



South Florida's Brightline: The Public Costs of Private Rail

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The decline of state and federal transportation funding led to increased reliance on private sector partners to finance and construct new capital infrastructure.¹ In this context, the Brightline project (formerly known as All Aboard Florida) is particularly promising. Heralded as the first 100 percent privately-owned and operated rail line built in the last 100 years, Brightline began service in late 2017, running 32 high-speed trains daily between Miami, Fort Lauderdale, and West Palm Beach, FL, USA, with future expansion to the Orlando Intermodal Transportation Facility.

Despite being billed as privately-owned and operated passenger rail, a major question remains: how is the financial performance of this line different from other rail lines? Very few passenger rail lines in the United States are profitable, with the exception of Amtrak's Northeast Corridor and Acela Express Lines, which operate along the high-density Northeast Corridor between Washington, DC and Boston, MA, USA.² High-speed rail "is not currently a commercial proposition except in very exceptional cases and the conditions that make for these exceptions hardly exist in the US".³

These conditions are limited stop service between dense urban centers with well-established transit systems. And even when these conditions are met, financial success is not assured, as evidenced by the financial failure of the Taiwan High Speed Rail System and

China's Shanghai to Nanjing service.³ The Brightline project lacks the characteristics that are asserted as a prerequisite for establishing a financially-successful rail line. Development along the Brightline route is low-density compared to the Northeast corridor. Transit service in Fort Lauderdale and West Palm Beach is limited to buses operating in mixed-traffic conditions, while Orlando and Miami have rudimentary light rail service.

Given its relevance as a critical case for understanding the potential for privately-funded passenger rail, we believed a detailed examination of the nature of this project was warranted. According to Yin, a critical case is one that is "so rare that any single case is worth documenting and analyzing".⁴ As the first "privately-funded" passenger rail project in 100 years, the Brightline project certainly meets that standard.

This article provides a critical review of the ridership and financial basis for this project. Achieving this end was difficult because many of the relevant documents are not available to the public. Nonetheless, this project is highly-reliant on public assistance, which requires disclosure of basic financial information. While much of this information was heavily redacted, the authors were able to approximately reconstruct the financial, operational, and organizational logic of the project. The sections that follow seek to provide transportation professionals with information on the opportunities and risks inherent in “privately-funded” passenger rail projects.

The Brightline Project: Purpose

Florida East Coast Industries (FECI) has historically been in the business of both rail service and land development. The Florida East Coast (FEC) rail line was developed by oil magnate Henry Flagler, who, in the 1880s and 1890s, built the passenger rail line to connect the existing rail terminus in Jacksonville with his luxury resorts, which extended from St. Augustine to Key West.⁵ From its inception, FECI integrated passenger rail with land development. Because of the limited demand for passenger movement between these resorts, all of which were centrally managed, only a single track of rail was initially constructed. FECI ceased operating passenger rail service in 1966 when it ceased to be financially viable. For the last 40 years, the FEC line has functioned as the eastern-most freight corridor for southeast Florida, serving as the primary mechanism for moving rail freight arriving at Port Miami, Port Everglades, and the Port of West Palm Beach.

Florida East Coast Industries (FECI) has promoted the Brightline project as the restoration of passenger service on South Florida’s original rail line, with a stated goal of running high-speed passenger rail service from Orlando to Miami in approximately three hours, with stops in West Palm Beach and Fort Lauderdale (See Figure 1).⁶ Under the stated purpose of supporting passenger rail operations, FECI has constructed a second set of tracks along the corridor, which more than double’s the system’s capacity.

Capital Costs and Organizational Structure

The total project cost is estimated at \$2.5 billion, which will be used to double-track the line between Port Miami and Cocoa Beach and extend a new line to Orlando. To understand the financial mechanics of this project however, it is first necessary to understand its organizational structure. While FECI is the parent corporation overseeing the Brightline project, project documents retain the project’s original name of “All Aboard Florida” (AAF), which was later re-branded as “Brightline” in response to public resistance to the project. As such, all references to All Aboard Florida (AAF) in the discussion of the project’s legal structure pertain to the Brightline passenger rail project, while FECI refers to the parent company that oversees the Brightline project, freight operations, as well as the company’s land development activities.



Figure 1. Proposed alignment for the Brightline passenger rail project.

FECI could have organized the Brightline project in a number of ways, including as a new division of its existing activities, which would have made FECI financially responsible for ensuring its success. This is not what was done. Instead, the Brightline project is managed under three subsidiary corporations, of which FECI is the controlling shareholder (see Figure 2). The first is AAF Holdings, LLC, which has ownership of the project’s capital assets, including the project’s rolling stock and station area-development. Two additional subsidiary corporations exist underneath AAF Holdings:

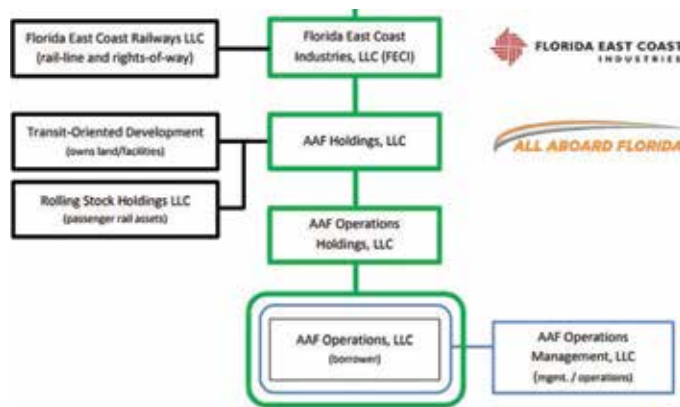


Figure 2. Organizational structure of Florida East Coast Industries and the Brightline project.

AAF Operations Holdings, LLC, and AAF Operations, LLC. The latter subsidiary, at the bottom of the organizational chain, is solely responsible for the finance and operation of Brightline.⁶ Regardless of the performance the Brightline project, this structure allows FECI to retain ownership of the newly-double-tracked rail line while insulating the parent company from any liabilities or losses that may be associated with the Brightline project.

Investment Structure

To finance the project’s capital costs, AAF Operations was issued \$1.75 billion in tax-exempt Private Activity Bonds (PAB) from the United States Department of Transportation, which are filtered through the Florida Development Finance Corporation (FDFC), an economic development authority established by the State of Florida.⁷ The capital assets retained by the first parent corporation, AAF Holdings, LLC, are leveraged as collateral on the bonds, which includes \$685 million in station-area landholdings and \$117 of the \$417 million spent on rolling stock. To address potential cost overruns, AAF Holdings is further responsible for covering up to \$175 million of the project to ensure its completion, or 10 percent of the bond issuance.⁸ It is unclear who will be responsible for ensuring the project’s completion should cost overruns exceed this amount.

The request for bonds in the 2015 application indicates that these bonds will not be sold on the open market, and will be issued without a rating. As per the requirements of the FDFC, the issuance of unrated bonds are thus limited to a select group of anonymous investors in denominations not less than \$100,000.⁹ In the realm of bond finance, unrated bonds, such as these, are viewed as being high-risk and below investment grade.

The repayment stream is listed as revenues generated primarily from “rail ticket revenues and other ancillary sources including food/beverages, merchant sales, sponsorships, etc.”⁶ While the specifics about how much money will be needed for the project is fairly exact, the repayment of these bonds is quite inexact, as demonstrated by the use of “etc.” as a revenue stream in the bond repayment language. This round of bonds utilized a payment-in-kind (PIK) structure with a 12 percent yield. Purchasers of the initial bonds would be repaid with additional bonds that will be issued in the future, and the retirement of these secondary bonds would occur through project revenues.^{10, 11, 12} These bonds are currently uninsured. A default on the repayment of the bonds would lead to either bankruptcy proceedings and/or a bail-out by the state, which is responsible for the bond issuance.

Examining Brightline: Development Returns, Ridership and Revenue Forecasts

The inexact nature of the future revenue for retiring the bonds requires analyzing existing documentation regarding development returns and ridership and revenue forecasts for Brightline. How

is this project able to be profitably underwritten by private-sector investments? It is important to realize that FECI is not simply a rail operator; its business concerns extend heavily into freight and land development. Despite the land development associated with this project, the passenger rail component of the project will succeed or fail based on whether ridership and revenue forecasts prove to be accurate.

Given the low-density, auto-centric nature of Florida, there has been a great deal of debate about whether Brightline will generate ticket revenues sufficient to cover operating costs and the financial service on its debt. Florida East Coast Industries released two studies by the Louis Berger Group, Inc. presenting estimates on ridership and revenues in its bond application to the Florida Development Finance Corporation.^{13, 14} There are inconsistencies between the reports, with the 2013 report presenting three ridership scenarios, and the 2015 report contained in the project’s Environmental Impact Statement, presenting only the best-case scenario for the project.

The ridership estimates for the Brightline project were developed by dividing ridership into two markets. The first are “short distance” trips between Miami, Fort Lauderdale, and West Palm Beach, and the second are “long distance” trips connecting southeast Florida and Orlando. The FEC study then sought to estimate the share of trips that would be captured by the Brightline project. FEC expects that Brightline will capture 1.2 percent of the “short distance” travel, and 10.2 percent of all trips between South Florida and Orlando, with an estimated annual ridership of 5,347,300 by 2020, split roughly evenly between short distance and long distance trips, which are reported to generate \$293.6 million in revenues (See Table 1). This translates to an average ticket price of \$23 for short distance trips, and \$91 for long distance trips.

Table 1. Brightline Revenue and Ridership Forecasts

AAF Ridership and Revenue Forecast, 2020 (2012 \$)			
2020 Forecast	Short Distance(1)	Long Distance(2)	Total
Ridership:	2,813,200	2,534,100	5,347,300
Fare Revenue:	\$64,143,400	\$229,436,300	\$293,579,700

(1) Short distance trips = Miami - Fort Lauderdale, Miami - West Palm Beach, Ft. Lauderdale - West Palm Beach

(2) Long distance trips = Southeast Florida - Orlando

The ridership studies examine expected trip capture from different modes serving the route, as well as “induced” trips, which are new trips taken between the cities due to Brightline that would not otherwise have occurred. The majority of ridership from Brightline will come from trips converted from auto to rail, though a substantial share—10.9 percent of short trips and 20.6 percent of long trips—are induced trips (See Figure 3).

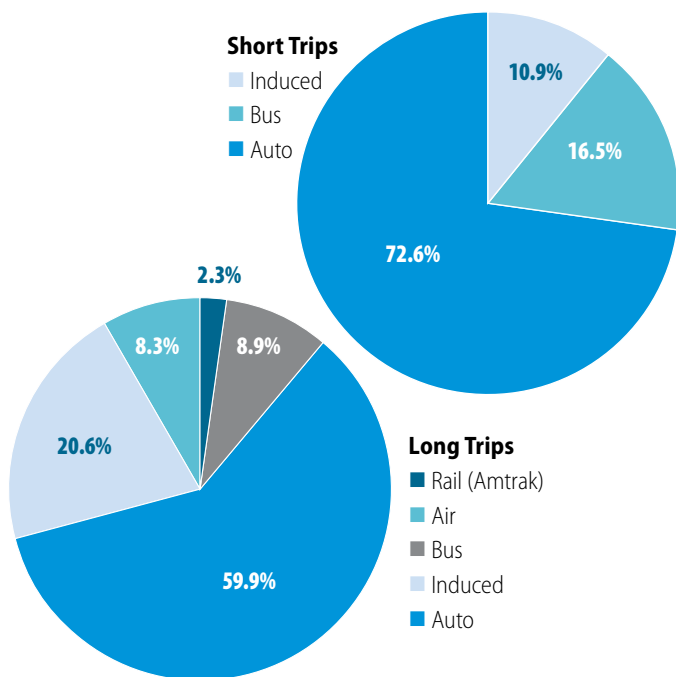


Figure 3. Brightline Ridership Composition (Louis Berger Group, 2015) for Short Trips (top) and Long Trips (bottom)

FEC divided the travel market according to both short- and long-distance trips, as well as by rider class, with different fares being identified for business and leisure travel markets. As shown in Table 2, short distance fares range from \$15 to \$34 each way for business travelers, and \$11 to \$18 for non-business travelers. Long distance fares ranged from \$90 to \$143 for business travelers, and \$60 to \$94 for non-business travelers (See Table 2).

Table 2. Fare Assumption for Brightline (Louis Berger Group, 2015)

Fare Optimization Assumptions, Short Distance Travel Market (Without Southeast Florida - 2012 \$)

Station Pairs	Assumed Business Travel Fare				Assumed Non-Business Travel Fare			
	Initial	\$/Mile	Optimized	\$/Mile	Initial	\$/Mile	Optimized	\$/Mile
Miami/West Palm Beach	\$22.00	\$0.31	\$33.81	\$0.48	\$18.00	\$0.26	\$27.72	\$0.39
Fort Lauderdale/West Palm Beach	\$17.00	\$0.37	\$22.54	\$0.49	\$14.00	\$0.30	\$18.48	\$0.40
Miami/Fort Lauderdale	\$15.00	\$0.57	\$22.54	\$0.85	\$11.00	\$0.42	\$18.48	\$0.70

Fare Optimization Assumptions, Long Distance Travel Market (Without Southeast Florida - 2012 \$)

Station Pairs	Assumed Business Travel Fare				Assumed Non-Business Travel Fare			
	Initial	\$/Mile	Optimized	\$/Mile	Initial	\$/Mile	Optimized	\$/Mile
Miami/Orlando	\$130.00	\$0.55	\$143.46	\$0.61	\$85.00	\$0.35	\$93.80	\$0.40
Fort Lauderdale/Orlando	\$115.00	\$0.54	\$126.91	\$0.60	\$75.00	\$0.35	\$82.76	\$0.39
West Palm Beach/Orlando	\$90.00	\$0.55	\$99.32	\$0.60	\$60.00	\$0.35	\$66.21	\$0.40

Source: LBG, 2012.

Considering the Plausibility of Ridership and Fare Estimates

While the forecasts developed by the Louis Berger Group appear to be technically appropriate (despite using questionable assumptions), such forecasts are notoriously bad at predicting costs and revenues. As Bent Flyvbjerg has observed, project managers “are busy not with getting forecasts and business cases right... but with getting projects funded and built. And accurate forecasts are often not an effective means of achieving this objective.”¹⁵ Instead, there has been a systematic bias towards underestimating a project’s costs and overestimating its benefits. Rather than developing forecasts based on best-case scenarios, he instead proposes the use of reference class forecasting, which entails examining the actual costs and benefits associated with similar projects to develop a more meaningful estimate of likely performance.^{15, 16, 17}

Reference class forecasting was not done for the Brightline project. Given the historically poor performance of passenger rail projects, it is unlikely that reference class forecasting would have justified investment in the project. An independent study conducted by the Florida Department of Transportation (FDOT) found that the ridership market between South Florida and Orlando is significantly less than that asserted by FECCI. FDOT estimated that there would be 18.4 million trips between Southeast Florida and Orlando, markedly less than the 25 million trips projected for Brightline. Further, FDOT estimated that only 9% of the trips on this system would be induced trips. By contrast, FECCI projects that 11% of all trips within Southeast Florida would be induced trips, as well as more than 20 percent of the trips between Southeast Florida and Orlando.¹⁸ The latter is particularly noteworthy because nearly half of the system’s revenues are projected to come from these “long-distance” trips.

A second consideration is fare pricing. FEC is estimating that Brightline will generate \$293.6 million in 2020. To meet this financial estimate, the average ticket sales price would need to be roughly \$23 each way for trips in Southeast Florida. This is plausible when compared against the financial ranges shown in Table 1. Nonetheless, travel in Southeast Florida accounts for only 22 percent of the expected revenues. The overwhelming share of the revenues are anticipated from ridership between Southeast Florida and Orlando. To achieve this, the average ticket fare will need to be roughly \$91 each way, or \$182 round trip.

This service does not compare favorably in terms of time, cost, or access when compared to existing modes that connect to Orlando. Nonstop flights between Miami and Orlando can be regularly found for less than \$65, are only an hour long, and place passengers at the Orlando airport, the same location that Brightline does. Nonetheless, most of the ridership is anticipated to come from displaced car trips, based on the assumption that fuel will cost \$4 a gallon. Even accepting FECCI's assumptions of \$4 fuel, an automobile meeting the fleet average fuel efficiency of 26.4 MPG can complete the 235 mile trip between Miami and Orlando for \$35 in fuel, plus an additional \$19 in tolls, presuming tollways are exclusively used, for a total of \$54 each way. For trips with multiple passengers, which are likely to constitute a significant share of non-business travelers, driving is significantly less costly than Brightline. During non-peak periods, the drive time between Orlando and Miami takes a little over three hours, the same as Brightline, but provides travelers with the ability to directly access the region's attractions, which are poorly served by public transportation. A traveler using Brightline would be required to transfer to some secondary mode once arriving in Orlando, with the associated costs and transfer delays.

Considered as a whole, the ridership and revenue estimates used for the Brightline project seem overly optimistic. They are based on significantly higher travel demand estimates than projected by FDOT and assume what may be unrealistic estimates of trip capture and induced travel.

What if Brightline Fails?

Transportation projects are typically evaluated in terms of technical accuracy and the plausibility of its assumptions. As detailed above, there is good reason to doubt FECCI's estimates of Brightline's likely outcomes. For this project, it is far more illuminating to analyze the project in terms of the opposite outcome: what happens if the Brightline project fails? What are FECCI's potential losses and liabilities? Might the project be worth pursuing even if the project failed to generate the ridership and revenues used to justify the issuance of public bonds? And if so, why might that be?

The organizational structure for Brightline shelters FECCI from a significant portion of the project's potential losses and liabilities. If the project fails, the borrower—AAF Operations—can declare

bankruptcy, resulting in a sell off of the project's assets, which includes the project's rolling stock, as well as cash and asset contributions from affiliated AAF companies in the amount of \$21 million. A significant share of their liability comes in the form of operational easements for passenger rail service, valued at \$550 million.⁶ Note that this is not real money, but simply a commitment to allow another operator continue to run passenger rail service along the corridor, should AAF Operations cease doing so. Given the use of state and federal bonds to underwrite the project, a state bail-out is a probable outcome should AAF Operations default on their bond payments.

It is important to note that only the right to operate passenger rail service along the FEC corridor is provided as a security for the bonds, not the ownership of the double-tracked line that was constructed using these bond revenues. FECCI will retain ownership of the tracks regardless of Brightline's success or failure, which can continue to serve the company's freight operations.

And there is reason to suspect that the advancement of the project's freight operations are indeed a major objective of this project. The recent expansion of the Panama Canal (Neo-Panamax) now accommodates cargo ships capable of carrying 13,000 twenty-foot equivalency units (TEU), compared to 5,000 TEUs for Panamax ships. PortMiami, serviced by FECCI, is one of only three ports on the Atlantic Coast capable of servicing Neo-Panamax vessels, and the only one south of Richmond Virginia. It is also the closest Port to the Panama Canal.

In the Environmental Impact Statement for the Brightline project, FECCI reports that freight traffic is expected to nearly double as a result of the Panama Canal expansion, increasing from 10-14 freight trains per day to 20. They are also proposing to increase the average train length to 8,150 feet, or 1.5 miles, long, a condition made possible by double-tracking the corridor, which removes the restrictions on train length associated with the use of passing loops.^{19, 20, 21} Because the Brightline allows FECCI to color the double-tracking of the FEC line as a passenger rail project, rather than as a capacity expansion for freight, the added freight capacity is presented to the public as "freight traffic efficiencies," rather than as a new condition that might warrant mitigation. Given that the rail corridor runs through coastal wetlands, urban areas, disadvantaged communities, and historic districts, it is extremely unlikely that the project would have received a finding of no significant impact from the Environmental Protection Agency had the projected been presented as a freight project.

Indeed, FECCI has already sought to capitalize on the value added by the expansion of freight capacity as a result of the Brightline project. As the double-tracking was being completed in April of 2017, GMexico Transportes, a Mexico-based freight rail operator, is seeking to purchase FECCI. In its Notice of Exemption, required under 49 U.S. Code § 11323, which regulates the consolidation, merger, acquisition, and control of rail carriers, GMexico Transporte is interested solely in the corridor's freight operations,

with the stated purpose of taking advantage of increased freight traffic projected from the Panama Canal expansion and the PortMiami Deep Dredge project. The estimated purchase price is \$2.1 billion, using \$350 million in capital and \$1.75 billion in debt.²²

Should the project be approved, FECI's operations, which include its freight operations as well as Brightline, will revert to GMexico, along with Brightline's additional \$1.75 billion in debt. As such, FECI is a company with a market value of \$2.1 billion, and which will be indebted in the amount of \$3.5 billion should the acquisition proceed. It does not take much of a leap of imagination to envision a future financial restructuring that has AAF Operations declare bankruptcy to reduce the company's overall debt load.

Conclusion

Few railroads have ever been truly "privately funded." While many were constructed by private corporations, the construction was underwritten by governmental largesse via tax-exemptions, land grants, and the issuance of public bonds. As described by historian Richard White, the story of the railroads is the story of how "public resources were turned into private capital."²³ The Brightline project, as a "privately-funded" project, is not inconsistent with this assessment.

At the beginning of this investigation, the authors sought to understand how Brightline would be a profitable, privately-funded passenger rail service. What was discovered is a far more complicated reality, where the project's direct benefits are, at best, uncertain, and where the application of creative financing arrangements allow FECI to shift the project's costs and liabilities onto the public. The project's structure as a series of limited liability corporations, backed by payment-in-kind bonds, insulates the project's parent company from potential losses. Should Brightline fail, FECI can abandon rail service with little direct liability, while retaining ownership of the double-tracked corridor and the corresponding freight benefits.

Even under the most generous interpretation, the Brightline project provides FECI with a mechanism for doubling the system's freight capacity while masking its environmental impacts from public review. For transportation professionals tasked with representing the public interest, Brightline suggests that such "privately-funded" projects should be regarded with a healthy dose of skepticism. **itej**

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