



## Final Environmental Impact Statement and Section 4(f) Determination



# ALL ABOARD FLORIDA

## Intercity Passenger Rail Project

Orlando to Miami, Florida

Executive Summary

August 2015

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**ALL ABOARD FLORIDA– ORLANDO TO MIAMI, FLORIDA INTERCITY  
PASSENGER RAIL PROJECT  
FINAL ENVIRONMENTAL IMPACT STATEMENT**

Submitted Pursuant to National Environmental Policy Act 42 U.S.C 4332(2)(c)

by the

U.S. Department of Transportation  
Federal Railroad Administration (FRA)

And Cooperating Agencies

U.S. Army Corps of Engineers – Jacksonville District

U.S. Coast Guard – Seventh Coast Guard District

Federal Aviation Administration – Orlando Airports District Office

**AUG 04 2015**

Date of Approval



for Federal Railroad Administration

**ABSTRACT**

All Aboard Florida LLC (AAF), a private corporation, is proposing to construct and operate intercity passenger rail between Orlando and Miami, Florida. FRA is undertaking this environmental review because AAF has applied for a loan through the Railroad Rehabilitation and Improvement Financing program. AAF proposes to implement the Project through a phased approach. This FEIS evaluates Phase II of the Project which includes adding a second track within 128.5 miles of the existing Florida East Coast Railroad right-of-way between West Palm Beach and Cocoa, constructing a new approximately 40-mile long railroad line parallel to State Road 528 between Cocoa and Orlando International Airport, and constructing a new vehicle maintenance facility south of the airport. The Project would also improve grade crossings, bridges, signalization, and add new communications and train control systems. The FEIS evaluates a range of alternatives considered for the Project, and evaluates in detail three alignment alternatives. Alternative E has been selected as the preferred alternative. This EIS considers environmental impacts and mitigation that would result if the Project is built, in the following areas: land use, transportation, air quality, noise and vibration, climate change, water resources, navigation, wetlands, natural biological systems, wildlife, essential fish habitat, migratory bird habitat, threatened and endangered species, floodplains, social and economic effects, environmental justice communities, visual resources, cultural resources, Section 4(f) resources, public health and safety, and economic effects, in addition to secondary and cumulative impacts and short-term construction impacts. Given that operations would cover the full corridor from Orlando to Miami, this EIS analyzes the cumulative effects of completing both phases of the Project, although the impacts exclusively from Phase I have already been addressed in the 2012 EA and FONSI and will not be reanalyzed in the DEIS. AAF can proceed at this time with construction of Phase I based upon the FONSI. The bulk of the information related to Phase I is drawn from the 2012 EA. FRA concluded that it was important to provide a comprehensive look at the environmental impacts of both phases in one environmental document.

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# Summary

This is the Federal Railroad Administration's (FRA) Final Environmental Impact Statement (FEIS) for the proposed All Aboard Florida Intercity Passenger Rail Service Project (the Project). This summary is intended to assist readers in understanding the Project, the environmental review process, the alternatives that were evaluated, and the environmental effects of the Project. Identified mitigation measures and Project commitments are included in Chapter 7.

## About the Project

All Aboard Florida – Operations LLC (AAF) is proposing to construct and operate a privately owned and operated intercity passenger railroad system that will connect Orlando and Miami, with intermediate stops in Fort Lauderdale and West Palm Beach, Florida.

AAF has applied for federal funds through the Railroad Rehabilitation and Improvement Financing (RRIF) program, which is a loan and loan guarantee program administered by the Federal Railroad Administration (FRA) as described in 49 Code of Federal Regulations (CFR) part 260. Under this program, the FRA Administrator is authorized to provide direct loans and loan guarantees that may be used to acquire, improve, or rehabilitate rail equipment or facilities or to develop new intermodal or railroad facilities. Because AAF has applied for a loan under FRA's RRIF program, FRA is required under the National Environmental Policy Act (NEPA) to conduct an analysis of the potential environmental impacts resulting from the Project. NEPA compliance is a prerequisite for RRIF approval, and FRA will not approve the Project for a RRIF loan until the NEPA process is complete. A RRIF loan, if approved, would be part of an overall capital structure put in place by AAF to finance the infrastructure improvements. FRA's action with respect to the Project is limited to reviewing AAF's application for a RRIF loan. Once the service is operational, however, it will be subject to applicable FRA safety regulations.

AAF proposes to implement the Project through a phased approach. Phase I would provide rail service on the West Palm Beach to Miami section while Phase II would extend service to Orlando. Phase I would provide passenger rail service along the 66.5 miles of the Florida East Coast Railway (FECR) Corridor connecting West Palm Beach, Fort Lauderdale, and Miami. AAF has obtained private financing for Phase I and is proceeding to implement Phase I, which is illustrated on Figure S-1.

FRA and AAF conducted an environmental review of Phase I in 2012/2013, including preparing and issuing both an Environmental Assessment (EA) (*Environmental Assessment and Section 4(f) Evaluation for the All Aboard Florida Passenger Rail Project West Palm Beach to Miami, Florida*) and a Finding of No Significant Impact (FONSI) (AAF 2012; FRA 2013a). Phase I of the Project, as described in the 2012 EA, includes constructing three new stations (West Palm Beach, Fort Lauderdale, and Miami), purchasing five train sets, adding a second track along most of the 66.5-mile corridor, and adding 16 new daily round-trip intercity passenger train trips (32 one-way trips) on the West Palm Beach to Miami section of the FECR Corridor. FRA concluded that Phase I has independent utility (that is, it could be advanced and serve a transportation need even if Phase II were not constructed).

As a result of the environmental review process conducted by FRA in cooperation with AAF for Phase I, AAF is authorized to construct the Phase I component of the Project as reviewed and approved in the 2012 EA and FRA's subsequent FONSI. Since the FONSI, AAF proposed and FRA has evaluated a new location for the proposed Fort Lauderdale Station and issued a re-evaluation decision that found no significant difference from the location evaluated in the 2012 EA. Also since the FONSI, AAF proposed and FRA has evaluated a new location in West Palm Beach for the proposed Fort Lauderdale layover and maintenance facility. FRA has issued a Supplemental EA and FONSI for this facility.

Considering Phase II of the Project and RRIF loan approval as separate federal actions, FRA has undertaken a NEPA review of the proposed extension. Given that operations would cover the full corridor from Orlando to Miami, this FEIS analyzes the cumulative effects of completing both phases of the Project, although the impacts exclusively from Phase I have already been addressed in the 2012 EA and 2013 FONSI and will not be reanalyzed in the FEIS. AAF can proceed at this time with construction of Phase I based upon the FONSI and incorporating the mitigation measures identified therein. The bulk of the information in this FEIS related to Phase I is drawn from the 2012 EA. FRA concluded that it was important to provide a comprehensive look at the environmental impacts of both phases in one environmental document.

Phase II of the Project includes constructing a new railroad line parallel to State Road (SR) 528 between the Orlando International Airport (MCO) and Cocoa, constructing a new Vehicle Maintenance Facility (VMF) on property owned by the Greater Orlando Airport Authority (GOAA), constructing track through MCO to connect the VMF to SR 528, adding a second track within 128.5 miles of the FECR Corridor between West Palm Beach and Cocoa, and additional bridge replacement or rehabilitation between Miami and West Palm Beach. The proposed service would use a new intermodal facility at MCO that is being constructed by GOAA as an independent action. The Project includes purchasing five additional passenger train sets, and would add 16 new round-trip intercity passenger train trips (32 one-way trips) on the new railroad segment and on the FECR Corridor between Cocoa and West Palm Beach. No additional trips beyond those considered in the 2012 EA (16 round-trip intercity passenger train trips [32 one-way trips]) would be added on the West Palm Beach to Miami section.

### **About the NEPA Process**

FRA is the lead federal agency responsible for conducting the NEPA environmental review process for the Project. FRA manages financial assistance programs for rail capital investments and has certain safety oversight responsibilities with respect to railroad operations.



- Explanation of Features**
- MCO Segment
  - E-W Corridor
  - N-S Corridor
  - Phase I (WPB-M Corridor)
  - Interstate Highways
  - Proposed Stations - Phase I (WPB-M Corridor)
  - Proposed Station (By Others)

Data Sources: ESRI 2012, FRA 2012, FGDL 2012, AMEC 2013

<b>Project Location</b>		
<b>All Aboard Florida Intercity Passenger Rail Project</b>		
		<b>S-1</b>

Approvals by several federal agencies, including the FRA, U.S. Army Corps of Engineers (USACE), U.S. Coast Guard (USCG), Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) are necessary to implement the Project.

An Environmental Impact Statement (EIS) is a document required by NEPA that describes the environmental effects of a project to inform decision-makers and the public. NEPA is a federal environmental law that facilitates public disclosures and establishes policies for federal agencies to study a reasonable range of alternatives and assess environmental impacts of projects. An EIS must be prepared by a federal agency for any major federal action significantly affecting or with the potential to significantly affect the quality of the natural and built environment. Environmental effects can be both positive (beneficial) or negative (adverse).

NEPA and the Council on Environmental Quality's implementing regulations define the general framework for preparing an EIS. FRA also has its own, more specific, guidelines for implementing NEPA. The NEPA process typically includes these steps:

- Notice of Intent – a notice, published in the Federal Register, notifying the public of the federal agency's intent to prepare an EIS, defining the project and informing the public how to comment on the project. FRA published the Notice of Intent for the AAF Project on April 15, 2013.
- Scoping – an early and open process for identifying significant issues related to a project. As part of the scoping process, agencies and the public are invited to participate and provide comment. A series of public scoping meetings for the Project were held in April and May 2013 in Orlando, Fort Pierce, West Palm Beach, Fort Lauderdale, and Miami and an agency scoping meeting was held in April 2013. Agencies and the public provided input that informed the scope and content of the environmental studies conducted for the FEIS, including concerns about noise and vibration impacts, navigation impacts, wildlife and protected species impacts, safety impacts, and impacts to traffic operations at grade crossings. The public comments also indicated in interest in additional stations and the opportunity to include a bicycle trail within the railroad right-of-way (ROW).
- Draft EIS (DEIS) – the purpose of the DEIS is to disclose all environmental effects associated with the project alternatives, whether they are adverse or beneficial and allow the public to review and comment on the document. FRA prepared and published a DEIS on September 26, 2014 in coordination with the FAA, USACE and USCG, and informed the public through a notice in the Federal Register, newspaper ads, and press releases. Public information meetings on the DEIS were held during the 75-day public comment period.
- Final EIS (FEIS) – the purpose of the FEIS is to disclose all environmental effects associated with the project alternatives, whether they are adverse or beneficial, and to identify the preferred alternative. The FEIS also includes all comments received on the DEIS, and responds to those comments. FRA has prepared and published this FEIS in coordination with the FAA, USACE, and USCG, and informed the public through a notice in the Federal Register, newspaper ads, and press releases. The FEIS responds to public and agency comments on the DEIS.
- Record of Decision (ROD) – the purpose of a ROD is for the agency to provide at the time of its decision a concise public record of that decision that identifies FRA's selected alternative, identifies



the alternatives considered, and states how FRA's decision was made. The ROD issuance completes the NEPA process. FRA may not approve a RRIF loan request before the ROD has been finalized. FRA indicated in the DEIS that the agency intended to issue a combined FEIS/ROD pursuant to Pub. L. 112-141, 126 Stat. 405, Section 1319(b) unless FRA determined that statutory criteria or practicability considerations precluded issuance of such a combined document. Given the very substantial public interest in the Project, FRA has decided not to issue a combined FEIS/ROD for this Project and this FEIS does not contain FRA's ROD for the All Aboard Florida Intercity Passenger Rail Project Miami to Orlando, FL.

## Public Review

FRA released the DEIS on FRA's website for public review on September 19, 2014, and published the Notice of Availability on September 26 (Federal Register Vol. 79, No. 187). The DEIS was available to the public on the FRA's website (<https://www.fra.dot.gov/Page/P0672>) and at public libraries throughout the Project Study Area. Copies were sent to elected officials, federal, and state agencies, and municipalities. FRA requested all comments be submitted by December 3, 2014, a 75-day comment period.

During the public comment period, FRA held eight public information meetings to provide the public with the opportunity to learn about the Project, ask questions, and obtain information about the Project and the DEIS, and to comment on the DEIS. Comments were accepted at the meetings in writing or orally, with the assistance of a court stenographer. FRA provided information on display boards, handouts, a rolling PowerPoint presentation, and video simulations. Technical experts for most environmental categories (for example, alternatives, wetlands, navigation, noise and vibration, wildlife, cultural resources, and traffic) were present to answer questions. FRA chose this format, rather than a series of public hearings, to enable members of the public to become informed about the DEIS and the Project and to facilitate answering public questions. Approximately 2,681 persons attended the public meetings and provided 1,565 comments at the meetings.

During the comment period for the Draft Environmental Impact Statement, FRA received over 15,400 comments. The comments covered a wide range of issues and represented viewpoints from government agencies, organizations, business groups, businesses, residents, and property owners. FRA has reviewed all of the comments, many of which were form letters. Comments fell into several broad categories: support, general opposition, opposition based on specific concerns, and detailed and substantive comments concerning information provided in the DEIS.

Approximately 5,960 of the submittals generally supported the Project, and 9,500 were generally opposed. Most comments came from individuals in the general public, living, working, or having property interests in the Project Study Area, particularly residents of Martin, St. Lucie, and Indian River Counties. Most comments from the public indicated that individuals did not want passenger rail operating within the FECR Corridor along the Florida coast, and preferred that AAF select an alternative alignment further inland. A substantial number of people commented on the potential impacts on boaters associated with increased closures of the three moveable bridges along the corridor. Substantive comments are addressed in the appropriate sections of the FEIS and in Chapter 1, *Introduction*, which identifies and provides FRA's responses to general comments and to comments

that appeared frequently in individual and form letters, and to which FRA can provide general responses.

## **Purpose of the Project**

As identified by AAF, the purpose of the Project is to provide reliable and convenient intercity passenger rail transportation between Orlando and Miami, Florida (the Project Corridor, see Figure 1.1-1), by extending (in Phase II) the previously reviewed Phase I AAF passenger rail service between West Palm Beach and Miami and by maximizing the use of existing transportation corridors. This transportation service would offer a safe and efficient alternative to automobile travel on congested highway corridors, add transportation capacity within those corridors (particularly Interstate 95 [I-95]), and encourage connectivity with other modes of transportation such as light rail, commuter rail, and air transportation.

The additional purpose of Phase I of the Project, as stated in the 2013 FONSI for that initial project, is to “provide intercity passenger rail service that addresses South Florida’s current and future needs to enhance the transportation system by providing a transportation alternative for Floridians and tourists, supporting economic development, creating jobs and improving air quality” (FRA 2013a).

## **Alternatives Considered in this EIS**

In order to identify and consider alternatives that will satisfy this purpose, including the Project’s feasibility as a private enterprise, AAF identified its primary objective, which is to provide an intercity rail service that is sustainable as a private commercial enterprise. The two principal components of this objective are the basis for developing the criteria and framework for evaluating the Project alternatives. AAF’s two primary goals are to:

- Provide a reliable and convenient intercity rail service between Orlando and Miami with an approximate 3-hour trip time between the terminal stations; and
- Provide an intercity rail service that is sustainable as a private commercial enterprise. Sustainable means that the rail service can attract sufficient riders to meet revenue projections and operate at an acceptable profit level.

As required by NEPA, FRA has reviewed the alternatives analysis, required AAF to evaluate alternatives other than the proposed action, and has verified the analyses.

The FEIS evaluates the No-Action Alternative as a baseline to compare the effects of the “build” (Action) Alternatives. The No-Action Alternative involves no changes to the rail line within the FECR Corridor beyond regular maintenance and improvements that have been currently planned and funded. Under the No-Action Alternative, existing freight operations and infrastructure would be maintained by FECR. The demand for freight capacity is expected to grow along the North South Corridor (N-S Corridor) regardless of the Project. Based on anticipated operations data for the 2016 target date for the Project, the average number of freight trains per day is expected to increase from 10 to 14 (in 2013) to 20, along with an increase in the average train length to 8,150 feet. The No-Action Alternative would also include future planned and funded roadway, transit, air, and other intermodal improvements likely to be completed within the Project Study Area by the 2016 target date.

AAF conducted a tiered alternatives analysis that first evaluated four routes to connect Orlando (at the planned GOAA Intermodal Station) with the planned West Palm Beach Station on the FECR Corridor and identified the FECR Corridor Alternative as the only feasible route. This alternative would extend service from the West Palm Beach station north along the FECR ROW to the Cocoa area, then parallel SR 528 (the BeachLine Expressway) to MCO. In the second level of analysis, AAF identified and evaluated route modifications to connect the SR 528 corridor to the Intermodal Station on the west and with the FECR ROW on the east. The third level evaluated alignment alternatives parallel to SR 528. Three Action Alternatives were retained for detailed evaluation in the FEIS: Alternative A, Alternative C, and Alternative E. Table S-1 summarizes the main characteristics of the three Action Alternatives.

Operations and ridership would be the same for all three Action Alternatives. AAF would provide regularly scheduled, hourly service with an approximately 3-hour trip time. The intercity passenger rail service would operate with new diesel-electric locomotives and single-level coach trains. Passenger operations would include 16 round-trip passenger trains per day. Maximum operating speeds would range from 79 to 125 miles per hour (mph), depending upon the location along the route. Operating speeds will be greatest along the SR 528 corridor where there would be no highway-rail grade crossings. From the station at MCO to West Palm Beach, service would be non-stop, as there are no intermediate stations proposed. According to a ridership and revenue forecast commissioned by Florida East Coast Industries and prepared by Louis Berger Group (LBG) for the Project, the most conservative total annual ridership would amount to approximately 3.5 million in 2019. Among the 2019 Project totals, approximately 2.0 million would be short distance trips (Ft. Lauderdale – Miami, West Palm Beach – Miami, West Palm Beach – Ft. Lauderdale) and 1.5 million would be long distance trips (Orlando – Southeast Florida). Total annual ridership is predicted to exceed 4.0 million by year 2030.

Each of the three Action Alternatives would include a new rail corridor extending north through MCO to SR 528 (the MCO Segment), including the proposed VMF; a new rail alignment along the East-West Corridor, which is on the south side of the SR 528 ROW owned by the Central Florida Expressway Authority (CFX) and the Florida Department of Transportation (FDOT) from MCO to the FECR Corridor in Cocoa (E-W Corridor); and would use the existing FECR ROW from Cocoa to West Palm Beach (the N-S Corridor). Within the N-S Corridor, the Project largely consists of restoring a second track, modifying several curves to accommodate higher speeds, and replacing or repairing bridges across waterways.

Each of the three Action Alternatives would include a new VMF located on GOAA property south of MCO. No new stations would be constructed as part of the Project. The Project would incorporate a new Positive Train Control system and associated infrastructure, and would install pole-mounted warning horns at 117 grade crossings where severe noise impacts would occur in the absence of mitigation. In addition, each alternative would improve at-grade crossings with new safety equipment in accordance with the FRA Diagnostic Team recommendations.

Each of the alternatives also includes two activities on the WPB-M Corridor that were not previously evaluated: modifications to seven bridges within the WPB-M Corridor and minor track modifications at the Miami Viaduct.

<b>Segment/Project Element</b>	<b>No-Action</b>	<b>Alternative A</b>	<b>Alternative C</b>	<b>Alternative E</b>
MCO	No construction	4.5-mile new rail corridor	4.5-mile new rail corridor	4.5-mile new rail corridor
E-W Corridor	No construction	1.5-mile new rail corridor west of Narcoossee Road  17.5-mile new rail corridor within current SR 528 CFX ROW  15-mile new rail corridor within FDOT and utility ROWs  5 new bridges over water	1.5-mile new rail corridor west of Narcoossee Road  17.5-mile new rail corridor along boundary of current SR 528 CFX ROW  15-mile new rail corridor within FDOT and utility ROWs  5 new bridges over water	1.5-mile new rail corridor west of Narcoossee Road  17.5-mile new rail corridor 100 feet south of current SR 528 CFX ROW  15-mile new rail corridor within FDOT and utility ROWs  5 new bridges over water
N-S Corridor	No construction – Freight trips increase to 20 trips/day in 2016	128.5 mile corridor between Cocoa and WPB  3-mile track improvements N of Cocoa connection  Add second track, straighten curves,  Reconstruct 18 bridges	128.5 mile corridor between Cocoa and WPB  3-mile track improvements N of Cocoa connection  Add second track, straighten curves,  Reconstruct 18 bridges	128.5 mile corridor between Cocoa and WPB  3-mile track improvements N of Cocoa connection  Add second track, straighten curves,  Reconstruct 18 bridges
WPB-M Corridor	No construction – Freight increases to 20 trips/day in 2016	66.5-mile corridor  Add second track  Reconstruct 7 bridges	66.5-mile corridor  Add second track  Reconstruct 7 bridges	66.5-mile corridor  Add second track  Reconstruct 7 bridges
VMF	No construction	New VMF on south portion of GOAA property  Construct 1 new bridge	New VMF on south portion of GOAA property  Construct 1 new bridge	New VMF on south portion of GOAA property  Construct 1 new bridge
Stations	MCO Intermodal Station	West Palm Beach  Fort Lauderdale  Miami	West Palm Beach  Fort Lauderdale  Miami	West Palm Beach  Fort Lauderdale  Miami
Passenger Trips	None	16 RT (32 trains)	16 RT (32 trains)	16 RT (32 trains)
Ridership	0	3.5M	3.5M	3.5M

The three Action Alternatives are the same except for the portion of the E-W Corridor along the CFX section of SR 528. Alternative E, the preferred alternative, would be a new rail alignment 200 feet south of the existing SR 528 CFX ROW, within land acquired by CFX for future highway expansion. The proposed alignment of Alternative E enables the railroad to be constructed at-grade within the SR 528 segment and would only require the perpendicular crossing of the main roadway for each of the interchanges along SR 528 instead of all of the roadway approaches and ramps. Alternative A differs from Alternative E within the SR 528 (CFX) ROW section of the E-W Corridor, from SR 417 to SR 520, where this alternative would be entirely within the existing SR 528 ROW. Alternative C differs from Alternative E within this section of the E-W Corridor, where the new rail alignment would run along the edge of the existing SR 528 CFW ROW. Alternatives A and C would require structures to cross all of the highway ramps and cross-streets.

After additional analysis subsequent to the publication of the DEIS and in response to public comments provided on the DEIS, AAF identified Alternative E as the Preferred Alternative and proposed action. The CFX Board found that the land required for Alternatives A and C is not surplus and is therefore not available for the AAF Project. FRA has evaluated AAF's analysis and concurs that Alternative E is the agency's preferred alternative that would fulfill its statutory mission and responsibilities, considering economic, environmental, technical and other factors.

Chapter 3, *Alternatives*, provides a detailed discussion of the alternatives analysis process and a detailed description of each of the alternatives retained for evaluation in this FEIS.

## **Environmental Effects**

This FEIS evaluates the environmental effects, both beneficial and adverse, associated with the three Action Alternatives and based on a comparison to the No-Action Alternative. The Project has the potential to adversely affect land use, transportation (particularly traffic at-grade crossings), noise and vibration, water resources, wetlands and floodplains, biological communities, protected species, social and economic conditions, cultural resources, parks and recreation areas, and utilities. However, mitigation measures would be required that will reduce these potential adverse effects. The Project would also have beneficial environmental effects, such as traffic diversion from I-95 and other highways, economic growth, air quality improvements, and energy consumption improvements during operation.

## **Land Use**

The land use analysis included an inventory of existing land use as well as the evaluation of local land use plans applicable to the Project Area. Potential direct effects include the potential for permanent land use conversions and consistency with local land use plans.

Direct impacts to land use along the MCO Segment and N-S Corridor are the same for all three Action Alternatives. AAF would lease land within MCO for the VMF and railroad ROW and would lease land from CFX and FDOT to construct the E-W Corridor. All construction along the N-S Corridor would occur within the FECR right-of-way and would not require any land acquisition. AAF will acquire an additional 93.7 acres of land along the E-W Corridor, including nine parcels of property in Orange County accounting for 45.1 acres that are zoned as residential; however, their acquisition and use will not result in residential displacements. Land acquisition in Brevard County includes three parcels zoned as commercial

(21.2 acres) and one parcel zoned as industrial (0.5 acres). No commercial or industrial operations would be displaced due to property acquisitions or use in Brevard County. AAF is also in the process of acquiring a property interest from the Florida East Coast Railway (FECR) in Brevard County that accounts for 26.9 acres and is zoned as locally accessed railroad property. The Project is conceptually consistent with land use plans and the plans of the transportation stakeholders (GOAA, CFX, and FDOT).

Section 5.1.1, *Land Use*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

## Transportation

The transportation analysis included Annual Average Daily Volume (AADT) obtained from FDOT for the two largest arterials, by volume, for each county through which the Project would pass. Highway capacity analysis for the 10 at-grade railroad crossings and intersections were conducted in accordance with the standard methodology presented in the Highway Capacity Manual (TRB 2010).

The Project would have the same transportation impacts under all three Action Alternatives, as they would include the same effects on existing rail and highway infrastructure, have the same ridership and effects on vehicle miles traveled, and would have the same number and locations of at-grade crossings.

There are no existing freight rail operations along the MCO Segment or E-W Corridor; therefore, no impacts to freight rail operations would occur along these segments. The N-S Corridor has been designed to cause no adverse impact on freight operations and has an assumed beneficial impact on freight operations. Infrastructure modifications and upgrades from a mostly single-track system to a mostly double-track system would improve freight efficiencies, as represented by increases in average operating speeds. The Project would have a beneficial impact on the passenger rail transportation network between Orlando and West Palm Beach by providing potential customers with an alternative means of transportation.

AAF expects riders for the Project to be primarily diverted from automobile modes (69 percent of forecast ridership). The Project would have the beneficial impact of removing 335,628 auto vehicle trips per year from the regional roadway network in 2016 and 1.2 million vehicles in 2019.

The proposed passenger rail service would divert 10 percent of its long-distance riders from private intercity motorbus services, which totals approximately 152,630 annual bus passenger trips per year. The proposed service would divert 10 percent of its riders from the air service market, which totals approximately 152,630 annual aviation passenger trips per year. About 2 percent of the AAF long-distance ridership is forecast to come from Amtrak passenger rail services. In 2019, this amounts to approximately 30,526 annual trips diverted from Amtrak, which is about 4 percent of Amtrak's 2012 ridership in South Florida.

The Project would not impact local vehicular traffic along the MCO Segment or the E-W Corridor, as there would be no at-grade crossings. The N-S Corridor would result in some degradation in Levels of Service at the grade crossings and intersections studied, with greater percentages of time within an hour of operation under unacceptable roadway conditions than under the No-Action Alternative. With just three train crossings per hour, the majority of each hour of operation would not be affected by the introduction of passenger train service. Typical at-grade crossings (intersections of local roads with the

FECR Corridor) would be closed an average of 54 times per day (three times per hour), with closure times ranging from 1.7 minutes (passenger) to 2.8 minutes (freight). The total hourly closure would range from 4.2 minutes per hour to 4.5 minutes per hour, an increase of approximately 2 minutes per hour in comparison to the No-Action Alternative.

Section 5.1.2, *Transportation*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

## Navigation

Impacts to navigable waters and navigation would be the same for Alternatives A, C, and E, as each would include the same bridge improvements. Existing fixed bridges would be replaced, or new fixed bridges would be constructed to maintain the existing vertical and horizontal clearances and maintain existing navigation conditions. There would be no loss in existing clearance for the proposed new rail bridge over the St. Johns River and no change in the structure or the dimensions of the opening for the St. Lucie River or Loxahatchee (Jupiter) River bridges. Under all Action Alternatives, the moveable bridges (St. Lucie River and the Loxahatchee River) would be closed more frequently to accommodate the increased number of trains. AAF has developed an operating plan that minimizes the number and duration of closures; however, the total daily closure time at each bridge and vessel wait times would increase substantially in comparison to the No-Action Alternative, particularly on peak-season weekends. AAF is proposing to mitigate for this increased closure time by implementing new measures to notify mariners of the bridge closure times and to make closure times more predictable. These mitigation measures will reduce delays and help to reduce queue lengths and times.

Subsequent to the publication of the DEIS and in response to public comment on the DEIS, AAF further evaluated the potential impacts of the No-Action Alternative and Action Alternatives with respect to closures of the St. Lucie and Loxahatchee Bridges and expected vessel wait times. Model simulation results on vessel queuing, non-zero wait time, average wait time, and boat arrivals show that the most likely vessel wait time would increase under all Action Alternatives.

Phase I of the Project would also affect moveable bridge closure times and vessel wait times on the New River in Fort Lauderdale, similar to the St. Lucie and Loxahatchee Bridges. FRA conducted an environmental review of Phase I in 2012/2013, including preparing and issuing both an Environmental Assessment (EA) (*Environmental Assessment and Section 4(f) Evaluation for the All Aboard Florida Passenger Rail Project West Palm Beach to Miami, Florida*) and a Finding of No Significant Impact (FONSI). AAF has obtained private financing for Phase I and is proceeding to implement Phase I.

Section 5.1.3, *Navigation*, describes navigation impacts in detail, while Section 5.4.3, *Economic Conditions*, describes economic impacts to the marine industry. Chapter 7, *Mitigation Measures and Project Commitments*, describes the proposed mitigation measures.

## Air Quality

The air quality analysis evaluated the emission of air pollutants from the Project, the resulting concentrations of pollutants in the regional areas, and carbon monoxide concentrations at intersections affected by changes in traffic patterns. This evaluation applied primary and secondary air quality

standards identified by the National Ambient Air Quality Standards (NAAQS) to evaluate if the Project might cause any new violation of the NAAQS, increase the frequency or severity of any existing violations, or delay attainment of any NAAQS.

As compared to the No-Action Alternative, air quality effects of the Project would be identical, as each alternative would provide a similar travel time and would have the same ridership and vehicle miles traveled (VMT) reductions. All six counties crossed by the Project are in attainment for all criteria pollutants. The Project would provide a net regional air quality benefit as compared to the No-Action Alternative. Air quality in the region would be improved through the reduction of vehicles from the roads and highways as riders move instead to the proposed passenger rail service between Orlando and West Palm Beach. The Project would decrease emissions of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), volatile organic compounds (VOCs), particulate matter less than 10 microns in diameter (PM<sub>10</sub>) and particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) by 2016. By 2030, the Project would reduce CO emissions by 1,654 tons, NO<sub>x</sub> by 192 tons, VOCs by 59 tons and PM<sub>10</sub> by 7 tons.

A detailed hot-spot modeling evaluation of intersections was not conducted as part of the air quality analysis because traffic volumes and congestion at grade crossings, and therefore CO emissions, would be lower than those evaluated as part of the 2012 EA for the West Palm Beach to Miami segment, which did not exceed air quality criteria. Analysis of CO emissions from vehicles queuing at grade crossings under proposed passenger train cycles produced an expected impact of less than 1 ton per day, a *de minimis* impact pursuant to EPA standards.

Section 5.2.1, *Air Quality*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

## **Noise and Vibration**

Noise and vibration have been assessed according to guidelines specified in FRA's *High-Speed Ground Transportation Noise and Vibration Impact Assessment* guidance manual, the Federal Transit Administration's (FTA) *Noise and Vibration Impact Assessment* guidance manual, and the FHWA guidelines as defined for Florida application by FDOT for traffic operations (FRA 2012a; FTA 2006; FDOT 2011c).

There would be no adverse noise impacts in the MCO Segment. Along the E-W Corridor, noise impacts would be primarily due to the increased noise propagation from elevated portions of track. There is potential for 105 moderate and five severe noise impacts at residential receptors and one moderate impact at an institutional receptor. Along the N-S Corridor, the use of wayside (pole-mounted) horns would eliminate any severe impacts and would reduce noise levels in comparison to the No-Action Alternative.

Noise mitigation along elevated portions of track may include sound barriers on the edge of the elevated structures to mitigate potential severe impacts. AAF is committed to mitigating impacts from the increased frequency of warning horn use at highway-rail at-grade crossings with the installation of stationary wayside horns at each of the grade crossings where severe, unmitigated impacts would occur. AAF is committed to cooperating with local jurisdictions should they seek to establish quiet zones in lieu of wayside horns.



A supplemental noise impact assessment was conducted for the three movable bridges along the N-S Corridor: St. Lucie River, Loxahatchee River, and New River. Following FTA/FRA guidelines, the supplemental noise analysis results and impact contours indicate no impact to any noise-sensitive land uses; therefore, no additional noise impacts were identified by this supplemental bridge noise impact assessment.

The greatest potential for vibration impact is along the N-S Corridor due to the increase (approximately doubling) of vibration events. There is no potential vibration impact along the MCO Segment. Along the E-W Corridor, there is the potential for vibration impact at 118 residential and 12 institutional receptors. There would be potential vibration impacts at 3,317 residential, 513 institutional receptors, as well as 18 other vibration-sensitive land uses (TV studios, recording studios, auditoriums, and theaters) along the N-S Corridor. AAF would minimize vibration impacts by wheel and rail maintenance that will control unacceptably high vibration levels. Vibration levels would be minor and would not exceed the threshold for structural damage to fragile buildings.

Noise during construction would affect residences and other buildings close to the Project Area, particularly where pile driving is required for bridge construction.

Section 5.2.2, *Noise and Vibration*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts. Chapter 7, *Mitigation Measures and Project Commitments*, describes the proposed mitigation measures.

### **Farmland Soils**

Farmland soils within the Project Study Area with any level of designation by the Natural Resources Conservation Service (NRCS) were identified and mapped relative to the location of the Project. Direct impacts to prime and unique farmland soils from constructing the Project are limited to the E-W Corridor for all three Action Alternatives. Farmland Conversion Impact Rating forms were completed and submitted to NRCS. According to the results of the NRCS evaluation, there would be no significant impact to farmland soils.

Section 5.2.3, *Farmland Soils*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

### **Hazardous Materials and Solid Waste Disposal**

Several potential sources of soil or groundwater contamination are within or adjacent to the Project footprint. A contamination screening evaluation was performed and included a records search and review of historical aerials. A field reconnaissance was also conducted for sites rated medium and high-risk in proximity to the Project footprint.

The Project has the potential to encounter contaminated soils or groundwater, or to require the removal of waste material such as railroad ties, creosote-treated bridge timbers, or demolition material. The potential effects of the Action Alternatives would be the same. GOAA reported that no contaminated sites were located within 500 feet of the Project for the MCO Segment (including the VMF). The contaminated sites evaluation for the E-W Corridor identified 16 potentially contaminated sites within the 500-foot detailed evaluation area. However, all of the potentially contaminated sites are outside the planned

construction areas and impacts from the existing contaminated areas are not anticipated. A total of 337 potentially contaminated sites are within the 200-foot detailed search radius along the 128.5-mile N-S Corridor. As the proposed upgrades for this portion of the Project would be completely within the existing FECR Corridor and would result in minimal subsurface disturbance, there would be no impacts from existing contaminated areas. The Project would not substantially increase operational hazardous materials or hazardous waste. During construction, the Project would include proper handling, use, and disposal of hazardous materials and waste and would be compliant within all appropriate tracking and reporting requirements. Consequently, none of the three Action Alternatives would affect the transfer, storage, or transportation of pollutants.

Section 5.2.4, *Hazardous Materials and Solid Waste Disposal*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

### **Coastal Zone Management**

The Project lies within the designated Florida Coastal Zone and requires a federal consistency determination under the Coastal Zone Management Act (CZMA). Direct effects to the “natural resources of the coastal zone,” including both aquatic and marine resources, would result from all elements of the Project, including construction of the VMF, bridge and rail construction along the E-W Corridor, and bridge construction along the N-S Corridor. Portions of the N-S Corridor are within or adjacent to Coastal and Aquatic Managed Areas. Bridge construction/reconstruction would affect small areas of aquatic resources within the Indian River and the Jensen Beach-Juniper Inlet Aquatic Reserve. Each of the three Action Alternatives is consistent with applicable coastal zone policies; however, several provisions of the Florida Coastal Management Program would require mitigation. The Florida State Clearinghouse concurs with this finding, as detailed in a letter to FRA dated March 3, 2015 (FDEP, 2015).

Section 5.2.5, *Coastal Zone Management*, provides a detailed discussion of coastal zone consistency.

### **Climate Change**

Florida faces direct, immediate, and severe impacts from climate change through rising sea level and the possibility of more intense storms. Calculations for emission of greenhouse gases (GHG) carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) show the Project would decrease emissions as a result of decreased automobile VMT. CO<sub>2</sub> emissions would decrease by 19,617 tons/year in 2019 and 31,477 tons/year in 2030. CH<sub>4</sub> emissions would decrease by 4.7 and 5.7 tons/year, respectively, and N<sub>2</sub>O emissions by 5.0 and 6.1 tons/year in 2019 and 2030. Sea level rise effects for the MCO Segment and E-W Corridor are anticipated to be minimal for the 2030 and 2060 planning horizons, as these segments of the Project are at higher elevations and further from the coast. The N-S Corridor and WPB-M Corridor were assessed for vulnerability, as these corridors are along the coast and cross several coastal water bodies. Bridge structures will have increased vulnerability over time; potential infrastructure damage may result from flooding, tidal damage, and/or storms.

Section 5.2.6, *Climate Change*, provides a detailed discussion of climate change effects.

## Water Resources

Surface water and groundwater resources, including navigable waters, Outstanding Florida Waters (OFWs), and impaired water bodies, were evaluated for potential impacts based on water availability, quality, use, and associated regulations.

Direct permanent impacts to waterways include installing concrete pilings and abutments within surface waters during bridge construction. Each of the alternatives would include constructing 31 new or replacement bridges over waterways, of which six would cross OFWs. New impervious surfaces (pavement and buildings) would be constructed in the MCO Segment for the VMF and would require stormwater management systems to protect surface and groundwater quality. Along the E-W Corridor, the proposed railroad would convert existing pervious land to a ballasted railroad bed and unpaved access road, resulting in minor changes to stormwater runoff and infiltration. AAF will implement best management practices (BMPs), which are often required as part of the environmental review permit process and would comply with all Florida Department of Environmental Protection (FDEP) and local ordinances. Therefore, there would be no significant impacts to surface waters and groundwater resources.

Section 5.3.1, *Water Resources*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts. Chapter 7, *Mitigation Measures and Project Commitments*, describes the proposed mitigation measures.

## Wild and Scenic Rivers

The closest Wild and Scenic River designated segment of the Loxahatchee River is approximately four river miles upstream from the N-S Corridor in Palm Beach County. No impact would occur to Wild and Scenic Rivers from the Project, which would not be located in or visible from a Wild and Scenic River segment.

## Wetlands

The Project would have moderate direct and indirect effects to wetlands. The quantified impacts, effects, and methodology for each Alternative is presented in Section 5.3.3 of the FEIS. Wetlands would be filled to construct portions of the N-S, VMF, and the E-W Corridor for all alternatives. Wetland impacts at the VMF have largely been permitted by the USACE under a prior permit issued to GOAA. Bridge construction along the E-W, N-S, and WPB-M Corridors would have minor effects on wetlands due to installing new pilings, abutments and riprap protection, and cutting mangrove vegetation beneath the bridges. Based on the comparable level of design presented in the DEIS, Alternative A would result in 128 acres of direct impacts to aquatic resources (wetlands and surface waters). Alternative C would directly impact 167 acres of aquatic resources and Alternative E would directly impact 159 acres of aquatic resources. Subsequent to the DEIS, AAF has further developed the engineering design for Alternative E and has revised its estimate of wetland impacts to a total of 263 acres of loss (excavation, filling and other impacts)(see Section 5.3.3.). The Project would have indirect effects on wetland quality and functions along the E-W Corridor; however, these would be minor since the wetlands are already affected by proximity to the heavily traveled SR 528 corridor. All wetlands impacts would be mitigated through the

purchase of appropriate mitigation bank credits from Federally approved mitigation banks. AAF will complete functional assessments to ensure the compensatory mitigation is commensurate with the functional loss.

Section 5.3.3, *Wetlands*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts. Chapter 7, *Mitigation Measures and Project Commitments*, describes the proposed mitigation measures.

### **Floodplains**

Impacts to areas subject to flooding were evaluated using the base flood elevation published on the Federal Emergency Management Agency's Flood Insurance Rate Maps.

All three Action Alternatives would require construction within the mapped 100-year floodplain. The E-W Corridor crosses several floodplains, primarily those associated with the Econolockhatchee River and the St. Johns River. The N-S Corridor uses the existing FECR ROW, which crosses numerous floodplains primarily associated with coastal waters and estuaries. Alternative A would affect the least amount of floodplains, approximately 138 acres. Both Alternatives C and E would affect approximately 195 acres of floodplains. These impacts are not avoidable due to the extent of floodplains throughout the Project footprint. The construction design of each Action Alternative would minimize potential harm to the floodplains by retaining existing elevations where feasible, constructing stormwater mitigation measures and retention ponds, and minimizing fill in sensitive areas.

Section 5.3.4, *Floodplains*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

### **Biological Resources and Natural Ecological Systems**

Natural habitats within the Project Study Area support biological diversity, wildlife, and fish. Many of these natural habitats are directly adjacent to existing transportation facilities and have reduced habitat functions. Direct impacts to biological resources and natural ecological systems from the Project would result from the loss of natural vegetation along the E-W Corridor, south of SR 528.

The Project would result in varying impacts to natural upland habitat. Alternative A would cause 93 acres of direct loss of upland vegetation. Alternative C would directly impact approximately 122 acres of uplands and Alternative E would directly impact approximately 109 acres of uplands. For each alternative, the greatest loss of upland habitat would be to forested plant communities. The potential loss of wildlife habitat could result in indirect or secondary effects to wildlife such as habitat fragmentation and associated "edge effects," the loss of genetic diversity of plant and animal populations, increased competition for resources, and physical or psychological restrictions on movements caused by some feature within a corridor that wildlife are unwilling or unable to cross. It is also possible that the operation of the Project could displace some individual wildlife populations that are sensitive to noise and vibration. However, these effects are negligible due to the existing effects of SR 528 and other transportation facilities.

Essential fish habitat (EFH) is defined as those waters and substrates necessary to support fish for spawning, breeding, feeding, or growth to maturity. Habitat Areas of Particular Concern (HAPC) are subsets of EFHs that are particularly important to the long-term productivity of populations of one or

more managed species, or are particularly vulnerable to human induced degradation. The evaluation of EFHs and HAPC included potential impacts to fisheries. Impacts under Alternatives A, C, and E would be generally similar for all fisheries. The Project would have unavoidable minor impacts to EFH and HAPC. Direct impacts associated with the Project would result from placing rip-rap/fill for the bridge approaches, placing bridge pilings, and excavating where existing timber pilings will be replaced. The NMFS has concurred that the Project would not have a significant adverse effect on EFHs.

Impacts to biological resources and natural ecological systems have been minimized due to the fact that the E-W Corridor would be developed immediately adjacent to an existing transportation corridor and would not significantly increase fragmentation and noise impacts that do not already exist in this area. The Project includes a new wildlife crossing adjacent to the Tosohatchee Wildlife Management Area (WMA) to facilitate future movement along the Florida Wildlife Corridor.

Erosion and sedimentation would be controlled using BMPs, such as silt fences and turbidity curtains, in accordance with an approved Erosion and Sedimentation Control Plan, during construction of the bridges.

Section 5.3.5, *Biological Resources and Natural Ecological Systems*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts. Chapter 7, *Mitigation Measures and Project Commitments*, describes the proposed mitigation measures.

### **Threatened and Endangered Species**

The Project would potentially affect habitats used by federal and state listed wildlife and plant species. The Federal Endangered Species Act of 1973 (ESA) defines an endangered species as “any species which is in danger of extinction throughout all or a significant portion of its range.” The ESA also defines a threatened species as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” The ESA protects species listed as endangered or threatened on a national basis.

Each of the Action Alternatives could potentially impact the following federally listed species and/or their habitats: West Indian manatee, sea turtles, smalltooth sawfish, Audubon’s crested caracara, wood stork rookeries, Florida scrub-jay, red-cockaded woodpecker, , and the eastern indigo snake. Results of scrub-jay field surveys conducted along the N-S Corridor document the presence of scrub-jays at Savannas Preserve State Park and indicate it is likely scrub-jays will occur within the rail corridor at times. The Project is anticipated to result in an “incidental take” of this species; however, this will not jeopardize the continued existence of the species or affect local populations. AAF has purchased mitigation credits to offset these impacts.

Johnson’s seagrass, may occur in a number of waterways in the vicinity of the N-S Corridor, but surveys conducted at the river crossings indicated that this species is not located within the Project Study Area and would not be directly affected by the Project. Despite the disturbed habitat located in the FECR ROW, it has been determined fragrant prickly-apple is located within the FECR Corridor and pre-construction surveys will determine if this species would be affected by the proposed construction activities. Several other plant species have been documented within the adjacent Jonathan Dickinson State Park and other protected natural areas.

Potential impacts to state listed species and/or their habitats include the Sherman's fox squirrel, burrowing owl, Florida sandhill crane, limpkin, little blue heron, roseate spoonbill, snowy egret, the southeastern American kestrel, tricolored heron, white ibis, mangrove rivulus, gopher tortoise (and its associated eastern indigo snake, Florida mouse, Florida pine snake, short-tailed snake, and gopher frog habitat), wading bird rookeries, American oyster catcher, and reddish egret habitat.

AAF has proposed specific mitigation for potential temporary and permanent impacts to the habitat of state and federally listed species, in addition to conducting pre-construction surveys for rare animal species (caracara, red-cockaded woodpecker, gopher tortoise, sand skink, and listed plants) and plant species that may occur within the construction area. A gopher tortoise relocation permit will provide authorization to move all commensal species other than the eastern indigo snake to an adjacent habitat outside construction limits.

The USFWS and NMFS, PRD are the lead federal agencies for ESA compliance. Both agencies have independently assessed the effects of the Project on federally listed species. The USFWS found that the Project is "not likely to adversely affect" the Audubon's crested caracara, the American alligator, the wood stork, or the eastern indigo snake; and may affect, but is not likely to adversely affect, the West Indian manatee, the gopher tortoise, the loggerhead sea turtle, leatherback sea turtle, Kemp's ridley sea turtle, hawksbill sea turtle, smalltooth sawfish, the blue-tailed mole skink, or the Florida sand skink. USFWS will issue a Biological Opinion which will include Reasonable and Prudent Measures, Terms and Conditions, and Conservation Recommendations which AAF will be required to adhere to. NMFS has provided a letter of concurrence stating the proposed work is not likely to adversely affect: the smalltooth sawfish and sea turtles (loggerhead, Kemp's ridley, green, hawksbill, and leatherback). The project will not affect Atlantic sturgeon, shortnose sturgeon, and Johnson's seagrass, or result in an adverse modification of Johnson's seagrass- designated critical habitat. NMFS does not believe hawksbill or leatherback sea turtles will be present or affected because of their very specific life history, sheltering, and foraging requirements, which are not met in or near the action area- hawksbills are associated with coral reefs while leatherbacks are a deepwater, pelagic species. Smalltooth sawfish, loggerhead sea turtles (Northwest Atlantic Ocean distinct population segment), green sea turtles, and Kemp's ridley sea turtles may be found in or near the action area.

Section 5.3.6, *Threatened and Endangered Species*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts. Chapter 7, *Mitigation Measures and Project Commitments*, describes the proposed mitigation measures.

## **Communities and Demographics**

Information collected from the United States Census Bureau (USCB), county websites, and municipal websites were reviewed and incorporated, as appropriate, to describe the community structure and demographic profiles along the Project corridor. Adverse impacts to communities and demographics are those that involve long-term residential displacement and neighborhood fragmentation or the loss of continuity between neighborhoods.

The E-W Corridor would be predominantly within the SR 528 ROW between Orlando and Cocoa and would not cross any residential neighborhoods; therefore, no neighborhood fragmentation would occur. No residential displacement would occur, as the E-W Corridor would not require the use of developed

residential properties. The N-S Corridor would not result in residential displacement, neighborhood fragmentation, or the loss of continuity between neighborhoods, as it is entirely within the existing FECR Corridor. The relocated Fort Lauderdale Station would not adversely affect any communities.

Section 5.4.1, *Communities and Demographics*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

### **Environmental Justice**

Federal environment impact analysis standards require review and determination to assess whether a project has a disproportionate adverse effect on minority or low-income populations.

This environmental justice evaluation included the use of demographic data collected from the 2010 U.S. Census and 2010 American Community Survey. The Project Study Area for this evaluation included census tracts within 1,000 feet of the of the proposed or existing railroad alignments. Thresholds to determine meaningfully greater high minority and low-income populations include census tracts where minority populations are 10 percent higher than the combined total for the six counties crossed by the Project (37.4 percent) and census tracts where low-income populations are 10 percent higher than the combined total for the six counties crossed by the Project (22.4 percent).

There would be no disproportionate impacts to environmental justice communities along the MCO Segment, as there are no minority or low-income populations within the census tract encompassing this segment. Neither the E-W Corridor nor the N-S Corridor would result in residential displacement, job loss, or neighborhood fragmentation due to the use of property; therefore, there would be no disproportionate impacts to environmental justice communities from changes in land use. Although changes in noise would affect 109 residential parcels (105 moderate and four severe impacts) along the E-W Corridor, none of these parcels are within environmental justice communities. Potential impacts resulting from changes to noise in environmental justice communities would not be appreciably more severe or greater in magnitude than the impacts experienced by non-environmental justice communities along the N-S Corridor. There would be no adverse vibration impacts to environmental justice communities along the E-W Corridor under the Project, and mitigation would limit any changes in vibration along the N-S Corridor such that there would be no resulting vibration impacts.

Section 5.4.2, *Environmental Justice*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

### **Economic Conditions**

Impacts to economics are those that involve the displacement of businesses, changes in employment, and the loss of real estate taxes as well as beneficial effects from construction-period spending or long-term economic changes. With the Project, the MCO Segment and N-S Corridor would not result in the reduction of municipal property tax revenues. The E-W Corridor would require the acquisition of several privately owned parcels outside the SR 528 ROW, but would not result in a significant loss of property tax revenues in Orange or Brevard Counties. The relocated Fort Lauderdale Station, within the WPB-M Corridor, would require acquisition of three parcels adjoining the Florida East Coast Corridor. These businesses are

expected to relocate elsewhere in Fort Lauderdale. None of the Action Alternatives would result in any business or job losses.

An economic analysis of potential economic impacts associated with increased average vessel wait times for the three movable bridges at St. Lucie River, Loxahatchee River, and New River represented an impact of less than 0.1 percent daily cost increase as compared to the No-Action Alternative.

Phase I and Phase II of the Project would have long-term direct economic benefits through the creation of approximately 1,100 cumulative jobs through 2021 and labor income valued at nearly \$294 million through 2021. Construction of the Project would have a direct total economic impact of \$915.6 million, with the largest benefit to be had in Orange County at \$302.2 million (WEG 2014). Project operations would have a direct total economic impact of \$507.2 million between 2016 and 2021, with an average direct economic impact of \$84.5 million per year (WEG 2014).

Section 5.4.3, *Economic Conditions*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

### **Public Health and Safety**

The Project would have an overall beneficial effect on public health, safety, and security in the rail corridor. While greater frequency of trains may increase the frequency of opportunities for conflict between trains and vehicles or people, safety improvements at crossings, an upgraded Positive Train Control system, enhanced security, and improved communications among emergency responders would minimize potential conflicts and their consequences. The benefits resulting from decreased congestion and the potential for fewer vehicular crashes and fewer air emissions indicate that there will be no significant negative impacts on public health and safety.

In response to a Diagnostic Safety Review conducted by the FRA Office of Railroad Safety – Highway Rail Crossing and Trespasser Program Division, AAF has voluntarily agreed to incorporate recommended grade crossing safety improvements related to the introduction of passenger rail service, in conjunction with county and municipal execution of amendments to existing crossing license agreements. The range of grade crossing improvements includes pedestrian gates, Vehicle Presence Detection, four and three quadrant gates, locked gates, raised medians, and other crossing improvements as appropriate. The proposed grade crossing improvements and locations are shown in Tables 3.3-8 to 3.3-12.

The Action Alternatives are anticipated to have the same effects on accessibility and would benefit elderly and handicapped individuals by providing a transportation option that will enhance mobility and livability in their communities. The AAF trains and stations would comply with the Americans with Disabilities Act (ADA) requirements. Preliminary design plans indicate that AAF trains will be single level, fully accessible coaches, with no stairs or other obstacles to impede movement on board trains. Every coach car will have ADA compliant restrooms.

Section 5.4.4, *Public Health and Safety*, describes these environmental impacts in detail.



## Historic Properties

The methodology for identifying cultural resources has been developed in conjunction with the State Historic Preservation Officer (SHPO) and is similar to previous SHPO-approved methodologies that have been applied to other large-scale transit projects.

Section 5.4.5, *Historic Properties*, contains FRA's Findings of Effect under Section 106 of the National Historic Preservation Act of 1966, as amended. No National Register of Historic Places (NRHP) listed or eligible resources were identified within the MCO Segment. One NRHP-eligible resource has been identified in the direct effects area of potential effect (APE) for the E-W Corridor – the FECR Historic District, which is located at the east end of the E-W Corridor in Cocoa at the intersection with the N-S Corridor. FRA determined that constructing the E-W Corridor would have no adverse effect on the FECR Historic District.

NRHP listed or eligible resources were identified within the N-S Corridor and include the FECR Railway Historic District and several historic railroad bridges. The Project would have no adverse effect on the historic district. SHPO has concurred with the 2012 EA that the use of the historic rail line and restoration of passenger rail service would not constitute an adverse effect (FRA 2013). The Project will require that two historic bridges (Eau Gallie River and St. Sebastian River), which are individually eligible for the NRHP, be demolished; FRA has determined that the Project would have an adverse effect on these two bridges. Two additional bridges that are individually eligible for the NRHP will be rehabilitated, and seven bridges that are contributing elements will also be demolished and replaced with modern structures; FRA has determined that replacing the contributing bridges has “no adverse effect” under Section 106 and therefore represents a *de minimis* impact under Section 4(f). The adverse effect to historic railroad bridges under Section 106 is subject to a Section 4(f) Evaluation, presented in Chapter 6, *Section 4(f) Evaluation*.

Based on the information available, FRA has determined that the Project would have no adverse effect on archaeological sites within the APE for direct impacts for the N-S Corridor. The no adverse effect finding is based on the condition that AAF will continue to consult with SHPO through the design process, as needed, and will adhere to the stipulations of the MOA to ensure appropriate sensitivity to the previously recorded archaeological sites located within the APE.

The Project would have no direct or indirect effects (noise, vibration, or change in setting) to the historic resources adjacent to the N-S Corridor. The relocated Fort Lauderdale Station would have no effect on nearby historic properties. A conditional “no adverse effect finding” is anticipated based on the condition that consultation with the SHPO will continue through the design process in order to ensure compatibility and appropriate sensitivity to the FECR Railway Historic District and bridge resources.

Section 5.4.5, *Historic Properties*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

## Park and Recreation Lands

The Project would not adversely affect (“use”) any public parks, recreation areas, or wildlife refuges. Collectively, these properties are protected under Section 4(f) of the Department of Transportation Act, as are historic properties and cultural resources. The MCO Segment is within the property boundaries of

MCO and no parks or recreation lands are located on this property. The E-W Corridor (and SR 528) is adjacent to two recreation resources (the Tosohatchee WMA and the Canaveral Marshes Conservation Area); however, constructing the E-W Corridor would not require acquisition of new ROW within the property limits of these resources. Thirty-one recreational resources are along the N-S Corridor. The existing N-S Corridor bisects two of these recreation resources (the Hobe Sound National Wildlife Refuge and Jonathan Dickinson State Park). All construction would take place within the existing FECR-owned ROW and would not require acquisition of new ROW within Section 4(f) resource property limits. Two of the 31 identified recreation resources along the N-S Corridor are also Section 6(f) resources (North Sebastian Conservation Area and Sawfish Bay Park). The N-S Corridor would not cross either resource and no land acquisition within either resource would be required.

The Project would not affect the use of parks or recreation resources adjacent to the Project in regards to noise, vibration, aesthetics, or access. Noise and vibration generated by the Project would be compatible with the intended use of these parks and recreation resources. Existing viewsheds along the Project would be consistent with existing conditions at MCO, along the SR 528 ROW (E-W Corridor), and the FECR Corridor (N-S Corridor).

The E-W Corridor would be constructed as an overpass as not to interrupt the use of Long Bluff Road within the Tosohatchee WMA. Construction would avoid temporary road closures to the extent practicable. If temporary road or lane closures are necessary, AAF, in association with FRA, would coordinate with the land managing agencies of the Section 4(f) recreational resources (Florida Fish and Wildlife Conservation Commission [FWC]). To ensure the safety of the users of Jonathan Dickinson State Park, AAF would implement at-grade crossing improvements where the N-S Corridor crosses Southeast Jonathan Dickinson Way.

Section 5.4.6, *Recreation and Other Section 4(f) Resources*, describes these environmental impacts in detail. Chapter 6, *Section 4(f) Determination*, provides additional information on FRA's Section 4(f) process, alternatives evaluation and mitigation measures. Chapter 7, *Mitigation Measures and Project Commitments*, also describes the proposed mitigation measures.

## **Visual and Scenic Resources**

The Project is anticipated to have only minor effects on visual and scenic resources, primarily associated with new bridges over waterways and new communications towers along the E-W Corridor. The effects of all three Action Alternatives are expected to be similar within each segment of the Project with some minor differences. The existing viewshed of the MCO Segment and N-S Corridor would remain primarily unchanged. Motorists traveling along SR 528 would generally be able to see the new railroad in the E-W Corridor to the south.

The viewshed of motorists traveling east on SR 528 crossing the St. Johns River would be somewhat obstructed because the rail bridge would be higher than the SR 528 bridge. The views for boaters on the St. Johns River looking north towards SR 528 would not change substantially as the rail bridge would be parallel to SR 528 and would be similar to the size and structure of SR 528 over the river. Views would be the same for Alternatives A, C, and E, as all three Action Alternatives would be on the same alignment at this location.

The viewshed of motorists traveling on existing roads crossing SR 528, including motorists on I-95, would change minimally. The new rail overpasses would be constructed parallel to SR 528 and would be similar to the size and structure of the SR 528 Bridge over I-95.

Section 5.4.7, *Visual and Scenic Resources*, describes these environmental impacts in detail.

### **Utilities and Energy Resources**

The evaluation of utilities and energy resources included a review of county-developed interactive mapping services for current utility locations and urban service areas and national databases for the current locations of underground pipelines.

Action Alternatives A, C, and E may require portions of existing utilities be relocated outside the track footprint where the proposed track crosses underground utilities. Where the proposed track crosses under overhead utilities, relocation or reconstruction may be necessary to provide the required vertical clearance over the tracks to accommodate utility lines and equipment.

Some buried utilities may be present in the MCO Segment. The proposed VMF is currently served by all necessary utilities (Orlando Utilities Commission 2013). Constructing the VMF would affect a large infiltration ditch originally constructed to serve the City of Orlando wastewater treatment facility, which is no longer functioning. Constructing the VMF, therefore, would not affect any utilities.

The E-W Corridor crosses several stormwater management features associated with SR 528. For Alternative A, a power line access road would be accommodated within the existing SR 528 ROW using retaining walls for the railroad. For Alternatives C and E, a new maintenance access road would be constructed south of the railroad and would be a shared maintenance road with AAF. The Project would intersect two existing pipelines. Alternative A may require portions of these pipelines be relocated.

Electrical transmission/distribution lines, above and below ground, are located along and within the FECR ROW in the N-S Corridor. In some locations, poles will require relocation in order to accommodate the new mainline track and upgraded crossings. Any relocation of poles is expected to be minimal.

The locomotives are planned as diesel-electric units and will not place any additional load on the existing electrical and utility services. Based on the estimated annual quantities of diesel consumption, the impact on energy resources would be negligible. The increase in electrical service/demand due to signals is minimal and will require no major changes or construction of electrical or other utility infrastructure.

Section 5.4.8, *Utilities and Energy Resources*, describes these environmental impacts in detail, along with indirect and secondary impacts and temporary construction impacts.

### **Cumulative Effects**

Under NEPA regulations (40 CFR part 1508.7), a cumulative effect is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or 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.”

The cumulative effects of the Project were analyzed for each of the alternatives, as compared to the baseline condition (the No-Action Alternative). The evaluation was conducted for a selected set of resources within certain temporal and spatial boundaries, in reference to historical trends or effects from other specific projects and that are (for the most part) regulated by various governmental agencies. The cumulative effects evaluation focused on those resources that would be affected by the Project including:

- Land Use;
- Transportation;
- Air Quality;
- Noise;
- Water Resources;
- Floodplains;
- Wetlands;
- Protected Species; and
- Social and Economic environment.

The other resources evaluated in Chapter 5, *Environmental Consequences*, are expected to be little affected or not affected by any of the Project alternatives and/or would not be adversely affected by past or reasonably foreseeable actions in the Project Study Area.

As documented in Section 5.5, *Cumulative Impacts*, the Project is not anticipated to result in cumulative impacts that would be collectively significant and adverse. With respect to transportation, air quality, and economic resources, the Project would have beneficial cumulative impacts.

### **Comparing the Alternatives**

Table S-2 summarizes the anticipated environmental effects of each of the alternatives for the AAF Intercity Passenger Rail Service Project.

		Action Alternatives		
Resource	No-Action Alternative	Alternative A	Alternative C	Alternative E
Land Use	No Effect	Minor land acquisition (93.7 acres); remaining land leased from GOAA, CFX, FDOT. Consistent with land use and transportation plans.		
Transportation	Increases in automobile volume on SR 528, I-95 and Florida's Turnpike would increase congestion and delays	Beneficial effects by increased freight traffic efficiencies. The Project would remove 335,628 auto vehicle trips per year from the regional roadway network in 2016 and 1.2 million vehicle trips per year in 2019. The MCO Segment and E-W Corridor would not have an adverse effect on local vehicle transportation, while the N-S Corridor would increase the number of roadway grade crossing closures.		
Navigation	Increased freight operations would increase the number of closures at the St. Lucie River, Loxahatchee River and New River Bridges	The three moveable bridges would be closed more frequently with the Project and would affect navigation. The improved track infrastructure will decrease the duration of any single bridge closure by allowing increased train speeds. Mitigation measures proposed by AAF would reduce delays and queuing at the bridges.		
Air Quality	VMT would continue to increase resulting in increased air pollutant emissions	Alternatives A, C, and E would provide a net regional air quality benefit through a reduction in VMT and associated air pollutant emissions.		
Noise and Vibration	Noise and vibration would increase as a result of increased freight traffic	Noise effects along the E-W Corridor would occur at elevated portions of track and along the N-S Corridor at-grade crossing locations. The use of pole-mounted horns at grade crossings would reduce noise levels to below existing conditions. Vibration effects would be caused by an increase (approximately double) in vibration events.		
Farmland Soils	No effect	No significant effects		
Hazardous Materials and Waste	Potentially contaminated sites previously not identified would not be assessed or mitigated	No effect on the transfer, storage, or transportation of pollutants. The Project would not substantially increase operational hazardous materials or hazardous waste.		
Coastal Zone Management	Consistent	Consistent		
Climate Change	VMT would continue to increase resulting in increased greenhouse gas emissions	GHG emissions for CO <sub>2</sub> , CH <sub>4</sub> , and N <sub>2</sub> O were calculated and the Project would decrease emissions as a result of decreased automobile VMT. Bridge structures in the N-S Corridor and WPB-M Corridor will have increased vulnerability over time; potential infrastructure damage may result from flooding, tidal damage, and/or storms.		
Water	No effect	The proposed VMF would add impervious surfaces for pavement and buildings. Appropriate stormwater BMPs would be included in Project design to reduce impacts to water quality. The Project would require stormwater management facilities along the E-W Corridor and may require modification of stormwater ditches along the N-S Corridor.		
Wild and Scenic Rivers	No effect	No effect		
Wetlands	No effect	130 acres of wetland loss	167 acres of wetland loss	160 acres of wetland loss based on the same data as Alternatives A and C. Updated wetland loss calculated as 263 acres of direct and indirect impact.
Floodplains	No effect	138 acres of floodplain affected. Negligible effect on flood storage or flooding.	195 acres of floodplain affected. Negligible effect on flood storage or flooding.	
Biological Resources and Natural Ecological Systems	No effect	93 acres of upland habitat loss. Minor indirect and secondary impacts to wildlife.	122 acres of upland habitat loss. Minor indirect and secondary impacts to wildlife.	109 acres of upland habitat loss. Minor indirect and secondary impacts to wildlife.

		<b>Action Alternatives</b>		
<b>Resource</b>	<b>No-Action Alternative</b>	<b>Alternative A</b>	<b>Alternative C</b>	<b>Alternative E</b>
Essential Fish Habitat	No effect	No significant effect. BMPs to protect fish habitat would be implemented during bridge construction, and habitat impacts would be offset by the purchase of mitigation credits.		
Threatened and Endangered Species	No effect	No adverse effect. Mitigation measures will be used during construction, particularly within waterways, and additional pre-construction surveys will be undertaken as required by state and federal agencies. AAF has purchased mitigation credits to offset incidental effects to Florida scrub-jay populations.		
Communities and Demographics	No effect	No adverse effect		
Environmental Justice	No effect	No disproportionate adverse effects		
Economics	No effect	Beneficial long- and short-term effects. During construction, the Project will generate jobs and labor income and increase the state GDP. The Project will increase federal, state, and local tax revenues during construction and during subsequent operations. The Project would have long-term direct economic benefits to local communities through the creation of jobs.		
Public Health and Safety	No effect	Overall beneficial effect on public health, safety, and security. AAF trains will comply with ADA requirements.		
Cultural Resources	No adverse effect	Demolition of historic railroad bridges would be an adverse effect under Section 106 and would be considered a "use" under Section 4(f).		
Parks, Recreation Areas and Wildlife Refuges	No effect	No use of land from parks, recreation areas, or wildlife refuges and no effect on the use of these properties.		
Visual and Scenic Resources	No effect	The existing viewsheds of the MCO Segment and N-S Corridor would remain primarily unchanged. Views would be changed, but not significantly, for motorists traveling along SR 528 and along roads and highways that cross SR 528.		
Utilities and Energy Resources	Energy consumption for private automobiles would increase commensurate with the increase in annual vehicle-miles traveled.	Portions of existing utilities may need to be relocated outside the track footprint where the proposed track crosses underground utilities. Relocation or reconstruction of overhead utilities may be necessary to provide the required vertical clearance over the tracks. The relocation of poles is expected to be minimal. The Project would require minimal electrical demand and would result in a long-term decrease in energy consumption through increased travel efficiency.		



