

**Draft Report
Unique Safety Issues and Cost Burdens
Related to the AAF High Speed Rail Project**

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Unique Safety Issues and Cost Burdens Related to the AAF High Speed Rail Project

Executive Summary:

The proposed AAF high speed passenger rail system through the Treasure Coast counties of Indian River, St. Lucie and Martin is unique among passenger rail systems in the U.S. in several ways:

1) No other U.S. passenger rail system combines 110 mph passenger trains and 70 mph freight operating through such densely populated urban areas and along coastal recreation areas with such a high concentration of tourists and seasonal visitors.

2) The current FEC rail line is already the among the deadliest rail line in the U.S. with the highest pedestrian fatality rate and one of the highest crossing accident fatality rates in the entire country. In the last 5 years alone 59 pedestrian were killed and 35 injured along the right-of-way and an additional 19 people were killed and 23 injured in crossing accidents. Over the last 20 years, there have been 393 crossing accidents and a total of 340 people killed and 279 injured in crossing and pedestrian accidents, combined¹.

3) Safety risks will rise dramatically when the AAF system becomes fully operational. Train speeds will nearly triple, increasing from an average of 32 mph to 110 mph and the number of trains will increase fivefold from approximately 10 per day to 54 per day and a second main track will be added which introduces the risk of catastrophic “secondary collisions” involving high speed passenger trains. Thus the AAF project will dramatically increase the safety risk factors on what is already one of the most deadly railroad lines in the country.

4) To mitigate the increased safety risks, the Treasure Coast counties seek the same safety protections that currently exist or are being installed in other similar high speed passenger railroad lines in other states. AAF has agreed to install some of these safety measures but disputes still exist regarding the amount and level of protection that AAF is willing to provide.

5) Another unique feature of the AAF project is the extraordinarily high costs that are being passed on to Florida counties and taxpayers. In most states the railroads pay for all maintenance costs for highway-rail grade crossings, while in some places, the states contribute a small share to crossing signal maintenance costs. However, in Florida, the county or local municipalities were often required to enter into agreements that required them to pay for nearly all crossing maintenance costs, including the cost of crossing signal maintenance and the cost of railroad track maintenance and rehabilitation in and near the crossings.

6) The AAF project will result in a sharp escalation of annual railroad crossing maintenance costs that the Treasure Coast counties will be required to bear – these cost increases will reach millions of dollars per year.

7) The legislation introduced to rectify these safety and cost burdens will not affect either FEC or CSX freight railroad operations because only the AAF would be required to bear the cost of the safety improvements and crossing maintenance necessary to support the profit making operation of the private railroad company.

¹ Source: Federal Railroad Administration (FRA) Safety Data Website

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Background:

Unique Safety Risk Factors: The AAF system will operate on the existing freight railroad tracks of the Florida East Coast Railroad (FEC). This rail line has more highway-rail grade crossings per mile than any other major railroad in the U.S.² In the three Treasure Coast counties alone there are 79 publicly used highway-rail grade crossings, which is nearly double the U.S. average for public railroad crossings. Also, because the rail line traverses densely populated urban areas and coastal recreational areas with large concentrations of tourists and seasonal visitors, the current FEC freight railroad operation has a highway-rail grade crossing accident rate that is more than double the national average while the fatality rate at FEC crossings is 4.0 times the national rate. The fatality rate among pedestrians along the railroad right-of-way is 7.5 times worse than the national average³.

Among The Deadliest Railroads in U.S.: In fact, over the past 20 years, there have been 393 highway-rail grade crossings accidents on the FEC resulting in 84 deaths and 126 injuries. Over the same period, 256 pedestrians have been killed in railroad incidents outside of road crossings and 153 have been injured. **In the last 5 years alone the FEC rail line has been the deadliest in the country, by far, in terms of pedestrian fatality rates, 76 pedestrian have been killed and 65 injured. FEC is among the most dangerous railroads in the country in terms of crossing fatality rates over the last five years with 19 people killed in crossing accidents and 26 injured⁴.**

Risks Will Increase Greatly: The safety problems can be expected to intensify because the “risk factors” will greatly increase when AAF becomes operational. The number of trains and the speed of trains are two significant risk factors in railroad crossing and pedestrian accidents and these risk factors will sharply increase with AAF operations. Currently, the FEC rail line operates a small number of freight trains through Treasure Coast at an average speed that does not exceed 32 mph.⁵ When AAF becomes fully operational, there are projected to be 32 passenger trains and 22 freight trains per day⁶ operating at speeds up to 110 mph and 70 mph, respectively⁷. More than doubling the train speeds and quintupling the number of

² Source: Federal Railroad Administration (FRA) Safety Data Website. FEC as a whole has 1.78 crossings per mile and in the three counties of the treasure coast there are 1.17 crossings per mile (1.14 publicly used crossings per mile). By contrast, the average number of public crossings per mile on U.S. railroads is .63 while total crossings per mile is .97.

³ Source: FRA Safety Data Website. Over a 20 year period, the U.S. railroad crossing accident rate per million train miles is 3.71, the crossing fatality rate is .45 and the pedestrian fatality rate is .82. Over the same period, the FEC crossing accident rate is 8.26, the crossing fatality rate is 1.76 and the pedestrian fatality rate is 6.22. Pedestrian casualties on railroads (not involving employees, contractors or passengers) are identified as “trespassers” in the FRA Safety Database.

⁴ Source: Federal Railroad Administration (FRA) Safety Data Website.

⁵ *Draft Environmental Impact Statement – All Aboard Florida*, Sept. 2014, Chpt. 3, P. 44

⁶ *Ibid.* Chpt. 5, P. 12

⁷ *All Aboard Florida – St. Lucie County - 90 % Plans*, Track Plans and Profiles Pp. TR 83 – TR 158

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trains will make what is currently one of the most dangerous railroad lines in the country even more dangerous.

Added Risk of Catastrophic Passenger Train Accident: AAF will bring about another safety risk that currently does not exist along the FEC rail lines in the Treasure Coast – the risk of a deadly passenger train accidents. With conventional train operations, most of the risk associated with crossing accidents is borne by the motor vehicle drivers and their passengers. However, on crowded high speed passenger and freight railroad lines, crossing collisions can cause deadly derailments resulting in catastrophic accidents. Furthermore, because AAF proposes to build a second main line railroad track, a passenger train could derail at high speeds and then collide with a freight train or another passenger train standing or moving on an adjacent track in what is known as a “secondary collision.”⁸ Just such an accident occur on January 26, 2005 in Glendale, California when a commuter passenger train collided with a motor vehicle that had become stuck near a highway-rail grade crossing. The passenger train, which was only traveling about 70 mph, derailed and then was struck by a passing train on another track. 11 passengers were killed and more than 100 people were injured⁹. This deadly collision would most assuredly have been even worse had it involved a high speed passenger train rather than a commuter train.

Need for Safety Measures Equal to Similar Railroad Systems: To prevent deadly high speed train accidents, crossing accidents and pedestrian fatalities along the AAF railroad line, the Treasure Coast counties seek safety measures that either currently exist or are being implemented on similar railroad operations. The most similar passenger rail system is the 285-mile Chicago to St. Louis line, which is funded primarily by the State of Illinois. On this system, passenger trains, operated by Amtrak, run at speeds up to 110 mph along with freight trains operated by the Union Pacific railroad¹⁰. The other railroad line where passenger trains operate at 110 mph or above is Amtrak’s Northeast Corridor between Washington, DC and Boston.

While these other rail lines operate high-speed passenger trains at speeds equal to AAF, they have significantly fewer safety risks and better safety protections than what is currently being proposed on the AAF system in the Treasure Coast. Most of the Chicago to St. Louis Line is single track so there is little chance of secondary collisions¹¹. Also, much of the route runs through sparsely populated farmland so there is far less risk of crossing accidents and pedestrian accidents¹². The Amtrak route only has highway-rail grade crossings on a small portion of the line where

⁸ *Grade Crossing Guidelines for High-Speed Passenger Rail*, P. 10.

⁹ *Los Angeles Daily News website*, January 25, 2015.

¹⁰ *Illinois High-Speed Rail Four-Quadrant Gate Reliability Assessment – Final Report*, U.S. Department of Transportation-Federal Railroad Administration, DOT/FRA/Ord-09/19, Pp. 4 -7.

¹¹ Illinois DOT Website (IDOTHSR.org – Project Overview).

¹² Ibid. Pp. 6-7.

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train speeds do not exceed 75 mph. The crossings are located on lightly travelled roads in several small towns in Connecticut and there are only a few local freight trains per day.

Despite having far less safety risks, these other high speed passenger operations have superior safety protections that comply with recommendations in the Federal Railroad Administration's (FRA) policy guidelines titled *Grade Crossing Guidelines for High-Speed Passenger Rail*. **The three Treasure Coast counties seek the same level of safety protections that has been provided to communities along similar high speed passenger railroad lines in other states.** These safety protections include the following:

1) **"Sealed Corridor" Crossing Treatments:** Sealed corridor crossings are equipped with enhanced warning systems that protect all travel lanes to prevent motor vehicles from inadvertently entering the crossings when a train is approaching. Sealed corridor treatments include 4 Quadrant Gates or 2 Gates with medians in the road that prevent drivers from driving around or past crossing gates. – AAF proposes to installed sealed corridor treatments primarily at crossings when train speeds are 80 mph or above¹³. The other high speed passenger lines have sealed corridor crossings even where train speeds are below 80 mph.

2) **Vehicle Presence Detection (VPD)** VPD technology detects the presence of motor vehicles stopped or stalled on highway-rail grade crossings when a train is approaching. The VPD should then send a signal the "train control system" to stop or slow the approaching train¹⁴. – AAF proposes to install VPD but it would only slow a train to 79 mph when a motor vehicle is stalled or stopped on a crossing. – The other high speed railroad lines are equipped with VPD that stops or slows the train to 20 mph when a vehicle is stopped on a crossing. VPD technology is especially important along the treasure coast because nearly one-third of the railroad crossings accidents in some of the counties have involved motor vehicles stalled or stopped on the crossing before the train's arrival¹⁵.

3) **Remote Health Monitoring (RHM):** RHM technology detects crossing warning system malfunctions and can automatically notify railroad maintenance personnel so that repairs can be made in a timely manner. RHM is especially important along the Treasure Coast because many crossings are locate on densely travelled urban roads or roads that are the sole means of access into and out of neighborhoods. Railroad crossing signal failures can seriously disrupt traffic on such roads. – The other high speed railroad lines are equipped with RHM that automatically notifies railroad personnel whenever a highway-rail grade crossing warning system

¹³ *All Aboard Florida – Contract Design Plans, Roadway Plans* (for Indian River, St. Lucie and Martin Counties).

¹⁴ *On-Site Engineering Field Report -- Part 1*, FRA Highway Rail Crossing and Trespasser Program Division, March 20 2014, Pp. 3 - 4.

¹⁵ FRA Safety Data Website – Highway-Rail Grade Crossing Accident Reports.

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malfunction. AAF crossing warning signals will be equipped with RHM technology but AAF states it will not configure the RHM to notify railroad personnel of a crossing signal malfunction, instead AAF proposes to configure its RHM system to only slow the train to 79 mph when a crossing signal malfunction is detected.

4) **Sidewalks and Sidewalk Gates (Pedestrian Gates):** FRA has recognized high speed trains can be silent and difficult to detect visually¹⁶; therefore sidewalk gates are often recommended at high speed railroad crossings to protect pedestrians. For the Chicago/St. Louis high speed rail line the state DOT perform “diagnostic reviews” with local community involvement to obtain agreement on which crossings required sidewalks and sidewalk gates. Unfortunately, AAF indicated it did not intend to install sidewalk gates at its high speed crossings unless through sidewalks already existed at the crossings. This approach by AAF fails to adequately address the increased risk to pedestrians that will be caused by AAF’s high speed trains.

5) **Fencing Along the Right-of-Way:** In areas where there is a high concentration of pedestrians, it is common for fencing to be installed along railroad tracks to prevent pedestrians from being struck by passing trains. Fencing is particularly important where high speed trains operate because they can be virtually silent and difficult to see. -- Fencing exists in urban areas along Amtrak’s NEC and is being installed in urban areas along the Chicago/St. Louis line and also near crossings in select rural areas where there is pedestrian use¹⁷. The Treasure Coast counties only seek to work with AAF to identify those areas where fencing is most needed to protect pedestrians, especially children who live and work along the railroad tracks. However, AAF has not proposed to install fencing in the urban areas along its high speed line, claiming that it costs too much.

County and Municipal Government Responsible for Railroad Crossing Costs:

The financial burden that the AAF systems will place on the Treasure Coast counties is also unique. Typically, the design and installation of highway-rail grade crossing warning systems are funded through a Federal program known as the Section 130 Program. Section 130 funds are allocated to the states for crossing installations or improvements and can cover up to 100 percent of the cost to design and install highway-rail grade crossings signals, signage and pavement markings. Once installed, the maintenance and repair of railroad crossing signals is typically performed and paid for by the railroads, although as many as 20 states contribute funds to cover some portion of the crossing signal maintenance costs.¹⁸ **In most states, local governments are typically only responsible for maintaining the roadway and signage outside of the railroad tracks, they are not responsible**

¹⁶ *Grade Crossing Guidelines for High-Speed Passenger Rail*, P. 13.

¹⁷ Illinois DOT Website (idothsr.org/pdf/hsr_constructionupdatesmeetings_032116_vo_anim.pdf) and IDOT Fact Sheet – April 2013, Issue 7.

¹⁸ *Highway-Rail Grade Crossing Handbook – Revised 2nd Edition*; U.S. Department of Transportation, Federal Highway Administration, August 2005, Chpt. I, Section B, Pp. 6 -10.

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for costs related to the maintenance and rehabilitation of the tracks or crossing signals themselves.

However, in Florida, many of the counties and municipalities historically have been required to enter into agreements with the railroads operating within their boundaries that require the local governments to accept the financial burden for highway-rail grade crossing signal installations, capital improvements for crossing track beds and roadway surfaces and crossing signal maintenance costs. Indeed **Florida appears to be unique in that it allows railroads to pass nearly all the cost of maintaining and rehabilitating the railroad crossing signals and the railroad track bed in the road crossings on to the counties and municipal governments.** With the introduction of AAF high speed passenger railroad operations and a second main track along the FEC rail corridor, **annual railroad maintenance costs for the Treasure Coast counties is projected to increase by several million dollars per year.**