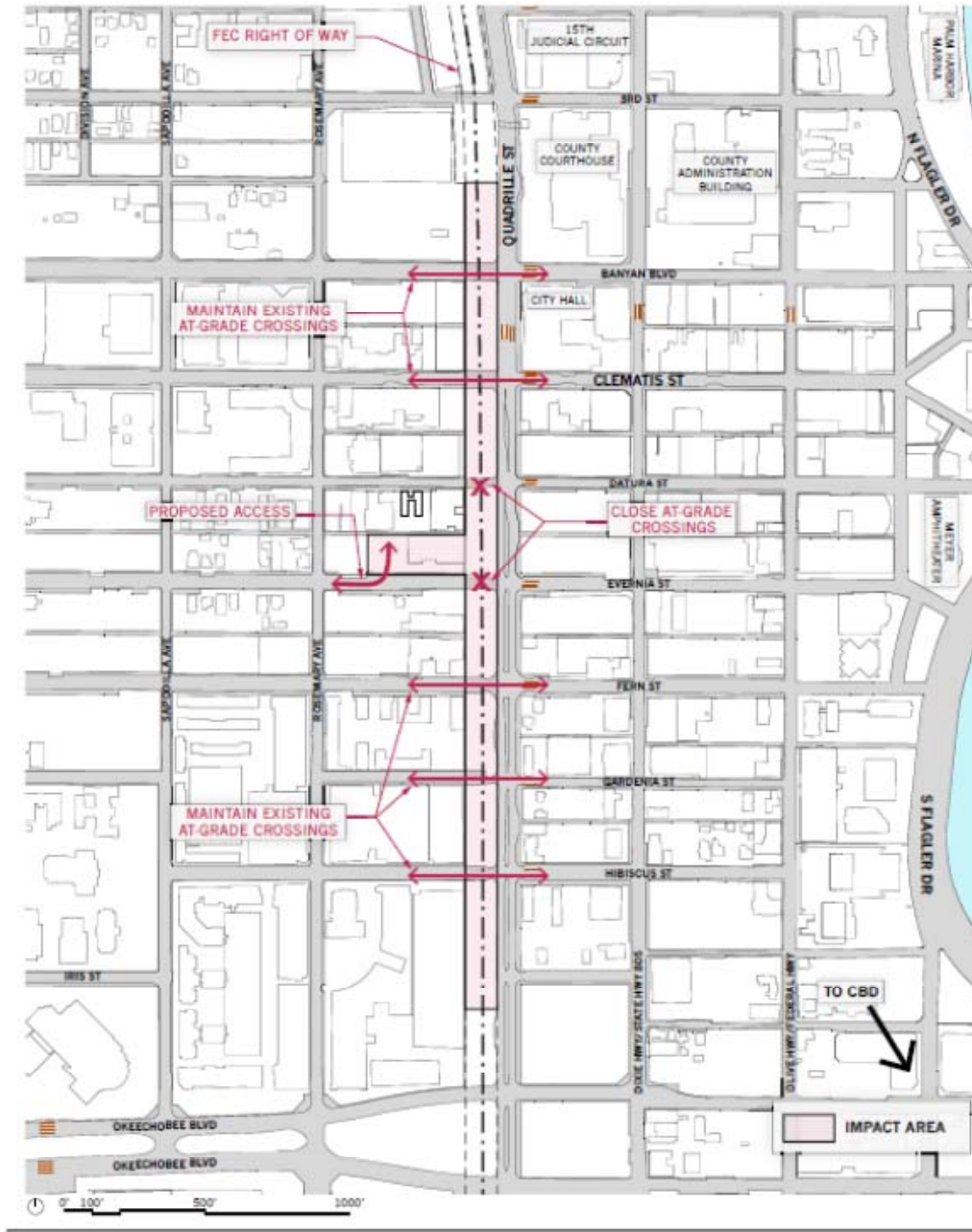
In addition to the foregoing, the Central option was preferable as a location for the following reasons:

- Unique ability to serve as an urban link between the retail corridor of Clematis Street and the mixed use district of CityPlace
- Better proximity to Clematis Street;
- Equal if not better proximity to City Hall, the County Courthouse and County Administration Building.
- Ability to focus redevelopment energy toward the northern part of Downtown while uniquely sparking economic activity in the neighborhoods situated both east and west of Quadrille Boulevard; and
- Most direct and convenient connections to the TriRail commuter station to facilitate connections/transfers.

A detailed discussion of the lack of negative impacts from this alternative appears in Section 3.

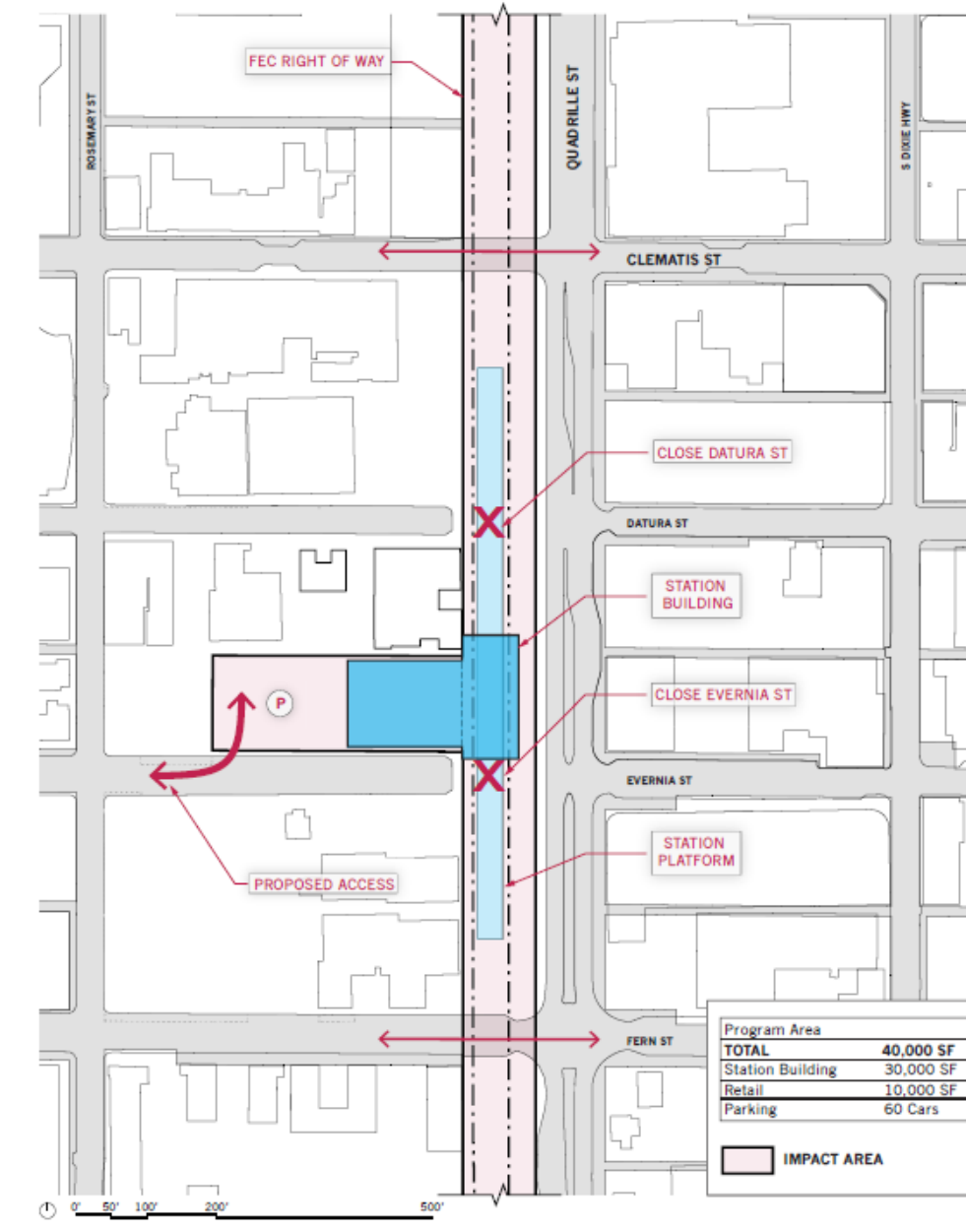
The City of West Palm Beach has expressed an interest in working with AAF and its affiliates with regard to this ***Preferred Build Station Alternative*** and has executed a Memorandum of Understanding to that effect (see Appendix L). Further, an agreement is in place with the property owner of the site for consideration thereof as the ***Preferred Build Station Alternative***.

Figure 2-6.1 Preferred West Palm Beach-Central Site Plan and Massing



September 17, 2012

WEST PALM BEACH - CENTRAL
 SITE LOCATION PLAN



September 17, 2012

WEST PALM BEACH - CENTRAL
 SITE PLAN

Program Area	
TOTAL	40,000 SF
Station Building	30,000 SF
Retail	10,000 SF
Parking	60 Cars

IMPACT AREA

2.6.3 Fort Lauderdale Station

The **Fort Lauderdale – North** site alternative (Figure 2-6.2) described in paragraph 2.5.2.1 is the **Preferred Build Station Alternative** for Fort Lauderdale (see Appendix B for more detailed site plans).

As with the **Preferred Build Station Alternative** for West Palm Beach, this station location will accommodate a single, center island (double sided) high-level platform that is 800 feet long and 35 feet wide. On-site customer facilities will also be located immediately adjacent to the platform, beyond the boundaries of the railroad ROW, with the same customer services. This site also accommodates the desired public space surrounding the station building, with the same organization for pedestrian circulation and parking. Specifically, parking to support the retail will be provided on site (i.e., parking for 60 cars), but no dedicated passenger parking will be provided on-site because existing parking capacity is available within a close radius.

Also like the West Palm Beach **Preferred Build Station Alternative**, this facility will have public spaces organized around a great hall with the same amenities. This site also accommodates the design for the required level of AAF service that is more particularly described in Section 1.3, Project Description, with passengers allowed the same access to the station platforms described in Section 1.3. Similarly, access to the platform will be provided by means of two escalator/stair pairs and ADA compliant elevators, controlled by an AAF usher in the secure waiting room. As the floor height of the train cars will be the same height as the platform, the entire train will have ‘level boarding’, with no steps required, and the entire train will conform to full ADA access compliance requirements.

This alternative was found to be preferable to the South option for the reasons set forth in the evaluation matrix appearing in Section 2.5.2.3, including the fact that the evaluation criteria were satisfied more appropriately by the North option because the at-grade crossing closures proposed to accommodate the system or proposed platforms would affect local streets, would not impact local circulation adversely and there are alternate routes were located in close proximity to the proposed crossing closures so as to result in minimal changes to the existing traffic patterns and access to existing properties would not be expected to be negatively affected by the proposed crossing closures. By contrast, the proposed at-grade crossing closure for the South option would affect the only local connection between the downtown CBD and important sites, including the historic areas of the City and the local performing arts center.

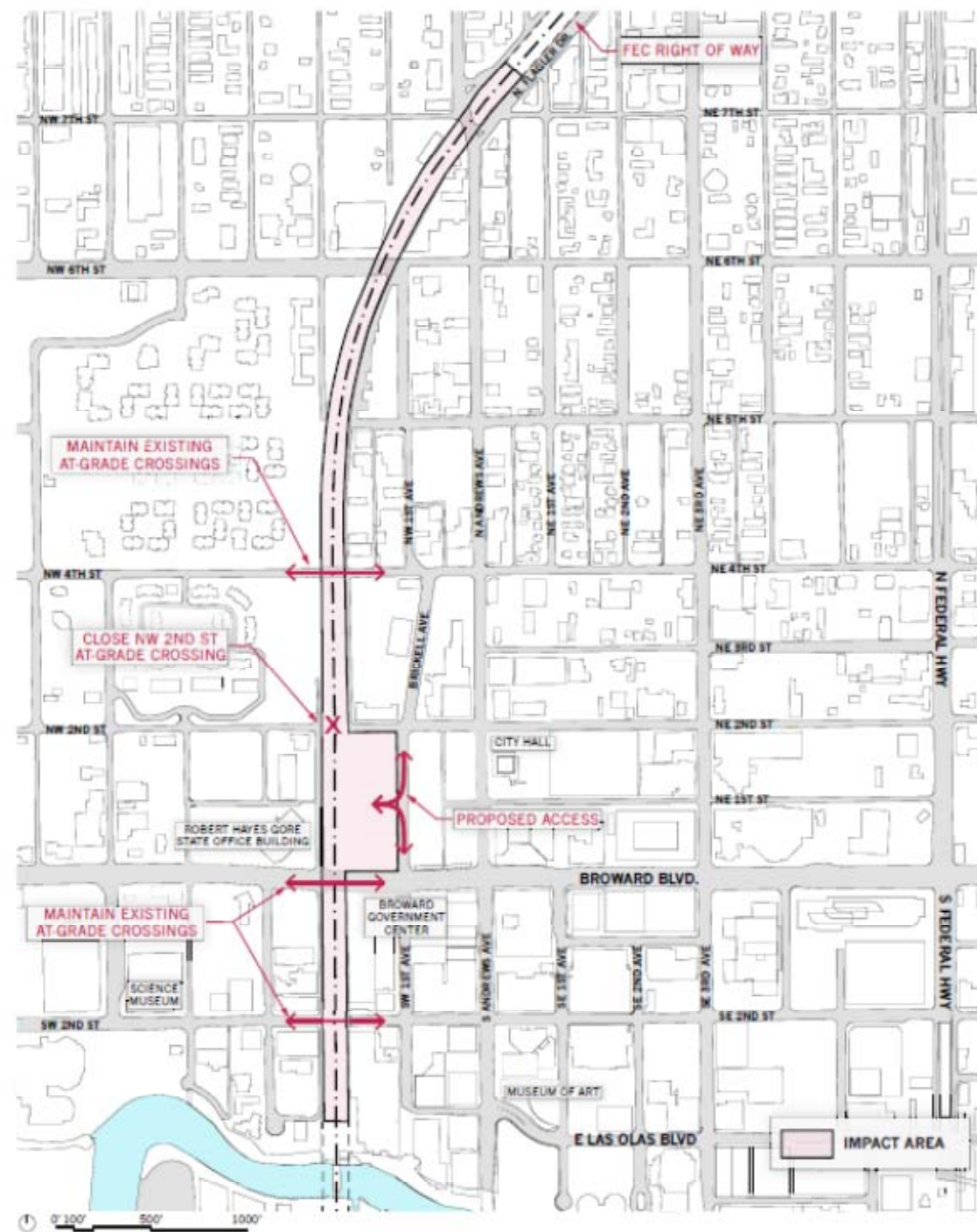
In addition, this North alternative was determined to be preferable for the following reasons:

- The South site requires the at-grade crossing closure at Broward Boulevard or SW Second Street, which is opposed by others; and
- Locating the AAF station in close proximity to the Broward Transit Center provides an opportunity which is only feasible by means of the North site.

A detailed discussion of the lack of negative impacts from this alternative appears in Section 3.

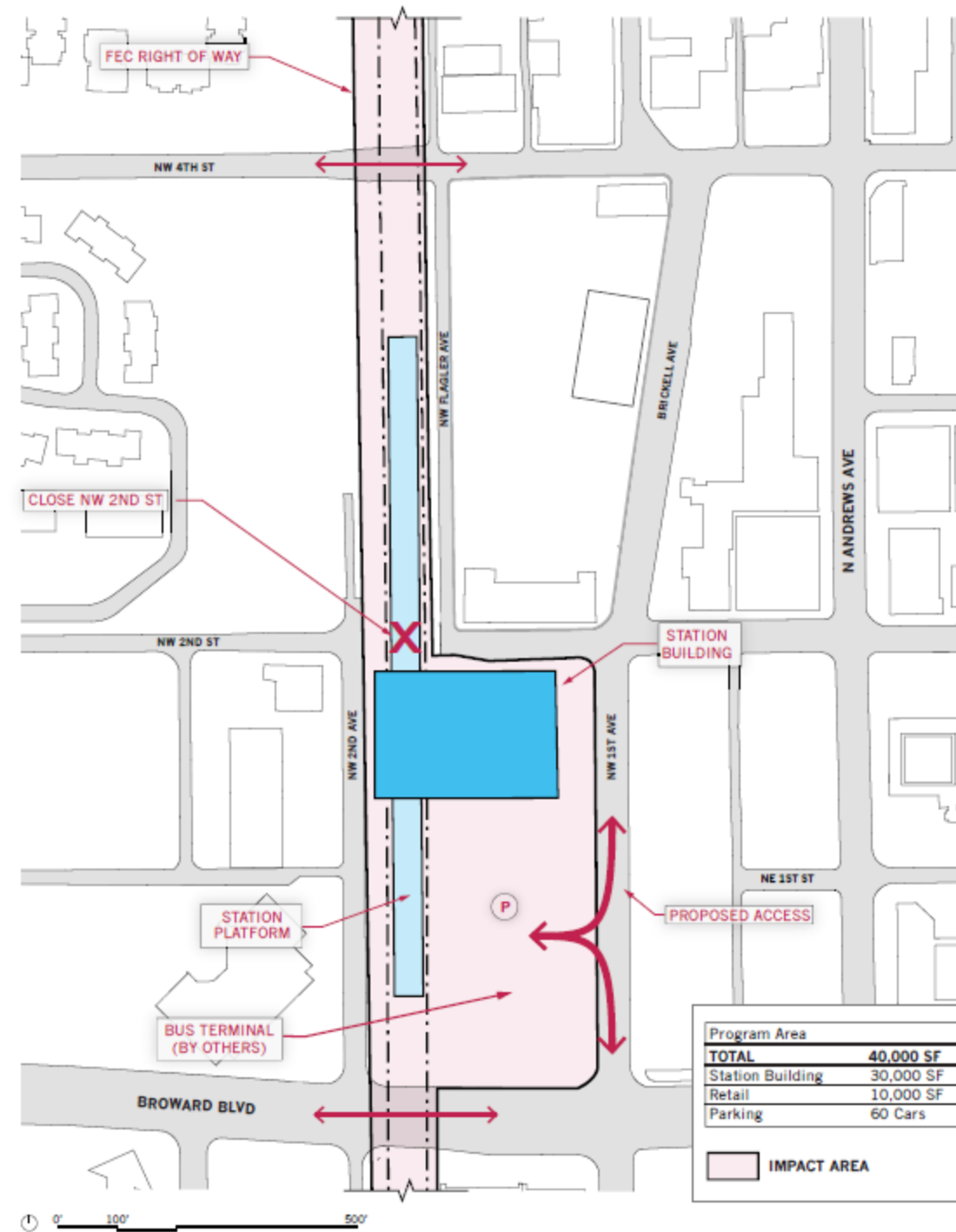
Broward County has expressed an interest in working with AAF and its affiliates with regard to this **Preferred Build Station Alternative** and has executed a letter of support to that effect (see Appendix L).

Figure 2-6.2 Preferred Fort Lauderdale – North Site Plan and Massing



September 17, 2012

FT. LAUDERDALE - NORTH
 SITE LOCATION PLAN



September 17, 2012

FT. LAUDERDALE - NORTH
 SITE PLAN

Program Area	
TOTAL	40,000 SF
Station Building	30,000 SF
Retail	10,000 SF
Parking	60 Cars

IMPACT AREA

2.6.4 Miami Station

The **Miami - Central Elevated** station alternative (Figure 2-6.3) described in paragraph 2.5.3.2 is the **Preferred Build Station Alternative** for Miami (see Appendix B for more detailed site plans).

In Miami, the terminal configuration will consist of four 1,000-foot-long high-level revenue platforms plus low-level service platforms, all of which will be located within the FEC ROW. The station architecture will be integrated with the structure of an elevated railroad viaduct passing over city streets approximately 45 feet above grade. The railroad viaduct will be constructed on property owned by AAF's affiliate.

The viaduct will parallel the existing elevated Metrorail infrastructure and span above the MetroMover alignment crossing the site at NE 5th Street. Convenient multi-modal connectivity between AAF, Metrorail and Metromover will be available, in addition to ample curbside drop-off, taxi queue, connecting bus and van service, local and regional bus transit, bicycle parking, and significant pedestrian connectivity to the terminal facility. Below the AAF viaduct, a double-height, light-filled central hall will accommodate AAF customer services and provide vertical access upstairs to the waiting rooms and platforms for ticketed passengers.

At this facility, the station building's public spaces will also be organized around a great hall, with primary public areas on the ground floor consisting of ticket sales windows, self-service ticketing kiosks, concierge and information desk, train departure and arrival information, concessions, restrooms and circulation areas. Retail space will be accessible on the ground floor from the great hall and, additionally, on a mezzanine floor below the elevated railroad tracks and platforms.

Like the other two city **Preferred Build Station Alternatives**, this site also accommodates the design for the required level of AAF service that is more particularly described in Section 1.3, Project Description. In Miami, the waiting space will be located at the mezzanine level immediately below the tracks and platforms. Here, the floor height of the train cars will also be the same height as the platform and the entire train will have 'level boarding', with no steps required. The entire train will conform to full ADA access compliance requirements.

This alternative was found to be preferable to the South-at-Grade site described in paragraph 2.5.3.1 for the reasons set forth in the evaluation matrix appearing in Section 2.5.3.3, including the fact that the evaluation criteria was satisfied more appropriately by the Central elevated option in that the at-grade crossing closures proposed to accommodate this alternative would affect local streets rather than major thoroughfares. Further, there are alternate routes located in close proximity to the proposed crossing closure and dead-end conditions are avoided. By contrast, the proposed at-grade crossing closure for the South option would result in dead-end conditions from both directions, and would require a 4-track-wide at-grade crossing that is not standard in the area and would be challenging for the reasons described above.

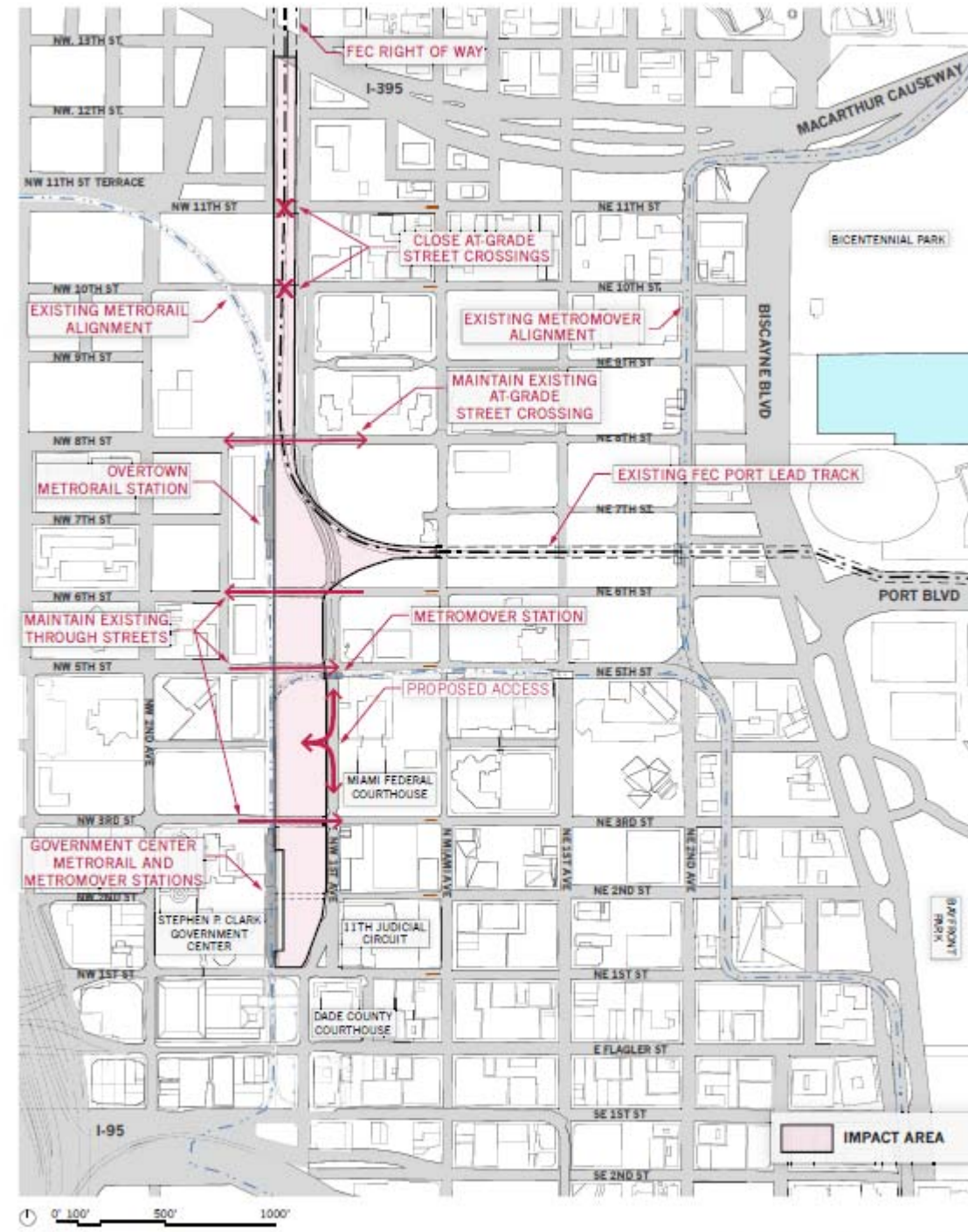
In addition, the Central elevated option is preferable for the following four reasons:

- An elevated configuration would create a grade separated solution that eliminates awkward, possibly dangerous vehicular grade crossings over four station tracks at Fifth and Sixth Streets;
- Spanning over the Metromover alignment would avoid costly reconfiguration of the existing transit infrastructure, as well as significant delays to the transit system during construction;
- Elevation, from a customer perspective, could provide passengers with an unparalleled panoramic entry into the City and thus enhanced experience upon arrival in Downtown; and
- Building a celebrated piece of engineering and architecture would provide the City, County and State with a highly visible symbol of this generation's commitment to innovative and sustainable transportation infrastructure.

A detailed discussion of the lack of negative impacts from this alternative appears in Section 3.

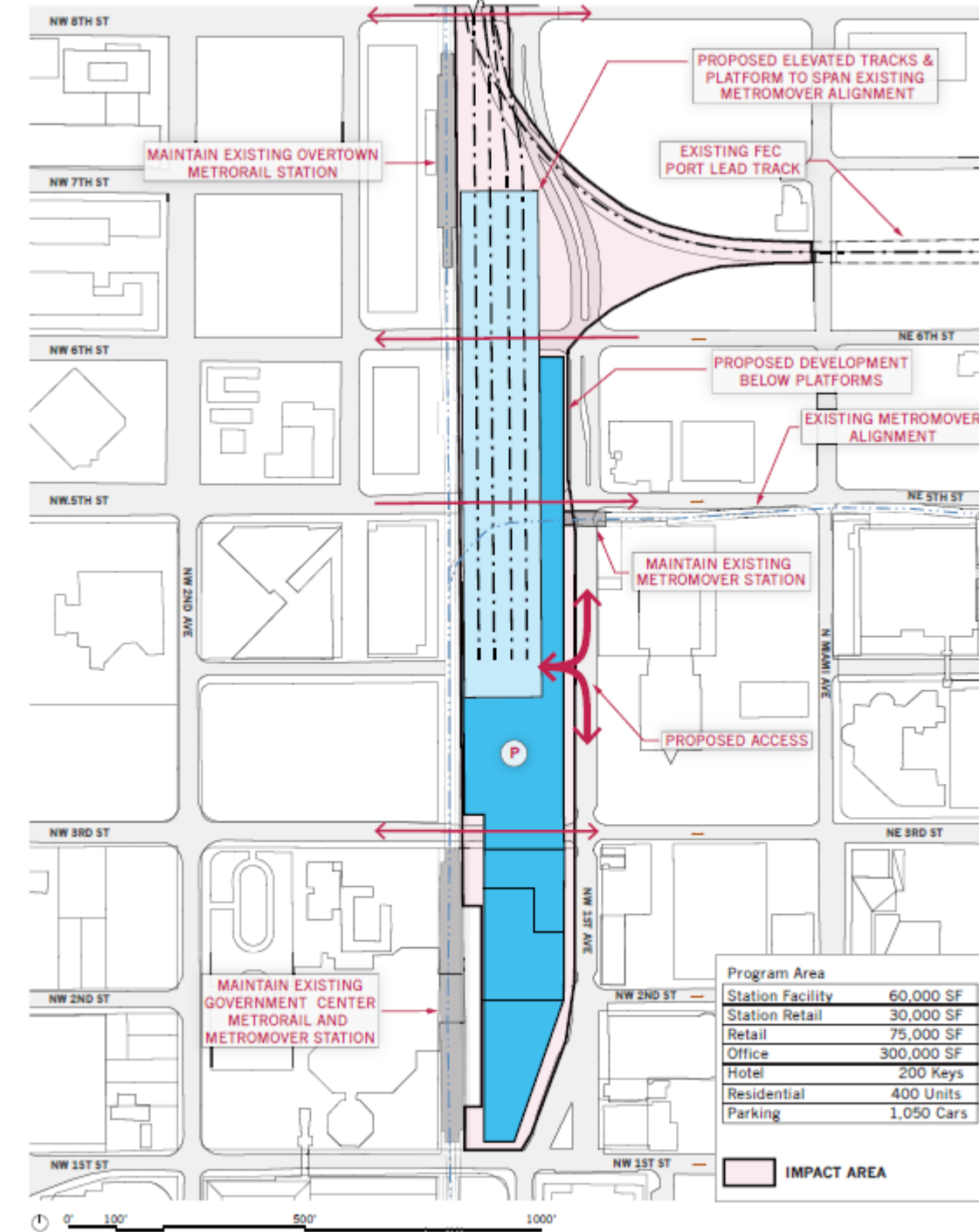
The City of Miami has expressed an interest in working with AAF and its affiliates with regard to this ***Preferred Build Station Alternative*** and has executed an agreement to that effect (see Appendix L).

Figure 2-6.3 Preferred Miami – Central Elevated Site Plan and Massing



September 17, 2012

MIAMI - CENTRAL ELEVATED SITE LOCATION PLAN



September 17, 2012

MIAMI - CENTRAL ELEVATED SITE PLAN

2.6.5 Vehicle Maintenance Facility (VMF)

The VMF described in paragraph 2.5.4 is the *Preferred Build Station Alternative* for this facility.

A detailed discussion of the lack of negative impacts from this alternative appears in Section 3.

3.0 Affected Environment and Environmental Consequences

Section 3 addresses potential environmental impacts of construction and operation of the proposed AAF Project. This section categorizes the existing resources within the Project Area (as defined below) and analyzes the potential beneficial and adverse impacts to those resources from the alternatives retained for further analysis.

For purposes of the analysis, the "Project Area" has been defined, generally, as the +/- 70-mile existing FEC corridor between West Palm Beach and Miami, with it being understood that for certain resources, such as noise, environmental justice, cultural resources, connected and cumulative impacts, the "Project Area" was expanded to areas adjacent to the FEC rail corridor within which the **Preferred Build System Alternative** (as defined below) is proposed, and areas adjacent to the alternatives considered for the stations and the Vehicle Maintenance Facility (VMF), including the **Preferred Build Station Alternative** (as defined below)

For purposes of this section, the following defined terms will be used to identify and distinguish between those alternatives being discussed:

- **No-Build Alternative** – The No-Build Alternative represents "no change" from current conditions and a continuation of the present course of planned and funded actions, all as discussed in more detail in Sections 1 and 2, including the projected growth in freight activity along the existing FEC corridor, but excluding the introduction of a passenger rail system.
- **Preferred Build System Alternative** – The Preferred Build System Alternative includes those improvements to the existing FEC corridor as discussed in Section 2 related to the restoration of passenger service within the existing ROW and includes the addition of, and/or improvement to, existing tracks and safety equipment beginning at MP 299.5 and ending at MP 365.5, with a total system length of 66 miles including 49.2 miles of new track and the rehabilitation of 8.3 miles of existing track, but excludes the projected growth in freight activity along the existing FEC corridor that is considered within the No-Build Alternative.
- **Preferred Build Station Alternative** – The Preferred Build Station Alternative includes the improvements associated with the station locations identified as the preferred site in West Palm Beach, Fort Lauderdale and Miami as more particularly described in Sections 2.6.2, 2.6.3 and 2.6.4 of this EA, as well as the VMF.
- **Preferred Build Project Alternative** – The Preferred Build Project Alternative includes the aggregate of the Preferred Build System Alternative and the Preferred Build Station Alternatives.

This EA addresses only those resources that are reasonably likely to be affected by the proposed action. It was determined that the following resources have little to no potential to be affected by any of the alternatives considered within this EA, including the **No-Build Alternative** and **Preferred Build Project Alternative**, for the following reasons:

- **Geology** – the proposed action entails the addition of a second track along an existing rail corridor and the construction of three stations within the developed, urbanized Central Business Districts (CBDs) of West Palm Beach, Fort Lauderdale and Miami (see Section 1.3, Project Description for a more detailed description of the proposed action) . No tunneling or

subterranean construction activities will occur. Thus, no potential impact to geology or geologic resources exists.

- **Soils** – the proposed action entails the addition of a second track along an existing rail corridor and the construction of three stations within the developed, urbanized CBDs of West Palm Beach, Fort Lauderdale and Miami (see Section 1.3, Project Description for a more detailed description of the proposed action). As noted in the foregoing section regarding geology, no tunneling or subterranean construction activities will occur. Additionally, reviews of the Soil Surveys of each of the three counties (Palm Beach, Broward and Miami-Dade) in the Project Area indicates that there are no soil types anticipated to be encountered that would require evacuation of improper soils and replacement with other soils. Thus, no potential to impact soils exists.
- **Farmlands** – the proposed action and Project Area is located wholly within the urbanized areas of West Palm Beach, Fort Lauderdale and Miami (see Section 1.3, Project Description for a more detailed description of the proposed action) and, therefore, the provisions of the Farmland Protection Policy Act of 1984 that define farmlands as follows do not apply:

Farmland does not include land already in or committed to urban development or water storage. Farmland “already in” urban development or water storage includes all such land with a density of 30 structures per 40-acre area. Farmland already in urban development also includes lands identified as “urbanized area” (UA) on the Census Bureau Map, or as urban area mapped with a “tint overprint” on the USGS topographical maps, or as “urban-built-up” on the USDA Important Farmland Maps. Areas shown as white on the USDA Important Farmland Maps are not “farmland” and, therefore, are not subject to the Act. Farmland “committed to urban development or water storage” includes all such land that receives a combined score of 160 points or less from the land evaluation and site assessment criteria. (See 7 CFR 658.2(a)).

Thus, no potential to impact farmlands exists.

- **Demographic trends** –the proposed action satisfies the existing and projected demand of travel between West Palm Beach, Fort Lauderdale and Miami (see Section 1.0, Purpose and Need for a more detailed description of the proposed action). The proposed action is not providing service to a developing area which would alter the current or projected demographic patterns of the Project Area nor does the proposed action replace or deny service to existing developed areas that would alter current or projected demographic patterns. Thus, it is not anticipated that this **Preferred Build Project Alternative** will have the potential to impact demographic trends within the Project Area.

3.1 Physical Environment

This Section 3.1 analyzes the following categories within the physical environment: air quality, water quality, water bodies and waterways, floodplains, wetlands, coastal zones, and noise and vibration.

3.1.1 Air Quality

The U.S. Environmental Protection Agency (U.S. EPA) has established the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants including carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), lead (Pb), particulate matter (PM; particulate matter sized 10 microns or less [PM₁₀] and particulate matter sized 2.5 microns or less [PM_{2.5}]), and sulfur dioxide (SO₂). Primary standards set limits to protect public health, and secondary standards set limits to protect public welfare. The State of Florida ambient air quality standards are the same as the NAAQS.

The proposed Project Area is located in Palm Beach County, Broward County, and Miami-Dade County, in Southeast Florida. All three counties are designated as attainment areas for all criteria pollutants, pursuant to the Clean Air Act Amendments (CAAA) of 1990.²⁸

The proposed Project will be located in attainment areas, and, therefore, it is not subject to review under the U.S. EPA's General Conformity Rule. Consequently, a development of emissions inventories of criteria pollutants of the Project was not necessary and not performed for General Conformity evaluation purposes.

Emissions of the criteria pollutants related to the new passenger trains, freight trains, and on-road vehicle miles traveled (VMT) reductions were developed to assess whether the passenger trains emissions would impact regional air quality.

Regional Impacts

The proposed **Preferred Build Project Alternative** would provide a net regional air quality benefit as compared to the **NoBuild Alternative** and the Existing Condition. Operation of the **Preferred Build Project Alternative** would reduce regional criteria pollutants, mobile source air toxics (MSATs), and greenhouse gas (GHG) emissions because motor vehicle emissions would decrease in the region based upon the reduction of vehicle miles travelled (VMT). By 2030, the proposed **Preferred Build Project Alternative** would reduce regional VMT by 51,345,672²⁹ Table 3-1.1 presents the diverted trips and reduction in VMT due to the proposed **Preferred Build Project Alternative** for year 2018 and 2030. The emissions due to these VMT reductions would be slightly offset by operational emissions associated with the additional passenger trains themselves and the vehicle maintenance facility (VMF).

²⁸ U.S. EPA Greenbook. U.S. EPA, 2012

²⁹ Ridership and Vehicle Diversion by Station Pair. FEC, 2012.

Table 3-1.1
Ridership and Vehicle Diversion by Station Pair
 2018

Station Pair	Daily Riders	Annual Riders	Person Trips Diverted from Auto	Vehicle Trips Diverted From Auto	Distance	Reduction in VMT
Miami / Fort Lauderdale	1,494	545,410	338,154	260,119	28	7,283,318
Miami / West Palm Beach	2,775	1,012,904	628,000	483,077	74	35,747,716
Fort Lauderdale / West Palm Beach	150	54,621	33,865	26,050	46	1,198,307
TOTAL	4,419	1,612,935	1,000,020	769,246		44,229,342

2030

Station Pair	Daily Riders	Annual Riders	Person Trips Diverted from Auto	Vehicle Trips Diverted From Auto	Distance	Reduction in VMT
Miami / Fort Lauderdale	1,735	633,164	392,562	301,971	28	8,455,176
Miami / West Palm Beach	3,222	1,175,876	729,043	560,803	74	41,499,385
Fort Lauderdale / West Palm Beach	174	63,410	39,314	30,242	46	1,391,110
TOTAL	5,130	1,872,450	1,160,919	893,015		51,345,672

Tables 3-1.2, 3-1.3, 3-1.4, and 3-1.5 present the estimated emissions of criteria pollutants in each of the three counties affected by the proposed project for the freight trains, passenger trains, switch locomotives, and on-road VMT reductions, respectively. Appendix F presents the detailed emissions calculations. The train emissions are for the traveling trains (freight and passenger) as well as the idling and switching trains at the VMF.

The emissions due to VMT reductions were calculated using the U.S. EPA Motor Vehicle Emission Simulator (MOVES) version 2010b model. MOVES2010b calculates on-road vehicle emissions by performing a series of calculations, which have been developed to accurately reflect vehicle operating processes after the user specifies vehicle types, time periods, geographical areas, pollutants, vehicle operating characteristics, and road types to be modeled.

While, Tables 3-1.2, 3-1.3, 3-1.4, and 3-1.5 present the estimated emissions of criteria pollutants in each of the three counties affected by the proposed project for the freight trains, passenger trains, switch locomotives, and on-road VMT reductions, respectively, Table 3-1.6 presents a summary that shows the total regional criteria pollutant emissions in the three counties and the difference between the emissions due to VMT decrease and those due to the passenger trains (e.g., the estimated VMT reduction, the effects of that VMT reduction estimated for emissions reductions and the “offset” in this emission reduction that will be caused by the passenger train emissions through operation). As shown in that table, the incremental emissions of the passenger trains in 2015 and 2030 are lower than those of the freight trains for the existing conditions in 2012, as well as the **No-Build Alternative**, and the opening year of 2015. Furthermore, that table shows that the emission reductions due to the decrease in regional VMTs are higher than the relatively low incremental increase due to the passenger trains.

Therefore, the proposed *Preferred Build Project Alternative* would have a beneficial impact on regional air quality.

Table 3-1.2 Freight Train Criteria Pollutant Emissions for each County (tons per year)

County	2006				2015				2030			
	PM10	VOC	NOx	CO	PM10	VOC	NOx	CO	PM10	VOC	NOx	CO
Palm Beach County	7.19	10.78	193.20	28.76	3.48	5.22	93.61	13.93	4.23	6.34	113.58	16.91
Broward County	9.07	13.60	243.64	36.26	3.48	5.22	93.61	13.93	4.34	6.50	116.53	17.34
Miami-Dade County	3.47	5.21	93.33	13.89	1.70	2.55	45.61	6.79	2.51	3.77	67.57	10.06
Total	19.73	29.59	530.16	78.91	8.66	12.99	232.83	34.65	11.08	16.62	297.69	44.31

Notes:

- 1) Assumed freight train frequency as provided by project proponent. 2006: 27; 2015: 14; 2030: 22.
- 2) Emissions estimated for two SD70 locomotives, each rated at 4,000 bhp (both operating at full horsepower rating). These assumptions were provided by project proponent.
- 3) Freight train emissions are based on Tier 0 locomotives.
- 4) Includes 28% load factor for line-hauling (Source: Locomotive Emission Standards, Regulatory Support Document, U.S. EPA, 1998).
- 5) Emission Factors taken from Table 1 of EPA's Technical Highlights: Emission Factors for Locomotives, 2009 (<http://www.epa.gov/nonroad/locomotv/420f09025.pdf>).

Table 3-1.3 Passenger Train Criteria Pollutant Emissions for each County (tons per year)

County	2006				2015				2030			
	PM ₁₀	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO
Palm Beach County	--	--	--	--	0.08	0.24	5.64	7.22	0.08	0.24	5.64	7.22
Broward County	--	--	--	--	0.08	0.24	5.64	7.22	0.08	0.24	5.64	7.22
Miami-Dade County	--	--	--	--	0.04	0.12	2.82	3.61	0.04	0.12	2.82	3.61
Total	-	-	-	-	0.21	0.59	14.10	18.04	0.21	0.59	14.10	18.04

Notes:

- 1) Assumed passenger train frequency = 28 trains per day (based on 1 train per hour, per direction) and 14 hours operation per day.
- 2) Emissions estimated for two Tier 4-compliant locomotives each rated at 3,500 bhp (both operating at full horsepower rating). These assumptions were provided by project proponent.
- 4) Includes 28% load factor for line-hauling (Source: Locomotive Emission Standards, Regulatory Support Document, U.S. EPA, 1998).
- 5) Emission Factors taken from Table 1 of EPA's Technical Highlights: Emission Factors for Locomotives, 2009 (<http://www.epa.gov/nonroad/locomotv/420f09025.pdf>).

Table 3-1.4 VMF Switching Locomotive Criteria Pollutant Emissions (tons per year)

Calendar Year	PM10	VOC	NOx	CO
2006	0.06	0.16	2.35	0.59
2015	0.01	0.05	0.64	1.18
2030	0.01	0.08	0.97	1.77

Notes:

- 1) Assumed freight train frequency as provided by project proponent. 2006: 2; 2015: 4; 2030: 6.
- 2) Assumed 1 switching locomotive rated at 4,000 bhp (operating at full horsepower rating). These assumptions were provided by project proponent.
- 3) Includes 10% load factor for switching locomotives (Source: Locomotive Emission Standards, Regulatory Support Document, U.S. EPA, 1998).
- 4) Emission Factors taken from Table 2 of EPA's Technical Highlights: Emission Factors for Locomotives, 2009 (<http://www.epa.gov/nonroad/locomotv/420f09025.pdf>).

Table 3-1.5 VMT Reduction Criteria Pollutant Emissions by Station Pair (tons per year)

County	2006				2015				2030			
	PM ₁₀	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO
Miami / Fort Lauderdale	--	--	--	--	0.47	2.39	8.16	45.03	0.36	1.17	3.12	35.52
Miami / West Palm Beach	--	--	--	--	2.30	11.72	40.05	221.04	1.78	5.74	15.33	174.33
Fort Lauderdale / West Palm Beach	--	--	--	--	0.08	0.39	1.34	7.41	0.06	0.19	0.51	5.84
Total	-	-	-	-	2.84	14.50	49.56	273.48	2.20	7.11	18.97	215.69

Notes:

- 1) VMT Reductions are listed in Table 3.1-1.

Table 3-1.6 Difference between VMT Reductions emissions and Passenger Train Emissions (tons per year)

	2006				2015				2030			
	PM ₁₀	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO
Regional Total Difference	--	--	--	--	2.63	13.91	35.46	255.44	1.99	6.51	4.88	197.64

Notes:

- 1) VMT Reductions are listed in Table 3.1-1.

Project-Level/Hotspot Impacts

In accordance with the Florida Department of Transportation (FDOT) guidelines, the project-level impact analysis was performed through a CO hotspot screening methods at proposed station location road intersections and rail road crossings, where vehicle congestions may happen. Motor vehicles emit CO at high rates when they are operating at low speeds or idling in queues. Therefore, the potential for adverse air quality impacts is greatest at intersections and railroad crossings where traffic is most congested. According to the FDOT CO hotspot screening method guideline, the most congested/worst-case intersections in term of LOS, delay, and traffic volume, in the vicinity of the stations and rail road crossings in each of the three counties were used in the analyses.³⁰ The analyses were performed for the existing conditions (2012), the opening year (2015), and the build-out year (2035).

The screening analysis evaluated CO using the “CO Florida 2004” FDOT Intersection Air Quality CO Screening Model to evaluate major intersections and rail road crossings for potential CO concentration exceedances. The CO Florida 2004 default input values for the Southeast Florida region (Palm Beach, Broward, and Miami-Dade Counties) were used for meteorology inputs, MOBILE6.2 parameters, persistence factors, and background CO concentrations. MOBILE6.2 Vehicle Emission Modeling Software is an emission factor model for predicting gram per mile emissions of VOC, CO, NOx, CO2, PM, and toxics from cars, trucks, and motorcycles under various conditions. The modeling results are the predicted worst case maximum CO concentration at each intersection and rail road crossing. These predicted worst case concentrations were compared to the CO NAAQS.

Tables 3-1.7 and 3-1-8 list the three highest traffic volume intersections around the stations and rail road crossings along the FEC corridor for the existing condition (2012), the opening year (2015) and the build out year (2035), respectively. Appendix F presents an example of the detailed modeling results.³¹ The traffic volumes were provided by AAF’s traffic engineers. Based on the “CO Florida 2004” screening model, all three intersections and rail road crossings in all three years “passed” (i.e., traffic did not produce emissions exceeding air quality criteria). Therefore, according to the “CO Florida 2004” guidance, no further CO hotspot modeling is required and the proposed ***Preferred Build Project Alternative*** would have no project-level/hotspot impact on air quality.

³⁰ A Florida-Specific CO screening Model for Air Quality Analysis of Transportation Projects, September 2004; EPA CAL3QHC model (embedded in CO Florida 2004) guidelines, September 1995.

³¹ If desired for review, further modeling results will be made available upon request.

Table 3-1.7
Highest Traffic Volumes and Modeling Results for Intersections in the Vicinity of the Station

Station	Roadway	AADT			CO Florida Results		
		2012 Existing	2015	2035	2012	2015	2035
West Palm Beach	Okeechobee Blvd – Tamarind Ave to Dixie Hwy (E-W) 8-lanes	40,000	B = 46,660 P = 251 T = 46,851	B = 90,500 P = 251 T = 90,751	Pass	Pass	Pass
	Tamarind Ave – Okeechobee Blvd to Banyan Blvd/1 st St (N-S) 5-lanes	14,800	B = 16,400 P = 117 T = 16,517	B = 27,300 P = 117 T = 27,417	Pass	Pass	Pass
Fort Lauderdale	Broward Blvd – NW 9 th Ave to Ave of the Arts (E-W) 6-lanes	57,000	B = 58,700 P = 96 T = 58,796	B = 70,100 P = 96 T = 70,196	Pass	Pass	Pass
	Ave of the Arts – Broward Blvd to NW 6 th St (N-S) 4-lanes	16,800	B = 19,600 P = 96 T = 19,696	B = 38,400 P = 96 T = 38,496	Pass	Pass	Pass
Miami	NE 6 th St – 2 nd Ave to US 1 (E-W) 3-lanes	23,700	B = 25,000 P = 530 T = 25,530	B = 31,200 P = 530 T = 31,730	Pass	Pass	Pass
	US 1 – NE 6 th St to NE 10 th St (N-S) 8-lanes	44,000	B = 46,600 P = 1,060 T = 47,660	B = 59,400 P = 1,060 T = 60,460	Pass	Pass	Pass

B = Background traffic
 P = Project related traffic
 T = Total traffic (B + P)

Table 3-1.8
Highest Traffic Volumes and Modeling Results for Rail Road Crossings

County	Crossing	AADT			CO Florida Results		
		2012 Existing	2015	2035	2012	2015	2035
Palm Beach County	Linton Blvd @ Dixie Hwy/FEC RR 6 lanes	29,100	30,000	35,900	Pass	Pass	Pass
Brower County	Hillsboro Blvd @ FEC RR 6 lanes	45,784	47,200	56,000	Pass	Pass	Pass
Miami-Dade County	US 1 Biscayne Blvd @ FEC RR 6 lanes	17,654	18,200	22,700	Pass	Pass	Pass

In summary with regard to air quality, none of the alternatives considered within this EA, including the **No-Build Alternative** and **Preferred Build Project Alternative**, would have a significant impact on current or future air quality standards or lead to the establishment of a non-attainment area. Further, the **Preferred Build Alternative** would potentially improve the air quality in the region by diverting vehicles from the roads and highways in South Florida between West Palm Beach and Miami.

3.1.2 Water Quality

Analysis of water quality includes surface waters, sole source aquifers, and well-field protection zones. Because the project will utilize an existing rail corridor, the proposed mainline improvements will not increase the existing impervious surface area or alter the existing drainage system. The original construction of the corridor included two rail lines. The majority of the original second line was removed sometime in the past, but the track bed remains. This project proposes reconstruction of the second line on the existing track bed as illustrated in Figures 1-0.1 and 1-0.2. The reconstruction of the second rail line within the existing roadbed does not create new impervious area. Adjacent surface drainage is also not impacted with the reconstruction of the second line. Existing cross drainage facilities on the adjacent roadways span the entire right-of-way width and will not require modification to account for the installation of the rail line on existing roadbed. Appendix E includes a track chart of the proposed improvements and the existing cross drainage facilities.

Improvements associated with the proposed station alternatives in Miami and Fort Lauderdale will include minor changes to impervious surface areas for the proposed stations, parking facilities, and platforms as outlined in Table 3-1.9. Because there will be little change in the pre versus post runoff condition in these cases, no, or minimal, upgrades to existing off-site municipal drainage systems (conveyance structures) are anticipated as a result of the proposed stations and facilities.

In the case of the **Preferred Build Station Alternative** for West Palm Beach, there will be a significant change in the pre versus. Post runoff condition due to a necessary increase in impervious area. As such, an adequate on-site drainage system will be developed to mitigate any net off-site impacts. Based on the local geology and topography, on-site drainage is feasible with conventional drainage and the best management practices defined below.

For Miami, Fort Lauderdale and West Palm Beach, the existing off-site drainage systems in the vicinity of all the proposed stations are located in urban areas and primarily consist of surface infiltration and runoff to street drainage. Because on-site drainage improvements will be proposed at all station alternatives, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would be expected to permanently impact off-site drainage systems or water resources. Further, any temporary impacts resulting from construction of all alternatives considered, including the **Preferred Build Project Alternative**, would cease when construction was completed and would be minimized by best management practices as required by the South Florida Water Management District (SFWMD) (Chap. 40A though E, -4, -40,-42, and/or -44). SFWMD water quality criteria require on-site retention of the first inch of stormwater runoff from the entire site area or 2.5 times the percentage of impervious area, whichever is greater. In South Florida, the best management practices used to accommodate for these retention criteria and also meet permitting requirements are:

- Surface infiltration through swales or ditches;
- Installation of underground French drain systems to drain water into the superficial aquifer or water table;
- Deep injection wells to drain water via gravity or pumping to the deeper G-III aquifer (only permissible outside of well-field protection areas and east of the salt-water intrusion line); and/or
- Retention ponds

Due to the urban nature of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternatives**, retention ponds have been ruled out as a preferred method of drainage and a combination of French drains and injection wells will be used as best management practices to meet the water quality criteria (all alternatives considered within this EA, including all **Preferred Build Station Alternative**, are located east of the current salt water intrusion line).

In summary, because the potential temporary impacts to water quality will be avoided and/or minimized through the foregoing best management practices and permitting requirements, no adverse impact is expected due to construction of any of the alternatives considered within this EA, including the **Preferred Build Project Alternative**.

**Table 3-1.9
 Pre- and Post-Drainage Conditions**

Station Alternative	Pre-Construction		Post-Construction		Stormwater Facility Features
	% Pervious	% Impervious	% Pervious*	% Impervious	
West Palm Beach (North)	85	15	5	95	On-site drainage system to mitigate off-site impacts, including additional French drains and drainage wells to address excess water quantity in addition to those required for BMP's.
West Palm Beach (Central) Preferred Station Alternative	65	35	5	95	On-site drainage system to mitigate off-site impacts, including additional French drains and drainage wells to address excess water quantity in addition to those required for BMP's. Retention pond is feasible on this site for added capacity
Fort Lauderdale (North) Preferred Station Alternative	10	90	5	95	Minimal impact to existing site permeability. French Drains and drainage wells will be implemented as BMP's to meet water quality criteria.
Fort Lauderdale (South)	5	95	5	95	No impacts to existing site permeability. French Drains and drainage wells will be implemented as BMP's to meet water quality criteria.
Miami (South At Grade)	5	95	10	90	No impacts to existing site permeability. French Drains and drainage wells will be implemented as BMP's to meet water quality criteria.
Miami (Central Elevated) Preferred Station Alternative	5	95	10	90	No impacts to existing site permeability. French Drains and drainage wells will be implemented as BMP's to meet water quality criteria.

*Based on minimum city landscape requirements QDB-8, West Palm Beach; Sec. 47-21.5 Ft. Lauderdale; Article 8, Miami 21.

3.1.2.1 Surface Water Quality

Chapter 62-303, F.A.C., defines the verified impaired water bodies within Florida. Applying this definition, the following eleven surface water bodies in the study area are impaired:

- West Palm Beach Canal (C-51),
- Hidden Valley Canal (C-15),
- Cypress Creek Canal (C-14),
- Middle River,
- New River,
- Dania Cutoff Canal,
- Oleta River,
- Snake Creek/Royal Glades Canal (C-9),
- Arch Creek,
- Biscayne Park Canal (C-8), and
- Little River (C-7)

Impairments to the above named water bodies include copper, dioxin, dissolved oxygen, fecal coliforms, mercury, and nutrients.

All of the alternatives considered within this EA, including the **No-Build Alternative** and **Preferred Build Station Alternatives** for station sites at West Palm Beach, Fort Lauderdale, and Miami lie within designated impaired basins for fecal coliform or mercury (inside fish tissue) (Table 3-1.10).

Table 3-1.10 Station Alternatives - Impaired Water Bodies

Station Alternative	Surface Water Receptor	Impaired WBID	Impairments
West Palm Beach North	Lake Worth Lagoon (Northern Segment)	3226E1	Mercury (In Fish Tissue)
West Palm Beach Central	Lake Worth Lagoon (Northern Segment) & Clear Lake Drain	3226E1	Mercury (In Fish Tissue)
Ft. Lauderdale North	New River Canal (South)	3277A	Fecal Coliform
Ft. Lauderdale South	New River Canal (South)	3277A	Fecal Coliform
Miami At Grade	C-6/Miami River (Lower Segment)	3288B	Mercury (In Fish Tissue)
Miami Elevated	C-6/Miami River (Lower Segment)	3288B	Mercury (In Fish Tissue)

The nutrient/bacteria impairments for the identified impaired water bodies require discharges into these water bodies to meet higher water quality standards (see Appendix F-1). Additional discharge treatment may be required to meet these higher standards.

The Project will be designed to meet these additional water quality standards in order to secure the necessary permits from SFWMD to discharge into an impaired water body. Consequently, the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, will not cause significant impacts to surface water quality. Construction activities are also regulated by the Florida Department of Environmental Protection (FDEP) via the National Pollutant Discharge Elimination Program (NPDES). This ensures no significant impact to surface water quality as a result of stormwater discharges from temporary construction activities.

3.1.2.2 Sole Source Aquifer

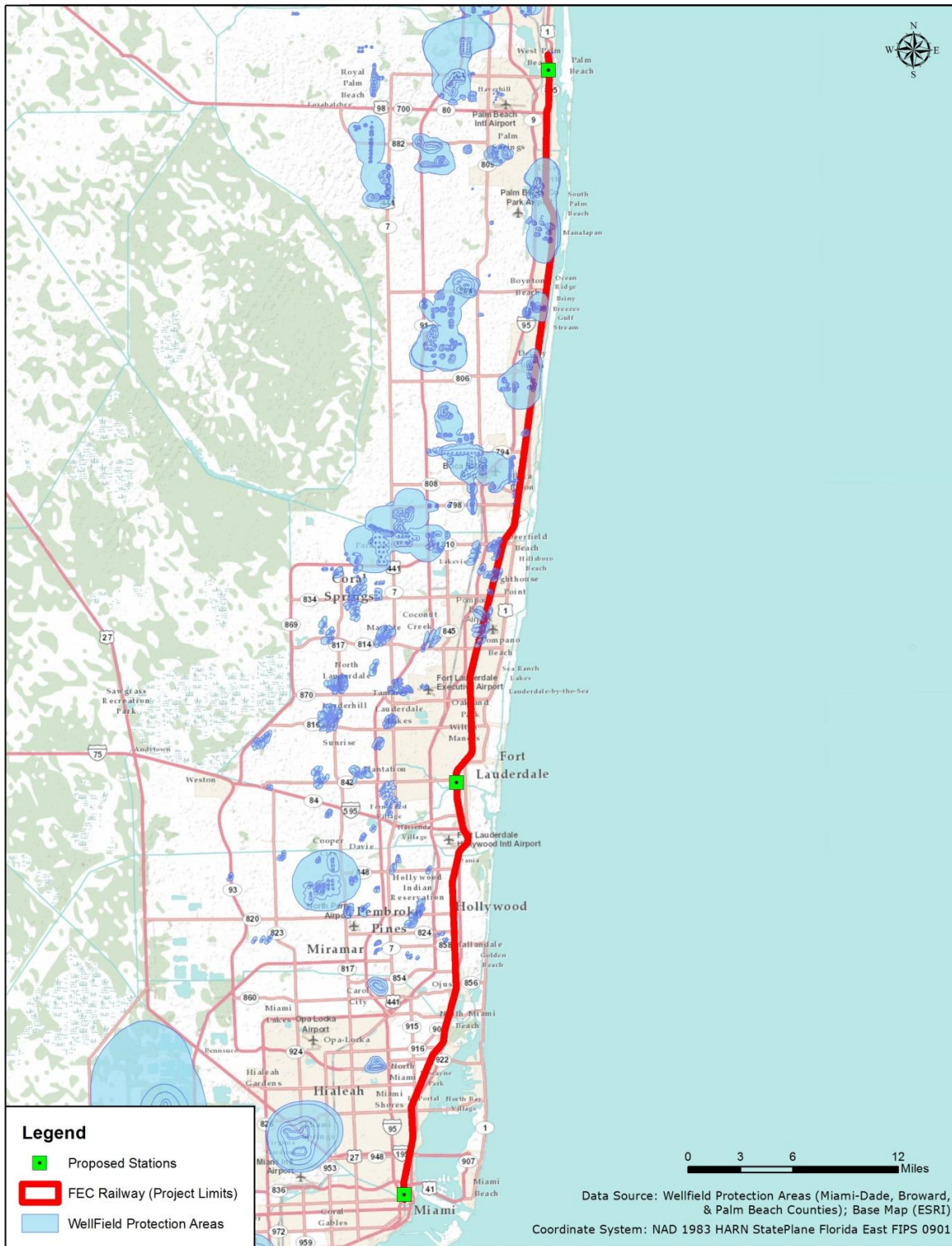
The Safe Drinking Water Act (Public Law 93-523, as amended) requires protection of sole-source aquifers. All alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Station Alternatives**, are over the sole source Biscayne Aquifer. Minor mainline modifications as described in Section 2 are required to accommodate the increase in train speeds and the replacement of the second rail on existing base material. The proposed improvements will not change the existing runoff points of discharge, nor significantly increase the existing amount of impervious area, or the pollutant loading of the runoff. Potential water quality impacts resulting from erosion and sedimentation will be controlled in accordance with best management practices. SFWMD Environmental Resource Permit (ERP) requirements protect the discharge water quality, which in turn avoids impact. Therefore, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would impact sole source aquifers.

3.1.2.3 Wellfield Protection Zones

All alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Station Alternatives**, reside in counties (Miami-Dade, Broward, and Palm Beach) that have policies and regulations, in the form of wellfield protection ordinances, to protect drinking water supplies from contamination. Wellfield protection criteria is found in Chapter 24, Section 43 of the Miami-Dade County Code; Article XIII, Section 27 of the Broward County Natural Resource Protection Code, and Article 14, Chapter B of the Palm Beach County Unified Land Development Code. Wellfield protection zones are delineated by computer models and depict the time it takes a theoretical contaminant to travel from the point it enters the ground to a supply well.

Although none of the considered station locations lie within any wellfield protection zones, the FEC corridor within Broward and Palm Beach Counties travels through several wellfield protection zones (Figure 3-1.1). In both of these counties, the transportation of any regulated substance through the wellfield protection zones is exempt from the provisions of the referenced chapters, provided that the transporting vehicle is in continuous transit. In addition, construction activities in general within wellfield protection zones are exempt as long as best management practices are implemented. The proposed Project would comply with all local ordinances for protection of the wellfields, including those noted above; therefore, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would impact wellfield resources.

Figure 3-1.1. Wellfield Protection Areas



3.1.3 Waterbodies and Waterways

As summarized in Table 3-1.11, from north to south through the study area the FEC corridor crosses 15 waterways, eight of which support navigation as defined in 33 CFR Ch. 1, §2.36. Only one of the 15 waterways has a special designation and six of the crossings are over the US Army Corps of Engineers (USACE) Central and Southern Florida (C&SF) flood control projects.

The **No-Build Alternative** would not impact waterbodies and waterways (including wetlands). The **Preferred Build System Alternative** includes system improvements only within the existing FEC ROW. No modifications to FEC bridges within waterbodies and waterways with the potential to affect navigation are proposed, given that the proposed modifications to existing bridges include only deck work necessary to support second track reinstallation at three bridge locations. Potential impacts to waterbodies and waterways as a result of the system alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build System Alternative**, are not significant and are discussed in the following subsections.

None of the alternatives considered within this EA for the stations, including the **No-Build Alternative** and the **Preferred Build Station Alternatives**, has the potential to impact waterbodies and waterways because no waterbodies or waterways exist at any of the proposed station sites.

In light of the foregoing, potential impacts to waterbodies and waterways as a result of the **Preferred Build Project Alternative** are not significant as discussed in the following subsections.

Table 3-1.11 Waterbody and Waterway Crossings

Waterbody/Waterway	Navigable	Special Designation	Federal Waterway Project
West Palm Beach Canal (C-51)	N	N	Y
Boynton Beach Canal (C-16)	N	N	Y
Hidden Valley Canal (C-15)	N	N	Y
Hillsboro Canal	Y	N	N
Cypress Creek Canal (C-14)	N	N	Y
North Fork Middle River (C-13)	Y	N	Y
South Fork Middle River	Y	N	N
New River	Y	N	N
Tarpon River	Y	N	N
Dania Cutoff Canal	Y	N	N
Oleta River	Y	Y	N
Snake Creek/Royal Glades Canal (C-9)	N	N	Y
Arch Creek	N	N	N
Biscayne Park Canal (C-8)	Y	N	N
Little River (C-7)	N	N	N

3.1.3.1 Navigation

The Rivers and Harbors Act of 1899 and the General Bridge Act of 1946 give the U.S. Coast Guard (USCG) and the United States Army Corps of Engineers (USACOE) the authority to protect navigable waters of the United States. Navigable waters of the United States are defined as those waters that are subject to the ebb and flow of the tide landward to the mean high water line, and/or all waters which are presently used, or have been used in the past or may be susceptible to use to transport interstate or foreign commerce. The FEC corridor traverses eight waterways that are considered navigable waters. The bridges fall under the jurisdiction of the USCG as identified in Exhibit 3-1.5. Jurisdiction over other navigable waters falls under the USACOE.

No changes to the bridges are proposed for the mainline improvements directly within any waterbodies or waterways; therefore, no changes to the navigation clearances are proposed. In instances where bridges currently only have a single track, the rail line will transition with a #24 turnout on each end of the bridge to a single track 100 feet prior to and after the bridge. With no bridge modifications or replacements proposed directly within any waterbodies or waterways; no involvement with USCG is anticipated unless warranted during the design phase of the Project, at which point coordination with USCG will continue through the design of the project and issuance of permits, if any.

Therefore, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would impact navigation.

3.1.3.2 Special Designations

FDEP classifies existing surface waters according to a targeted designated use and then defines impaired water bodies based on observed water quality conditions. Chapter 62- 302, F.A.C., defines Class I waters (designated potable water supplies), Class II waters (shellfish propagation or harvesting), and Outstanding Florida Waters (OFW). OFWs may include aquatic preserves, state reserves/preserves, and National Wild and Scenic River Systems, among other general categories. The remaining surface water bodies are Class III (recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife).

As noted in Table 3-1.5, the FEC corridor passes over several identified waterways. One of the existing FEC corridor bridges crosses over the Oleta River, which is part of the Biscayne Bay Aquatic Preserve and is the only waterway with special designation. None of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Station Alternatives**, will have a permanent impact on the aquatic preserve because no bridge-related work or construction is proposed directly within any waterbodies or waterways, including the Oleta River. Moreover, any special attention that may be required on account of Oleta's River special designation would be minimized by the required compliance with the State Environmental Resource Permit (ERP) required for construction related to water quality and quantity on account of the Oleta's River; therefore, the **Preferred Build Project Alternative** will result in no effect to the involved waterway as a result of temporary construction activities.

The alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Station Alternatives** for each city and the adjoining areas do not include waters with special designations. During the design phase of the Project, further coordination with SFWMD will occur to ensure the ERP requirements include best management practices during construction to preserve (or enhance) the water quality within surface waters.

In summary, none of the alternatives considered within this EA, including the **No-Build Alternative** and **Preferred Build Project Alternative**, would permanently impact waterbodies or waterways. Further, because any potential temporary impacts will be avoided and/or minimized by following best management practices and permitting requirements, no adverse impact is expected due to construction of any of the alternatives considered within this EA, including the **Preferred Build Project Alternative**.

3.1.4 Floodplains

In accordance with Executive Order 11988 "Floodplain Management" as amended by Executive Order 12148, USDOT Order 5650.2, and Title 23, Code of Federal Regulations (23 CFR) Part 635A, the Project Area was evaluated for possible impacts to floodplains. Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), including available updates, portions of the FEC ROW are within mapped 100-year floodplains as summarized in Table 3-1.12 and shown in Figure 3-1.2. As detailed below, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would permanently impact 100-year floodplains.

For example, the **No-Build Alternative** would have no impact on existing 100-year floodplains. Further the **Preferred Build System Alternative** is not anticipated to significantly impact floodplains. Any improvements on the mainline would occur within existing FEC ROW at existing flood elevations; therefore, although this **Preferred Build System Alternative** could involve work within the horizontal limits of the 100-year floodplain in areas throughout the FEC corridor, no work would be performed below the 100-year flood elevation and, as a result, this **Preferred Build System Alternative** would not encroach upon the base floodplain. Similarly, any modifications to drainage structures included in this **Preferred Build System Alternative** would result in an insignificant change in their capacity to carry floodwater. These changes would cause minimal increases in flood heights and flood limits. These minimal increases would not result in any significant adverse impacts or any significant change in flood risks or damage.

Therefore, the potential for floodplain impact due to the **Preferred Build System Alternative** is minimal and the **Preferred Build System Alternative** is not anticipated to cause significant floodplains impacts. No bridge modifications or new bridge structures are proposed directly within any waterbodies or waterways; therefore, no regulated floodways are affected by the proposed improvements.

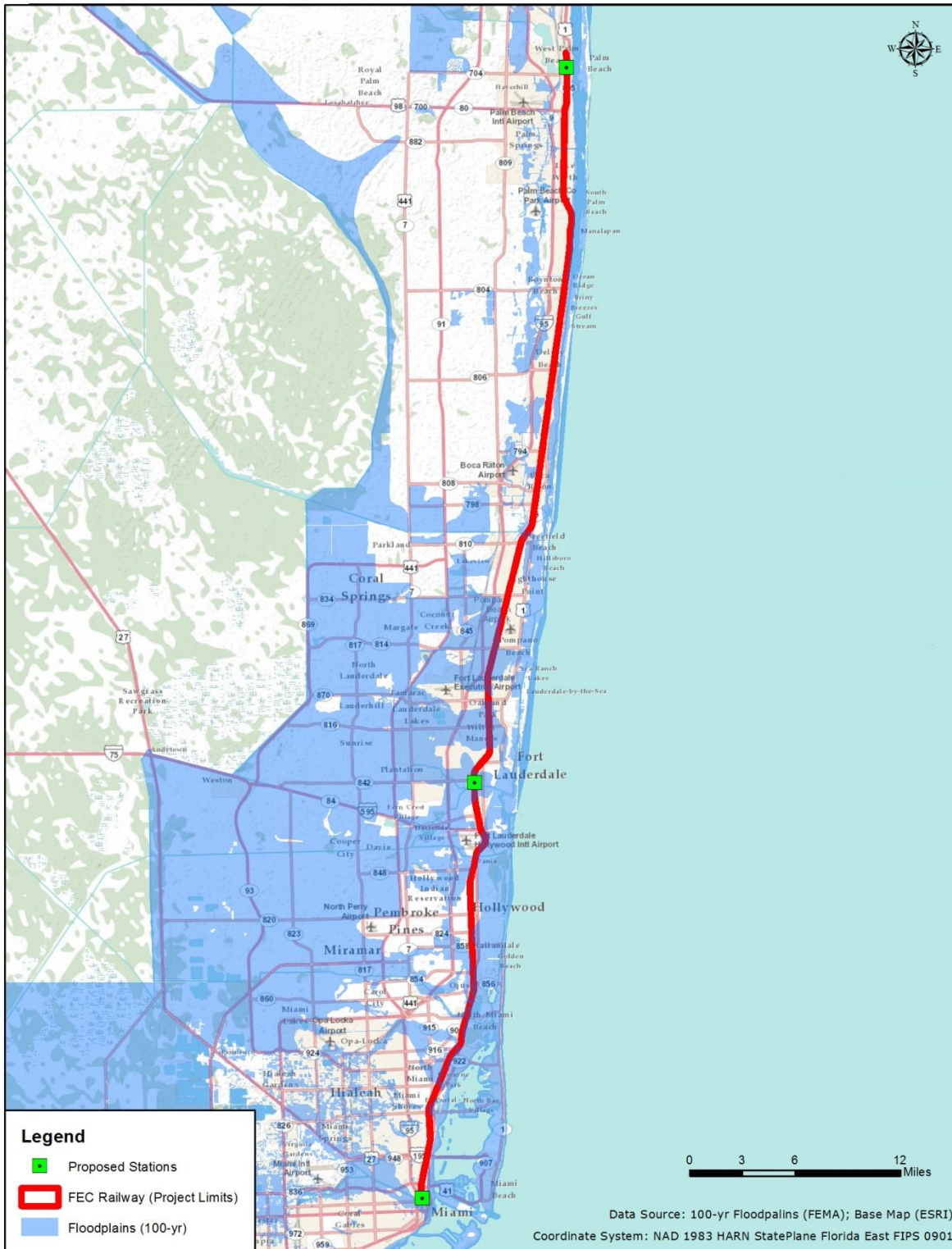
Table 3-1.12
FEC Corridor Right-of-Way within the 100-year Floodplain

County	Within 100 ft Right-of-Way (Acres)
Palm Beach	1.3
Broward	121.7
Miami-Dade	22.2

Source: Palm Beach FEMA FIRM 1996
Broward FEMA FIRM 1996
Miami-Dade FEMA FIRM 2009

For West Palm Beach, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Station Alternative**, are located within mapped 100-year floodplains.

Figure 3-1.2
Floodplains



Similarly, for Miami, none of the alternatives considered within this EA, including the **No-Build Alternative** and **Preferred Build Station Alternative**, are located within mapped 100-year floodplains.

For Fort Lauderdale, all alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Station Alternative**, are located within mapped 100-year floodplains. Specifically, the North option, which is the **Preferred Build Station Alternative** for this location, would occupy approximately 2.8 acres and the South option would occupy approximately 4.8 acres. Under both alternatives considered for the station in Fort Lauderdale, improvements will be made within the existing FEC ROW and/or on property already developed above the 100-year floodplain. Under both alternatives, any impacts to flood elevations will be addressed by applying the FDOT's drainage design standards and following the SFWMD procedures to achieve results that will not increase or significantly change the flood elevations and/or limits. Although the work under both alternatives considered for the station in Fort Lauderdale would involve work within the FEMA-mapped floodplain, work is not expected to impact the function of the 100-year floodplain since work is generally expected to be above the 100-year floodplain elevation, given the developed nature of the alternative sites considered in this EA within Fort Lauderdale. If work is found to be necessary below the 100-year elevation, mitigation of any flood management impacts will be required and undertaken as part of the necessary ERP process, resulting in no significant impact to regulated floodplains under either of the alternatives considered in this EA for Fort Lauderdale.

The VMF (existing Fort Lauderdale FECR Railyard) is also not located within mapped 100-year floodplains, and as such, the **Preferred Build Project Alternative's** proposed use of the VMF for the maintenance will not have a significant impact on floodplains.

As the above analysis cumulatively indicates, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would result in significant impact to floodplains.

3.1.5 Wetlands

Executive Order 11990, Protection of Wetlands, was signed in 1977 in furtherance of NEPA, as amended, to avoid adverse impacts from destruction or modifications of wetlands and to avoid new construction in wetlands wherever there is a practicable alternative. In addition, Sections 401, 402, and 404 of the Clean Water Act (CWA) provide protections for Waters of the United States including wetlands.

Jurisdictional wetlands in the study area were identified using National Wetlands Inventory (NWI) mapping and SFWMD Land Use mapping. Qualified wetland biologists surveyed the rail line ROW and proposed station locations to identify potential wetland areas not represented on mapping resources. Detailed wetland information, including quantities and maps, is included in the Wetland Evaluation Technical Memorandum included in Appendix G.

Based on the current NWI and SFWMD mapping, there are no jurisdictional wetlands that exist within the FEC ROW. However, based on field investigations conducted on July 13, 2012 and review of aerial photography, new wetland boundaries were mapped within the FEC ROW in three locations as shown in

Table 3-1.13 and the following photographs. Each one of these newly mapped wetlands within the FEC ROW individually represents less than 1/3 acre and total less than 1/2 acre.

The wetlands that exist adjacent to or abutting the FEC ROW are limited to sporadic fringe mangrove wetlands, associated in most cases, with larger wetland systems (waterways). The fringe mangrove wetlands are along the perimeter edge of the ROW and no work is proposed in the immediate vicinity of these wetlands. It is anticipated that any intrusion into these edge wetlands will be avoided or minimized through project design, such as using cross-sections of minimum practicable width to fully avoid intrusion. No bridge modifications or bridge replacements are proposed for the mainline directly within any waterbodies or waterways, and any mainline modifications to accommodate the increase in train speeds or additional capacity (proposed areas of double tracking) will occur within the existing FEC ROW, predominately on already established trackbed. There are no planned modifications to wetlands as a result of the bridge rehabilitation under the **Preferred Build Project Alternative**. Furthermore, best management practices would be employed during construction to avoid temporary impacts to the wetland systems.

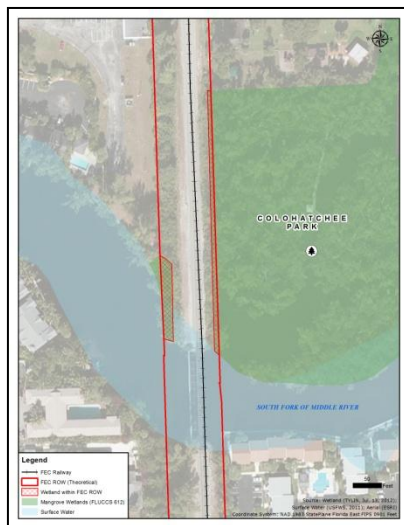
Discharges of fill material into waters of the United States require the authorization of the USACE. Although not anticipated, any wetland impacts that would result from the construction of this **Preferred Build Project Alternative** would be mitigated pursuant to S. 373.4137 F.S. to satisfy all mitigation requirements of Part IV, Chapter 373, F.S. and 33 U.S.C. §1344. Any wetlands mitigation requirements would be coordinated further during permitting. Because of the wetland mitigation required for state and federal permit efforts, the total potential wetland impact (less than 0.5 acre) would not be significant.

Coordination with the USACE and SFWMD is ongoing and will continue through the design phase and permitting issuance. As the improvements within the existing ROW corridor approach final designs, a meeting between FRA staff, consultants, and USACE representatives from the Jacksonville District will be held to determine what information is necessary for the USACE to determine what, if any, permit (including Nationwide Permit 14) might be necessary for the **Preferred Build Project Alternative** and if there are any impacts to waters of the United States, whether mitigation should be required.

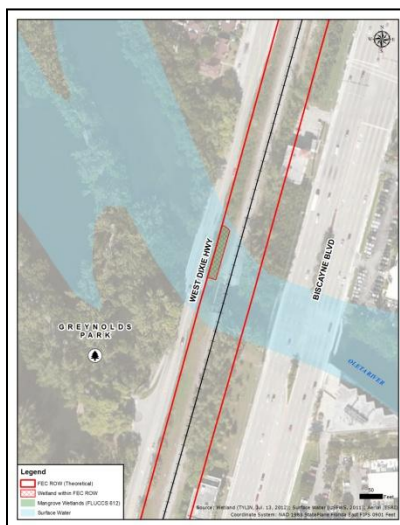
As the above analysis cumulatively indicates, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would result in significant or permanent impacts to wetlands. In addition, because wetlands were not identified in association with any of the **Preferred Build Station Alternatives** considered within this EA, that aspect of the **Preferred Build Project Alternative** would not have impacts on any wetland systems. In summary, therefore, the overall **Preferred Build Project Alternative** is not anticipated to have significant impacts on wetland systems.

**Table 3-1.13
 Wetlands within FEC ROW**

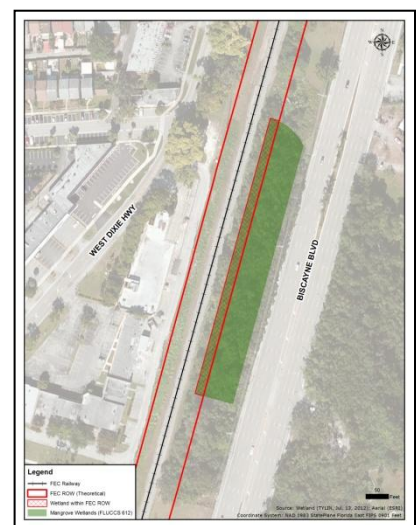
County	Milepost	Acres within FEC ROW	Location	Comment
Broward	338.5	0.07	East edge of ROW abutting Colohatchee Park boundary	No proposed bridge work; Proposed double track on opposite side.
		0.06	West edge of ROW near Middle River (South Fork) bridge (A)	No proposed bridge work
Miami-Dade	353.7	0.05	West edge of ROW near Oleta River bridge. (B)	No proposed bridge work or double tracking
Miami-Dade	354.3	0.29	East edge of ROW between NE 172 St and Snake Creek Canal (C)	Proposed double track on opposite side. Wetland restoration site.
Total		0.47		



Middle River – South Fork (A)



Oleta River (B)



NE 172nd Street and Snake Creek Canal (C)

3.1.5.1 Essential Fish Habitat

The alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, were evaluated for potential impacts to Essential Fish Habitat (EFH) as required by the Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended through 1996 (Magnuson-Stevens Act). The 1996 amendments to the Magnuson-Stevens Act set forth a number of mandates for the National Marine Fisheries Service (NMFS), eight regional Fishery Management Councils (FMCs), and other federal agencies to identify and protect important marine and anadromous fish habitat. The EFH identified in Fishery Management Plan Amendments of the South Atlantic FMC includes estuarine areas, estuarine emergent wetlands, estuarine scrub/shrub mangroves, submerged aquatic vegetation, oyster reefs and shell banks, intertidal flats, palustrine emergent and forested wetlands, aquatic beds and estuarine water column.

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

EFH and HAPCs within the Project Area are associated with the waterways and bridge crossings are as identified in Table 3-1.14. No bridge modifications or bridge replacements are proposed for the mainline directly within any waterbodies or waterways, and any mainline modifications to accommodate the increase in train speeds or additional capacity (proposed areas of double tracking) will occur within the existing FEC ROW, predominately on already established trackbed.

In addition, all proposed track transitions would occur at least 100 feet upstream and downstream of the single track bridges; therefore, no impacts to existing shorelines related to installation of additional track/track support structures are anticipated.

EFH and HAPCs are found throughout portions of the study area for the following species as shown in Table 3-1.12:

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

Table 3-1.14
Project Area - Essential Fish Habitat

County	Location	EFH Type	HAPC Type	Potential Effect
Palm Beach	Boynton Beach Canal (C-16)	Penaeid Shrimp, Spiny Lobster	-	None
Broward	Hillsboro Canal	Penaeid Shrimp, Spiny Lobster	Snapper Grouper Complex	None
	Cypress Creek Canal (C-14)	Spiny Lobster	-	None
	Middle River (North Fork)	Spiny Lobster	-	None
	Middle River (South Fork)	Spiny Lobster	-	None
	New River	Spiny Lobster	-	None
	Tarpon River	Spiny Lobster	-	None
	Dania Cut-off Canal	Spiny Lobster	-	None
Miami-Dade	Oleta River	Penaeid Shrimp, Spiny Lobster	-	None
	Arch Creek	Spiny Lobster	-	None
	Biscayne Park Canal (C-8)	Penaeid Shrimp, Spiny Lobster	-	None
	Little River (C-7)	Penaeid Shrimp	-	None

Source: NMFS Southeast Region Habitat Conservation Division
 South Atlantic Fishery Management Council Habitat and Ecosystem Internet Map Server (IMS)

None of the alternatives considered in this EA, such as the **Preferred Build System Alternative** and the **Preferred Build Station Alternatives** (which includes the VMF at the existing Fort Lauderdale VMF currently used by FECR) contain EFH or HAPCs.

In summary, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would result in significant impact to EFH or HAPCs.

3.1.6 Coastal Zones

Congress enacted the Coastal Zone Management Act (CZMA) in 1972 to “preserve, protect, develop, and where possible, to restore and enhance the resources of the nation’s coastal zone” (16 U.S.C., § 1452). The CZMA encouraged coastal states to develop management programs, which if approved by the National Oceanic and Atmospheric Administration (NOAA), would authorize those individual states to

review certain federal activities for consistency with the CZMA. In accordance with the CZMA, the Florida Coastal Management Program (FCMP) was approved by NOAA in 1981 and is codified at Chapter 380, Part II, F.S., with the FDEP as the lead agency with coordination through the Florida State Clearinghouse.

The Florida State Clearinghouse has reviewed a similar project entitled, *South Florida East Coast Corridor Transit Analysis*, with project extents or limits that coincide with this particular **Preferred Build Project Alternative** in November 2006. The former project was determined to be consistent with the FCMP and, based on recent discussions (*August 30, 2012*) with Laura P. Milligan, Environmental Manager of the Florida Department of Environmental Protection's (FDEP) Florida State Clearinghouse (see correspondence in Appendix L), the consistency determination would still be valid for this **Preferred Build Project Alternative** because the Project Area is fully encompassed in that certain project area that was found consistent in 2006 and there have been no relevant changes in the CZMA or FCMP criteria that would affect that determination. The **Preferred Build Project Alternative** proposed by AAF is, therefore, consistent with the FCMP.

In light of the foregoing, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would result in significant impact to coastal zones.

The Coastal Barrier Resources Act (CBRA), Public Law 97-348 (96 Stat. 1653; 16 U.S.C. 3501 et seq.), enacted October 18, 1982, designated various undeveloped coastal barrier islands, depicted by specific maps, for inclusion in the Coastal Barrier Resources System. Coastal barrier resources are associated with unconsolidated shorelines and are on the east side of the Intracoastal Waterway; therefore, none of the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, would have potential involvement with, and will not impact any, coastal barrier resources.

3.1.7 Noise and Vibration

The noise and vibration limits chosen for construction and operation of the **Preferred Build Project Alternative** satisfy the federal guidelines of the Federal Transit Administration (FTA)³² for train and rail facility operations, along with those of the Federal Highway Administration (FHWA) as defined for Florida application by the FDOT for traffic noise. With regard thereto, as detailed in Section 3.0, it should be noted that for purposes of noise and vibration analysis hereunder, the **No-Build Alternative** takes into account the existing conditions, as well as projected growth in freight activity along the existing FEC corridor, but excludes the introduction of a passenger rail system while the **Preferred Build Project Alternative** takes into account the existing conditions, as well as the aggregate impacts of the **Preferred Build System Alternative** and the **Preferred Build Station Alternatives**, but excludes the projected growth in freight activity along the existing FEC corridor that is considered as part of the **No-Build Alternative**.

3.1.7.1 Methods for Evaluation of Impacts

The analysis of noise and vibration impacts used design information for the proposed alignment of the **Preferred Build Project Alternative** and regional rail and traffic data. The FTA Guidance Manual provides guidelines for establishing the extent of the study area to be used for the noise and vibration impact analyses. It also provides guidance for identifying noise sensitive locations where increased annoyance can occur from train pass-bys. The methodology followed by the noise and vibration analysts is described below.

Noise and Vibration Sensitive Receptors

The noise sensitive receptors for the analysis of all alternatives considered within this EA, including the **No-Build Alternative** and the proposed **Preferred Build Project Alternative**, include relevant receptors that are defined by FTA criteria. The number of receptors potentially impacted have been determined using FTA's general assessment guidelines, including comparing existing with future noise levels and rating impacts. The vibration impact assessment uses the FTA general assessment procedure of determining if absolute vibration limits will exceed specified thresholds at vibration sensitive receptors.

Operations Noise

The descriptors and criteria for assessing noise impacts vary according to land use categories adjacent to the track. For land uses where people live and sleep (e.g., residential neighborhoods, hospitals, and hotels), Ldn is the assessment parameter. Ldn is the day-night average level, which is the energy-averaged sound level for a continuous 24-hour period with 10 dBA added to all levels occurring between 10 PM and 7 AM (to account for the added sensitivity to sounds during normal sleeping hours). For other land-use types where there are noise sensitive uses (e.g., outdoor concert areas, schools, and libraries), the equivalent (energy-averaged) noise level for an hour of noise sensitivity (Leq[h]) that coincides with train activity is the assessment parameter. Table 3-1.15 summarizes the three land use categories.

³² FTA. *Transit Noise and Vibration Impact Assessment*. USDOT Report Number FTA-VA-90-1003-06, May 2006.

Table 3-1.15
FTA Noise-Sensitive Land Uses

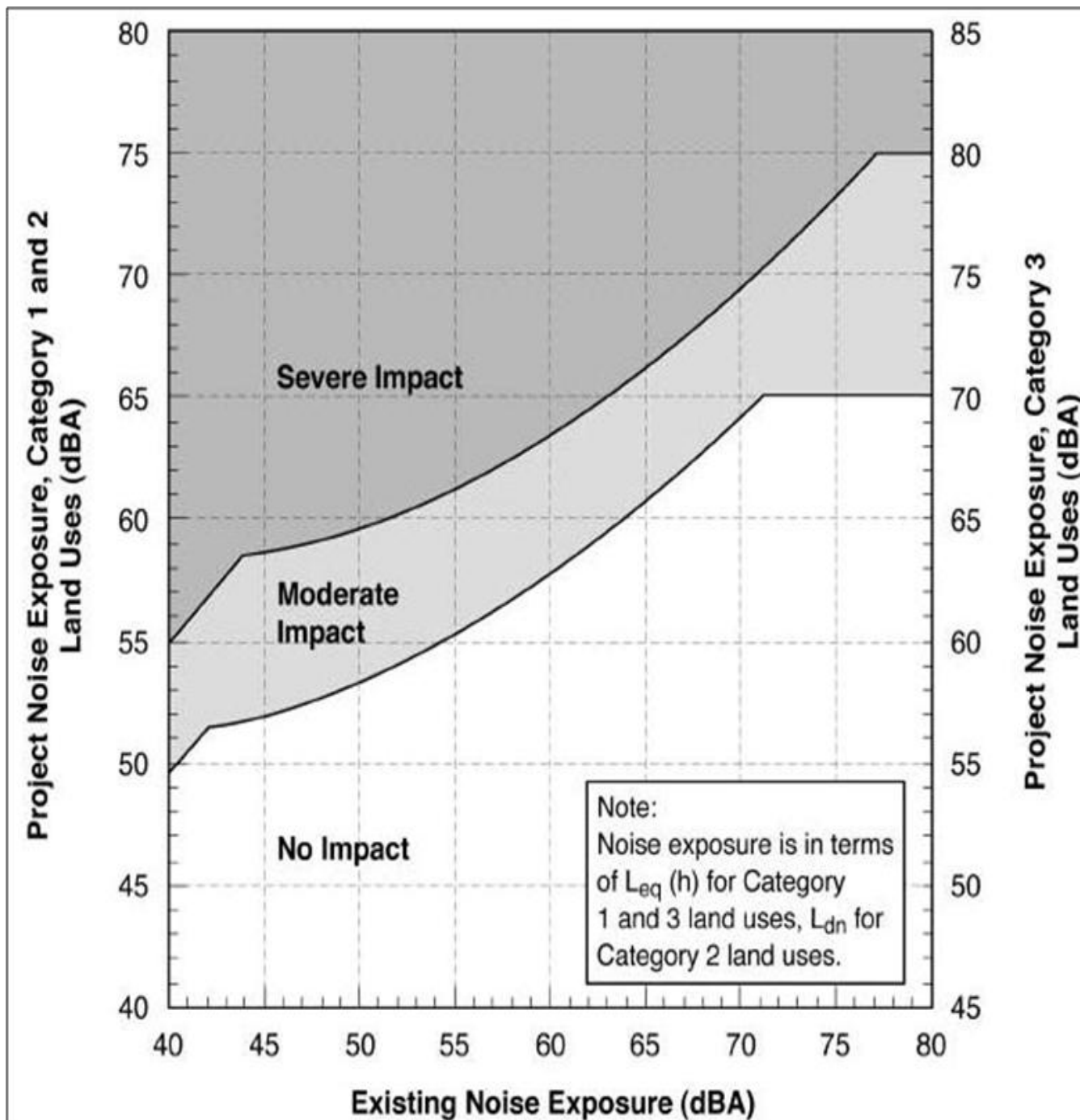
Land Use Category	Noise Metric, dBA	Land Use Category
1	Outdoor Leq(h)(a)	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and National Historic Landmarks with significant outdoor use.
2	Outdoor Ldn	Residences and buildings where people normally sleep. This category includes homes and hospitals, where nighttime sensitivity to noise is of utmost importance.
3	Outdoor Leq(h)(a)	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. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios, and concert halls fall into this category, as well as places for meditation or study associated with cemeteries, monuments, and museums. Certain historical sites, parks, and recreational facilities are also included.

Source: FTA 2006

(a)Leq for the noisiest hour of transit-related activity during hours of noise sensitivity.

The noise impact criteria used by the FTA are ambient-based; the increase in future noise (future noise levels with the **Preferred Build Project Alternative** added to existing noise levels) is assessed rather than the noise caused by each passing train. The criteria specify a consideration of future project noise with existing levels because this analysis with an existing condition considers annoyance due to the change in the noise environment caused by the **Preferred Build Project Alternative**. Figure 3-1.3 shows the FTA noise impact criteria for human annoyance. Depending on the magnitude of the cumulative noise increases, FTA categorizes impacts as (1) no impact; (2) moderate impact; or (3) severe impact. Severe impact is where a significant percentage of people would be highly annoyed by the project’s noise. Moderate impact is where the change in cumulative noise level would be noticeable to most people, but may not be sufficient to generate strong, adverse reactions.

Figure 3-1.3
 FTA Noise Impact Criteria



Source: FTA 2006

The following assumptions and methodologies were used to establish existing noise levels at the alignment of the ***Preferred Build Project Alternative*** for consideration of all alternatives, including the ***No-Build Alternative***:

- **Freight Train Noise** – Calculations based on the FTA Guidance Manual for train operations including warning horns, and the following assumptions, with the freight operation condition based on current year (2012) operations:
 - Operations – 10 through-freight trains and 4 local trains per day.
 - Speeds – 31.3 mph in Miami-Dade County; 30.5 mph in Broward and Palm Beach Counties.
 - Length – 2 locomotives per train; length of each locomotive at 89 feet; length of each freight car at 79 feet; total train set length at approximately 8,837 feet.
 - Horns – ¼-mile from each crossing affected by warning horns.
- **Freight Train Crossing Signal Noise** – The crossing signal noise would be more than 10 dBA less than the warning horn noise at the same receiver. According to the FTA guidelines, horns generate sound exposure levels of 110 dBA at 50 feet while a 2-minute crossing signal generates a sound exposure level of 94 dBA at 50 feet. Therefore, the crossing signal noise was considered negligible and it was not included in the existing noise calculation.

In addition to the foregoing, the following assumptions were used for the operational noise assessment for the restoration of passenger train service, based on the design characteristics of the ***Preferred Build Project Alternative***:

- **Passenger Train Noise** – Calculations based on the FTA Guidance Manual for train operations including warning horns, and the following assumptions:
 - Operations – 2 operations per hour between 6 AM and 9 PM, with approximately 16-19 roundtrip trains per day.
 - Speeds – 79 mph maximum, with the average speed expected to be 60 mph.
 - Length – 2 locomotives per train; length of each locomotive at 65 feet; 7-9 passenger cars per train; length of each passenger car at 85 feet; total train set length at approximately 725-900 feet.
 - Horns – ¼-mile from each grade-crossing affected by warning horns, with 183 grade-crossings contemplated along the FEC corridor.

These assumptions result in predicted levels of 63 dBA Ldn at 50 feet for the passenger trains without horns.

- **Crossing Signal Noise** – For the reasons referenced above, the crossing signal noise would be negligible when compared to warning horn noise. Therefore, it was excluded from the noise calculations.
- **Crossover Noise** – The noise level would be greater with a train passing by at full speed compared with that for a train slowing down and traversing crossovers. Also, crossovers will be used infrequently by the passenger trains. Therefore, the worst-case scenario was taken into account and crossover noise was excluded from the noise calculations.

Further, it was assumed that the rail track will be a combination of ballast and slab track with continuous welded rail, consistent with the assumptions in the FTA Guidance Manual and that there will be no change to the location of any of the existing at-grade crossings and, therefore, no change to locations where the freight and passenger trains will sound their horns.

Operations Vibration

Ground-borne vibration impacts from new rail operations inside vibration sensitive buildings are defined by the vibration velocity level, expressed in terms of VdB, and the number of vibration events per day of the same kind of source. Table 3-1.16 summarizes vibration sensitivity in terms of the three land use categories and the criteria for acceptable ground-borne vibrations and acceptable ground-borne noise. Ground-borne noise is a low-frequency rumbling sound inside buildings, caused by vibrations of floors, walls, and ceilings. Ground-borne noise is generally not a problem for buildings near railroad tracks at- or above-grade, because the airborne noise from trains typically overshadows the effects of ground-borne noise. Ground-borne noise becomes an issue in cases where airborne noise cannot be heard, such as for buildings near tunnels.

The FTA provides guidelines to assess the human response to different levels of ground-borne vibration, as shown in Table 3-1.16. These levels represent the maximum vibration level of an individual train passby. A vibration event occurs each time a train passes the building or property and causes discernible vibration. "Frequent Events" are more than 70 vibration events per day, and "Infrequent Events" are fewer than 70 vibration events per day.

Table 3-1.16 includes separate FTA criteria for ground-borne noise (the "rumble" that radiates from the motion of room surfaces in buildings from ground-borne vibration). Although the criteria are expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are significantly lower than airborne noise criteria to account for the annoying low-frequency character of ground-borne noise.

Table 3-1.16
FTA Ground-Borne Vibration and Ground-Borne Noise Operations Impact Criteria

Land Use Category	Ground-Borne Vibration Impact Criteria (VdB relative to 1 micro inch/second)		Ground-Borne Noise Impact Criteria (dB re 20 microPascals)	
	Frequent Events (a)	Infrequent Events (b)	Frequent Events (a)	Infrequent Events (b)
Category 1: Buildings where vibration would interfere with interior operations	65 VdB(c)	65 VdB(c)	NA(d)	NA(d)
Category 2: Residences and buildings where people normally sleep	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use	75 VdB	83 VdB	40 dBA	48 dBA

Source: FTA 2006

(a) Frequent Events is defined as more than 70 vibration events per day.

(b) Infrequent Events is defined as fewer than 70 vibration events per day.

(c) This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the heating, ventilating and air conditioning systems, and stiffened floors.

(d) Vibration-sensitive equipment is not sensitive to ground-borne noise.

NA = Not Applicable

VdB = vibration velocity level

Because airborne noise often masks ground-borne noise for above ground (i.e., at-grade or viaduct) trains, ground-borne noise criteria apply primarily to operations in a tunnel, where airborne noise is not a factor. The majority of the **Preferred Build System Alternative** within the FEC corridor from West Palm Beach to Miami is planned to be at-grade only. As a result, ground-borne noise criteria are not expected to be issues for this **Preferred Build Project Alternative**. Further, for this **Preferred Build Project Alternative**, the impact criteria are based on "Infrequent Events" since they would not exceed 70 train events per day.

Rail operation noise and vibration levels were projected using current FECR's operation and plans for growth and the prediction models provided in the FTA Guidance Manual. Potential noise and vibration impacts were also evaluated in accordance with the FTA Guidance Manual. The assumptions for train operation are listed in Section 3.1.7.2 hereof.

Analysts tabulated projected noise and existing ambient noise exposures at the identified receptors or clusters of receptors. The analysts determined the levels of impact (no impact, moderate impact, or severe impact) by comparing the existing and projected noise exposure based on the impact criteria shown in Figure 3-1.3.

Stations and VMF Noise

A total of three new stations along the alignment of the **Preferred Build System Alternative** are planned in the cities of West Palm Beach, Fort Lauderdale, and Miami. For each city, the **Preferred Build Station Alternative** was analyzed, as well as the **No-Build Alternative**. Noise from each station would include train idling, warning horns, and auxiliary equipment. In addition, the speed of each train would be reduced around each station when compared with that of a train pass-by.

When a train slows down near a station, train pass-by noise levels will be reduced. However, the use of warning horns needs to be taken into account when trains approach (within ¼-mile of) each grade crossing or station regardless of the train speed. Other station noise sources are considered negligible in the locations of the **Preferred Build Station Alternatives** for West Palm Beach, Fort Lauderdale and Miami, each of which being situated in highly-developed, urban areas with high ambient sound levels already existing. Such other noise sources are less than horn noise at all locations by more than 10 dBA, in accordance with reference source noise levels in the FTA manual. Further, the **Preferred Build Station Alternatives** for West Palm Beach, Fort Lauderdale and Miami are close to current grade crossings. As such, this EA compares the calculated existing train operation levels with projected train operation levels in terms of horn noise only when considering the impacts of the **No Build Alternative** as well as the **Preferred Build Project Alternative**.

Another potential noise source for this **Preferred Build Project Alternative** is the existing vehicle maintenance facility (VMF). Currently, freight maintenance does not take place at the existing FEC VMF and only 24/7/365 intermodal operations take place there today. These intermodal operations will be shifted to the FEC Intermodal Container Transfer Facility (ICTF) at Port Everglades being constructed from 2012-2014. (See Section 1.3.4, Proposed Vehicle Maintenance Facility, which describes in more detail the ICTF approved by the environmental staff of the Florida Department of Transportation (FDOT)). The existing VMF currently used for freight trains will be used for the new passenger trains. The number of train movements within the VMF will be reduced compared to the number of current freight train movements. In addition, because the closest noise-sensitive location to the VMF is more than 1000 feet away and the facility is in a noisy urban area (with calculated existing noise levels in the range of 65 to 69 dBA Ldn at the closest residences), there are no impacts anticipated from the use of the facility as part of the **Preferred Build Project Alternative**.

Traffic Noise

The criteria for highway noise impacts (relevant to the extent the **Preferred Build Project Alternative** causes changes in traffic patterns) are from the FHWA Procedures for Abatement of Highway Traffic Noise and Construction Noise (FHWA 2010), as provided in 23 CFR Subchapter H, Section 772 (23 CFR Part 772). A Type 1 project is defined in 23 CFR Part 772 as a proposed federal or federal-aid highway project for the construction of a highway at a new location or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes. FHWA requires identifying highway traffic noise impacts and examining potential abatement measures for all Type 1 projects receiving federal funds.

FDOT is responsible for implementing the FHWA regulations in Florida. Under FDOT policy, a traffic-noise impact occurs if projected noise levels are within 1 dB of the FHWA criteria; therefore, a residential impact occurs at 66 dBA Leq, and a commercial impact occurs at 71 dBA Leq. FDOT also

considers a 15 dB increase in noise a substantial increase and an impact, regardless of the original noise level.

The **Preferred Build Project Alternative** will involve traffic increases to local roads, mainly around new stations, without any major changes to the existing roadway designs anticipated, so it would not be classified as a Type 1 project. Therefore, the traffic noise criteria for this **Preferred Build Project Alternative** would be the same as the FTA criteria presented in Figure 3-1.3.

Construction Noise

Table 3-1.17 shows the FTA general assessment criteria for construction noise. The general assessment criteria for construction noise prescribe different levels for daytime and nighttime construction. Daytime is defined as 7 AM to 10 PM and nighttime is defined as 10 PM to 7 AM. For the purpose of this analysis, construction noise impacts and distances to the 90 dBA and 80 dBA 1-hour Leq noise contours were calculated for construction activities, including train corridors and stations. The construction noise limits are normally assessed at the noise-sensitive receiver property line.

Table 3-1.17
General Assessment Criteria for Construction Noise

Land Use	One-Hour Leq (dBA)	
	Daytime	Nighttime
Residential	90	80
Commercial	100	100
Industrial	100	100

Source: FTA 2006
 Leq equivalent sound level

The construction noise impact assessment used the general assessment methodology described in the FTA Guidance Manual. For this analysis, construction equipment for the rail corridor and stations are based on general assumptions for railroad construction. The construction noise methodology includes the following:

- Noise emissions from equipment expected to be used by contractors for corridor and station construction.
- Typical railroad construction equipment expected to be used by contractors.
- Two noisiest pieces of construction equipment per construction phase for corridor and station construction.
- Relationship of the construction operations to nearby noise sensitive receptors.

Table 3-1.17 above lists FTA criteria for the maximum acceptable 1-hour noise levels (Leq) for daytime and nighttime.

Construction Vibration

The FTA Guidance Manual provides the basis for the construction vibration assessment. FTA provides construction vibration criteria designed primarily to prevent building damage, and to assess whether vibration might interfere with vibration-sensitive building activities or temporarily annoy building occupants during the construction period. The FTA criteria include two ways to express

vibration levels – (1) root-mean-square (RMS) VdB for annoyance and activity interference; and (2) peak particle velocity (PPV), which is the maximum instantaneous peak of a vibration signal used for assessments of damage potential.

Table 3-1.18 shows the FTA building damage criteria for construction activity; the table lists PPV limits for four building categories. These limits are used to estimate potential problems that should be addressed during final design.

Table 3-1.18
Construction Vibration Damage Criteria

Building Category	PPV (inch/sec)	Approximate Lv (VdB)
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA 2006

The FTA Guidance Manual provides the methodology for the assessment of construction vibration impact. Typical construction equipment included in the FTA Guidance Manual was used to conduct a quantitative construction vibration assessment where vibration sensitive receptors were within the study area. Criteria for annoyance (see Table 3.-1.17) and damage (see Table 3-1.18) were applied to determine construction vibration impacts.

3.1.7.2 Affected Environment

The affected environment follows the **Preferred Build System Alternative** from West Palm Beach to Miami within the FEC corridor, as well as the **Preferred Build Station Alternatives** for the stations in West Palm Beach, Fort Lauderdale and Miami. This region includes areas and communities within Palm Beach, Broward, and Miami-Dade Counties. These areas are generally densely populated and considered to be urban/noisy suburban.

The **Preferred Build Station Alternative** for each proposed station locations falls within the urban areas of the cities of West Palm Beach, Fort Lauderdale, and Miami. The existing VMF is in Fort Lauderdale. There are no applicable plans or policies for the region as a whole pertaining to noise and vibration within the FEC corridor.

Existing Noise Levels

The entire corridor for the **Preferred Build System Alternative** can be considered to be a highly developed urban region with inherently high ambient noise levels – because of its proximity to CBDs and highways, as well as the existence of a freight rail line within the corridor. Because there is an existing freight rail line and significant highway traffic along the entire FEC corridor within which the **Preferred Build System Alternative** would be located, the existing noise levels were calculated based on the methods in the FTA Guidance Manual rather than measuring existing noise levels along the proposed alignment of the **Preferred Build Project Alternative**. This approach is more practical than monitoring

noise levels at a limited number of locations because of the size and complexity of the noise environment along this 66-mile corridor. The freight train noise with warning horns calculation was based on reference values in the FTA Guidance Manual with the train operational assumptions above.

In general, freight trains would generate 67 dBA Ldn at 50 feet from the rail tracks without horns. The noise level would drop off at a rate of 4.5 dBA per doubling of distance, per the FTA Guidance Manual. The warning horn noise level would be 74 dBA Ldn at 50 feet from the rail centerline within ¼-mile of each grade crossing.

Warning horns would be the dominant noise sources when receptors are near grade crossings. When receptors are not near grade crossings, the dominant noise sources would be passing freight trains, passenger trains, or vehicular traffic.

Existing Vibration Levels

Unlike the FTA noise impact assessment method, train-related vibration impact thresholds are not dependent upon existing ground-borne vibration levels, so the documentation of existing ground-borne vibration levels is not an issue as it is for noise levels.

As a reference, the existing freight train would generate 68 VdB at 50 feet when it is operated at 30 mph. This reference is based on the methodology described in the FTA Guidance Manual.

3.1.7.3 Environmental Consequences

Operations Noise Impacts

Noise impacts would result from the **No-Build Alternative** in that this scenario maintains FECR's operations as a freight provider within the FEC corridor with projected and planned annual growth of 5% to 7% until 2016 and 3% thereafter. Table 3-1.19 lists those impacts expected under the **No-Build Alternative** in 2016 by land use. With the **No-Build Alternative**, noise impacts shall exist because the current, existing noise levels are so high, and current levels of freight activity along the corridor are anticipated to grow and contribute additional noise to the existing environment. These impacts would be encountered regardless of whether the **Preferred Build Project Alternative** were completed.

Table 3-1.19
 Summary of Unmitigated Noise Impact Results
 No-Build Alternative

County	Number of Severe Impact Parcels					Number of Moderate Impact Parcels				
	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational
Miami-Dade	710	492	1	0	0	1,782	998	41	5	0
Broward	2,121	1,195	3	0	0	4,862	2,222	6	20	0
Palm Beach	3,935	1,267	0	0	0	5,952	1,168	0	16	1

Source: URS Corporation, 2012

For the **Preferred Build Project Alternative**, analysts assessed noise impacts for noise sensitive land uses based on a consideration of existing (2012) noise levels as calculated per the FTA Guidance Manual, which requires that impacts are considered based on the cumulative analysis of existing noise levels together with the future project-generated levels resulting from the implementation of the **Preferred Build Project Alternative**.

Table 3-1.20 summarizes potential noise impacts related to the **Preferred Build Project Alternative** by county, without mitigation, during the build-out year (2015).

Table 3-1.20
Summary of Unmitigated Noise Impact Results
Preferred Build Project Alternative

County	Number of Severe Impact Parcels					Number of Moderate Impact Parcels				
	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational
Miami-Dade	428	299	1	8	0	1,974	1,148	41	44	5
Broward	1,155	673	2	23	1	5,708	2,725	7	124	4
Palm Beach	2,432	895	0	16	1	7,241	1,504	0	84	7

Source: URS Corporation, 2012

With that said, the actual cumulative increase in noise as a result of the **Preferred Build Project Alternative** compared with the **No-Build Alternative** would be less than 1 dBA Ldn at all receivers. Further, all such predicted impacts under both alternatives take into account the effects of horn soundings. As explained in Section 3.1.7.4, however, the impacts of such horns will be significantly reduced, and largely eliminated, through the introduction of stationary wayside horns at affected grade crossings as a committed mitigation measure for severe and unmitigated impacts under the **Preferred Build Project Alternative**. By contrast, there will be no introduction of stationary wayside horns at affected grade crossings under the **No-Build Alternative**, so a reduction in the number of impacted parcels is not expected with the **No-Build Alternative**.

In summary, no significant changes in the cumulative noise environment will result solely from the proposed **Preferred Build Project Alternative** and the expected noise levels therefrom. This is true for many reasons, including the fact that the trains for the **Preferred Build Project Alternative** would be operating on an existing active rail system with high existing and projected levels of noise. Further, the impacts that have been determined pursuant to the FTA guidelines as a result of the existing conditions and proposed **Preferred Build Project Alternative** can be addressed through mitigation, as described in Section 3.1.7.4.

Operations Vibration Impacts

A vibration impact general assessment was conducted based on information in the FTA Guidance Manual. The factors considered in a general assessment include train speed, train-set, track system/support, track structure, propagation characteristics, coupling-to-building foundation, and type of building/receiver location in a building. It should be noted that the general soil type of fine sand and clay was assumed from surveys in the area,³³ which was used to determine the propagation characteristics for the **Preferred Build Project Alternative**. Because any impacts would be relatively close to the tracks, this assumption is appropriate for the level of detail of this analysis

For the operation of the **Preferred Build Project Alternative**, none of the residential buildings in the study area would experience levels exceeding the FTA limits of 80 VdB for ground borne vibration and 43 dBA for ground borne noise. Likewise, no institutional buildings in the study area would experience levels exceeding the FTA limits of 83 VdB and 48 dBA (see Table 3-1.14). Therefore, as the above analysis indicates, none of the alternatives considered within this EA, including the **No-Build Alternative** and **Preferred Build Project Alternative**, would be expected to result in operational vibration impacts.

Stations and VMF Noise Impacts

A total of three proposed stations along the alignment of the **Preferred Build System Alternative** are planned in the cities of West Palm Beach, Fort Lauderdale, and Miami as part of the **Preferred Build Project Alternative**. The **Preferred Build Station Alternative** for each station location is in a highly developed urban area with predicted existing noise levels in the 65 to 70 dBA Ldn range at the closest residences. Noise from each station would include train idling, warning horns, and auxiliary equipment. In addition, the speed of each train would be reduced around the stations when compared to that for a train pass-by.

The dominant noise source near each station will be the warning horn. When a train slows down near a station, train pass-by noise will be reduced. However, the warning horn will be used when a train approaches each station regardless of the train speed. There are no noise- or vibration-sensitive parcels within 500 feet of any of the proposed station sites to be impacted by the station noise, including horn soundings. Therefore, station noise is considered negligible and not included in the impact calculation.

The existing VMF services freight trains currently using the FEC corridor. It will be converted from freight train use to passenger train use with this **Preferred Build Project Alternative** and the freight trains will be serviced at another approved facility outside of this corridor. Specifically, these intermodal operations will be shifted to the state-of-the-art FEC ICTF at Port Everglades being constructed from 2012-2014. See ICTF Renderings in Figure 1-3.6. The number of passenger train movements within the existing VMF will be significantly less than current freight train movements. Therefore, the noise and vibration from the VMF made part of the **Preferred Build Project Alternative** will be less than that for the existing VMF. In addition, the nearest sensitive receptor is located more than 1,000 feet from the existing VMF and would not be impacted.

³³ U.S. Department of Agriculture, Natural Resources Conservation Service, National Cooperative Soil Survey database, February 2010.

As the above analysis indicates, the **Preferred Build Project Alternative** would not be expected to result in noise or vibration impacts at or around the **Preferred Build Station Alternatives**, including the VMF.

Traffic Noise Impacts

While traffic conditions will change for the roadways around the proposed stations, there are no new major roadways or roadway expansions anticipated for the proposed **Preferred Build Project Alternative**. Because the proposed **Preferred Build Station Alternatives** are located in busy downtown areas of West Palm Beach, Fort Lauderdale, and Miami, the existing traffic volumes around the station sites are already high. Based on the AADT volumes obtained from the traffic analysis, the existing and projected noise levels from the **Preferred Build Alternative** were calculated by following the FTA Guidance Manual. Table 3-1.21 shows the traffic volumes and associated predicted noise levels around each proposed station. Although 6 stations are listed in Table 3-1.21 to reflect all of the alternatives considered within this EA for the stations, only 1 station will be built in each of the 3 cities. Based on the analysis completed for all alternatives considered within this EA, including the **Preferred Build Station Alternatives**, no traffic noise impacts are expected to be caused by traffic increases around the proposed stations.

Once the VMF operation is converted from freight train to passenger train service, the usage of the VMF is expected to be reduced. Surface vehicular traffic volumes associated with the VMF operations will also be reduced. In addition, the nearest sensitive receiver is more than 1,000 feet from the VMF. For these reasons, no traffic noise impact is expected due to the change in VMF use contemplated within the **Preferred Build Project Alternative**.

Table 3-1.21*
Average Traffic Volumes and Noise Levels around Station Sites

Stations	2012 Average AADT**	2035 Average AADT	2035 Project Only Average AADT	2012 Average Noise Level (Leq dBA)	2035 Average Noise Level (Leq dBA)	2035 Project Only Average Noise Level (Leq dBA)
Miami South	13,812	20,316	1,002	65	67	54
Miami Central	13,812	20,230	1,031	65	67	54
Fort Lauderdale North and South	20,927	31,639	120	67	69	45
West Palm Beach North	13,870	23,047	216	65	67	47
West Palm Beach Central	12,058	20,977	143	65	67	45

Source: URS Corporation, 2012

Notes:

*Each station is located in Activity Category C (developed lands without public parks, open space and recreational areas) and the threshold for impact is 72 Leq dBA (exterior)

**AADT volumes for Miami South and Central Stations are from 2011

Construction Noise Impacts

Based on the construction noise impact criteria described in Table 3-1.17, the threshold noise levels would be 90 dBA Leq for daytime hours (7 AM to 10 PM) and 80 dBA Leq for nighttime hours (10 PM to 7 AM). Noise sensitive receptors within 45 feet of construction activities would be potentially impacted during daytime hours and those within 145 feet would be potentially impacted during nighttime hours. Table 3-1.22 summarizes these impacts.

Table 3-1.22
Summary of Unmitigated Construction Noise Impact Results

County	Potential Daytime Impacts					Potential Nighttime Impacts				
	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational
Miami-Dade	0	0	0	0	0	64	69	0	0	0
Broward	0	0	0	0	0	56	38	0	0	0
Palm Beach	1	0	0	0	0	226	147	0	0	0

Source: URS Corporation, 2012

Only one possible severe impact has been identified as a result of the analysis conducted pursuant to the FTA guidelines. As explained in Section 3.1.7.4, however, any such impact will be addressed through the introduction of committed mitigation measures under the **Preferred Build Project Alternative** such that no significant impact would result.

Construction Vibration Impacts

During construction, some equipment may cause perceptible ground-borne vibrations, most notably pile-driving equipment. If pile driving is used for the **Preferred Build Project Alternative**, it would only be for station construction. Construction equipment can produce vibration levels at 25 feet that range from 58 VdB for a small bulldozer to 112 VdB for a pile driver. Because there are receptors within the screening distances identified for construction vibration impact criteria in the FTA guidelines, the potential for vibration impacts during construction exists. These potential impacts would mostly depend on the locations of pile driving equipment (if used) associated with station construction. As explained in Section 3.1.7.4, such an impact (if any) would be addressed through the introduction of committed mitigation measures under the **Preferred Build Project Alternative** such that no significant impact would result.

3.1.7.4 Mitigation Measures

FTA guidance requires the consideration of mitigation measures for all severe impacts. The FTA 2006 impact assessment guide has guidelines that will be followed during construction. The following mitigation measures will be followed to address impacts that cannot be minimized or avoided by other means.

Operations Noise Mitigation Measures. Warning horns on the trains have been calculated to generate impacts resulting from the *Preferred Build Project Alternative*, as summarized in Table 3-1.20. If these impacts are not mitigated by separate action (such as efforts that may be undertaken independently by others), AAF is committed to mitigating these impacts with the installation of stationary wayside horns at the required grade crossings where severe, unmitigated impacts exist. Table 3-1.23 shows the significant mitigating effect of these measures in eliminating impacts from the *Preferred Build Project Alternative*.

Table 3-1.23
Summary of Mitigated Noise Impact Results
Preferred Build Project Alternative with Stationary Grade-Crossing Horns

Counties	Number of Severe Impact Parcels					Number of Moderate Impact Parcels				
	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational	Residential Single Family	Residential Multi Family	Residential Mobile Home	Institutional	Recreational
Miami-Dade	0	0	0	0	0	5	13	0	1	0
Broward	0	0	0	0	0	13	11	0	2	0
Palm Beach	2	2	0	0	0	106	51	0	3	0

Source: URS Corporation, 2012

Specifically, Table 3-1.23 establishes that 100% of the severe impacts in Broward County and Miami-Dade County would be eliminated by this measure. Further, more than 99% of the severe impacts in Palm Beach County would be eliminated, leaving only 2 single-family residences and 2 multi-family residences near grade crossings affected in that county. Also, this proposed measure would eliminate more than 99% of the moderate impacts in Broward and Miami-Dade Counties, and more than 98% of the moderate impacts in Palm Beach County.

Construction Noise Mitigation Measures. As shown on Table 3-1.22, only one possible severe impact has been identified as a result of the analysis conducted pursuant to the FTA guidelines. Construction noise will be monitored to verify compliance with the relevant noise limits. The contractor will have the flexibility to meet the FTA construction noise limits in the most efficient and cost-effective manner. In that regard, the contractor will have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits.

To meet required noise limits, the following noise control mitigation measures will be implemented, as necessary, for nighttime and daytime:

- Install a temporary construction site sound barrier near a noise source.
- Avoid nighttime construction in residential neighborhoods.
- Locate stationary construction equipment as far as possible from noise sensitive sites.

- Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents.
- Monitor and maintain equipment to meet noise limits.
- Minimize the use of generators to power equipment.
- Limit use of public address systems.
- Limit or avoid certain noisy activities during nighttime hours such as aboveground jackhammering and impact pile driving.

To mitigate noise related to pile driving (if needed), the use of an auger to install the piles instead of a pile driver would reduce noise levels substantially. Further, if pile driving is necessary for station construction, the time of day that the activity can occur will be limited.

Through the foregoing proposed measures, the limited and temporary construction noise impacts from the ***Preferred Build Project Alternative*** would be significantly reduced, and largely eliminated.

Construction Vibration Mitigation Measures. Because there are receptors within the screening distances identified for construction vibration impact criteria in the FTA guidelines, the potential for vibration impacts during construction exists. However, building damage from construction vibration is only anticipated from impact pile driving at very close distances to buildings. If piling occurs more than 25 to 50 feet from buildings, or if alternative methods such as push piling or auger piling can be used, impacts or damage from construction vibration is not expected to occur. Other sources of construction vibration do not generate high enough vibration levels for impacts or damage to occur. In any event, once a construction scenario has been established, preconstruction surveys are conducted at locations within 50 feet of piling to document the existing condition of buildings in case damage is reported during or after construction.

In light of the foregoing proposal to engage in alternative methods such as push piling or auger piling if and to the extent that piling must occur within 25 to 50 feet from existing buildings, impacts or damage from construction vibration are not expected to occur from the ***Preferred Build Project Alternative***.

Related Measures

Efforts by Others. It is important to note that stakeholders in the affected communities are considering the institution of Quiet Zones (which prohibit horns to be sounded in specified areas). Specifically, the City of Miami is in the process of applying for a continuous 4.5 mile Quiet Zone involving 19 grade crossings and the City of Fort Lauderdale is considering applying for Quiet Zones as well. This involves instituting alternate safety measures such as four-quadrant gates and non-mountable median dividers. In addition, supplementary safety measures must be installed and a risk analysis must be prepared to demonstrate that safety would not be compromised by eliminating train horns in the area receiving Quiet Zone designation. AAF will support such efforts to institute such Quiet Zone measures. It should be noted, however, that while AAF is not opposed to the establishment of Quiet Zones and understands that those efforts may be pursued by governmental authorities or others, the implementation of Quiet Zones cannot be proposed as part of the ***Preferred Build Project Alternative***. Instead, the governmental entities or other authorities pursuing these efforts will act as the sponsors of such efforts and will be responsible for the application process and the costs associated therewith, including the costs of any

improvements to be borne in connection therewith. In light of the foregoing, the feasibility of these measures cannot yet be determined.

Another mitigation option that is often considered for these types of projects is the construction of noise barriers. Due to the many (183) grade crossings along the FEC corridor proposed as part of the **Preferred Build Project Alternative** and the fact that horns are required to be sounded within ¼-mile of each grade crossing, access restrictions would make effective noise barriers not feasible for this Project.

Building Insulation. AAF is willing to pursue discussion with homeowners regarding the possibility of installing building insulation for those 4 noise sensitive locations with severe impacts that may not be mitigated by the installation of stationary wayside horns, to the extent such homeowners would be amenable to a cost-effective approach thereto. The feasibility of these measures cannot yet be determined.

Additional Noise Analysis Following Final Design. If final design or final specifications result in changes to the assumptions underlying the noise analysis, the AAF team shall reassess noise impacts and consider recommendations for mitigation, and provide supplemental environmental documentation, as required by FRA.

3.1.7.5 Summary of Potential Project Impacts

Operations Noise Impacts

With the proposed **Preferred Build Project Alternative**, noise impacts are identified in this EA pursuant to the FTA guidelines despite the fact that minimal changes to existing noise levels will actually result from the operation of the **Preferred Build Project Alternative**.³⁴ With regard thereto, it is also important to note that noise and vibration impacts would result from the **No-Build Alternative** in that this scenario maintains FECR's operations as a freight provider within the FEC corridor while projecting growth as noted above. As a result, regardless of whether the proposed **Preferred Build Project Alternative** is completed, noise impacts are expected because the current levels are high.³⁵ In fact, as shown in Tables 3.17 and 3.18, there are 3,790 more severe noise impacts predicted under the **No Build Alternative** due to the continuation and growth of nighttime freight service contemplated within the **No Build Alternative**.

Nevertheless, this EA analysis conducted pursuant to the FTA criteria identifies noise impacts resulting from the **Preferred Build Project Alternative** due in large part to the already high existing levels in the area resulting from the region's proximity to CBDs and highways, as well as the existence of a freight rail line within the proposed FEC corridor. In any case, the predicted unmitigated noise impacts are due almost exclusively to the added warning horns from the **Preferred Build Project Alternative**.

³⁴ Specifically, the cumulative noise levels will not increase by more than 1 dBA over those for the **No Build Alternative** at any noise-sensitive location.

³⁵ For historical perspective, it should also be noted that, in 2006, FECR moved approximately 23 through-freight trains per day over the FEC corridor, in addition to local trains serving customers along the FEC corridor. Today, the number of daily through-freight trains is 10, which means that the noise impacts projected to result from the **No Build Alternative** and/or the **Preferred Build Alternative** are still less than historic impacts encountered in the area.

With the institution of stationary wayside horns at the grade crossings where severe, unmitigated impacts exist, the **Preferred Build Project Alternative** will have no material adverse noise impact on the surrounding communities. To the contrary, the **Preferred Build Project Alternative** would improve the noise conditions in the region because it would include mitigation that would not necessarily be instituted without the implementation of the **Preferred Build Project Alternative**. As shown in Table 3-1.21, all severe impacts in Broward County and Miami-Dade County would be eliminated by this measure and more than 99% of all severe impacts in Palm Beach County would be eliminated. In addition, this proposed measure would eliminate at least 99% of the moderate impacts in Broward County and Miami-Dade County and more than 98% of the moderate impacts in Palm Beach County.

In summary, therefore, with the institution of stationary wayside horns at the grade crossings where severe, unmitigated impacts exist, the **Preferred Build Project Alternative** will have no material adverse noise impact on the surrounding communities.

Operations Vibration Impacts

Due to the distance between the rail activities and the closest vibration-sensitive locations, no vibration-related impacts are anticipated with the **Preferred Build Project Alternative**.

Stations and VMF Noise Impacts

As the above analysis indicates, the **Preferred Build Project Alternative** would not be expected to result in noise or vibration impacts at or around the **Preferred Build Station Alternatives**, including the VMF.

Traffic Noise Impacts

As outlined above, noise produced by **Preferred Build Project Alternative**, including noise produced by traffic changes associated with operation of the **Preferred Build Station Alternatives** and the VMF, is not anticipated to cause significant impacts due to the already existing high ambient noise environment and lack of sensitive receptors in the impact range in the study area of the **Preferred Build Station Alternatives**. There are, therefore, no significant noise impacts anticipated under the **Preferred Build Project Alternative**.

Construction Noise Impacts

Because the construction noise mitigation measures found in Section 3.1.7.4 will be followed for the construction of the **Preferred Build Project Alternative**, no noise impacts will result from the implementation of the **Preferred Build Project Alternative**.

Construction Vibration Impacts

In light of the foregoing analysis showing that the operation of the **Preferred Build Project Alternative** is not expected to result in impacts exceeding FTA limits for residential buildings in the study area or for institutional buildings in the Project Area (see Table 3-1.16), there are no significant vibration impacts expected from operations or construction of the **Preferred Build Project Alternative**.

3.2 Biological Environment

For purposes of this EA, the Biological Environment will be defined as those concerns related to the natural environment. These include ecological systems and threatened and endangered species.

3.2.1 Ecological Systems

Existing upland and wetland vegetative communities within the Project Area were identified through literature reviews, existing maps, a field visit, and aerial photography, including Florida Natural Areas Inventory – Florida Land Managed Areas and South Florida Water Management Land Use Mapping. Each natural community was classified using the *FDOT Florida Land Use, Cover, and Forms Classification System* (FLUCCS). Wetland communities are discussed in Section 3.1.5; this section will focus on the terrestrial communities identified.

Ten terrestrial communities, primarily natural, are located adjacent to the Project Area limits. Many terrestrial community types, especially those minimally altered by land use changes or natural fire suppression, support wildlife and plant species. Table 3-2.1 presents the list of terrestrial communities identified adjacent to the Project Area limits.

**Table 3-2.1
 Existing Natural Communities Adjacent to the Project Area Limits**

FLUCCS Code	Description
200	Agriculture
223	Other Groves
300	Rangeland
320	Upland Shrub and Brushland
400	Upland Forests
413	Sand Pine
420	Upland Hardwood Forests
422	Brazilian Pepper
434	Upland Mixed Coniferous – Hardwood
437	Australian Pine

Agriculture

Although altered by human activity, some agricultural lands (FLUCCS 200) provide suitable habitat for many protected wildlife species, but few protected plant species. In particular, natural communities, which have been transformed into groves still may provide habitat for many native species of wildlife. This land use/habitat type is located along the western border of the FEC ROW between SE 26th Avenue and SW 27th Place in Boynton Beach (Palm Beach County).

Rangelands

Rangelands (FLUCCS 300) are native habitats that lack tree cover. These habitats can either support a groundcover mostly of grasses and forbs or saw palmetto (*Serenoa ripens*) and shrubs may dominate. Some protected wildlife species (e.g., burrowing owls) depend on the native habitats in rangeland. This land cover/habitat type is located within the Seacrest Scrub Natural Area in Boynton Beach (Palm Beach County).

Forested Uplands

Forested communities (FLUCCS 400) are represented by five distinct FLUCCS codes adjacent to the Project Area limits. However, the majority of forest types adjacent to the Project Area limits are Sand Pine (FLUCCS 413) and Upland Hardwood Forests (420). This land cover/habitat is located adjacent to the Project limits (see Figure 3-2.1) throughout portions of Miami-Dade, Broward and Palm Beach Counties, including:

- Hypoluxo Scrub Natural Area (Lantana): This 91.76 acre site is owned and managed by Palm Beach County. This site is mostly scrub and scrubby flatwoods. Most of the site was cleared in the early 1960s and the natural communities are still in the process of regenerating. A small Florida scrub-jay population lives on this site and also uses several nearby smaller scrub sites.
- Seacrest Scrub Natural Area (Boynton Beach): This 53.69 acre site is owned and managed by Palm Beach County. This site is predominantly scrub and scrubby flatwoods. Most of it was cleared in the 1920s for pineapple farming and the natural communities are still in the process of regenerating.
- Leon M. Weekes Environmental Preserve (Delray Beach): This 12 acre site is co-owned by Palm Beach County and the Town of Delray Beach and managed by the Town of Delray Beach. The site is scrub habitat with paved and natural trails. The old sand pine scrub burned in late 1990s near the railroad and now is mostly occupied by scrub oaks. Gopher tortoise burrows are found on the property.
- Rosemary Ridge Preserve (Boca Raton): This 7.29 acre site is owned and managed by the City of Boca Raton. The site consists of xeric sand pine scrub.
- Gopher Tortoise Preserve (Boca Raton): This 8.8 acre site is owned and managed by the City of Boca Raton. The site consists of xeric sand pine scrub.

- Highland Scrub Natural Area (Pompano Beach): This 34.27 acre site is owned and managed by Broward County. The site consists of scrub oak and sand pine and is considered one of Broward's last substantial remaining sand pine scrub communities. The site is characterized by loose white sand with a canopy of sand pine and scrub oak and a subcanopy of saw palmetto, small scrub oaks, gopher apple, and prickly pear cactus. A gopher tortoise was identified on site during field visits.
- Colohatchee Park (Wilton Manors): This 7.21 acre site is owned and managed by the City of Wilton Manors. The site consists of a mangrove preserve along the Middle River dominated by red and white mangroves.
- Greynolds Park (North Miami Beach): This 240.75 acre site is owned and managed by Miami-Dade County. Once the site of a rock quarry, the site consists of a variety of habitats, including 1 acre of pineland, 18 acres of hammock, 26 acres of coastal habitat, and 31 acres of lake. The hammock is one of the last well-protected natural areas of northern Miami-Dade County.
- Oleta River State Park (North Miami): This 1,032.84 acre site is owned by Trustees of the Internal Improvement Trust Fund and managed by the Florida Department of Environmental Protection. Florida's largest urban park, Oleta River State Park borders the north shore of Biscayne Bay and contains the mouth of the Oleta River. Along the Oleta River, at the north end of the park, a large stand of mangrove forest is present. The bulk of the uplands are dredge spoil, and exotic species are a major problem, but natural vegetation has reclaimed 468 acres of tidal swamp.
- Arch Creek Park (North Miami Beach): This 8.5 acre site is owned and managed by the Miami-Dade County. The site consists of 7 acres of hammock and 1 acre of coastal habitat. The park was created around a natural limestone bridge formation that was once part of an important Indian trail and is designated as a Florida State Historical Preserve.

The **No-build Alternative** would not affect terrestrial ecological systems. No sensitive ecological areas are in the vicinity of the proposed stations; therefore, the **Preferred Build Station Alternatives** will likewise not impact terrestrial ecological systems.

The **Preferred Build System Alternative** also would not impact terrestrial ecological systems because this would only involve the removal of open maintained areas within the existing FEC ROW or disturbed urban areas adjacent to the FEC ROW. Furthermore, where the public lands run parallel to the FEC ROW, there is a 10 – 20 foot maintained roadway/buffer between the inside of the property fence and the natural area. The wildlife inhabitants that possibly occur within these sensitive upland, ecological systems are discussed in more detail in Section 3.2.2, below.

Because no ecologically sensitive areas or systems are located within the proposed Project Area, including the area in the vicinity of the Preferred Build Station Alternatives, as well as the area to be modified within the existing FECR ROW and roadbed for the **Preferred Build System Alternative**, none of the alternatives considered within this EA, including the **No-Build Alternative** and **Preferred Build Project Alternative**, would result in significant impact on existing ecological systems within the Project Area.

3.2.2 Threatened and Endangered Species

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

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

The Florida Fish and Wildlife Conservation Commission (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, FAC, and 68A-27.005, FAC, respectively. The state lists of plants that are designated as endangered, threatened or commercially exploited is administered and maintained by the Florida Department of Agriculture and Consumer Services (FDACS) via Chapter 5B-40, F.A.C.

The Project Area is along an existing FECR rail line. The existing FECR track crosses through or close to a number of different habitat types found along Florida's east coast; however, much of the area is urban in character with limited habitat potential. Between West Palm Beach and Downtown Miami, the AAF study corridor is adjacent to various urban land uses and natural areas/parklands including Biscayne Bay, wetlands, coastal hardwood hammocks, xeric scrub/shrub, and open/vacant land. Direct impacts would be limited to the existing FEC ROW.

Primary wildlife issues that could be associated with this Project include: potential effects to listed species and their habitat from construction of the track replacement, station construction, and the potential for increased wildlife mortality due to collisions with higher speed trains. An Endangered Species Biological Assessment (ESBA) Technical Memorandum was prepared in July 2012 and is included in Appendix H.

Methodology

The potential involvement with listed species and critical habitat was determined through field surveys and a review of existing data and literature from the US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Florida Fish and Wildlife Conservation Commission (FWC), and other agencies. Literature and data used included:

- USFWS South Florida Field Office's Listed Species along the corridor in Palm Beach, Broward and Miami-Dade Counties generated by their on-line Information, Planning, and Conservation (IPaC) decision support system ,
- USFWS's South Florida Multi-Species Recovery Plan,
- USFWS National Wetlands Inventory (NWI) database,
- FWC's Florida's Endangered Species, Threatened Species and Species of Special Concern,

- Florida Natural Areas Inventory (FNAI)'s Tracking List for Palm Beach, Broward and Miami-Dade County,
- FNAI's Online Biodiversity Matrix Mapper,
- FNAI's Online Field Guide to Rare Plants and Animals of Florida, and
- SFWMD Land Use Maps based on the FDOT Florida Land Use, Cover Classification System (FLUCCS).

Other databases and Geographic Information System (GIS) datasets managed by USFWS and FWC were used to identify known locations of listed species and potential listed species habitat occurring within or near the Project Area. Databases reviewed included information on designated critical habitat, species consultation areas, scrub jay habitat, bald eagle nests, wood stork nests, wading bird nests, and indigo snake occurrences.

Qualified personnel conducted field reconnaissance and aerial photo interpretation throughout the study area to identify areas of potential habitat for protected species. Field surveys were conducted in July 2012 to determine if the Project Area contains habitat for previously identified listed species, to observe the presence of wildlife using the corridor, and to determine if any previously unidentified listed species occur in the area.

Wildlife species observed during field visits were limited and involved species adapted to urban environments, including a raccoon (*Procyon lotor*), boat-tail grackles (*Quiscalus major*), northern mockingbirds (*Mimus polyglottos*), mourning doves (*Zenaida macroura*), white ibis (*Eudocimus albus*), osprey (*Pandion haliaetus*), black-hooded parakeets (*Nandayus nenday*), red-shouldered hawk (*Buteo lineatus*), northern cardinal (*Cardinalis cardinalis*), green iguana (*Iguana iguana*), red-eared slider (*Trachemys scripta elegans*), southern black racer (*Coluber constrictor priapus*), striped mullet (*Mugil cephalus*), mangrove snapper (*Lutjanus griseus*), and land crabs (*Cardisoma guanhumi*).

State Listed Species

A state listed threatened gopher tortoise (*Gopherus polyphemus*) was observed in the Highland Scrub Natural Area adjacent to the rail corridor along with several burrows at other pine scrub locations.

Federally Listed Species

Since the Project travels through a highly urbanized area within Palm Beach, Broward, and Miami-Dade Counties, and any direct impacts would be limited to the existing right-of-way, the proposed Project has little potential to significantly impact wildlife and habitat. The Official USFWS Species list generated with the IPaC on-line system identified 56 endangered and threatened plant and animal species that may occur within the general project vicinity (see ESBA in Appendix H). The habitat requirements and known locations of most of the species identified in the IPaC on-line system indicate that these species will not be found within or adjacent to the Project Area. Furthermore, the area surrounding the Project Area is almost entirely developed or previously impacted and the amount of natural area proposed to be affected is minimal.

State and federally protected species that may occur along the Project Area are included in Table 3-2.2 along with the potential for occurrence within or near the Project Area based on the USFWS species list,

species consultation areas, and/or available habitat. Although recently delisted, this list includes the bald eagle since it is undergoing continued monitoring and is federally protected under the Bald and Golden Eagle Protection Act. None of the plant species observed within the Project Area during field visits are designated Endangered or Threatened by the USFWS. Similarly, no federally designated wildlife species listed in the table were encountered during field visits to the Project Area. Some of the birds listed may forage within the vicinity of the Project Area but are unlikely to nest there.

Table 3-2.2
Federal and State Listed Species Potentially in Project Area

Common Name	Scientific Name	Federal Status	State Status	Potential Occurrence
Fish				
Mangrove Rivulus	<i>Rivulus marmoratus</i>	N/A	SSC	Low
Smalltooth Sawfish	<i>Pristis pectinata</i>	E	E	Low
Reptiles				
American Alligator	<i>Alligator mississippiensis</i>	T (S/A)	T (S/A)	Moderate
American Crocodile	<i>Crocodylus acutus</i>	T	T	Moderate
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T	Moderate
Green Sea Turtle	<i>Chelonia mydas</i>	E	E	Low
Gopher Frog	<i>Lithobates capito</i>	N/A	SSC	Moderate
Gopher Tortoise	<i>Gopherus polyphemus</i>	N/A	T	High
Hawksbill Sea Turtle	<i>Eretmochelys imbricate</i>	E	E	Low
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	E	E	Low
Loggerhead Sea Turtle	<i>Caretta caretta</i>	T	T	Low
Rim Rock Crowned Snake	<i>Tantilla oolitica</i>	N/A	T	Low
Birds				
Bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted	Delisted	Low
Everglades Snail Kite	<i>Rostrhamus sociabilis plumbeus</i>	E	E	Low
Florida Burrowing Owl	<i>Athene cunicularia floridana</i>	N/A	SSC	Moderate
Florida Scrub-jay	<i>Aphelocoma coerulescens</i>	T	T	High
Kirtland's Warbler	<i>Dendroica kirtlandii</i>	E	E	Low
Piping Plover	<i>Charadrius melodus</i>	T	T	Low
Little blue heron	<i>Egretta caerulea</i>	N/A	SSC	High
Red Knot	<i>Calidris canutus rufa</i>	C	N/A	Low
Snowy egret	<i>Egretta thula</i>	N/A	SSC	High
Tricolored heron	<i>Egretta tricolor</i>	N/A	SSC	High
White ibis	<i>Eudocimus albus</i>	N/A	SSC	High
Wood stork	<i>Mycteria Americana</i>	E	E	Moderate

Mammals

Florida Bonneted bat	<i>Eumops floridanus</i>	C	T	Low
Florida mouse	<i>Podomys floridanus</i>	N/A	SSC	Low
Southeastern Beach Mouse	<i>Peromyscus polionotus niveiventris</i>	T	T	Moderate
West Indian Manatee	<i>Trichechus manatus</i>	E/CH	E/CH	High

Plants

Bahama Brake	<i>Pteris bahamensis</i>	N/A	T	Moderate
Bahama Sachsia	<i>Sachsia polycephala</i>	N/A	T	Low
Banded Wild-pine	<i>Tillandsia flexuosa</i>	N/A	T	Moderate
Blodgett's Wild-mercury	<i>Argythamnia blodgettii</i>	N/A	E	Low
Celestial Lily	<i>Nemastylis floridana</i>	N/A	E	Low
Christmas Berry	<i>Crossopetalum ilicifolium</i>	N/A	T	Low
Clamshell Orchid	<i>Encyclia cochleata var. triandra</i>	N/A	E	Low
Coastal Vervain	<i>Glandularia maritima</i>	N/A	E	Low
Cutthroat Grass	<i>Panicum abscissum</i>	N/A	E	Low
Eaton's Spike Moss	<i>Selaginella eatonii</i>	N/A	E	Low
Florida Lantana	<i>Lantana depressa var. depressa</i>	N/A	E	Low
Florida Royal Palm	<i>Roystonea elata</i>	N/A	E	Low
Giant Orchid	<i>Pteroglossaspis ecristata</i>	N/A	T	Low
Golden Leather Fern	<i>Acrostichum aureum</i>	N/A	T	Moderate
Johnson's Seagrass	<i>Halophila johnsonii</i>	T/CH	T/CH	Low
Large-flowered Rosemary	<i>Conradina grandiflora</i>	N/A	T	Moderate
Lignum-vitae	<i>Guaiacum sanctum</i>	N/A	E	Low
Nodding Pinweed	<i>Lechea cernua</i>	N/A	T	Low
Pine Pinweed	<i>Lechea divaricata</i>	N/A	E	Moderate
Pineland Jacquemontia	<i>Jacquemontia curtissii</i>	N/A	T	Low
Porter's Broad-leaved Spurge	<i>Chamaesyce porteriana</i>	N/A	E	Low
Redmargin Zephyrlily	<i>Zephyranthes simpsonii</i>	N/A	T	Low
Rockland Painted-leaf	<i>Euphorbia pinetorum</i>	N/A	E	Low
Sand-dune Spurge	<i>Chamaesyce cumulicola</i>	N/A	E	Moderate
Small's Flax	<i>Linum carteri var. smallii</i>	N/A	E	Low
Tiny polygala	<i>Polygala smallii</i>	E	E	Low
Two-keeled Helmet Orchid	<i>Galeandra bicarinata</i>	N/A	E	Low
West Indies Mahogany	<i>Swietenia mahagoni</i>	N/A	T	Moderate

Table Notes:

- E = Endangered
- T = Threatened
- T(S/A) = Threatened - Similarity of Appearance
- SSC = Species of Special Concern
- C = Candidate
- CH = Critical Habitat

Potential to Affect

The proposed Project is expected to have “No Effect” on those species identified in Table 3-2.2 with a low potential of occurrence within the Project Area due to specific habitat requirements and known ranges.

The following section discusses the potential effect, if any, the proposed Project may have on those federally listed species with a moderate to high potential to be found within the Project Area. Additional species information may be found in the ESBA included in Appendix H.

American Alligator (*Alligator mississippiensis*)

The American alligator is classified as Threatened due to Similarity of Appearance (to the endangered American crocodile) by the USFWS. Though once listed as Endangered, the population has rebounded to the point that it is widespread and often encroaches into urban waterways. The American alligator inhabits most permanent bodies of fresh water statewide, including marshes, swamps, lakes, and rivers. It occasionally wanders into brackish and salt water but rarely remains there.

The American alligator has a moderate potential of occurrence in canals and other waterbodies within the Project Area; however, there will be no construction within the waterways and no loss of available American alligator habitat. During the design and permitting phase of the proposed project, a wildlife survey will be conducted to determine if any American alligators are routinely using any of the areas proposed for construction. If so, all efforts to avoid impacts to the alligator will be considered. Therefore, the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, are anticipated to have “No Effect” on the American alligator or its preferred habitat.

American crocodile (*Crocodylus acutus*)

The American crocodile is listed as endangered by the USFWS. The American crocodile inhabits coastal estuarine marshes, tidal swamps, and creeks along edges of mainland and islands and is usually associated with mangroves. Nesting occurs on beaches, stream banks, and levees in April and May. The American crocodile is typically found in coastal waters at the southern end of the Florida peninsula. Breeding occurs from southern Biscayne Bay west to Cape Sable, as well as on Key Largo and some islands in Florida Bay. The crocodile occasionally wanders into the Lower Keys as well as northward up to Broward Counties.

The southern half of the Project Area lies within the USFWS Consultation area for the crocodile; therefore, the American crocodile has a moderate potential of occurrence within the Project Area. However, due to the high level of urbanization within the corridor and lack of suitable habitat, the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, are anticipated to have “No Effect” on the American crocodile or its preferred habitat.

Eastern Indigo Snake (*Drymarchon corais couperi*)

The eastern indigo snake is listed as threatened by the USFWS. The eastern indigo snake is the largest of all North American snakes and is easily recognized by its size and distinctive iridescent black coloration. Today the range of the indigo snake covers all of Florida and southern Georgia, though historically it was much larger. It is rare in most areas, though it has been recorded in many public lands statewide. It is uncertain whether most of these areas support viable populations.

No eastern indigo snakes have been documented in the vicinity of the Project Area. Within the Project Area, habitat capable of supporting indigo snakes is limited to the adjacent scrub pine and scrub oak areas. It is unlikely that indigo snakes are present within the Project Area since any supporting habitat is isolated fragments of natural habitat surrounded by developed urban land. Snake burrows were not observed during site visits.

Although the presence of the indigo snake is unlikely, project construction could potentially impact this species during heavy equipment usage should the snake occur within the existing FEC ROW. Due to the frequency of disturbance within these areas, only transient use of the Project Area would be expected by indigo snakes. Therefore to avoid conflicts between this snake and construction, the USFWS *Standard Protection Measures for the Eastern Indigo Snake*, will be incorporated into the construction plans and specifications.

The USFWS's *Eastern Indigo Snake Programmatic Effect Determination Key* was consulted and a determination of "Not Likely to Adversely Affect" was achieved for the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, due to the following findings and commitments:

- There is adjacent suitable habitat of less than 25 acres along within the Project boundaries;
- AAF commits that the USFWS *Standard Protection Measures for the Eastern Indigo Snake* will be employed during project construction;
- any required permits will be conditioned that all gopher tortoise burrows will be excavated prior to site manipulation in the vicinity of the burrow; and
- suitable holes will be inspected each morning before site activities.

Florida Scrub Jay (*Aphelocoma coerulescens*)

The USFWS list the Florida scrub-jay as threatened due to loss, fragmentation, and degradation of scrub habitats throughout Florida. The scrub-jay is a relict species of fire-dominated oak scrub habitat that occurs on well drained sandy soils in peninsular Florida. Scrub-jays are extremely habitat-specific, sedentary, and territorial. Florida scrub-jays form family groups; fledglings remain with their parents in their natal territory as helpers.

The scrub-jay can be found in coastal and ridge scrub areas throughout central Florida but were never considered abundant on the Atlantic coast south of Martin County. There are three defined classes of scrub-jay habitat:

- Type I – any upland plant community in which percent cover of the substrate by scrub oak species is 15 percent or more.
- Type II – any plant community, not meeting the definition of Type I habitat, in which one or more scrub oak species is represented.
- Type III – any upland or seasonally dry wetland within 400 m (0.25 mi) of any area designated as Type I or II habitats.

The proposed Project Area lies along the eastern edge of the USFWS consultation area for scrub jays within Palm Beach County with suitable habitat adjacent to the corridor in five locations: Hypoluxo Scrub Natural Area (Type I), Seacrest Scrub Natural Area (Type II), Leon Weekes Environmental Preserve (Type II), Rosemary Ridge Preserve (Type II), and Gopher Tortoise Preserve (Type II). In addition, scrub jays have been documented in the Hypoluxo Scrub Natural Area adjacent to the corridor and several other areas along the corridor. Although scrub jays have a high potential to occur within the vicinity of the Project Area, no scrub jay habitat is within the area of proposed improvements. Thus, because construction and operation of the proposed Project will not significantly impact scrub jay habitat and the use of currently available habitat by scrub jays is anticipated to remain the same, the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, are “Not Likely to Adversely Affect” scrub jays or their preferred habitat.

Wood Stork (*Mycteria Americana*)

The wood stork is a gregarious species which nests in colonies (rookeries), and roosts and feeds in flocks, often in association with other species of long-legged water birds. The US wood stork nesting population is listed as endangered by the USFWS.

Wood storks use freshwater and estuarine wetlands as feeding, nesting, and roosting site. The wood stork forages mainly in shallow freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures and ditches, where they are attracted to falling water levels that concentrate food sources (mainly fish). Although wood storks are not habitat specialists, their needs are exact enough, and available habitat is limited enough, so that nesting success and the size of populations are closely regulated by year-to-year differences in the quality and quantity of suitable habitat. Wood storks are especially sensitive to environmental conditions at feeding sites; thus, birds may fly relatively long distances, either daily or between regions annually, seeking adequate food resources. All available evidence suggests that regional declines in wood stork numbers have been largely due to the loss or degradation of essential wetland habitat seasonally important to the species.

The USFWS South Florida Ecological Services Office has established Standard Local Operating Procedures for Endangered Species (SLOPES) for wood storks to provide a tool to assist in determining if an action could adversely affect wood storks. The Core Foraging Area (CFA) is a 30-kilometer (18.6-mile) zone surrounding the colony. The guidelines recommend restrictions in each of the zones that correspond to nesting and non-nesting season cycles.

According to information obtained from the FWC, the entire Project Area within Broward and Palm Beach Counties lies within CFAs of four active wood stork colonies with the closest colony approximately 6.5 miles northwest of the projects northern terminus. Due to the urban nature of the corridor, occurrence of this species within the Project Area would be transitory in nature. Any potential foraging

areas within or adjacent to the Project Area would provide sub-optimal habitat for wood storks due to high noise levels and human activity. Furthermore, there is no evidence of breeding or foraging occurring within the Project Area. Though wood storks may use the waterways adjacent to the Project Area as foraging grounds, the Project will not alter these areas.

The USFWS's programmatic *Wood Stork Effect Determination Key* was consulted and a determination of "Not Likely to Adversely Affect" was achieved for all alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative**, based on lack of impact or alteration to suitable foraging habitat.

In addition, Wood Stork Technical Special Provisions will be incorporated into the contractor's bid documents for use during project construction to further ensure that potential wood stork habitat will be preserved to the maximum extent possible.

Southeastern Beach Mouse (*Peromyscus polionotus niveiventris*)

The southeastern beach mouse is listed as a threatened species by the USFWS. It is one of seven subspecies identified as "beach mice". Historically, the southeastern beach mouse occurred along approximately 174 miles of Florida's east coast barrier islands, from Ponce Inlet, Volusia County to Hollywood, Broward County. However, according to the most recent published literature, this subspecies is currently limited to approximately 50 miles of dune habitat in Volusia County, Brevard County, and within pockets of suitable habitat in Indian River and St. Lucie counties. The beach mouse is believed to have been extirpated from Fort Pierce Inlet, St. Lucie County south through Broward County. However, population data is limited in South Florida and population trends are difficult to determine for the southeastern beach mouse.

Dune vegetation, particularly sea oats (*Uniola paniculata*) within the primary coastal dunes is considered essential habitat of the southeastern beach mouse. This beach mouse has also been reported from sandy areas of adjoining coastal strand vegetation, which refers to a transition zone between the foredune and the inland plant community. Beach mouse habitat is heterogeneous, and distributed in patches that occur both parallel and perpendicular to the shoreline.

The coastal areas of Palm Beach, Broward and Miami-Dade Counties lie within the USFWS's southeastern beach mouse consultation area. However, because the Project Area does not have suitable habitat for the beach mouse and is located south of its current known range, the alternatives considered within this EA, including the **No-Build Alternative** and the **Preferred Build Project Alternative** are expected to have "No Effect" on the southeastern beach mouse or its habitat.

West Indian Manatee (*Trichechus manatus*)

The West Indian Manatee is classified as endangered by the USFWS, and receives further protection under the U.S. Marine Mammal Protection Act of 1972 and the Manatee Sanctuary Act of 1978. Portions of the project in Miami-Dade and Palm Beach Counties lie within designated Critical Habitat for the manatee. Chapter 68C-22.009, 68C-22.010 and 68C-22.025 of the Florida Administrative Code establish Manatee Protection Zones in Palm Beach, Broward, and Miami-Dade Counties, respectively.

The range of the manatee is a function of water temperature. The manatee is confined to Florida coastal, estuarine, and riverine waters during winter months, but during the summer months its range often includes neighboring states. Habitat requirements include warm water, freshwater sources, plentiful aquatic vegetation for foraging and waterways of sufficient depth and width to allow passage. Manatees are frequently found in large congregations at warm water discharge points such as nuclear cooling facilities or natural springs where warm fresh water is abundant and conditions are favorable for vegetative blooms.

The canals and waterways adjacent to the Project Area are accessible to manatees so there is a moderate potential for manatees to occur within the Project Area; however, there is no proposed work within or adjacent to these canals and waterways. Therefore, because none of the alternatives considered within this EA, including the **No-Build** and **Preferred Build Alternatives**, implicate work within waters accessible to manatees and would not directly or indirectly affect manatees, the construction and operation of the Project would have “No Effect” on the manatee or its habitat based on the USACE Manatee Key.

In addition, the *Standard Manatee Conditions for In-Water Work* shall be utilized to ensure protection of the West Indian Manatee during construction of the Project.

State Listed Species

Although the primary purpose of this section is to address potential impacts to species protected under the Federal Endangered Species Act, the following is provided for additional consideration. The Florida Fish and Wildlife Conservation Commission (FWC) maintains the state list of animals designated as endangered, threatened, or species of special concern/ in accordance with- Rules 68A-27.003, 68A-27.004, F.A.C., and 68A-27.005, F.A.C., respectively. The state lists of plants that are designated as endangered, threatened or commercially exploited is administered and maintained by the Florida Department of Agriculture and Consumer Services (FDACS) via Chapter 5B-40, F.A.C. Table 3-2.2 also identifies those state listed species that could potentially be encountered in the vicinity of the Project Area. The alternatives considered within this EA, including the **No-Build** and **Preferred Build Alternatives**, are expected to have “No Effect” on those State-listed species identified in Table 3-2.2 with a low potential of occurrence within the Project Area due to specific habitat requirements and known ranges. The following section discusses species that have been observed in the vicinity of the Project Area.

As indicated previously, State-listed threatened gopher tortoises were detected in the scrub habitats adjacent to the Project Area during recent field visits and the appropriate permits would be required if impacts could not be avoided to gopher tortoise burrows within the Project Area. Fencing is in place along these habitats, limiting the potential for occurrence of gopher tortoise within the Project Area. The State-listed Species of Special Concern gopher frogs (*Lithobates capito*) are predominately found near or within gopher tortoise burrows and, if present, would be protected along with the gopher tortoises.

Likewise, if the State-listed Species of Special Concern burrowing owl (*Athene cunicularia floridana*), which has been observed on several occasions in the vicinity of the Project Area in Broward and Palm

Beach Counties, builds a nest within the Project Area or a construction staging area, a relocation permit may need to be obtained from the FWC if impacts to the nest cannot be avoided.

Several birds listed as Species of Special Concern by the FWC could be encountered within the Project Area, including little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*), tri-color heron (*Egretta tricolor*), and white ibis (*Eudocimus albus*). Though none of these species were seen during field visits, all of them may use the waterways in the vicinity of the Project Area as foraging grounds. Many of these species are accustomed to human activity and any use of the Project Area would be transient. Because none of these species were observed during field visits and the Project will not alter foraging grounds, no impacts are anticipated to any of the above mentioned species as a result of any of the alternatives considered within this EA, including the **Preferred Build Project Alternative**.

The location of the nearest wading bird colony/rookery documented by the FWC is located approximately 1.25 miles east of Miami on a spoil island (Bird Key) in Biscayne Bay which is used primarily by the State-listed Species of Special Concern brown pelicans (*Pelecanus occidentalis*) and great egrets (*Ardea alba*). In light of this distance, no impacts to wading bird colonies are anticipated as a result of the alternatives considered within this EA, including the **Preferred Build Project Alternative**.

Although the State-listed threatened West Indian mahogany was observed along the Project Area as planted landscaping, no natural populations exist along the Project Area. No other State-listed plant species were observed along the corridor. In light of the foregoing, no impacts to State-listed plant species are anticipated as a result of the alternatives considered within this EA, including the **Preferred Build Project Alternative**.

Wildlife Mortality

The potential of increased wildlife mortality associated with the increase in number of trains and speeds along the rail line was also considered. There are very few studies on extending service on existing rail lines and most data is anecdotal. Several factors impede the collection of reliable data on railway related to wildlife mortality including the relative inaccessibility of railway lines; the lack of experienced individuals to observe, identify, and record railway kills; and the inherent difficulty of identifying and investigating railway wildlife incidents from moving locomotives.

The existing rail is Class IV which will be maintained. There will no change in the current freight train speeds of 60 mph and, although it may travel at speeds of up to 79 mph, the passenger trains will also likely average around 60 mph. Therefore, the increase in the number of trains and speeds associated with this Project would be minimal and the alternatives considered within this EA, including the **Preferred Build Project Alternative**, are not expected to result in a significant increase of wildlife mortality. The trains would be operating on an existing active rail system and wildlife along this corridor is acclimated to the presence of trains. Although there are no dedicated wildlife crossings, overpasses, or underpasses, there are a number of drainage pipes, bridges, and culverts along the corridor that provide the opportunity for animals to cross the track. Furthermore, natural areas that have the greatest potential for wildlife that may traverse the tracks are currently fenced, minimizing unwanted crossings. These structures would remain in place during and after construction.

The Project Area lies within a highly developed area and wildlife mortality has not been a documented issue along the rail line. It is anticipated that wildlife mortality would not significantly increase as a result of the proposed Project; however, if wildlife mortality becomes an issue as a result of the Project, there are mitigation strategies that can be implemented by AAF. Mitigation strategies available to help reduce the potential for wildlife mortality due to train crossings include the following:

- concentrating on identified problem areas;
- instructing train crews to report wildlife incidents;
- removing carcasses from right-of-way to reduce scavenging;
- removing spilled attractants (e.g., grain) in a timely manner;
- reducing attractant vegetation on right-of-way; and
- sharing data among jurisdictions.

AAF is committed to these mitigation measures to address any significant, unmitigated, impacts that may arise with respect to wildlife mortality as a result of the Project, if any.

Determination

The Project Area has been largely developed leaving little habitat capable of supporting protected species. Specific habitat requirements for most of the identified listed species preclude their presence within the Project Area. Other species that might have historically been present within the vicinity of the Project Area, are now gone because urban development has replaced all suitable habitat. For the few protected species (primarily birds) that might occur within the Project Area, their presence is likely to be transient in nature. No designated critical habitat is located within the Project Area, including areas of proposed improvements along all alternatives considered under this EA, such as the Project Area for the ***Preferred Build System Alternative*** and the ***Preferred Build Station Alternatives***.

Specifically, the ***Preferred Build Station Alternatives*** would be predominantly in developed upland areas with limited habitat availability with no significant species involvement. Further, the ***No-Build Alternative*** and ***Preferred Build System Alternative*** would not have significant impact to federal- or state-listed or proposed threatened or endangered species because all work will be within the existing FEC ROW and no bridge improvements are proposed directly within any waterbodies or waterways and because specific measures discussed above will be implemented for any significant, unmitigated impacts that may result, if any, with regard to wildlife mortality. Furthermore, species-specific special provisions will be incorporated into the construction documents to minimize potential impacts to identified listed species.

No adverse effects to individuals or to regional populations of federally or state-listed species are anticipated as a result of construction or operation of the Preferred Build Project Alternative and the proposed Project is consistent with the Endangered Species Act.

Based on these results, USFWS concurrence shall be requested in October 2012 with a determination of no adverse effect by letter. If any federal or state-listed species are affected, the appropriate standard provisions permit conditions and/or mitigation will occur in consultation with USFWS and FWC. As such, the Preferred Build Project Alternative is not anticipated to have significant impacts to any State or Federally listed threatened or endangered species.

3.3 Human Environment

For purposes of this document, the Human Environment will be defined as those concerns related to the human, built environment. These include transportation, land use, environmental justice, barriers to the elderly and handicapped, public health and safety, contaminated sites and hazardous materials, cultural resources, Section 4(f) and recreational resources, municipal service, energy resources and aesthetics.

3.3.1 Transportation

The potential for transportation impacts has been evaluated for both rail transportation networks, regional roadway transportation networks, and local roadway transportation networks. All tables that appear in this section along with further detail can be found in Appendix I – Transportation.

3.3.1.1 Rail Transportation

The proposed Project is approximately 70 miles long following an existing, privately-owned ROW between West Palm Beach and Miami. The existing freight train operations consist of 10 through-freight trains per day, in addition to 4 local freight trains, with each train approximately 8,800 feet in length within the Project Area. Passenger rail service currently does not exist within the FEC corridor; however, Tri-Rail operates in a separate corridor west of the FEC corridor. The Tri-Rail system operates between West Palm Beach and Miami but does not directly service the central business districts (CBDs) of Miami, West Palm Beach, and Fort Lauderdale. The characteristics of the proposed AAF Project are significantly different from the Tri-Rail in terms of speeds, travel times, frequency, number of stops and target patrons and service areas. The proposed AAF Project would have passenger service trains traveling at an average of 60 mph, would have only three stations, and would have a maximum frequency of one train per hour per direction. The frequency and types of service for 2006 base year, the 2015 opening year and the 2035 build out year are shown in Table 3-3.1. As shown in Table 3-3.1, the operational characteristics, such as speed of the freight trains, are expected to improve which, in turn, would decrease the time needed for trains to clear a railroad crossing.

The **No-Build Alternative** would not significantly impact rail transportation within the Project Area. As defined above, the **No-Build Alternative** has been analyzed as a system that will maintain the existing infrastructure without the introduction of the proposed passenger train service. It includes freight trains only (freight local and through), including the expected growth in freight based on the understanding that the frequency and/or length of the trains would be adjusted to meet the market demand and expected growth into the future. The **No-Build Alternative** would not be expected to result in any delays or impacts related to construction of stations or other infrastructure required for the proposed Project.

The **Preferred Build Project Alternative** (which, as defined above, includes the **Preferred Build System Alternative** and the **Preferred Build Station Alternatives**) will be designed to have no impact on freight rail transportation system. The provision of a mostly two track new railroad (in place of the existing mostly single track railroad) is likely to enhance freight reliability and capacity, in addition to accommodating the proposed passenger service. Current freight rail operations on the FEC corridor would not be affected by the 16-19 additional daily passenger train round trips because additional

capacity will be gained through the double tracking of the approximately 70-mile corridor. Track construction, improvements and rehabilitation needed to implement the **Preferred Build System Alternative** would be performed according to best management practices to have minimal temporary impacts to existing freight operations during construction.

**Table 3-3.1
 FEC Railroad Crossing Delay Estimates**

FEC RAILROAD CROSSING DELAY ESTIMATES-2006 BASE CONDITION

Service Type	Time to activate and close the gate (Sec)	Length (Feet)	Speed (mph)	Time to Clear (Sec)	Time to bring the gate back up (Sec)	Total time to activate and clear (Sec)	Crossings per Day	Delay per Day (Min)	Maximum crossings per hour	Max delay per Hour (Min)
PALM BEACH										
Freight	30	6750	28.5	161	15	206	27	92.7	2	6.9
BROWARD										
Freight	30	6750	22.6	204	15	249	27	112.1	2	8.3
MIAMI-DADE										
Freight	30	6750	29.5	156	15	201	27	90.5	2	6.7

Note: Freight service includes 4 local freight trains and 23 through freight trains

FEC RAILROAD CROSSING DELAY ESTIMATES-2015 OPENING YEAR CONDITION

Service Type	Time to activate and close the gate (Sec)	Length (Feet)	Speed (mph)	Time to Clear (Sec)	Time to bring the gate back up (Sec)	Total time to activate and clear (Sec)	Crossings per Day	Delay per Day (Min)	Maximum crossings per hour	Max delay per Hour (Min)
PALM BEACH										
Freight	30	8837	30.5	198	15	243	14	56.7	1	4.1
Passenger	30	600	60.1	7	15	52	12	10.4	1	0.9
Total								67.1		5.0
BROWARD										
Freight	30	8837	30.5	198	15	243	14	56.7	1	4.1
Passenger	30	600	60.1	7	15	52	12	10.4	1	0.9
Total								67.1		5.0
MIAMI-DADE										
Freight	30	8837	31.3	192	15	237	14	55.3	1	4.0
Passenger	30	600	60.1	7	15	52	12	10.4	1	0.9
Total								65.7		4.9

Note: Freight service includes 4 local freight trains and 10 through freight trains

FEC RAILROAD CROSSING DELAY ESTIMATES-2035 YEAR CONDITION

Service Type	Time to activate and close the gate (Sec)	Length (Feet)	Speed (mph)	Time to Clear (Sec)	Time to bring the gate back up (Sec)	Total time to activate and clear (Sec)	Crossings per Day	Delay per Day (Min)	Maximum crossings per hour	Max delay per Hour (Min)
PALM BEACH										
Freight	30	12795	39.5	221	15	266	22	97.5	1	4.4
Passenger	30	600	60.1	7	15	52	16	13.9	1	0.9
Total								111.4		5.3
BROWARD										
Freight	30	12795	38.5	227	15	272	22	99.7	1	4.5
Passenger	30	600	60.1	7	15	52	16	13.9	1	0.9
Total								113.6		5.4
MIAMI-DADE										
Freight	30	12795	33.2	263	15	308	22	112.9	1	5.1
Passenger	30	600	60.1	7	15	52	16	13.9	1	0.9
Total								126.8		6

Note: Freight service includes 4 local freight trains and 10 through freight trains

Notes:

1. FRA regulations require 20 seconds to activate and close the gate prior to the train entering the railroad crossing and 10 seconds to bring the gate back up. FDOT uses 30 seconds to activate and close the gate prior to the train entering the railroad crossing and 15 seconds to bring the gate back up. To account for the worst-case scenario, FDOT timings were used in this analysis.
2. Time taken for the train to clear the railroad crossing is calculated using the length of the train and speed of the train.
3. A maximum of two trains would cross per hour (Northbound and Southbound combined)
4. To account for freight growth from 2016 to 2035, a 3% per year growth was assumed. The length of the train was increased 3% per year to account for this growth. The number of trains was kept constant.

Restored double track and new crossover and track work would be done using planning and construction practices that would minimize impact on freight or passenger traffic during construction. AAF is aware of similar projects (such as The Union Pacific Railroad in northern California) where the upgrades and double tracking work was completed without any impact to passenger and freight services during construction. AAF intends to follow similar construction techniques to minimize such impacts.

The **Preferred Build System Alternative** would have a positive impact to passenger rail transportation in the FEC corridor by providing new service between West Palm Beach and Miami's CBD with far fewer stops than Tri-Rail (Tri-Rail has about 18 stations where as the proposed FEC service will have just 3 stations). The **Preferred Build Station Alternatives** would not have any impact on the existing freight service because the proposed stations are anticipated to serve passengers only. In summary, therefore, the **Preferred Build Project Alternative** (which includes the **Preferred Build System Alternative** and the **Preferred Build Station Alternatives**) will be designed to have no significant impacts on the existing freight rail transportation system.

3.3.1.2 Regional Roadway Network

A regional roadway network consists of major roadways that serve regional traffic (across counties and states). Freeways, state highways, and county arterials are generally part of a regional transportation network. The primary north-south roadways that serve the vehicular travel between West Palm Beach and Miami are I-95 and Florida's Turnpike. Both the I-95 and Turnpike corridors are already congested and are projected to experience increased delays -- especially during peak hours of travel. US 1 also serves regional traffic along this Project Area and is also heavily congested.

The **No-Build Alternative** has the potential to contribute to future adverse impacts on the I-95 and Florida's Turnpike corridors. Over time, these already congested and physically constrained facilities would only continue to impede the traveling public's ability to move between West Palm Beach and Miami. Under the **No-Build Alternative**, the proposed passenger service would not be available to the residents and tourists of southeast Florida as a travel option.

The **Preferred Build Project Alternative** (which, as defined above, includes the **Preferred Build System Alternative** and the **Preferred Build Station Alternatives**) would have an overall, positive impact on the regional roadway network (especially I-95 and Florida's Turnpike corridors) by providing a new transportation alternative for residents and tourists in southeast Florida that would be easily accessible to residents and visitors to the Florida in the CBDs of West Palm Beach, Fort Lauderdale and Miami. It is anticipated that the traffic on I-95 and the Florida turnpike that parallel the FEC corridor would be reduced if the proposed **Preferred Build Project Alternative** were implemented.

3.3.1.3 Local Vehicular Transportation

Analysis and evaluation of impacts to local vehicular transportation was divided into two distinct scenarios: (1) potential impacts along the corridor at crossings resulting from the **Preferred Build System Alternative**, and (2) potential impacts specific to station locations resulting from the station alternatives considered under this EA, including the **Preferred Build Station Alternatives**. The following sections summarize those findings.

Potential Impacts at Crossings

The **Preferred Build System Alternative** is planned within an area of the FEC corridor that currently crosses 183 roadways at signalized/gated crossings traversing nearly 70 miles and three counties. No new crossings are proposed for construction/operation as part of the **Preferred Build System Alternative**.

To assess the impact of the proposed passenger service on the existing crossings, first the delay estimates at a typical crossing were developed, and then two representative crossings were analyzed in detail for each affected county, for a total of six investigated crossings. These crossings were selected at major arterial roadways that have significant traffic volumes compared to other roadways with railroad crossings. Adjacent signalized intersections within 500 feet from the crossing were also included in the analysis to study the impact of the train crossing event on intersection traffic operations. It is expected that if the impact is minimal at a major arterial crossing (with higher traffic volumes) then the impact would be minimal at minor roadway crossings. Therefore these crossings represent worst-case scenario in terms of traffic delay and LOS.

The methodology and analysis of a typical crossing are based on the following assumptions and are described in detail below:

- Length of the train, speed, and clearance time requirements for closing and opening of the gates at the crossings are based on information from FEC, and in accordance with FRA and FDOT guidelines (See, e.g., 49 CFR 234). Details of train characteristics, frequency and clearance time are provided in Table 3-3.1, above.
- Two railroad crossing events (one passenger and one freight movement) are assumed to take place during the PM peak hour, one in each direction, resulting in two crossings per hour. This constitutes a worst case condition, since the traffic conditions on adjacent roadways would represent the highest delay/congestion during pm peak period.
- Based on the speed, length and clearance time, the proposed passenger train is anticipated to take approximately fifty two (52) seconds to clear the crossing. The freight trains take much longer (anywhere from 237 seconds to 308 depending on the County) to clear the crossing.

Table 3-3.1 also shows how much delay would be caused by freight and passenger trains at a typical crossing such as those being studied based on various parameters. The delay estimates provide comparison by type of service and other operational characteristics for year 2006 and future years 2015 and 2035. The year 2006 only has freight service while the opening year of 2015, and future build-out year of 2035 includes both freight and passenger service. It can be seen from these delay estimates that the delay caused by a passenger train crossing event (52 seconds) is much less than the delay from a freight train crossing event (266-308 seconds). This generalized analysis of a typical crossing is shown in Table 3-3.1.

Study Crossings

Based on the above discussed criteria and parameters, the following major arterials with FEC at-grade crossings were selected to be analyzed:

- **Palm Beach County**
 - Forest Hill Boulevard Crossing
 - Linton Boulevard Crossing
- **Broward County:**
 - Hillsboro Boulevard Crossing
 - Broward Boulevard Crossing
- **Miami-Dade County:**
 - US 1/Biscayne Boulevard Crossing
 - NW 20th Street Crossing

These crossings along with any adjacent intersections to these crossings were analyzed for the opening year of 2015 and the build out year of 2035.

Traffic Data

Traffic data used in this analysis was obtained from Palm Beach County, Broward County, Dade County and FDOT sources. Some counts used in the analysis were conducted by URS in 2010. The opening year (2015) and build out year (2035) traffic volumes were developed by using a 1% per year growth rate from existing counts. It should be noted that most of the Project Area is built out and has experienced either no growth or negative growth in the past 5 years. Therefore this 1% growth assumption represents worst-case future year traffic volumes.

Traffic Operational Analysis:

Capacity analyses for all the crossings and intersections in the Project Area were conducted in accordance with the methodology presented in the Highway Capacity Manual utilizing the Synchro/Simtraffic software, version 7. Level of Service qualitatively relates capacity to operational conditions. LOS ranges from “A” to “F”, with “A” being the best operating condition and “F” being the worst. Generally, LOS “E” or better is considered acceptable for CBDs and developed urbanized areas. LOS for signalized intersections is measured by control or signal delay per vehicle. Table 3-3.2 provides the delay ranges for LOS “A” through “F”.

**Table 3-3.2
 Level of Service (LOS) Criteria**

Level of Service	Delay (seconds/vehicle)
A	<10
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	> 80.0

Source: Highway Capacity Manual (HCM) 2000

For this analysis of the Project the selected six intersections and railroad crossings were analyzed for the p.m. peak hour conditions to represent the maximum traffic volumes during the day. The p.m. peak hour generally takes place between 4:00 p.m. and 6:00 p.m. The crossing operation includes a clearance phase prior to the arrival of the train to clear any queues present on the railway and adjacent approaches. Gates will then be closed and the train crossing event will run. During this phase, the traffic movements not affected by the crossings will continue to operate normally at the adjacent intersections. After the train event, the intersections revert back to normal phase operations for the rest of the peak hour.

The analysis involved following steps:

- The peak hour operations at the crossing were divided in to three cycles. The first cycle represents no train crossing event, second cycle represents freight train crossing event, and the third cycle represents passenger train crossing event. Delay was calculated for each of these cycles and the average delay was calculated as the weighted hourly average delay of the signal cycles with no train crossing, with freight train crossing, and with passenger train crossing. Under this analysis, a typical peak hour would have one freight train crossing, one passenger train crossing, and rest of the hour will have normal signal cycles where there will not be any delay caused by gate closure at the crossing. The no train crossing event delays are included in the average because the delays calculated represent average delay for the peak hour.
- Delays and levels of service were also calculated and reported for the affected cycle when railroad crossings are anticipated to take place. Queue lengths were obtained from 95th percentile queue lengths reported by the Synchro Software. The 95th percentile queue represents the queue length that is not expected to be reached 95% of the time. A similar procedure was applied for estimating queue lengths on the approaches to the rail crossing when the train is present.
- Levels of service (LOS) for the roadways and intersections in the influence area of the crossing was calculated using the weighted average of the delay for all signal cycles during the peak hour with and without the train crossing events. For illustration purposes, the LOS is also presented for the affected cycles when the railroad crossings take place.
- All traffic signals are assumed to have pre-emption capabilities and standard signal coordination in place allowing traffic to clear out and/or hold vehicles until the train clears. The signal operation at adjacent intersections would be coordinated in such a way that they would not be providing green time to movements that approach the crossings. This coordination and preemption would prevent the vehicles from being trapped between the crossing location and the intersection.

Palm Beach County

In Palm Beach County, the at-grade crossings at Forest Hill Blvd. and Linton Blvd. were analyzed for opening year (2015) and the build out year (2035). Results of the analysis are summarized in Table 3-3.3. This table shows detail comparison of delay, LOS, and queuing under normal signal cycle, freight train crossing cycle and passenger train crossing cycle.

Forest Hill Blvd.:

This crossing was analyzed along with the adjacent signalized intersection at Georgia Avenue. As seen in Table 3-3.3, the delay increase between normal signal operation and the weighted average delay including the freight train, and passenger train crossing events for the build out year of 2035 is minimal (3.4 sec/veh) and the intersection would continue to operate at acceptable LOS (LOS E or better) during the peak hour. Also the delay during the passenger train crossing cycle is much less than the delay during the freight train crossing cycle. The analysis results indicate that the impact on the arterial in terms of delay and queuing is limited to the signal cycles immediately following a train crossing event. Such delay and queuing impacts would dissipate as the signal operation returns to normal cycle and the weighted average impact during the peak hour is minimal. Therefore, the ***Preferred Build System Alternative*** is not expected to significantly impact the traffic operations at this crossing. The delay impact was higher in the build out year (2035) compared to the opening year (2015) as the traffic volumes and freight activity grow from 2015 to 2035.

Linton Blvd.:

This crossing is located very close (about 50 feet) to the intersection of Dixie Highway and the crossing. Therefore the crossing and the intersection were analyzed as a single signal operation. As seen in Table 3-3.3, the delay increase between normal signal operation and the weighted average delay including the freight train, and passenger train crossing events for year 2035 is minimal (52.4 sec/veh to 67.4 sec/veh) and the intersection would continue to operate at acceptable LOS (LOS E or better) during the peak hour. Therefore, the ***Preferred Build System Alternative*** is not expected to significantly impact the traffic operations at this crossing. The delay impact was higher in the build out year (2035) compared to the opening year (2015) as the traffic volumes and freight activity grow from 2015 to 2035.

Table 3-3.3
Mainline Railroad Crossing
PM Peak Hour Delay and LOS
Palm Beach County

Forest Hill Blvd Crossing_Opening Year 2015 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Forest Hill Blvd @ Georgia Ave																	
Overall Intersection			11.8	B		54	187.9	F		1	36.6	D		1	15.4		B
EB Approach			8.8	B	150	54	240.4	F	1225	1	33.6	C	275	1	13.4	175	B
WB Approach			10.4	B	175	54	157.6	F		1	35.4	D		1	13.5		B
Forest Hill Blvd @ FEC RR Crossing																	
EB Approach	18,800	4	0.0	A	0	54	106.7	F		1	10.0	B		1	2.1		A
WB Approach			0.0	A	0	54	238.5	F	1200	1	32.8	C	275	1	4.8	25	A

Forest Hill Blvd Crossing_Build Out Year 2035 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Forest Hill Blvd @ Georgia Ave																	
Overall Intersection			13.0	B		53	224.3	F		1	45.8	D		1	17.4		B
EB Approach			10.4	B	225	53	379.4	F	1700	1	47.7	D	375	1	17.8	250	B
WB Approach			11.7	B	225	53	89.4	F		1	39.0	D		1	13.6		B
Forest Hill Blvd @ FEC RR Crossing																	
EB Approach	22,500	4	0.0	A	0	53	224.6	F		1	11.9	B		1	4.3		A
WB Approach			0.0	A	0	53	380.2	F	1700	1	46.4	D	375	1	7.8	50	A

Linton Blvd Crossing_Opening Year 2015 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Linton Blvd @ Dixie Hwy/FEC RR																	
Overall Intersection	30,000	6	37.4	D		33	365.0	F		1	103.1	F		1	48.6		D
EB Approach			28.0	C	275	33	323.0	F	1000	1	81.3	F	400	1	38.0	300	D
WB Approach			41.6	D	350	33	486.9	F	1700	1	80.1	F	475	1	55.4	400	E

Linton Blvd Crossing_Build Out Year 2035 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Linton Blvd @ Dixie Hwy/FEC RR																	
Overall Intersection	35,900	6	52.4	D		33	475.5	F		1	153.8	F		1	67.4		E
EB Approach			39.6	D	400	33	349.3	F	1300	1	120.8	F	500	1	50.8	425	D
WB Approach			56.9	E	525	33	557.6	F	2175	1	119.3	F	600	1	73.0	575	E

Notes:

1. Delay measured in sec/veh;
2. LOS-Level of Service during the PM Peak Hour
3. Queue lengths shown are in feet rounded to nearest 25 feet.
4. To obtain 2015 and 2035 volumes, existing volumes were grown at 3% per year growth rate

Both the crossings analyzed in Palm Beach County are expected to operate at LOS E or better in the year 2035 under the preferred build alternative. There would be no significant impact to traffic operations at these locations as a result of the **Preferred Build System Alternative**.

Broward County

In Broward County, the at-grade crossings at Hillsboro Blvd. and Broward Blvd. were analyzed for the opening year of 2015 and the build out year of 2035. Results of the analysis are summarized in Table 3-3.4. This table shows detail comparison of delay, LOS, and queuing under normal signal cycle, freight train crossing cycle and passenger train crossing cycle.

**Table 3-3.4
 Mainline Railroad Crossing
 PM Peak Hour Delay and LOS
 Broward County**

Hillsboro Blvd Crossing, Opening Year 2015 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Hillsboro Blvd @ FECRR	47,200	6															
Overall Intersection			0.0	A		53	299.2	F		1	28.4	C		1	6.0		A
EB Approach			0.0	A	0	53	233.7	F	1600	1	25.4	C	350	1	4.7	25	A
WB Approach			0.0	A	0	53	353.2	F	2150	1	30.9	C	475	1	7.0	50	A

Hillsboro Blvd Crossing, Build Out Year 2035 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Hillsboro Blvd @ FECRR	56,100	6															
Overall Intersection			0.0	A		53	489.1	F		1	44.8	D		1	9.7		A
EB Approach			0.0	A	0	53	403.3	F	2325	1	29.8	C	450	1	7.9	50	A
WB Approach			0.0	A	0	53	559.8	F	3026	1	57.1	E	675	1	11.2	75	B

Broward Blvd Crossing, Opening Year 2015 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Broward Blvd @ FECRR	59,900	6															
Overall Intersection			0.0	A		52	571.3	F		1	41.3	D		1	11.3		B
EB Approach			0.0	A	0	52	651.0	F	3475	1	52.7	D	925	1	13.0	75	B
WB Approach			0.0	A	0	52	474.4	F	2700	1	27.5	C	600	1	9.3	50	B

Broward Blvd Crossing, Build Out Year 2035 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
Broward Blvd @ FECRR	62,600	6															
Overall Intersection			0.0	A		52	841.0	F		1	93.2	F		1	17.3		B
EB Approach			0.0	A	0	52	943.7	F	4750	1	132.0	C	1225	1	19.9	100	B
WB Approach			0.0	A	0	52	716.0	F	3725	1	45.8	D	900	1	14.1	75	B

Notes:

1. Delay measured in sec/veh;
2. LOS=Level of Service during the PM Peak hour;
3. Queue lengths shown are in feet rounded to nearest 25 feet.
4. To obtain 2015 and 2035 volumes, existing volumes were grown at 1% per year growth rate

Hillsboro Blvd.:

This crossing was as a standalone intersection. As seen in Table 3-3.4, the year 2035 delay at the crossing for normal signal cycle (no train crossing event) is 0.0 sec/veh, and the weighted average delay including the freight train and passenger train crossing events is 9.7 sec/veh and the intersection would operate at acceptable LOS (LOS E or better) during the peak hour. Also the delay during the passenger train crossing cycle is much less than the delay during the freight train crossing cycle. Therefore, the **Preferred Build System Alternative** is not expected to significantly impact the traffic operations at this crossing. The delay impact was higher in the build out year (2035) compared to the opening year (2015) as the traffic volumes and freight activity grow from 2015 to 2035.

Broward Blvd.:

This crossing was as a standalone intersection. The results (shown in Table 3-3.4) were similar to Hillsboro Blvd and impact is expected to be minimal on the peak hour basis and the intersection would continue to operate at acceptable LOS (LOS E or better) during the peak hour.

Both the crossings analyzed in Broward County are expected to operate at LOS E or better in the build-out year of 2035 under the **Preferred Build System Alternative**. There would be no significant impact to traffic operations at these locations as a result of the **Preferred Build System Alternative**.

Miami-Dade County

At-grade crossings at US 1/Biscayne Blvd. and NW 20th St. were analyzed. In Miami-Dade County, the at-grade crossings at US 1/Biscayne Blvd. and NW 20th St. were analyzed for the opening year of 2015 and build out year of 2035. Results of the analysis are summarized in Table 3-3.5. This table shows detail comparison of delay, LOS, and queuing under normal signal cycle, freight train crossing cycle and passenger train crossing cycle.

US 1/Biscayne Blvd.:

This crossing was analyzed along with the adjacent signalized intersection at NE 6th Ave. As seen in Table 3-3.5, the delay increase between normal signal operation and the weighted average delay including the freight train, and passenger train crossing events for year 2035 is minimal (10 sec/veh) and the intersection would continue to operate at acceptable LOS (LOS E or better) during the peak hour. Also the delay during the passenger train crossing cycle is much less than the delay during the freight train crossing cycle. The analysis results indicate that the impact on the arterial in terms of delay and queuing is limited to the signal cycles immediately following a train crossing event. Such delay and queuing impacts would dissipate as the signal operation returns to normal cycle and the weighted average impact during the peak hour is minimal. Therefore, the **Preferred Build System Alternative** is not expected to significantly impact the traffic operations at this crossing. The delay impact was higher in the build out year (2035) compared to the opening year (2015) as the traffic volumes and freight activity grow from 2015 to 2035.

**Table 3-3.5
 Mainline Railroad Crossing
 PM Peak Hour Delay and LOS
 Miami-Dade County**

US 1/Biscayne Blvd Crossing, Opening Year 2015 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
US 1 Biscayne Blvd @ NE 6th St																	
Overall Intersection			14.9	B		38	98.0	F		1	28.4	C		1	17.3		B
NB Approach			11.6	B	200	38	139.0	F	1125	1	21.3	C	275	1	15.0	225	B
SB Approach			18.2	B	125	38	84.1	F		1	25.7	C		1	20.0		B
US 1 Biscayne Blvd @ FEC RR Crossing	18,200	6															
NB Approach			0.0	A	0	38	257.8	F		1	37.2	D		1	7.4		A
SB Approach			0.0	A	0	38	102.2	F	475	1	15.6	B	125	1	2.9	25	A

US 1/Biscayne Blvd Crossing, Build Out Year 2035 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
US 1 Biscayne Blvd @ NE 6th St																	
Overall Intersection			18.0	B		35	370.6	F		1	36.6	D		1	28.0		C
NB Approach			14.4	B	250	35	562.8	F	1850	1	22.9	C	350	1	29.5	300	C
SB Approach			20.3	C	175	35	355.4	F		1	52.8	D		1	30.2		C
US 1 Biscayne Blvd @ FEC RR Crossing	22,700	6															
NB Approach			0.0	A	0	35	808.0	F		1	40.6	D		1	22.9		C
SB Approach			0.0	A	0	35	176.4	F	650	1	16.1	B	150	1	5.2	25	A

NW 20th St Crossing, Opening Year 2015 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
NW 20th St @ Miami Ave																	
Overall Intersection			9.0	A		35	46.3	D		1	20.6	C		1	10.3		B
EB Approach			9.6	A	125	35	132.6	F	775	1	16.3	B	200	1	13.1	150	B
WB Approach			8.6	A	75	35	11.9	B		1	1.6	A		1	8.5		A
NW 20th St @ FEC RR Crossing	6,900	4															
EB Approach			0.0	A	0	35	76.6	E		1	17.2	B		1	2.5		A
WB Approach			0.0	A	0	35	106.7	F	300	1	14.7	B	75	1	3.3	25	A

NW 20th St Crossing, Buildout Year 2035 Conditions

Approach/Movement	AADT	Lanes	Normal Signal Cycle				Freight Train Crossing Cycle				Passenger Train Crossing Cycle				Weighted Average		
			Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	LOS	Queue	Cycles/Hour	Delay	Queue	LOS
NW 20th St @ Miami Ave																	
Overall Intersection			10.6	B		35	199.3	F		1	22.4	C		1	16.0		B
EB Approach			11.8	B	200	35	445.7	F	1500	1	17.1	B	250	1	23.7	225	C
WB Approach			10.1	B	100	35	402.0	F		1	1.7	A		1	20.5		C
NW 20th St @ FEC RR Crossing	8,500	4															
EB Approach			0.0	A	0	35	264.5	F		1	17.2	B		1	7.6		A
WB Approach			0.0	A	0	35	155.8	F	450	1	15.0	B	100	1	4.6	25	A

- Notes:
 1. Delay measured in sec/veh;
 2. LOS=Level of Service during the PM Peak Hour
 3. Queue lengths shown are in feet rounded to nearest 25 feet.
 4. To obtain 2015 and 2035 volumes, existing volumes were grown at 1% per year growth rate

NW 20th St.:

This crossing was analyzed along with the adjacent signalized intersection at Miami Ave. As seen in Table 3-3.5, the delay increase between normal signal operation and the weighted average delay including the freight train, and passenger train crossing events for year 2035 is minimal (5.4 sec/veh) and the intersection would continue to operate at acceptable LOS (LOS E or better) during the peak hour. Therefore, the **Preferred Build System Alternative** is not expected to significantly impact the traffic operations at this crossing. The delay impact was higher in the build out year (2035) compared to the opening year (2015) as the traffic volumes and freight activity grow from 2015 to 2035.

There would be no significant impact to traffic operations at these locations as a result of the **Preferred Build System Alternative**.

Summary

Based on the analysis of the opening year of 2015 and the build out year of 2035 with and without the train service traffic operations at the six crossings at major arterial roadways in the Project Area, the following conclusions were reached:

- The passenger train is expected to clear the crossing in 52 seconds and have one such crossing event in the peak hour. The analysis indicates that the additional delay at the crossing caused by the introduction of passenger rail service on the adjacent roadway network is minimal.
- Since the analysis was conducted for the peak hour, any event taking place during non-peak hours would have less impact on traffic operations.
- The traffic operations and LOS at adjacent intersections are anticipated to continue to operate at similar LOS with the introduction of the passenger rail service compared to LOS with already existing freight service. Therefore the additional impact from the passenger rail service is minimal. During a train crossing event, traffic movements not affected by the train will be operated normally to minimize the impact on delay and queues.
- It should be noted that some of the crossings have intersections within close proximity of the crossing and queues will back up to and over the FEC railway at these intersection. These queues must be cleared before the rail crossing event under the pre-emption signal cycle operation. Proper signage and traffic controls to alert drivers about the railroad crossings will be in place in accordance to local City, County and State standards.

The **No-Build Alternative** (which includes freight service only) would not have a significant impact on local vehicular transportation at crossings in the tri-county Project Area.

The **Preferred Build System Alternative** (which has been analyzed to include impacts resulting from existing freight service, as well as projected freight growth and the proposed passenger service) would not have a significant impact on traffic operations at railroad crossings in the tri-county Project Area because the **Preferred Build System Alternative** would not lower the LOS on roadways proximate to existing crossings from an acceptable LOS to a failing LOS. The impact on delay, queuing, and LOS as result of the **Preferred Build System Alternative** is limited to signal cycles immediately following a train crossing event and are minimal on a peak hour basis. The passenger train is proposed clear a typical crossing in 52 seconds. With only one such crossing event during peak hour the impact on traffic operations on adjacent roadways is expected to be minor. Signal and circuit upgrades performed as part of the track construction, improvement and rehabilitation would occur within the FEC ROW, and would not substantially impact traffic on intersecting roadways.

Potential Impacts at Stations

Based on the results of the *All Aboard Florida Ridership Study* (Louis Berger, July 2012) and trip generation resulting from the proposed development plans at the three station locations included within the **Preferred Build Station Alternatives**, a Traffic Impact Analysis was performed. The land uses, trip generation and traffic impact from the stations are described in the following sections.

Proposed Land Uses

Following land uses are being proposed at the stations:

- **West Palm Beach Station:**
 - 10,000 square foot retail within the station
- **Fort Lauderdale Station:**
 - 10,000 square foot retail within the station
- **Miami Station:**
 - 60,000 square foot station depot
 - 30,000 square foot retail within the station
 - 75,000 square foot transit-oriented retail
 - 300,000 square foot office
 - 200-room hotel
 - 400-residential units
 - 1,050 parking spaces, approximately

Station Access

Station access points for each of the stations are as follows:

- West Palm Beach North-Access to Quadrille St and 6th St
- West Palm Beach Central-Access to Evernia St
- Fort Lauderdale North-Access to Brickell Ave
- Fort Lauderdale South-Access to SE 2nd St
- Miami Central Elevated-Access to NW 1st Ave
- Miami South At-grade-Access to NW 1st Ave/NE 1st St

Exhibits showing the access and conceptual plans for the stations are provided in Appendix I-Transportation.

Daily Boarding and Ridership

Daily boarding forecast for the year 2030 for the proposed stations are based on *All Aboard Florida (AAF) Ridership and Revenue Forecasts*. Year 2030 daily boarding volumes by station access mode are presented in Table 3-3.6.

Table 3-3.6
2030 Daily boardings at AAF stations
Station Access, Mode Split and Volumes

Station	Daily Boardings	Private Auto Park and Ride	Private Auto Drop-Off	Total Private Auto	Taxi	Transit/ Shuttle	Walk	Bike	Total
West Palm Beach		22%	13%	35%	2%	24%	37%	2%	100%
Fort Lauderdale		18%	9%	27%	2%	37%	32%	2%	100%
Miami		16%	6%	22%	4%	38%	34%	2%	100%
West Palm Beach	1,998	440	260	700	40	480	739	40	1,998
Fort Lauderdale	1,827	329	164	493	37	676	585	37	1,827
Miami	1,868	299	112	411	75	710	635	37	1,868
Total	5,693	1,068	536	1,604	151	1,865	1,959	114	5,693

1. Source: Daily Boardings from AAF Ridership and Revenue Forecast

2. Station Access Modal Split adapted from Transit Cooperative Research Report 153 - Guidelines for Providing Access to Public Transportation Stations, 2012.

Trip Generation

Trip generation estimates at each station consists of trips generated by the proposed land uses at each station and the trips associated with the forecasted boarding and ridership data. Trips for retail, office, and hotel land uses were estimated using the *Institute of Transportation Engineers (ITE) Trip Generation, 8th Edition*. Summary of the trip generation for each of the stations is presented in Table 3-3.7. A detailed Trip Generation Memorandum was also prepared.

Trip Distribution

Traffic from the proposed train stations was manually distributed to surrounding roadways based on surrounding land uses, roadway network and existing traffic characteristics. All roadways within half-mile radius from proposed stations were studied. At the proposed railroad stations where at-grade crossings are proposed to be closed, the vehicular traffic is re-routed to the adjacent streets. For example, in the proposed Miami At-grade Station, the at-grade crossing at NW 3rd Street, between NW 2nd Avenue and NW 1st Avenue is proposed to be closed. The traffic from NW 3rd Street where the at-grade crossing is proposed to be closed is rerouted to NW 2nd Avenue south to NE/NW 1st Street and north to NE 5th Street continuing eastward to NW 1st Avenue where it connects with 3rd Street.

Table 3-3.7
Trip Generation Summary for Proposed Stations (NET new trips)

Description	Daily			AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
WEST PALM BEACH STATION									
Retail Trips	182	182	364	24	16	40	16	17	33
Ridership/Boarding Trips	771	771	1,542	231	231	463	231	231	463
TOTAL	953	953	1,906	255	255	503	247	248	496
FORT LAUDERDALE STATION									
Retail Trips	182	182	364	24	16	40	16	17	33
Ridership/Boarding Trips	575	575	1,150	173	173	345	173	173	345
TOTAL	757	757	1,514	197	189	385	189	190	378
MIAMI STATION									
Office/Retail/Hotel/ Residential Trips	4,591	4,591	9,182	612	263	875	364	557	921
Ridership/Boarding Trips	533	533	1,066	160	160	320	160	160	320
TOTAL	5,124	5,124	10,248	772	423	1,195	524	717	1,241

1. See the attached trip generation sheets for detailed trip generation, internal capture, and pass-by calculations.
2. Daily Boardings information is obtained from AAF Ridership and Revenue Forecast
3. Station Access Modal Split adapted from Transit Cooperative Research Report 153 - Guidelines for Providing Access to Public Transportation Stations, 2012.
4. Peak hour boardings are assumed to be 30% of the daily boardings based on the information from TRB's Commuter & Light Rail Transit Corridors, March 1996.

Traffic Analysis

Roadway segments were analyzed for the opening year of 2015 and the build out year of 2035. Future background traffic volumes were obtained from the 2035 Southeast Florida Regional Planning Model (SERPM). Year 2015 background volumes were developed by interpolating existing and 2035 volumes. Once the background traffic was developed, the project trips based on distribution were added to background trips to obtain total future volume on each link. Reasonableness checks were completed to make sure the future volumes were higher than existing volumes for all roadway segments. In cases where the model has predicted negative growth rate, the future volumes were adjusted to grow at 1% per year growth rate. Total daily volumes were compared to roadway capacities based on number lanes and Florida Department of Transportation *Generalized Service Volumes* applicable for urbanized areas. Level of service for each of the segments was determined by comparing the total daily volume on the segment to daily capacity from FDOT generalized tables. Worksheets showing the analysis results for each of the stations are attached to this memorandum.

All the segments that were within half mile radius from the stations were studied for impact. Given the CBD nature of the study areas surrounding the stations and presence of transit services, LOS E is considered acceptable LOS. To evaluate the impact of the station on each of the study area roadway segments, the percentage of the total capacity consumed by the project traffic was calculated. The segments along which project traffic consumes 5% or more of the capacity were identified as being impacted. Out of these segments that are identified as being impacted by the project traffic, the

segments on which the project traffic causes the LOS to degrade from acceptable LOS (LOS E or better) to LOS F would be considered as significantly impacted. For such segments further detailed analysis would be required to determine if any improvement are needed. For the segment on which the project traffic consumes less than 5% of the capacity the project related impact is considered not significant and no further analysis or improvements are needed. These guidelines are consistent with those used by FDOT and counties in Florida for the traffic analysis related to Development of Regional Impacts (DRIs) and Traffic Impact Studies (TIS) to evaluated the impact of developments on regional roadway network.

West Palm Beach-North

The proposed **West Palm Beach-North** station would not have a significant impact on the local roadway network in the opening year of 2015 or in the future build-out year of 2035. There are no segments within the analysis area on which the project traffic would consume more than 5% of the capacity. On average the West Palm Beach-North station would create vehicular volumes that would occupy 0.62% of the 2035 capacity of the local roadway network. Therefore, this alternative has no significant impact on the surrounding roadways. Detailed analysis is provided in Table 3-3.8.

West Palm Beach-Central

The proposed **West Palm Beach-Central** station, which is the ***Preferred Build Station Alternative*** for this city, would not have a significant impact on the local roadway network in the opening year of 2015 or in future build-out year of 2035. There are no segments within the analysis area on which the project traffic would consume more than 5% of the capacity. On average the West Palm Beach-North station would create vehicular volumes that would occupy 0.56% of the 2035 capacity of the local roadway network. Therefore, this ***Preferred Build Station Alternative*** has no significant impact on the surrounding roadways. Detailed analysis is provided in Table 3-3.9 and Figure 3-3.1.

Fort Lauderdale (North and South)

The proposed **Fort Lauderdale-North** (the ***Preferred Build Station Alternative*** for this city) and **Fort Lauderdale-South** station locations are geographically proximate and share the same development plan. As such, results of this analysis is discussed together.

Neither of the proposed Fort Lauderdale stations would have a significant impact on the local roadway network in the opening year of 2015 or in future build-out year of 2035. There are no segments within the analysis area on which the project traffic would consume more than 5% of the capacity. On average the West Palm Beach-North station would create vehicular volumes that would occupy 0.51% of the 2035 capacity of the local roadway network. Therefore, neither project alternative considered for the City of Fort Lauderdale, including the ***Preferred Build Station Alternative***, would have significant impact on the surrounding roadways. Detailed analysis is provided in Table 3-3.10 and Figure 3-3.2.

Miami-South At-grade

The project traffic from the proposed **Miami-South at-grade** station consumes more than 5% of the capacity on 16 of the 74 roadway segments analyzed by the year 2035. These segments are considered impacted by the project traffic. On average the Miami-South at-grade station would create vehicular

volumes that would occupy 3.50% of the 2035 capacity of the local roadway network. However the project traffic does not cause the LOS on any of these links to degrade from actable LOS (LOS E or better) to failing LOS (LOS F). Therefore, the Miami-South At-grade station alternative has no significant impact on the surrounding roadways. Detailed analysis is provided in Table 3-3.11.

Miami-Central Elevated

The project traffic from the proposed **Miami-Central Elevated** station (which is the ***Preferred Build Station Alternative*** for this city) consumes more than 5% of the capacity on 15 of the 74 roadway segments analyzed by the year 2035. These segments are considered impacted by the project traffic. On average, the Miami-South at-grade station would create vehicular volumes that would occupy 3.70% of the 2035 capacity of the local roadway network. However, the project traffic does not cause the LOS on any of these links to degrade from actable LOS (LOS E or better) to failing LOS (LOS F). Therefore, the this ***Preferred Build Station Alternative*** has no significant impact on the surrounding roadways. Detailed analysis is provided in Table 3-3.12 and Figure 3-3.3.

Based on the analysis, the project traffic generated by the proposed stations is minor compared to existing traffic and roadway capacities in the study area. Therefore, none of the station alternatives considered under this EA, including the ***Preferred Build Station Alternatives***, would have any significant impact on adjacent roadways except for one segment near the Miami station. Summary of the results is provided below:

- West Palm Beach Stations-No significant impact
- Fort Lauderdale Stations-No significant impact
- Miami Stations-Significant impact on several segments but no adverse effect on any segments and therefore no mitigation is required.
- The roadways segments that provide direct access to the proposed station may require access management traffic analysis during the design phases.

**Table 3-3.8
West Palm Beach North Alternative – Existing and Future LOS**

Roadway	From	To	Existing				2015 Opening				2035 Buildout									
			Lanes	Capacity	ADT	LOS	Background	Project	Total	LOS	Background	Lanes	Capacity	LOS without Project	Project%	Project	Total	LOS with Project	Project Impact %	Significant Impact?
Quadrille Blvd	Okeechobee Blvd	Fern St	4	36700	12300	B	14100	191	14291	B	26300	4	36700	B	10%	191	26491	B	0.52%	NO
	Fern St	Banyan Blvd	4	36700	9600	B	11100	381	11481	B	21000	4	36700	B	20%	381	21381	B	1.04%	NO
	Banyan Blvd	Flagler Memorial Bridge	4	36700	10900	B	11800	191	11991	B	18100	4	36700	B	10%	191	18291	B	0.52%	NO
Banyan Blvd/1st St	Tamarind Ave	Quadrille Blvd	4	36700	11600	B	13500	191	13691	B	26300	4	36700	B	10%	191	26491	B	0.52%	NO
	Quadrille Blvd	Flagler Dr	4	36700	9300	B	10100	133	10233	B	15500	4	36700	B	7%	133	15633	B	0.36%	NO
Clematis St	Tamarind Ave	Quadrille Blvd	2	16500	2800	B	2900	191	3091	B	3500	2	16500	B	10%	191	3691	B	1.16%	NO
	Quadrille Blvd	Flagler Dr	2	16500	3400	B	3500	286	3786	B	4100	2	16500	B	15%	286	4386	B	1.73%	NO
Fern St	Tamarind Ave	Quadrille Blvd	2	16500	2000	B	2500	381	2881	B	6000	2	16500	B	20%	381	6381	B	2.31%	NO
	Quadrille Blvd	Flagler Dr	2	16500	1500	B	1700	191	1891	B	3200	2	16500	B	10%	191	3391	B	1.16%	NO
Okeechobee Blvd	Tamarind Ave	Dixie Hwy	8	73800	40000	B	46600	191	46791	B	90500	8	73800	F	10%	191	90691	F	0.26%	NO
	Dixie Hwy	Flagler Dr	6	55300	19600	B	20600	95	20695	B	27500	6	55300	B	5%	95	27595	B	0.17%	NO
Palm Beach Lakes Blvd	Tamarind Ave	Dixie Hwy	4	36700	22900	B	23200	191	23391	B	25400	4	36700	B	10%	191	25591	B	0.52%	NO
	Dixie Hwy	Flagler Dr	4	36700	6700	B	7000	57	7057	B	9200	4	36700	B	3%	57	9257	B	0.16%	NO
Tamarind Ave	Okeechobee Blvd	Evernia St	4	36700	14800	B	16400	133	16533	B	27300	4	36700	B	7%	133	27433	B	0.36%	NO
	Evernia St	Palm Beach Lakes Blvd	2	16500	6100	B	6300	191	6491	B	7700	2	16500	B	10%	191	7891	B	1.16%	NO
Dixie Hwy	Okeechobee Blvd	Banyan Blvd / 1st St	2	22020	7500	B	9200	114	9314	B	20500	2	22020	D	6%	114	20614	F	0.52%	NO
	Banyan Blvd / 1st St	Quadrille Blvd	4	36700	8900	B	10200	57	10257	B	18700	4	36700	B	3%	57	18757	B	0.16%	NO
	Quadrille Blvd	Palm Beach Lakes Blvd	4	36700	21000	B	21800	114	21914	B	27000	4	36700	B	6%	114	27114	B	0.31%	NO
Olive Ave	Okeechobee Blvd	Banyan Blvd / 1st St	2	22020	13700	C	14500	133	14633	C	20100	2	22020	D	7%	133	20233	F	0.60%	NO
	Banyan Blvd / 1st St	Quadrille Blvd	2	22020	4200	B	5900	76	5976	B	16900	2	22020	D	4%	76	16976	C	0.35%	NO
	Quadrille Blvd	Palm Beach Lakes Blvd	2	16500	2600	B	4100	114	4214	B	13900	2	16500	C	6%	114	14014	C	0.69%	NO
Flagler Dr	Okeechobee Blvd	Banyan Blvd / 1st St	4	36700	15000	B	15500	95	15595	B	18500	4	36700	B	5%	95	18595	B	0.26%	NO
	Banyan Blvd / 1st St	Quadrille Blvd	4	36700	21500	B	22100	95	22195	B	26400	4	36700	B	5%	95	26495	B	0.26%	NO
	Quadrille Blvd	Palm Beach Lakes Blvd	4	36700	21500	B	22100	114	22214	B	26400	4	36700	B	6%	114	26514	B	0.31%	NO

Notes:

- Existing ADTs are obtained from FDOT and Palm Beach County sources. Some counts are from 2010 and 2011.
- Future background ADT is obtained from 2035 Southeast Florida Regional Planning Model (SERPM).
- Project traffic was manually distributed to surrounding roadways considering future background traffic, land uses, and roadway connectivity.
- Where the future background volume was lower than the existing count, the future background volume was manually adjusted with a growth rate of 1% per year.
- Opening year background volume was obtained by interpolating existing and future volumes.
- Project traffic for opening year was assumed to be same as build out year as most of the land uses are expected to built by opening year.
- Capacity is based on FDOT's Generalized Annual Average Daily Volumes for urbanized areas.
- Project impact is the percentage of roadway capacity consumed by project trips.
- Impact was assumed to be significant if it is more than 5%.
- Capacities and LOS are based on daily volumes.
- For 2015, number of lanes are assumed same as existing. For 2035 number of lanes are based on the cost-feasible SERPM model.

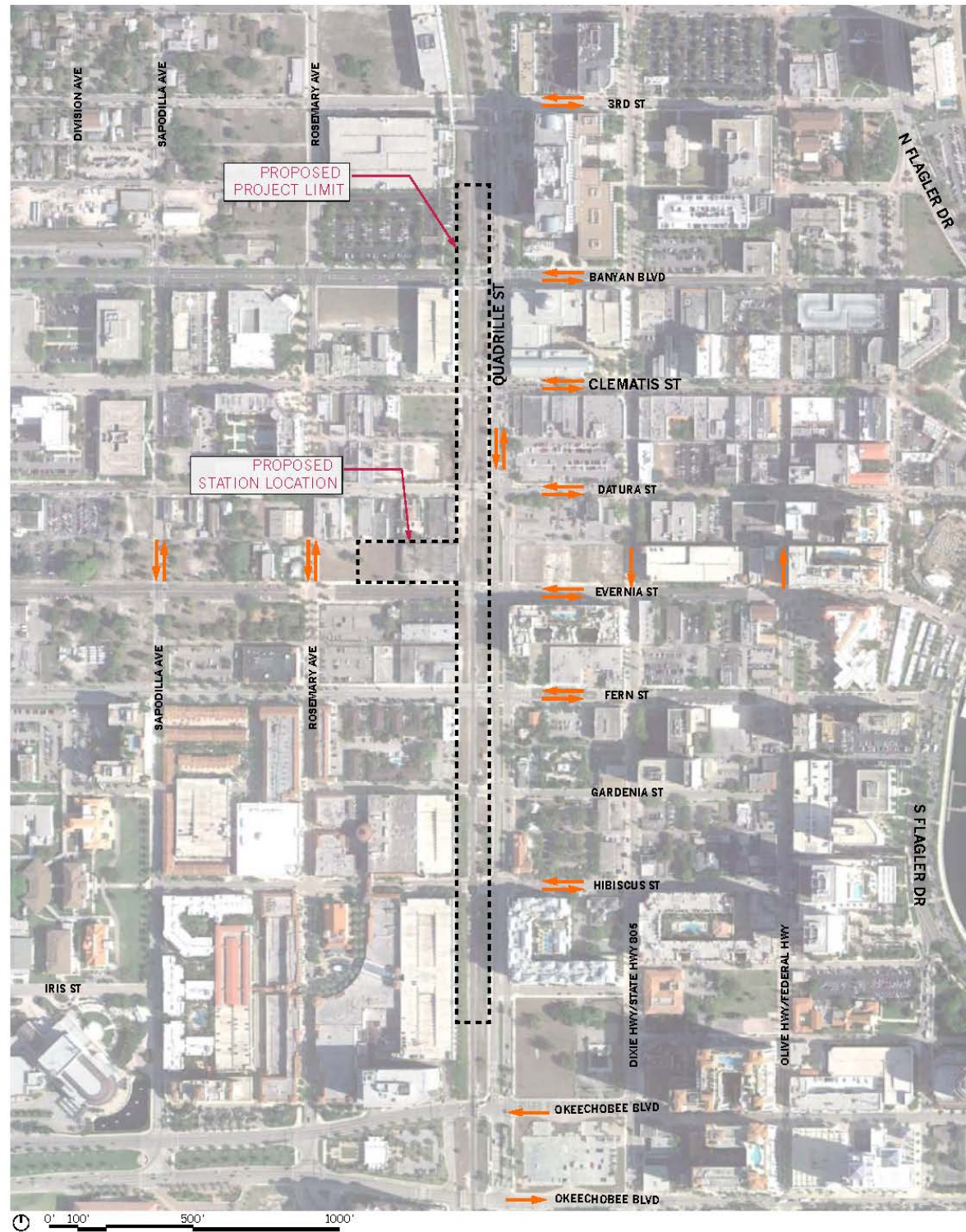
**Table 3-3.9
West Palm Beach Central Alternative - Existing and Future LOS**

Roadway	From	To	Existing				2015 Opening				2035 Buildout									
			Lanes	Capacity	ADT	LOS	Background	Project	Total	LOS	Background	Lanes	Capacity	LOS without Project	Project%	Project	Total	LOS with Project	Project Impact %	Significant Impact?
Quadrille Blvd	Okeechobee Blvd	Fern St	4	36700	12300	B	14100	191	14291	B	26300	4	36700	B	10%	191	26491	B	0.52%	NO
	Fern St	Banyan Blvd	4	36700	9600	B	11100	381	11481	B	21000	4	36700	B	20%	381	21381	B	1.04%	NO
	Banyan Blvd	Flagler Memorial Bridge	4	36700	10900	B	11800	191	11991	B	18100	4	36700	B	10%	191	18291	B	0.52%	NO
Banyan Blvd/1st St	Tamarind Ave	Quadrille Blvd	4	36700	11600	B	13500	191	13691	B	26300	4	36700	B	10%	191	26491	B	0.52%	NO
	Quadrille Blvd	Flagler Dr	4	36700	9300	B	10100	133	10233	B	15500	4	36700	B	7%	133	15633	B	0.36%	NO
Clematis St	Tamarind Ave	Quadrille Blvd	2	16500	2800	B	2900	191	3091	B	3500	2	16500	B	10%	191	3691	B	1.16%	NO
	Quadrille Blvd	Flagler Dr	2	16500	3400	B	3500	286	3786	B	4100	2	16500	B	15%	286	4386	B	1.73%	NO
Fern St	Tamarind Ave	Quadrille Blvd	2	16500	2000	B	2500	381	2881	B	6000	2	16500	B	20%	381	6381	B	2.31%	NO
	Quadrille Blvd	Flagler Dr	2	16500	1500	B	1700	191	1891	B	3200	2	16500	B	10%	191	3391	B	1.16%	NO
Okeechobee Blvd	Tamarind Ave	Dixie Hwy	8	73800	40000	B	46600	191	46791	B	90500	8	73800	F	10%	191	90691	F	0.26%	NO
	Dixie Hwy	Flagler Dr	6	55300	19600	B	20600	95	20695	B	27500	6	55300	B	5%	95	27595	B	0.17%	NO
Palm Beach Lakes Blvd	Tamarind Ave	Dixie Hwy	4	36700	22900	B	23200	191	23391	B	25400	4	36700	B	10%	191	25591	B	0.52%	NO
	Dixie Hwy	Flagler Dr	4	36700	6700	B	7000	57	7057	B	9200	4	36700	B	3%	57	9257	B	0.16%	NO
Tamarind Ave	Okeechobee Blvd	Evernia St	4	36700	14800	B	16400	133	16533	B	27300	4	36700	B	7%	133	27433	B	0.36%	NO
	Evernia St	Palm Beach Lakes Blvd	2	16500	6100	B	6300	191	6491	B	7700	2	16500	B	10%	191	7891	B	1.16%	NO
Dixie Hwy	Okeechobee Blvd	Banyan Blvd / 1st St	2	22020	7500	B	9200	114	9314	B	20500	2	22020	D	6%	114	20614	F	0.52%	NO
	Banyan Blvd / 1st St	Quadrille Blvd	4	36700	8900	B	10200	57	10257	B	18700	4	36700	B	3%	57	18757	B	0.16%	NO
	Quadrille Blvd	Palm Beach Lakes Blvd	4	36700	21000	B	21800	114	21914	B	27000	4	36700	B	6%	114	27114	B	0.31%	NO
Olive Ave	Okeechobee Blvd	Banyan Blvd / 1st St	2	22020	13700	C	14500	133	14633	C	20100	2	22020	D	7%	133	20233	F	0.60%	NO
	Banyan Blvd / 1st St	Quadrille Blvd	2	22020	4200	B	5900	76	5976	B	16900	2	22020	D	4%	76	16976	C	0.35%	NO
	Quadrille Blvd	Palm Beach Lakes Blvd	2	16500	2600	B	4100	114	4214	B	13900	2	16500	C	6%	114	14014	C	0.69%	NO
Flagler Dr	Okeechobee Blvd	Banyan Blvd / 1st St	4	36700	15000	B	15500	95	15595	B	18500	4	36700	B	5%	95	18595	B	0.26%	NO
	Banyan Blvd / 1st St	Quadrille Blvd	4	36700	21500	B	22100	95	22195	B	26400	4	36700	B	5%	95	26495	B	0.26%	NO
	Quadrille Blvd	Palm Beach Lakes Blvd	4	36700	21500	B	22100	114	22214	B	26400	4	36700	B	6%	114	26514	B	0.31%	NO

Notes:

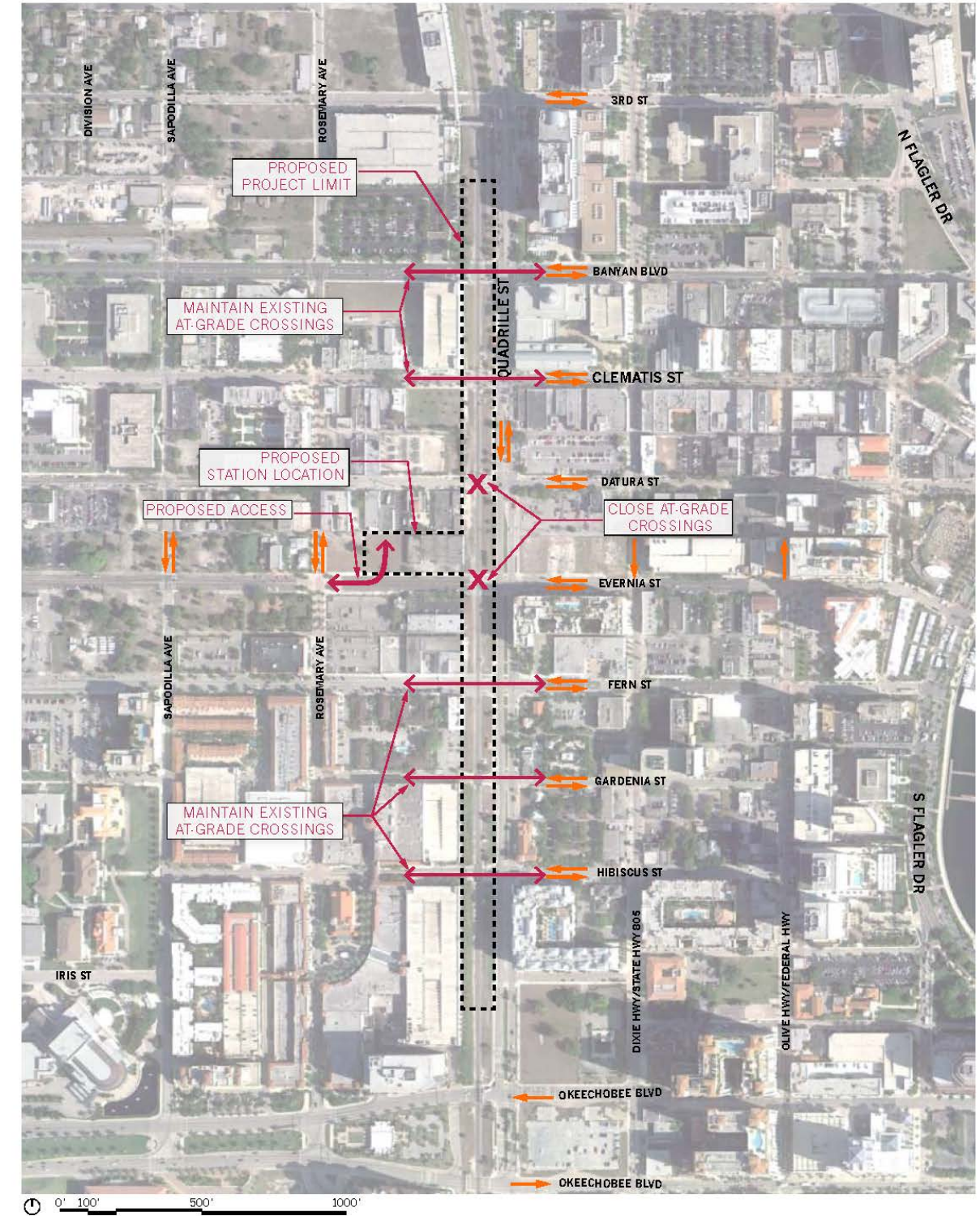
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- Capacity is based on FDOT's Generalized Annual Average Daily Volumes for urbanized areas.
- Project impact is the percentage of roadway capacity consumed by project trips.
- Impact was assumed to be significant if it is more than 5%.
- Capacities and LOS are based on daily volumes.
- For 2015, number of lanes are assumed same as existing. For 2035 number of lanes are based on the cost-feasible SERPM model.

Figure 3.3-1
 West Palm Beach - Central



September 7, 2012

WEST PALM BEACH - CENTRAL
 EXISTING VEHICULAR CIRCULATION PATTERN



September 7, 2012

WEST PALM BEACH - CENTRAL
 PROPOSED CHANGES TO VEHICULAR CIRCULATION

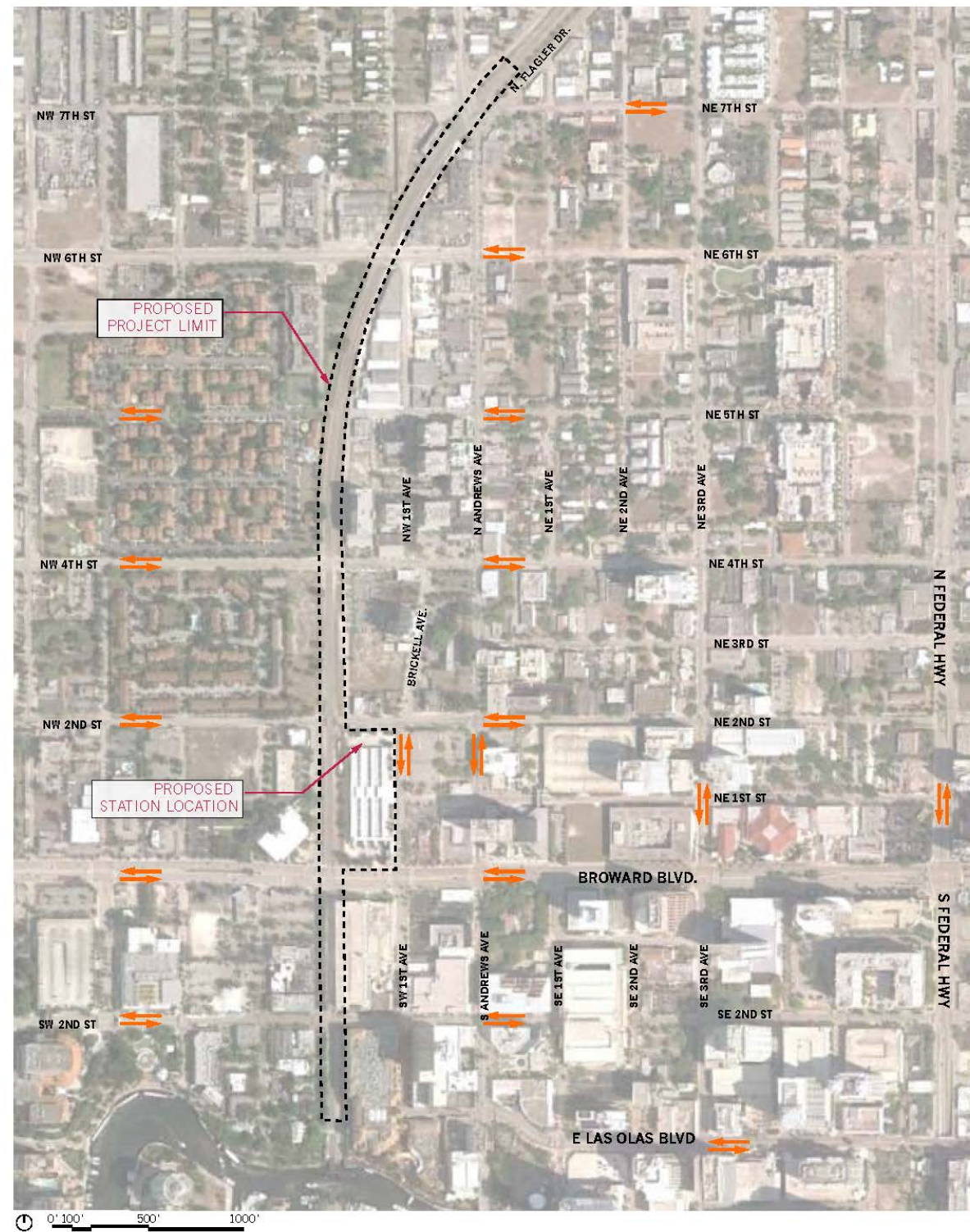
**Table 3-3.10
Fort Lauderdale Alternatives - Existing and Future LOS**

Roadway	From	To	Existing				2015 Opening				2035 Buildout									
			Lanes	Capacity	ADT	LOS	Background	Project	Total	LOS	Background	Lanes	Capacity	LOS without	Project%	Project	Total	LOS with Project	Project Impact %	Significant Impact?
Broward Blvd	NW 9th Ave	Avenue of the Arts	6	55300	57000	F	58700	151	58851	F	70100	6	55300	F	10%	151	70251	F	0.27%	NO
	Avenue of the Arts	S Andrews Ave	6	55300	50500	C	52000	454	52454	C	62100	6	55300	F	30%	454	62554	F	0.82%	NO
	S Andrews Ave	NE 3rd Ave	6	55300	33500	B	34500	530	35030	B	41200	6	55300	B	35%	530	41730	B	0.96%	NO
	NE 3rd Ave	S Federal Hwy	6	55300	37000	B	38100	303	38403	B	45500	6	55300	B	20%	303	45803	C	0.55%	NO
NW 6th St	NW 9th Ave	Avenue of the Arts	4	36700	16200	B	17900	76	17976	B	29300	4	36700	C	5%	76	29376	C	0.21%	NO
	Avenue of the Arts	S Andrews Ave	4	36700	12400	B	15200	121	15321	B	33900	4	36700	C	8%	121	34021	C	0.33%	NO
	S Andrews Ave	NE 3rd Ave	2	16500	4700	B	6400	76	6476	B	17800	2	16500	F	5%	76	17876	F	0.46%	NO
	NE 3rd Ave	S Federal Hwy	2	16500	4700	B	5700	76	5776	B	12200	2	16500	C	5%	76	12276	C	0.46%	NO
SW 2nd St	S Andrews Ave	S Federal Hwy	2	16500	7100	B	7600	106	7706	B	11100	2	16500	C	7%	106	11206	C	0.64%	NO
E Las Olas Blvd	S Andrews Ave	NE 3rd Ave	4	36700	9700	B	9800	227	10027	B	10600	4	36700	B	15%	227	10827	B	0.62%	NO
	NE 3rd Ave	S Federal Hwy	4	36700	14600	B	15600	76	15676	B	22000	4	36700	B	5%	76	22076	B	0.21%	NO
SE 7th St	S Andrews Ave	NE 3rd Ave	2	16500	3600	B	4500	121	4621	B	10600	2	16500	C	8%	121	10721	C	0.73%	NO
	NE 3rd Ave	S Federal Hwy	2	16500	3600	B	4600	76	4676	B	10900	2	16500	C	5%	76	10976	C	0.46%	NO
S Andrews Ave	SE 7th St	Broward Blvd	4	36700	20400	B	21500	530	22030	B	28800	4	36700	B	35%	530	29330	C	1.44%	NO
	Broward Blvd	NW 6th St	4	36700	20400	B	21000	303	21303	B	24800	4	36700	B	20%	303	25103	B	0.83%	NO
NE 3rd Ave	SE 7th St	Broward Blvd	4	36700	23000	B	25000	76	25076	B	38600	4	36700	F	5%	76	38676	F	0.21%	NO
	Broward Blvd	NW 6th St	4	36700	23000	B	23400	227	23627	B	26000	4	36700	B	15%	227	26227	B	0.62%	NO
Avenue of the Arts	SE 7th St	Broward Blvd	4	36700	14800	B	18300	151	18451	B	41600	4	36700	F	10%	151	41751	F	0.41%	NO
	Broward Blvd	NW 6th St	4	36700	16800	B	19600	151	19751	B	38400	4	36700	F	10%	151	38551	F	0.41%	NO
NW 9th Ave	Broward Blvd	NW 6th St	2	36700	3400	B	4700	76	4776	B	13200	2	36700	B	5%	76	13276	C	0.21%	NO
S Federal Hwy	E Las Olas Blvd	Broward Blvd	6	55300	42500	B	43900	106	44006	B	53600	6	55300	C	7%	106	53706	D	0.19%	NO
	Broward Blvd	NW 6th St	6	55300	41500	B	42800	151	42951	B	51100	6	55300	C	10%	151	51251	C	0.27%	NO

Notes:

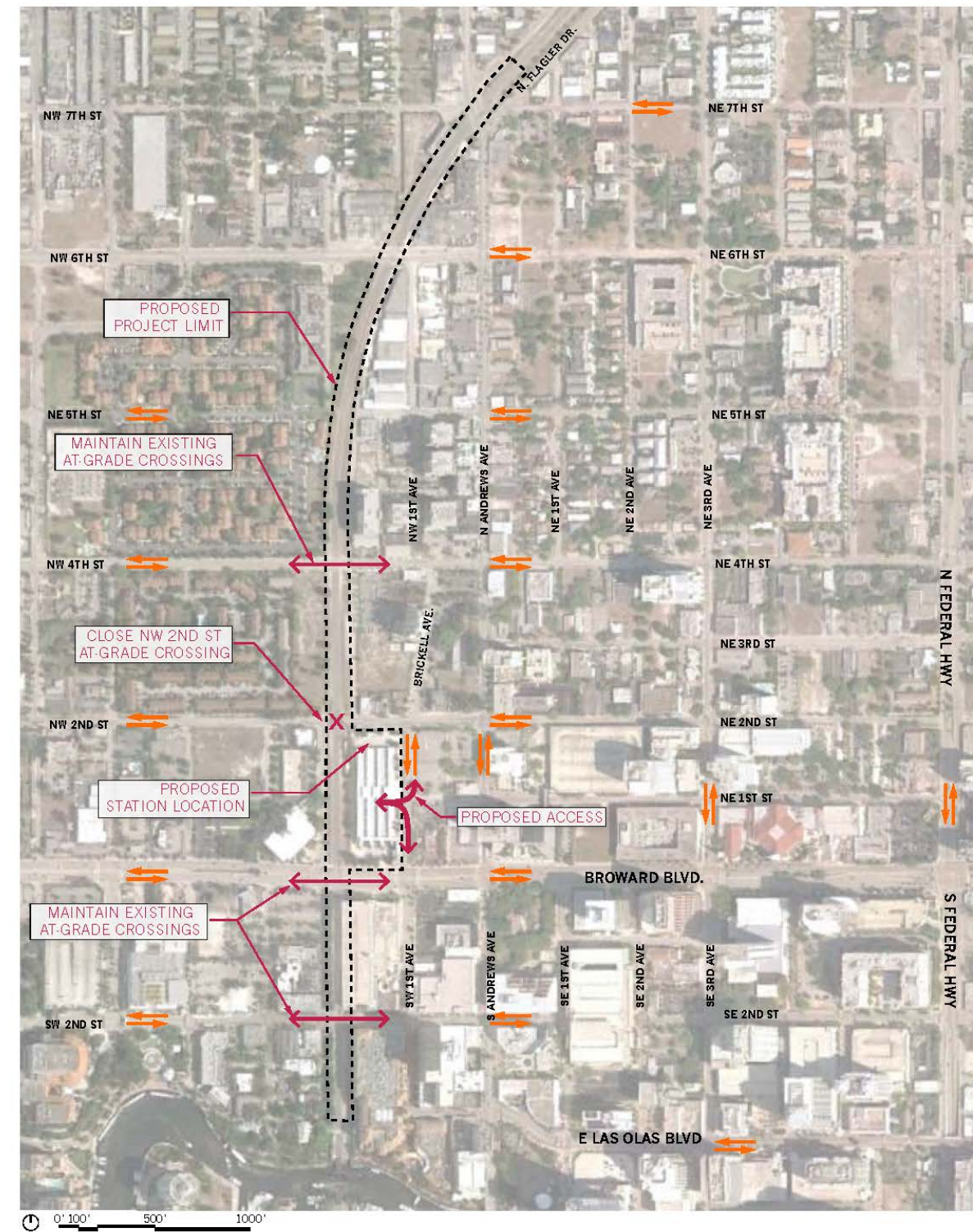
- Existing ADTs are obtained from FDOT and Broward County sources. Some counts are from 2010 and 2011.
- Future background ADT is obtained from 2035 Southeast Florida Regional Planning Model (SERPM).
- Project traffic was manually distributed to surrounding roadways considering future background traffic, land uses, and roadway connectivity.
- Where the future background volume was lower than the existing count, the future background volume was manually adjusted with a growth rate of 1% per year.
- Opening year background volume was obtained by interpolating existing and future volumes.
- Project traffic for opening year was assumed to be same as build out year as most of the land uses are expected to built by opening year.
- Capacity is based on FDOT's Generalized Annual Average Daily Volumes for urbanized areas.
- Project impact is the percentage of roadway capacity consumed by project trips.
- Impact was assumed to be significant if it is more than 5%.
- Capacities and LOS are based on daily volumes.
- For 2015, number of lanes are assumed same as existing. For 2035 number of lanes are based on the cost-feasible SERPM model.

Figure 3.3-2
 Fort Lauderdale North and South



September 7, 2012

FT. LAUDERDALE - NORTH
 EXISTING VEHICULAR CIRCULATION PATTERN



September 7, 2012

FT. LAUDERDALE - NORTH
 PROPOSED CHANGES TO VEHICULAR CIRCULATION

Table 3-3.11
Miami at grade – Existing and Future LOS

Rail Station	Direction of Travel	Road	Segment		Daily Background Traffic (AADT)			Daily Traffic (AADT) With Project				Level of Service (LOS)					Project Traffic % of Capacity	Significant Impact (6)	Adverse Impact (7)	
			From	To	2011 (3)	2015 (2)	2035 (4)	Project % (5)	Project	2015 Total	2035 Total	Lanes	Capacity (8)	2011	2015	2035				
Miami At Grade Station	E/W	Flagler St.	NW 2nd Ave.	NW 1st Ave.	15,400	16,200	20,200	10%	1,025	17,225	21,225	4	25,500	D	D	D	4.0%	No	No	
			NW 1st Ave.	Miami Ave.	15,600	16,400	20,500	20%	2,050	18,450	22,550	4	25,500	D	D	D	8.0%	Yes	No	
			Miami Ave.	SE/NE 1st Ave/17th St.	14,000	14,700	18,400	20%	2,050	16,750	20,450	4	25,500	D	D	D	8.0%	Yes	No	
			SE/NE 1st Ave/17th St.	2nd Ave.	12,000	12,600	15,800	15%	1,537	14,137	17,337	4	25,500	D	D	D	6.0%	Yes	No	
	E/W	NW 1st St.	NW 2nd Ave.	NW 1st Ave.	4,600	7,000	19,200	5%	512	7,512	19,712	4 (one-way) WB	36,900	B	B	D	1.4%	No	No	
			NW 1st Ave.	Miami Ave.	7,100	7,500	9,400	10%	1,025	8,525	10,425	4 (one-way) WB	36,900	B	B	B	2.8%	No	No	
			Miami Ave.	SE/NE 1st Ave/17th St.	6,700	7,000	8,800	20%	2,050	9,050	10,850	2 (one-way) WB	22,000	B	B	B	9.3%	Yes	No	
			SE/NE 1st Ave/17th St.	2nd Ave.	6,800	7,200	9,000	15%	1,537	8,737	10,537	2 (one-way) WB	22,000	B	B	B	7.0%	Yes	No	
	E/W	NE 3rd St	NW 3rd Ave	NW 2nd Ave.	9,200	9,700	12,100	0%	0	9,700	12,100	2	16,500	C	C	C	0.0%	No	No	
			NW 2nd Ave. (1)	NW 1st Ave. (1)	6,800	7,100	8,900	0%	0	7,100	8,900	2	16,500	B	B	B	0.0%	No	No	
NW 1st Ave.			Miami Ave.	9,100	9,600	12,000	0%	0	9,600	12,000	2 (one-way) WB	22,000	B	B	B	0.0%	No	No		
Miami Ave.			SE/NE 1st Ave/17th St.	10,400	11,000	13,700	0%	0	11,000	13,700	2 (one-way) WB	22,000	B	B	B	0.0%	No	No		
E/W	NE 5th St.	SE/NE 1st Ave/17th St.	2nd Ave.	8,200	8,600	10,800	0%	0	8,600	10,800	2 (one-way) WB	22,000	B	B	B	0.0%	No	No		
		2nd Ave.	US 1	2,000	2,100	2,600	0%	0	2,100	2,600	2 (one-way) WB	22,000	B	B	B	0.0%	No	No		
		NW 3rd Ave.	NW 2nd Ave.	14,400	15,100	18,900	0%	0	15,100	18,900	3 (one-way) EB	27,500	B	B	B	0.0%	No	No		
		NW 2nd Ave. (1)	NW 1st Ave. (1)	15,900	16,700	20,900	10%	1,025	17,725	25,825	3 (one-way) EB	27,500	B	B	D	3.7%	No	No		
E/W	NE 6th St.	NW 1st Ave.	Miami Ave.	17,600	18,600	23,200	10%	1,025	19,625	24,225	2 (one-way) WB	22,000	C	C	F	4.7%	No	No		
		Miami Ave.	SE/NE 1st Ave/17th St.	17,300	18,200	22,700	10%	1,025	19,225	23,725	2 (one-way) WB	22,000	B	C	F	4.7%	No	No		
		SE/NE 1st Ave/17th St.	2nd Ave.	13,500	14,600	19,800	10%	1,025	15,625	20,825	2 (one-way) WB	22,000	B	B	C	4.7%	No	No		
		2nd Ave.	US 1	23,700	25,000	31,200	5%	512	25,512	31,712	3 (one-way) WB	27,500	C	E	F	1.9%	No	No		
E/W	NE 10th St.	NW 3rd Ave.	NW 2nd Ave.	4,900	5,900	10,700	0%	0	5,900	10,700	2 (one-way) EB	22,000	B	B	B	0.0%	No	No		
		NW 2nd Ave.	NW 1st Ave.	2,000	4,500	12,000	0%	0	4,500	12,000	2 (one-way) EB	22,000	B	B	B	0.0%	No	No		
		NW 1st Ave.	Miami Ave.	10,900	11,400	14,300	10%	1,025	12,425	15,325	2 (one-way) EB	22,000	B	B	B	4.7%	No	No		
		Miami Ave.	SE/NE 1st Ave/17th St.	7,500	7,900	9,900	10%	1,025	8,925	10,925	2 (one-way) EB	22,000	B	B	B	4.7%	No	No		
E/W	NE 11th St.	SE/NE 1st Ave/17th St.	2nd Ave.	7,400	7,800	9,700	10%	1,025	8,825	10,725	2 (one-way) EB	22,000	B	B	B	4.7%	No	No		
		2nd Ave.	US 1	12,200	12,900	16,100	5%	512	13,412	16,612	2 (one-way) EB	22,000	B	B	B	2.3%	No	No		
		NW 2nd Ave.	NW 1st Ave.	1,900	3,400	10,800	10%	1,025	4,425	11,825	2 (one-way) WB	22,000	B	B	B	4.7%	No	No		
		NW 1st Ave.	Miami Ave.	9,500	10,000	12,500	5%	512	10,512	13,012	2 (one-way) WB	22,000	B	B	B	2.3%	No	No		
Miami At Grade Station	N/S	US 1	SE 1st St	Flagler St.	36,800	39,100	50,400	5%	512	39,612	50,912	8	64,700	D	D	D	0.8%	No	No	
			Flagler St.	NW 1st St.	38,500	40,500	50,600	5%	512	41,012	51,112	8	64,700	D	D	D	0.8%	No	No	
			NW 1st St.	NW 3rd St.	39,700	41,800	52,200	5%	512	42,312	52,712	8	64,700	D	D	D	0.8%	No	No	
			NW 3rd St.	NE 5th St.	38,900	41,000	51,200	5%	512	41,512	51,712	8	64,700	D	D	D	0.8%	No	No	
			NE 5th St.	NE 6th St.	43,500	45,800	57,200	5%	512	46,312	57,712	8	64,700	D	D	D	0.8%	No	No	
			NE 6th St.	NE 10th St.	44,000	46,600	59,400	10%	1,025	47,625	60,425	8	64,700	D	D	E	1.6%	Yes	No	
	N/S	SE 2nd Ave.	NE 10th St.	NE 11th St.	41,200	43,400	54,200	5%	512	43,912	54,712	8	64,700	D	D	D	0.8%	No	No	
			NW 1st St.	NW 3rd St.	18,500	19,500	24,400	5%	512	20,012	24,912	3 (one-way) SB	27,500	D	D	E	1.9%	No	No	
			NW 3rd St.	NE 5th St.	22,800	24,000	30,000	10%	1,025	25,025	31,025	3 (one-way) SB	27,500	D	D	F	3.7%	Yes	No	
			NE 5th St.	NE 6th St.	26,300	27,700	34,600	0%	0	27,700	34,600	3 (one-way) SB	27,500	D	D	F	0.0%	Yes	No	
			NE 6th St.	NE 10th St.	19,000	20,100	25,700	0%	0	20,100	25,700	3 (one-way) SB	27,500	D	D	F	0.0%	No	No	
			NE 10th St.	NE 11th St.	24,500	25,800	32,200	0%	0	25,800	32,200	3 (one-way) SB	27,500	D	D	F	0.0%	Yes	No	
N/S	SE/NE 1st Ave/17th St.	SE 2nd St	SE 1st St	12,400	13,000	16,300	5%	512	13,512	16,812	3 (one-way) NB	27,500	D	D	D	1.9%	No	No		
		SE 1st St	Flagler St.	14,300	15,000	18,800	10%	1,025	16,025	19,825	3 (one-way) NB	27,500	D	D	D	3.7%	No	No		
		Flagler St.	NW 1st St.	13,100	13,800	17,200	20%	2,050	15,850	19,250	3 (one-way) NB	27,500	D	D	D	7.5%	Yes	No		
		NW 1st St.	NW 3rd St.	13,200	13,900	17,400	0%	0	13,900	17,400	3 (one-way) NB	27,500	D	D	D	0.0%	No	No		
		NW 3rd St.	NE 5th St.	11,900	13,700	22,600	0%	0	13,700	22,600	3 (one-way) NB	27,500	D	D	D	0.0%	No	No		
		NE 5th St.	NE 6th St.	17,800	18,700	23,400	0%	0	18,700	23,400	3 (one-way) NB	27,500	D	D	D	0.0%	No	No		
		NE 6th St.	NE 10th St.	16,000	17,300	24,000	0%	0	17,300	24,000	3 (one-way) NB	27,500	D	D	D	0.0%	No	No		
		NE 10th St.	NE 11th St.	18,400	19,400	24,200	0%	0	19,400	24,200	3 (one-way) NB	27,500	D	D	D	0.0%	No	No		
		N/S	Miami Ave.	SE 1st St	SE 1st St	12,800	13,400	16,800	5%	512	13,912	17,312	3 (one-way) SB	27,500	D	D	D	1.9%	No	No
				SE 1st St	Flagler St.	10,400	11,000	13,700	10%	1,025	12,025	14,725	3 (one-way) SB	27,500	D	D	D	3.7%	No	No
Flagler St.	NW 1st St.			6,500	6,900	8,600	10%	1,025	7,925	9,625	3 (one-way) SB	27,500	C	C	C	3.7%	No	No		
NW 1st St.	NW 3rd St.			12,800	13,400	16,800	0%	0	13,400	16,800	3 (one-way) SB	27,500	D	D	D	0.0%	No	No		
NW 3rd St.	NE 5th St.			16,700	17,600	22,000	10%	1,025	18,625	23,025	3 (one-way) SB	27,500	D	D	D	3.7%	No	No		
NE 5th St.	NE 6th St.			4,400	5,400	10,300	10%	1,025	6,425	11,325	3 (one-way) SB	27,500	C	D	D	3.7%	No	No		
N/S	NW 1st Ave./Arenas Blvd.	NE 6th St.	NE 10th St.	11,000	11,600	14,500	10%	1,025	12,625	15,525	3 (one-way) SB	27,500	C	D	D	3.7%	No	No		
		NE 10th St.	NE 11th St.	7,700	8,100	10,100	0%	0	8,100	10,100	3 (one-way) SB	27,500	C	C	C	0.0%	No	No		
		SE 2nd St	SE 1st St	800	800	1,000	0%	0	800	1,000	4	31,900	C	C	C	0.0%	No	No		
		SE 1st St	Flagler St.	900	1,000	1,200	50%	5,124	6,124	6,324	4	31,900	C	C	C	16.1%	Yes	No		
		Flagler St.	NW 1st St.	1,800	1,900	2,400	50%	5,124	7,024	7,524	4	31,900	C	C	C	16.1%	Yes	No		
		NW 1st St. at Miami Station	NW 3rd St.	6,200	6,300	6,600	50%	5,124	11,424	11,724	4	31,900	C	C	C	16.1%	Yes	No		
N/S	NW 1st Ave./Arenas Blvd.	NW 3rd St. (1)	NE 5th St. (1)	5,100	5,400	6,700	50%	5,124	10,524	16,624	4	31,900	C	C	D	16.1%	Yes	No		
		NE 5th St. (1)	NE 6th St. (1)	9,000	9,400	11,800	30%	3,074	12,474	14,674	4	31,900	C	C	D	9.6%	Yes	No		
		NE 6th St.	NE 10th St.	14,900	16,900	26,700	20%	2,050	18,950	28,750	4	31,900	C	C	E	6.4%	Yes	No		
		NE 10th St.	NE 11th St.	9,600	10,100	12,600	10%	1,025	11,125	13,625	2	16,500	B	C	C	6.2%	Yes	No		

Notes:

- When closing of 13rd St., the background traffic is relocated from 3rd St., located west of NW 1st Ave. to 2nd Ave. north to NW 1st St. and south to NW 1st St.
- Where traffic counts are not available, the 2011 and 2015 background traffic is derived by applying a 1% annual reduction of the 2015 AADT road segment volume.
- Traffic Counts obtained from FDOT's 2011 Florida Transportation Information database and counts taken in 2011 for the FEC railroad traffic operational study.
- Future 2035 background and ADP is obtained from the 2035 Cost Affordable Southeast Florida Regional Planning Model, SERPM Version 6.5.2.e
- Project traffic was manually distributed based upon roadways considering future background and traffic, land use, and road connectivity.
- Significant Impact is where the project consumes 5% or more of the road capacity.
- Adverse Impact is where the project consumes 5% or more of the road capacity and the road is anticipated to operate at LOS E or LOS F.
- Capacity is based on FDOT's Generalized Annual Average Daily Service Volumes for unimproved roads where the number of lanes to 2015 is based upon the 2035 Cost Affordable Plan lanes obtained from the SERPM, Version 6.5.2.e model.

Table 3-3.12
Miami Elevated – Existing and Future LOS

Rail Station	Direction of Travel	Road	Segment		Daily Background Traffic (ADT)			Daily Traffic (ADT) With Project				Level of Service (LOS)					Project Traffic % of Capacity	Significant Impact (6) (Yes/No)	Adverse Impact (7) (Yes/No)	
					2011(8)	2015(2)	2035(4)	Project % (5)	Project	2015 Total	2035 Total	Lanes	Capacity (9)	2011	2015	2035				
					From	To	2011(8)	2015(2)	2035(4)	Project % (5)	Project	2015 Total	2035 Total	Lanes	Capacity (9)	2011				2015
Miami Central Elevated Station	E/W	Flagler St.	NW 2nd Ave.	NW 1st Ave.	15,400	16,200	20,200	10%	1,025	17,225	21,225	4	25,500	D	D	D	4.0%	No	No	
			NW 1st Ave.	Miami Ave.	15,600	16,400	20,500	20%	2,050	18,450	22,550	4	25,500	D	D	D	8.0%	Yes	No	
			Miami Ave.	SE/NE 1st Ave./17th St.	14,000	14,700	18,400	20%	2,050	16,750	20,450	4	25,500	D	D	D	8.0%	Yes	No	
			SE/NE 1st Ave./17th St.	2nd Ave.	12,000	12,600	15,800	15%	1,537	14,137	17,337	4	25,500	D	D	D	6.0%	Yes	No	
	E/W	NW 1st St.	US 1	NW 2nd Ave.	NW 1st Ave.	8,700	9,100	11,400	10%	1,025	10,125	12,425	4	25,500	D	D	D	4.0%	No	No
				NW 1st Ave.	Miami Ave.	4,600	7,000	19,200	5%	512	7,512	19,712	4 (one-way) WB	36,900	B	B	D	1.4%	No	No
				Miami Ave.	SE/NE 1st Ave./17th St.	7,100	7,500	9,400	10%	1,025	8,525	10,425	4 (one-way) WB	36,900	B	B	B	2.8%	No	No
				SE/NE 1st Ave./17th St.	2nd Ave.	6,700	7,000	8,800	10%	1,025	8,025	9,825	2 (one-way) WB	22,000	B	B	B	4.7%	No	No
	E/W	NE 3rd St.	US 1	NW 1st Ave.	Miami Ave.	6,800	7,200	9,000	10%	1,025	10,025	12,425	2 (one-way) WB	22,000	B	B	B	4.7%	No	No
				Miami Ave.	SE/NE 1st Ave./17th St.	10,400	11,000	13,700	10%	1,025	12,025	14,725	2 (one-way) WB	22,000	B	B	B	4.7%	No	No
				SE/NE 1st Ave./17th St.	2nd Ave.	8,200	8,600	10,800	10%	1,025	9,625	11,825	2 (one-way) WB	22,000	B	B	B	4.7%	No	No
				2nd Ave.	US 1	2,000	2,100	2,600	10%	1,025	3,125	3,625	2 (one-way) WB	22,000	B	B	B	4.7%	No	No
E/W	NE 5th St.	US 1	NW 3rd Ave.	NW 2nd Ave.	14,400	15,100	18,900	0%	0	15,100	18,900	3 (one-way) EB	27,500	B	B	B	0.0%	No	No	
			NW 2nd Ave.	NW 1st Ave.	15,900	16,700	20,900	10%	1,025	17,725	21,925	3 (one-way) EB	27,500	B	B	D	3.7%	No	No	
			NW 1st Ave.	Miami Ave.	19,400	20,400	25,500	10%	1,025	21,425	26,525	3 (one-way) EB	27,500	B	C	E	3.7%	No	No	
			Miami Ave.	SE/NE 1st Ave./17th St.	10,500	11,000	13,800	10%	1,025	12,025	14,825	3 (one-way) EB	27,500	B	D	D	3.7%	No	No	
E/W	NE 6th St.	US 1	SE/NE 1st Ave./17th St.	2nd Ave.	9,100	9,600	12,000	10%	1,025	10,625	13,025	3 (one-way) EB	27,500	B	D	D	3.7%	No	No	
			2nd Ave.	US 1	9,900	11,000	16,300	10%	1,025	12,025	17,325	3 (one-way) EB	27,500	B	D	D	3.7%	No	No	
			NW 2nd Ave.	NW 1st Ave.	3,900	6,100	16,900	10%	1,025	7,125	17,925	2 (one-way) WB	22,000	B	B	C	4.7%	No	No	
			NW 1st Ave.	Miami Ave.	17,600	18,600	23,200	10%	1,025	19,625	24,225	2 (one-way) WB	22,000	C	C	F	4.7%	No	No	
E/W	NE 10th St.	US 1	Miami Ave.	SE/NE 1st Ave./17th St.	17,200	18,200	22,700	10%	1,025	19,225	23,725	2 (one-way) WB	22,000	B	C	F	4.7%	No	No	
			SE/NE 1st Ave./17th St.	2nd Ave.	13,500	14,600	19,800	10%	1,025	15,625	20,825	2 (one-way) WB	22,000	B	B	C	4.7%	No	No	
			2nd Ave.	US 1	23,700	25,000	31,200	5%	512	25,512	31,712	3 (one-way) WB	27,500	C	E	F	1.9%	No	No	
			NW 3rd Ave.	NW 2nd Ave.	4,900	5,900	10,700	0%	0	5,900	10,700	2 (one-way) EB	22,000	B	B	B	0.0%	No	No	
E/W	NE 11th St.	US 1	NW 2nd Ave.	NW 1st Ave.	2,000	3,700	12,000	0%	0	3,700	12,000	2 (one-way) EB	22,000	B	B	B	0.0%	No	No	
			NW 1st Ave.	Miami Ave.	10,900	11,400	14,300	10%	1,025	12,425	15,325	2 (one-way) EB	22,000	B	B	B	4.7%	No	No	
			Miami Ave.	SE/NE 1st Ave./17th St.	7,500	7,900	9,900	10%	1,025	8,925	10,925	2 (one-way) EB	22,000	B	B	B	4.7%	No	No	
			SE/NE 1st Ave./17th St.	2nd Ave.	7,400	7,800	9,700	10%	1,025	8,825	10,725	2 (one-way) EB	22,000	B	B	B	4.7%	No	No	
E/W	NE 11th St.	US 1	2nd Ave.	US 1	12,200	12,900	16,100	5%	512	13,412	16,612	2 (one-way) EB	22,000	B	B	B	2.3%	No	No	
			NW 2nd Ave.	NW 1st Ave.	1,900	3,400	10,800	10%	1,025	4,425	11,825	2 (one-way) WB	22,000	B	B	B	4.7%	No	No	
			NW 1st Ave.	Miami Ave.	9,500	10,000	12,500	5%	512	10,512	13,012	2 (one-way) WB	22,000	B	B	B	2.3%	No	No	
			Miami Ave.	SE/NE 1st Ave./17th St.	9,800	10,300	12,900	5%	512	10,812	13,412	2 (one-way) WB	22,000	B	B	B	2.3%	No	No	
N/S	US 1	US 1	SE 1st St.	Flagler St.	36,800	39,100	50,400	5%	512	39,612	50,912	8	64,700	D	D	D	0.8%	No	No	
			Flagler St.	NW 1st St.	28,500	40,500	50,600	5%	512	41,012	51,112	8	64,700	D	D	D	0.8%	No	No	
			NW 1st St.	NW 3rd St.	39,700	41,800	52,200	5%	512	42,312	52,712	8	64,700	D	D	D	0.8%	No	No	
			NW 3rd St.	NE 5th St.	38,900	41,000	51,200	5%	512	41,512	51,712	8	64,700	D	D	D	0.8%	No	No	
N/S	SE 2nd Ave.	SE 2nd Ave.	NE 5th St.	NE 6th St.	43,500	45,800	57,200	5%	512	46,312	57,712	8	64,700	D	D	D	0.8%	No	No	
			NE 6th St.	NE 10th St.	44,000	46,600	59,400	10%	1,025	47,625	60,425	8	64,700	D	D	E	1.6%	No	No	
			NE 10th St.	NE 11th St.	41,200	43,400	54,200	5%	512	43,912	54,712	8	64,700	D	D	D	0.8%	No	No	
			NW 1st St.	NW 3rd St.	18,500	19,500	24,400	5%	512	20,012	24,912	3 (one-way) SB	27,500	D	D	E	1.9%	No	No	
N/S	SE 2nd Ave.	SE 2nd Ave.	NW 3rd St.	NE 5th St.	22,800	24,000	30,000	10%	1,025	25,025	31,025	3 (one-way) SB	27,500	D	D	F	3.7%	Yes	No	
			NE 5th St.	NE 6th St.	26,300	27,700	34,600	0%	0	27,700	34,600	3 (one-way) SB	27,500	D	D	F	0.0%	Yes	No	
			NE 6th St.	NE 10th St.	19,000	20,100	25,700	0%	0	20,100	25,700	3 (one-way) SB	27,500	D	D	D	0.0%	No	No	
			NE 10th St.	NE 11th St.	24,500	25,800	32,200	0%	0	25,800	32,200	3 (one-way) SB	27,500	D	D	F	0.0%	Yes	No	
N/S	SE/NE 1st Ave./17th St.	SE 1st St.	SE 1st St.	Flagler St.	12,400	13,000	16,300	5%	512	13,512	16,812	3 (one-way) NB	27,500	D	D	D	1.9%	No	No	
			Flagler St.	NW 1st St.	14,300	15,000	18,800	10%	1,025	16,025	19,825	3 (one-way) NB	27,500	D	D	D	3.7%	No	No	
			NW 1st St.	NW 3rd St.	13,100	13,800	17,200	20%	2,050	15,850	19,250	3 (one-way) NB	27,500	D	D	D	7.5%	Yes	No	
			NW 3rd St.	NE 5th St.	13,200	13,900	17,400	0%	0	13,900	17,400	3 (one-way) NB	27,500	D	D	D	0.0%	No	No	
N/S	Miami Ave.	SE 1st St.	NW 2nd St.	NE 5th St.	11,900	13,700	22,600	0%	0	13,700	22,600	3 (one-way) NB	27,500	D	D	D	0.0%	No	No	
			NE 5th St.	NE 6th St.	17,800	18,700	23,400	0%	0	18,700	23,400	3 (one-way) NB	27,500	D	D	D	0.0%	No	No	
			NE 6th St.	NE 10th St.	16,000	17,300	24,000	0%	0	17,300	24,000	3 (one-way) NB	27,500	D	D	D	0.0%	No	No	
			NE 10th St.	NE 11th St.	18,400	19,400	24,200	0%	0	19,400	24,200	3 (one-way) NB	27,500	D	D	D	0.0%	No	No	
N/S	Miami Ave.	SE 1st St.	SE 2nd St.	SE 1st St.	12,800	13,400	16,800	5%	512	13,912	17,312	3 (one-way) SB	27,500	D	D	D	1.9%	No	No	
			SE 1st St.	Flagler St.	10,400	11,000	13,700	10%	1,025	12,025	14,725	3 (one-way) SB	27,500	D	D	D	3.7%	No	No	
			Flagler St.	NW 1st St.	6,500	6,900	8,600	10%	1,025	7,925	9,625	3 (one-way) SB	27,500	C	C	C	3.7%	No	No	
			NW 1st St.	NW 3rd St.	12,800	13,400	16,800	10%	1,025	14,425	17,825	3 (one-way) SB	27,500	D	D	D	3.7%	No	No	
N/S	NW 1st Ave./Arena Blvd	SE 1st St.	NW 3rd St.	NE 5th St.	16,700	17,600	22,000	10%	1,025	18,625	23,025	3 (one-way) SB	27,500	D	D	D	3.7%	No	No	
			NE 5th St.	NE 6th St.	4,400	5,400	10,300	10%	1,025	6,425	11,325	3 (one-way) SB	27,500	C	C	D	3.7%	No	No	
			NE 6th St.	NE 10th St.	11,000	11,600	14,500	10%	1,025	12,625	15,525	3 (one-way) SB	27,500	C	D	D	3.7%	No	No	
			NE 10th St.	NE 11th St.	7,700	8,100	10,100	0%	0	8,100	10,100	3 (one-way) SB	27,500	C	C	C	0.0%	No	No	
N/S	NW 1st Ave./Arena Blvd	SE 1st St.	SE 2nd St.	SE 1st St.	800	800	1,000	0%	0	800	1,000	4	31,900	C	C	C	0.0%	No	No	
			SE 1st St.	Flagler St.	900	1,000	1,200	50%	5,124	6,124	6,324	4	31,900	C	C	C	16.1%	Yes	No	
			Flagler St.	NW 1st St.	1,800	1,900	2,400	50%	5,124	7,024	7,524	4	31,900	C	C	C	16.1%	Yes	No	
			NW 1st St.	NW 3rd St.	6,200	6,300	6,600	40%	4,099	10,399	10,699	4	31,900	C	C	C	12.9%	Yes	No	
N/S	NW 1st Ave./Arena Blvd	SE 1st St.	NW 3rd St. at Miami Station	NE 5th St.	5,100	5,400	6,700	30%	3,074	8,474	9,774	4	31,900	C	C	C	9.6%	Yes	No	
			NE 5th St.	NE 6th St.	9,000	9,400	11,800	30%	3,074	12,474	14,874	4	31,900	C	C	D	9.6%	Yes	No	
			NE 6th St.	NE 10th St.	14,900	16,900	26,700													

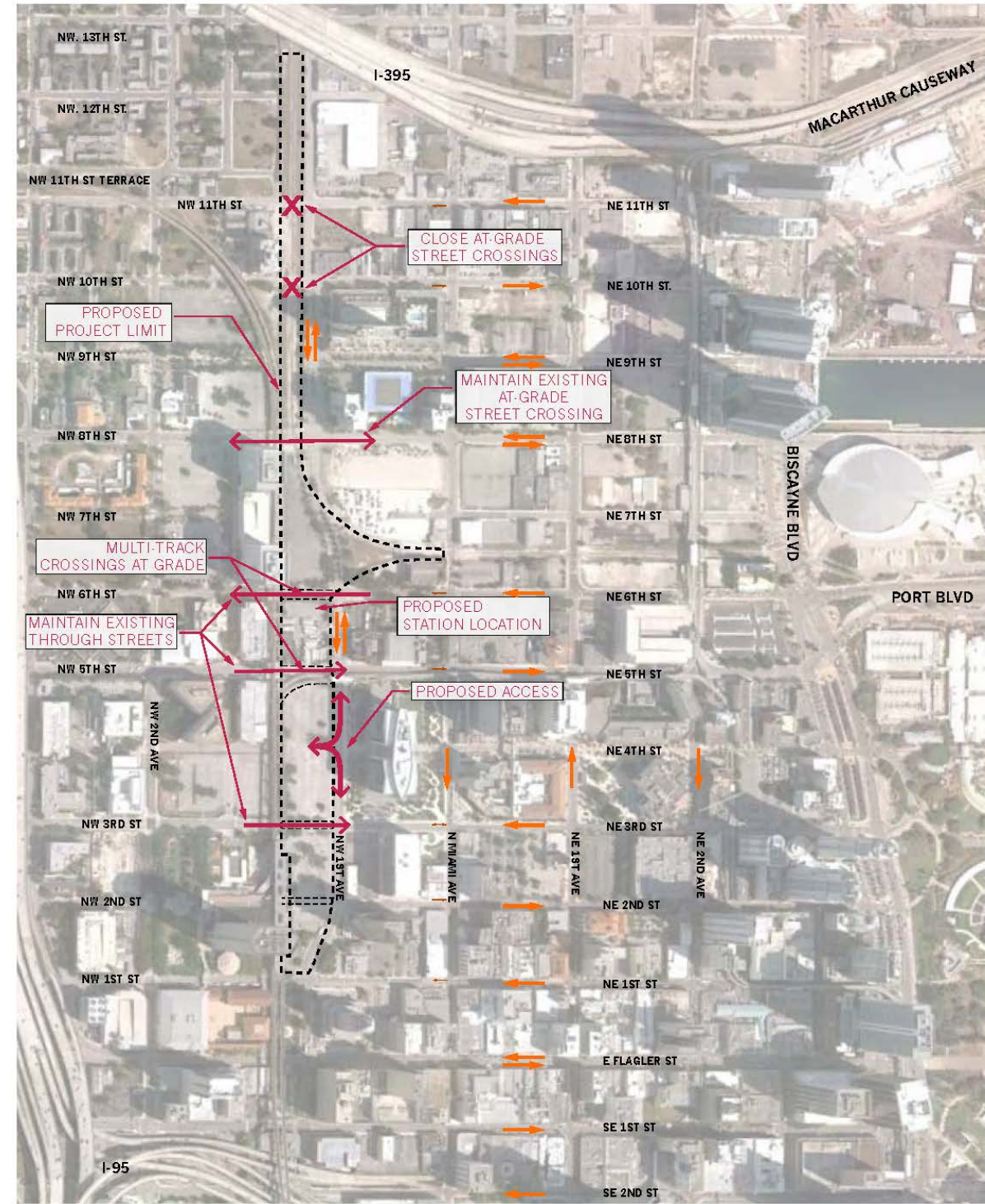
Figure 3.3-3
 Miami Elevated



0' 100' 500' 1000'

September 7, 2012

MIAMI - CENTRAL ELEVATED
 EXISTING VEHICULAR CIRCULATION PATTERN



0' 100' 500' 1000'

September 7, 2012

MIAMI - CENTRAL ELEVATED
 PROPOSED CHANGES TO VEHICULAR CIRCULATION

3.3.1.4 Parking

The following section presents an assessment of parking availability for those areas of West Palm Beach, Fort Lauderdale, and Miami within close proximity of the proposed **Preferred Build Station Alternatives** considered within this EA as well as the parking need associated with the development of those new stations. The assessment of existing parking identifies public and private off-street parking facilities, for both surface and structural parking facilities within 0.50 miles of the proposed station location. The parking demand assessment for each station uses a parking generation estimate based on the square footage of specific use within the planned stations, and the number of estimated transit riders.

West Palm Beach Existing Parking

The **Preferred Build Station Alternatives** in the city of West Palm Beach is located at the northern edge of the West Palm Beach Central Business District. Refer to Figure 3-3.4 for a depiction of the station location. The Option 1 Station occupies an area of the city containing 3 parking structures and 1 surface parking lot which in total contain 2,762 parking spaces. The quarter-mile and half-mile buffers were shown to contain 7,684 and 12,279 spaces respectively. See Tables 3-3.13 to 3-3.15 (following Figure 3-3.4) for detailed parking space counts.

West Palm Beach Station Parking Demand

Parking estimates were developed through the application of standardized rates contained in the Institute of Transportation Engineers (ITE) parking estimation guide, *Parking Generation, 4th Edition*.

Preliminary plans identify that the West Palm Beach Station will include retail use as well as provide access to inter-city rail service. The estimated parking demand generated is outlined in Table 3-3.16.

West Palm Beach Station Parking Availability Compared to Demand

As shown in Table 3-3.15, approximately 12,279 off-street parking spaces are available within a ½ mile radius of the station. Use within the station is estimated to produce a demand for approximately 215 spaces. 60 parking spaces will be provided as part of the station complex, which will offset approximately 28% of the demand created by the new station.

Comparison of the remaining demand for parking (155 spaces) to the overall volume of parking available within walking distance (½ mile) of the station (12,279 spaces) indicates the total remaining station demand represents 1.3% of the total number of spaces available. Based on the abundance of parking available within close proximity of the station, the increase in parking demand is expected to be absorbed by the remaining proximate public/private parking areas. The **Preferred Build Station Alternatives** in the city will not cause significant parking-related impacts at the West Palm Beach Station location.

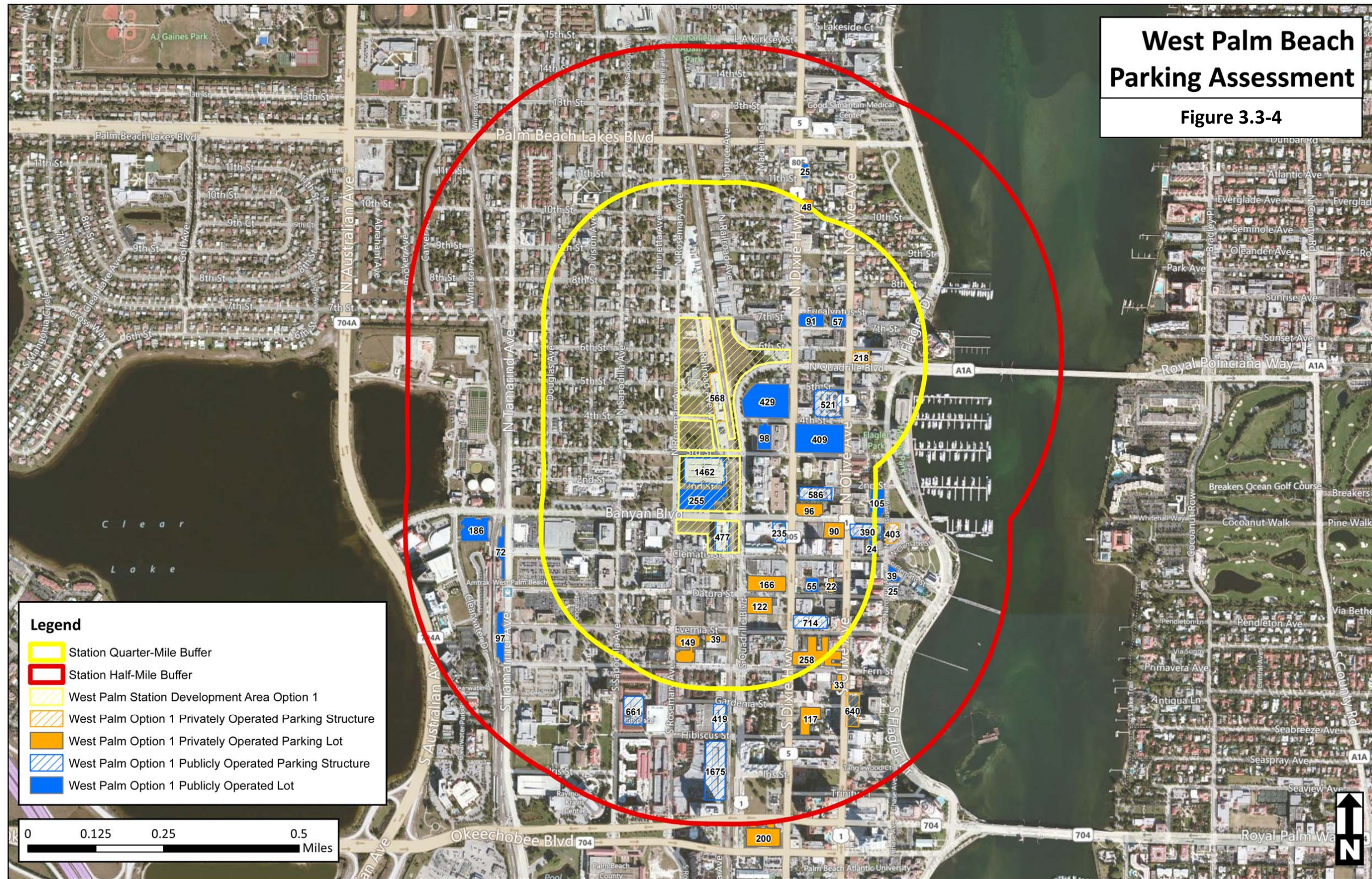


Table 3-3.13
Existing Parking that Occurs within the Proposed Station Development Area
West Palm Beach

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	1	255
Structure	2	1,939
Total Public	3	2,194
Privately Operated		
Surface Lot:	0	0
Structure:	1	568
Total Private	1	568
Total Combined	4	2,762

Table 3-3.14
Off-Street Parking Facilities Available to the General Public within the Quarter Mile Buffer*
West Palm Beach

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	9	1,523
Structure	7	4,384
Total Public	16	5,907
Privately Operated		
Surface Lot:	9	991
Structure:	2	786
Total Private	11	1,777
Total Combined	27	7,684

Table 3-3.15
Off-Street Parking Facilities Available to the General Public within the Half-Mile Buffer**
West Palm Beach

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	15	1,969
Structure	10	7,140
Total Public	25	9,109
Privately Operated		
Surface Lot:	12	1,341
Structure:	4	1,829
Total Private	16	3,170
Total Combined	41	12,279

*Inclusive of Station Development Area Parking Totals, **Inclusive of Station Development Area and ¼ Mile Buffer Totals.

Table 3-3.16
Parking Demand Estimate – West Palm Beach Station

Use	Area (GLA*)	Parking Multiplier	Estimated Parking Demand
Retail (In Station)	10,000 sqft (8,000 sq ft)	4.1 Spaces Per 1,000 sqft GLA*	99 Spaces
Rail Station	771 Boardings	150 Spaces Per 1,000 Boardings	116 Spaces
Total Station Parking Demand			215 Spaces

*GLA – Gross Leasable Area – Assumes 80% of total sqft area, discounting for common areas, equipment and other non-leasable areas.

Fort Lauderdale Station Existing Parking

The **Preferred Build Station Alternatives** in the city of Fort Lauderdale Station is located near the center of the Fort Lauderdale Central Business District. Refer to Figure 3-3.5 for a depiction of the Station location. This proposed Fort Lauderdale station location occupies an area of the city containing 10 parking facilities which in total contain 3,955 parking spaces. The quarter-mile and half-mile buffers were shown to contain 11,494 and 14,333 spaces respectively. See Tables 3-3.17 to 3-3.19 (following Figure 3-3.5) for detailed parking space counts.

Fort Lauderdale Station Parking Demand

Parking estimates were developed through the application of standardized rates contained in the Institute of Transportation Engineers (ITE) parking estimation guide, *Parking Generation, 4th Edition*.

Preliminary plans identify that the West Palm Beach Station will include retail use as well as provide access to inter-city rail service. The estimated station parking demand of 120 spaces is outlined in Table 3-3.20.

Fort Lauderdale Station Parking Availability Compared to Demand

As shown in Table 3-3.19, approximately 14,333 off-street parking spaces are available within a ½ mile radius of the Fort Lauderdale station location. In total, use within the Fort Lauderdale Station is estimated to produce a parking demand for approximately 120 spaces. 60 spaces are planned as part of the station which will offset approximately 50% of the parking demand created by the new station. The remaining demand for parking (60 spaces) represents less than 0.5% of the total number of spaces available to the public within a ½ mile radius of the Fort Lauderdale Station location. Based on the abundance of parking available within close proximity of the station, the increase in demand is expected to be absorbed by the remaining proximate public/private parking facilities. The **Preferred Build Station Alternatives** in the city will not cause significant parking-related impacts at the Fort Lauderdale station location.

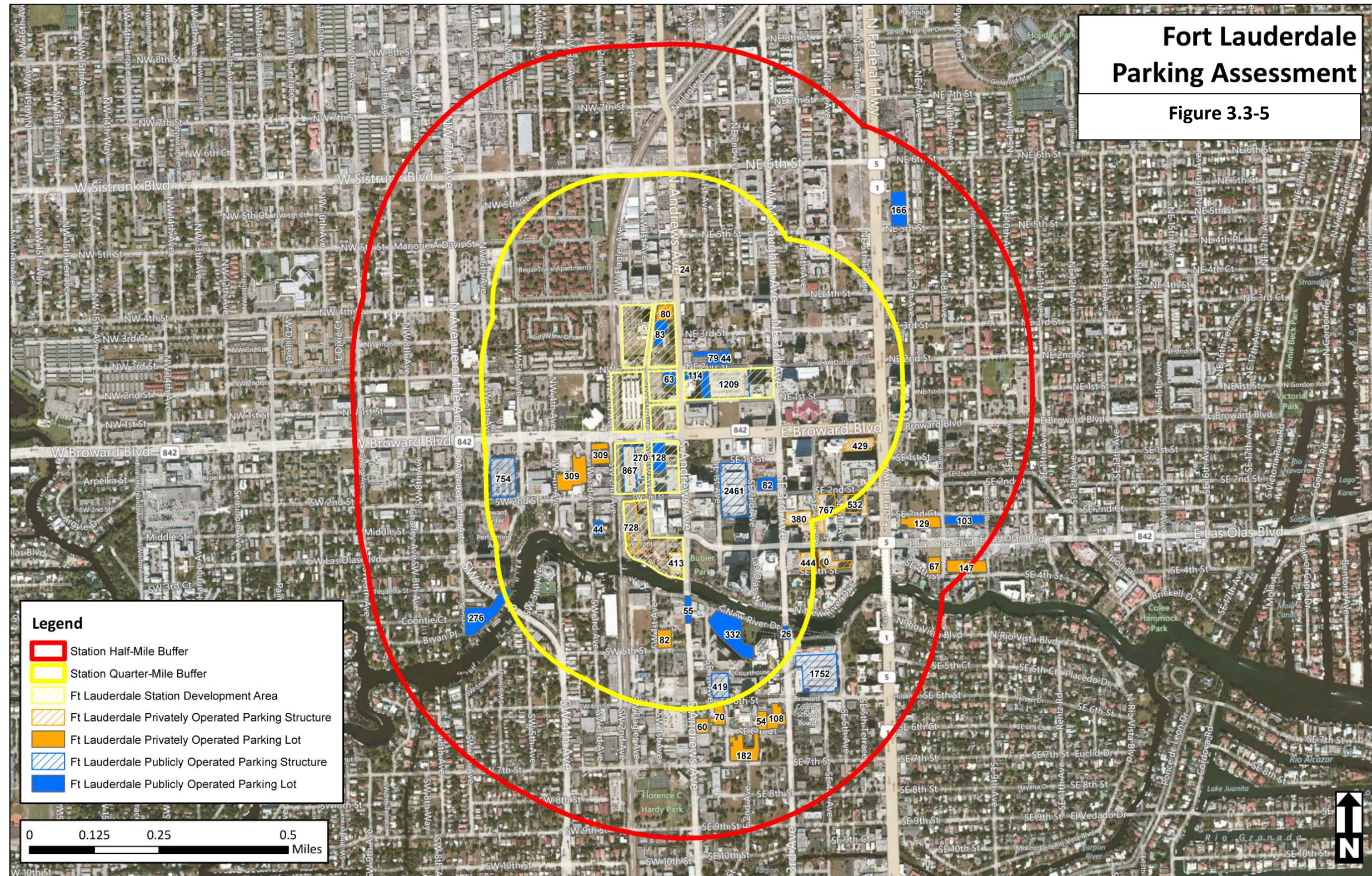


Table 3-3.17
Existing Parking that Occurs within the Proposed Station Development Area
Fort Lauderdale

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	4	388
Structure	3	2,346
Total Public	7	2,734
Privately Operated		
Surface Lot:	1	80
Structure:	2	1,141
Total Private	3	1,221
Total Combined	10	3,955

Table 3-3.18
Off-Street Parking Facilities Available to the General Public within the Quarter Mile Buffer*
Fort Lauderdale

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	12	1,326
Structure	6	5,980
Total Public	18	7,306
Privately Operated		
Surface Lot:	4	495
Structure:	7	3,693
Total Private	11	4,188
Total Combined	29	11,494

Table 3-3.19
Off-Street Parking Facilities Available to the General Public within the Half-Mile Buffer**
Fort Lauderdale

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	14	1,596
Structure	7	7,732
Total Public	21	9,328
Privately Operated		
Surface Lot:	12	1,312
Structure:	8	3,693
Total Private	20	5,005
Total Combined	41	14,333

*Inclusive of Station Development Area Parking Totals, **Inclusive of Station Development Area and ¼ Mile Buffer Totals.

Table 3-3.20
Parking Demand Estimate – Fort Lauderdale Station

Use	Area (GLA*)	Parking Multiplier	Estimated Parking Demand
Retail (In Station)	10,000 sqft (8,000 sqft)	4.1 Spaces Per 1,000 sqft GLA*	33 Spaces
Rail Station	575 Boardings	150 Spaces Per 1,000 Boardings	87 Spaces
Total Station Parking Demand			120 Spaces

*GLA – Gross Leasable Area – Assumes 80% of total sqft area, discounting for common areas, equipment and other non-leasable areas.

Miami Station Existing Parking

Both alternatives considered for the city of Miami, occupy a single area located near the western edge of the Miami Central Business District. Refer to Figure 3-3.6 for a depiction of the Station location. The proposed **Preferred Build Station Alternative** in the city occupies an area of the city containing 4 surface parking lots which in total contain 1,163 publicly operated parking spaces. The quarter-mile and half-mile buffers were shown to contain 13,479 and 21,436 spaces respectively. See Tables 3-3.21 to 3-3.23 for detailed parking space counts.

Miami Station Parking Demand

Parking estimates for the **Preferred Build Station Alternative** in the City of Miami were developed through the application of standardized rates contained in the Institute of Transportation Engineers (ITE) parking estimation guide, *Parking Generation, 4th Edition*.

The proposed location and design of each station option influences the parking demand generated by that facility. Preliminary plans identify that the **Preferred Build Station Alternative** in the city will include a mix of uses as well as provide access to inter-city rail service. The estimated parking demand generated by the **Preferred Build Station Alternative** in the city, 1,711 spaces, is outlined in Table 3-3.24.

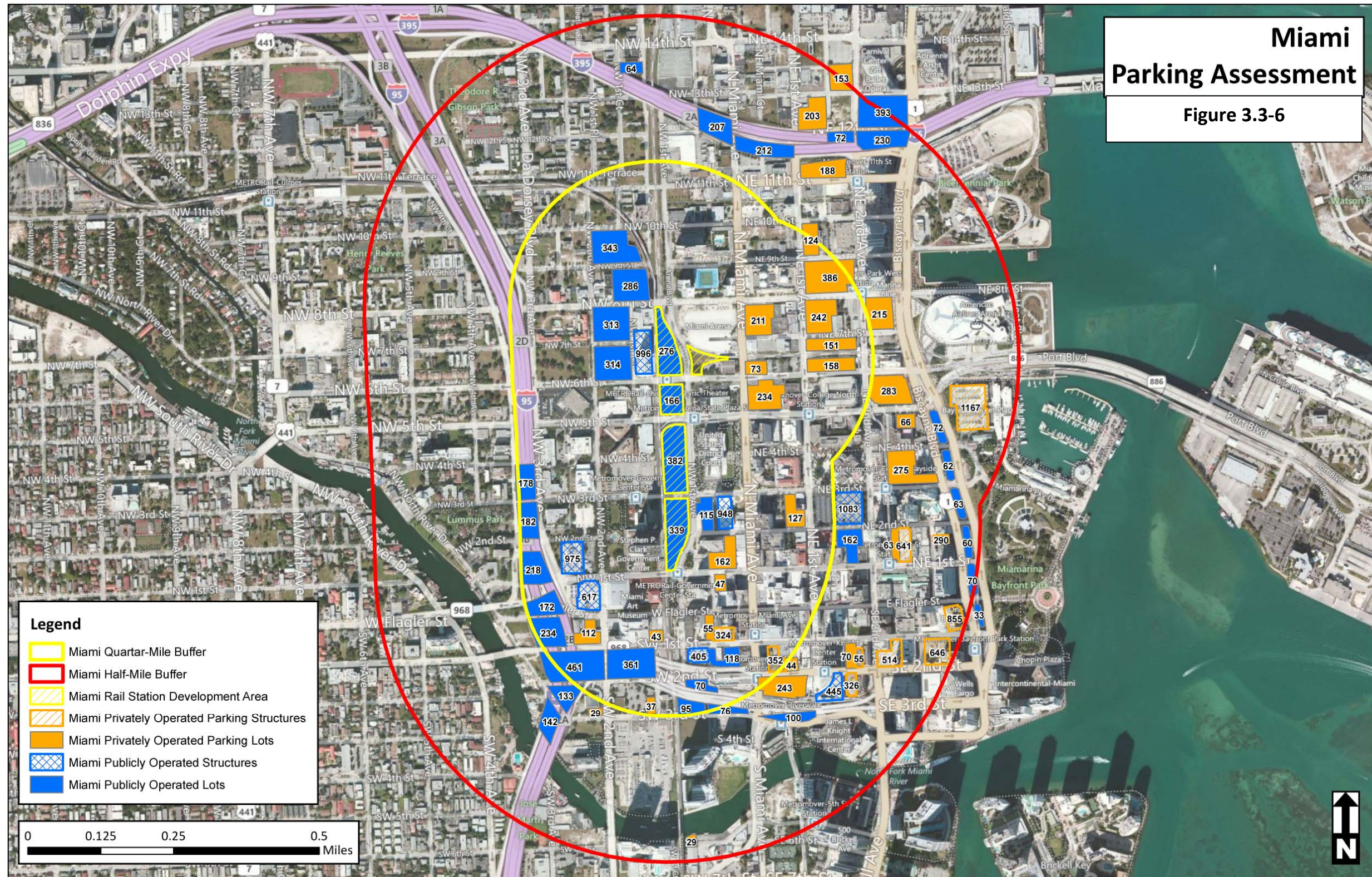


Table 3-3.21
Existing Parking that Occurs within the Proposed Station Development Area
Miami

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	4	1,163
Structure	0	0
Total Public	4	1,163
Privately Operated		
Surface Lot:	0	0
Structure:	0	0
Total Private	0	0
Total Combined	4	1,163

Table 3-3.22
Off-Street Parking Facilities Available to the General Public within the Quarter Mile Buffer*
Miami

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	21	4,832
Structure	9	5,024
Total Public	30	9,856
Privately Operated		
Surface Lot:	19	2,946
Structure:	3	677
Total Private	22	3,623
Total Combined	52	13,479

Table 3-3.23
Off-Street Parking Facilities Available to the General Public within the Half-Mile Buffer**
Miami

Facility Type	Number of Facilities	Number of Spaces
Publicly Operated		
Surface Lot:	36	6,774
Structure	7	5,469
Total Public	43	12,243
Privately Operated		
Surface Lot:	28	4,023
Structure:	10	5,170
Total Private	38	9,193
Total Combined	81	21,436

*Inclusive of Station Development Area Parking Totals, **Inclusive of Station Development Area and ¼ Mile Buffer Parking Totals.

Table 3-3.24 Parking Demand Estimate – Miami Station

Use	Area (GLA*)	Parking Multiplier	Estimated Parking Demand
Retail	75,000 sqft (60,000 sqft)	4.7 Spaces Per 1,000 sqft GLA*	282 Spaces
Retail (In Station)	30,000 sqft (24,000 sqft)	4.1 Spaces Per 1,000 sqft GLA*	99 Spaces
Office	300,000 sqft	1.5 Spaces Per 1,000 sqft	450 Spaces
Hotel	200 Rooms	1 Space Per Room	200 Spaces
Residential	400 Units	1.5 Spaces Per Unit	600 Spaces
Rail Station	533 Boardings	150 Spaces Per 1,000 Boardings	80 Spaces
Total Station Parking Demand			1,711 Spaces

*GLA – Gross Leasable Area – Assumess 80% of total sqft area, discounting for common areas, equipment and other non-leasable areas.

Miami Station Parking Availability Compared to Demand

As shown in Table 3-3.23, approximately 21,436 off-street parking spaces are available within a ½ mile radius of the **Preferred Build Station Alternative** in the City of Miami. In total, use within the **Preferred Build Station Alternative** in the City of Miami is estimated to produce a parking demand for approximately 1,711 spaces. Additionally, a new 1,050 space garage is planned as part of the station complex which will offset approximately 61% of the parking demand created by the new station.

A combination of the remaining demand figure (611 spaces) with the number of spaces displaced by the development of the station (1,163 spaces) provides the total swing of 1,824 spaces in parking demand vs. availability. The combined figure represents 8.5% of the total number of spaces available within walking distance of the station (21,436 spaces).

Based on information provided by Miami Parking Authority operations staff, the estimated weekday parking occupancy rate for structures and surface lots located within Downtown Miami ranges from 30% to 100% detailed as follows:

- The existing city structures located in downtown range from 75-90% occupancy.
- The surface lots near the Governmental Center are occupied near 100% Monday to Wednesday, 90% Thursday, and 70% Friday.
- The surface lots located within the interstate right-of-way support occupancy rates near 30%.

Based on the available parking within walking distance (0.50 miles) of the **Preferred Build Station Alternative** in the City of Miami, the increase in demand and reduction in available spaces is expected to, with minimal effect, be absorbed by the remaining proximate public/private parking areas. It is not anticipated that the **Preferred Build Station Alternative** in the City of Miami will cause significant parking-related impacts.

3.3.2 Land Use

The existing FEC corridor within the Project Area is typically 100 ft wide through Palm Beach, Broward and Miami-Dade Counties, and has had freight and/or passenger service within the corridor throughout its 100-year plus history. Much of southeast Florida can trace its early development to this corridor and communities such as West Palm Beach, Fort Lauderdale and Miami, all of which grew around the corridor and have become an integral part of the community fabric.

The existing FEC corridor traverses established and heavily developed areas of the three counties. Land uses transition from high density, central business district urban, to medium density residential, to industrial and commercial uses. Little vacant and/or undeveloped land exists along the corridor. Due to the age of the existing corridor, established neighborhoods and communities have evolved in conjunction with the corridor.

The three proposed stations within the ***Preferred Build Station Alternatives*** are located within the central business districts of West Palm Beach, Fort Lauderdale and Miami, and their proposed uses and intensities are consistent with all local plans.

- West Palm Beach – Currently designated within the Downtown Planned Unit Development and the future land use map indicates no change in this designation.
- Fort Lauderdale – Currently designated within the Regional Activity Center (Downtown)/ West Mixed Use area and the future land use map indicates no change in this designation.
- Miami – Currently designated as High-Density HDR 60/125 du/ac or more/gross ac and the future land use map indicates no change in this designation.

Property acquisition will be required for the ***Preferred Build Station Alternatives*** for West Palm Beach and may be required for Fort Lauderdale. It is anticipated that the acquisition(s) will occur as part of a property transaction and not as a taking (See Appendix J – Long Range Plans and Maps). It is not anticipated that these property acquisitions will have significant, adverse impacts on property owners or land use planning consistency.

Local Planning Consistency

West Palm Beach

The City of West Palm Beach Master Plan Update (completed in 2007) (the “Plan”) is largely concerned with the quality of vertical development in the downtown. As such, the Plan focuses on the creation of character based zoning districts and the establishment of architectural guidelines and maximum building envelopes, but does not specifically address the City’s overall transportation system. Therefore, the Plan neither encourages nor discourages the development of a project such as this Project proposed by AAF.

The City’s Comprehensive Plan and associated Transportation Element provide Objectives and Policies that clearly support the incorporation of transit within the community:

Policy 1.2.1(c): The City shall promote the designation of land uses and densities which are supportive of mass transit in areas around public transportation corridors.

Objective 1.1.5: The City shall continue to work with PalmTran, Tri-Rail, other transit providers, as well as with public and private entities in increasing the transit modal split for all trips in the City of West Palm Beach.

Policy 1.1.5(f): The City shall continue to coordinate with the appropriate agencies on the adoption and implementation of the South Florida East Coast Corridor Study, which seeks to provide public transit options within the existing FEC railroad corridor.

Policy 3.1.1(c): The City shall encourage and support multimodal connections between, city areas, the Airport, the Downtown, and the Port. Passenger connections between these facilities may be achieved by utilizing Tri-Rail, PalmTran, or other transit facilities.

Fort Lauderdale

The City of Fort Lauderdale's consolidated Downtown Master Plan (adopted in 2003) (the "FL Plan") calls for the improvement of connections from Downtown to regional and statewide mass transit infrastructure as follows:

"One of the most important needs identified by the Downtown Master Plan, a coordinated multi-modal transit plan for Broward County and the entire South Florida region, is essential to the future success of Downtown Fort Lauderdale and other urban centers. Passenger rail service should be encouraged and planned on the existing FEC line that runs through Downtown...it is potentially the single most important catalyst for the revitalization of city centers up and down Florida's east coast, including Downtown Fort Lauderdale. The return of passenger rail service to Downtown would decrease commuter automobile traffic, activate streets with pedestrians, provide Downtown residents with convenient transit connections along the Florida coast, and catalyze rapid economic development."

Goal 5 of the FL Plan provides for the creation of a "multi-modal transit hub at the historic Flagler Rail Line" stating that the "return of passenger service to the FEC rail line would support such a hub and would have an immeasurable positive impact on Downtown." Further, the FL Plan establishes 12 planning principles intended to guide the future growth of Downtown. Of these, Principle 11 "Provide alternatives to the car: walking, transit and cycling" also supports the concept of new passenger rail service such as the Project.

Miami

Miami's Downtown Development Authority completed the 2025 Downtown Miami Master Plan in October of 2009 (the "Master Plan"). The Master Plan is organized by five overarching goals including Goal 5 to "Promote Transit and Regional Connectivity" which provides the following:

"Uncomplicated and non-problematic access to Downtown Miami is critical to its economic and social strength. Access strategies should focus on the continuing development of multiple and intermodal transportation options that ease the ability to get to and from downtown, as well as the ability to move quickly and easily throughout the downtown."

Subsections 5.4 and 5.5 of Goal 5 further support the development of the Project. Section 5.4 “Promote Regional Level/Commuter Transit such as SFEC Corridor, Tri-Rail and High-Speed Rail” specifically supports connectivity to Downtown from other Florida East Coast cities along the FEC corridor and the designation of train stop locations to encourage transit utilization. Section 5.5 “Develop a Viable Downtown Intermodal Center at Government Center or Overtown Metrorail Stations” specifically supports the provision of intermodal facilities connecting to existing and future transit systems, including Metrorail, Tri-Rail, Metromover, Streetcar, Baylink, trolley and light rail.

The **No-Build Alternative** would not impact land use, be inconsistent with zoning, or require need for additional right-of-way.

The **Preferred Build Project Alternative** (which includes the **Preferred Build System Alternative** and all **Preferred Build Station Alternatives**) would not have a significant impact on land use, zoning consistency or property acquisition. Proposed improvements to the mainline are occurring within existing right-of-way and the existing corridor is identified as a transportation land use in all three counties.

3.3.3 Demographics and Environmental Justice

Characteristics of the Population

The total populations for each of the counties and the State of Florida area as follows:

- Florida: 18,801,310
- Three County total: 5,564,635
 - Palm Beach: 1,320,134
 - Broward: 1,748,066
 - Miami-Dade: 2,496,435

Tables 3-3.25 through 3-3.28 summarize demographic information drawn from the 2010 US Census and 2010 American Community Survey. The data is presented by census tract to provide detail in the location of populations. State and County population totals and percentages are presented as a point of comparison for conditions identified within the affected census tracts. The racial minority, elderly, and low-income population groups located within the Project Area are significantly higher than the combined tri-county average. However, the percent of Hispanic residents and percent of the population that speaks English less than “Very Well” (Limited English Proficiency) identified within the proximate census tracts occurred at rates lower than those present within the more generalized area.

A total of 138 Census Tracts from the 2010 US Census were identified within 1000 feet of the FEC right-of-way line. Of these, 46 were located in Palm Beach County, 52 were located in Broward County, and 40 were located in Miami-Dade County.

Table 3-3.25
Project Area Demographic 3-Summary

Area	Total Affected Census Tracts	Total Population	Non-White Population (TP-WP)	Percent Non-White (MP/TP)	Hispanic Population (HP)	Percent Hispanic Population (HP/TP)	Elderly Population (65+)	Percent Elderly Population (65+)	Population Who Speak English Less Than "Very Well"*	Percent Population Who Speak English Less Than "Very Well"*	Population Below Poverty (P)*	Percent Population Below Poverty (P/TP)*
Florida	NA	18,801,310	4,692,148	25.0%	4,223,806	22.5%	3,259,602	17.3%	2,133,967	11.9%	2,502,365	13.3%
Tri-County Total	NA	5,564,635	1,650,396	29.7%	2,312,920	41.6%	886,592	7.0%	1,253,445	22.5%	777,816	11.5%
Project Area	136	548,764	218,003	39.7%	140,790	25.7%	72,795	13.3%	112,861	22.2%	108,208	20.4%
Palm Beach	46	170,687	57,809	33.9%	37,908	22.2%	26,367	15.4%	33,536	20.8%	32,524	19.4%
Broward	52	220,308	89,184	40.5%	45,708	20.7%	27,250	12.4%	39,818	19.0%	43,385	19.9%
Miami-Dade	38	157,769	71,010	45.0%	57,174	36.2%	19,178	12.2%	39,507	28.9%	32,299	22.4%

Source: 2010 US Census SF1, *ACS 2010 is 5-year estimate 2006-2010: DP02, S1702

Table 3-3.26
Palm Beach County Demographic Summary

TRACT	Total Population	Non-White Population	Percent Non-White	Hispanic Population	Percent Hispanic	Elderly Population	Percent Elderly	Population that Speaks English Less Than "Very Well" (LEP)*	Percent LEP*	Number Below Poverty in Past 12 Months*	Percent Below Poverty in Past 12 Months*
002200	1,833	1,744	95.14%	83	4.53%	173	9.44%	43	2.80%	1,010	56.00%
002300	2,566	1,320	51.44%	272	10.60%	267	10.41%	117	7.00%	611	33.80%
002400	1,571	1,462	93.06%	82	5.22%	129	8.21%	0	0.00%	696	46.10%
002600	1,361	239	17.56%	210	15.43%	261	19.18%	146	16.80%	91	10.40%
002700	5,482	781	14.25%	810	14.78%	1,404	25.61%	159	3.80%	384	11.80%
002800	3,463	938	27.09%	1,062	30.67%	259	7.48%	611	19.30%	529	15.80%
003300	4,288	1,378	32.14%	2,939	68.54%	576	13.43%	2,216	52.70%	917	20.40%
003400	3,897	664	17.04%	1,369	35.13%	628	16.12%	1,038	23.90%	856	18.90%
003600	5,322	685	12.87%	1,917	36.02%	747	14.04%	1,069	21.20%	1,133	20.10%
003700	5,679	990	17.43%	3,856	67.90%	694	12.22%	1,923	35.30%	1,193	20.50%
004401	3,398	1,190	35.02%	1,332	39.20%	402	11.83%	923	29.30%	287	9.70%
004402	4,628	2,258	48.79%	2,560	55.32%	415	8.97%	2,181	48.00%	1,561	32.90%
005101	2,769	1,617	58.40%	2,066	74.61%	102	3.68%	1,809	75.70%	428	17.40%
005102	5,559	3,832	68.93%	2,111	37.97%	466	8.38%	2,560	52.10%	1,336	25.50%
005202	4,137	1,765	42.66%	1,699	41.07%	297	7.18%	1,495	40.60%	1,325	32.90%
005203	2,213	648	29.28%	835	37.73%	185	8.36%	159	11.40%	164	10.80%
005204	3,389	935	27.59%	1,158	34.17%	277	8.17%	1,381	34.00%	1,324	29.20%
005300	4,601	438	9.52%	544	11.82%	806	17.52%	396	9.10%	802	17.80%
005501	3,394	981	28.90%	681	20.06%	461	13.58%	755	24.80%	639	20.00%
005502	6,126	2,158	35.23%	1,203	19.64%	564	9.21%	853	14.80%	1,067	17.40%
005602	2,437	444	18.22%	239	9.81%	508	20.85%	67	3.30%	156	7.10%
005701	4,182	2,452	58.63%	625	14.95%	851	20.35%	1,323	32.80%	970	22.50%
005702	6,185	4,207	68.02%	673	10.88%	857	13.86%	1,780	30.70%	1,325	22.80%
006100	3,726	2,703	72.54%	233	6.25%	495	13.29%	441	10.50%	1,288	27.50%
006201	4,619	2,625	56.83%	791	17.12%	334	7.23%	1,869	40.70%	1,788	35.80%
006202	2,110	271	12.84%	243	11.52%	758	35.92%	89	5.50%	114	7.10%
006203	2,161	564	26.10%	240	11.11%	1,057	48.91%	376	16.00%	371	15.80%
006300	5,363	1,260	23.49%	529	9.86%	1,152	21.48%	701	13.40%	412	7.90%
006401	1,877	113	6.02%	133	7.09%	272	14.49%	60	2.90%	143	6.60%
006402	3,592	150	4.18%	178	4.96%	1,505	41.90%	136	3.80%	309	8.40%
006501	1,717	697	40.59%	212	12.35%	135	7.86%	218	15.50%	416	26.60%
006502	3,285	1,457	44.35%	373	11.35%	201	6.12%	447	18.10%	587	22.50%
006602	3,511	219	6.24%	247	7.04%	489	13.93%	204	5.60%	267	7.00%
006700	2,379	2,108	88.61%	114	4.79%	320	13.45%	205	10.40%	425	21.20%
006801	4,808	3,738	77.75%	717	14.91%	503	10.46%	1,341	29.20%	1,229	25.30%
006802	3,069	2,771	90.29%	263	8.57%	340	11.08%	957	31.60%	845	26.60%
006906	4,345	725	16.69%	519	11.94%	752	17.31%	406	9.40%	586	13.20%
007201	5,183	496	9.57%	641	12.37%	1,330	25.66%	760	13.10%	931	16.00%
007202	3,801	558	14.68%	548	14.42%	537	14.13%	189	4.80%	670	16.60%
007203	5,012	1,312	26.18%	1,203	24.00%	605	12.07%	695	13.70%	1,527	29.00%
007301	4,040	630	15.59%	464	11.49%	748	18.51%	242	6.30%	336	8.70%
007302	4,912	895	18.22%	731	14.88%	722	14.70%	425	9.20%	474	9.90%
007501	3,314	788	23.78%	416	12.55%	701	21.15%	228	7.10%	420	12.60%
007504	2,924	257	8.79%	273	9.34%	837	28.63%	224	8.40%	212	7.50%
007505	2,288	122	5.33%	158	6.91%	749	32.74%	129	7.20%	125	7.00%
007605	4,171	224	5.37%	356	8.54%	496	11.89%	190	4.70%	245	5.90%
Census Tract	170,687	57,809	33.87%	37,908	22.21%	26,367	15.45%	33,536	20.82%	32,524	19.40%
Palm Beach	1,320,134	350,013	26.51%	250,823	19.0%	285,155	21.60%	162,533	12.9%	156,759	12.23%
State of Florida	18,801,310	4,692,148	24.96%	4,223,806	22.5%	3,259,602	17.30%	2,133,967	11.9%	2,502,365	13.82%

Source: 2010 US Census SF1, *ACS 2010 is 5-year estimate 2006-2010: DP02, S1702

**Table 3-3.27
Broward County Demographic Summary**

TRACT	Total Population	Non-White Population	Percent Non-White	Hispanic Population	Percent Hispanic	Elderly Population	Percent Elderly	Population that Speaks English Less Than "Very Well" (LEP)*	Percent LEP*	Number Below Poverty in Past 12 Months*	Percent Below Poverty in Past 12 Months*
010200	6,063	1,292	21.31%	902	14.88%	906	14.94%	1,170	19.90%	906	14.80%
010304	3,321	2,815	84.76%	312	9.39%	377	11.35%	705	25.40%	785	27.10%
010305	4,626	1,984	42.89%	944	20.41%	715	15.46%	713	18.10%	834	19.20%
010306	2,365	1,655	69.98%	184	7.78%	388	16.41%	343	16.70%	461	21.60%
010307	4,463	3,150	70.58%	664	14.88%	556	12.46%	767	16.90%	1,433	30.10%
010702	7,944	5,605	70.56%	1,328	16.72%	968	12.19%	2,004	24.80%	2,100	27.00%
010800	6,199	2,132	34.39%	1,785	28.80%	476	7.68%	1,736	29.00%	866	13.70%
030201	3,838	1,390	36.22%	1,025	26.71%	441	11.49%	857	22.50%	559	13.30%
030202	1,550	693	44.71%	192	12.39%	142	9.16%	430	21.70%	609	28.50%
030302	7,134	4,773	66.91%	1,120	15.70%	1,229	17.23%	2,346	34.90%	1,773	25.10%
030401	3,017	2,922	96.85%	122	4.04%	503	16.67%	387	12.30%	822	24.90%
030402	3,584	3,379	94.28%	309	8.62%	272	7.59%	585	17.20%	1,125	32.00%
030801	7,181	3,456	48.13%	2,479	34.52%	1,455	20.26%	2,950	38.90%	2,031	26.90%
030903	3,496	801	22.91%	519	14.85%	377	10.78%	425	13.60%	742	22.00%
030904	4,499	304	6.76%	438	9.74%	810	18.00%	124	3.10%	139	3.20%
031001	2,511	580	23.10%	337	13.42%	309	12.31%	288	12.90%	408	18.30%
031002	4,212	631	14.98%	503	11.94%	731	17.36%	208	5.40%	410	10.60%
040205	4,742	542	11.43%	665	14.02%	771	16.26%	307	7.30%	197	4.40%
040300	3,938	524	13.31%	626	15.90%	677	17.19%	601	14.00%	544	12.90%
040701	2,722	350	12.86%	384	14.11%	297	10.91%	122	4.80%	237	9.00%
040702	3,565	855	23.98%	509	14.28%	405	11.36%	271	7.20%	277	8.20%
040802	4,254	2,093	49.20%	650	15.28%	249	5.85%	788	20.40%	626	14.80%
041600	5,572	5,019	90.08%	214	3.84%	332	5.96%	216	4.60%	2,522	47.30%
041700	3,797	3,031	79.83%	281	7.40%	209	5.50%	911	24.00%	1,938	48.50%
041801	1,787	217	12.14%	243	13.60%	163	9.12%	135	9.10%	76	4.50%
042302	1,215	369	30.37%	288	23.70%	219	18.02%	336	22.20%	211	13.90%
042500	6,890	1,951	28.32%	911	13.22%	436	6.33%	735	13.60%	503	10.70%
042600	5,289	1,331	25.17%	560	10.59%	708	13.39%	191	3.70%	1,401	26.90%
043301	4,493	647	14.40%	879	19.56%	547	12.17%	395	9.80%	378	8.90%
043302	1,968	512	26.02%	660	33.54%	143	7.27%	181	13.30%	380	26.00%
050100	4,418	989	22.39%	2,260	51.15%	371	8.40%	1,797	36.80%	728	14.10%
050501	3,616	871	24.09%	1,152	31.86%	313	8.66%	449	14.90%	352	11.30%
050502	4,483	1,135	25.32%	1,510	33.68%	377	8.41%	1,180	25.80%	645	13.60%
050601	3,396	358	10.54%	492	14.49%	496	14.61%	387	11.40%	181	5.10%
050602	3,558	917	25.77%	875	24.59%	440	12.37%	916	26.40%	439	12.00%
050702	5,979	3,192	53.39%	2,194	36.70%	383	6.41%	2,239	41.20%	1,274	21.50%
050900	5,651	1,659	29.36%	797	14.10%	666	11.79%	762	12.20%	850	13.10%
051001	3,379	375	11.10%	440	13.02%	467	13.82%	198	7.00%	101	3.50%
051002	2,626	204	7.77%	263	10.02%	631	24.03%	55	2.40%	180	7.90%
080101	4,931	622	12.61%	942	19.10%	1,201	24.36%	869	18.30%	504	10.20%
080102	4,237	1,434	33.84%	874	20.63%	560	13.22%	456	13.60%	569	15.80%
080200	1,172	115	9.81%	168	14.33%	329	28.07%	142	13.60%	62	5.90%
080500	6,786	5,858	86.32%	818	12.05%	722	10.64%	592	10.30%	1,548	25.50%
090301	2,401	726	30.24%	682	28.40%	351	14.62%	549	14.10%	1,889	47.70%
090302	6,706	1,491	22.23%	1,597	23.81%	951	14.18%	1,360	22.00%	1,388	21.50%
090403	3,271	1,238	37.85%	1,264	38.64%	329	10.06%	967	31.10%	968	28.10%
090404	4,852	1,632	33.64%	1,723	35.51%	442	9.11%	724	17.20%	741	16.90%
091801	5,531	3,170	57.31%	1,620	29.29%	485	8.77%	892	18.00%	950	18.30%
091902	4,642	1,473	31.73%	1,574	33.91%	440	9.48%	885	21.50%	721	16.70%
100201	1,218	385	31.61%	563	46.22%	188	15.44%	574	45.30%	324	24.50%
100300	6,053	2,184	36.08%	2,769	45.75%	781	12.90%	1,534	25.30%	1,647	24.70%
100400	5,167	4,153	80.38%	1,098	21.25%	516	9.99%	1,064	18.90%	2,031	32.50%
Census Tracts	220,308	89,184	40.48%	45,708	20.75%	27,250	12.37%	39,818	18.99%	43,385	19.86%
Broward County	1,748,066	645,835	37.0%	438,247	25.1%	249,424	14.3%	253,209	15.1%	210,964	12.3%
State of Florida	18,801,310	4,692,148	25.0%	4,223,806	22.5%	3,259,602	17.3%	2,133,967	11.9%	2,502,365	13.8%

Source: 2010 US Census SF1, *ACS 2010 is 5-year estimate 2006-2010: DP02, S1702

Table 3-3.28
Miami-Dade County Demographic Summary

TRACT	Total Population	Non-White Population	Percent Non-White	Hispanic Population	Percent Hispanic	Elderly Population	Percent Elderly	Population that Speaks English Less Than "Very Well" (LEP)*	Percent LEP*	Number Below Poverty in Past 12 Months*	Percent Below Poverty in Past 12 Months*
000109	4,086	1,752	42.88%	1,835	44.91%	290	7.10%	873	29.20%	576	19.50%
000113	6,913	737	10.66%	2,544	36.80%	1,430	20.69%	1,128	19.10%	724	11.60%
000120	4,289	578	13.48%	1,993	46.47%	609	14.20%	479	14.20%	237	6.60%
000124	3,206	1,666	51.97%	1,122	35.00%	341	10.64%	746	31.10%	48	2.40%
000128	2,664	420	15.77%	1,319	49.51%	363	13.63%	550	33.20%	163	9.70%
000131	2,378	331	13.92%	1,022	42.98%	221	9.29%	529	47.90%	22	2.00%
000132	5,622	744	13.23%	2,178	38.74%	2,026	36.04%	1,272	26.10%	869	17.60%
000134	2,806	385	13.72%	1,176	41.91%	704	25.09%	750	25.00%	666	21.60%
000206	5,349	4,294	80.28%	1,193	22.30%	581	10.86%	1,492	30.20%	1,335	24.60%
000209	6,695	5,401	80.67%	1,202	17.95%	510	7.62%	2,221	34.10%	1,708	24.70%
000211	3,149	1,203	38.20%	1,574	49.98%	361	11.46%	567	23.00%	337	13.10%
000212	4,616	3,085	66.83%	1,560	33.80%	312	6.76%	2,124	43.40%	720	14.70%
000214	5,941	2,496	42.01%	1,874	31.54%	827	13.92%	1,752	35.80%	1,258	23.80%
000219	4,643	3,222	69.39%	1,387	29.87%	488	10.51%	1,149	25.80%	1,426	29.60%
000220	4,713	3,493	74.11%	1,112	23.59%	380	8.06%	1,873	42.20%	954	19.80%
001104	4,508	1,491	33.07%	1,445	32.05%	509	11.29%	538	13.10%	452	10.10%
001203	7,515	4,825	64.20%	2,194	29.19%	618	8.22%	2,084	31.40%	1,303	18.10%
001205	2,996	561	18.73%	945	31.54%	395	13.18%	143	5.00%	154	5.10%
001206	4,574	862	18.85%	1,403	30.67%	932	20.38%	360	9.80%	431	10.80%
001301	4,545	2,341	51.51%	1,786	39.30%	510	11.22%	1,573	37.40%	896	19.60%
001302	5,527	2,201	39.82%	1,985	35.91%	543	9.82%	1,956	33.80%	1,647	26.80%
001402	4,853	4,271	88.01%	626	12.90%	508	10.47%	1,954	44.70%	2,993	64.30%
002001	3,781	3,452	91.30%	430	11.37%	545	14.41%	1,524	40.40%	1,531	37.00%
002004	2,909	2,279	78.34%	781	26.85%	339	11.65%	1,126	40.50%	1,093	37.80%
002100	2,453	644	26.25%	895	36.49%	315	12.84%	537	22.50%	485	19.10%
002201	3,573	1,659	46.43%	1,392	38.96%	716	20.04%	998	29.50%	816	25.00%
002600	5,647	1,989	35.22%	3,886	68.82%	453	8.02%	2,181	56.00%	1,673	39.10%
002702	2,553	764	29.93%	1,721	67.41%	173	6.78%	963	46.20%	276	12.50%
002705	2,642	593	22.45%	1,391	52.65%	234	8.86%	588	24.50%	137	5.60%
002706	3,442	960	27.89%	2,310	67.11%	175	5.08%	935	37.70%	653	23.00%
002800	1,630	1,090	66.87%	636	39.02%	99	6.07%	398	16.60%	1,401	58.40%
003100	4,416	3,939	89.20%	724	16.39%	379	8.58%	363	10.20%	1,517	41.80%
003400	2,320	2,151	92.72%	291	12.54%	193	8.32%	45	2.20%	1,108	45.70%
003601	3,027	1,492	49.29%	1,829	60.42%	630	20.81%	994	39.70%	1,389	51.70%
003702	4,655	1,338	28.74%	2,176	46.75%	162	3.48%	565	22.10%	480	17.30%
003704	1,178	260	22.07%	731	62.05%	78	6.62%	287	40.40%	147	19.60%
003705	1,069	175	16.37%	687	64.27%	14	1.31%	117	33.30%	35	10.00%
003706	1,622	649	40.01%	744	45.87%	26	1.60%	271	41.40%	0	0.00%
009703	3,608	404	11.20%	1,085	30.07%	388	10.75%	334	10.50%	198	5.80%
009704	5,656	813	14.37%	1,990	35.18%	801	14.16%	1,168	20.50%	441	7.10%
Census Tracts	157,769	71,010	45.01%	57,174	36.24%	19,178	12.16%	39,507	28.90%	32,299	22.36%
Miami-Dade	2,496,435	654,548	26.2%	1,623,859	65.0%	352,013	14.1%	837,703	34.9%	410,093	17.2%
State of Florida	18,801,310	4,692,148	25.0%	4,223,806	22.5%	3,259,602	17.3%	2,133,967	11.9%	2,502,365	13.8%

Source: 2010 US Census SF1, *ACS 2010 is 5-year estimate 2006-2010: DP02, S1702

Environmental Justice

Regulatory Setting

In February 1994, the President of the United States issued Executive Order 12898 (Environmental Justice) requiring federal agencies to analyze and address, as appropriate, disproportionately high adverse human health and environmental effects of federal actions on ethnic and cultural minority populations and low-income populations, when such analysis is required by NEPA. An adverse effect on minority and/or low-income populations occurs when:

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

In addition to compliance with Executive Order 12898, any proposed federal project must comply with the provisions of Title VI of the Civil Rights Act of 1964, as amended by Title VIII of the Civil Rights Act of 1968. Title VI of the 1964 Civil Rights Act provides that no person will, on the grounds of race, color, religion, sex, national origin, marital status, disability, or family composition be excluded from participation in, be denied the benefits of, or be otherwise subject to discrimination under any program of the federal, state, or local government. Title VIII of the 1968 Civil Rights Act guarantees each person equal opportunity in housing.

Assessment of Population and Effect

Criteria outlined in, *Environmental Justice, Guidance Under the National Environmental Policy Act*, published by the Council on Environmental Quality (CEQ) in December 1997, guide the examination of potential environmental justice effects, and were applied to identify the areas containing minority and low-income populations. The CEQ criteria are as follows:

1. The minority or low-income population exceeds 50% in the impacted area.
2. The minority or low-income population percentage in the impacted area is “meaningfully greater” than the minority or low-income population in the general population or other appropriate geographic area.
3. There is more than one minority or low-income group present and the minority or low-income percentage, as calculated by summing all minority or low-income persons, meets one of the thresholds presented above.

In addition to the identification of the presence of minority and low-income populations, an assessment of impact related to the proposed federal action must occur. *Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analysis*, published by the Environmental Protection Agency (EPA) in April 1998, poses two questions to be answered in the assessment of project impact.

1. Does the potentially affected community include minority and/or low-income populations?
2. Are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community and/or tribal resources?

The Project Area for the environmental justice analysis includes the 138 Census Tracts located within 1000 feet of the FEC right-of-way line. The vast majority of negative effects associated with the introduction of additional rail traffic will occur within this area. The following sections assess the presence of minority and low-income populations within the Project Area and the location of identified impacts within areas containing these populations.

Race

Presence of the Population

The combined total minority (non-white) population of Broward, Miami, and Palm Beach counties is 29.7% non-white. When similar demographic analysis is applied to the 138 census tracts making up the demographic study area, 39.7% of the population is found to be non-white. Of the census tracts within the Project Area, 50.7% of the tracts exceed the tri-county non-white population average.

When the CEQ guidelines outlined above are applied to the figures presented in Table 3-3.29, the following conclusions may be reached:

**Table 3-3.29
Percent Non-White**

Statistical Area	Non-White
State of Florida	25.0%
Tri-County Area	29.7%
Census Tract Study Area	39.7%

Source: 2010 US Census

1. Does the minority population exceed 50% in the impacted area?
 - o Overall the proposed Project Area does not meet this criterion for racial minority populations.
2. Is the minority population percentage in the impacted area “meaningfully greater” than the minority or low-income population in the general population or other appropriate geographic area?
 - o The percentage of minority residents within the Project Area exceeds the tri-county average by 10.0% representing a proportion within the Project Area that is deemed to be “meaningfully greater” when compared to the regional population.
3. Is there more than one minority group present and does the minority percentage, as calculated by summing all minority persons, meet one of the thresholds presented above?
 - o The calculation used to assess the project impact on racial groups combines all non-white racial minorities into a single statistical grouping. The combined figure is used in all demographic analysis.

Based on the result of the demographic assessment, minority populations subject to protection under Executive Order 12898 are present within the Project Area.

Location of Impact

Having established the presence of a significant minority population within the Project Area, direction from the EPA’s NEPA Compliance guide may be applied to assess whether the environmental impacts are likely to fall disproportionately on minority members of the community.

As identified in Section 3.1.7, severe noise impacts were identified at 5,934 sites within 102 census tracts. Of the 102 impacted tracts, 58 (56.9%) contain populations that exceed the tri-county non-white

population average. Additional analysis shows that those 58 affected census tracts contain 3,430 (57.8%) of the severe noise impact locations. The table below summarizes percent minority and location of Impact.

**Table 3-3.30
 Location of Impact**

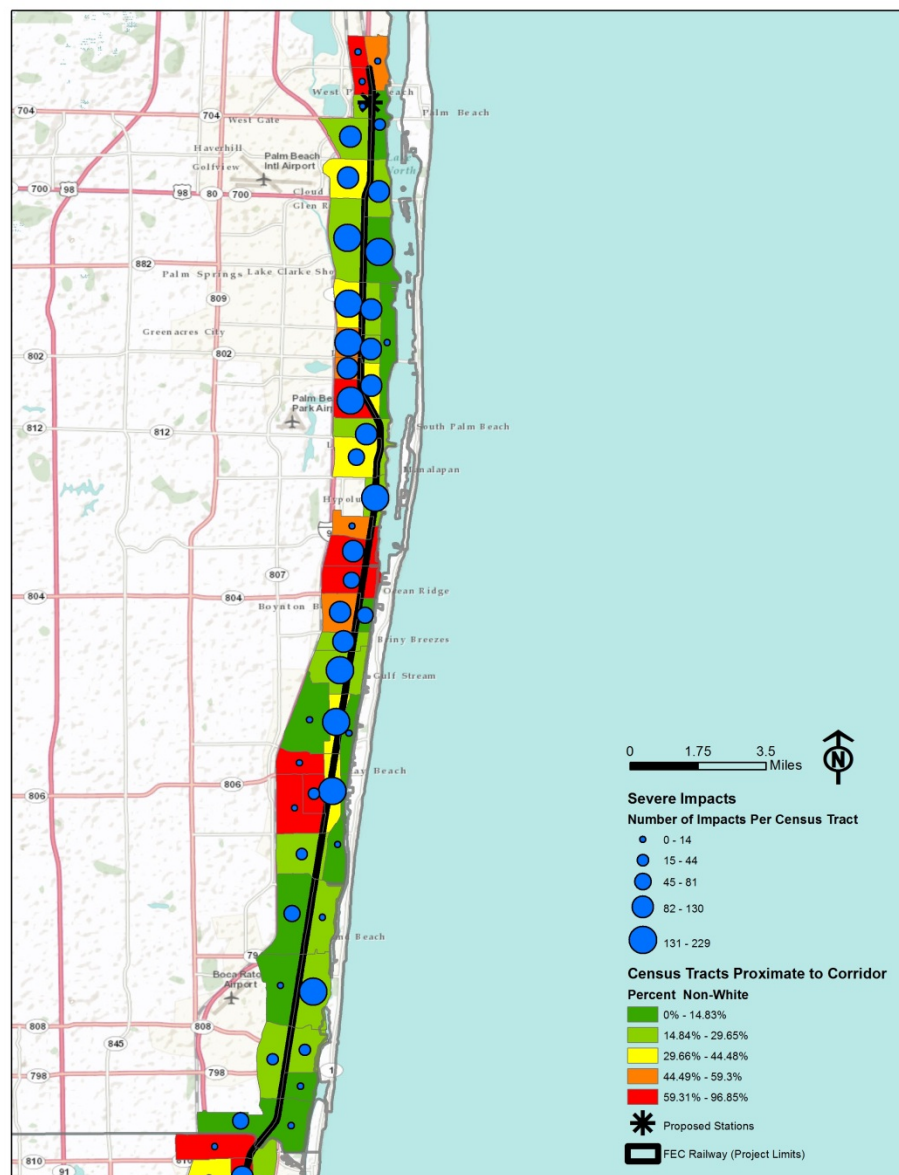
Location of Impacts	Total
Number of Census Tracts With Non-White Population Greater than 29.7% (established Tri-County average) Containing Severe Impact Locations	58 (56.9% of 102 tracts with severe impacts)
Total Number of Severe Impact Locations within the 58 Affected High-Minority Tracts	3,430 (57.8% of total number of severe impacts)

Source: 2012 Noise and Vibration Analysis, 2010 US Census

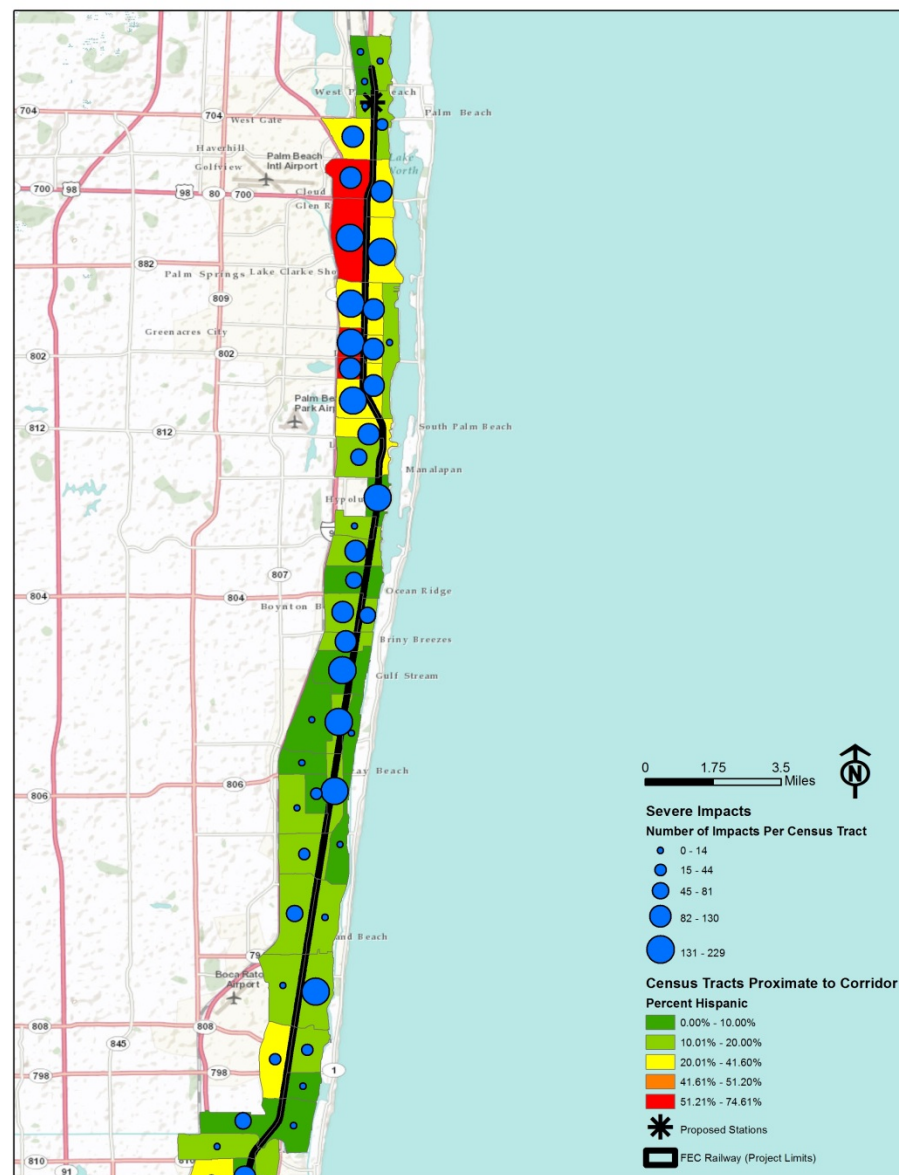
These figures confirm that when compared to the tri-county average, the impact to minority populations is high but not disproportionate. Figures 3-3.7 through 3-3.9 illustrate the relative uniform distribution of severe noise impact locations along the corridor showing that impacts fall generally equally between proximate census tracts in areas containing both high and low minority population percentages, see Table 3-3.30.

In consideration of the result of the impact assessment, minority populations present will be impacted by the proposed action, however, not in a manner disproportionate to the effect observed in the proximate census tracts overall.

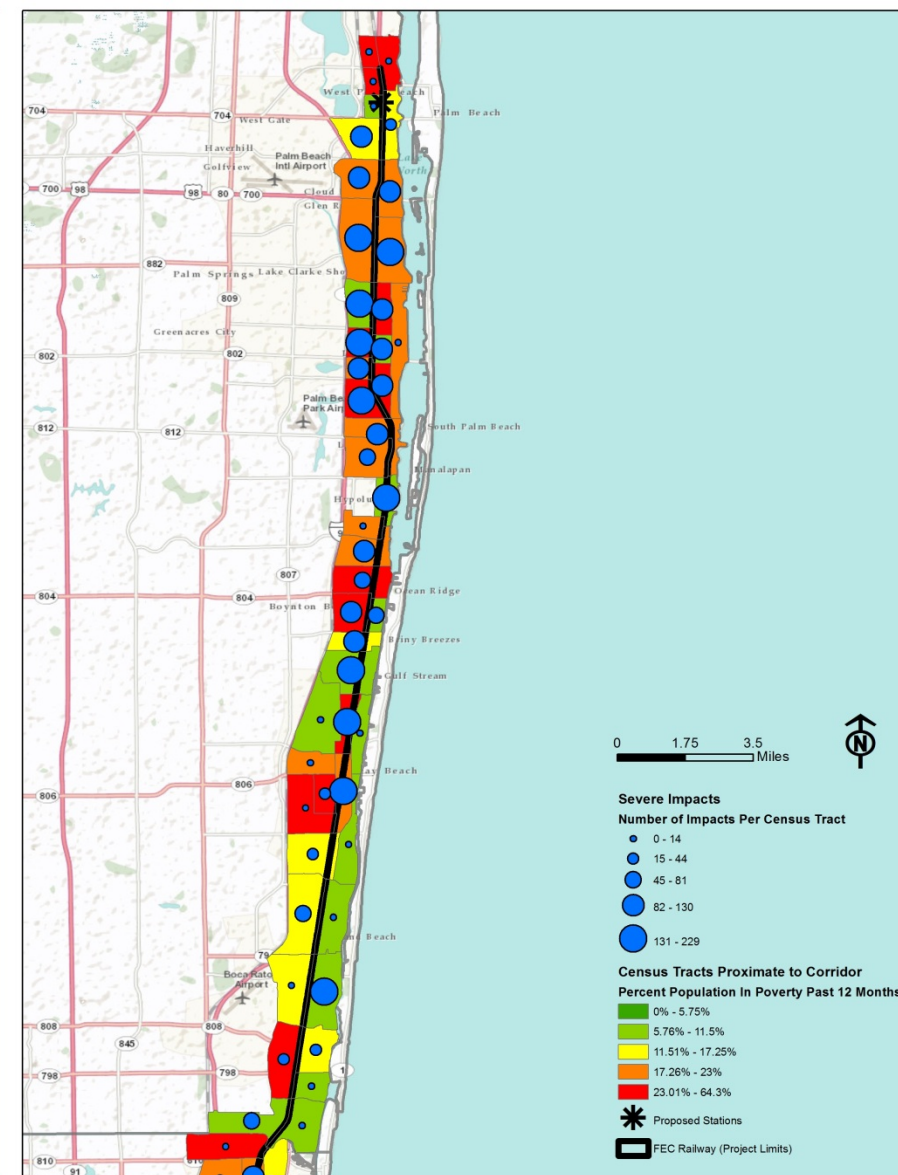
Figure 3-3.7
Race, Ethnicity and Poverty Levels - Palm Beach County
Noise Impacts



Race by census tract in excess of three county average.

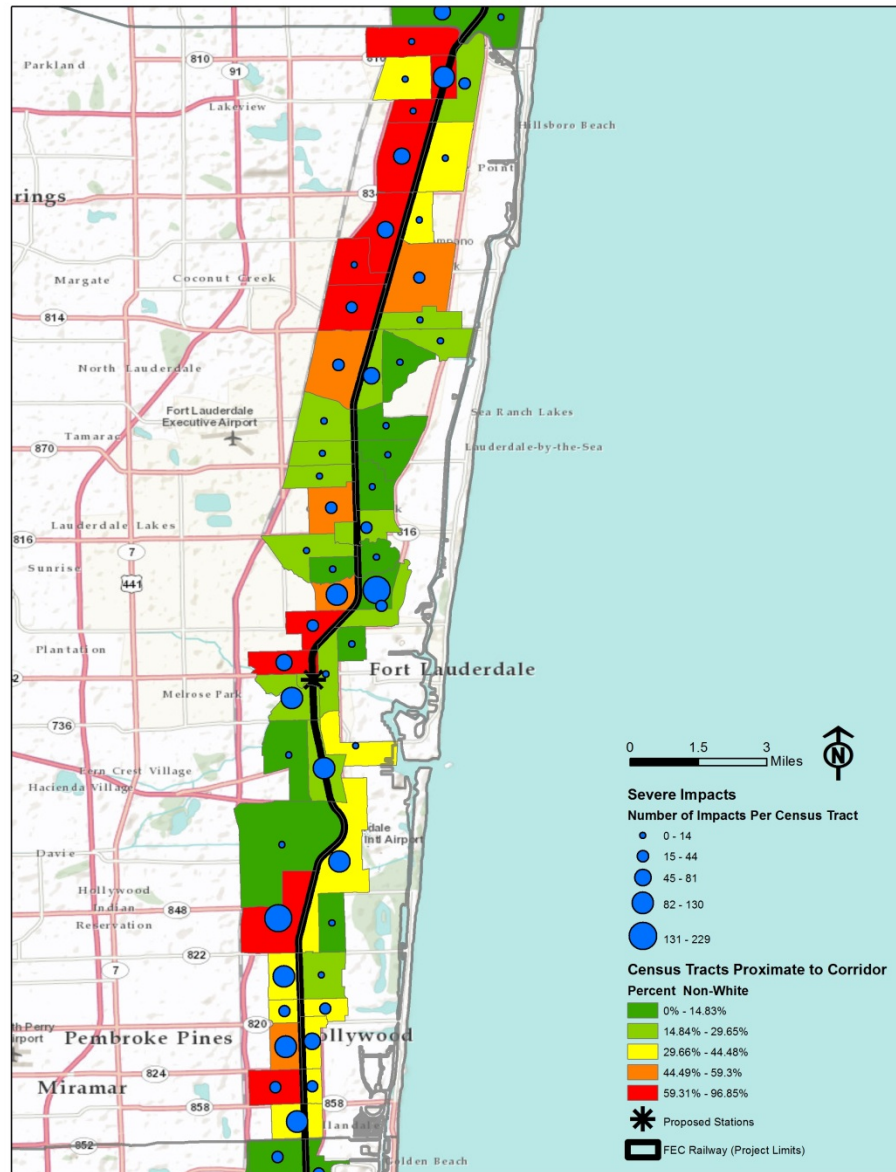


Ethnicity by census tract in excess of three county average.

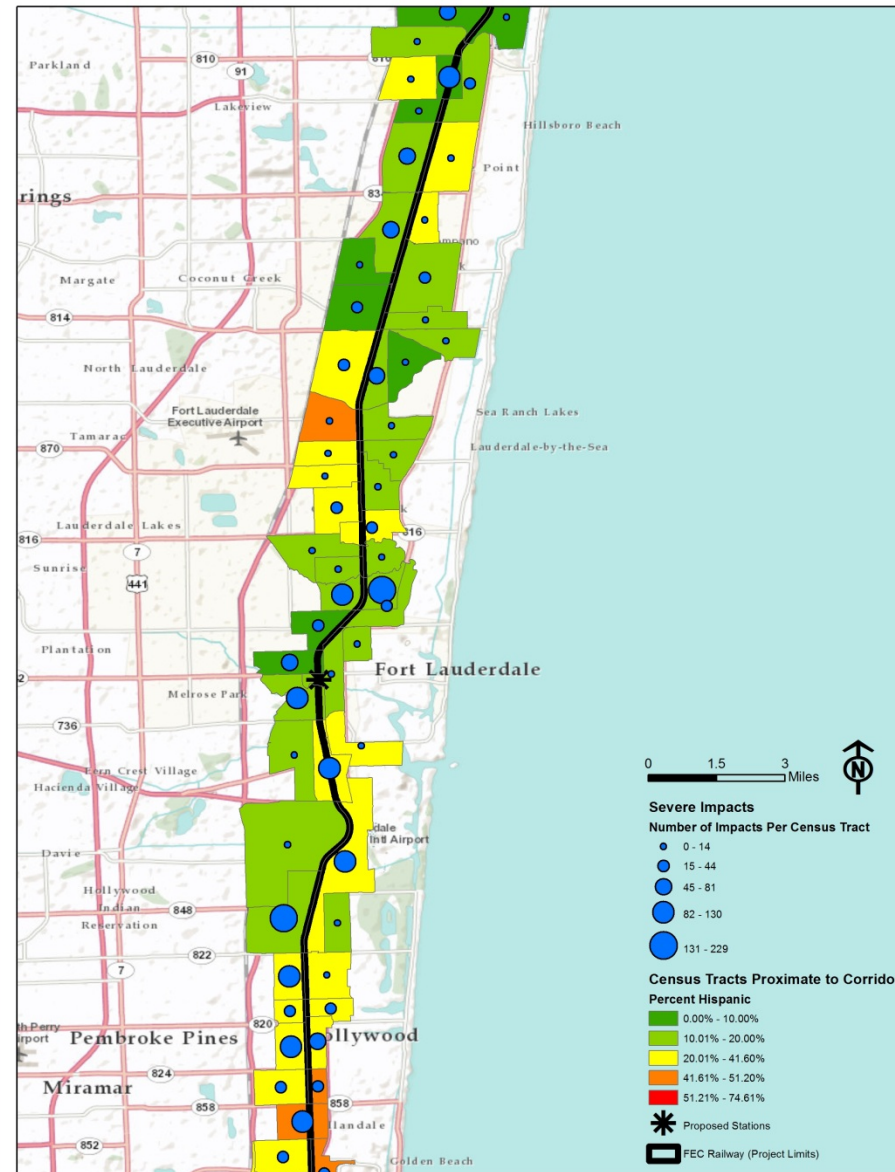


Poverty by census tract in excess of three county average.

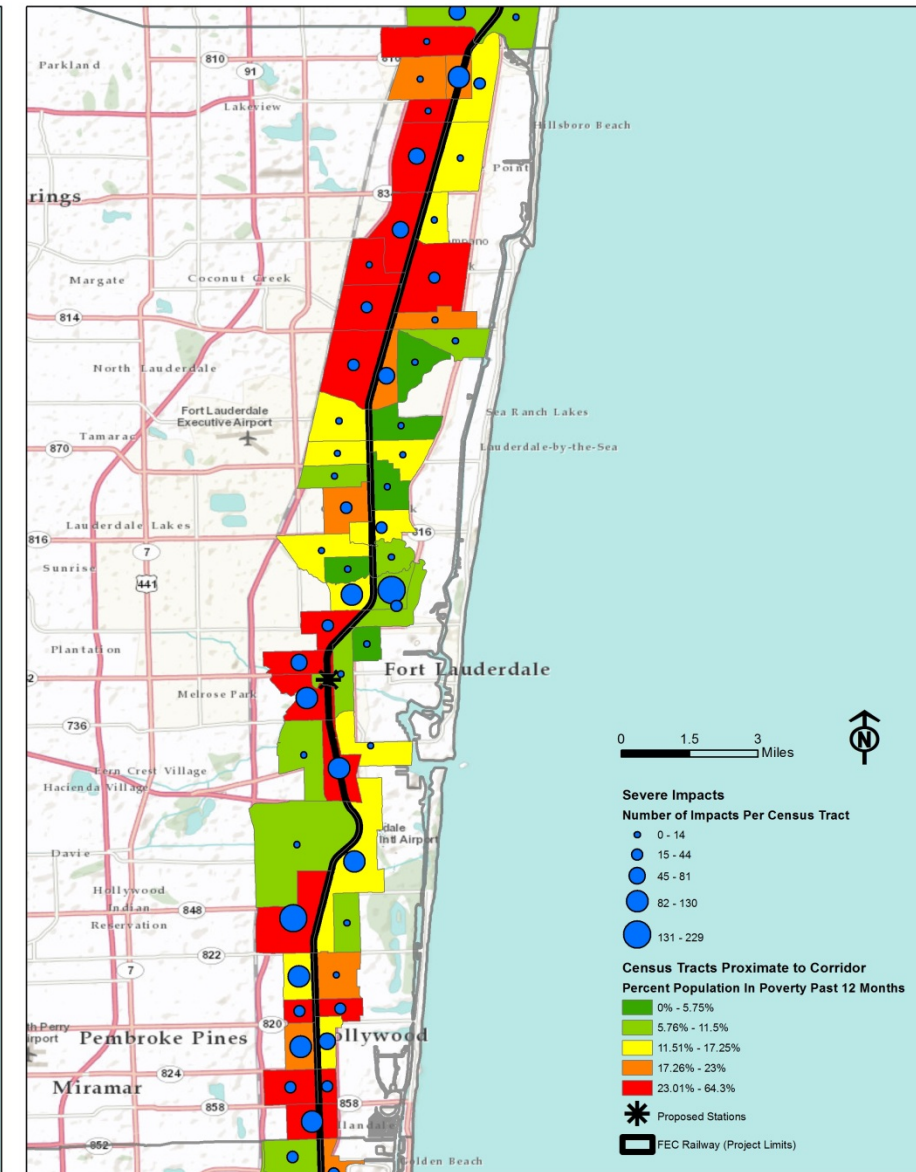
Figure 3-3.8
 Race, Ethnicity and Poverty Levels - Broward County
 Noise Impacts



Race by census tract in excess of three county average.

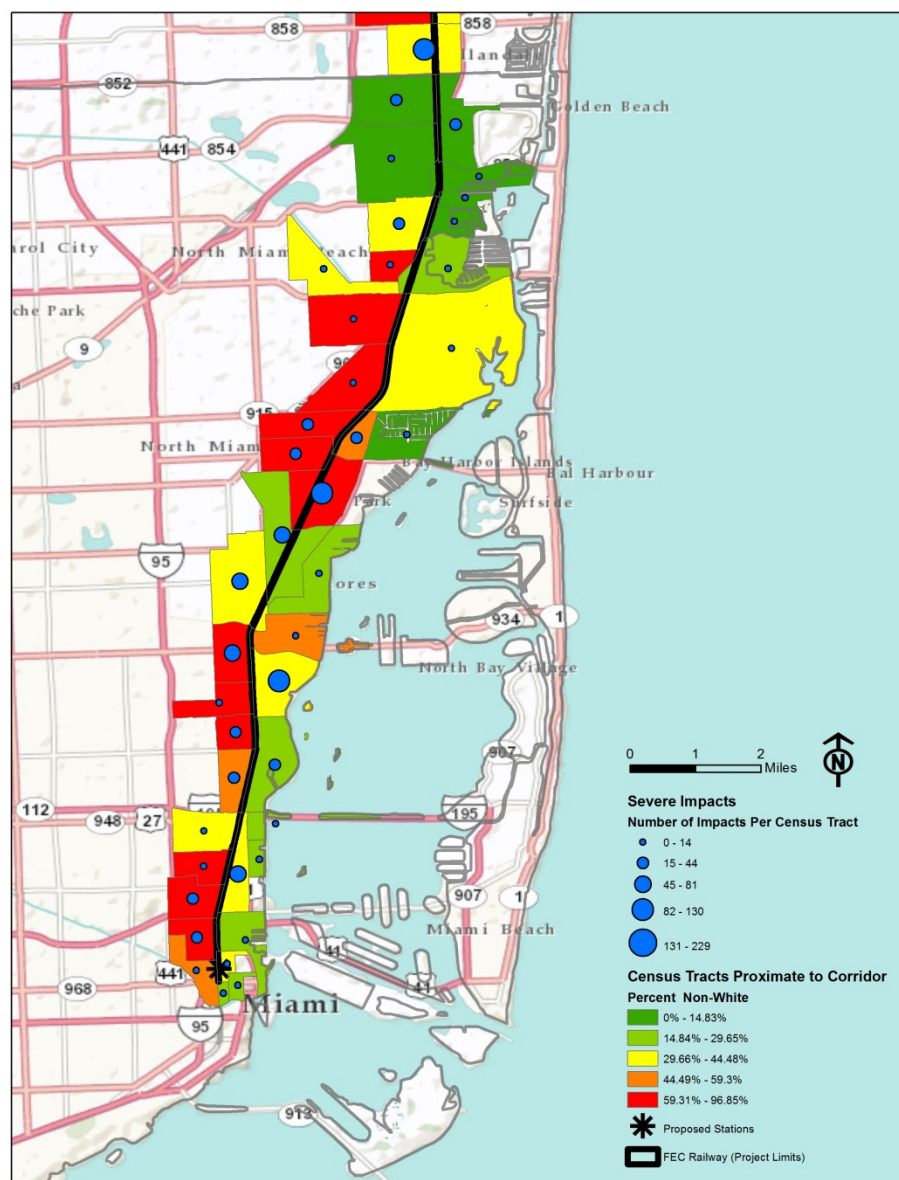


Ethnicity by census tract in excess of three county average.

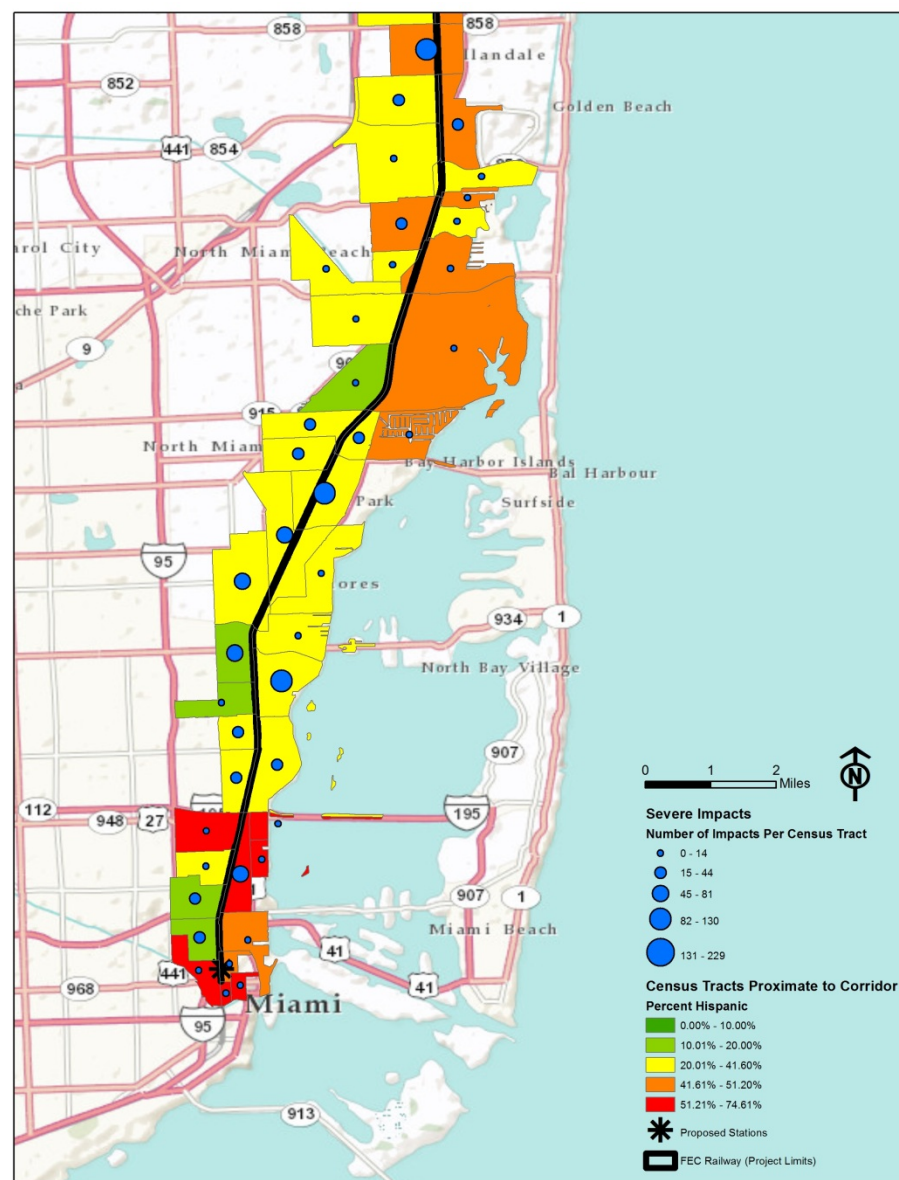


Poverty by census tract in excess of three county average.

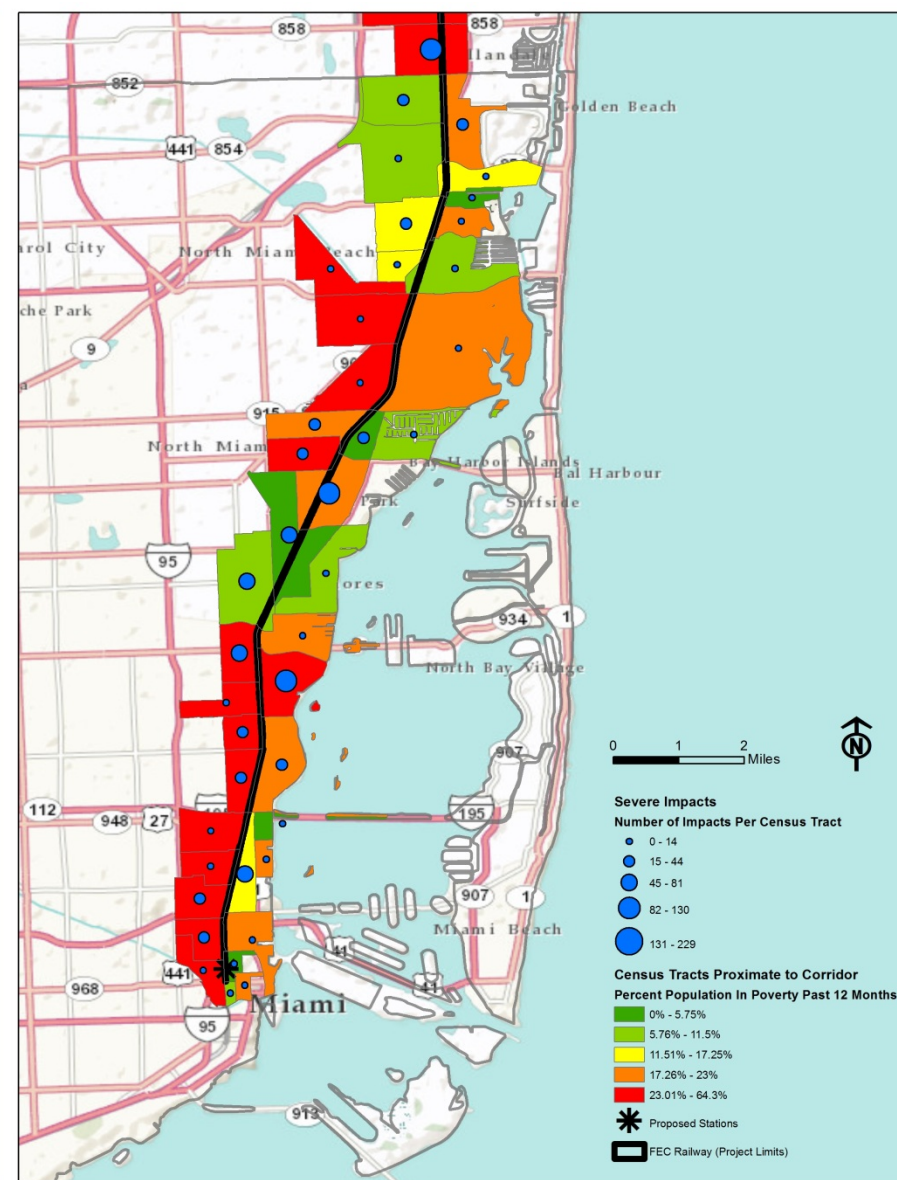
Figure 3-3.9
Race, Ethnicity and Poverty Levels – Miami-Dade County
Noise Impacts



Race by census tract in excess of three county average.



Ethnicity by census tract in excess of three county average.



Poverty by census tract in excess of three county average.

Ethnicity

Presence of the Population

The combined total Hispanic population within Broward, Miami, and Palm Beach counties is 41.6%. When similar demographic analysis is applied to the study area, 26.2% of the population is shown to be Hispanic. Of the 138 census tracts in the study area, 22 exceed the tri-county Hispanic population average.

When the CEQ guidelines outlined above are applied to the figures presented in Table 3-3.31, the following conclusions may be reached:

**Table 3-3.31
 Percent Hispanic**

Statistical Area	Hispanic
State of Florida	22.5%
Tri-County Area	41.6%
Census Tract Study Area	25.7%

Source: 2010 US Census

1. Does the ethnic minority exceed 50% in the impacted area?
 - o Overall the proposed Project Area does not meet this criterion for ethnic populations.
2. Is the ethnic minority population percentage in the impacted area is “meaningfully greater” than the minority or low-income population in the general population or other appropriate geographic area?
 - o The percentage of Hispanics represented within the 138 census tracts located along the project is 15.9% lower than the average population observed within the tri-county area. Indicating that the Hispanic Population is not “meaningfully greater”.
3. Is there more than one ethnic minority group present and does the ethnic minority percentage, as calculated by summing all minority persons, meets one of the thresholds presented above?
 - o All Hispanic populations were grouped into a single statistical grouping. Based on analysis of the affected area, the combined Hispanic population represents 25.7% of the overall population which does not meet the standard identified in either criterion 1 or 2.

Based on the result of the demographic assessment and guidelines established in the CEQ guidelines, no Hispanic populations subject to protection under Executive Order 12898 are present within the Project Area.

Location of Impact

Having established the absence of a significant ethnic minority population within the overall Project Area, further review is not necessary.

Low Income

Presence of the Population

The combined total low-income population of Broward, Miami, and Palm Beach counties shows that 11.5% of the regional population has in the past 12 months has fallen below the poverty level. When similar demographic analysis is applied to the Census Tract Study Area, 20.4% of the population is shown to have in the past 12 months been in poverty. Within the Census Tract Study Area, 71% of the census tracts exceed the tri-county low-income population average.

When the CEQ guidelines outlined above are applied to the figures presented in Table 3-3.32, the following conclusions may be reached:

Table 3-3.32
Percent Low Income

Low-Income	Below Poverty
State of Florida Average	13.3%
Tri-County Population Average	11.5%
Study Area Population Average	20.4%

Source: 2006 – 2010 American Community Survey, 5 year Estimate

1. Does the low-income population exceeds 50% in the impacted area?
 - o As Shown in Table 3-3.32, the proposed Project Area does not meet this criterion for low-income populations.
2. Is the low-income population percentage in the impacted area “meaningfully greater” than the low-income population in the general population or other appropriate geographic area?
 - o The percentage of low-income residents within the Project Area exceeds the tri-county average by 8.9% representing a proportion within the study area that is deemed to be “meaningfully greater” when compared to the regional population.
3. Is there is more than one low-income group present and does the low-income percentage, as calculated by summing all minority persons, meets one of the thresholds presented above?
 - o The calculation used to assess the project impact on low-income groups combines all residents who in the past 12 months fell below the poverty level into a single statistical grouping. The combined figure is used in all demographic analysis.

Based on the result of the demographic assessment, low-income populations subject to protection under Executive Order 12898 are present within the Project Area.

Location of Impact

Having established the presence of a significant low-income population within the Project Area, direction from the EPA’s NEPA Compliance guide was applied to assess whether the environmental impacts are likely to fall disproportionately on low-income members of the community.

Within the Project Area of 138 census tracts, 102 census tracts experience severe noise impacts. Of these 102, 80 (78.4%) exceed the tri-county low-income population average. Overall, 4,637 (78.1%) of the project’s 5,934 severe impact sites occur within census tracts that exceed the tri-county low-income average. Table 3-3.33 summarizes this data below.

**Table 3-3.33
 Location of Impact**

Location of Impacts	Total
Number of Census Tracts with Low-Income Population Greater than 11.5% Containing Severe Impact Locations	80 (78.4%)
Total Number of Severe Impact Locations within the 80 Affected High-Hispanic Tracts	4,637 (78.1%)

Source: 2006 – 2010 American Community Survey, 5 year Estimate, 2012 Noise and Vibration Analysis

Further evaluation shows that approximately 78.4% of the census tracts (80 of 102 tracts) adversely affected by the proposed action’s severe noise impacts contain a minority population greater than the regional average. Additionally, approximately 78.1% of the project’s severe impacts (4,637 of 5,934 instances) fall within these 80 tracts. Figures 3-3.4 through 3-3.6 illustrate the relative uniform distribution of severe noise impact locations along the corridor showing that impacts within the Project Area have not been directed in a disproportionate manner toward low-income populations.

In consideration of the mitigation measures set forth below and the result of the impact assessment, low-income populations present will be impacted by the proposed action, however, not in a manner disproportionate to the effect observed in the proximate census tracts overall.

Mitigation

Low-income populations present will be impacted by the proposed action, however, not in a manner disproportionate to the effect observed in the proximate census tracts overall. AAF has committed to the following mitigation measures to reduce or eliminate the overall negative effect of the Project on proximate high-minority / low-income areas:

- Warning horns on the trains have been calculated to generate impacts resulting from the **Preferred Build Project Alternative**, as summarized in Table 3-1.18. If these impacts are not mitigated by separate action (such as efforts that may be undertaken independently by others), AAF is committed to mitigating these impacts with the installation of stationary wayside horns at the required grade crossings where severe, unmitigated impacts exist. Table 3-1.21 shows the significant mitigating effect of these measures in eliminating impacts from the **Preferred Build Project Alternative** in that all severe impacts in Broward County and Miami-Dade County would be eliminated by this measure and more than 99% of all severe impacts in Palm Beach County would be eliminated.

Summary of Impact

In consideration of the Project's overall potential noise impacts, and though the minority and low-income populations present along the corridor would receive a high share of the severe noise impacts without mitigation, the mitigation measures proposed will, as detailed in Section 3.1.7, Noise and Vibration (Tables 3-1.20, 3-1.21), offset all severe impacts in Broward County and Miami-Dade County and more than 99% of all severe impacts in Palm Beach County.

Based on this analysis, the **Preferred Build Project Alternative** will not have a disproportionately high adverse impact on the low-income or minority populations present in the surrounding communities and therefore will not result in significant impacts. .

Likewise, the **No-Build Alternative** would not have disproportionate adverse impacts on minority or low impact populations. However, the **No-Build Alternative** would not encourage or provide increased public transportation improvements that may be of value to low-income residents who may not be able to afford reliable personal transportation to travel to employment opportunities. By contrast, the **Preferred Build Project Alternative** would benefit residents by providing additional public transportation services between communities, employment and shopping centers, and recreational amenities within the region.

3.3.4 Barriers to the Elderly and Handicapped

The Americans with Disabilities Act (ADA) of 1990 (PL 110-325) provides for equal opportunity for individuals with disabilities to access public and private facilities. The proposed Project has been developed to provide expanded mobility opportunities for those with disabilities and during the design phase federal, state and local provisions related to ADA compliance will be followed.

Designated ADA compliant parking spaces would be provided to assure the availability of parking and decrease the distance for elderly and disabled passengers to travel to the train platform. Access to platforms would be provided by both barrier-free ramps and stairs. Platforms will be designed for level boarding. Additional design elements of the proposed Project intended to improve safety and accessibility to all users, especially the elderly and handicapped, would include pedestrian scale lighting, hand rails, horizontal landing areas for rest along barrier-free ramps, and benches.

Further, AAF trains will be single level, fully accessible coaches, with level floor boarding from platforms. All station facilities and platforms will have elevator access, and there will be no stairs to encounter in boarding or departing from trains. Also, there will be no stairs or other obstacles to impede movement on board trains, and every coach car will have accessible restrooms

In light of the foregoing, while negative impacts to elderly or handicapped populations or groups are avoided with both the **No-Build Alternative** and the **Preferred Build Project Alternative**, it is expected that the **Preferred Build Project Alternative** will also benefit the elderly and handicapped community by providing a transportation option that will enhance mobility and livability in their communities.

3.3.5 Public Health and Safety

As described in more detail above, the Project Area is approximately 70 miles in length from West Palm Beach to Miami and crosses numerous roadways with various forms of at-grade crossing control from actively protected grade crossing predictor technology with gates and flashing light signals. Associated with these crossings are issues of noise from train horns, safety, and roadway closings. The operating speed between West Palm Beach and Miami will remain the same, with Class IV maintained track safety standards. Class IV Track permits 60 MPH Freight and 79 MPH Passenger operations. The existing FEC corridor currently does not have passenger service or stations. This Project would reinstall double tracking along the FEC corridor from West Palm Beach to Miami as necessary to allow for the reintroduction of passenger rail along the corridor within the existing right-of-way. Passenger stations are proposed in West Palm Beach, Fort Lauderdale and Miami.

The **Preferred Build Project Alternative** to an existing, active commercial freight rail line would not have a negative impact on public health and safety. The **Preferred Build Project Alternative** would result in an enhancement to public safety with improvements to existing grade-crossing signal equipment for vehicular and pedestrian traffic by upgrading current crossing equipment with signals interconnected with highway traffic signals, constant warning time activation through the railroad signal system, reballasting of track at the crossings to improve drainage and other devices and measures as required.

Additionally, the **Preferred Build System Alternative** is expected to provide an alternative mode of travel for long-distance travel through Florida and is expected to result in decreased congestion and potential safety benefits from reduced crashes on existing parallel roadways such as US 1 and I-95. Impacts to public safety for residential and recreational land uses adjacent to the proposed improvements are also not anticipated for the Project. The Project would involve the addition of a parallel track and minimal track realignments within the current right of way. The existing grade crossings and crossing warning system would be upgraded, all of which would benefit the region.

By contrast, the **No-Build Alternative** would have no impact on public health and safety because vehicular, bicycle and pedestrian traffic safety would not be enhanced since the grade-crossing signals would not be upgraded.

Further, with regard to the ***Preferred Build Station Alternatives***, the Project has been designed with stops in the central business districts of West Palm Beach, Fort Lauderdale and Miami to meet the demands determined by the investment-grade ridership study commissioned by AAF. As further described in Section 2, the AAF team evaluated different locations at each of these cities, while taking into account the needs for the station location. Below is description of each station.

West Palm Beach Station

The ***Preferred Build Station Alternative*** in West Palm Beach will be ADA compliant and include safety features such as cameras in stations and parking lots, and regular police patrols. This station location will accommodate a single, center island (double sided) high-level platform that is 800 feet long and 35 feet wide. At this West Palm Beach station, on-site customer facilities will be located immediately adjacent to the platform, beyond the boundaries of the railroad ROW. Customer services will include ticketing, a secure waiting area for ticketed passengers located in space above the platform, and retail. The public space surrounding the station building will be organized to allow for efficient and safe pedestrian circulation and wayfinding, curbside drop-off by private auto, taxi, connecting bus and van service, local transit and bicycle parking. Parking to support the retail will be provided on site, but no dedicated passenger parking will be provided on site since existing parking capacity is available within a close radius. This station building's public spaces will be organized around a great hall. The primary public areas on the ground floor will consist of ticket sales windows, self-service ticketing kiosks, concierge and information desk, train departure and arrival information, concessions, restrooms and circulation areas. Retail space will be accessible on the ground floor from the great hall.

Because the AAF service will be an 'all reserved service,' ticketed customers will pass through a control gate to gain access to the vertical circulation leading to the secure 'Ticketed Passengers Only' spaces. In addition to fully climate controlled, comfortable seating areas, AAF will provide concessions, restrooms, and a dedicated lounge for Business Class (First Class) passengers, including WiFi internet service, complimentary light snacks and beverages.

In West Palm Beach, the ticketed customer amenities will be located above the tracks and platform; passengers will not be allowed access to the station platforms until approximately 4 to 5 minutes before departure of an arriving train. Train departure and arrival information will be electronically updated both in the public ticketing/information area, as well as in the secure waiting room and Business Class lounge. Access to the platform will be provided by means of two escalator/stair pairs and ADA compliant elevators, controlled by the AAF Usher in the secure waiting room.

As the floor height of the train cars will be the same height as the platform, the entire train will have 'level boarding', with no steps required. The entire train will conform to full ADA access compliance.

To provide easy and safe train boardings and deboardings – and to minimize the dwell time at stations – passengers will be distributed evenly along the platform. When AAF passengers purchase their tickets, they will select their seat, similar to what airline passengers do today. Along with each seat assignment, the tickets will indicate a number indicating the coach door location along the platform where the

customer should wait to enter the train. These large numbers will be also affixed along the platform edge to assist with wayfinding. Uniform consistency of the AAF train sets will simplify this procedure, and give comfort to passengers that they will know they will have a seat, and exactly where it will be.

Conceptual plans for the stations are provided in Appendix B. As those plans describe, certain at-grade crossing closures will be required at existing grade crossings to accommodate proposed platforms. At each such location, the crossing to be closed affects a local street rather than a major state or federal thoroughfare. Further, at each such location, the crossing closure is not anticipated to impact local circulation. In the existing condition, the availability of alternative routes in close proximity to the proposed crossing closures will result in minimal changes to the existing traffic patterns. Further, access to existing properties will not be affected by the proposed crossing closures.

Fort Lauderdale Station

The ***Preferred Build Station Alternative*** in Fort Lauderdale will be ADA compliant and include safety features such as cameras in stations and parking lots, and regular police patrols. This station location will accommodate a single, center island (double sided) high-level platform that is 800 feet long and 35 feet wide. At this Fort Lauderdale station, on-site customer facilities will be located immediately adjacent to the platform, beyond the boundaries of the railroad ROW. Customer services will include ticketing, a secure waiting area for ticketed passengers located in space above the platform, and retail. The public space surrounding the station building will be organized to allow for efficient and safe pedestrian circulation and wayfinding, curbside drop-off by private auto, taxi, connecting bus and van service, local transit and bicycle parking. Parking to support the retail will be provided on site, but no dedicated passenger parking will be provided on site since existing parking capacity is available within a close radius. This Fort Lauderdale station building's public spaces will be organized around a great hall. The primary public areas on the ground floor will consist of ticket sales windows, self-service ticketing kiosks, concierge and information desk, train departure and arrival information, concessions, restrooms and circulation areas. Retail space will be accessible on the ground floor from the great hall.

Because the AAF service will be an 'all reserved service,' ticketed customers will pass through a control gate to gain access to the vertical circulation leading to the secure 'Ticketed Passengers Only' spaces. In addition to fully climate controlled, comfortable seating areas, AAF will provide concessions, restrooms, and a dedicated lounge for Business Class (First Class) passengers, including WiFi internet service, complimentary light snacks and beverages.

In Fort Lauderdale, the ticketed customer amenities will be located above the tracks and platform, passengers will not be allowed access to the station platforms until approximately 4 to 5 minutes before departure of an arriving train. Train departure and arrival information will be electronically updated both in the public ticketing/information area, as well as in the secure waiting room and Business Class lounge. Access to the platform will be provided by means of two escalator/stair pairs and ADA compliant elevators, controlled by the AAF Usher in the secure waiting room.

As the floor height of the train cars will be the same height as the platform, the entire train will have 'level boarding', with no steps required. The entire train will conform to full ADA access compliance.

To provide easy and safe train boardings and deboardings – and to minimize the dwell time at stations – passengers will be distributed evenly along the platform. When AAF passengers purchase their tickets, they will select their seat, similar to what airline passengers do today. Along with each seat assignment, the tickets will indicate a number indicating the coach door location along the platform where the customer should wait to enter the train. These large numbers will be also affixed along the platform edge to assist with wayfinding. Uniform consistency of the AAF train sets will simplify this procedure, and give comfort to passengers that they will know they will have a seat, and exactly where it will be.

Conceptual plans for this station are provided in Appendix B. As those plans describe, certain at-grade crossing closures will be required at existing grade crossings to accommodate proposed platforms. At each such location, the street affected is a local street rather than a major state or federal thoroughfare. Further, at each such location, the crossing closure is not anticipated to impact local circulation. In the existing condition, the availability of alternative routes in close proximity to the proposed closures will result in minimal changes to the existing traffic patterns. Further, access to existing properties will not be affected by the proposed crossing closures.

Miami Station

The ***Preferred Build Station Alternative*** in Miami will be ADA compliant and include safety features such as cameras in stations and parking lots, and regular police patrols. At this location in Miami, the terminal configuration will consist of four 1,000-foot-long high-level revenue platforms plus low-level service platforms. All platforms will be located within the FEC ROW. This Miami station architecture will be integrated with the structure of an elevated railroad viaduct passing over city streets approximately 45 feet above grade. The viaduct will parallel the existing elevated Metrorail infrastructure and span above the MetroMover alignment crossing the site at NE 5th Street. Convenient multi-modal connectivity between AAF, Metrorail and Metromover will be available, in addition to ample curbside drop-off, taxi queue, connecting bus and van service, local and regional bus transit, bicycle parking, and significant pedestrian connectivity to the terminal facility. Below the AAF viaduct, a double-height, light-filled central hall will accommodate AAF customer services and provide vertical access upstairs to the waiting rooms and platforms for ticketed passengers. This station building's public spaces will be organized around a great hall. The primary public areas on the ground floor will consist of ticket sales windows, self-service ticketing kiosks, concierge and information desk, train departure and arrival information, concessions, restrooms and circulation areas. Retail space will be accessible on the ground floor from the great hall and on a mezzanine floor below the elevated railroad tracks and platforms.

Because the AAF service will be an 'all reserved service,' ticketed customers will pass through a control gate to gain access to the vertical circulation leading to the secure 'Ticketed Passengers Only' spaces. In addition to fully climate controlled, comfortable seating areas, AAF will provide concessions, restrooms, and a dedicated lounge for Business Class (First Class) passengers, including WiFi internet service, complimentary light snacks and beverages.

Further, at this location In Miami, the ticketed customer amenities will be located above the tracks and platform and passengers will not be allowed access to the station platforms until approximately 4 to 5 minutes before departure of an arriving train. Train departure and arrival information will be electronically updated both in the public ticketing/information area, as well as in the secure waiting room and Business Class lounge. Access to the platform will be provided by means of two escalator/stair pairs and ADA compliant elevators, controlled by the AAF Usher in the secure waiting room.

As the floor height of the train cars will be the same height as the platform, the entire train will have 'level boarding', with no steps required. The entire train will conform to full ADA access compliance.

To provide easy and safe train boardings and deboardings – and to minimize the dwell time at stations – passengers will be distributed evenly along the platform. When AAF passengers purchase their tickets, they will select their seat, similar to what airline passengers do today. Along with each seat assignment, the tickets will indicate a number indicating the coach door location along the platform where the customer should wait to enter the train. These large numbers will be also affixed along the platform edge to assist with wayfinding. Uniform consistency of the AAF train sets will simplify this procedure, and give comfort to passengers that they will know they will have a seat, and exactly where it will be.

Conceptual plans for this station are provided in Appendix B. As those plans describe, certain at-grade crossing closures will be required at existing grade crossings to accommodate proposed platforms. At each such location, the street affected is a local street rather than a major state or federal thoroughfare. Further, at each such location, the crossing closure is not anticipated to impact local circulation. In the existing condition, the availability of alternative routes in close proximity to the proposed closures will result in minimal changes to the existing traffic patterns. Further, access to existing properties will not be affected by the proposed crossing closures.

In light of the foregoing analysis, Public Health and Safety will not be negatively impacted by construction of the Preferred Build Project Alternative.

3.3.6 Contaminated Sites and Hazardous Materials

A preliminary evaluation of the FEC corridor for the development of passenger rail service from downtown West Palm Beach to downtown Miami was conducted to determine potential contamination concerns along the Project Area for the proposed construction improvements as described in Section 2. The purpose of the contamination screening was to identify potential contamination threats and to present the findings of a contamination screening evaluation for the proposed alternatives. Additional details regarding contamination impacts are included in the Contamination Screening Evaluation Technical memorandum prepared for this Project and included in Appendix K.

In order to perform the contamination screening for the Project, a buffer width of 150 feet from the centerline of the rail corridor and proposed station alternatives was established. This evaluation was

based on visual reconnaissance of the Project Area, available Geographic Information Systems (GIS) databases, and review of on-line regulatory databases.

The Project Area traverses established and heavily developed areas of Palm Beach, Broward and Miami-Dade Counties. Land uses transition from central business district urban, to medium density residential, to industrial and commercial uses. Little vacant and/or undeveloped land exists along the corridor. Due to the age of the existing corridor, established neighborhoods and communities have evolved in conjunction with the corridor.

Methodology

The environmental screening of potential contamination sites within the Project Area was performed using GIS data from the Florida Geographic Data Library (FGDL), the Florida Department of Environmental Protection (FDEP) GIS website and the South Florida Water Management District (SFWMD) GIS website. The following GIS datasets were searched for potential contaminated sites: Brownfield Areas, Gasoline Service Stations, Hazardous Material Sites, Solid Waste Facilities, and Petroleum Tanks.

A total of two hundred twenty-six (226) potentially contaminated sites were identified within the 150 foot buffer along the FEC ROW and within the vicinity of the proposed station alternatives.

Regulatory Records Review

As a part of the screening process, an online search of state and county environmental databases for the potential contamination sites identified by the GIS Screening was performed for the study corridor. The databases used were the following:

- Palm Beach County Environmental Resources Management (ERM) Countywide Information Network for Electronic Media (CINEMA) website,
- Broward County Environmental Inquiry and Resources System (ENVIROS) Website,
- Miami-Dade Department of Regulatory and Economic Resources (RER) emPOWER Library,
- FDEP Department of Waste Management OCULUS website.

Field Review

Windshield surveys were conducted to verify the location and status of the potential contamination sites within 150 feet of the FEC ROW, at the proposed station alternatives, and within the Project general vicinity.

Once the field review and regulatory file research was conducted, each potential site was assigned a "Risk" rating that expresses the degree for potential contamination concerns. The contamination rating system is divided into degrees of risk: "Low", "Medium", and "High". This system expresses the degree of concern for potential contamination problems. Risk ratings were assigned following the guidelines and definitions in Part 2, Chapter 22 (1-17-08 revision) of the FDOT Project Development & Environment (PD&E) Study Manual as follows:

Low	Former or current operation has hazardous waste generator identification number, or deals with hazardous materials; however, based on all available information there is no expectation that there would be any expectation of contamination. There are no activities associated with the referenced site/sites that would generate contamination.
Medium	Indications are found (reports, Notice of Violations, consent orders, etc.) that identify known soil and/or water contamination and that the problem does not need remediation, is being remediated (i.e., air stripping of the ground water, etc.), or that continued monitoring is required.
High	Potential for contamination concerns. Further Assessment will be required to determine the actual presence and/or levels of contamination and the need for remedial action.

Potential Contamination Impacts

Along the Project Area there are one hundred ninety-nine (199) Low Risk sites; thirteen (13) Medium Risk sites; and fourteen (14) High Risk sites. Medium to High Risk Sites within the vicinity of the Project Area are presented in Table 3-3.34. For these sites receiving a High or Medium risk ranking that may be impacted by acquisition, drainage features, underground utilities, or dewatering activities, preliminary subsurface investigations to establish the presence of soil or groundwater contamination will be conducted prior to construction activities when warranted.

Construction requirements and methodology for the proposed system upgrades with the FEC ROW will result in minimal subsurface disturbance and impacts to existing contaminated areas are not anticipated, due to the nature of the construction activities needed to support reintroduction of passenger service.

At the **Preferred Build Station Alternatives**, construction impacts will be minimized through the avoidance of areas of known and/or suspected contamination during the design of the drainage, lighting and foundations. A comprehensive review of the design for the station alternatives will be completed in order to avoid areas of potential contamination impacts to the maximum extent practical. This will also allow for the identification of areas where soil excavation and dewatering will occur for the installation of drainage structures and utilities.

A Low Risk site is located within the footprint at the **Preferred Build Station Alternatives** in West Palm Beach and Fort Lauderdale. Although there is no documentation within the database concerning contamination at either of the sites, both have registered 500 gallon aboveground storage tanks (ASTs) associated with emergency generators. Prior to construction activities in these areas, the ASTs will be properly closed in accordance to Chapter 62-762, Florida Administrative Code.

In the event that it is necessary for construction activities to occur in potentially contaminated areas, a Phase II investigation will be conducted. Where drainage, lighting and foundation improvements will unavoidably impact contaminated properties, technical special provisions such as Remedial Action Plans will be developed as part of the Phase II investigations. By verifying contamination areas prior to construction, remedial actions will be developed and implemented to further minimize impacts. Any contaminated or hazardous wastes encountered through ground-disturbing activities during

**Table 3-3.34
High and Medium Risk Contamination and Hazardous Waste Sites**

FDEP Facility ID	Mainline Impact	Station Impact	Facility Name	Address	Regulatory Status	Distance (ft)	Risk
8514561	Yes	Yes WPB- North	Cemex Construction	501 7 th St. West Palm Beach	PARM approved August 2007.	Adjacent	High
8630703	Yes	No	Palm Beach County Judicial Center	414 N Dixie Hwy, West Palm Beach	CAR submitted April 4, 1994.	Adjacent	High
8944518	No	Yes WPB - South	City of West Palm Beach El Campeon Acquisition	440 Evernia Street, West Palm Beach	RAP addendum approved April 1, 1994.	Adjacent	High
8842045	Yes	No	Avis Rent a Car Systems	1 NW Yamato Road, Boca Raton	SAR disapproved 5/2012.	50	High
9811743	Yes	No	Petroliance, LLC	2541 NE 4 th Ave, Pompano Beach	RAP approved.	Adjacent	High
55245	Yes	No	Tire Recycling Systems	616 NW 2 nd Ave, Fort Lauderdale	Active solid waste site	Adjacent	High
8737224	Yes	No	J&L Feed & Supply	133 SW 3 rd Ave, Dania	NAMP suspended in 2008.	Adjacent	High
9806980	Yes	No	Master Craft Automotive	800 N Dixie Hwy, Hollywood	RAP submitted 2/20/2012.	50	High
9101384	Yes	No	Trout Used Cars	18315 W Dixie Hwy, Miami	MOP approved in 1994.	Adjacent	High
8505326	Yes	No	AMOCO #4357- Maule Lake	18100 Biscayne Blvd. North Miami Beach	Documented contamination	Adjacent	High
8503539	Yes	No	181 st St. Unlimited Car Washing	18100 Biscayne Blvd, North Miami Beach	RAP implemented In 1995	Adjacent	High
60083	Yes	No	Pace Dump	Biscayne Blvd@ 147 th St, North Miami Beach	Solid waste site.	Adjacent	High
99220	Yes	No	Presslers	NE 146 th Street @ Biscayne Blvd, Miami	Solid waste site.	Adjacent	High
57135	Yes	No	Munisport Landfill	14301 Biscayne Blvd, North Miami	Former NPL Site. Assessment ongoing	Adjacent	High
8514160	Yes	No	Triple M Petroleum	6710 Georgia Avenue, West Palm Beach	Limited Closure Report - contamination remains onsite.	Adjacent	Medium
9809962	Yes	No	Lake Worth Recreation Center	1121 Lucerne Ave, Lake Worth	NAMP ongoing.	Adjacent	Medium
8514475	Yes	No	US Food Mart	874 N Dixie Hwy, Lantana	Groundwater monitoring (2004-2005)	60	Medium
8942634	Yes	No	Chevron-Flamingo	301 E Atlantic Avenue, Delray	PARM ongoing.	25	Medium
94293	Yes	No	Boca Raton Army Airfield Dump	2500 NW 1 st Ave, Boca Raton	Inactive solid waste site.	Adjacent	Medium
9201874	Yes	No	Titan Maritime Industries	410 SW 4 th Terrace, Dania	Assessment required for petroleum discharge.	Adjacent	Medium
99394	Yes	No	NE Community Center Dump	Charleston @ 24 th ST.	No Regulatory Information Available	1500	Medium
8504026	Yes	No	Shell Station	18560 Biscayne Blvd., Miami	NAMP approved 1/2011	Adjacent	Medium

8522037	Yes	No	Crystal Springs Water Co.	7580 NE 4 th CT, Miami	MOP Last quarterly report dated 10/00.	Adjacent	Medium
9803397	Yes	No	Miami City R/W Former Dixie Transport	5520 NE 4 th Ave., Miami	Additional assessment 4/2012.	20	Medium
9804881	Yes	No	A&B Container	1551 NW 1 st Ave, Miami	SAR submitted in 5/10.	Adjacent	Medium
9047223	Yes	Yes Miami	Arena Ventures	701 Arena Blvd. , Miami	PARM approved 7/2004. TCAR disapproved 11/2011	Adjacent	Medium
9502539/ 8841986	Yes	Yes Miami	City of Miami Chilled Water Line	112 NW 3 rd St., Miami	Source removal 11/2009 and 9/2011. No closure.	Adjacent	Medium

Legend: SAR – Site Assessment Report ;PARM – Post Active Remediation Monitoring; NAMP – Natural Attenuation Monitoring; LCARA – Limited contamination Assessment Report Addendum; RAP - Remedial Action Plan; CAR – Contamination Assessment Report; MOP – Monitoring only Plan; AS/SVE – Air Sparge/Soil vapor Extraction; O&M – Operation & Maintenance; SARA – Site Assessment Report Addendum

construction for any of the **Preferred Build Station Alternatives** will be handled and disposed of in accordance with applicable regulatory requirements.

For dewatering activities, potentially contaminated sites located within a 500-ft radius of the Project Area will be properly assessed and addressed before applying for a dewatering permit from any environmental regulatory agency to avoid potential contamination plume exacerbation and to establish proper groundwater management techniques.

Although contaminated sites have been identified within 150 feet of the FEC ROW and in the vicinity of the proposed **Preferred Build Station Alternatives**, by maximizing avoidance techniques during the design phase, neither the **No-Build** nor **Preferred Build Project Alternative** is anticipated to impact known contaminated or hazardous waste sites within the Project Area. If potentially contaminated sites cannot be avoided through project engineering, all applicable state and federal laws will be followed to minimize impacts.

3.3.6.1 Hazardous Materials Use, Storage and Transportation

Freight trains traveling along the FEC corridor are currently equipped to haul hazardous materials. Although there is no set schedule, hazardous materials are hauled on an average of once/week. There is no expected change in the frequency or quantity of hazardous materials hauled along the mainline system associated with this Project. Following is a list of hazardous materials historically hauled by FECR freight trains:

• LPG – Liquid Propane Gas	• Ammonium Polyphosphate
• Ethanol	• Pesticide/Chem NEC
• Sodium hydroxide/Caustic Soda	• Fuel Oil
• CO2 – Carbon Dioxide	• Sulfur Dioxide
• Alcohol in Bond	• Chem NEC
• HCL – Hydrogen Chloride	• Phosphoric Acid
• Bleach – Sodium Hypochlorite	• Explosives
• Ammonium Nitrate	• Methanol
• Rocket Motors	• Tail Oil Pitch
• Potassium Chloride	

AAF does not plan to use or store hazardous materials at any of the proposed station alternatives. All station alternatives will only be utilized for passenger movement and services.

The current FECR freight VMF in Fort Lauderdale is proposed to be converted to the passenger rail VMF. Materials currently stored at this location are lubricants and petroleum products utilized for yard tractors and gantry cranes. These materials are stored in aboveground storage tanks (ASTs). There are no underground storage tanks (USTs) located on the property. Table 3-3.35 provides an inventory of the ASTs and the contents currently maintained by FECR at the existing VMF location.

Table 3-3.35
Aboveground Storage Tank Inventory

Number of ASTs	Capacity	Contents
2	500 gallons	Diesel
1	500 gallons	Gasoline
2	240 gallons	Waste Oil
1	240 gallons	Conventional Oil
1	240 gallons	Hydraulic Oil

The typical materials that will be stored and used at the VMF made a part of the **Preferred Build Station Alternative** include motor oils, lubricants, and washing detergents. All hazardous products will be stored in double walled storage containers or double walled ASTs. Therefore, the change in utilization at the Ft. Lauderdale VMF location will be insignificant in the overall operation of the maintenance yard in respect to the usage and storage of hazardous materials which will be handled according to accepted industry Best Management Practices.

None of the proposed passenger rail improvements would directly or indirectly generate additional hazardous materials or wastes. Therefore, neither the **No-Build** nor **Preferred Build Project Alternative** is anticipated to impact hazardous material storage, use or transport.

3.3.7 Cultural Resources

Background and Consultation

In accordance with procedures contained in Chapter 36 Code of Federal Regulations (CFR) Part 800 (revised May 1999), a *Cultural Resource Assessment (CRA)* including literature review and field survey, was conducted for the proposed project. This survey was completed in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (Public Law 89-655), as implemented by 36 CFR 800 (Protection of Historic Properties, effective January 2001); and Chapter 267, Florida Statutes (F.S.). It also complied with the minimum field methods, data analysis, and reporting standards embodied in the Florida Division of Historical Resources' (FDHR), *Cultural Resource Management Standards and Operational Manual* (February 2003), and Chapter 1A-46 (Archaeological and Historical Report Standards and Guidelines), Florida Administrative Code. All work conformed to professional guidelines set forth in the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716), as amended and annotated. The purpose of this CRA was to locate and evaluate archaeological and historic resources within the area of potential effect (APE) and to assess eligibility for inclusion in the National Register of Historic Places (National Register) according to the criteria set forth in 36 CFR Section 60.4.

The identification and evaluation of cultural resources was based on Florida Master Site File (FMSF) data and the fieldwork conducted during the 2012 CRA. The FMSF is the statewide inventory of previously recorded resources and includes the official SHPO evaluations of the National Register eligibility for these resources.

Consultation with the Florida State Historic Preservation Office (SHPO) was conducted prior to the initiation of the cultural resources survey to establish a methodology and Area of Potential Effect (APE). Coordination with the Palm Beach, Broward, and Miami-Dade County archaeologists and historic preservation planners was also conducted to identify any locally listed sites or concerns. The minutes associated with the consultations are included in Appendix L.

Area of Potential Effect

Based on coordination with SHPO, an appropriate APE was established, which considered the improvements and activities that would be taking place on the FEC corridor and at the proposed station locations and the potential effects that may result from the improvements. The APE for this project acknowledged the approved APE for the *2010 FEC Amtrak Passenger Rail* project, and the previous APE provided a basis for the development of the current APE.

As the survey for archaeological sites focuses upon identifying and evaluating resources within the geographic limits of the proposed action and its associated ground disturbing activities, the APE for archaeological resources is typically confined to those areas where subsurface construction activity will take place. For the station locations, the archaeological APE was limited to the footprint of subsurface activities within the parcel(s) containing the proposed station footprint. For the FEC corridor, the archaeological APE was limited to the footprint of subsurface activities within the existing FEC ROW.

The APE for historic resources typically includes the area of the proposed improvements as well as the area within which potential visual effects for the improvements could be observed. Also considered are noise, traffic, light, and vibration. Because of the potential for visual and other impacts, the historic resources APE varied depending on the proposed improvements. The concepts for the proposed stations include multistoried platform stations in the center of the tracks in West Palm Beach and Fort Lauderdale. In Miami, it is proposed to utilize a larger area of existing vacant land or service yards. The APE for evaluating the station locations was intended to be broad to allow for flexibility in the final placement of the stations. The historic resources APE consisted of the parcel(s) containing the station platform footprint, as well as the parcels within two blocks to the north and south and one block to the east and west of the proposed station platform footprint. Historic resources located in this defined APE were recorded with FMSF forms. As the railway tracks will be elevated at the approach to the Miami - Central Elevated Site, an additional reconnaissance survey was conducted. The APE for the reconnaissance survey included one block east and west of the portion of the proposed elevated railway located outside of the APE for the Miami - Central Elevated Site.

Coordination with the SHPO and Section 106 affected parties will continue throughout this project. For the purposes of this study, significant resources were identified within the APE established for the existing FEC ROW and for both the preferred and the alternative station sites.

3.3.7.1 Existing FEC Main Line Corridor and ROW

During previous cultural resources assessment projects that have involved the FEC corridor, the SHPO determined that the FEC corridor itself is considered eligible for inclusion in the National Register.

The following subsections discuss the additional resources located directly within the FEC corridor APE.

Palm Beach County

The FMSF identified no previously recorded archeological sites within the Palm Beach County segment of the FEC Main Line Corridor Archaeological APE. Based on this finding, no adverse effects or impacts to archaeological sites are anticipated and no further work is recommended.

In addition to the FEC corridor, one historic railway bridge was identified within the Palm Beach County segment of the FEC Corridor Main Line APE for Historic Resources, as shown in Table 3-3.36. This bridge was identified during the 2012 CRA. The identified bridge is considered a contributing resource within a potential FEC Railway Linear Historic District. Potential National Register eligibility on an individual basis

was not determined, consistent with the evaluation methods developed with the SHPO/FDHR for the 2010 FEC Amtrak Passenger Rail Project and the SHPO/FDHR methods established for this project (Appendix L).

Table 3-3.36
Railway Bridges Identified within the Palm Beach County Segment of the FEC Corridor Main Line
Historic Resources APE

FMSF #	Site Name / Address	Superstructure	Substructure	Const. Date	National Register Significance
8PB15951	Fixed Railway Bridge over the C-15 Canal	Precast Concrete Slabs	Concrete Pile Bents	1962	Contributing to a Potential FEC Railway Linear Historic District

Within the Palm Beach County portion of the FEC Corridor Main Line APE for Historic Resources, seven significant historic districts were identified (Table 3-3.37). The FMSF identified three National Register-listed districts and two districts that have been determined National Register-eligible by the SHPO. Two additional districts are considered National Register-eligible based on the evaluation conducted as part of the 2012 CRA.

The FMSF also identified two historic linear resources which have been determined eligible for listing in the National Register by the SHPO (Table 3-3.38). Fourteen significant historic buildings are located within the Palm Beach County portion of the FEC Corridor Main Line APE for Historic Resources (Table 3-3.39). The FMSF identified three National Register-listed buildings, and two buildings determined National Register-eligible by the SHPO. The nine additional buildings are considered eligible based on the evaluation conducted as part of the 2012 CRA (Table 3-3.39). The FMSF identified one National Register-listed historic station (Table 3.3.40). The 2012 CRA identified one additional railway related resource (Table 3.3.41) and one cemetery considered National Register-eligible based on the evaluation conducted as part of the 2012 CRA (Table 3-3.41).

Table 3-3.37
Historic Districts Identified within the Palm Beach County Segment of the FEC Corridor Main Line
Historic Resources APE

FMSF #	Site Name / Address	Resource Group Type	Local Status	Local Sig.	National Register Sig.
8PB5980	Northwest Neighborhood Historic District	Historic District	West Palm Beach Local Historic District	Locally Listed	National Register-Listed
8PB9905	Lake Lucerne Commercial Historic District	Historic District	Lake Worth Local Historic District	Locally Listed	National Register-Listed
8PB10350	Grandview Heights Historic District	Historic District	West Palm Beach Local Historic District	Locally Listed	National Register-Listed
8PB13713	Camino Real Historic District	Historic District	Palm Beach County Designated Historic District	Locally Listed	Determined National Register-Eligible
8PB14285	Del-Ida Park Historic District	Historic District	City of Delray Beach Local Historic District	Locally Listed	Considered National Register-Eligible
8PB15380	Atlantic Avenue Historic District	Historic District	N/A	N/A	Determined National Register-Eligible
N/A	Pearl City Historic District	Historic District	Boca Raton Locally Designated Historical Resource	Locally Listed	Considered National Register-Eligible

Table 3-3.38
Linear Resources Identified within the Palm Beach County Segment of the FEC Corridor Main Line
Historic Resources APE

FMSF #	Site Name / Address	Resource Group Type	Local Status	Local Sig.	National Register Sig.
8PB10311	Hillsboro Canal	Linear Resource	N/A	N/A	Determined National Register-Eligible
8PB10331	West Palm Beach Canal	Linear Resource	N/A	N/A	Determined National Register-Eligible

Table 3-3.39
Historic Structures Identified within the Palm Beach County Segment of
the FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Local Status	Local Sig.	Const. Date	Style	National Register Sig.
8PB169	Administration Building/ Dixie Highway & Camino Real	Boca Raton Locally Designated Historical Resource	Locally Listed	1925	Mediterranean Revival ca. 1880-1940	National Register- Listed
8PB240	Hoot, Toot & Whistle/290 E. Atlantic Avenue	N/A	N/A	c.1926	Mission	Considered National Register- Eligible
8PB513	Andrews House/306 SE 1 st Avenue	N/A	N/A	c.1909	Frame Vernacular	Considered National Register- Eligible
8PB835	Peninsular Plumbing Company Warehouse/501-513 Fern Street	N/A	N/A	c. 1938	Masonry Vernacular	Determined Ineligible by the SHPO; Noted as Eligible by Friederike Mittner West Palm Beach Historic Preservation Planner
8PB8232	Seaboard Air Line Dining Car 6113/747 S. Dixie Highway	N/A	N/A	1947	Moderne ca. 1920-1940	National Register- Listed
8PB8233	Seaboard Air Line Lounge Car 6603/747 S. Dixie Highway	N/A	N/A	1947	Moderne ca. 1920-1940	National Register- Listed
8PB14806	470 Fern Street	N/A	N/A	c. 1930	Mediterranean Revival	Determined National Register- Eligible by the SHPO
8PB14808	500 Fern Street	N/A	N/A	c. 1949	Mediterranean Revival	Determined National Register- Eligible by the SHPO
N/A	Arc Rib Storage/502 Kanuga Drive	West Palm Beach Listed Historic Property	Locally Listed	Not Available	Not Available	Considered National Register- Eligible

N/A	Delray Beach Antique Mall/1350 N. Federal Highway	N/A	N/A	Not Available	Not Available	Considered National Register-Eligible
N/A	Goodwill/1640 N. Federal Highway	N/A	N/A	Not Available	Not Available	Considered National Register-Eligible
N/A	Lantana Chamber of Commerce/212 Iris Avenue	N/A	N/A	Not Available	Not Available	Considered National Register-Eligible
N/A	Woodlawn Cemetery Gate/1500 S. Dixie Highway	West Palm Beach Listed Historic Property	Locally Listed	Not Available	Not Available	Considered National Register-Eligible
N/A	3615 Henry Avenue	N/A	N/A	c.1925	Frame Vernacular	Considered National Register-Eligible

Table 3-3.40

Historic Stations or Railroad Related Resources Identified within the Palm Beach County Segment of the FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Local Status	Local Sig.	Const. Date	Style	National Register Sig.
8PB96	FEC Railway Station/ S. Dixie Highway at SE 8 th Street	Boca Raton Locally Designated Historical Resource	Locally Listed	1929	Mediterranean Revival ca. 1880-1940	National Register-Listed
N/A	Delray Beach FEC Depot and Water Tower/220 NE 1st Street	N/A	N/A	Not Available	Not Available	Considered National Register-Eligible

Table 3-3.41

Historic Cemeteries Identified within the Palm Beach County Segment of the FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Local Status	Local Sig.	Date Est.	National Register Sig.
N/A	Woodlawn Cemetery	N/A	N/A	Not Available	Considered National Register-Eligible

FRA has determined there will be no adverse effects to the significant resources, and SHPO concurrence is expected to coincide with this determination of no adverse effect.

Broward County

One previously recorded archaeological site, Brickell Block (8BD2916), extends into the archaeological APE for the Broward County segment of FEC Corridor Main Line. The significance of this site has not been evaluated by SHPO but it is recorded as containing sensitive material. The Broward County segment also traverses through two areas defined by the City of Fort Lauderdale as archaeologically sensitive zones. These zones are located between the New River and SW 4th Court and approximately 500 feet to both the north and south of the Tarpon River.

The Brickell Block is located in an urban setting beneath a multi-story shopping and entertainment complex, and associated hardscape, including a parking lot. Since the proposed improvements will only include the placement of additional ballast and tracks, and will not include subsurface disturbance, there will be no impacts to the Brickell Block. Based on this, archaeological testing is not warranted in advance of these improvements as there will be no adverse archaeological effect. The City of Fort Lauderdale archaeologically sensitive zones are also located within a developed area completely covered by buildings and hardscape. As no subsurface impacts are proposed within the zones, no impacts are anticipated and archaeological testing is not necessary.

In addition to the FEC ROW, the 2012 CRA identified four historic railway bridges within the FEC Corridor Main Line APE for Historic Resources, as shown in Table 3-3.42. Each identified bridge is considered a contributing resource within a potential FEC Railway Linear Historic District. Potential National Register eligibility on an individual basis was not determined, consistent with the evaluation methods developed with the SHPO/FDHR for the *2010 FEC Amtrak Passenger Rail Project* and the SHPO/FDHR methods established for this project (Appendix L).

**Table 3-3.42
Railway Bridges Identified within the Broward County Segment of the FEC Corridor Main Line Historic Resources APE**

FMSF #	Site Name / Address	Superstructure	Substructure	Const. Date	National Register Significance
8BD4860	Fixed Railway Bridge over the Cypress Creek/ C-14 Canal	Precast Concrete Slabs	Concrete Pile Bents	1960	Contributing to a Potential FEC Railway Linear Historic District
8BD4861	Fixed Railway Bridge over the North Fork of Middle River	Steel Wide Flange Beams	Timber Pile Bents	1957	Contributing to a Potential FEC Railway Linear Historic District
8BD4862	Fixed Railway Bridge over the South Fork of Middle River	Steel Wide Flange Beams	Timber Pile Bents	1959	Contributing to a Potential FEC Railway Linear Historic District
8BD4863	Fixed Railway Bridge over the Dania Cut-Off Canal	Steel Plate Thru Girder	Concrete Abutments	1927	Contributing to a Potential FEC Railway Linear Historic District

Within the Broward County portion of the FEC Corridor Main Line APE for Historic Resources, five significant historic districts were identified (Table 3-3.43). The FMSF identified one National Register-listed district, and one district that has been previously been determined National Register-eligible by the SHPO. The remaining three districts are considered National Register-eligible based on the results of the 2012 CRA. The FMSF also identified one historic linear resource which has been determined National Register-eligible by the SHPO (Table 3-3.44). Thirteen significant historic buildings are located within the Broward County portion of the FEC Corridor Main Line APE for Historic Resources (Table 3-3.45). The FMSF noted that one is National Register-listed and three have been determined National Register-eligible by the SHPO. Nine buildings are considered National Register-eligible based on the results of the 2012 CRA. The 2012 CRA report also identified two significant historic stations or railway related resources which are considered National Register-eligible (Table 3-3.46).

Table 3-3.43
Historic Districts Identified within the Broward County Segment of the
FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Resource Group Type	Local Status	Local Sig.	National Register Sig.
8BD181	Downtown Fort Lauderdale Historic District	Historic District	Broward County Resource	Locally Listed	Determined National Register-Eligible
8BD3284	Hollywood Boulevard Historic Business District	FMSF Building Complex	Broward County Trust List of Significant and Endangered Structures	Locally Recognized	National Register-Listed
N/A	Northwest Pompano Historic District	Historic District	City of Pompano Beach Community Redevelopment Area	Locally Recognized	Considered National Register-Eligible
N/A	Old Business District	Historic District	Broward County Trust List of Significant and Endangered Structures	Locally Recognized	Considered National Register-Eligible
N/A	Old Pompano Historic District	Historic District	Broward County Trust List of Significant and Endangered Structures	Locally Recognized	Considered National Register-Eligible

Table 3-3.44
Linear Resources Identified within the Broward County Segment of the FEC Corridor Main Line Historic
Resources APE

FMSF #	Site Name / Address	Resource Group Type	Local Status	Local Sig.	National Register Sig.
8BD3229	Hillsboro Canal	Linear Resource	N/A	N/A	Determined National Register-Eligible

Table 3-3.45
Historic Structures Identified within the Broward County Segment of the
FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Local Status	Local Sig.	Const. Date	Style	National Register Sig.
8BD62	King-Cromartie House/229 SW 2 nd Avenue	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures	Locally Listed	1907	Frame Vernacular	Considered National Register–Eligible
8BD63	New River Inn/229 SW 2 nd Avenue	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures; Ft. Lauderdale Local Resource	Locally Listed	1906	Masonry Vernacular	National Register–Listed
8BD143	Hotel Poinciana/141 NW 1 st Avenue	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures	Locally Listed	c.1920	Mission	Considered National Register–Eligible
8BD212	Philemon Bryan House/ 227 SW 2 nd Avenue	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures	Locally Listed	1906	Neo-Classical Revival ca. 1880-1940	Considered National Register–Eligible
8BD227	Bryan, Tom M. Building/ 201-213 Himmarsee Street	Broward County Local Historic Site	Locally Listed	c.1925	Mediterranean Revival ca. 1880-1940	Determined National Register–Eligible
8BD376	The Hollywood Publishing Company/219 N 21 st Avenue	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures	Locally Listed	1924	Masonry Vernacular	Considered National Register–Eligible
8BD574	Ingram Arcade/2033-2051 Hollywood Boulevard	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures	Locally Listed	1921	Commercial	Considered National Register–Eligible
8BD1976	Progresso Plaza/901 Progresso Drive	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures; Ft. Lauderdale Local Resource	Locally Listed	c.1925	Mediterranean Revival ca. 1880-1940	Determined National Register–Eligible

8BD2237	Hamilton's Pharmacy/ McClellan Drugs/ 126 N Flagler Avenue	Broward County Local Historic Site	Locally Listed	1925	Art Deco ca. 1920-1940	Considered National Register-Eligible
8BD2258	Pompano Mercantile Company/114 N Flagler Avenue	Broward County Local Historic Site; Broward County Trust List of Significant and Endangered Structures	Locally Listed	1924	Mission	Considered National Register-Eligible
8BD4179	Hollywood Armory/910 N Dixie Highway W	N/A	N/A	c.1954	Other	Determined National Register-Eligible
N/A	Antique Car Museum/1527 SW 1 st Avenue	Broward County Trust List of Significant and Endangered Structures	Locally Recognized	Not Available	Not Available	Considered National Register-Eligible
N/A	Sears Town/901 N Federal Highway	Broward County Trust List of Significant and Endangered Structures	Locally Recognized	Not Available	Not Available	Considered National Register-Eligible

Table 3-3.46

Historic Stations or Railroad Related Resources Identified within the Broward County Segment of the FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Local Status	Local Sig.	Const. Date	Style	National Register Sig.
N/A	Florida East Coast Freight House and Platform Machine Ramp/1801 SW 1 st Avenue	N/A	N/A	1948; 1956	Not Available	Considered National Register-Eligible
N/A	Florida East Coast Rail Yard/3125 S. Andrews Avenue	N/A	N/A	Not Available	Not Available	Considered National Register-Eligible

FRA has determined there will be no adverse effects to the significant resources, and SHPO concurrence is expected to coincide with this determination of no adverse effect.

Miami-Dade County

The FMSF listed no previously recorded National Register-listed or eligible archaeological sites within the Miami-Dade County portion of the FEC Corridor Main Line Archaeological APE. Based on digital files available from the City of Miami illustrating the locations of Archaeological Conservation Areas, the

Miami-Dade County segment of the FEC Corridor Main Line Archaeological APE intersects one City of Miami Archaeological Conservation Area, which extends from the north bank of the Little River approximately 0.4 miles to the south. The proposed improvements will only include the placement of additional ballast and tracks and will not include subsurface disturbances. Based on this, no archaeological testing in advance of these improvements is warranted as there will be no adverse archaeological effects.

In addition to the FEC ROW, the 2012 CRA identified three historic railway bridges within the FEC Corridor Main Line Historic Resources APE, as shown in Table 3-3.47. Each identified bridge is considered a contributing resource within a potential FEC Railway Linear Historic District. Potential National Register eligibility on an individual basis was not determined, consistent with the evaluation methods developed with the SHPO/FDHR for the *2010 FEC Amtrak Passenger Rail Project* and the SHPO/FDHR methods established for this project (Appendix L).

Table 3-3.47
Railway Bridges Identified within the Miami-Dade County Segment of the
FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Superstructure	Substructure	Const. Date	National Register Significance
8DA12596	Fixed Railway Bridge over the Oleta River	Steel Wide Flange Beams	Timber Pile Bents	1963	Contributing to a Potential FEC Railway Linear Historic District
8DA12597	Fixed Railway Bridge over the Royal Glades/C-9 Canal	Precast Concrete Slabs	Concrete Pile Bents	1956	Contributing to a Potential FEC Railway Linear Historic District
8DA12598	Fixed Railway Bridge over the Arch Creek	Steel Wide Flange Beams	Concrete Abutments	1930	Contributing to a Potential FEC Railway Linear Historic District

Seven significant historic districts were identified within the Miami-Dade County portion of the FEC Corridor Main Line Historic Resources APE (Table 3-3.48). Each is considered National Register–eligible based on the results of the 2012 CRA. One historic linear resource is considered eligible for listing in the National Register based on results of the 2012 CRA (Table 3-3.49). Three significant historic buildings are located within the Miami-Dade County portion of the FEC Corridor Main Line Historic Resources APE (Table 3-3.50). The FMSF listed two as National Register–listed. One is considered eligible based on the results of the 2012 CRA. The FMSF also identified one National Register–listed cemetery within the Miami-Dade County portion of the FEC Corridor Main Line Historic Resources APE (Table 3-3.51).

Table 3-3.48
Historic Districts Identified within the Miami-Dade County Segment of the
FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Resource Group Type	Local Status	Local Sig.	National Register Sig.
8DA378	Greynolds Park	Designed Historic Landscape	Miami-Dade County Designated Site	Locally Listed	Considered National Register-Eligible
8DA3536	Miami Shores Golf Course	Designed Historic Landscape	Miami Shores Landmark	Locally Listed	Considered National Register-Eligible
N/A	Miami Shores Historic District	Historic District	N/A	N/A	Considered National Register-Eligible
N/A	Biscayne Park Historic District	Historic District	N/A	N/A	Considered National Register-Eligible
N/A	El Portal Historic District	Historic District	N/A	N/A	Considered National Register-Eligible
N/A	MiMo/Biscayne Boulevard Historic District	Historic District	City of Miami Local Historic Resource	Locally Listed	Considered National Register-Eligible
N/A	Palm Grove Neighborhood Historic District	Historic District	City of Miami Local Historic Resource	Locally Listed	Considered National Register-Eligible

Table 3-3.49
Linear Resources Identified within the Miami-Dade County Segment of the
FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Resource Group Type	Local Status	Local Sig.	National Register Sig.
N/A	El Portal – Little River - Seawall	Linear Resource	Miami-Dade County Designated Site	Locally Listed	Considered National Register-Eligible

Table 3-3.50
Historic Structures Identified within the Miami-Dade County Segment of the FEC Corridor Main Line Historic Resources APE

FMSF #	Site Name / Address	Local Status	Local Sig.	Const. Date	Style	National Register Sig.
8DA165	Reassembled Spanish Monastery AD 1141/16711 W Dixie Highway	Miami-Dade County Designated Site	Locally Listed	1952	Masonry Vernacular	National Register-Listed
8DA355	Dade County Courthouse/ Miami City Hall/73 W Flagler Street	City of Miami Local Historic Resource	Locally Listed	1925	Neo-Classical Revival ca. 1880-1940	National Register-Listed
N/A	N. Miami Beach/ Peoples Gas Building/ System/15779 W. Dixie Highway	Miami-Dade County Designated Site	Locally Listed	Not Available	Not Available	Considered National Register-Eligible

**Table 3-3.51
 Historic Cemeteries Identified within the Miami-Dade County Segment of the
 FEC Corridor Main Line Historic Resources APE**

FMSF #	Site Name / Address	Local Status	Local Sig.	Date Est.	National Register Sig.
8DA1090	City of Miami Cemetery	City of Miami Local Historic Resource	Locally Listed	1897	National Register–Listed

FRA has determined there will be no adverse effects to the significant resources, and SHPO concurrence is expected to coincide with this determination of no adverse effect.

3.3.7.2 Station Locations

The FEC corridor is located within the APE for each of the station locations. During previous cultural resources assessment projects that have involved the FEC corridor, the SHPO determined that the FEC corridor itself is considered eligible for inclusion in the National Register. The following subsections discuss additional resources located directly within the APE for the station locations.

West Palm Beach - North Site

The FMSF identified no previously recorded significant archaeological sites within the Archaeological APE established for the West Palm Beach - North Site. Based on this, no impacts to archaeological sites are anticipated.

Two National Register–eligible historic buildings are located within the West Palm Beach North Site APE for Historic Resources, as shown in Table 3-3.52. The FMSF identified one historic building determined by the SHPO to be National Register–eligible. The 2012 CRA identified one historic building as National Register–eligible.

FRA has determined that there will be no adverse effect to the significant resources, based on the condition that consultation with the SHPO and locally affected parties/historic preservation planning staff in the cities of West Palm Beach, Fort Lauderdale, and Miami will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the significant resources within the station locations’ APE. SHPO concurrence is expected to coincide with this determination of no adverse effect based on this condition.

Table 3-3.52
Historic Resources within the West Palm Beach North Site APE for Historic Resources

FMSF #	Site Name / Address	Const. Date	Style	National Register Significance
8PB712	905 N. Railroad Avenue	c. 1925	Masonry Vernacular	Considered National Register–Eligible
8PB768	Florida Health Lab Building/415 5 th Street	c. 1921	Neo-Classical Revival	Determined National Register–Eligible by the SHPO in 2010

West Palm Beach - Central Site (Preferred Build Station Alternative)

The FMSF identified no previously recorded significant archaeological sites within the Archaeological APE established for the West Palm Beach - Central Site. Based on this, no impacts to archaeological sites are anticipated and no further work is recommended.

The FMSF identified one National Register–listed historic district within the APE for the West Palm Beach - Central Site (Table 3-3.53). Within this district, the 2012 CRA identified seven buildings that are contributing to the National Register–listed historic district but are not individually eligible and three contributing buildings to the historic district that are individually National–Register eligible. The FMSF also identified one National Register–listed building and three buildings determined National Register–eligible by SHPO (Table 3-3.53). The 2012 CRA identified two buildings as National Register–eligible (Table 3-3.53).

Table 3-3.53
Historic Resources Identified within the West Palm Beach - Central Site APE for Historic Resources

FMSF #	Site Name / Address	Const. Date	Style	National Register Significance
8PB574	513-515 Clematis Street	c. 1921	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register–Listed Clematis Street Historic Commercial District (8PB10348)
8PB575	517-519 Clematis Street	c. 1929	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB576	518-520 Clematis Street	1924	Masonry Vernacular	Considered National Register–Eligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)

8PB577	521-527 Clematis Street	c. 1920	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB578	522 Clematis Street	1919	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB579	526 Clematis Street	1923	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB580	W. E. Pope Building/529- 531 Clematis Street	1921	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB581	528 Clematis Street	1929	Art Deco	Considered National Register– Eligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB582	533 Clematis Street	1925	Neoclassical Revival	Considered National Register– Eligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB585	540 Clematis Street	c. 1925	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register– Listed Clematis Street Historic Commercial District (8PB10348)
8PB593	Alma Hotel/534 Datura Street	c. 1926	Mediterranean Revival	Considered National Register– Eligible
8PB690	Ferndix Building/321-325 S. Dixie Highway	1925	Mission	National Register–Listed in 1999
8PB835	Peninsular Plumbing Company Warehouse/501-513 Fern Street	c. 1938	Masonry Vernacular	Considered National Register– Eligible
8PB10348	Clematis Street Historic Commercial District	Various	Various	National Register–Listed

8PB14806	470 Fern Street	c. 1930	Mediterranean Revival	Determined National Register-Eligible by the SHPO
8PB14807	West Palm Beach Employee Health Center/464 Fern Street	c. 1930	Mediterranean Revival	Determined National Register-Eligible by the SHPO
8PB14808	Ballet Florida/500 Fern Street	c. 1949	Mediterranean Revival	Determined National Register-Eligible by the SHPO

FRA has determined that there will be no adverse effect to the significant resources, based on the condition that consultation with the SHPO and locally affected parties/historic preservation planning staff in the cities of West Palm Beach, Fort Lauderdale, and Miami will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the significant resources within the station locations' APE. SHPO concurrence is expected to coincide with this determination of no adverse effect based on this condition.

Fort Lauderdale - North Site (Preferred Build Station Alternative)

No previously recorded significant archaeological sites are located within the Archaeological APE established for the Fort Lauderdale - North Site. Based on this, no impacts to archaeological sites are anticipated and no further work is recommended.

The FMSF identified one National Register-eligible historic district within the Fort Lauderdale - North Site APE for Historic Resources (Table 3-3.54). Within this district, the FMSF identified one building that is contributing to the district and is National Register-listed, two buildings that are contributing to the district and have been determined National Register-eligible by SHPO, and one building that are contributing to the district but are not individually eligible.

The 2012 CRA identified two additional buildings that are contributing to the National Register-eligible historic district and are considered National Register-eligible and one building that is contributing to the National Register-eligible historic district and is considered individually ineligible (Table 3-3.54).

Table 3-3.54
Historic Resources Identified within the Fort Lauderdale - North Site APE for Historic Resources

FMSF #	Site Name / Address	Const. Date	Style	National Register Significance
8BD62	King-Cromartie House/229 SW 2 nd Avenue	1907	Frame Vernacular	Considered National Register–Eligible; Contributing Resource within National Register– Eligible Ft. Lauderdale Historic District (8BD181)
8BD63	New River Inn/231 SW 2 nd Avenue	1906	Masonry Vernacular	National Register– Listed; Contributing Resource within National Register–Eligible Ft. Lauderdale Historic District (8BD181)
8BD181	Ft. Lauderdale Historic District	Various	Various	Determined National Register–Eligible by the SHPO
8BD212	Philemon Nathaniel Bryan House/227 SW 2 nd Avenue	1906	Neoclassical Revival	Considered National Register–Eligible; Contributing Resource within National Register– Eligible Ft. Lauderdale Historic District (8BD181)
8BD213	Davis Acetylene Building/N of 229 SW 2 nd Avenue	c. 1905	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register– Eligible Ft. Lauderdale Historic District (8BD181)
8BD227	Tom Bryan Building/201-211 Himmarshee Street	c. 1925	Mediterranean Revival	Determined National Register–Eligible by the SHPO; Contributing Resource within National Register– Eligible Ft. Lauderdale Historic District (8BD181)
8BD237	ROK:BRGR/208 Himmarshee Street	c. 1939	Masonry Vernacular	Determined Ineligible by the SHPO; Contributing Resource within National Register–Eligible Ft. Lauderdale Historic District (8BD181)
8BD239	Briny Irish Pub/214-220 SW 2 nd Street	c. 1937	Masonry Vernacular	Determined National Register–Eligible by the SHPO; Contributing Resource within National Register–Eligible Ft. Lauderdale Historic District(8BD181)

FRA has determined that there will be no adverse effect to the significant resources, based on the condition that consultation with the SHPO and locally affected parties/historic preservation planning staff in the cities of West Palm Beach, Fort Lauderdale, and Miami will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the significant resources within the station locations' APE. SHPO concurrence is expected to coincide with this determination of no adverse effect based on this condition.

Fort Lauderdale - South Site

One previously recorded archaeological site, Brickell Block (8BD2916), is located within the archaeological APE for the Fort Lauderdale - South Site. The significance of this site has not been evaluated by SHPO but it is recorded as containing sensitive material. A portion of the archaeological APE for the Fort Lauderdale - South Site is also located within an Archaeologically Significant Zone noted on the *Official City of Fort Lauderdale Historic Resources Map* (City of Fort Lauderdale, Planning and Zoning Department 2008) and the Broward County North Bank New River Archaeological Zone.

The Brickell Block is located in an urban setting beneath a multi-story shopping and entertainment complex, and associated hardscape, including a parking lot. The archaeologically sensitive zones are also within a heavily developed area consisting of buildings or hardscape. The Brickell Block and the zones will only be impacted if the Fort Lauderdale - South Site is selected. As this site is not the preferred station location, testing at the site or within the zones is not warranted at this time, as no subsurface impacts are anticipated.

The FMSF identified one National Register-eligible historic district within the APE for the Fort Lauderdale - South Site (Table 3-3.55). The FMSF identified one building that is contributing to the district and is National Register-listed and two buildings that are contributing to the district and are determined National Register-eligible by the SHPO. The 2012 CRA identified two additional buildings that are contributing to the district and are considered National Register-eligible and two buildings that are contributing and considered ineligible for the National Register (Table 3-3.55).

FRA has determined that there will be no adverse effect to the significant resources, based on the condition that consultation with the SHPO and locally affected parties/historic preservation planning staff in the cities of West Palm Beach, Fort Lauderdale, and Miami will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the significant resources within the station locations' APE. SHPO concurrence is expected to coincide with this determination of no adverse effect based on this condition.

Miami - Central Elevated Site (Preferred Build Station Alternative)

No previously recorded significant archaeological sites are located within the Archaeological APE established for the Miami - Central Elevated Site.

The FMSF identified one National Register-listed Historic District (Table 3-3.57). The 2012 CRA identified

one contributing resource within the National Register-listed Historic District which is ineligible on an individual basis. The FMSF also identified two buildings which are National Register-listed or eligible. The 2012 CRA identified one National Register-eligible building within the Historic Resources APE established for the Miami - Central Elevated Site (Table 3-3.56).

Table 3-3.55
Historic Resources Identified within the Fort. Lauderdale - South Site APE for Historic Resources

FMSF #	Site Name / Address	Const. Date	Style	National Register Significance
8BD62	King-Cromartie House/229 SW 2 nd Avenue	1907	Frame Vernacular	Considered National Register-Eligible; Contributing Resource within National Register-Eligible Ft. Lauderdale Historic District (8BD181)
8BD63	New River Inn/231 SW 2 nd Avenue	1906	Masonry Vernacular	National Register-Listed; Contributing Resource within National Register-Eligible Ft. Lauderdale Historic District (8BD181)
8BD181	Ft. Lauderdale Historic District	Various	Various	Determined National Register-Eligible by the SHPO
8BD212	Philemon Nathaniel Bryan House/227 SW 2 nd Avenue	1906	Neoclassical Revival	Considered National Register-Eligible; Contributing Resource within National Register-Eligible Ft. Lauderdale Historic District (8BD181)
8BD213	Davis Acetylene Building/N of 229 SW 2 nd Avenue	c. 1905	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register-Eligible Ft. Lauderdale Historic District (8BD181)
8BD227	Tom Bryan Building/201-211 Himmarshee Street	c. 1925	Mediterranean Revival	Determined National Register-Eligible by the SHPO; Contributing Resource within National Register-Eligible Ft. Lauderdale Historic District (8BD181)
8BD237	ROK:BRGR/208 Himmarshee Street	c. 1939	Masonry Vernacular	Determined Ineligible by the SHPO; Contributing Resource within National Register-Eligible Ft. Lauderdale Historic District (8BD181)
8BD239	Briny Irish Pub/214-220 SW 2 nd Street	c. 1937	Masonry Vernacular	Determined National Register-Eligible by the SHPO; Contributing Resource within National Register-Eligible Ft. Lauderdale Historic District (8BD181)

Table 3-3.56
Historic Resources Identified within the Miami - Central Elevated Site APE for Historic Resources

FMSF #	Site Name / Address	Const. Date	Style	National Register Significance
8DA271	Salvation Army Citadel/49 NW 5 th Street	c. 1925	Gothic Revival	Determined National Register-Eligible by the SHPO
8DA1164	212-222 N Miami Avenue	c. 1922	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register Listed Downtown Miami Historic District (8DA10001)
8DA2397	Lyric Theater/819 NW 2 nd Avenue	c. 1914	Masonry Vernacular	National Register-Listed
8DA10001	Downtown Miami Historic District	Various	Various	National Register-Listed
8DA12603	201 NW 1 st Avenue	c. 1914	Masonry Vernacular	Considered National Register-Eligible

An additional reconnaissance survey was conducted as part of the 2012 CRA to evaluate resources within one block of the proposed elevated railway track improvements for the Miami - Central Elevated Site. This resulted in the identification of one National Register–eligible resource: X-Ray Clinic/171 NW 11th Street.

FRA has determined that there will be no adverse effect to the significant resources, based on the condition that consultation with the SHPO and locally affected parties/historic preservation planning staff in the cities of West Palm Beach, Fort Lauderdale, and Miami will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the significant resources within the station locations’ APE. SHPO concurrence is expected to coincide with this determination of no adverse effect based on this condition.

Miami - South At Grade Site

No previously recorded significant archaeological sites are located within the Archaeological APE established for the Miami - South At Grade Site (Table 3-3.57). The FMSF identified one National Register–listed historic district and five contributing buildings which are determined National Register–eligible on an individual basis by SHPO. The 2012 CRA identified one contributing building within the National Register–listed Historic District which is considered National Register–eligible and one building that is considered is ineligible (Table 3-3.58).

The FMSF identified two additional National Register–listed or eligible buildings within the Miami - South At Grade Site APE. The 2012 CRA identified one additional individually National Register–eligible building (Table 3-3.57).

FRA has determined that there will be no adverse effect to the significant resources, based on the condition that consultation with the SHPO and locally affected parties/historic preservation planning staff in the cities of West Palm Beach, Fort Lauderdale, and Miami will continue through the station design process in order to ensure compatibility and appropriate sensitivity to the significant resources within the station locations' APE. SHPO concurrence is expected to coincide with this determination of no adverse effect based on this condition.

Table 3-3.57
Historic Resources Identified within the Downtown Miami South Site - At Grade APE

FMSF #	Site Name / Address	Const. Date	Style	National Register Significance
8DA237	Waddell Building/24-36 N Miami Avenue	c. 1916	Masonry Vernacular	Considered National Register–Eligible; Contributing Resource within National Register–Listed Downtown Miami Historic District (8DA10001)
8DA271	Salvation Army Citadel/49 NW 5 th Street	c. 1925	Gothic Revival	Determined National Register–Eligible by the SHPO
8DA355	Dade County Courthouse/73 W Flagler Street	c. 1925	Neoclassical Revival	National Register–Listed
8DA1162	Biscayne Building/9-23 W Flagler Street	c. 1925	Masonry Vernacular	Determined National Register–Eligible by the SHPO; Contributing Resource within National Register–Listed Downtown Miami Historic District (8DA10001)
8DA1164	212-222 N Miami Avenue	c. 1922	Masonry Vernacular	Considered Ineligible; Contributing Resource within National Register–Listed Downtown Miami Historic District (8DA10001)
8DA8068	27 W Flagler Street	c. 1955	Mid-Century Modern	Determined National Register–Eligible by the SHPO; Contributing Resource within National Register–Listed Downtown Miami Historic District (8DA10001)
8DA8069	1-7 W Flagler Street	c. 1920	Masonry Vernacular	Determined National Register–Eligible by the SHPO; Contributing Resource within National Register–Listed Downtown Miami Historic District (8DA10001)
8DA8089	Court House East/22 NW 1 st Street	c. 1924	Neoclassical Revival	Determined National Register–Eligible by the SHPO; Contributing Resource within National Register–Listed Downtown Miami Historic District (8DA10001)
8DA8103	40-44 N Miami Avenue	c. 1920	Masonry Vernacular	Determined National Register–Eligible by the SHPO; Contributing Resource within National Register–Listed Downtown Miami Historic District (8DA10001)
8DA10001	Downtown Miami Historic District	Various	Various	National Register–Listed
8DA12603	201 NW 1st Avenue	c. 1914	Masonry Vernacular	Considered National Register–Eligible

3.3.8 Section 4(f) and Recreational Resources

Section 4(f) of the US Department of Transportation (USDOT) Act of 1966 (49 USC 303 and 23 CFR 771) grants special protection to historic sites that are listed on or are eligible for the National Register of Historic Places (NRHP), or are a publicly owned park, recreational area, or wildlife/waterfowl refuges. Section 4(f) states that publicly owned parks, recreational lands, wildlife and waterfowl refuge areas, or historic sites of national, state, or local significance may not be used for USDOT-funded projects unless there is no feasible and prudent alternative to the use of such land, and such projects include all possible planning to minimize harm to these lands.

Utilizing datasets available through the Florida Geographic Digital Library (FGDL), parcel information obtained for the Property Appraiser's Offices of Palm Beach, Broward and Miami-Dade Counties and aerial and field reconnaissance, an inventory Recreational Resources within the Project Area revealed that a total of 45 properties are found within 300 ft and of those 20 are found within 100 ft of the ***Preferred Build Project Alternatives (System and Stations)***.

The identified resources were then evaluated to determine if there is a potential for impact from direct property acquisition, access alternation, noise, vibration, or air quality. Tables 3-3.58 through 3-3.60 summarize these results.

Direct Property Acquisition

Of the 20 properties found within the 100-ft buffer none will require direct property acquisition. The ***Preferred Build Project Alternative*** will not require additional right-of-way in these areas, and as such does not require direct acquisition or takings of any 4(f) protected resources that would constitute a use under Section 4(f).

Access Alteration

Of the 45 properties found within the 300-ft buffer none will require alteration to existing or planned access. It is possible that Recreational Resources reasonably proximate to the proposed action may experience an improvement to access. ***The Preferred Build Project Alternative*** will not adversely alter the existing access to any 4(f) protected resources in the Project Area in a manner that would constitute a use under Section 4(f).

**Table 3-3.58
Recreational Resources within 300 feet and 100 feet of the Project Palm Beach County, Florida**

Resource Name	Location	Within 300 ft	Within 100 ft	ROW	Access	Noise*	Vibration	Air
Flamingo Park	West Palm Beach	X		None	None	Minimal	None	None
Mary Brandon Park	West Palm Beach	X		None	None	Minimal	None	None
City of West Palm Beach Municipal Golf Course	West Palm Beach	X	X	None	None	Minimal	None	None
City of West Palm Beach Recreational Center	West Palm Beach	X	X	None	None	Minimal	None	None
Hypoluxo Scrub Natural Area	Palm Beach County	X	X	None	None	Minimal	None	None
Seacrest Scrub Natural Area	Palm Beach County	X	X	None	None	Minimal	None	None
Lake Worth Shuffleboard Courts	Lake Worth	X		None	None	Minimal	None	None
Lake Worth Recreation Center	Lake Worth	X		None	None	Minimal	None	None
Veterans Park	Boyton Beach	X		None	None	Minimal	None	None
Bicentennial Park	Boyton Beach	X		None	None	Minimal	None	None
Pence Park	Boyton Beach	X		None	None	Minimal	None	None
Palm Beach County Recreation Center	Boyton Beach	X		None	None	Minimal	None	None
Worthing Park	Delray Beach	X		None	None	Minimal	None	None
Currie Commons Park	Delray Beach	X		None	None	Minimal	None	None
Miller Park	Delray Beach	X		None	None	Minimal	None	None
Weeks Preserve	Delray Beach	X		None	None	Moderate	None	None
Leon M. Weekes Environmental Preserve	Delray Beach	X	X	None	None	Minimal	None	None
Boca Isles Park	Boca Raton	X		None	None	Minimal	None	None
City of Boca Raton Recreation Center	Boca Raton	X	X	None	None	Minimal	None	None
City of Boca Raton Gopher Tortoise Preserve	Boca Raton	X	X	None	None	Minimal	None	None
Rosemary Ridge Preserve	Boca Raton	X	X	None	None	Minimal	None	None
TOTAL		21	8	None	None	Minimal	None	None

*Based on FTA guidance noise impacts are classified as moderate or severe. Those proximate to the corridor yet not identified as moderately or severely impacted were assumed to have a minimal impact.

**Table 3-3.59
Recreational Resources within 300 feet and 100 feet of the Project
Broward County, Florida**

Resource Name	Location	Within 300 ft	Within 100 ft	ROW	Access	Noise*	Vibration	Air
Poinciana Park/Dog Park	Hollywood	X		None	None	Moderate	None	None
Dowdy Baseball Park	Hollywood	X		None	None	Minimal	None	None
Byrd Park	Dania	X		None	None	Minimal	None	None
Jaco Pastorius Park and Community Center	Oakland Park	X	X	None	None	Moderate	None	None
Tarpon River Park	Fort Lauderdale	X		None	None	Minimal	None	None
Florence C. Hardy Park	Fort Lauderdale	X		None	None	Minimal	None	None
Sistrunk Park	Fort Lauderdale	X	X	None	None	Minimal	None	None
Oakland Park Boat Ramp	Fort Lauderdale	X		None	None	Minimal	None	None
Midway Park	Fort Lauderdale	X		None	None	Minimal	None	None
City of Fort Lauderdale SW 9 th Street Recreation Center	Fort Lauderdale	X	X	None	None	Minimal	None	None
Florence C. Hardy Park and Southside Cultural Center	Fort Lauderdale	X		None	None	Moderate	None	None
Highlands Scrub Natural Area	Broward County	X	X	None	None	Moderate	None	None
Broward County Planned Park	Broward County	X	X	None	None	Minimal	None	None
Colohatchee Park	Winton Manors	X	X	None	None	Moderate	None	None
TOTAL		14	6	None	None	5 Moderate	None	None

*Based on FTA guidance noise impacts are classified as moderate or severe. Those proximate to the corridor yet not identified as moderately or severely impacted were assumed to have a minimal impact.

**Table 3-3.60
 Recreational Resources within 300 feet and 100 feet of the Project
 Miami-Dade County, Florida**

Resource Name	Location	Within 300 ft	Within 100 ft	ROW	Access	Noise*	Vibration	Air
Aqua Bowl Park	North Miami Beach	X		None	None	Moderate	None	None
Arthur I. Snyder Tennis Complex	North Miami Beach	X		None	None	Minimal	None	None
Oleta River State Park	Miami-Dade County	X		None	None	Minimal	None	None
Arch Creek Park	Miami-Dade County	X	X	None	None	Minimal	None	None
Arch Creek Park Addition	Miami-Dade County	X	X	None	None	Minimal	None	None
Greynolds Park	Miami-Dade County	X	X	None	None	Minimal	None	None
Dorsey Park	City of Miami	X		None	None	Minimal	None	None
Woodson/Miai Design Park	City of Miami	X	X	None	None	Minimal	None	None
Ed Abdella Field House and Athletics	City of Miami	X	X	None	None	Moderate	None	None
El Portal Tot Lot	Village of El Portal	X	X	None	None	Severe	None	None
TOTAL		10	6	None	None	2 Moderate 1 Severe	None	None

*Based on FTA guidance noise impacts are classified as moderate or severe. Those proximate to the corridor yet not identified as moderately or severely impacted were assumed to have a minimal impact.

Noise

Of the 45 properties found within the 100-ft there are 7 moderately impacted properties and 1 severely impacted property.

Palm Beach County – NONE

Broward County – 5 moderately impacted properties

- Poinciana Dog Park (moderate) – is an active use dog park owned by the City of Hollywood, Florida.
- Jaco Pastorius Park and Community Center (moderate) – is an active use recreational park with a walking trail and community center owned by the City of Oakland Park, Florida.
- Colohatchee Park (moderate) – is a waterfront mangrove preserve and active recreational area with a dog park, jogging trail, basketball courts, sand volleyball courts and playground own by the City of Winton Manors.
- Florence C. Hardy Park and Southside Cultural Center (moderate) – is an active recreational park with tennis courts, open space, lighted athletic fields and lawn bowling owned by the City of Fort Lauderdale, Florida.
- Highlands Scrub Natural Area (moderate) – a scrub habitat preserve owned by Broward County, Florida includes a 1,800-ft interpretive nature trail, picnic tables and pavilions.

Miami-Dade County – 1 severe and 2 moderate

- El Portal Tot Lot (severe) – a tot lot and playground owned by the Village of El Portal incorporated on the property of the Village Hall. The El Portal Tot Lot is located at the existing dual track crossing of NE 87th Street
- Aqua Bowl Park Center (moderate) – an active, open space active use recreational area owned by the City of North Miami Beach, Florida.
- Ed Abdella Field House and Athletics Complex (moderate) – an active use recreation area with baseball/softball field, basketball courts and gymnasium owned by the City of Miami Shores, Florida.

Vibration

Of the 20 properties found within the 100-ft there are none were found to be impacted by vibration.

Air

As noted in Section 3.1.1 (Air Quality) the entire Project Area is within an attainment area as per the Clean Air Act and is further not anticipated to exceed the criteria defined in the National Ambient Air Quality Standards. None of the 20 Section (f) properties with the 100-ft buffer are anticipated to be

impacted by either the **Preferred Build System Alternative or the Preferred Build Station Alternatives** by air quality considerations, and as such there will be no use of Section (f) resources due to air quality related impacts attributable to the proposed Project.

Tables 3-3.59 through 3-3.61 summarize those Recreational Resources found within 300 ft and 100 ft of the mainline and proposed station locations by county and potential impacts to each.

The State of Florida State Historic Preservation Office (SHPO) has concurred that, in and of itself, improvements to the NHRP-eligible FEC corridor would not constitute a Section 4(f) use of this resource as per Section 4(f) of the US Department of Transportation (USDOT) Act of 1966.

Based on the results of this analysis, one Section 4(f) resource appears to have a potential impact from noise in the **Preferred Build Project Alternative**: the El Portal Tot Lot – Miami-Dade County. It was further determined in the evaluation of alternatives discussed in Section 2.0 that construction of a new corridor to accommodate the proposed project was not feasible or practicable as defined by 49 USC 303 and 23 CFR 771. No feasible and prudent avoidance alternative satisfies the purpose and need as stated in Section 1.0. However, based on committed mitigation measures (see, e.g., stationary grade crossing horns described in Section 3.1.7.4), all severe and moderate impacts related to recreational land uses are eliminated (see Table 3-1.21) including noise impact to El Portal Tot Lot.

In summary, the **Preferred Build Project Alternative** would not use properties subject to the requirements of Section 4(f) of the Department of Transportation Act of 1966.

3.3.9 Municipal Services

The **No-Build Alternative** would have no impact to municipal services. As for the **Preferred Build Project Alternative**, Section 1.6, Connected Actions, provides details on the projected demand for municipal services associated **Preferred Build Project Alternative** as well a description of the existing infrastructure to service those demands, including the following:

- Potable water
- Sewer
- Electrical Power Supply
- Solid Waste
- Police/Fire/EMS

Further, that section describes the manner in which the needs of each station location are satisfied by adequate service in the area.

In addition, as per FS 163.3177(14) – Urban Service Boundary,

“(14) Local governments are also encouraged to designate an urban service boundary. This area must be appropriate for compact, contiguous urban

development within a 10-year planning timeframe. The urban service area boundary must be identified on the future land use map or map series. The local government shall demonstrate that the land included within the urban service boundary is served or is planned to be served with adequate public facilities and services based on the local government's adopted level-of-service standards by adopting a 10-year facilities plan in the capital improvements element which is financially feasible. The local government shall demonstrate that the amount of land within the urban service boundary does not exceed the amount of land needed to accommodate the projected population growth at densities consistent with the adopted comprehensive plan within the 10-year planning timeframe."

The West Palm Beach, Fort Lauderdale and Miami station locations considered within this EA, including the **Preferred Build Station Alternatives** are all found within the urban service boundaries defined by Palm Beach, Broward and Miami-Dade Counties, respectfully.

In light of the foregoing facts, the **Preferred Build Project Alternative** would not have an impact to municipal services.

3.3.10 Energy Resources

It is anticipated that the **No-Build Alternative** would not cause a change in the current energy consumption patterns. The No Build Alternative retains existing automobile-based travel patterns, consuming energy resources based on anticipated annual VMT of 47,166,135,485 in 2018 and 53,869,951,785 in 2030, based on the 2035 Southeast Regional Planning Model (SERPM) v6.5.2e. The **Preferred Build Project Alternative**, through a reduction in the automobile-based VMT, creates major benefits to energy resources.

Based on the Florida Standard Urban Transportation Model Structure (FSUTMS) Regional Transportation Model Highway Evaluation (HEVAL) output and the All Aboard Florida Ridership Study, it is projected that roadway VMT would be reduced by 44,229,342 in 2018 and by 51,345,672 in 2030, respectively. Using the US Average Miles per Gallon (mpg) for 2011 of 22.1 this represents a saving of 2,001,327.6 and 2,323,333.5 gallons per year, respectively, in gasoline (energy) consumption. This reduction in VMT generates a corresponding reduction in regional highway congestion levels, as discussed in Section 3.1.1 of this EA.

Diesel fuel is required to propel the train locomotives. The locomotives anticipated to be utilized for the **Preferred Build Project Alternative** would require 1,287,720 of diesel on average annually.

Electrical energy would be required for **the Preferred Build Station Alternatives** (which includes the VMF). Electrical requirements related directly to the operation of the stations and ancillary activities are anticipated to average 81,600,000 Kwh annually. Table 3.3-61 summarizes the energy consumption/savings related to the **Preferred Build Project Alternative**.

**Table 3.3-61
Energy Consumption and Savings**

Energy Resource	Consumption	Savings	Joules ¹ /unit	KJoules ²
Gasoline		2,162,330.5 gallons/year ³	131,760,000.00	285,000,000,000
Diesel	1,287,720.0 gallons/year ⁴		136,629,732.60	176,000,000,000
Electricity	81,600,000 Kwh/year ⁵		3,600,000.00	294,000,000,000
Total Difference				(185,000,000,000)
Examples of 185,000,000,000 KJoules				
		Gallons of gasoline annually		1,404,608.00
		Gallons of diesel annually		1,354,024.46
		Kwh annually		51,388,888.89

¹ Joules = kg*m²/s² and is used as the common measure of “work”

² KJoules = Kilojoules or 1,000 Joules (rounded)

³ Based on the average of 2,001,327.6 and 2,323,333.5 stated above

⁴ Based on 147 gallons per one way trip X 24 daily one way trips = 3,528 gallons/day
3,528 gallons/day x 365 day = 1,287,720.0 gallons/year

⁵ Based on 16 Kilowatt hours (Kwh)/sq ft /month x 12 months = 192 Kwh/sq ft/year
192 Kwh/sq ft/year x 425,000 sq ft = 81,600,000 Kwh/year

As discussed above in Section 3.3.7 (Municipal Services) the **Preferred Build Station Alternatives** are not anticipated to create an adverse impact or disproportionate demand on the existing or planned electrical grid for each of the three station locations. The three stations are located within the Central Business Districts (CBDs) of West Palm Beach, Fort Lauderdale and Miami, lie wholly within the Urban Service Boundary and are consistent with local government comprehensive long range plans. Therefore, no impacts are anticipated.

In summary, therefore, the **Preferred Build Project Alternative** is not anticipated to have any significant impacts in terms of energy use.

3.3.11 Aesthetics

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

The stations located proximate to NHRP-eligible historic districts will incorporate aesthetic features consistent with the historic architecture of the surrounding community and will be developed in coordination with local historic preservation groups and organizations.

As such, the proposed **Preferred Build Project Alternative** will not cause significant impacts to aesthetic considerations within the Project Area.

3.4 Construction Impacts

Impacts from the construction of the **Preferred Build Project Alternative** are considered temporary and occur during and immediately following construction. Time required for individual and specific construction impacts to dissipate varies with the type of activity performed and resource potentially impacted; most construction impacts cease immediately after the activity in an area is completed. Some specific construction impacts cannot be estimated at this time because they depend on several factors yet to be determined at this point, such as: final design; location of staging; materials to be used; specific construction methodologies; equipment to be used; and identification of areas for disposal for debris.

The **No-Build Alternative** would not create construction impacts.

The **Preferred Build Project Alternative** includes construction primarily on existing exclusive right of way, and therefore has no impacts on local resources. Existing at-grade crossings will be modified to include second tracks through the crossing and relocation and addition of crossing protection devices as required. These improvements will require temporary closures of individual lanes or complete streets. All closure plans involve the coordination and involvement of State and local governments due to the crossing agreements in place, and will only be implemented with the full collaboration of the agencies. Temporary lane or full crossing closures may create temporary construction impacts to traffic, air quality and noise during construction from the operation of equipment and potential temporary, short-term closure of local streets. The typical duration of any closures ranges from 2 to 3 days for minor crossings to up to a week for major arterial crossings. Proper planning and implementation and maintenance of mitigation measures (e.g. maintenance of traffic plans, dust/erosion/sedimentation controls, properly fitted emission control devices and mufflers, etc.) will be specified and required for construction

activities to minimize the temporary impacts from construction, all of which shall be typical for this type of construction. Further mitigation measures, including restrictions on working hours, limitations on evening and night time activities in residential neighborhoods and similar measures will be closely coordinated with local agencies to assure temporary impacts during construction are mitigated to the extent practical.

For example, existing at-grade crossings will generally be used for vehicle and equipment access. Rough grading will be performed to allow materials to be distributed along the track for construction of the parallel new main track. Track materials will be distributed along the ROW by rubber tired vehicles, by hi-rail vehicles, and by work train. Track will be constructed using typical heavy equipment. Final ballast placement will be by work train, and final surfacing will be performed by on-track work equipment.

Contractors will be required to access work areas using established public access points. Construction activities will not cause adverse effects on access for local businesses and residences. If private property is proposed to be used for site access or for material staging, such activities will be conducted only with consent and approval of the property owner.

Discharge of sedimentation into waterways will be minimized during construction. Best management practices, such as silt fence, straw bales, and ditch checks, will be used to minimize soil erosion, sedimentation, runoff, and surface instability during construction. Erosion control devices will be placed and maintained in accordance with governing regulations and permits.

A spill prevention plan will be developed for petroleum products or other hazardous materials during construction. Contractors will be required to properly maintain their equipment such that spills are avoided.

All grade crossings that will have an additional track added will require temporary full crossing closures. Crossing closures will be coordinated well in advance with the governing agency and local emergency service providers for each crossing. Maintenance of traffic and detour plans will be prepared that will be subject to review and approval by each agency prior to the temporary crossing closure. Crossing work will be sequenced so that actual road closure times are minimized.

In summary, the temporary impacts would cease immediately after construction activities are completed and would be minimized using best management practices (BMPs) and by following all applicable federal, state, and local statutes, regulations and ordinances. Following construction, temporarily impacted natural resources would be restored to their previous condition.

In summary, activities directly related to the construction of the ***Preferred Build Project Alternative*** are not anticipated to have any significant, permanent impacts on resources within the Project Area.

3.5 Potential Secondary and Cumulative Impacts

The Federal Railroad Administration (FRA) and other federal agencies' responsibility to address and consider direct, indirect, and cumulative impacts in the NEPA process was established in the CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR 1500-1508).

The CEQ regulations define the impacts that must be addressed and considered by federal agencies in satisfying the requirements of the NEPA process. Direct, indirect/secondary and cumulative impacts can be defined as follows:

- **Direct impacts** are caused by the action and occur at the same time and place. (40 CFR 1508.8). *(These impacts have been addressed in the previous sections of this EA.)*
- **Indirect/secondary impacts** are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth inducing impacts and other impacts related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR 1508.8) The terms "indirect impacts" and "secondary impacts" are used interchangeably by many federal and state agencies.
- **Cumulative impact** is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7)

It should be noted that direct, indirect/secondary, and cumulative impact can result in beneficial outcomes such as improvements in mobility, expanded mode choice, improved region air quality and economic stimulus for localized urban redevelopment.

Potential Secondary Impacts

Secondary impacts can be associated with the consequences of land use development that would be indirectly supported by changes in local access or mobility. Secondary impacts differ from those directly associated with the construction and operation of the facility itself and are often caused by what is commonly referred to as "induced development." Induced develop would include a variety of alterations such as changes in land use, economic vitality, or population density. The potential for secondary impacts to occur is determined in part by local land use and planning objectives as well as the physical location of the proposed action.

The ***No-Build Alternative*** may result in slight, adverse secondary impacts such as the lack of passenger rail service, the removal of a potential catalyst for urban redevelopment opportunities and no beneficial

impact to the level of congestion on the regional roadway network and its impact to regional air quality. A reduced or removed catalyst for urban redevelopment would maintain the current levels of demands place on municipal services (e.g. potable water, sewer, solid waste, police, fire, EMS). However, based on future land use planning and mapping for all three counties (see Appendix J – Long Range Plans and Maps), the FEC mainline is consistently identified as a Transportation Corridor and each of the general station locations are identified within the central business districts of West Palm Beach, Fort Lauderdale and Miami and still hold the potential for future development opportunities.

The **Preferred Build Project Alternative** may result in secondary impacts such as creating potential for development and redevelopment outside the development directly associated with the stations. This additional development may also create impacts such as increased traffic induced generated from those developments. It is not anticipated that the **Preferred Build Project Alternative** will have a secondary impact on the availability and capacity of the local governments' ability to provide municipal services (e.g. potable water, sewer, solid waste, police, fire, EMS) for the proposed action and the surrounding areas. As noted above, the **Preferred Build Project Alternative** is consistent with the Future Land Use Plans for all three counties and therefore municipal services have been accounted for in the planning process.

Potential Cumulative Impacts

The consideration of cumulative impacts consists of an assessment of the total impact (or effect) on a resource, ecosystem, or community from past, present, and reasonably foreseeable future actions that have altered the quantity, quality, or context of those resources within a broad geographic scope. The cumulative effects analysis considers the aggregate impacts of direct and indirect impacts (from federal, non-federal, public, or private actions) on the quality or quantity of a resource. For purposes of this discussion past, present and reasonably foreseeable future are defined as follows:

- Past: over the last twenty years (1992 – 2011); started construction and opened
- Present: the current calendar year (2012); either currently under construction or completed
- Reasonably foreseeable future: the next twenty years (2013 – 2032); planning, design and/or construction funded and/or programmed.

The intent of the cumulative impacts analysis is to determine the magnitude and significance of cumulative impacts, both beneficial and adverse, and to determine the contribution of the proposed action to those aggregate impacts. Contributions to cumulative impacts associated with the **Preferred Build Project Alternative** on the resources analyzed are limited to those derived from the direct and indirect impacts from the action.

Table 3.3-62 summarizes several of the major actions that have occurred on a broad geographic scope in the past. Table 3.3-63 summarizes those broad scale actions currently underway or completed in the current year. Table 3.3-64 summarizes those actions most likely to occur in the reasonably foreseeable future.

**Table 3.3-62
Past Actions – 1992 -2011**

Actions	Palm Beach County	Broward County	Miami-Dade County	Transportation	Development	Other
Tri-Rail	X	X	X	X		
I-95 HOV Lanes		X	X	X		
Expansion of Miami International Airport			X	X	X	X
Expansion of Port of Miami (Cargo and Cruise)			X	X	X	X
Expansion of Port Everglades (Cargo and Cruise)		X		X	X	X
Development of Port of Miami Truck Tunnel			X	X		
Widening of SR 836			X	X		
Widening of SR 826		X	X	X		
Widening of Florida's Turnpike	X	X	X	X		
Widening of Alligator Alley (I-75)		X		X		
Development of Sun Life Stadium (NFL – Dolphins)		X			X	X
Redevelopment of Central Business Districts	X	X	X		X	X
Demolition of Orange Bowl (NFL – Dolphins and NCAA – University of Miami)			X			X
Hurricane Andrew			X			X
Reconstruction Post-Hurricane Andrew			X	X	X	X
Hurricane Wilma	X	X	X			X
Construction and opening of American Airlines Arena (NBA – Heat)			X			X
Construction and opening of BB&T Centre (NHL – Panthers)		X				X
Comprehensive Everglades Restoration Project (CERP)	X	X	X			X
Miami Intermodal Center (MIC)			X	X	X	X

**Table 3.3-63
 Current Actions – 2012**

Actions	Palm Beach County	Broward County	Miami-Dade County	Transportation	Development	Other
Construction and opening of Marlins Park (MLB – Marlins)			X			X
Construction activities to reintroduce of freight rail service to Port of Miami			X	X		X
Planning efforts to develop managed lanes on I-95	X	X	X	X		
All electronic tolling on Florida’s Turnpike	X	X	X	X		
Comprehensive Everglades Restoration Project (CERP)	X	X	X			X
Reconstruction of the SR 826/SR 836 interchange			X	X		

Table 3.3-64
Reasonably Foreseeable Future Actions – 2013 - 2032

Actions	Palm Beach County	Broward County	Miami-Dade County	Transportation	Development	Other
Design and construction of managed lanes on I-95	X	X	X	X		
Reintroduction of freight rail service to Port of Miami			X	X		
Opening of the Panama Canal		X	X	X		X
Construction and opening of FECR's ICTF		X		X		X
Construction and opening of passenger rail service for All Aboard Florida	X	X	X	X	X	X
Extension of SR 836, west to Krome Avenue			X	X		
SR 874 Connector			X	X		
SR 924 (East and West) Connectors			X	X		
US 1 Express Bus Lanes			X	X		
Comprehensive Everglades Restoration Project (CERP)	X	X	X			X
SR 836 capacity improvements (SR 826 to I-395)			X	X		
Countywide traffic signal enhancement		X		X		
SR 7 extension	X			X		
Miami International Airport improvements			X	X		X
Fort Lauderdale International Airport improvements		X		X		X
Palm Beach International Airport improvements	X			X		X
Extension of Tri-Rail	X	X	X	X		X
Dredging of Port of Miami channel			X	X		X

The **No-Build Alternative** would involve potential negative cumulative impacts. Based on the air quality analysis for this project (see Section 3.1.1), the **No-Build Alternative** would not provide any benefits to regional air quality because it would continue the State's dependence on personal automobiles on congested highways for travel between West Palm Beach, Fort Lauderdale and Miami by not reducing regional VMTs.

The **Preferred Build Project Alternative** would have slight beneficial contributions to cumulative impacts. The proposed creation of passenger rail service is expected to provide an overall benefit to air quality (see Section 3.1.1) by reducing regional VMTs. The passenger rail service is expected to provide service to motorists who would otherwise travel between West Palm Beach, Fort Lauderdale and Miami by motor vehicle. This shift in travel mode is expected to reduce overall vehicle emissions. The addition of passenger rail service would also encourage the transit-oriented development adjacent to the proposed stations becoming a catalyst for local economic growth. Further, the **Preferred Build Project Alternative** utilizes an existing and traditional transportation corridor, connecting three established central business districts and is consistent with all local government comprehensive planning efforts.

Cumulative impacts occur when a proposed project (considered in conjunction with past, present and future activities):

- Results in a violation of state water quality standards
- Results in significant adverse impacts to functions of wetlands or other surface waters within the same drainage basin, when considering the basin as a whole
- Results in jeopardizing a listed threatened or endangered species and/or habitats critical to their existence

This Environmental Assessment (EA) has demonstrated that the **Preferred Build Project Alternative** does not create or influence any of these conditions; therefore resulting in adverse cumulative impacts.

History has shown that transportation improvement projects usually have cumulative effects in terms of new residential and new commercial development. However, some of the changes in land use patterns, population density and growth rate are projected to occur in the study area regardless of this Project. In this case, the stations are in established central business districts in areas planned for revitalization and growth. Therefore, the proposed action provides a benefit.

The Project is consistent with state comprehensive planning goals and regional planning council policies, which indicates no adverse effect, and potential significant benefit from the Project as follows:

- Rail is one component for local governments to address comprehensive plan requirements such as to implement land use and transportation strategies to support and fund mobility, including alternative modes of transportation (s.163.3180(5)(b)(4), F.S.) as well as to establish GHG reduction strategies (s. 163.3177(6)(j), F.S.).

- This Project is consistent with strategies and policies in the adopted Strategic Regional Policy Plan of the following regional planning councils:
 - **Treasure Coast Regional Planning Council (Indian River, St. Lucie, Martin and Palm Beach counties)**
Strategy 7.1.1: Develop a balanced, complete and fully integrated transportation system which, as a minimum, includes the following:...(3) commuter rail service with stations linking the coastal cities and towns of the Region. (4) a regional mass transit system linking commuter rail stations, major commercial airports, seaports, colleges, and principle urban areas within the Region.
 - **South Florida Regional Planning Council (Broward County)**
Policy 8.4 Expand use of public transportation, including buses, commuter rail, waterborne transit, and alternative transportation modes that provide services for pedestrians, bikers, and the transportation disadvantaged, and increase its role as a major component in the overall regional transportation system.

For these reasons, particularly the consistency with future planning requirements to preserve Florida's environment, it can be assumed that cumulative effects are not adverse. In fact, the cumulative effects will likely provide a synergy between future land development and transportation planning efforts to support growth and economic development in conjunction with maintaining the natural and cultural resources of Florida's unique environment.

4.0 Coordination and Consultation

Since AAF made the first public announcement of its proposed passenger rail project in Florida, a robust and comprehensive public engagement strategy has been employed. A series of meetings, briefings, speeches and telephone calls with stakeholders, community leaders, neighborhood leaders and elected officials have been ongoing and will continue indefinitely.

Specifically, AAF has had more than 60 meetings with residents, business and community leaders, and public agencies throughout the State and has found that both the public and private sectors are welcoming this exciting solution to the transportation problems of South Florida. In addition, a website, Facebook page, Twitter account, and email distribution list have been created (which list regularly reaches approximately 300 people who have proactively requested updates on the Project). In addition to these efforts that began in March, AAF has undertaken earlier coordination efforts to work proactively with federal, state and local agencies (e.g., Federal Railroad Administration, US Army Corps of Engineers, US Coast Guard, South Florida Water Management District, etc.) to discuss and identify their environmental resources and/or concerns within the area of the Project, all in an effort to ensure that this document comprehensively addresses those concerns regarding any potential impacts of this Project.

Project leaders developed a stakeholders list prior to the public announcement in consultation with local community leaders located along the route. The initial list numbered over 150 and paid particular attention to counties and municipalities along the route. Contact with each was made in the form of a call or visit from a team member and this contact often resulted in additional requests for meetings or presentations.

Presentations, while providing the same basic content about the plans for the Project, were customized geographically and by the nature of the audience. For example, an ongoing dialogue is occurring with environmental groups in Florida, as well as multiple planning organizations and business organizations such as Chambers of Commerce.

AAF's website invites questions and comments from any interested parties who access the site. Each question or comment has received an informed response. While some visitors to the site are potential vendors, many have comments and questions. Suggestions made have been taken under advisement.

The AAF public engagement strategy has also included a series of press releases to Florida press outlets and over national wire services. Some of the press releases issued to date, and articles published online and in print are attached as part of Appendix G. Also, we have engaged in a series of email blasts as the Project has developed, alerting interested parties of news about the Project. In addition, two twitter accounts have been established for the Project and it is anticipated that these will be utilized to provide news about the Project and also to alert drivers – those who may be afforded the opportunity to ride the passenger rail – about how much faster and more convenient the Project will be. This is designed to begin to build awareness for the service.

This public outreach served to supplement efforts that have been undertaken by others, including the comprehensive program successfully employed by the South Florida East Coast Corridor Transit Analysis (SFECCTA) Study managed by FDOT. As reported in the Final Conceptual Alternatives Analysis/Environmental Screening Report (January 2009), the majority of attendees at all meetings supported the proposal for passenger rail service along the FEC corridor. That was found through the completion of a public outreach program during the course of that SFECCTA Phase 1 study that included:

- over 230 public presentations and/or briefings, including the Elected Officials/Agency Representatives Kick-Off Meetings and the Public Kick-Off/Scoping Meetings;
- over 50 meetings with technical and citizen review committees;
- 11 unscheduled meetings with interested parties such as homeowner associations, grassroots organizations (e.g., Sierra Club) and civic groups;
- at least 20 “one-on-one” meetings with local business leaders; and
- over 30 presentations given to Mayors, City Commissions, and City and Village Council members and other elected officials.

The SFECCTA Study also notes that during the Phase 1 outreach and coordination activities over 90 key agency and other stakeholders (aside from over 100 members of the public that also attended many of these workshops and the public hearing) responded to study documents and/or attended the public meetings. Again, the responses were generally supportive of the proposal for passenger rail service along the FEC corridor.

Table 4-0.1 summarizes some of the stakeholder meetings, briefings, and conference presentations undertaken to date for the Project since March 2012. In addition to those listed, it should be noted that on August 7, 2012, AAF consultants met with City of West Palm Beach, Historic Preservation Planner, Friederike Mittner, and Alex Hansen, Senior Planner. City of West Palm Beach staff was in favor of the overall Project. Further, on August 10, 2012, AAF consultants met with Matt DeFelice and David Baber of the Broward County Historical Commission, Merrilyn Rathbun and Christopher Barfield of the Fort Lauderdale Historical Society, and Patricia Garbe-Morillo, staffer for the City of Fort Lauderdale Historic Preservation Board, during which all meeting participants expressed their support of the overall project, and most favored the North option. Finally, on August 8, 2012, AAF consultants met with Rogiero Madan, Dave Snow, and Alex Adams of the City of Miami Planning Department. City of Miami staff is also supportive of the Project.

These organizations expressed their desire to remain as consulting parties in the development of appropriate siting and design for the Project. AAF is committed to that coordination.

Table 4-0.2 summarizes some of the letters of support received to date, all of which are attached as part of Appendix G. Small briefings were also held with the following stakeholder groups to discuss the development of alternatives:

- 1000 Friends of Florida;
- Audubon of Florida;
- National Parks Conservation Association;
- Sierra Club; and
- South Florida Audubon Society.

**Table 4-0.1
Community Outreach Data**

<u>Date</u>	<u>Presentation Made To:</u>	<u>Type of Event</u>
March 2012	Community Development Department-Lake Park	Meeting - Nadia Di Tommaso
	Downtown Development Authority (DDA)	Briefing - Javier Betancourt, Manager - Urban Planning & Transp.
	Metropolitan Planning Organization (MPO)	Briefing - Irma San Roman, Deputy Director
April 2012	City of Fort Lauderdale	Briefing - Lee Feldman, City Manager
	City of West Palm Beach	Briefing - Jeri Muoio, Mayor Kim Briesemeister, CRA Director
	City of West Palm Beach	Meeting - Commissioner Kimberly Mitchell
	City of West Palm Beach Planning and Zoning Department	Briefing - Rick Green, Director
	Community Redevelopment Agency (CRA)	Briefing - Kim Briesemeister, Director & Staff
	Community Redevelopment Agency (CRA)	Briefing - Pieter Bockweg, Executive Director
	Greater Orlando Aviation Authority	Meeting - Rob Brancheau
	Miami Dade County	Meeting - Dep. Mayor Jack Osterholt
	Miami Dade County	Call - Commissioner Kristin Jacobs
	Metropolitan Planning Organization (MPO)	Follow Up - Irma San Roman, Deputy Director
	May 2012	Broward County
Broward MPO		Board Meeting
Central Florida Partnership		Board Meeting
City of Fort Lauderdale		Follow Up - Lee Feldman, City Manager Bertha Henry, County Administrator Chris Walton, Transit Director
City of Fort Lauderdale		Follow Up - Lee Feldman, City Manager Planning Staff: Diana Alarcon, Sharon Dreesen, Jenni Morejon
City of Fort Lauderdale		Follow up - Bertha Henry, County Administrator
City of Orlando		Meeting - Mayor Buddy Dyer
City of Pompano Beach		Briefing - Planning Meeting
Downtown Development Authority (DDA)		Briefing - Javier Betancourt, Manager - Urban Planning & Transp. Alyce Robertson, Executive Director

<u>Date</u>	<u>Presentation Made To:</u>	<u>Type of Event</u>
May 2012 cont.	Downtown Development Authority Fort Lauderdale	Briefing - Chris Wren, Executive Director
	Greater Orlando Aviation Authority	Briefing - Stan Thornton, Project Liaison Manager
	Greater Orlando Aviation Authority	Meeting - Phil Brown
	MetroPlan Orlando	Transit-Oriented Development Forum
	Orange County	Meeting - Mayor Jacobs, Jim Harrison
	Seaworld	Meeting - Terry Prather
	SFRTA	Meeting - Joe Giuletti
	South Florida Regional Planning Council	Board Meeting
	South Florida Regional Transportation Authority	Briefing - Joseph Giuletti, Executive Director
	South Florida Regional Transportation Authority	Follow Up - Joseph Giuletti, Executive Director & Staff
	Transit Oriented Development	Briefing - Tony Brown, Executive Director Commissioner Lowe Scott Evans, Planning Director
	Universal Florida	Meeting - John McReynolds
June 2012	Miami-Dade County / South FL Regional Planning Council	Presentation - Jack Osterholt, Director Ysela Llort, MD Transit Director James Murley, SFRPC Executive Director
	Orange County EPC	Briefing - Lori Cuniff
	Osceola County	Briefing - Don Fisher, County Manager
	South Florida Water Management District	Briefing - Robert Brown, Director Anthony Waterhouse
	USACOE	Briefing -US Congressman Mica
	Miami Dade County	Follow Up - Mayor Gimenez
	Center for Urban Transportation Research	Meeting - Jason Bittner
	Citizens' Independent Transportation Trust	Meeting - Charles Scurr
	City of Miami	Commission Meeting
	FL House of Representatives	Meeting - Rep. Lori Berman
	Greater Orlando Aviation Authority	Meeting - Marcos Machena and Staff
	USDOT	Meeting - Fmr Undersecretary Roy Kienitz

<u>Date</u>	<u>Presentation Made To:</u>	<u>Type of Event</u>
July 2012	FLL Alliance and including the mayors from Orlando, Jacksonville, St. Petersburg, Tampa, and Ft. Lauderdale.	Mayors conference in Orlando
	Broward County Planning Council	Briefing - Henry Sniezek, Executive Director
	City of Fort Lauderdale	Briefing – Jenni Morejon, Deputy Director Renee Cross, Senior Transportation Planner Diana Alarcon, Transportation & Mobility Director Kevin Walford, Transportation Planner
	City of Miami	Alice Bravo, Assistant City Manager Francisco Garcia, Director - Dept. Planning & Zoning
	City of West Palm Beach	Briefing - Ed Mitchell, City Manager Rick Greene, Planning Manager Alex Hansen, Senior Planner
	City of West Palm Beach	Briefing - Development and Traffic Team
	FDOT - District 5	Meeting - Sec. Noranne Downs
	FL House of Representatives	Meeting - Speaker Designate Dorworth
	Floridians for Better Transportation	2012 FBT Transportation Summit
	Ft. Lauderdale City Commission	Monthly City Commission meeting with all FLL commissioners
	Greater Miami Chamber of Commerce	Briefing - Board of Directors
	Greater Orlando Aviation Authority	Meeting - GOAA, Chairman Mica
	Knight Foundation	Matt Haggman
	Miami Dade County	Briefing - MPO Agenda Item - Joe Martinez
	Orlando Sentinel	Meeting - Editorial Board
	FRA	Meetings - David Valenstein, Division Chief, and other FRA staff
	USDOT	Meeting - Secretary LaHood
	City of Miami	Meeting - Mayor and Assistant City Manager
	Metropolitan Planning Organization (MPO)	Briefing –Wilson Fernandez, Transportation Systems Manager
	Miami-Dade County	Briefing – Monica D. Cejas, P.E., Sr. Professional Engineer
	Citizens' Independent Transportation Trust	Meeting - Kelly Cooper, Strategic Planner

<u>Date</u>	<u>Presentation Made To:</u>	<u>Type of Event</u>
August 2012	FDEP, USACOE, SFWMD and others	Tiger Team Meetings
	Beacon Council Meeting	
	Broward County	Senior Staff Meeting
	Environmental Group Meeting	Meeting with: Everglades Foundation Audubon Society Florida Conservation Council Sierra Club
	Myregion.org	Board Meeting
	Orange County	Staff Meeting
	Greater Fort Lauderdale Alliance Meeting	Meeting with: Greater Fort Lauderdale Alliance Fort Lauderdale DDA Broward MPO Lauderdale Marine Center Stiles Marine Advisory Board Ward's Marine Electric Riverfront Marina, Cymbal Development Winterfest Tow Boat US Fort Lauderdale City of Fort Lauderdale Roscioli Yacht Center Bradford Marine Fiberglass Coating Frank & Jimmies Propeller, Neptune Boat Lift
	Broward County Commissioners	Meeting with: Dale Holness, Barbara Sharief, and Ilene Lieberman

**Table 4-0.2
Letters and Agreements of Support**

<u>Date</u>	<u>Document; Entity</u>	<u>Signatory</u>
5.10.12	Resolution No. 05-01-12; Downtown Development Authority of Fort Lauderdale	Gregory Durden, Chairman Chris Wren, Executive Director
5.18.12	Resolution No. 23/2012; Miami Downtown Development Authority	Commissioner Marc D. Sarnoff, Chairman Alyce M. Robertson, Executive Director
7.23.12	Letter of Support; Florida State Hispanic Chamber of Commerce	Julio Fuentes, President & CEO
7.23.12	Memorandum of Understanding; City of West Palm Beach	<i>Geraldine Muoio</i> , Mayor
7.24.12	Letter of Support; Broward MPO	Gregory Stuart, Executive Director
7.24.12	Letter of Support; South Florida Regional Planning Council	James F. Murley, Executive Director
7.24.12	Letter of Support; Hialeah Chamber of Commerce & Industries	Mandy Llanes, Chairman
7.24.12	Letter of Support; Greater Fort Lauderdale Alliance, Broward County	Bob Swindell, President and CEO
7.25.12	Letter of Support; Coral Gables Chamber of Commerce	Mark A. Trowbridge, President & CEO
7.25.12	Letter of Support; Treasure Coast Regional Planning Council	Michael J. Busha, AICP, Executive Director
7.31.12	Letter of Support; Broward County	Bertha W. Henry
7.31.12	Memorandum of Understanding; City of Miami	Johnny Martinez, City Manager
7.31.12	Letter of Support, Florida Chamber of Commerce	David A. Hart, Executive Vice President
8.13.12	Resolution	Miami-Dade Beacon Council

5.0 List of Preparers

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Julie Mitchell – Air Quality

Chris Fatagoma – Air

Domingo Noriega, PE – Transportation

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Robert S. Johnson – Transportation

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Robert O'Donnell – Environmental Justice/Demographics

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Paul Floyd – MicroStation Specialist

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Distribution List

Federal Agencies

Agency	Office
USDOT	Policy and Compliance
USEPA	Federal Activities
FHWA	Florida Division
USEPA	Region - Atlanta
FAA	Region
FRA	Region
FTA	Region
USCOE	Jacksonville District
NOAA	NMFS - St. Pete
USFWS	Region - Vero Beach
USCG	7th District - Bridge Branch - Miami

State Agencies

Agency	Office
FDOS	SHPO
State of Florida Clearinghouse	For Distribution to State Agencies
Regional Planning Councils	South Florida and Treasure Coast
South Florida WMD	

Local Agencies

Agency	
Miami-Dade County	
City of Miami	
Broward County	
City of Fort Lauderdale	
Palm Beach County	
City of West Palm Beach	

Appendices

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Appendix F-1	Water Quality Standards
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Appendix H	Endangered Species Biological Assessment
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