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December 3, 2014

Mr. John Winkle, Federal Railroad Administration
1200 New Jersey Avenue SE, Room W38-311
Washington, DC 20590

Subject: Comments and Objections on All Aboard Florida Project DEIS

Dear Mr. Winkle:

Please find enclosed comprehensive comments and objections to the Draft Environmental Impact Statement for the All Aboard Florida Project, which are hereby submitted pursuant to the National Environmental Policy Act on behalf of a Coalition of Concerned Ft. Lauderdale Area Property Owners, Boaters, and Marine Industry Businesses.

Please give thorough consideration of these comments and objections, and contact us if we may provide additional information such as the engineering concept sketches or vessel studies referenced herein.

Sincerely,

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We appreciate the opportunity to submit our proposal and look forward to working with you on this matter. Please contact us if you have any questions.

Objections and Comments to the All Aboard Florida Draft Environmental Impact Statement and Section 4(f) Evaluation

December 3, 2014

On behalf of a Coalition of:

Concerned Ft. Lauderdale Area Property Owners, Boaters, and Marine Industry Businesses

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Executive Summary

Improved multi-modal transportation in South Florida is an indisputable need; the ability of moving goods and people must be achieved to sustain a high quality of life and economic prosperity, *but not at the expense of marine industry and ocean-access real estate values in Broward County-particularly west of the FECR Bridge at the New River.* A senior team of multi-disciplinary and non-conflicted professionals was engaged to represent a coalition of marine and residential interests who will be most directly negatively affected by rail bridge operations impeding marine traffic on the New River. Such coalition is listed in Appendix B.

The Team is advocating for constructive solutions to the cumulative impact of foreseeable future rail planning and construction. This includes the All Aboard Florida project, but must include integrated planning decisions and mitigation for future freight traffic and other passenger rail, namely the Tri-Rail Coastal Link and Amtrak. This comprehensive response directed to the Federal Railroad Administration of the project's 2014 Draft Environmental Impact Statement, along with the 2012 Environmental Assessment, and 2014 Finding of No Significant Impact is styled as "Comments and Objections" under the Federal National Environmental Policy Act (NEPA) approval process which is required for project advancement (including a $1.6B railroad loan).

Detailed objections and comments herein argue multiple important deficiencies that should be remedied before the project advances, summarized as:

- The public involvement, transparency, and understandability of the process for meaningful public input have not followed the true intent of NEPA.
- The DEIS fails to consider the cumulative impact of the foreseeable and interrelated future rail projects, namely the increase in future freight rail traffic, and the integration of the Tri-Rail Coastal Link, and Amtrak- all of which will add up to a significant increase in rail traffic on the CSX and FEC lines thus increasing bridge closure which will severely obstruct mariners ability to navigate New River.
- Alternatives to mitigate increased rail traffic and bridge closures have not been adequately analyzed in the DEIS; they should not be dismissed merely because All Aboard Florida or FECR are not willing to pay for necessary improvements.
- Unreasonable bridge obstruction by some measures exists today; it will only worsen under the future scenario of rail traffic growth. An average FEC bridge closure time of 12 to 19 minutes, when considered in concert with anticipated future freight train growth and 32 All Aboard Florida trains, could mean up to 17 hours of FEC bridge closure per day, which is clearly obstructive to navigation. When 50 or more Tri-Rail Coastal Link commuter trains per day are added the bridge operation will be clearly untenable.
- In response to the US Coast Guard's involvement in this rail planning, and its primary charge to maintain navigation, the Team has coordinated over 200 responses while emphasizing essential points intended to elicit Coast Guard actions for meaningful mitigation.
- As a "cooperating agency," the USCG's has tracked the DEIS. The USCG issued a letter on June 2, 2014 discounting most of AAF's attempts at modeling the effects of the rail plan on navigation. We agree the DEIS is flawed in this regard and the June letter is supported wholly in this response.
- To best describe the New River navigation conditions and vessel traffic and bridge closures considering BOTH the CSX and FEC rail bridges, this DEIS response summarizes the results of two detailed counts of vessels and bridge closures for approximately 2 weeks combined in May and June 2014; and average monthly bridge closures at the downtown automobile bridges; and transit time between the CSX and FEC bridges. The data base of vessel traffic is intended to assist the USCG with future bridge rule writing; various data and over 35,000 pictorial images have been collected so that vessel characteristic (length, height)

trends can be discerned and hoping to justify the construction of a new bridge based on the needs of vessel size and frequency.

- Results show some undercounts in the AAF reporting of vessel traffic up to 20 % lower on average, and more disparity with respect to peak traffic; however the DEIS is flawed by using only average traffic figures for most modeling instead of using peak demand and level of service principles such as those used for road planning.
- The DEIS's "minor" detrimental economic impact claim is dismissed by comparing a real-world example of the higher cost for a mega yacht holding position for an average bridge closure, thus discounting the unrealistic estimate of $161/day in the DEIS. It also cites a testimonial from the Water Taxi explaining that the bridge's operation is obstructive under today's conditions to prevent service on the West side of the FEC bridge, and thus quash a business opportunity.
- Numerous instances are detailed where future rail forecasts, and or discounting the cumulative impact of other rail planned expansion are flaws in the DEIS.
- Total economic value of the marine industries is understated by 70%, and the anticipated decline in residential, commercial and industrial property values resulting from obstructive bridge operation is not included in the flawed DEIS.
- Approximately $1 B in waterfront property value (nearly 1600 acres, with 3700+ units) , and $2.9B in annual marine business are directly affected; secondary impacts are additional.
- A means to better quantify anticipated business loss and decline in property value is outlined for an improved DEIS, with encouragement to the USCG to undertake a "Truman-Hobbs" bridge study which in anticipated to justify a new mid or high-level bridge construction.
- Profitability of the AAF project is questioned; since it is not demonstrated with DEIS data.
- Since the project, as now planned, would be detrimental to mariners interests (both commercial and residential), the proposal is contradictory to adopted public policy and investments in several cited policy plans at the local, regional, and state levels.
- Five main requests are expected to best remedy a deficient DEIS and project:
    - Delay the Final EIS until numerous corrections and further analysis can be completed
    - Implement and/or modify the non-existent/deficient bridge operating rules for the FEC and CSX bridges to bring predictability to mariners.
    - Construct a mid-level (21 feet or more) moveable, or a high-level (55 feet or more) fixed or moveable bridge which will carry the expanded passenger trains (AAF, Amtrak, and Tri-Rail), and which is already being planned by Tri-Rail Coastal Link. Such cost may range between $33-63M.
    - Divert freight traffic away from the urban core as much as possible and "rationalize" the use of all tracks; support construction of the US27 western corridor to carry increased freight between South to Central Florida and beyond.
    - Provide an "adjudication matrix" for all comments, thereby advising the public of the FRAs deliberations and dispositions/acceptance of the many valid comments being submitted.

Preface

Urbanism and transportation needs in South Florida

A broad view of South Florida's linear and sprawling urban development pattern, congested transportation system which lacks true multi-modalism, and apparent economic development opportunities, illuminates the need for enhanced mobility of people and goods.

Constrained by the Everglades and Water Conservation Areas on the West, and the Atlantic Ocean on the East, South Florida's urbanized area providing residential areas and an economic base are geographically linear and relatively low density. Considering the seven County planning area examined by the Seven50 project[1] (which is all the counties from Indian River south comprising the megalopolis), this sprawling area of 6.1 M people, which could grow to 7.9 M by 2040, leaves most critical transportation arteries over capacity causing regular congestion -- and which is forecast to worsen. "According to the State of Florida Department of Transportation (DOT), congestion on the I-95 corridor has and will continue to worsen over the next few decades as South Florida's population continues to grow and I-95 expansion is not a feasible option." [2] In this general regard, this DEIS review team is in basic agreement with the motivation of the All Aboard Florida project.

There is no doubt that serious long-term solutions must be pursued. Indeed most South Florida residents and businesses support improving the transportation system, which likely would include rail transportation; however ***not at the cost of vital business interests and countless property owners.***

Hence, the stated purpose of the AAF project is "… to address South Florida's current and future needs to enhance the transportation system, improve air quality, create jobs, provide a transportation alternative for millions of Floridians and tourists, and support economic development by:

- Returning the existing Florida East Coast (FEC) corridor to a dual-track system to allow for the restoration of fast, dependable and ***efficient passenger rail service*** [emphasis added] within Southeast Florida; and
- Implementing a privately owned, operated, and maintained intercity passenger rail service that will connect downtown West Palm Beach to downtown Miami with one stop in downtown Fort Lauderdale." [3]

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[1] Available [online] at http://seven50.org/resources/population-projections/, April 13, 2014.

[2] Hanley, Caitlan, Brian Clancy and Thomas Guardino (Logistics Capital and Strategy), "The Case for Intermodal in South Florida," Available [online] http://www.logcapstrat.com/pdfs/Case%20for%20Intermodal%20in%20South%20Florida.pdf, March 29, 2014, pg. 3.

[3] Environmental Assessment for the All Aboard Florida Passenger Rail Project- West Palm Beach to Miami, Florida, October 31, 2012, p. 16.

- Accommodating tourist and business travelers. "What All Aboard Florida's marketing research has shown is that three-quarters of its passengers will be leisure travelers, both Floridians taking trips in-state and tourists entering through the state's key gateways. About one-quarter will be business travelers, so the company is designing the trains to accommodate different passenger needs. Trains will have Wi-Fi and food service." "Florida East Coast Industries executives assert that ticket prices will be competitive with air travel and the trip will take three hours." [4]

In addition to moving people, Florida is poised to move more goods to stay competitive and fill a market void. Following years of freight and trade studies, spear-headed in large part by the Florida Chamber Foundation, Florida business and government leaders have advanced policies and significantly invested in multiple projects designed to capitalize on "trade and logistics, manufacturing and innovation, tourism and travel, and talent and investment." For example, the Florida Strategic Plan for Economic Development, which is endorsed by the highest levels of State government, including the Governor, states a central goal which is to:

> **"Invest in an interconnected, multimodal trade transportation system that links Florida's regions and enables Florida's businesses to serve global markets.** These include seaports, airports, spaceports, railways, major truck corridors, and integrated logistics and distribution centers. The state should evaluate alternative approaches to provide capacity for future growth, including use of technology, express highway lanes, expanded rail and transit options, and development of parallel or new corridors in some parts of the state." [5]
>
> The Panama Canal widening in 2015 provides a unique opportunity, but Florida's global opportunities extend beyond serving as a port of call for Canal traffic. Florida can become a global hub across multiple activities – trade and logistics, manufacturing and innovation, tourism and travel, and talent and investment – if the state acts strategically. The immediate opportunities to expand trade flows can provide a springboard for growing export-oriented industry clusters; developing a workforce that is diverse and has linguistic and cultural competence; developing, supporting, and attracting globally competitive entrepreneurs and innovators; and becoming the preferred location for businesses targeting the large consumer market in the Southeastern U.S., Latin America, and the Caribbean. Once the end of the line in the U.S., Florida can become the center of the economy in the Western Hemisphere.[6]

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[4] Palm Beach Post report available [online] at http://www.mypalmbeachpost.com/news/news/state-regional-govt-politics/state-chips-in-to-build-people-mover-at-orlando-ai/ndR9s/, April 14, 2014.

[5] Florida Strategic Plan for Economic Development, 2013, p. 35. Available [online] http://www.floridajobs.org/Business/FL5yrPlan/FL_5yrEcoPlan.pdf , March 28, 2014.

[6] Florida Strategic Plan for Economic Development, 2013, p. 22. Available [online] http://www.floridajobs.org/Business/FL5yrPlan/FL_5yrEcoPlan.pdf, March 28, 2014.

While the State of Florida scrambles to enhance its Ports and relieve transportation congestion, both FEC and CSX rails are poised to increase passenger and freight traffic; therefore, increase profit. A much more integrated and intermodal transportation system, which will significantly increase rail traffic on the FEC and CSX lines, is inevitable. **Hence the AAF project cannot be considered in isolation.**

Our largest challenge is to achieve the urgently needed transportation system improvements (road and rail), but not at the expense of one of Florida's boating community and marine industries.

How to read this document

While this review focuses on the DEIS, some portions also question assumptions and findings in the Environmental Assessment (2012), and Finding of No Significant Impact (2014).

This report comments on those aspects of the DEIS that describe the proposed rail operations proposed by AAF and also the freight operations carried by FECR on the N-S corridor discussed in the DEIS.

This report comments on those aspects of the DEIS that describe the proposed rail operations proposed by AAF and also the freight operations carried by FECR on the N-S corridor discussed in the DEIS. The report discusses the impacts on navigation resulting from the proposed rail operations from all proposed sources including increased freight traffic from FECR and Commuter Rail traffic proposed by SEFCC (formerly Tri-Rail) over the FEC New River Bridge at MP 341.26. The report also discusses some interrelated concerns with the operations at the single track bascule bridge No. 0717-08 leased by CSX Corporation (referred to herein as CSX Bridge at I-95).

In certain areas excerpts are reprinted from the DEIS in **blue font**, then followed by comments and critiques by this consulting team. It is presented in this manner to assist the reviewers by providing all information in a single document instead of having to find sections and page references.

A significant portion of these DEIS comments are summarized from a detailed section by section DEIS review by the Team's Senior Engineer which is appended as "Appendix A," and is submitted as part of our official comments on the DEIS. The appendix also uses the blue and black font format.

This document does not question the Purpose and need for the proposed action. Therefore we have not commented on Section 2 of the DEIS.

Engineering comments herein are based on conceptual engineering investigation sufficient to prove the basis for the comment and do not include in-depth preliminary or final engineering analysis.

The level of engineering investigation performed for this DEIS review is conceptual in nature only without extensive engineering analysis, and is based on assumptions regarding structure types, number of tracks, and railroad construction required for the corridors included in the project.

Authors and coalition represented

A team of senior professionals was carefully selected to ensure the right expertise, while ensuring no conflicts of interest, to analyze the proposed project and preparing this comprehensive comment and objection document in response to the EA, FONSI, and DEIS. This analysis is methodical, comprehensive, and is based on senior expert opinion. It approaches the complexities of the project from several disciplines germane to the issues, namely:

- Planning (Community, Transportation, Seaport and Freight)
- Marine Operations (Navigation and vessel movement)
- Permitting (Environmental, community conditions and Impact)
- Law (NEPA procedure, Land Use, Property Rights, Permitting, etc.)
- Engineering (Rail, Bridge, Road, and other civil engineering considerations)
- Economics (Business & Real-estate value, disruption of business)
- Government & Policy (Local, Regional, State and Federal Policy and Political Leadership)

The team is commenting on behalf of a coalition of Concerned Ft. Lauderdale Area Property Owners, Boaters, and directly affected marine industry businesses, for which a representative list is presented in Appendix B.

Section 1. The DEIS does not fulfill NEPA intent

The National Environmental Policy Act advocates an open and public decision-making process in applicable projects; its intent is for a very thorough, understandable, and open process. For numerous reasons, the administration of NEPA for this project (including the DEIS) has been deficient as described below.

1.1. Public involvement and transparency

A skeptical Florida public has increased its scrutiny of the project, with distrust growing in many quarters. While the FRA's extension of the public comment period to 75 days was a plus, more of the skepticism may have been avoided had the public involvement opportunities been executed differently. Examples include:

The vital involvement of the US Coast Guard in this project review, while cited in the cooperating agency intent, has been limited. Through several public forums during Summer 2014, the USCG may have participated; however the agency was extremely limited in its comments with none evaluative. When the USCG finally announced a series of opportunities for public comment, it was little more than an opportunity to receive written comments, and these forums were promptly cancelled.

Finally, a series of three forums were conducted in South Florida in November. The forums were well-attended, however the forums were little more than rushed comments with very little interaction with agency officials. It is commendable the USCG actively solicited and received navigational survey information through December 1, 2014.

It is commendable that the FRA hosted public forums throughout the project area, however the format of meetings was not conducive to constructive interaction or genuine information exchange. Using a "convention-like" format is not the most productive manner to have constructive round-table type discussions or to understand agency positions. In addition, it was very peculiar at these meetings that project team staff were prohibited from exchanging business card information with the attending public. Further, it was commendable that one of the eight meetings was conducted in Ft. Lauderdale, however the timing seemed to portray a lack of understanding of the regional marine industry. Since the meeting occurred during the International Ft. Lauderdale Boat Show, attendance was most likely suppressed because members of the industry were highly engaged in one of their busiest times of year.

Further explanation of NEPA's public involvement intent is described in the project's Environmental Assessment (2012), p.42:

"… NEPA requires federal agencies to consider the impacts of their actions on the human environment and to disclose such impacts in a public document. The NEPA process is intended to ensure that public officials consider the environmental consequences of proposed actions (40 C.F.R. § 1500.1)."
While the DEIS indisputably presents some impacts in a public document, the analysis below will show inadequacies of such impact analysis, and questions how public officials (state, regional and local) are adequately considering consequences of this project's actions.

Many public officials have expressed opposition to the project, and as shown in Section 4, the All Aboard project impacts are not consistent with adopted state, regional, and local plans which encourage freight rail traffic, and support sustainability and/or expansion of marine based recreation (residential) and marine business and industry (commercial and industrial sectors).

Transparency to the public should be improved upon through the ensuing EIS process administration. While the "FRA reviewed and commented on draft versions of the [2012 Environmental Assessment (EA)] document and approved … [the version which was released] … for public circulation and comment," [7] the public's honest and thorough involvement from early stages (namely the scoping meetings) is called into question.

For example, among other citations in the EA about purpose and need, it cites the South Florida East Coast Corridor Study (FEC) Alternatives Analysis, which **contains no mention of marine or other business impact** while advancing among other goals, integrating ". . . the proposed transit options with existing and planned freight transport and potentially intercity passenger transport located within or traversing the [South Florida] study area.[8]

As described on page 1-7, "As it has in the past, FRA has used a third party contracting process in preparing this DEIS. FRA does not have appropriated funds to support the development of EISs for RRIF loan applications. As a result, FRA requires the applicant to engage the services of a qualified consultant approved by FRA to assist FRA in preparing the EIS. Consistent with a memorandum of agreement among the parties, the third party contractor is paid for by AAF but reports to and takes direction from FRA. In developing the proposed action, AAF engaged the services of consultant firms to prepare engineering designs for the Project and to prepare technical reports documenting existing environmental conditions and analyses of environmental consequences. FRA's third party contractor reviewed all materials provided by AAF; assisted FRA in determining that this information was complete, accurate, and relevant; and assisted FRA In the preparation of this DEIS.

[7] All Aboard Florida Environmental Assessment (2012), page 1.
[8] Supplied as Appendix D to the EA, that document was prepared by Ganett-Fleming for the Florida Department of Transportation, F.M. No. 417031-1-22-01, Contract: C8F66, June 2010, p. 26. That document (among others comprising the appendices) was not released electronically by the FRA to the public with the EA. It was finally made available electronically in March 2014, or 17 months later than preferred for convenient public scrutiny.

Comment: It **appears that AAF did not disclose all issues to the third party contractor** which should be a part of the discussion and be included in the impacts and issues discussed in the DEIS document. It may also be possible that the third party contractor ignored the issues, if in fact they were provided, which in either case is a mistake in not including them in the DEIS.

Full consideration of cumulative impacts, which are further explained below, appears to have been omitted from the beginning of the scoping process. Not only does this render the process deficient, it is improper not to disclose this consideration to the third party contractors which have been used by the FRA to produce the DEIS.

Regarding page S-3 "About the NEPA Process," during the scoping period significant issues to be identified **should have included all of the rail operations that are being proposed which will utilize the FEC corridor.** These rail operations should have included the plan to have Tri-Rail Coastal Link commuter operations joint use of the FEC corridor through Fort Lauderdale which would impact navigation on the New River. FEC is in negotiations with Tri-Rail Coastal Link and has provided scheduling information and rail operations models to Tri-Rail Coastal Link as discussed and cited in the Tri-Rail Coastal Link Preliminary Project Development Report, Appendix 3: Rail Operations Analysis Report and Materials, Dated April 2014, Prepared by RS&H, CH2M HILL, AECOM, Ernst & Young, Communikatz, Inc., as directed by FDOT – District 4. It is improper to omit any discussion of the proposed Tri-Rail Coastal Link Study in the AAF DEIS when the project plans have been developed to the point that a Preliminary Project Development Report has been presented to the public and is actively being brought into reality with service being proposed along the existing FEC Corridor in the near future (2016) following the NEPA requirements for a EIS and securing project approval.

A final example of the lack of transparency is that during the EA process, the appendices to the document were not made electronically available to the public on the FRA website until March 2014 (which as after the FONSI had already been issued). Although the full document was evidently available through traditional means (i.e. public libraries), in today's day and age the early availability via the FRA's website would have been a basic improvement to enhance transparency.

1.2. Cumulative Impact

The DEIS is incomplete, flawed and erroneous by not adequately considering the cumulative impact of significant other transportation and rail planning, namely the integration of freight planning (including the CSX rail corridors,[9] and Florida seaport planning), and passenger rail planning (namely Amtrak and the Tri-Rail Coastal Link).

[9] It should be recognized and integrated into the DEIS planning process for All Aboard Florida that CSX is approximately four times the size of FEC in Florida. While CSX rail lines are not directly connected to the east coast

As described on page S-20 of the DEIS,

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**." [emphasis added]

Further, in the project Environmental Assessment (October 2012), page 238:
Potential Cumulative Impacts … The cumulative effects analysis considers the aggregate impacts of direct and indirect impacts (from federal, non-federal, public or private actions) on the quality or quantity of a resource. For purposes of this discussion past, present and reasonably foreseeable future are [sic] defined as follows:

- Past: Over the last 20 year 1992-2011; started construction and opened
- Present: the current calendar year (2012); either currently under construction or completed
- **Reasonably foreseeable future: the next 20 year (2013-2032); planning, design and/or construction funded and/or programmed.** [emphasis added]

Hence, according to the FRA's own definition and discussion of how to measure cumulative impacts, known rail planning and design through year 2032 should be considered. However this DEIS is seriously flawed in that it fails to adequately consider all rail planning in this future time period, especially:

a. Adopted freight rail planning by the State of Florida (See The Florida Freight Mobility and Trade Plan, especially the Investment Element, July 2014, available at: http://www.freightmovesflorida.com/docs/default-source/fmtpdocs/draft-fmtp-investment-element_2014-08-18.pdf) and

b. Adopted passenger rail planning by local, regional, and State of Florida agencies (see Tri-Rail Coastal Link, and its long-time predecessor project name - South Florida East Coast Corridor Transit Analysis, and which has been adopted in "SFRTA Forward Plan: A Transit Development Plan for SFRTA, August 2013, Final Report" and encompassed in the MPO 2040 Plans for Miami-Dade, Broward, and Palm Beach Counties). The South Florida Regional Transportation Authority (SFRTA) in partnership with the Florida

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seaports dockside like FEC, CSX is integral to cargo movement throughout the State and to seaports outside of South Florida. For example, CSX recently opened the Central Florida Intermodal Logistics Center in Winter Haven, FL. The 318-acre facility… "will be operated by CSX Intermodal Terminals Inc. and served by CSX Transportation. … [It will] … serve as a centralized hub for transportation, logistics and distribution needs in Orlando, Tampa and South Florida**."**

Department of Transportation and others has formed the Tri-Rail Coastal Link Partnership and Executive Steering Committee[10] to realize ambitious rail and transit improvements throughout South Florida in concert with the Federal Transit Administration. The group's work includes funding analysis coordinated through a Finance Sub-Committee, presented to the SFRTA Board by FDOT as recent as August 2014. [11]

Additionally, the omission of cumulative impact consideration includes the Navigation Discipline Report (which is a part of the DEIS as Appendix 4.1.3-C). It fails to model cumulative impacts of reasonably foreseeable future actions, since future bridge closure times were modeled only to year 2016, instead of considering reasonably foreseeable cumulative impacts meaning modeling through year 2032.

For elaboration, see DEIS Appendix 4.1.3-C and p. 5-17, DEIS (2014):

FECR operated 24 daily trains in 2006 and had projected growth of 5 to 7 percent between today and 2016. However due to delays in the expansion of the Panama Canal and other factors, it is now expected that freight operations will increase from the current number of trains to 20 trains per day by 2016, and at a 3% annual growth after 2016.

Had the modeling projected closings to year 2032 an estimated 64 bridge closings would be expected with an average close time of 35 minutes per hour, at least double the average number of minutes closed per day.

(DEIS Page 4-4)

Comment: The **shared use of the FEC corridor for both FEC freight operations, AAF proposed passenger operations and Tri-Rail Coastal Link commuter rail service must be fully analyzed in the AAF DEIS in order to fully understand and evaluate the impact of these multiple rail operations on the existing corridor**. The DEIS should be clear on what rail infrastructure is contemplated by each railroad. The impact of combined service on the existing single track and double track corridor must be fully explored and evaluated. The DEIS should be clear on how many tracks are being provided throughout the length of the existing corridor; it should also discuss the potential for use of the CSX tracks in Figure 4.1.2-3 since the CSX corridor will be integrated with future rail traffic of all types.[12]

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[10] See Memorandum of the Tri-Rail Coastal Link Partnership here: http://tri-railcoastallink.com/downloads/MOU_Tri-Rail_Coastal_Lin_001.pdf .

[11] See Meeting minutes of SFRTA Governing Board, August 22, 2014, beginning on page 205 of 441. See also Tri-Rail Coastal Link f/k/a South Florida East Coast Corridor Study " Case Study ASCE Tri-County Workshop" May 10, 2013 Presented by; Jaime C. Lopez, P.E. Available [online] http://www.slideshare.net/ascemiami-dade/22-tri-rail-coastal-link Nov. 8, 2014.

[12] The two other bridges carrying CSX, Tri-Rail and AMTRAK passenger service are located on the New River at a point approximately 2.6 (Statute) miles west and upriver from the FECR Bridge No. 341.26. The two bridges consist of a single track bascule bridge No. 0717-08, leased by CSX Corporation from The State of Florida which owns the rail corridor, carries CSX freight service consisting of 9 trains per day and also carries four AMTRAK passenger trains

Numerous other citations of such cumulative impact omission are provided below and in Appendix A.

1.3. Alternatives Analysis

NEPA clearly explains the need to thoroughly analyze alternatives for mitigation in the EIS process, however the DEIS is deficient in this manner.

From the DEIS, page S-4, "… the purpose of the DEIS is to disclose all environmental effects associated with the project alternatives, whether they are adverse or beneficial…". Indisputably the purpose of the Draft EIS is to **disclose all environmental effects associated with the project alternatives.** Omission of any discussion of impacts resulting from the combined corridor use of the existing FEC operations, Tri-Rail Coastal Link and increased freight operations attributable in large part to Post-Panamax Container Ships using Port Everglades and Port Miami is a **blatant omission of anticipated major impacts which will affect navigation** on all of the movable bridges on the FEC corridor and the most heavily impacted movable Bridge will be the FEC bridge at MP 341.26 over the New River.

Two environmental impacts which are not fully analyzed or discussed in the DEIS are:

1. Compatibility with the Broward County Manatee Protection Plan- Manatee protection is only discussed in terms of minimizing impact on the animals during construction. Another important consideration is the bottleneck of boat traffic caused by increasing and obstructive bridge closures that occur at a narrow part of the river, thus heightening the probability of boat collision with these protected species. The MPP is further discussed in Section 5.

2. Sea Level Rise- Through credible and peer-reviewed modeling work, area planners and scientists working in collaboration on the SE Florida region predict that sea levels along the SE coast will rise 9 to 24 inches (1-2 feet) in the next 50 years (from 2010 to 2060). One obvious impact is that the already minimal clearance of the FEC and CSX bridges (when closed) will be

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per day. The high level fixed bridge is a double track bridge and carries 40 to 50 Tri-Rail trains per day. AMTRAK trains have also been known to use the high level crossing (which is 55 feet at MHW).
The single track bascule bridge and the rail corridor are owned by the State of Florida; CSX operates their freight service on this line by lease agreement with the State of Florida.
The bascule bridge foundations were weakened when the foundations for the two track high level fixed bridge were constructed. Subsequently The State of Florida installed temporary supports under the bascule bridge span which narrowed the waterway opening. The USCG required the channel to be restored to its original width resulting in a FDOT project presently under construction to replace the existing bascule bridge with a new bascule bridge on an alignment 35 feet west of the existing bridge. The 22 million dollar project is expected to be completed in 2016. The construction of the new bridge is staged such that the navigation channel is not blocked during construction of the new bridge. It seems the intent is to float in the new bascule span, which would be fabricated and constructed off site, during a one day period and to set the new span on the completed foundations.

further diminished. In extreme storm conditions, could the railroad tracks experience wash or possible immersion?

Recognizing that some recommendations have been included in the draft DEIS in similar form, viable options/alternatives that must be more thoroughly discussed and analyzed in the DEIS (such analysis is now deficient) include the following possible means of mitigating negative impacts:

- Revisit earlier proposals to elevate over the New River at the FECR crossing. From a recent field observation,[13] the other bascule bridges spanning the New River offer overhead clearance of between 17 and 21 feet above the mean water level. [14]
- Revisit earlier proposals to tunnel under the New River at the FECR crossing.
- Shift some of the proposed rail operations to an adjacent rail corridor i.e., CSX or Tri-Rail Coastal Link.
- Combine train movements to occur simultaneously in two directions; thereby reducing the number of closures required.
- Shift train movements to off peak periods i.e. after midnight affording more daylight time for navigation to transit the waterway.
- Optimize train lengths to reduce the number of train movements.
- Provide a full time bridge operator at the bridge to reduce the initial 5 minute countdown period required by the current remote operation of the bridge.
- Improve the waterway using contributions from AAF/FECR/FECI which would aid navigation permitting easier faster passage along the waterway.
- Investigate the possibility of constructing a new movable bridge at an elevation less than the required 55 feet for a fixed bridge that would permit both freight and passenger operations on a suitable approach grade; thereby reducing the number of openings required to pass smaller vessels.
- Investigate providing a parallel high level fixed bridge adjacent to the existing FECR Bridge to accommodate all AAF passenger operations while keeping freight operations on the existing bridge.
- Investigate improvements in the machinery and power requirements for the existing bridge to reduce the time required to open and close the bridge.
- Investigate replacing the movable bridge with a different type of movable bridge that would require less time to open and close.
- Investigate any combination of the above suggested measures which would be of benefit.

[13] March 2014, by the project team.

[14] This does not consider sea level rise predictions of 9 to 24 inch water level increase by the year 2060 as discussed elsewhere in this report.

Sections of the DEIS which are deficient in cumulative and alternatives analysis include:

(Page S-5) "Alternatives Considered in this EIS," and page S-7 "Table S-1 DEIS Alternatives," and page 3-12, DEIS) At-Grade Crossings and Railroad Bridges
Comment: All future planned uses of the FEC corridor should be included in the DEIS and the method for dealing with the increased traffic should be included in the project improvements regardless of whether or not the planned use of the corridor by Tri-Rail Coastal Link or increased freight traffic occurs by AAF's target date of 2016. Shared use of facilities such as stations and trackage requires that these issues be included in the DEIS and the planning of improvements required for all of the proposed use.

The alternatives analysis is **deficient by not considering the addition of a two track mid-level movable bridge adjacent to the existing FEC bridge 341.26 over the New River** to carry Tri- Rail commuter passenger rail. The proposal by Tri-Rail Coastal Link calls for shared stations at Ft. Lauderdale and other locations in the WPB to Miami corridor. If there are to be shared stations FEC and AAF must take them in to consideration in this DEIS. According to the DEIS, AAF plans to be at grade with their proposed passenger operations at the proposed Ft. Lauderdale Station and on the existing New River Bridge. With the Tri-Rail Coastal Link Passenger operations operating over a mid-level movable bridge over the New River, this is a direct conflict. The DEIS should include an alternative to have all passenger operations carried on the proposed mid-level bridge in order to make it possible to have a joint shared station as proposed by Tri-Rail Coastal Link and to separate freight and passenger operations which would minimize the number of bridge openings required if the 32 passenger trains per day proposed by AAF were also carried on the higher Mid-Level bridge.

(DEIS, Page 3-10) **Screening Analysis Results – Level 1 Route Alternatives and** Page 3-15 **"Table 3.2-2 Screening Analysis Results – Level 2 FECR Route Segment Alternatives"**

Comment: The Mid-Level Movable bridge to be constructed over the New River on the FEC ROW as proposed by the Tri-Rail Coastal Link should be included in the discussion on railroad bridges in the screening analysis of the alternatives.

(DEIS Page 3-26) "No-Action Alternative"
Comment: The existing and future freight train operations in the no-action alternative are incorrect; they do not include the increase in freight traffic planned for by FEC due to the Post-Panamax expansion and the dredging and rail infrastructure improvements at Port Miami and Port Everglades to accommodate the larger Post-Panamax expansion container ships.

(p. 3-15, DEIS) Fort Lauderdale Station
Comment: AAF plans for the Fort Lauderdale Station are for an at-Grade Station. Tri-Rail Coastal Link in their Environmental Assessment discusses a mid-level movable bridge which would be at a minimum clearance of 21 feet over MHW. This would require that the Ft. Lauderdale Station needs to be an elevated station. Since a shared station is proposed by Tri-Rail Coastal Link with AAF this needs to be

included and considered in the AAF DEIS so the final design and construction does waste taxpayer investment in this joint public-private project.

(DEIS, Page 3-39) 3.3.3.4 West Palm Beach – Miami Corridor and Table 3.3.6

Comment: The DEIS does not discuss the movable bridge alternative over the New River being planned by the Tri-Rail Coastal Link and included in their Environmental Assessment. AAF in their DEIS proposes a rehabilitation of the New River Bridge. FEC has been in discussion with Tri-Rail Coastal Link and has provided data to Tri-Rail Coastal Link. Since the mid-level bridge is included in the Tri-Rail Coastal Link plan, FEC needs to discuss how this will affect their planned operations for freight as well as AAF planned passenger operations. AAF should include in their alternates the shared use of this proposed bridge and consider its construction in the initial stage of the AAF project rather than after Tri-Rail Coastal Link commences their project. Such coordination should be motivated by the most efficient and prudent expenditure of the public's investment through proper forethought, planning and coordinated design.

Section 2. Unreasonable Bridge Obstruction

The operation of the movable bridges falls under the jurisdiction of the USCG and is regulated by Rules and Regulations published in The Code of Federal Regulations under Title 33, "Navigation and Navigable Waters". The FECR bridge most in question is presently unmanned and opening and closing operation is fully automatic utilizing electronic sensors and cameras located at the bridge site. The opening and closing operations are controlled utilizing the information transmitted from the sensors and cameras at the bridge site to the FECR central control board located at New Smyrna Beach.

The existing rail operations on the FECR Bridge 341.26 reportedly consist of 11-14 freight trains per day. The bridge is normally left in the open position to allow navigation unrestricted access. The bridge is operated remotely and the operation to close the bridge to navigation and permit rail traffic to cross commences when the control center is alerted to an approaching train which requires the bridge to be closed. When trains approach, a horn blows and a timing board with electronic numerals visible to boaters is activated with a 5-minute countdown by seconds to span closure. Additionally, electric eyes scan the channel to assure clearance before closing. Machinery will not operate automatically until all systems are cleared. Trains are warned when bascule operations are interrupted and begin slowing for a stop until fully cleared to transit the bascule bridge. Eye witness accounts of the closing procedure have reported that the initial 5-minute countdown has been in some cases 6 minutes in duration.

As shown by photos, the bottleneck of vessels waiting or passing just after bridge opening create current day conditions which are unreasonably obstructive to vessels navigating the bridge. Despite these conditions, presently there is no rule in the CFR regarding the FEC New River Bridge. The USCG has asked FEC to request a rule for Bridge 341.26 however FEC has not complied. A specific rule regarding the amount of time the bridge is to be open per hour is a necessity for the FEC bridge when considering the planned operations by FEC, AAF and Tri-Rail Coastal Link.

2.1. DEIS obstruction examination is inadequate

The DEIS dismisses the principle that marine navigation supremacy by law has Right of Way with no other options than navigation channels, whereas rail and road traffic can be diverted. Page 20 of the 2012 Environmental Assessment claims there will be "no impact" to navigation. We expressly reject that claim. Now comes the DEIS, which has increased the estimates of freight traffic (trains per day) from 10 or 11 per day with no increase (in the 2012 EA), to 20 trains per day by 2016 plus 3% increase per year thereafter, which means almost 2 more trains per day every three years.

(DEIS, Page 4 – 16) 4.1.3 Navigation
Comment: The USCG reviewed the Navigation Discipline Report (NDR) for the AAF Passenger Rail Project prepared by AMEC for AAF. The USCG commented on the report in a letter dated June 2, 2014 to Charlene Stroehlen, P.E. Senior Associate Engineer AMEC – Environment & Infrastructure authored by Barry L. Dragon, Director, District Bridge Program, Seventh Coast Guard District (which is also provided as Appendix C to this objections and comments document).

This USCG letter is significant in that it dismisses much of the Navigation Discipline report by stating:

> *In Sections 2.6.2 and 6.0, the NDR addresses evaluation criteria and a criteria matrix for assessing the No-Build alternative and the Proposed Action's impact on identified navigation needs. While information on the impacts on navigation received from the applicant will be analyzed,* ***the Coast Guard will make the ultimate determination as to whether or not the impacts on navigation are unreasonable. [emphasis added]***
>
> *The Coast Guard, in making a permit decision,* ***must preserve the public right of navigation [emphasis added]*** *while maintaining a reasonable balance between competing land and waterborne transportation needs. We do so by taking a balanced approach to total transportation systems, both land and water modes, in all bridge actions. At this time, we are unable to fully assess the potential impacts and will require more information on the following issues prior to making a permit decision:*
>
> *1. The impacts on navigation from the natural flow of these waterways, including currents and water velocity fluctuations, while vessels await openings at these drawbridges remain unknown;*
>
> *2. The affected drawbridges set the most restrictive vertical clearance on these waterways, and a large percentage of vessels cannot transit the bridges in the closed position;*
>
> *3.* ***Any increase in the existing closure periods at the drawbridges spanning these waterways may not provide for the reasonable needs of navigation;*** **[emphasis added]**
>
> *4. The methodology used in the NDR may be sufficient to assess the waterways' trends and uses for purposes of making a navigation impact determination.* ***However, the Coast Guard is unfamiliar with the model and needs to evaluate the assumptions and data therein.*** [emphasis added]

Accordingly, ***additional study will be required to determine the reasonable needs of navigation on these three waterways in the vicinity of the drawbridges.*** *To advance the NEP A process, we support including the NDR as an attachment to the DEIS as it informs the choice of alternatives for analysis. The DEIS should note that the Coast Guard still must make a determination as to the prospective impacts on navigation in the vicinity of the three drawbridges spanning the New River in Broward County, Loxahatchee River in Palm Beach County, and the St. Lucie River in Martin County and that the DEIS will be used to inform that Coast Guard determination.*

If the Coast Guard determines the proposed AAF operating schedule unreasonably impacts navigation on the New River, Loxahatchee River and St. Lucie rivers, ***it may be necessary for the Coast Guard to amend existing bridge regulations and require modifications to those bridge operations so that navigation is not unreasonably burdened.*** **[emphasis added]**

Comment: The analysis herein agrees with the USCG comments and recommendations contained in the above letter. We also believe the Vessel Traffic Study and the impact on navigation is flawed in part as a result of the inaccuracy introduced in the model by not including the planned Tri-Rail Coastal Link Commuter Operations and all of the increase in Florida freight rail operations. The number of trains per day and the length and speed of the freight trains not accounted for result in far more numerous openings and closure times at the FEC New River Bridge. The impact on navigation at the New River, Loxahatchee and St. Lucie river movable bridges is far greater than shown in the NDR prepared by AMEC which forms the basis for the impacts on navigation contained in the DEIS.

The DEIS attributes a large portion of train traffic reduction to the "combined effect," which seems to say in essence that freight train speed will increase, and will double up on bridge crossings (Navigation Discipline Report for the AAF Passenger Rail Project, AMEC, July 2014, pg. 1.3) The DEIS should provide proof of this phenomenon achieved in other locales, as we are skeptical this can be achieved. Given the number of extended bridge closures today, what assurance will be guaranteed this can be achieved. Our team's assessment of this concept is that is very complex and depends on numerous factors; the more factors involved, the more unlikely it is to achieve.

2.2. Summary of Probable Freight plus Passenger Time Delay

Train lengths reported in presentations made by FECR are 7800 feet long and travel at speeds varying from 38 to 52 MPH. Several videos of FECR trains transiting one of the three movable bridges indicate the train consisted of two engines pulling 161 cars of intermodal freight. 161 intermodal cars having a length of 64 +/- feet per car would have an overall length of 10300 feet. Other videos found during research for this report also indicate FECR intermodal trains containing more than 200 cars which would have a length of 12,800 feet.

Assuming a speed at the lower range of 38 MPH approx. 50 feet per second, is more likely to occur in the Ft. Lauderdale area with numerous grade crossings and the New River Bridge. Using the 7800 foot train length quoted by FECR the time required for the train to travel across the bridge is 7800 feet / 50 FPS= 156 seconds which equals 2.6 minutes. Likewise the 12800 foot train passage is 12800 feet / 50FPS= 256 seconds which equals 4.3 minutes. Slower speeds would increase the time required for a train to pass the bridge.

The most optimistic total time to close the bridge to navigation, allow the train to pass over the bridge and open the bridge to navigation can be estimated to be 5 minutes for the initial countdown, 1.5 minutes to lower the bridge, 4 minutes for the train to pass over the bridge and 1.5 minutes to open the bridge for navigation to pass which totals ***12 minutes per freight train passage***. Thus the ***total delay time for 11 freight trains per day*** would be 132 minutes or 2.2 hours which can be rounded to ***2.5 hours*** (considering the variables) where navigation is halted.

Future Rail Operations

Future rail operations will consist of the exiting freight rail and the proposed passenger rail operations proposed by AAF and Commuter Rail Operations proposed by Tri-Rail Coastal Link; also the probability of increased freight traffic due in part to the improvements at Port Everglades and Port Miami described by FECR in their presentation to the 16th annual Transportation and Infrastructure Summit need to be considered. The increased tonnage expected at these ports is order of magnitude ***three times greater than presently handled at these ports according to the FECR presentation.*** There is therefore a possibility for rail freight operations to triple to meet this additional demand required to move the container (intermodal) traffic northward from Port Miami and Port Everglades to Jacksonville and connections to other freight carriers. Accordingly, this author anticipates that train movements to be accounted for in the future would consist of 33 (11X3) freight trains per day, plus the 32 planned passenger trains proposed by AAF and up to 60 trains per day proposed by Tri-Rail Coastal Link service.

Summary of Possible Freight plus Passenger Time Delay

The total time required for freight operations would be 2.5 hours (present closure time) multiplied by 3 equals 7.5 hours.

The total time for passenger operations would be ***8.5 minutes per train*** passage based on an 800 foot long passenger train operating at a speed of 20 MPH average due to the close proximity of the proposed train station to the bridge and the same 5 minute countdown and 1.5 minutes to close and open the bridge. The total time for passenger operations can be estimated at ***8.5 minutes*** multiplied by 32 trains equals 272 minutes or 4.5 hours. ***Future rail delays for the combined freight and passenger operations would therefore be estimated in the range of 12 hours per day*** during which navigation would be halted. The Tri Rail Coastal link service is proposed to cross the New River in Fort Lauderdale on a mid-level movable bridge having a minimum vertical clearance of 21 feet above mean high water. Not all vessels will be able to navigate under the proposed Tri Rail bridge without an opening. The number of openings required by navigation to cross under the Tri-Rail Coastal Link Bridge will need to be factored in to the total number of openings. The combined effect of all of these rail operations must be included in the AAF DEIS to properly evaluate the impact on Navigation. In this regard the Draft DEIS is seriously flawed.

This time delay is considered extremely conservative, given eye witness accounts of closures ranging between 17 to 20 minutes (under current conditions). Absent closure records from FEC/AAF, EnviroCare Solutions International conducted video and web cam monitoring to accurately document closure times.

Assuming freight traffic 3 times higher than AAF's published forecast, The Table below presents a sensitivity analysis considering what likely scenarios result from real world conditions (i.e. train delays, switching delays, etc.). Considering average passenger closure times ranging from 8.5 to 12.5 minutes,

and average freight closure times from 12 to 19 minutes, ***the duration of closure per day could be as high as 17 hours.***

Bridge closure time scenarios

Train Type	AAF train forecast			Best case scenario A			Likely scenario B			Likely scenario C		
	Trains / day	Min./ closure	Closure time (hrs.)	Trains / day	Min/ closure	Closure time (hrs.)	Trains / day	Min./ closure	Closure time (hrs.)	Trains / day	Min./ closure	Closure time (hrs.)
Passenger	32	8.5	4.5	32	8.5	4.5	32	10.5	5.6	32	12.5	6.7
Freight	11	12	2.2	33	12	7.5	33	17	9.4	33	19	10.5
Total Hours Closed			**7**			**12**			**15**			**17**

1. The number of trains in this table only considers FEC and AAF rail traffic. Tri-Rail Coastal Link Trains will operate over a separate mid-level movable bridge which requires a separate evaluation of estimated closure times for the number of trains/day proposed by Tri-Rail Coastal Link (60 trains per day in the Tri-Rail Coastal Link EA) and an estimate of vessels taller than 21 feet requiring an opening to pass through this part of the channel.
2. This report also recommends that AAF Passenger Rail service should run on the proposed Mid-Level Bridge along with Tri-Rail Coastal Link commuter service.

Even if the increase in freight traffic is not realized fully, the paramount question remains – what will be the impact of the Coastal Link project, which goal is to bring passenger rail to the FEC line? For comparison, the Tri-Rail Coastal Link passenger rail now runs at 40-50 trains daily.

2.2. Navigation conditions on the New River

There are various conditions that make the New River perilous to navigate on good day. Among the factors to consider are tide, winds and wind tunnel effect, density and size of other traffic, stormwater discharges, and the closure schedule (enforced by rule) of nearby bridges.

A factor not discussed in the DEIS which further complicates navigability and analysis of average daily bridge closures is that the neighboring Andrews Avenue bridge by rule remains closed for three hours per day during daily rush hours, namely 0730-0900 hours and 1630-1800 hours.[15] The bridge also need not open when the FEC rail bridge is down.

Finally, the computer model and accompanying vessel traffic simulation (as it was demonstrated at FRA's public forums in South Florida) is was unrealistic. Licensed sea captains and casual boat operators alike with local knowledge of New River are aware the River's real-world difficult if not treacherous conditions, not the least of which is wind tunnel effect and tidal current causing set and drift in close

[15] With certain exceptions, such as tugs with tow and public vessels of the U.S.

quarters. Accordingly, a computer model which demonstrates vessel maneuverability similar to automobiles is unrealistic and not representative of the real river navigation conditions. The DEIS should be corrected to more closely reflect real-world conditions.

Whereas the New River which is 100 feet wide or more along its navigable length, the FEC bridge horizontal clearance is reported at 60 feet and thus presents the most narrow passage. All but the smallest vessels must confine themselves to one way, one at a time traffic when transiting through the bridge.

A huge variety of vessels transit the new river, ranging from super yachts to non-motorized kayaks or paddle boards; law enforcement and heavy industrial/dredge work boats alike ply the waters. The diversity of vessels presents its own set of navigational challenges.

The river at the FECR bridge is subject to tidal currents, a river current that varies depending upon the amount of recent rainfall, and cross currents from storm water outflows on the north bank immediately downstream from the bridge. Current has been measured in exceedance of 4 knots, according to NOAA

data. [16] Since the New River is connected to a major regional drainage canal under the jurisdiction of the US Army Corps of Engineers and local sponsor South Florida Water Management District, additional velocity of current in the New River may be result from high stormwater discharge conditions- which in subtropic South Florida happen frequently and in extreme storm events (hurricanes) will increase even further and in essence replace the low tide condition for extended periods.

A recent concerted effort by the USCG, which is to be commended, is to investigate navigational conditions. In addition to attending the recent USCG public information session in Ft. Lauderdale, this consulting team has coordinated nearly 200 responses to the navigational survey which were electronically sent to the USCG. The responses are too lengthy to attach to this document, however none are supportive of the current navigational conditions on the New River. Upon request we will be glad to share those comments, plus the more detailed results of vessel traffic and bridge closure studies which we conducted, with the FRA.

Many experienced captains, and not so experienced boat operators, responded to the survey noting the challenging navigational conditions. Here is an example (circa 1994) from a Captain who is also Chief Engineer [emphases added]:

> *Esteemed [USCG] Commander:*
>
> *I have navigated the New River in all manner of vessels over the past 40 years, often stymied by the* ***FEC bridge. It is old, slow, and inefficient from my observation.*** *The extremely low vertical clearance it affords restricts all but the smallest vessels that continually transit the crossing. Many of these vessels can clear the rest of the drawbridges without opening. My concern is that these "in-between" vessels will be trapped in the very close confines of the river on either side of the railroad, creating a congestion problem if openings are too short and/or infrequent. This would be particularly problematic for the inbound vessels on a following tide. Smaller vessels are typically piloted by less experienced operators that do not understand the maneuvering challenges of a super yacht in tight quarters. This is a recipe for increased damage*

[16] SEE NOAA, Tides and Currents. Available [online] June 19, 2014. http://tidesandcurrents.noaa.gov/get_predc.shtml?year=2014&stn=5484+Miami%20Harbor%20Entrance&secstn=Fort+Lauderdale,+New+River&sbfh=-0&sbfm=14&fldh=-0&fldm=01&sbeh=%2B0&sbem=28&ebbh=%2B0&ebbm=52&fldr=1.4&ebbr=0.8&fldavgd=005&ebbavgd=130&footnote=

and personal injury, not to mention frustration and inconvenience. A 50-50 open-close schedule would push the limits. A 10-minute opening every half hour would be worse.

I personally own a 32' sailboat and frequently serve as freelance chief engineer on large motor yachts. The current situation is an inconvenience most of us are prepared to tolerate. As navigation on the river becomes more difficult, the options for yard service and dockage outside of our area become more attractive and local economy suffers. ***I support All Aboard Florida as a private enterprise. The public benefit of this initiative is long overdue. It must, however find a way to coexist with our treasured public waterway and other private enterprises.***

I would encourage some sort of compromise that would include a commitment from FEC to improve the crossing over time, allowing faster openings and increased vertical clearance. The best case for me would be a tunnel with an underground station at 2nd Street. This would alleviate traffic problems at the river and Broward Blvd. crossings for trains, vehicles and vessels. It would also provide a much more beneficial location for passengers access to downtown business and entertainment. Just have to find a way to pay for it.

Regards,

David Lenit, Chief Engineer and Florida Representative for Chem-Free™ Ozone Systems
www.chem-freeozone.com

The following account is from the same Captain who was delivering a boat to one of the service marinas for maintenance and repair (a common type of marine traffic), and indeed was trapped between the Andrews Avenue and FEC bridges.

I left … [a nearby home dock] … at 6:00 AM with the idea that I would get under the downtown bridges before they locked down for rush hour. It was a 53' sailboat towing an inflatable dinghy before a following tide. I was single-handing in less than ideal conditions because the boat [in need of repair] was taking on water with limited battery power to run the bilge pumps. ***It would have gone seamlessly if not for the repair crew on the FEC bridge. I became trapped between Andrews Avenue and the train bridge which was half-way closed, for an indefinite period of time.*** *I had to back down against the tide and ultimately rafted off of a steel schooner tied up at the Las Olas Riverfront. I walked up to the bridge to talk to the repair crew and they said they had* ***no idea how long the bridge would be closed.*** *After* ***waiting several hours,*** *I heard the distinctive whistle of the Jungle "yes, as a matter of fact I do own this river" Queen. I took that as a cue to start my engine, single-up my lines, and sure enough, they opened the bridge for her. I tucked in close behind and shot through the bridge before they closed it again.*

2.3. Bridge closure and marine vessel traffic studies

This reviewing team conducted two detailed vessel traffic surveys over a total of 21 days through May and June 2014, and which includes bridge closure timing and observation. The surveys included camera monitoring of vessels, so we are able to determine height and type of vessel; we have over 35,000 such images logging vessel traffic at the FEC bridge, and the CSX bridge. Our study also includes transit time between the two rail bridges, since some vessels transit both. We also reviewed past vessel studies for comparisons and methodologies. While some summary results are provided below, additional data are available.

Conclusions and recommendations are:

a. There is a wide variance of FEC bridge closure times. The DEIS claim must be proven to be reliable, and must be enforceable before we would accept it. That is, that bridge closure time can be predictable, and closure time can be reduced through new efficiencies. Violations of USCG rule occur today- these must be remedied in the future.

b. Comparing the average figure used for DEIS modeling to this team's 18 day study, DEIS vessel traffic figures at the FEC bridge are understated as much as 20 %. In that study the split of vessels over and under 21 feet was 17/83 percent, respectively.

c. Peak day vessel traffic is a measure which should weigh heavily in modeling, planning, and mitigation decisions. An acceptable level of service approach should be considered to inform planning decisions, design and bridge operating schedule adopted by rule.

d. The DEIS must be improved with better clarity of data, additional study including height, type and size of vessels, and comparison with newer traffic studies than those performed for the Navigation Discipline Report.

e. The means of mitigating the FEC bridge obstruction must not be done at the expense of transferring the bottleneck problem to the CSX bridge.

f. The USCG should validate all studies and approaches, which they called for in June 2014 commenting letter.

<u>Bridge closure</u>

Our May 16-18, 2014 FEC bridge closure study concluded that with rail operations as they exist today, marine vessel traffic is delayed at the FEC bridge by approximately 9 to 72 minutes, which occurs 2 to 7 times per day during daylight hours. Closures of 72 minutes, while considered outliers of the data, are far in excess of the 19 minute average closure time reported in the DEIS, and clearly obstructive.

For the same period with rail operations as they exist today, marine vessel traffic is delayed at the CSX bridge by approximately 5 to 13 minutes, which occurs 1 to 3 times per day during daylight hours.

All of the observed trains were freight trains. The field observations confirm reports that bridge closures sometimes occur ***without*** trains crossing the bridge. Referred to locally as "ghost trains," at least six of the twenty closures at the two bridges recorded in the 3-day period occurred when no train was crossing the bridge, which is a violation of USCG rule. The DEIS does not discuss the impact of closings due to trains occupying the block adjacent to the bridge which cause the bridge to lower to the closed position until the train moves out of the block signaling to the control center that the bridge can be opened. These closings may include freight train switching operations, red signals indicating the next block the train is moving to is occupied and in the case of the Ft. Lauderdale Station in the future that a train is at the station allowing passengers to embark and disembark.

Numerous field reports from various sources are available which prove obstruction and economic business damage, with a notable recent one accounting for over 45 minutes on November 30, 2014, and approximately six hours on December 1, 2014:

> "Captain Dennis Corcoran of the Fort Lauderdale and Hollywood Water Taxi was on the water with passengers when the [FEC] bridge got stuck down twice in two days. The first time was Sunday night and then he could not believe it happened again on Monday afternoon. "On Sunday I was trying to get our fleet back to home base just west of the bridge. After 30 minutes of waiting and no trains we called the bridge attendant and I was told the bridge had a malfunction and they did not know how long it would be down. We had to tie our boats up East of the Bridge and walk back to our office."
>
> "Monday afternoon the [FEC] bridge went down and a train passed over and then it was stuck down for at least six hours. This really messed up operations for us as well as many other commercial marine operations and recreational boaters. I found out from my manager that they called the bridge attendant and he was told the bridge was malfunctioning and they did not know when it would come back on line."

Elsewhere in this document, it is pointed out that the DEIS is missing a credible calculation of business damage, and suggests a methodology for doing so.

Vessel traffic

In our May 16-18, 2014 FEC Bridge traffic study , observed vessel traffic transiting the bridge in the 3-day period totaled 1,080 vessels, or 360 vessels per day.
This result is roughly equivalent to the weekend figure reported in the DEIS, however 67% higher than the DEIS average benchmark used for modeling, which is 215 vessels.

	Daily count	Avg./day
16-May	168	
17-May	411	
18-May	501	
Total	**1080**	**360**

A second study performed over 18 days (May 23- June 9, 2014) was performed using cameras, then quality controlling the data by omitting duplicates, outliers, and rail bridge closure. Vessels were measured for height using an interpretative photo program, and categorized as under or over 21 feet. Before editing, over 37,000 images were collected for observations at the FEC and CSX bridges combined.

Presented in a summary table below, an average of 268 vessels over the study period resulted, with 83% under 21 feet (to trigger a bridge opening), and 17 % over 21 feet height above water line. An estimate of 1% of vessels consisted of paddle boards or small dinghies, so totals should be reduced by this amount. Compared to the DEIS average vessel figure of 215, this study finds average volumes approximately 20 % higher.

Vessels of All Types Transiting the FEC Bridge, May 23 – June 9, 2014 (0500-2400 hours)				
FEC	Total	under 21	over 21	
23-May	87	55	32	*
24	654	579	75	Sat
25	848	763	85	Sun
26	637	573	64	Holiday
27	193	127	66	
28	165	117	48	
29	148	90	58	
30	152	116	36	
31	257	225	32	Sat
1-Jun	342	316	26	Sun
2	59	47	11	*
3	117	33	84	
4	105	71	34	
5	165	129	36	
6	213	176	37	
7	323	282	41	Sat
8	213	195	18	Sun
9	139	107	32	
Average	**268**	**222**	**45**	
% of Total		**83**	**17**	

* Not full day of observation due to camera installation or malfunction.

2.3.1. Monthly traffic transitioning New River bridges

From Broward County bridge tender data, patterns of larger vessel traffic can be discerned, however these data do not reflect total number of vessels transiting the road bridges. The data represent the monthly number of vessels transiting the New River which are large enough (with air draft in excess of

approximately 18 ½ feet) to warrant bridge openings. Thus, the totals below do not include total number of vessels using the waterway.

The variance of vessel traffic during high season (i.e. tourist season/ non-hurricane season from November to May) versus low season (hurricane season June to October) was examined. Based on three years of data from Broward County bridge operations in the downtown only (with some extrapolations for missing monthly data), the average:

- High season number of vessels is 1,272 and bridge openings is 925 (monthly)
- Low season number of vessels is 979 and bridge openings is 781 (monthly)

Thus, about 30 %more vessel traffic is experienced in the height of season, with about 18 %more bridge openings. The data used to reach these observations are presented below, with original data sources further explained in the bibliography.

Variance of New River Vessel Traffic, High and Low Season

(V= Number of vessels transiting the bridge when open, and which requested an opening;
O= Opening of bridge)

	2012		2013		2014		High (N-M)		Low (J-O)	
	V	O	V	O	V	O	V	O	V	O
Jan	na	na	1172	893	1133	871				
Feb	na	na	1220	877	1327	955				
Mar	na	na	1239	909	1393	1024				
Apr	na	na	1215	1000	1344	975				
May	na	na	1277	950	1192	893				
Ju	na	na	973	789						
Jul	860	723	970	790						
Aug	na	na	896	752						
Sept	na	na	752	629						
Oct	1257	894	1147	891						
Nov	1113	846	1271	920						
Dec	1160	918	1197	921						
Average of H & L season months							1232	925	979	781

NOTES: 1. Based on average of vessel traffic and openings for 3 downtown bridges, namely Andrews Ave., SE 3rd Ave., and SW 4/7 Ave.; Source- Broward County.
2. Some May 2014 data are extrapolated due to missing daily logs.

Comparing the traffic study data in section 2.3 above with the Broward County high season data and converting to days, our vessel study data is validated. In other words, 42 vessels per day is roughly equivalent to 45 vessels per day requiring a bridge opening. All vessel survey data in the DEIS, and other traffic studies, should be considered in light of the high and low season trends.

2.3.2. Transit time between the FEC and CSX bridges

In consideration of a schedule for bridge operating rules, a cursory analysis of the transit time from the FEC to the CSX bridge is presented. The distance between the two bridges is approximately 2.62 statute miles.[17] A sampling of seven different size vessels which transited the 2 bridges was selected from the vessel traffic on May 18, 2014 as shown in the table below.

Transit Time Between FEC and CSX Bridges (Summary data)

Type of Boat	Size (Length in feet)	Time elapsed between bridges (minutes)
River Boat	18	29
Pontoon	20	114
Motor Yacht	30	120
Sport Fish	36	83
Motor Yacht	42	29
Motor Yacht	70	23
Commercial River Boat	150	31

SOURCE: ESI vessel study, May 2014.

A simple average of the time data collected from all trips yields an average transit time of 50 minutes, however omitting the outlier data (highs and lows) and then averaging, the more realistic estimate of travel time is 29 minutes.[18] Explanations for the wide variation in transit time are speculative, however may include boaters who stop for dinner, visitation, or other business along the way. Calculated speed over this distance means an average of 4.7 knots between the bridges (speed over ground), and which takes into account other vessel traffic, tidal current, wind, etc.

[17] As measured through Bing mapping tool.
[18] All time data considered is not presented in Table ?

The US Coast Guard may find this initial study of transit time helpful in examining the need for operating schedules of the various bridges along the New River, and including the railroad bridges. The data collected for this study can be further analyzed to determine the typical number of vessels which travel the entire length of the New River, however that detailed analysis was not performed for this more limited scope.

2.4. Emphasis on peak demand, Level of Service analysis

While there is some DEIS discussion of traffic variance and weekend/holiday peaks, (for example, page 5-25 to 5-26 which states

> "For the New River Bridge, arrivals ranged from 37 to 508 vessels during the 2014 Video Survey and arrivals were higher than 215 vessels 36 percent of the time. On peak days, navigation impacts may be substantially greater than what is depicted in Table 5.1.3-8."

the vessel traffic mitigation modeling and assumptions in the DEIS are based largely on **average** vessel traffic. From the vessel traffic studies conducted by the authors of this response, even higher variances of traffic are observed for peak days, with some over 800 or 900 vessels per day. A recent vessel traffic study conducted by the Marine Industries Association of South Florida reports this number exceeded 1000.

While the DEIS's conclusion is that minimal navigational impact will result from the project, it contradicts that conclusion on page 5-26, by stating that "on peak days, the navigation impacts may be substantially greater than what is depicted in Table 5.1.3-8." This review Team contends that the peak traffic matters more than averages, for two main reasons:

a. Ft. Lauderdale thrives on a tourist-based economy, hinging in part on its marine activities and mystique which includes special events. Special events rely on accommodating peak demand; The Winterfest Boat Parade is one prominent example.

b. If road planning were based just on averages, our road systems would fail miserably.

Level of service (LOS) may be defined as a qualitative measure used to relate the quality of traffic service. LOS is used to analyze highways by categorizing traffic flow and assigning quality levels of traffic based on performance measure like speed, density, etc. and at peak demand times.

However, in the case of the New River the channel is relatively narrow and depending on the size of the vessel may not accommodate vessel traffic in two directions at choke points in the channel. It is probably best to describe the channel as a "narrow highly trafficked waterway, which must accommodate a wide range of vessels ranging in size from canoes and kayaks to 200 foot long mega yachts being towed by a tug with a tug in the rear to help guide the vessel". The predictability of vessel

traffic at any given time or period of day as in highway analysis is not possible in such a case as we have with the New River.
While these tools may not be directly applicable to a waterway such as the New River, the US Army Corps of Engineers[19] is applying Level of Service to Inland Marine Transportation Systems; it may be advisable for the United States Coast Guard to do so as well, unless they already have considered such approach.

2.5. Economic impact is not minor, therefore obstructive

This analysis rejects the notion that "minor economic impact" will result from the proposed AAF project, a claim that is based largely on the expectation that "Combined Effect" will reduce bridge closure times.

From p. 6-9 of the AMEC Navigation Discipline Study,
The increase in average vessel wait times results in **minor economic impact** [emphasis added] under the Combined Effect (Table 6.4-2), which is estimated at $161 per day (a decrease in loss of $212 per day when compared to the No-Build Alternative versus Existing Conditions). This is the cost of the total vessel delay per day on the marine industry under the Combined Effect, and creates a minimal impact as there is a less than 0.1% increase in the percent cost of waiting compared to the marine industry value at the New River, when compared to the No-Build Alternative.

First, this analysis **dismisses the conclusion that "minor economic impact" will result, in part since the quantification is vastly understated.** While the valuation of fuel and other operating expenses is part of a valid approach, it is unclear how the DEIS assigns such nominal value, and **unacceptable that it disregards such additional losses as real estate value, and marina business deterred by the inconvenience of the bridge delay.**

Second, it is unclear how this figure reconciles (or is contradictory to) with the DEIS claim on pp. 5-29 to 5-30, which in the following excerpt presents an economic impact figure about twice as high.

New River
The anticipated increase in average vessel wait times associated with additional bridge closures and unimproved infrastructure would result in an increase in vessel queues of 18 vessels per day. These increased vessel wait times were considered when evaluating economic impacts to commercial

[19]See August 13, 2014 publication by Jeff McKee, Chief, Navigation Branch Operations and Regulatory Division USACE available [online]
http://www.iwr.usace.army.mil/Portals/70/docs/IWUB/board_meetings/meeting69/IWUB_meeting_69_Level_of_service_update_jeff_mckee_081313.pdf

developments along the New River. The increase in average vessel wait times for commercial and recreational vessels is estimated to result in an economic impact under the No-Action Alternative (Table 5.1.3-11) of **$373.00 per day** [emphasis added] or $136,145 annually. This value is the difference between the estimated economic impacts from the No-Action Alternative compared to the impact of Existing Conditions. This represents less than a 0.1 percent increase in the total cost of vessel delays per day on the marine industry under the No-Action Alternative (AMEC 2014a).

In either case, the daily figure for economic impact is considered vastly understated, and not inclusive of all relevant impact considerations.

To illustrate just one portion of why the quantification is understated, below is a testimonial from Dave Lenit, a Chief Engineer of Happy Diesel Inc. (MCA Certified-Cayman and Marshall Islands; 500 Ton, Y3 Rating).

Assuming just one mega yacht with minimal crew of Captain, Engineer, 1st Mate, and Deckhand, and which holds position in 2 knots of current in the New River, awaiting a bridge closing (avg. 19 minutes), an approximate minimum of $56.08 of expense would be incurred (not including such valid costs as insurance, wear and tear, or other overhead). If the yacht is in tow with 2 tugs, this estimate will increase.
This estimate is calculated as follows:

Estimated minimum operating cost for mega-yacht per hour

	Salaries per day ($)	Gallons used	Total
Captain	500		
Engineer	350		
1st Mate	250		
Deck Hand	150		
Subtotal	$1250/day		
Generator fuel use/hr. x 2 generators		10 gal. /hour	
Engine fuel use/hr. x 2 engines		15 gal./hour	
Subtotal		25 gal./hour	
Cost per gallon		$5	
Cost per hour	$52.08	$125	$177.08

(177.08 per hour) X [(19 minutes/60)=0.31] = $56.08

Therefore, **if just three yachts are detained by bridge closure in one day for 19 minutes each, the unrealistic DEIS estimate of total loss ($161) is exceeded.** With hundreds of boats transiting the bridge each day, this cost will be amplified. This demonstration is unrelated to other analysis of other economic impact, such as lost business, real estate devaluation, etc.

2.6. Example of missed economic opportunity because of obstruction

The DEIS fails to accurately estimate economic activity that is deterred by the FEC bridge that often closes the waterway. For example, Mr. William Walker, owner of "Water Taxi of Ft. Lauderdale" operates a fleet of 14 boats carrying over 440,000 passengers each year. His water taxis serve the area east of the bridge, but not the other numerous attractions west of the FEC bridge (for example, the numerous civic buildings, performing arts theatre , science museum and historic district that are a short distance west of the bridge. This is because unscheduled, often extended, rail bridge closings would frequently cause great delays and anger water taxi customers. The size of the Water Taxi fleet is 12 to 21 feet in overhead clearance so they can clear all but the FEC bridge (except for high tide). [20]

"There are numerous potential water taxi stops upriver of the FEC bridge which would be profitable and would benefit the travelling public. However, we can't service them due to the unpredictable and long closures of the FEC rail bridge, so won't risk customer complaints," said William Walker, Owner and Principal of Water Taxi of Fort Lauderdale, LLC. "This is a missed opportunity to improve public transportation, and a missed business opportunity."

2.7. Future and cumulative forecasts not considered for resulting obstruction

Future rail operations will consist of the exiting freight rail and the proposed passenger rail operations; also the probability of increased freight traffic due in part to the planned improvements at Port Everglades and Port Miami need to be considered. These have been extensively described by FECR (including in their presentation to the 16th annual Transportation and Infrastructure Summit) and by the Florida Department of Transportation, the Florida Seaports Council, and the Metropolitan Planning Organizations of the three South Florida Counties, among others.

The increased tonnage expected at these ports is order of magnitude three times greater than presently handled at these ports according to the FECR presentation. There is therefore a possibility for rail freight operations to triple to meet this additional demand required to move the container (intermodal) traffic northward from Port Miami and Port Everglades to Jacksonville and connections to other freight carriers. The train movements to be accounted for in the future would consist of 33 (11X3) freight trains per day and the 32 planned passenger trains proposed by AAF.

[20] Water taxi vessels range in size as follows:

Length	26 to 65 feet
Beam	9 to 20 feet
Overhead Clearance (air draft)	12 to 21 feet

In addition to the FEC and AAF planned train movements Tri-Rail Coastal Link is proposing up to 60 trains per day on the FEC Corridor originating from the Tri-Rail Coastal Link Red Line Corridor crossing on the Pompano Connector to the FEC Corridor. These estimates contradict the estimated 20 freight trips per day listed in the DEIS. This dramatic increase in freight, passenger and commuter Rail operations requires consideration of separation of freight and passenger operations to improve the service on the existing corridor and lessen the impact on navigation at the New River and the other movable bridges at St. Lucie and Loxahatchee Rivers.

Future Freight

AAF's proposal hinges on what the Team considers a faulty assumption- that there will be no additional bridge closure delays due to volume of train traffic, freight and passenger combined. As stated in 2012 AAF, Environmental Assessment:

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

The Project Team considers this vastly understated, with our engineering assessment arriving at an estimate three times the AAF claim. This is supported by extensive evidence presented below.

First, Florida is actively marketing for more national and international seaport/cargo business, with 13 international Enterprise Florida Offices abroad including the cargo-rich Pacific Rim (Shanghai, Hong Kong, Taiwan, and Tokyo),[21] private and public investments in Florida Seaports, intermodal logistics centers, and inland ports; all portend more freight traffic. Some question whether one of the main drivers of extra freight, which is the completion of the Panama Canal extension, will be delivered on time. A recent conference presentation by a Canal representative, and ***(coincidentally) moderated by Florida East Coast Railway (FEC) President*** and Chief ***Executive Officer Jim Hertwig***, downplayed the recent work stoppage and reassured the audience that the massive public works project is on target for end of 2015 completion.[22] Of course increased shipping through the Panama Canal will mean little to Florida if the freight can't be captured and distributed through the Port of Miami. "The port [of Miami]'s

[21] See also article available [online] http://government.brevardtimes.com/2014/03/florida-opens-business-development.html , March 31, 2014.

[22] Available [online] http://www.progressiverailroading.com/shippers/article/Panama-Canal-expansion-will-be-completed-by-2015s-end-canal-official-says--39862 , March 31, 2014.

access to rail and intermodal connections will be key to making it an attractive port for shippers," said Bill Johnson, Director of the Port of Miami. [23]

Next, consider the overview of testimony of FEC President and CEO James Hertwig at the 16th Annual Transportation & Infrastructure Summit Conference held in Irving Texas (August 7, 2013) which underscores freight opportunities, and public and private investment at the Port of Miami and Port Everglades:

FEC Overview

- 351 miles of mainline track
  - Only railroad along Florida's east coast
  - Unparalleled link between Florida rail traffic and nation's rail network
- Most direct and efficient North/South mode for transporting multiple types of freight
  - Competitive advantage over motor carriers due to highly congested roadways and challenging trucking environment
- Attractive freight mix
  - Intermodal containers and trailers
  - Carload
- Crushed rock (aggregate)
- Automobiles, food products and other industrial products
- Connect to national freight network via CSX and Norfolk Southern in Jacksonville

Key Florida Attributes

- Large Consumer Market
  - 4th largest state economy in the U.S. (by GDP) (1)
  - Over 19 million residents, 3rd largest state population behind California and Texas (2)
  - More than 85 million out-of-state visitors annually (3)
- Strategic Location
  - Primary gateway to Latin America; accounts for more than one-third of all U.S. trade with Latin America
  - 3 of the nation's 15 largest container seaports
  - Closest U.S. ports of call from Panama Canal (Port Miami and Everglades)

[23] Available [online] http://www.progressiverailroading.com/shippers/article/Panama-Canal-expansion-will-be-completed-by-2015s-end-canal-official-says--39862 , March 31, 2014.

- Large Consumer Market

– 4th largest state economy in the U.S. (by GDP) (1)
– Over 19 million residents, 3rd largest state population behind California and Texas (2)
– More than 85 million out-of-state visitors annually (3)

- Strategic Location

– Primary gateway to Latin America; accounts for more than one-third of all U.S. trade with Latin America
– 3 of the nation's 15 largest container seaports
– Closest U.S. ports of call from Panama Canal (Port Miami and Everglades)

The Asian Market Opportunity

- Panama Canal expansion will allow larger vessel passage

– Currently can accommodate 4,800 TEU vessels
– Post expansion, Canal will accommodate 13,000 + TEU vessels which will allow for faster all-water times to the East Coast for the more cost efficient "large vessels" (larger vessels are 30% more cost efficient)

- Currently only 2 ports on the eastern seaboard with 50' water depth
- Over the last 3 years, the Port Miami received funding for over $1.0 billion in infrastructure improvements, which combined with the Panama Canal expansion, will make it a gateway for import/export activity

– On-dock rail restoration, with direct rail access to intermodal yard (FEC), and straight-track access to North Florida and beyond utilizing FEC Railway infrastructure (Completion: 2nd half 2013)
– The Tunnel project will allow for better, and incremental access of freight flows in/out of the Port (Completion: May 2014)
– 50' dredge expected to be completed in 2015 in concert with the Panama Canal expansion project

Strategic Initiative: On-dock rail service at Port Miami

- Implementing on-dock rail service at Port Miami allows FEC to directly serve Port customers

– Only railroad with direct access to the Port
– Trains will be run directly from the Port to the FEC mainline

- Total project cost $45-50 million

– Federal TIGER II grant ($23M)
– Florida DOT (up to $9M)
– Miami Dade County (up to $5M)

– FEC (up to $9M)

- Q2 2013 Update

– Rail line lead to Port has been completed

– Bascule Bridge rehabilitation phase has begun

– Joint marketing program with the Port has begun

- Estimated startup date: 2nd half 2013

Strategic Initiative: ICTF and near dock rail service at Port Everglades

- ICTF Groundbreaking Event took place on January 17th to announce the start of construction on a 42 acre Intermodal Container Transfer Facility
- Total Cost: $73M

– FEC-State Loan and Cash ~ $35M

– Broward County ~ $20M

– State Grants ~ $18M

- Q2 2013 Update

– Lease agreement with Broward County executed

– ICTF design-build request has been awarded to The Milord Company

– Received State Loan funding in Q3

- Estimated completion during the 1st half of 2014

It is therefore clearly evident that FECR and FECI fully expect to provide increased freight rail operations in the near future. The AAF proposal for Passenger Rail Service is only one component of the total rail traffic that needs to be analyzed in considering all of the impacts which will have an effect on marine traffic transiting the FECR corridor and the marine community in general i.e., yachting service industry, real estate interests, marinas and repair facilities, which are located west of the FECR corridor.

The FRA, USCG and other permitting agencies must also not neglect analysis and engagement with CSX railway. Recalling that CSX is approximately four times the size of FEC in Florida, this is another huge factor driving future rail planning in South Florida. While CSX rail lines are not directly connected seaport dockside like FEC, CSX is integral to cargo movement throughout the State and to seaports outside of South Florida. If there is any doubt about its future business interest moving freight, one example is its April announcement of the opening of the Central Florida Intermodal Logistics Center in Winter Haven, FL. Owned by Evansville Western Railway, the 318-acre facility… "will be operated by CSX Intermodal Terminals Inc. and served by CSX Transportation. Containerized freight previously handled at CSX's Orlando terminal will be shifted to the Winter Haven facility, while the Taft yard in Orlando will

continue to serve other CSX needs. [It will] … serve as a centralized hub for transportation, logistics and distribution needs in Orlando, Tampa and South Florida." [24]

Additional specific DEIS comments on this topic follow:

(DEIS, Page 3-26) 3.3.2 No-Action Alternative and **(**DEIS, Page 3-37) Bridge and Structures and Table 3.3-5 Proposed Bridges, N-S Corridor
Comment: The **existing and future freight train operations of the no-action alternative are incorrect; they do not include the increase in freight traffic planned for by FEC due to the Post Panamax expansion** and the dredging and rail infrastructure improvements at Port Miami and Port Everglades to accommodate the larger Post Panama expansion container ships.

(DEIS, Page 3-34) 3.4 Operations
Comment: The operations described in the DEIS **do not accurately reflect the total projected increase in freight traffic throughout Florida** due in part to increased activity at Port Everglades and Port Miami following the Panama Canal Expansion. FEC has on numerous occasions discussed the increased traffic on FEC with Florida Legislators, senior Florida agency staff, and Industry leaders. FEC has made substantial improvements to their rail facilities at the Ports due to this proposed Panama Canal generated shipping, and the State of Florida has made substantial investments in seaports, Strategic Intermodal System planning, and the Florida Freight Mobility and Trade Plan. It is a major omission to exclude from the DEIS this projected rail traffic increase. Shared use of the corridor by Tri-Rail Coastal Link also needs to be considered and evaluated with regard to train speeds.

2.8. Future Freight Growth Beyond Year 2016 of 3% is Likely Understated.

Per the DEIS and other authorities, the Panama Canal re-opening is expected in 2016, and freight train traffic will grow from 14 trains today to 20 trains by 2016; thus the Navigation Discipline Report anticipates traffic growth at 12.6% per year through 2016.

However, in the years following 2016, the DEIS reports that freight train growth will then fall to just 3%. Following the opening of the Panama Canal, it appears unlikely and is unsubstantiated

[24] Available [online] at http://www.progressiverailroading.com/prdailynews/news.asp?id=39979, April 03, 2014.

that growth in freight train activity would fall precipitously in the years immediately afterward. [25] Sharply lower freight growth rates are especially unlikely when considering the billions of dollars in port, intermodal and rail facility improvements which are currently underway at the Ports of Miami and Everglades in preparation of the post 2016 expanded Panama Canal opportunities. FEC alone is making tens of millions of dollars of investments to capture container freight cargo and increase rail capacity utilization which became available when aggregates and building materials freight declined during the recession.

We respectfully request that the DEIS provide more thorough and consistent explanation of the assumptions about future freight train growth through the foreseeable planning period defined in prior project documents, meaning the year 2032.

[25] See various State of Florida freight planning documents, and "Florida East Coast Rail Line To Haul 5% of Truck Cargo From Port of Miami, June 2, 2011," available [online] http://www.miamitodaynews.com/news/110602/story2.shtml , November 30, 2014.

Section 3. Economic impact analysis flaws

In addition to economic analysis flaws highlighted above, this section presents other economic arguments which are deficient in the DEIS.

In particular the findings of economic damages in the DEIS Navigation Discipline Report of July 2014 are invalid due to omissions of forecast freight frequency, number and duration of bridge closings, cumulative impacts over time and resulting obstruction of navigable waters.

The accompanying Campisi report confirms the likelihood of longer bridge closure times. Future bridge closure at the New River Bridge can be expected to reach 40 minutes closed per hour or greater. High frequency and long duration bridge closures coupled with tidal restrictions required for mega yacht movements result in highly impaired navigational conditions for the commercial marine industry, along the New River. Mega yacht servicing and repair makes up the majority of the estimated $2.9B commercial marine industry economic activity on the New River. Given the failure of the Navigation Discipline Report to model reasonably foreseeable future scenarios, specifically the failure to consider cumulative impacts beyond year 2016; we conclude the economic impacts of cumulative rail effects on the marine industry of the New River are flawed, invalid and sharply understated.

3.1. Value of County marine industry contradictory and understated; New River portion at 1/3 understated; "Minor anticipated impact" rejected

The DEIS, in the Navigational Survey Discipline Report, p. 3-14, values the Broward County marine industry at $5.2 B, assuming with the New River portion at 32.7% or $1.7 B/year. This vastly understates the economic value according to a more recent report by the Marine Industry Association of South Florida (Thomas Murray for MIASF) which estimates the economic impact of the Broward County marine industries at $8.8B/year, with over 100,000 jobs. [26]

The DEIS contradicts itself on page 4-24 by citing a 2005 figure which agrees with the very recent MIASF 2014 study above, as stated here:

"According to a Broward County vessel traffic study (Mote Marine Laboratory 2005), recreational boating represents an estimated $8.8 billion segment of the local economy. In addition to private recreational boats, the New River is also used by commercial sightseeing vessels."

[26] Sections here and immediately following paraphrased from Mr. Dana Goward, Proprietor at Maritime Governance, LLC, who is a USCG retiree.

Regarding the 32.7% portion assumption, we do not agree with the DEIS assertion that the marine industry, as most any industry cluster, can be geographically "compartmentalized" to a sector of the County. As a cluster it has evolved over time to take advantage of complementary businesses all over the County, if not region. However for argument's sake if we use the DEIS assertion of 1/3 of the industry's economic impact corresponds to the geography west of the FEC bridge, then the total impact is still significantly higher (70%), or $2.9B compared to $1.7B.

In part these economic impact estimates captures the MIASF's 2006 report, which found over 1,500 mega-yachts (80'+) (many international) are served by this marine commercial hub, and that average expenditure was $169,000 per vessel for servicing. This was a marked increase from several years earlier and, since the economic recovery, has most certainly risen. Further, the South Florida Regional Planning Council, in its Comprehensive Economic Development Strategy, 2012-17, finds the economic impact of each mega-yacht is higher - estimating that "… e*ach [megayacht] visit generates an estimated $400,000 economic impact through boatyard and marina expenditures."* Presumably the SFRPC plan includes all direct, indirect, and induced economic impact.

The value of the New River Marine Industry as defined in the FRA-DEIS is based on the number of commercial wet slips on the River as a percentage of all commercial wet slips in Broward County (see Table 2.2-3 below from the Navigation Discipline Report, page 2-5, July 2014.

Table 2.2-3 Percent Representation of each River Relative to the County in which it is Located

	Number of Wetslips at Marinas, Dockuminiums, Private Clubs and Hotels and Restaurants			
River	County	On the River	In the County	River Percent
New	Broward	818	2,500	32.7%
Loxahatchee	Palm Beach	534	2,300	23.2%
	Martin	0	900	0.0%
St. Lucie	Martin	746	900	82.9%
	St. Lucie	222	1,450	15.3%

There are multiple ways to measure the "value" of the marine industry. These could be based on marina value or marina sales. The measure chosen in the Navigation Discipline Report is not value based. It is numerically based according to slip count, without taking into account any economic value or economic measure.

The measure of the marine industry excludes residential wet slips and recreational activity as a component of the marine industry. Conversely however, the complete Marine Industry is defined as including recreational boating by AMEC on page 3-11 of the Navigation Discipline Report. The methodology used to define the value of the Marine Industry along the New River is highly flawed. The methodology a) is not value based and b) fails to include residential slips as part of industry value. Thus 77% of all boat traffic on the New River (the recreation portion), as described in the Navigation Discipline Report Table 3.3-4., is excluded and no valuation is assigned to the recreational portion of the marine industry.

(Navigation Discipline Report, July 2014, page 3-11) While secondary to marinas and other public marine facilities, an inventory of the docks and slips at waterfront housing developments is important to provide an overall picture of the complete marine industry and recreational use of the New River.

The New River Marine Industry valuation methodology used by AMEC for the DEIS is inconsistent with AMEC's own method of calculating economic damages. Calculation of the economic damage due to bridge closure wait times does include recreational boat trips. In contradiction, recreational boating value is not included in the marine industry value. As a result, economic damages which may occur beyond to cost of wait time delay, such as market share loss for business and property value loss for residential and business would be understated.

(Navigation Discipline Report, July 2014, page 6-10) Commercial destinations on the New River are primarily boat/yacht repair and support facilities. These facilities are anticipated to incur minor impacts to their business as a result of the moderate impacts of the Combined Effect on vessel wait times and queue lengths.

The assertion that "minor impacts" to marine business is flatly rejected by this team's analysis. The Navigation Discipline Report in estimating economic damage assumes that no market share of business activity will be lost as a result of the proposed action, only incurring the cost of additional time delay. This is incorrect. The evaluation of the proposed action failed to include reasonably foreseeable future rail actions. By this omission alone, the economic damage is vastly understated by failure to include market share loss and economic loss in recreational segments of the marine industry.

3.2. Omission of Property Value Impacts

Surprisingly, the Navigation Discipline Report, under Direct Economic Benefits, page 2-2 states:

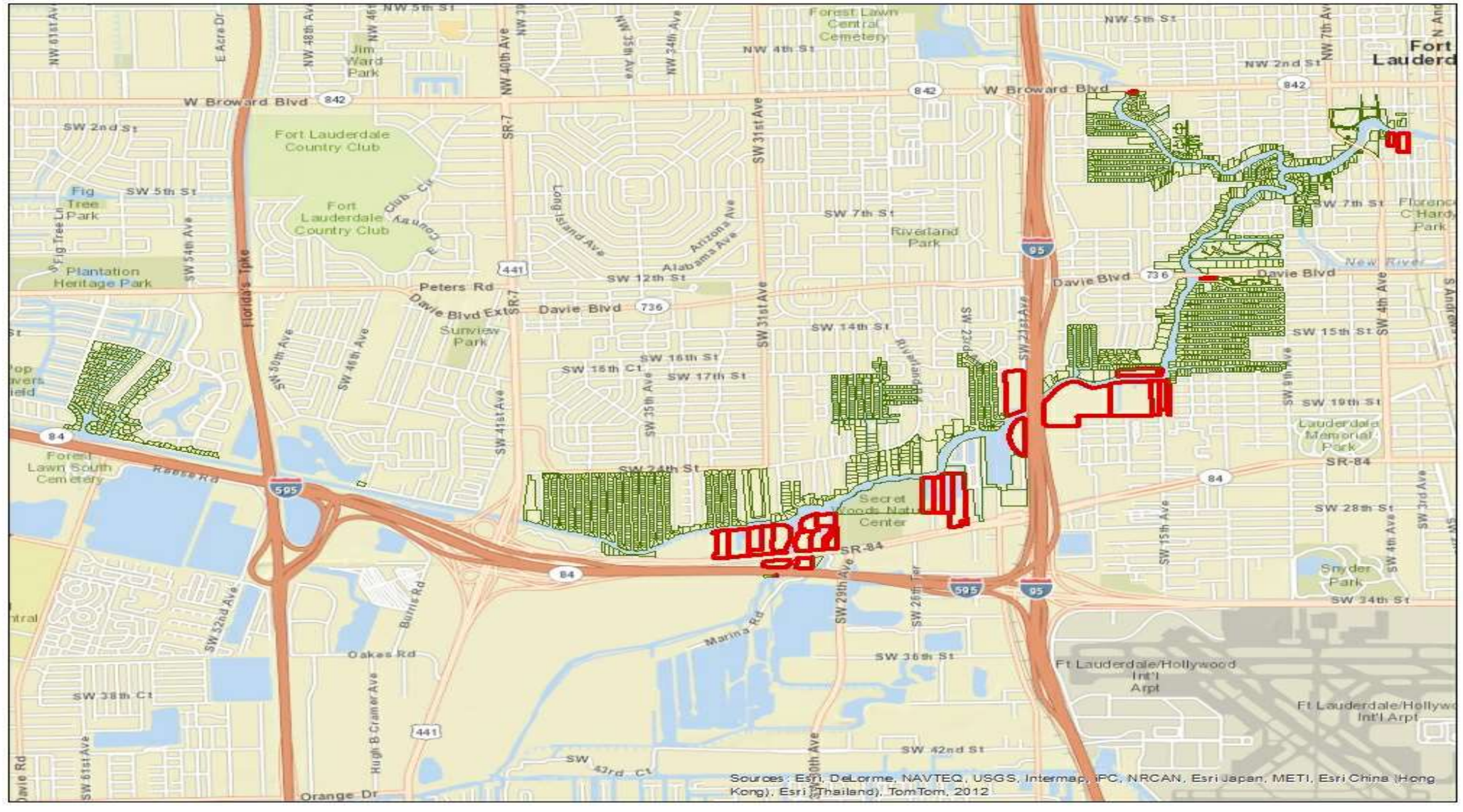
”These analyses do not include the impact of the marine industry on property values; accordingly, property value impacts will not be discussed in this report.” The omission of property value must be remedied in future revisions of the EIS.

Using a conservative figure (tax appraised value), there is nearly $900 million in existing New River waterfront residential property value located west of the New River FEC Bridge with direct waterway access. There are approximately 2,900 parcels, with 3,705 residential units comprising this sizable value, in addition to the marine commercial and industrial properties upriver of the FEC bridge, and totaling approximately 1,600 acres.

This impacted area does not include those who would bear secondary impacts from the railroad (public boat ramp users, residents and emergency vehicles delayed by at-grade rail crossing delays, etc.). Taxable value is decidedly less than comparable sales (or actual market) value.

Such residential and marine/industrial properties are identified in the Figure below in green and red, respectively. Only the primary impacted properties are highlighted.

Impacted Waterfront Properties Upriver from the FECR New River Bridge



SOURCE: Fishkind and Associates, March 2014. Not to scale.

The River traffic survey indicates 77 %of boat traffic at the New River rail bridge is recreational. The effect of severe limitations on deepwater access due to foreseeable future actions resulting in sharply increased bridge closure times will negatively impact these property values.

The cost of marine industry impacts due to sharply increased bridge closure times such that navigation and access is significantly and substantially restricted will result in time delay costs as well as property value losses and business value/market share losses.

3.3. Recommended methodology for future estimate of negative economic impact

The DEIS should be revised to include analyses of property value loss, and lost business due to obstruction due to time delay of marine traffic. A recommended methodology, which should be coordinated with the US Coast Guard and their further review of navigation conditions including the Navigation Discipline Report included with the DEIS, is as follows:

a. Property value loss can be measured using the value of waterfront properties with deepwater access and comparing the value of like properties between upstream and downstream locations. Upstream locations with longer deepwater access times are hypothesized to be valued less than like properties with shorter deepwater access times. Increased bridge closure times increases the deepwater access time causing property valuations (residential, commercial and industrial) to fall to values similar to properties further upstream.

b. The same is true for commercial business valuations when affected by market share loss due to increased time delay. This type of analysis or any other analysis of the resulting decrease in property values for thousands of homes and businesses has been specifically omitted from the navigation Discipline Report and the Draft EIS. This is because of the failure to model reasonably foreseeable actions beyond year 1 of the proposed action in year 2016. Further, this results in a failure to acknowledge the real estate economics and consequences put in play due to the impact of extended delay due to lengthy bridge closure on property value and business market share.

At present there are two proposals to construct large scale mega yacht servicing facilities at Watson Island and Port of Miami. Should navigational conditions prove too onerous on the New River, the South Florida market will respond with development of new mega yacht service centers and commercial facilities elsewhere including outside of Broward County. Put simply, there is a real threat to the New River marine industries and real estate values from extended bridge closures. [27]

The navigational analysis portion of the DEIS should be revised to analyze potential business value loss, plus potential property value loss caused by obstructive FEC bridge closures. The negative impacts to only a segment of the Broward County commercial marine industry (which if the AMEC estimate of one-third of the County's industry were true may be estimated conservatively at $2.9 billion), plus nearly $1 billion in residential and

[27] Miami Today, Port of Miami Plans Megayacht Marina, November 22, 2014. See http://www.miamitodaynews.com/news/111208/story1.shtml

commercial/industrial property values, and the indeterminate value of recreational waterway usage are inadequately and erroneously presented.

The actual property value, capital losses and business market share/sales loss from un-modeled conditions may be unacceptably high.[28] This consideration should be taken into account by the US Coast Guard as it undertakes a Truman-Hobbs/ obstructive bridge evaluation.

3.4. Ridership and revenue summary study does not demonstrate profitable operation

The economic analysis does not include a demonstration that the service can be operated profitably. It merely states travel times from Miami to Orlando must be approximately 3 hours to gain necessary ridership to attain profitable operational status. A revenue/expense analysis is not provided which demonstrates profitable operation is feasible. Only a ridership study is provided to demonstrate ridership potential. No analysis of revenue or profitability is included.

Louis Berger Group Ridership and Revenue Summary, September 2013, page 3:
Ridership and revenue forecast for each of the cases noted above are summarized in Table 1 below for 2019, the first year after stabilized ridership is expected to be achieved.

However, no revenue summary is provided in Table 1 of the LBG Ridership and Revenue Summary report. As well, no findings regarding the ability to operate profitability are included in the Draft EIS. While the project need and forecast ridership may be demonstrated, the underlying premise of financial feasibility remains in question.

[28] Present property devaluation argument (which AAF expressly omitted); directly impacted/devalued properties (more than 3,700 residential, marine commercial & industrial parcels on nearly 3,900 acres with taxable value exceeding $1 billion).

Section 4. Contradiction of public plans, policies and investments

4.1. Tri-Rail Coastal Link Planning

The argument is presented in numerous portions of this document that the public planning well underway by the Tri-Rail Coastal Link project is dismissed by omission in the DEIS. This project is led by the South Florida Regional Transportation Authority (SFRTA), its steering committee, and coordinated with/supported by several public bodies such as the Florida Department of Transportation, Metropolitan Planning Organizations, and the Southeast Florida Transportation Council, [29] The result contributes to the objection that DEIS does not adequately consider cumulative effects of all foreseeable future projects, thus omitting important rail traffic forecasts. The DEIS is therefore contradictory of these public plans, policies and investments.

With some newer estimates up to $850 million, "… SFRTA plans to spend $600 million to $800 million on infrastructure investments, including triple-tracking some sections, building 17 to 20 additional stations, and **constructing a new bridge in downtown Fort Lauderdale so the more frequent rail traffic doesn't affect the city's active marine industry, *[emphasis added]*** says SFRTA Director of Planning and Capital Development Bill Cross." [30, 31]

The detailed development of such capital improvements is being coordinated by RS&H Engineering (see www.rsandh.com) for FDOT. Ms. Amie Goddeau, of the Broward County (District 4 FDOT) is the Project Manager.[32] Financing and funding of the project is well underway. In March 13, 2014 a presentation to Broward MPO Board, "Financial Plan Status Report" staff detailed the plan for operating and capital improvements, estimated at $720- 796 M (2013 $), with 50 % fed, 25% state, 25% local contributions. The annual operation and maintenance is estimated at $33-38 M. At least 11 new regional funding sources are being analyzed for the project, such as
special assessments, a regional property tax of .5 to 1.0 mils, property tax increment, sales tax, transient sales tax, rental car surcharge of $2-3/day, automobile registration fee (earmark portion), and annual station fee.

A new mid or high-level bridge over the New River at the FEC crossing is contemplated in multiple documents adopted by SFRTA and Coastal Link Steering Committee as presented elsewhere in this analysis, with conceptual ideas dating back to at least 2006,[33] and drawings dating at least back to 2010.[34]

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[29] After several years of ad hoc cooperation, the Southeast Florida Transportation Council was created, under Florida Statutes Chapter 339. 175, to serve as a formal forum for policy coordination and communication to carry out these regional initiatives agreed upon by the MPOs from Miami-Dade, Broward, and Palm Beach Counties.

[30] See the March 2014 Progressive Railroading article available [online] http://www.progressiverailroading.com/passenger_rail/article/South-Florida-rail-upgrades-to-provide-more-freight-transit-travel-options--39706, March 23, 2014.

[31] Telephone conversation with Bill Cross, April 10, 2014.

[32] Amy Goddeau, FDOT. See http://tri-railcoastallink.com/executive-steering-committee.html.

[33] In the (Tier 1 Draft Programmatic Environmental Impact Statement, Approved in September 2006 by the FDOT and the Federal Transit Administration, " For example, one preliminary assessment is that should the FEC Railway crossing of the New River in Downtown Ft. Lauderdale be utilized, **a high level fixed bridge to replace the existing low-level bascule bridge over the river will be studied to reduce the number of new openings and improve navigation** on that waterway." [Emphasis added] and in 2010, "Operation of the regional rail will require investments in infrastructure and rolling stock. Upgrades to the FEC's railroad infrastructure shared by freight and passenger trains **must Include** [emphases added]**:** … **Double track on a high bridge crossing the New River (with a separate freight track on the existing drawbridge).**

From the project development document (2014, page 5-15):

> " ***Proposed passenger rail (both the Project and the proposed AAF) over existing waterways may be accommodated by building a new bridge adjacent to existing FEC Railway bridges or by replacing or modifying the existing bridges. Because these waterways have been designated as navigable by the USCG, the new bridges would require they provide the necessary vertical clearance to "meet the reasonable needs of navigation" for those particular locations as part of the permit conditions.*** **[Emphasis added.]** A preliminary survey on navigational issues at the New River crossing and supporting data may be found in the Phase 2 Navigable Waterway Analysis
>
> Technical Memorandum. Generally, the survey revealed that sailing vessels with mast heights of 63.5 feet routinely travel past the FEC Railway Bridge on their way for service at the River Bend Marine Center near I-95. However, the River Bend Marine Center, on occasion, services vessels with mast heights as tall as 95 feet. Additional study is ongoing during Phase 3 to determine the reasonable needs of navigation on the New River and Dania Cut-off Canal. During Project Development, the reasonable needs of navigation may be determined through interviews and meetings with interested stakeholders. A Boat Survey and Bridge Opening Analysis Report was also completed on February 13, 2013 to provide a better understanding of the vessels using the New River and the bascule bridge openings they require.
>
> Bridge opening logs from 2011 were used to determine the frequency and pattern of openings for the Southeast Third Avenue and Andrews Avenue Bridges. February of 2011 was the month within the survey period with the greatest number of bridge openings. The boat survey performed in April of 2011 identified 425 vessels upstream of the Southeast Third Avenue Bridge and Andrews Avenue Bridge that would require bridge openings. Based on the review of aerial photography dated March 26, 2011, it is estimated that approximately 30 percent of the 2,592 vessels traversing the New River upstream of Southeast Third Avenue have a vertical clearance requirement greater than 20 feet.
>
> Important environmental issues are likely related to water quality, wildlife habitat (e.g., manatee protection zones), wetlands, and historic and/ or archaeological areas. In addition to marine and environmental concerns, economic and visual impacts as well as right-of-way acquisitions will be important issues to consider and evaluate in subsequent studies in particular at the New River crossing. Temporary disruption to navigation on the affected waterways will also be an important issue to consider and mitigate during any proposed bridge construction.

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[34] Example in the following excerpt from the Tri-Rail Coastal Link, Preliminary Project Development Report, April 2014. "*5.2.4 Navigable Waterways.* The FEC Railway corridor includes 16 bridges over waterways within the study limits. Of these, eight support navigation as defined in 33 Code of Federal Regulations (CFR) Ch. 1, §2.36. The Build Alternative would likely require up to four potential new bridge structures to accommodate the necessary infrastructure improvements. Based on preliminary Phase 3 analysis of the Build Alternative, one of the potential new bridge structures required would include a new moveable, double track structure adjacent to the existing double track bridge at the New River in downtown Fort Lauderdale. The new structure would provide operational flexibility and a greater navigable clearance allowing fewer lift movements of the existing double-track structure to accommodate the implementation of posted navigational clearance times. As an integral navigable waterway for the marine community, additional analysis of the New River Bridge and stakeholder coordination will be conducted during Project Development. As noted during the Phase 2 analysis, new or modified structures at the New River Bridge, the Dania Cut-Off Canal Bridge (in Dania Beach just south of FLL) and the Hillsboro Canal on the Broward County/Palm Beach County line will require additional coordination with the United States Coast Guard (USCG)."

4.2. Contradiction of Stated Local, Regional, and State Public Policy

In the above sections, it has been demonstrated that the DEIS is not consistent with State of Florida freight, seaport and transit/transportation planning, and not consistent with the regional Tri-Rail Coastal Link planning. In addition, the DEIS erroneously implies consistency with other public policy plans by the regional planning organization, and local comprehensive plans. While those plans meritoriously advocate for improved multi-modal transportation and transit, they also generally support the marine industries sustainability or growth in the name of economic development. Because of the detrimental effect obstructive bridge closure will have on the marine industry, the proposed project is contradictory to plans identified below.

As stated on pg. 5-64 of the DEIS, the Florida Coastal Management Program (FCMP) Consistency Review the Florida State Clearinghouse has reviewed the South Florida East Coast Corridor Transit Analysis, a similar project to the Phase I to the WPB-M Corridor described in the 2012 EA. The South Florida project was determined to be consistent with the FCMP, and the State Clearinghouse determined that this consistency determination would be valid for the AAF project because the AAF Project Area is fully encompassed within the South Florida East Coast Corridor Transit Analysis area which was found to be consistent in 2006 and there have been no relevant changes in the CZMA or FCMP criteria that would affect that determination.

This analysis is rejected since many plan changes have occurred since 2006, so it is not understood what consistency is implied. Further page 5-65 of the DEIS states:

The Project would be consistent with local, regional, and state comprehensive plans. Consistency with these plans has been included in the purpose and need criteria matrix used to develop the Action Alternatives.

The assertion of consistency is rejected by this analysis, as is further presented below:

<u>Regional Planning</u>

The South Florida Regional Planning Council administers policy and planning in the South Florida Region primarily through law via Strategic Regional Policy Plan (SRPP). It also adopts a Comprehensive Economic Development Strategy.

The 2012 Environmental Assessment (p. 243) project erroneously cites compliance with the SRPP by supporting commuter rail, and waterborne transit simultaneously:

"*Policy 8.4 Expand use of public transportation, including buses, commuter rail,* ***waterborne transit, [emphasis added]*** *and alternative transportation modes that provide services for pedestrians, bikers, and the transportation disadvantaged, and increase its role as a major component in the overall regional transportation system." (p. 243, 2012 AAF Environmental Assessment)*

This simultaneous support is contradictory, since the expanded public transportation accommodated by All Aboard Florida and by the Tri-Rail Coastal Link will impede waterborne transit. As one example, the water taxi/water bus owner which now serves the New River foregoes taxi stops upriver of the FEC bridge because of the bridge's unpredictable interruption of regular service. This clearly impedes local public transportation. A testimonial to this effect by business owner William Walker is presented elsewhere in this response.

Further, the All Aboard Florida project's Draft Environmental Impact Statement does not adequately mitigate its negative effects on marine traffic, nor does it explain its contradiction of the CEDS and the SRPP, as follows:

The Comprehensive Economic Development Strategy (CEDS) 2012-17

CEDS is a regional plan composed and adopted by the South Florida Regional Planning Council which in part is used to posture projects and programs for Federal funding. Such Strategy acknowledges the importance of the marine industries in Ft. Lauderdale with blanket policy statements of support:

*"Support projects that promote and **enhance marine**, tourism, renewable energy, military and agriculture sectors." (CEDS, p. 11)* [emphasis added]

In justifying this position, the Plan (CEDS, pp. 91-92) states:

"Known as the "Yachting Capital of the World," Greater Fort Lauderdale enjoys a thriving recreational marine industry, having more than 50,000 registered vessels cruising its 300 miles of navigable waterways and Atlantic shores. Approximately 1,500 megayachts (vessels measuring 80 feet or more) visit Broward County each year, and each visit generates an estimated $400,000 economic impact through boatyard and marina expenditures, purchases and related services from businesses that serve the marine industry. The megayacht related business activity in Broward County accounted for more than 80% of the Region's marine industry's economic activity. It is one of Broward's largest industries and employment sectors, creating more than 134,000 jobs and representing $3.7 billion in wages and earnings. [old data which is larger today] *Marine industry is [sic] also a crucial sector in the Florida Keys (Monroe County). Besides tourism and hospitality sector, the $60-100 million fishing industry is also vital to the County's economy and culture."*

The project as presented in the DEIS negatively impacts the marine and tourism sectors of South Florida's regional economy.

Strategic Regional Policy Plan

The Plan supports the "marine resource economy," so anything detrimental to same such as the obstructive FECR/AAF bridge is contradictory. Because of threat to the regional marine industry and recreational, AAF's DEIS contradicts: (Citations follow):

a. (p. 76, SRPP) " *Protecting our Marine Resource Economy. Our world-renowned waterways provide more than just tourism. The Region is home to mega-yacht builders and outfitters, and the marinas and support services that are located along our coastline provide jobs as well as eye appeal. As the Region continues to grow, demands for residential development along the scenic waterways increase, putting a sometimes-irresistible pressure on marine related industries.* ***Loss of marine-related businesses, especially those that are water dependent to residential development means a loss of jobs and a change in the character of an economy that has been traditional in South Florida.*** *"* [emphasis added]

b. Contradicts Policy 17.6 *"Improve economic diversification in South Florida and enhance the Region's assets for international business, tourism, technology, sports, entertainment, and other economic development activities."* (p. 77; see also page 75 regarding international trade)

Ft. Lauderdale's marine and yachting industries are indisputable and vital links to tourism (domestic and international), international business, and is a cornerstone of economic development and economic sustainability.

c. In three sections of the Plan, Goal 2 is restated: "*Increase employment opportunities and support the creation of jobs with better pay and benefits for the Region's workforce.*" (pages 3, 22 and 24 of the SRPP)

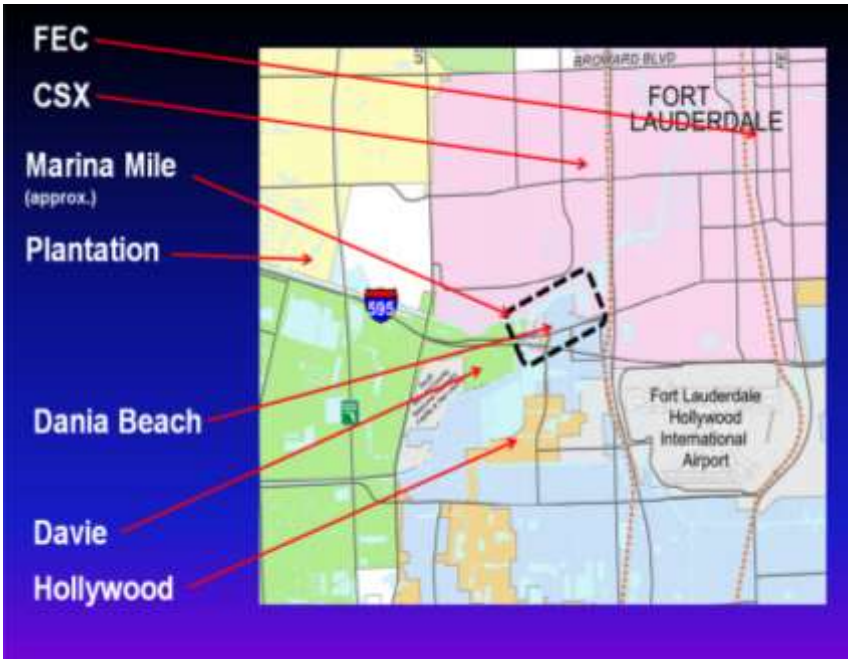
The AAF project as presented in the DEIS (with inadequate mitigation) will negatively impact the marine industries' ability to create and sustain high paying jobs. Coveted marine industry jobs are markedly higher paid. A recent study for the Port of Ft. Pierce Master Plan shows median annual marine industry salaries at $50,522, which is nearly 70% higher than commercial/retail/hospitality jobs ($29,752). Any retraction of the marine industry in Broward is a contradiction to the SRPP.

d. *"Policy 20.14 Encourage coordination among state, regional, and local governments and the private sector in the* ***development of waterway transportation strategies*** *[emphasis added] and polices, consistent with protection of the Region's water resources, which can be integrated into the local comprehensive planning process*." (p. 89, SRPP)

The AAF DEIS contradicts such efforts to develop more waterway transportation strategies.

4.2.1 Inconsistency with local comprehensive plans

The most impacted areas adjacent to the New River, as mapped in Section 3 above, are located in four Broward County municipalities (Davie, Dania Beach, and Plantation) as shown below.



While the EA and DEIS imply consistency with all local comprehensive plans (which set the growth and development policies for these urban areas), the following presents examples of inconsistency in the local comprehensive plans of Ft. Lauderdale and Dania Beach, since these plan sections
promoting economic development particularly in the marine industries which would be harmed by the AAF project.

<u>Ft. Lauderdale Comprehensive Plan</u>
Ft. Lauderdale's adopted comprehensive plan policy is to: "Protect existing marine uses as a

resource of the City."[35] And "OBJECTIVE 1.24: MARINE RESOURCES - Continue to protect and enhance marine uses as a recognized resource of the City. … POLICY 1.24.1: Protect marine resources as **employment generators and economic resources** [emphasis added] of the City by reviewing all projects on waterways to gauge their potential impact on marine uses." [36]

Additional policies in the Ft. Lauderdale Comprehensive Plan to be upheld include:

POLICY 1.24.4: Continue to implement the Marine Industry Association's South Florida Marine Master Plan. [37]

POLICY 1.3.6: **Preserve and enhance existing marinas** [*emphasis added*] in the City and standards for future marina siting which address: land use compatibility, availability of upland support services, existing protective status or ownership, hurricane contingency planning, protection of water quality, water depth, environmental disruptions, mitigation actions, availability for public use, economic need and feasibility. [38]

The City's Comprehensive plan also makes reference to **multi-modal** enhancement, which (though may not be expressly stated) implies waterway transportation. In particular, Ft. Lauderdale continues to encourage the water bus thusly: "POLICY 1.19.2: Work with BCt to expand existing bus connections to the water-bus, which operates along the Intracoastal Waterway.[39] Also referenced is the integration with **Strategic Intermodal System,** a designation by FDOT for critical transportation links of statewide importance and which portend investment of State money for improvements.

Next, we know the Ft. Lauderdale Comprehensive Plan includes parks and recreation, namely the boat ramp west of the FEC Rail bridge (Cooley's Landing). The General public using such facility will be constrained in their enjoyment of the waterway; arguably the City's investment in the boat ramp there will be devalued.

Last, (per planning principles), Ft. Lauderdale has arguably a low ratio of industrial land (6%, or 1252 acres)[40] for an adequate jobs base. Several annexations in the Marina Mile locale into Ft. Lauderdale since 1989 are noted. [41]

<u>Dania Beach Comprehensive Plan</u>
Dania Beach is home to a significant number of the County's marine businesses:

The Dania Beach Comprehensive Plan has the following quoted citations promoting the marine industries which are contradicted by the All Aboard Florida project and its detrimental marine industry effects [emphases added]:

As noted in Table III, flexibility zones 58, 79, 81, 83 and 84 contain virtually all the vacant land presently occurring within the City of Dania Beach. Flex zone 79 represents primarily the employment center base for the City of Dania Beach with

[35] Ft. Lauderdale Comprehensive Plan, Coastal Management Element, Volume 1, p. 5-3.
[36] City of Fort Lauderdale Comprehensive Plan (Ordinance C-08-18), Volume I – Future Land Use Element, p. 2-19.
[37] City of Fort Lauderdale Comprehensive Plan (Ordinance C-08-18), Volume I – Future Land Use Element, p. 2-20.
[38] City of Fort Lauderdale Comprehensive Plan (Ordinance C-08-18), Volume I – Coastal Management Element, p. 5-3.
[39] City of Fort Lauderdale Comprehensive Plan (Ordinance C-08-18), Volume I – Transportation Element, p. 9-29.
[40] Ft. Lauderdale Future Land Use Element, (Ordinance C-08-18), p. 1-9.
[41] Ft. Lauderdale Land Use Element, p. 1-7. Also note that virtually all of the land in project area of concern in located in the AE flood zone, meaning that these areas are "… of special flood hazard with base flood elevations determined."

many existing industrial and marine industry related facilities currently existing. (Future Land Use Element, vacant inventory, p. 6).

Because of the **growing marine industry within the general Broward County area** and the lack of facilities with ready access to the Intracoastal and Atlantic Ocean, **Dania Beach finds itself as a desirable location for this type of development.** (Coastal Management Element, p. 3).

"Policy 1.62 Marine Industrial Uses. The City shall **encourage additional Marine Industrial development.** In doing so, Marine Industrial development shall be planned, designed, and built to be as fully enclosed in buildings as is reasonably possible and to minimize adverse secondary impacts of noise, outdoor activities, … (Future Land Use Element, p. 45)

Industrial Use- The purpose of reserving land for industrial uses is to **provide opportunity for the retention and expansion of Dania Beach's economic base activities**. Although other uses are permitted in areas designated industrial, at least eighty (80%) percent of such land area must be devoted to industrial use, such as manufacturing, warehouse distribution, research and development, or other substantial employment based activities. (Future Land Use Element, p. 23)

Section IV. REQUIREMENTS FOR FUTURE LAND USE GOALS, OBJECTIVES AND POLICIES. The goal of the future land use element of the City of Dania Beach will be provision of land uses which will **maximize economic benefits for the community,** be sensitive of the natural environment and minimize any threat to the health, safety and welfare of the community and its residents. (Future Land Use Element, p. 43)

Policy 1.3 **Clean, light, industrial development will be encouraged** to support the tax base for the community and to provide a wide range of employment for residents of the community. (Future Land Use Element, p. 44).

Section 5. Conclusions

The commenting coalition finds the DEIS seriously deficient, and requests the following actions and or mitigation measures:

5.1. Suspend or Delay a Final EIS

A final EIS must not be issued until the multiple serious flaws and/or additional information, multiple analyses, and more meaningful mitigation, as explained throughout this document, is provided and assured.

Moreover, it is unclear what is intended by the FRA with its stated intention (pg. S-5, DEIS) to combine the Final EIS and Record of Decision (ROD) for this project- additional explanation is requested.

5.2. Implement/modify deficient or non-existent bridge rules

Operation of movable bridges falls under the jurisdiction of the USCG and is regulated by Rules and Regulations published in The Code of Federal Regulations under Title 33, "Navigation and Navigable Waters". The New River FECR bridge in question is presently unmanned and opening and closing operation is fully automatic utilizing electronic sensors and cameras located at the bridge site. The opening and closing operations are controlled utilizing the information transmitted from the sensors and cameras at the bridge site to the FECR central control board located at New Smyrna Beach.

On page 4-24, the DEIS states that "The bridge is currently kept in the open condition and lowered for freight train passage in accordance with USCG Drawbridge Operation Regulations at 33 CFR 111.313(b)."

Comment: We are unable to find this reference in the Code of Federal Regulations, it appears as incorrect. The correct reference for such bridges is Code of Federal Regulations Title 33 Section 117.313 New River, which states: "(b) The draw of the Andrews Avenue bridge, mile 2.3 at Fort Lauderdale, shall open on signal; except that, from 7:30 a.m. to 9 a.m. and 4:30 p.m. to 6 p.m., Monday through Friday, except Federal holidays, the draw need not open. The draw need not open for inbound vessels when the draw of the Florida East Coast Railroad bridge, mile 2.5 at Fort Lauderdale is in the closed position for the passage of a train. Public vessels of the United States, tugs with tows, and vessels in distress shall be passed at any time.[42] The bridge's operating protocol is to be normally left open to navigation and closed only when required by train movements over the bridge.

The mitigation called for in DEIS "Section 7, page 7-3 and in Table 7.2-2 Project Mitigation Measures for Unavoidable Impacts – Operational Period," is inadequate. It calls for a series of measures promoting coordination with local officials, adding a bridge tender, and other steps as follows:

Table 7.2-2 Project Mitigation Measures for Unavoidable Impacts – Operational Period Navigation

- Manage train schedules to minimize bridge closures
- Provide marine industry with bridge closure schedules to facilitate planning by
- boaters

[42] SOURCE: http://www.ecfr.gov/cgi-bin/text-idx?SID=30c4c31911ca80fbe6dcf9aaa9148271&node=se33.1.117_1313&rgn=div8

- Develop a set schedule for the down times of each bridge location. This schedule
- will include both freight and passenger rail service.
- Provide that schedule of bridge closures in an internet-accessible format to offer the
- public with access to that information, including the boating community and marinas.
- This will be posted on the AAF website and/or the US Coast Guard website.
- Implement a notification sign/signal at each bridge location with warning count
- downs to indicate the times at which the bridge will begin to close and open and how
- long before a train will arrive.
- Develop formal contact with first responders and emergency personnel.
- Develop coordination plans between AAF and local authorities during peak vessel
- travel times on holidays and major public events
- Install a bridge tender at the New River Bridge

While all of these are positive steps, they fall short of what is really needed. **The US Coast Guard should initiate the adoption of an operating rules for the New River FECR Bridge No. 341.26, and the single track bascule bridge No. 0717-08 leased by the CSX Corporation (CSX Bridge at I-95).**

The USCG recently solicited navigation information via a survey, which will help with the investigation of vessel traffic characteristics. In addition to attending one of the USCG's public information sessions in Ft. Lauderdale, this consulting team coordinated nearly 200 responses to the navigational survey to derive detailed information about the size and type of vessels transiting the river. These data can be made available to the FRA and the USCG to inform its requested rule-writing procedure.

The bridge rules requested for adoption should ensure predictability, staffed full-time tenders at both locations, and special events/peak demand rules of operation so that all the mariners (most notably law enforcement, marine commerce and recreation) can be forewarned and work with reliable schedules for navigation obstruction. The rules should also consider the peak demand patterns and level of service concept as described above in section 2.4. Finally, the rules should also be synchronized with the other high traffic bridges on the New River so they all work most efficiently in concert.

Adopting rules for the bridges should be designed to solve the following problems:

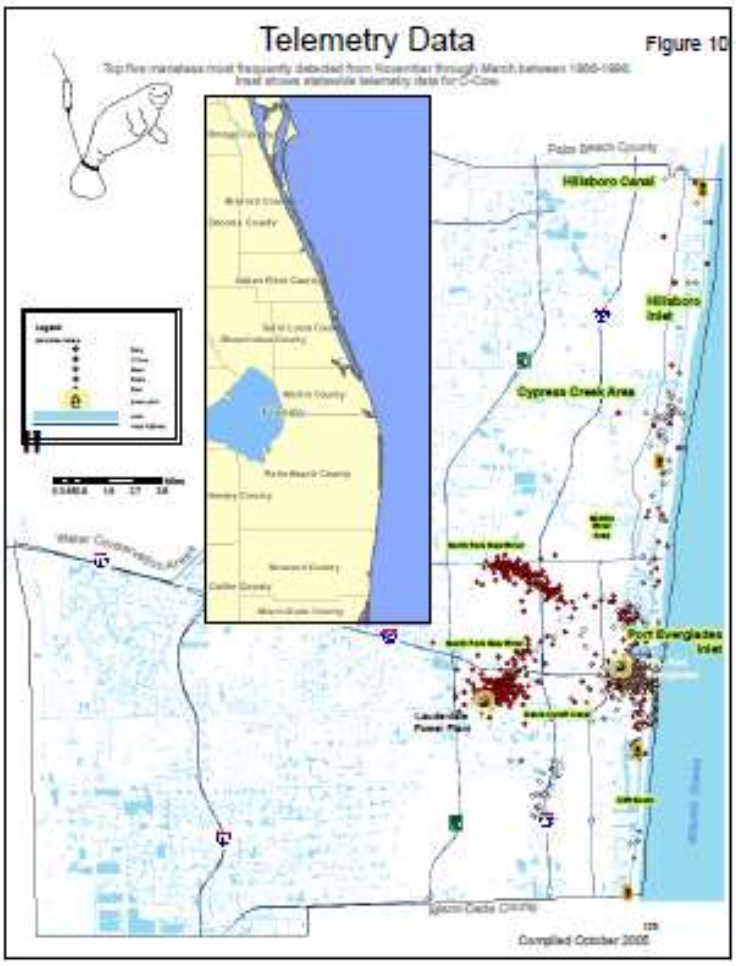
a. Whenever the bridge is down no train, it violates 33 CFR 117.4, which provides for an automated drawbridge to be kept open to navigation when not in use by a train. These so called "ghost train" closures are documented by our recent vessel traffic and bridge monitoring surveys.

b. Since Federal law gives deference to waterway and users because of their limited alternatives, and the multiple alternatives available to surface transportation, arguably the waterway must be open at least 31 minutes per hour, and for at least 15 minutes per opening. Any exceedance of this should warrant complaint. In the recent Draft Environmental Impact Statement for the All Aboard Florida project issued by the Federal Railroad Administration, average bridge closure time is in the range of 19 minutes, and in some hours the bridge is closed more than it is open, which points to obstruction according to your rules. As we speak, we are receiving reports from a daily commercial waterway user that the bridge was closed for more than 2.5 hours on December 1, 2014 and after calling FEC bridge operations headquarters, local commercial marine operators received no predictable forecast of opening.

c. 33 CFR 117.55 requires that the bridge owner of each drawbridge post signs upstream and downstream of the bridge notifying waterway users of the operating scheme for the bridge. The current signage provided is inadequate. In addition, additional signage would be prudent to ensure smooth operation. Especially since the bridge is unmanned, signage should be present about where/how to report malfunctions, etc. As in 33 CFR 117.55 (c) for advance notice, signs would state the "… the name, address, and telephone number of the person to be notified."

Another important remedy can be accomplished if rule promulgation and an overhead bridge at the FEC crossing (discussed below) is constructed. By taking these mitigation measures, vessel congestion at the FEC bridge bottleneck will presumably be relieved to protect against collisions with manatees.

While mitigation measures for the West Indian Manatee are cited in the DEIS beginning on pg. 7-10, these protections apply only to construction, which is not proposed for the FECR New River bridge. Because an additional threat to manatees will result from the density of vessel traffic caused by bridge closures, the DEIS is deficient in its mitigation measures.



The DEIS analysis should include consideration of the adopted Broward County Manatee Protection Plan, especially because of desirable habitat and transit for manatees provided by the New River (North and South Forks).

Show in the "Telemetry Data" diagram below,[43] manatees favor the north and south forks of the New River; the south fork especially because of proximity to the "Lauderdale Power Plant" (as shown on the map) which, in its cooling ponds, provides warm water especially in cooler months which attracts these protected mammals.

In addition, according to scientific data in the Manatee Protection Plan, the higher census of manatees occurs in the high tourist season (November- March), [44] which coincides with prime tourist and boating seasons.

[43] See Figure 10, pg. 125 of Attachment K to the Manatee Protection Plan.
[44] See pg. 122 of Attachment K to Manatee Protection Plan – Figure 7, available [online] at http://www.broward.org/Manatees/Pages/ManateeProtection.aspx

5.3. Alternatives analysis must be expanded to advance the construction of a bridge to mitigate cumulative impact

The engineering challenge is to mitigate negative impacts of unreasonable bridge closure. Under the NEPA (EIS) process, credible engineering comments filed with the Federal government will elicit responses from the applicant. Though AAF dismissed several options such as tunneling, elevated tracking or separated tracks in its EA, those options and others should be advanced again if the project's impact, together with future Coastal Link impacts, is to be mitigated.

Included in this report are suggested alternates for mid-level movable bridges for combined passenger rail operations for AAF and Tri-Rail Coastal Link and a high level alternate for a fixed and a movable bridge with approach viaducts for combined AAF and Tri-Rail Coastal Link Passenger and commuter rail operations. The suggested alternates have examined the Tri-Rail Coastal Link Environmental assessment and found that the proposal for a two track mid-level movable bridge adjacent to the existing FEC New River Bridge is not feasible within the existing ROW. The width of the framing for the existing bridge which is centered on the FEC ROW leaves insufficient room on either side to construct a new double track bridge. Our investigation concludes that it is possible to build two separate movable mid-level bridges one on each side of the existing bridge. This needs to be evaluated and included in both the AAF DEIS and the forthcoming Tri-Rail Coastal Link EA and EIS.

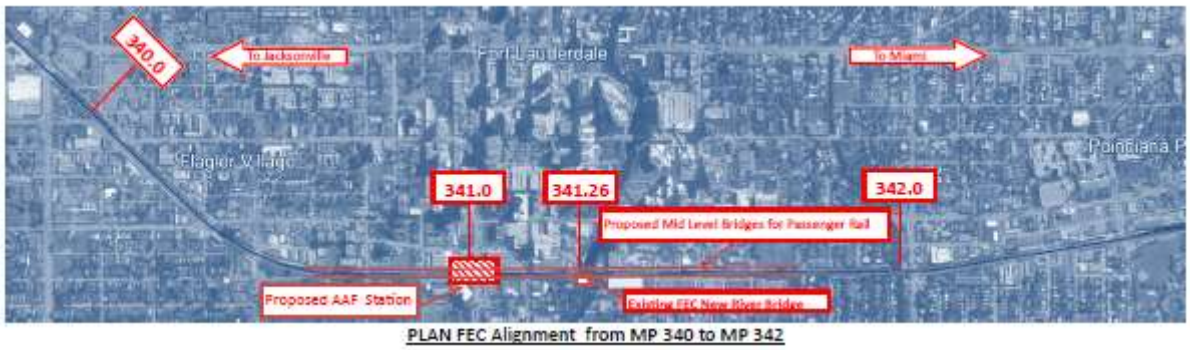
The alternates investigated and recommended by this report are:

- Mid-Level Movable Bridges (21 foot vertical clearance above MHW)
- Fixed High Level Bridge (which could be 55 foot vertical clearance above MHW, or preferably higher)
- Fixed High Level Bridge with a movable span permitting tall-masted vessels to pass thru without having to step their masts.

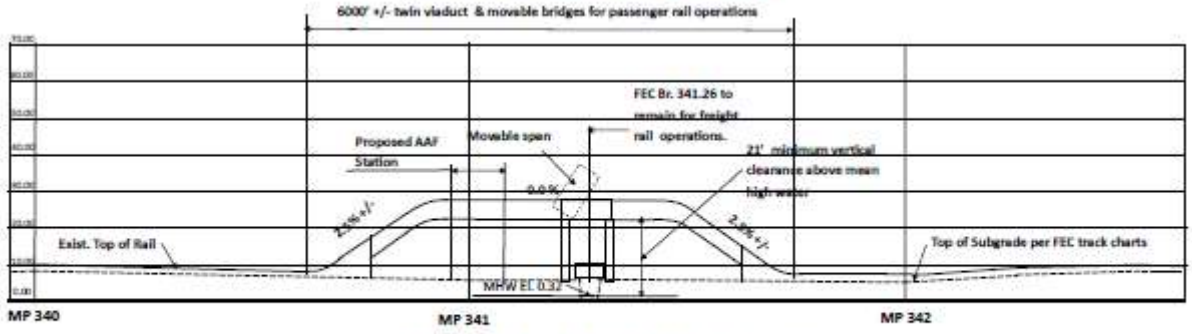
5.3.1 Mid-Level Movable Bridge Alternate

A mid –Level movable bridge carrying all proposed AAF passenger rail and Tri-Rail Coastal Link commuter traffic has the capability of reducing the number of openings required for a low level bridge such as the existing FEC New River Bridge. The Existing bridge is situated such that the vertical clearance is 4' at MHW. This permits only rowboats, canoes, kayaks and small motor boats to pass without requiring an opening. A mid-level bridge or set of bridges would allow passage of vessels having a height of 21 feet or less at MHW to pass without requiring an opening. , and is consistent with the nearby downtown moveable road bridges. The other distinct advantage is that the existing bridge FEC bridge need only carry freight operations and could conceivably be left in the open position for longer periods.

CONCEPTUAL RENDERING MID LEVEL TWIN MOVABLE PASSENGER RAIL BRIDGES OVER THE NEW RIVER

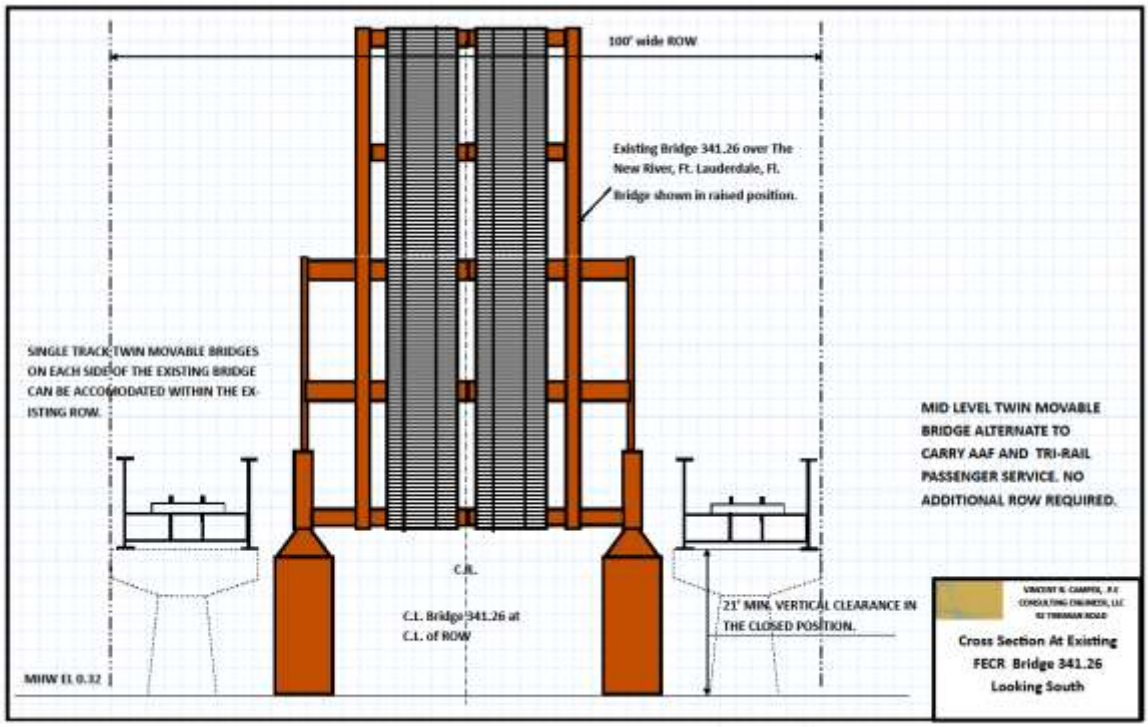


PLAN FEC Alignment from MP 340 to MP 342



PROFILE FEC Alignment from MP 340 to MP 342

CONCEPTUAL PLAN FOR AAF & TRI-RAIL PASSENGER RAIL MID LEVEL TWIN MOVABLE BRIDGES OVER THE NEW RIVER

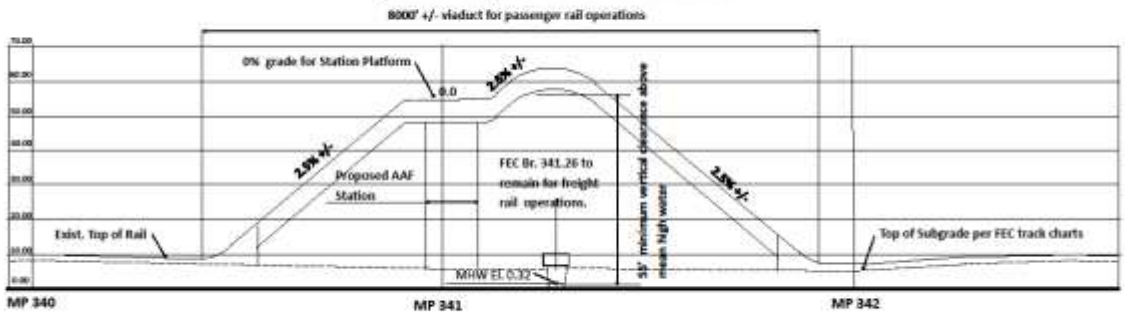


5.3.2. High Level Fixed Bridge Alternate

The High level fixed bridge alternate (55 foot vertical clearance above MHW, or higher) would carry all proposed AAF passenger rail and Tri-Rail Coastal Link commuter traffic. This alternate while it would greatly reduce the number of required bridge openings however limits passage to only those vessels that require less than high level vertical clearance. Large sailing vessels with tall masts would not be able to pass without stepping their masts; many super yachts exceeding 150 feet in length and large superstructures also would be constrained by a 55 vertical clearance. This alternate was included in our evaluation however it is not recommended as many vessels requiring higher air draft lying west of the FEC New River Bridge would no longer be able to pass through this part of the channel without having to step their mast or remove parts of the superstructure. If the process to step the mast were required perhaps only one time during the boating season this would not present a major hardship. However through the study of the large vessels berthed at locations west of the existing FEC Bridge which frequently navigate this part of the river to the Intracoastal Waterway and the Atlantic Ocean, it is concluded that this is counterproductive to a healthy marine industry. Likewise these vessels return to their home berth on a frequent basis. It is for this reason that we do not recommend this alternate, however it is included for the sake of discussion and analysis.

CONCEPTUAL RENDERING OF HIGH LEVEL FIXED PASSENGER RAIL VIADUCT OVER THE NEW RIVER

PLAN FEC Alignment from MP 340 to MP 342

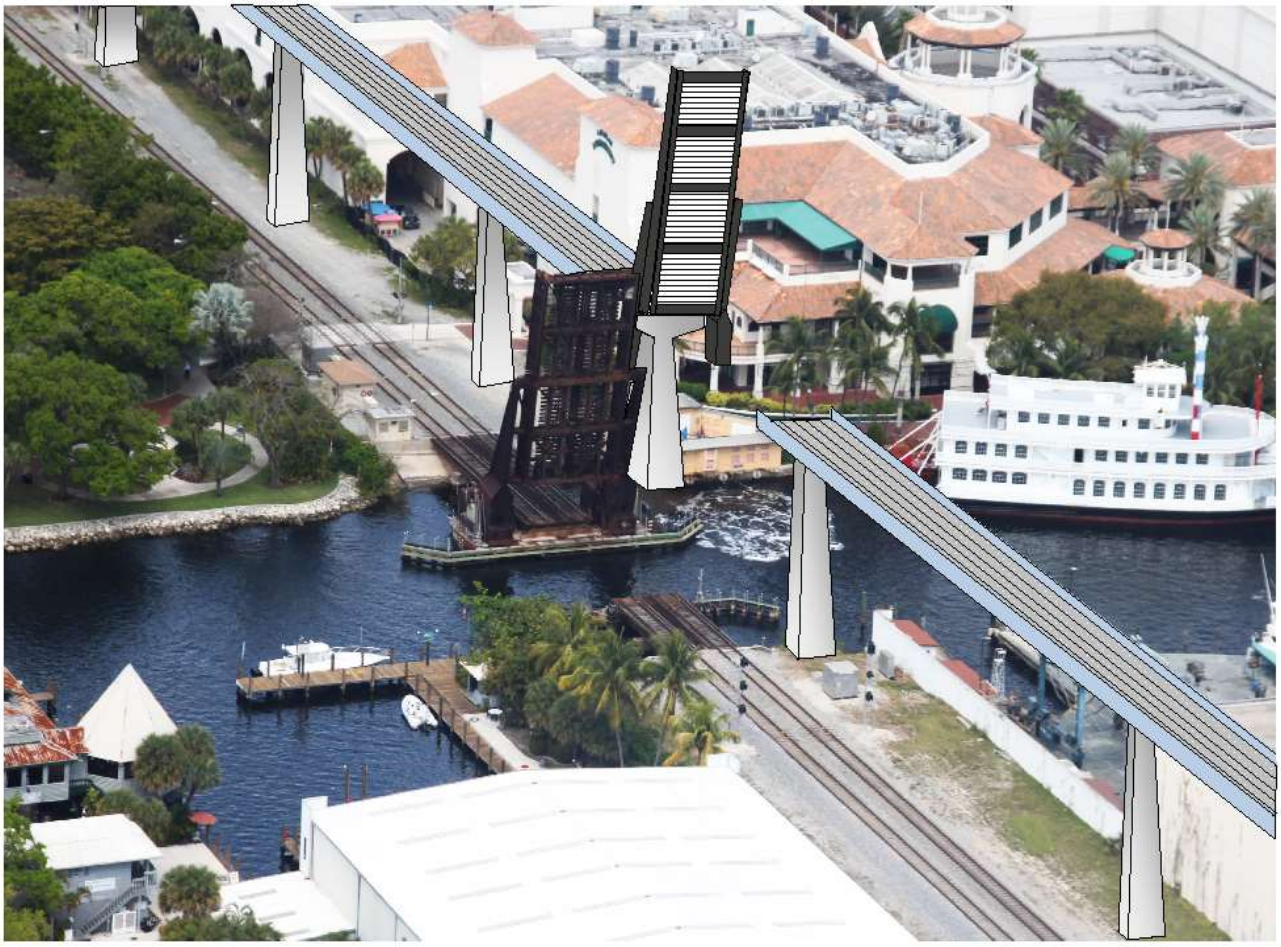


PROFILE FEC Alignment from MP 340 to MP 342

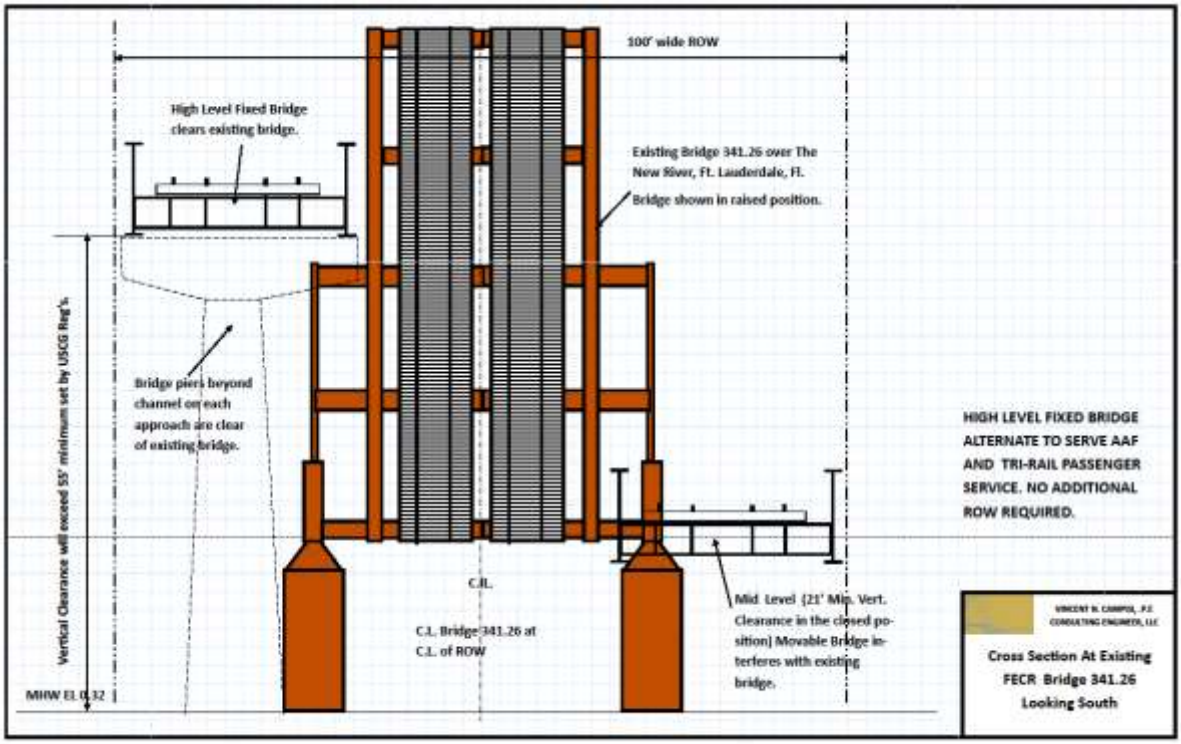
CONCEPTUAL PLAN FOR AAF & TRI-RAIL PASSENGER RAIL FIXED BRIDGE VIADUCT OVER THE NEW RIVER

5.3.3. High Level Fixed Bridge with a Movable Span Alternate

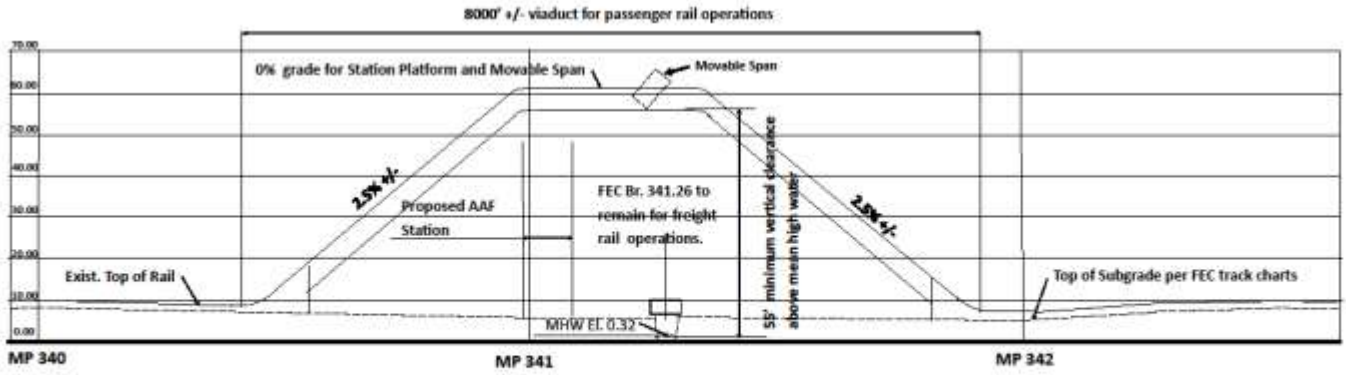
This alternate is the best alternate that provides the least impact on navigation and would serve FEC's freight operation's needs on the existing FEC movable bridge and AAF's and Tri-Rail Coastal Link's passenger and commuter rail needs on the high level movable bridge. While Bridge openings would be required for most vessels at the existing FEC bridge the number of closures would be limited only to the freight operations as passenger rail would operate over the high level bridge. The number of openings at the high level bridge also are less in number than for the Mid-Level movable bridge alternate as the 55 feet of clearance provided in the closed position allows most vessels except the tall masted vessels to pass without an opening thereby maximizing use of the bridge in the closed position for rail operations. This alternate is therefore considered to be the recommended alternate to accommodate future rail traffic and have the least impact on navigation.



CONCEPTUAL RENDERING OF HIGH LEVEL MOVABLE PASSENGER RAIL BRIDGE AND VIADUCT OVER THE NEW RIVER



PLAN FEC Alignment from MP 340 to MP 342



PROFILE FEC Alignment from MP 340 to MP 342

CONCEPTUAL PLAN FOR AAF & TRI RAIL PASSENGER HIGH LEVEL VIADUCT WITH MOVABLE SPAN OVER THE NEW RIVER

Page 3-1 Alternatives

3 Alternatives

The Council on Environmental Quality (CEQ) regulations that implement the National Environmental Policy Act of 1969 (NEPA) state that the alternatives section is the heart of an Environmental Impact Statement (EIS) (40 CFR § 1502.14). Those regulations and accompanying guidance, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (CEQ 1981), require a federal decision-maker, in this case the Federal Railroad Administration (FRA), to:

- Develop and describe the range of alternatives capable of achieving the purpose and need (1505.1(e)), including alternatives not within the jurisdiction of the lead agency and the No-Action Alternative (1502.14(d)); and
- Rigorously explore and objectively evaluate these alternatives, and provide reasons why the lead agency eliminated certain alternatives from further study (1502.14(a)).

This chapter describes the process through which the Proposed Action (Build) Alternatives and the No-Action Alternative for Phase II of the Orlando-Miami Passenger Rail Project were identified and evaluated, and provides a detailed description of the alternatives evaluated in this Draft Environmental Impact Statement (DEIS). The environmental impacts of each of the alternatives that were carried forward from this screening process are evaluated in Chapter 5, Environmental Consequences, of this DEIS.

Comment: The DEIS is not in compliance with this directive to include all of the alternatives to achieve the purpose and need of the project when significant issues (proposed freight increase and Tri-Rail Coastal Link passenger operations) concerning rail operations and impacts on navigation have not been addressed in the DEIS. In other words, all prior alternatives (such as a tunnel, and mid-level and high-level bridges) should have been analyzed in the DEIS instead of being dismissed.

Alt-bridges (2)

(Page 3-2, DEIS) 3.2 Alternatives Identification and Screening

This section describes the alternatives that were identified and developed for the Project and the criteria used to evaluate each alternative. The analysis also included a preliminary comparison of potential impacts to key environmental resources. Alternatives were identified and screened in an iterative, three level process:

- Level 1 identified and screened overall routes connecting Orlando with the previously reviewed West Palm Beach to Miami service, and identified a preferred route alternative.
- Level 2 was more fine-grained and evaluated segment alternatives within the preferred route.
- Level 3 evaluated alternatives within one segment (the Orlando-Orange County Expressway Authority (OOCEA)-controlled segment of the East-West Corridor) of the preferred route.

Figure 3.2-1 shows the screening process graphically. In order to identify and consider alternatives that will satisfy the Project's purpose, including its feasibility as a private enterprise, AAF developed evaluation criteria, including six critical determining factors (Critical Determining Factors) that must be met in order for AAF to be able to proceed with the Project. These screening criteria recognize that AAF is a private enterprise that cannot rely on government operating subsidies and that does not have the authority to acquire property by eminent domain (condemnation). To be feasible as a private enterprise, AAF must be able to:

- Provide reliable and convenient intercity passenger rail transportation connecting Orlando and Miami, Florida, by extending previously reviewed passenger rail service between West Palm Beach and Miami;
- Gain access to the lands on which alternatives are proposed through viable acquisitions, leases, licenses, permits, or other arrangements that do not preclude the feasibility of the Project as a private enterprise;
- Deliver a travel time that will meet the ridership targets necessary for a sustainable commercial initiative;
- Commence construction in the near term in order to control costs;
- Remain in close proximity to existing or planned transportation corridors in order to limit land acquisitions and related impacts; and
- Limit cost of development, including cost of land acquisitions, access, construction, and environmental mitigation.

AAF identified the alternatives at each level, and developed and applied screening criteria to determine whether each alternative was reasonable and capable of being implemented in accordance with these overall objectives. FRA has independently evaluated AAF's analysis, validated assumptions, and has prepared the following summary of the alternatives evaluation process.

Comment: In order to satisfy the above criteria the **full impact of all rail operations must be evaluated in the alternatives.** The omission of any future rail operations will impact the ability of the alternative selection to satisfy the project purpose, it will also affect projected travel times and prohibits the ability to perform a complete evaluation as to the necessity of providing additional ROW and infrastructure to support the project. The projected costs to implement the project will not be accurate without the consideration of those costs for future freight and passenger operations by AAF and the Tri-Rail Coastal Link. Impacts on the environment and on Navigation in particular will not be accurately identified without inclusion of all of the possible future rail operations on the FEC corridor.

5.4. Divert/Rationalize Freight Rail Traffic, including an expanded, multi-modal US 27 Corridor.

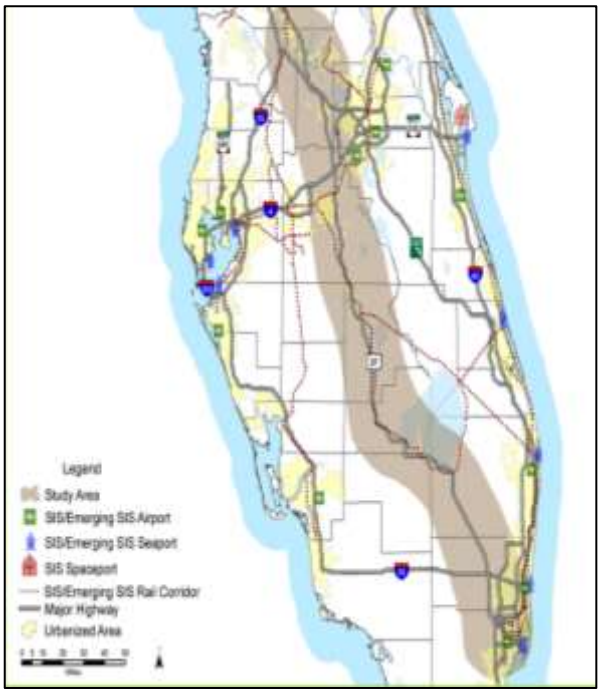
The FRA should require full consideration of all future freight traffic on an integrated system throughout Florida, and equalize the traffic on rail lines with consideration for urban congestion versus rural traffic capacity. Also referred to as "freight rationalization," and advanced in 2014 by the Treasure Coast Regional Planning Council (represented on the Coastal Link Steering Committee) this means of analysis should be considered in the context of the cumulative impact of future rail traffic on South Florida rail corridors. In addition, consideration of an improved multi-modal US 27 corridor (with rail connection to Miami-Dade County) should be included in that planning and modeling.

The US 27 Corridor has been evaluated by a series of studies to, in part, vastly improvement its capacity to move freight traffic through a more integrated state network, including expanded rail. "The US Department of Transportation recently forecasted freight railroad demands are expected to increase to 88 %by 2035 from 2002 levels.

This forecast stresses the urgent need for adequate investment in rail capacity in the year ahead to meet the anticipated growth." [45]

"As a major north-south controlled access roadway with connections throughout Florida and into other states, US 27 plays an important role in regional mobility and the state economy. The US 27 Corridor under evaluation includes ten counties throughout southeast and central Florida. The corridor spans more than 300 miles, beginning at its southern terminus in Miami-Dade County and proceeding through the central part of the state to I-75 in Marion County." [46]

Looking to central Florida, the "Florida Future Corridors Study" ". . . will explore alternatives for moving people and freight from Southeast Florida through the Heartland to Central Florida and locations to the north. A focus will be the potential for increased freight flows from the Southeast Florida seaports, connecting to several planned and proposed intermodal logistics centers and other freight/distribution sites in the Heartland. FDOT is studying the existing U.S. 27 corridor from Miami-Dade to Marion Counties. The Central Florida Regional Planning Council is leading the Heartland 2060 regional visioning process. These two studies will guide decisions about the future of U.S. 27 and other corridors in this region." [47]



In addition to these studies, FDOT in 2012 completed the US 27 Multimodal Planning and Conceptual Engineering (PACE) Study [48] after the Phase 1 rail feasibility study (March 2010) "… to investigate the technical and economic feasibility of developing the US 27 Corridor to accommodate multimodal options, including rail and highway modes." [49]

Conclusions of the study include the feasibility of diverting a significant amount of freight from rail to rail, and truck to rail. Approximately 75 miles of rail would be added to the corridor to link South Florida with Central Florida.

"The multimodal traffic alternative rail demand estimates 15-22 trains per day may use the new US 27 rail corridor. This represents approximately 50-75% of existing rail service on the east coast rail corridor. Rail service in the corridor could also result in 175 fewer daily trucks on US 27."[50]

Stakeholders interviewed for the study include the Florida East Coast Railway (FEC), and the South Florida Regional Planning Council. The cost estimate for the "Multimodal alternative" is $1.2 B, which includes "… 75 track miles of rail,

[45] Florida Department of Transportation, US 27 Transportation Alternatives Study, January 2013, page 24.
[46] Florida Department of Transportation, US 27 Transportation Alternatives Study, January 2013, page 3.
[47] See: http://www.flfuturecorridors.org/southeast_about.htm
[48] Florida Department of Transportation, FM Number 428662-1-12-01, December 2012.
[49] Florida Department of Transportation, US 27 Transportation Alternatives Study, January 2013, page 24.
[50] FDOT US27 PACE Study, Volume 1, pp. 1-3.

10 rail bridges, 382 mainline lane miles of roadway (widening and reconstruction), 23 bridges, 20 intersection improvements, two (2) interchanges, and three (3) turnarounds." [51]

The US 27 project offers new connectivity to the Glades Communities. Designated as "Rural Areas of Economic Concern" by the State of Florida, this area has expressed support for economic development opportunities such as the manufacturing, warehousing, distribution center and logistics hub that could become the new economic driver in the area.

In addition to substantial expenditure by the State of Florida to analyze the feasibility of the US 27 Corridor connection via rail to Miami Dade County through the PACE study, the Palm Beach MPO has endorsed the idea. The Palm Beach MPO Board voted to endorse the 2040 Desires Plan on May 15, 2014 and then voted to adopt the 2040 Long Range Transportation Plan on October 16, 2014. Both of those documents identify a desire to implement rail on the US 27 corridor between Miami and South Bay.[52]

The DEIS should require freight rationalization for the State of Florida to accomplish diversion of freight rail traffic away from downtown urban cores in SE Florida. Therefore, the next phase of the US 27 corridor engineering design and construction should be completed as soon as possible. Freight rail traffic on the FEC and CSX lines could therefore be minimized so that obstructive bridge closures which are unreasonably obstructive to marine traffic would also be minimized.

5.5. Provide an "adjudication matrix" to the public

As explained in Section 1 of this document, the administration of NEPA for this proposed project has left "something to be desired" for public trust in the process, and full consideration of public input.

Through the public, transparent, and participatory process intended by the US Congress through NEPA, we request a full vetting of all comments received by the FRA, including disclosure the public as to the responses to each comment received. Referred to as an adjudication matrix by some agencies, this document would provide each comments followed by analysis or discussion, validity or agreement/disagreement, and a recommended action.

[51] FDOT US27 PACE Study, Volume 1, pp. 1-3.

[52] See pages 18-19 of the adopted Long Range Transportation Plan, available November 26, 2014 [online] http://www.palmbeachmpo.org/2040LRTP/2040_LRTP.pdf .

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Appendix A – Review and Comments References

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All Aboard Florida Environmental Assessment, October 31, 2012. "All Aboard Florida Passenger Rail Project from West Palm Beach to Miami" submitted to the Federal Railroad Administration. EA Document:
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Catherine Dobbs, Transportation Industry Analyst, Office of Railroad Policy and Development, Federal Railroad Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590, catherine.dobbs@dot.gov.

Commitment 2040. Long Range Transportation Plan, Broward Metropolitan Planning Organization. Available [online] http://www.browardmpo.org/commitment-2040/plan-development

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FECR Track Charts at FECR Bridge No. 341.26 over the New River, Ft. Lauderdale, Florida, FECR Bridge No. 260.93 over the St. Lucie River, Stuart Florida and FECR Bridge No. 282.58 over the Loxahatchee River, Jupiter, Florida.

Federal Railroad Administration announcement regarding the preparation of Environmental Impact Statement for the All Aboard Florida, Miami-Orlando Passenger Rail Project. April 15, 2013. https://www.federalregister.gov/articles/2013/04/15/2013-08745/environmental-impact-statement-for-the-all-aboard-florida-miami-orlando-passenger-rail-project

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Presentation to The Florida Senate, Committee Meeting Expanded Agenda, Commerce and Tourism, Senator Detert, Chair and Senator Abruzzo, Vice Chair. October 7, 2013, Rusty Roberts, Vice President – Corporate Development, FECI.

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APPENDICES

Appendix A. DEIS Review and Comments by Vincent N. Campisi, PE, Consulting Engineer, LLC

A separate document is attached.

Appendix B. Signors comprising the coalition responding to the DEIS

The Coalition submitting this DEIS response to the Federal Railroad Administration is comprised of concerned Ft. Lauderdale Area Property Owners (including some homeowners associations), Boaters, and Marine Industry Businesses. We have on file the signature forms that include address, signature, organization, address, e mail and or phone number of each of the following signors:

> *"The undersigned individuals and organizations comprise a coalition of concerned and/or affected Ft. Lauderdale area property owners, boaters, or businesses engaged in a wide array of marine activities and industries. By resolution or signature, these parties support the "Objections and Comments to the All Aboard Draft Environmental Impact Statement and Section 4(f) Evaluation" which are attached hereto. Each of the parties below respectfully requests a response to those objections and comments from the Federal Railroad Administration."*

Organization/Affiliation	Name
Boater	Alex Hirst
Home Owner	Alexander Reyes
Cable marine, Inc.	Anthony Laporte
Marine Servicing	Anthony Loyiza
Masters Marine, Inc.	Anthony Pignetti
Marine Servicing	Brandon Stephens
The Fiberglass Shop	Captain Herb Ressing
Cable Narine, Inc	George Cable
Masters Marine Inc.	Christopher Poole
Marina Employee	Clifton Smisky
Yacht Store	Daisy Ortiz Lenit
Happy Diesel ,Inc.	David G. Lenit
Marina Mile Yachting Center	David Hole
Boater	Jordan Fuss
Marine Servicing	David Kesley
Boater	Derrick Collins
Marine Servicing	Earl Heeracal
Marine Industry	Eliesen Salus
Home Owner	Franklin Geiger
Marine Servicing	Frederick Jones
Lauderdale Isles Civic Improvement Assoc.	Dirk Lowry
Cable Marine, Inc	Gary M. Sturm
Boater	George Cable
C&S Properties, Inc	George Cable
D.S. Hull/Boat Owners Warehouse, Inc	George Cable
Marine Servicing	Jackson Ruiz
Masters Marine Inc.	James Peacock
Marine Servicing	Jesse Simisky
Citrus Isles Associates	John L Dotto
Home Owner	John Whiteker
Boater	Jorge Correa
Home Owner	Justin Bachana
Boater	Justin Roos

Home Owner	Kasey Collins
The Fiberglass Shop	Charles Smoot
Home Owner	Kathryn Boshell
Cable Marine, Inc	Kenneth Cigalotti
Home Owner	Kevin Berry
Cable marine, Inc	Kevin Szlosek
Marine Servicing	Mark Cirigliano
Boater	Mark Enewkirk
River Oaks Civic Assoc. Member/Citrus Isles	Mary L. Sessions
Home Owner	Mary Martinez
Boater	Michael J. Ennis
Masters Marine Inc.	Michael Murphy
Marine Servicing	Wayne McElroy
Universal Marine Center Mega Yacht	Michael Y. Aouate
Home Owner	Nicholas Zelinka
Yacht Style Refinishing Inc.	Richard Stephens
Home Owner	Robert Kirchoff
Marine Servicing	Ronald Ruiz
ROCA	Sara L. Dotto
Marine Servicing	Scott School (Painter)
Westport Yachts	Mark Masciarotte
BOW World Wide Yacht Supply	Steve Baum
Universal Marine Center	
Marina Bay	John Connor
Pier 17 Investments 2014, LLC	Nathan Cox
Marine Servicing	Thomas P. Borden

Appendix C. USCG June 2014 comment letter

U.S. Department
of Homeland Security

**United States
Coast Guard**

Commander
Seventh Coast Guard District

909 SE 1st Ave Rm 432
Miami, FL 33131-3050
Staff Symbol: (dpb)
Phone: (305) 415-6880
Fax: (305) 415-6763
Email: Evelyn.Smart@uscg.mil

16591/AAF
02 June 2014

Charlene Stroehlen PE
Senior Associate Engineer
AMEC - Environment & Infrastructure
404 SW 140th Terrace
Newberry, FL 32669

Dear Ms. Stroehlen:

In March 2014, the U.S. Coast Guard received a draft copy of the Navigation Discipline Report (NDR) for the AAF Passenger Rail Project from Orlando to Miami, Florida. The Coast Guard reviewed and provided comments on the NDR on April 4, 2014. Since then a revised advance copy of the NDR was given to the Coast Guard for a second review on May 8, 2014.

The Coast Guard agrees the revised NDR is more comprehensive than the first study and provides useful data on current use of three major waterways with drawbridges along the AAF corridor (New River in Broward County, Loxahatchee River in Palm Beach County, and the St. Lucie River in Martin County). In Sections 2.6.2 and 6.0, the NDR addresses evaluation criteria and a criteria matrix for assessing the No-Build Alternative and the Proposed Action's impact on identified navigation needs. While information on the impacts on navigation received from the applicant will be analyzed, the Coast Guard will make the ultimate determination as to whether or not the impacts on navigation are unreasonable.

The Coast Guard, in making a permit decision, must preserve the public right of navigation while maintaining a reasonable balance between competing land and waterborne transportation needs. We do so by taking a balanced approach to total transportation systems, both land and water modes, in all bridge actions. At this time, we are unable to fully assess the potential impacts and will require more information on the following issues prior to making a permit decision:

1. The impacts on navigation from the natural flow of these waterways, including currents and water velocity fluctuations, while vessels await openings at these drawbridges, remain unknown;

2. The affected drawbridges set the most restrictive vertical clearance on these waterways, and a large percentage of vessels cannot transit the bridges in the closed position;

3. Any increase in the existing closure periods at the drawbridges spanning these waterways may not provide for the reasonable needs of navigation;

4. The methodology used in the NDR may be sufficient to assess the waterways' trends and uses for purposes of making a navigation impact determination. However, the Coast

Guard is unfamiliar with the model and needs to evaluate the assumptions and data therein.

Accordingly, additional study will be required to determine the reasonable needs of navigation on these three waterways in the vicinity of the drawbridges. To advance the NEPA process, we support including the NDR as an attachment to the DEIS as it informs the choice of alternatives for analysis. The DEIS should note that the Coast Guard still must make a determination as to the prospective impacts on navigation in the vicinity of the three drawbridges spanning the New River in Broward County, Loxahatchee River in Palm Beach County, and the St. Lucie River in Martin County and that the DEIS will be used to inform that Coast Guard determination.

If the Coast Guard determines the proposed AAF operating schedule unreasonably impacts navigation on the New River, Loxahatchee River and St. Lucie rivers, it may be necessary for the Coast Guard to amend existing bridge regulations and require modifications to those bridge operations so that navigation is not unreasonably burdened.

(Miss) Evelyn Smart will continue to be the contact for your project.

Sincerely,

Barry L. Dragon
Director, District Bridge Program
Seventh Coast Guard District
By direction

Copy: Commander, Coast Guard Sector Miami (s, sp)
Commandant (CG-BRG), U.S. Coast Guard
Jose Gonzalez, FECI/AAF
Alex Gonzalez, FECI/AAF
Mr. Chris Bonanti, FECI/AAF

NOVEMBER 2014

APPENDIX A

REVIEW AND COMMENTS

REGARDING PROPOSED RAIL OPERATIONS AND IMPACTS ON NAVIGATION ON THE NEW RIVER FT. LAUDERDALE, FLORIDA

AS PROPOSED BY

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

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THIS DOCUMENT IS PREPARED ON BEHALF OF A COALITION OF: CONCERNED FT. LAUDERDALE AREA PROPERTY OWNERS, BOATERS, AND MARINE INDUSTRY BUSINESSES

PREPARED BY

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BACKGROUND:

In 2012, Florida East Coast Industries (FECI) announced its intention to start a privately-funded passenger rail service known as "All Aboard Florida." (AAF) is intended to provide new intercity express rail service between downtown Miami and Orlando, with additional stations in downtown Fort Lauderdale and downtown West Palm Beach. FECI is the division of Fortress Investment Group, (the parent company) responsible for passenger rail development and Flagler Development, which handles the company's real estate interests. FEC Railroad (FECR) is a separate division of Fortress Investment Group which operates and maintains the FECR rail and freight operations.

AAF has produced an environmental assessment (EA) and a finding of no significant impact (FONSI) was issued by the Federal Railroad Administration based on the EA submitted. The FRA is the lead agency for the National Environmental Policy Act (NEPA) review process for the Project. FRA issued a Finding of No Significant Impact (FONSI) for the initial phase I of the Project on January 30, 2013. Subsequently, on April 15, 2013, FRA published in the Federal Register a notice of intent to prepare an Environmental Impact Statement. Although the Draft EIS was initiated for Phase II of the Project, the document analyzes the cumulative effects of both phases of the Project since train operations will cover the full corridor between Miami and Orlando. The FRA issued the Draft EIS on September 19, 2014.

As stated in the DEIS Notice; FRA is providing an extended public comment period of 75 days from the day that the FRA issued the DEIS; thus, the comment period ends on December 3, 2014. Comments on DEIS for Phase II of the All Aboard Florida project are due by December 3rd, 2014 and should be sent to FRA either by email to the attention of Mr. John Winkle at this address: AAF_comments@vhb.com, or by mail to: Mr. John Winkle, Federal Railroad Administration, 1200 New Jersey Avenue, SE, Room W38-311,Washington, DC 20590.

This report comments on those aspects of the DEIS that describe the proposed rail operations proposed by AAF and also the freight operations carried by FECR on the N-S corridor discussed in the DEIS. The report discusses impacts on navigation resulting from the proposed rail operations over the FEC New River Bridge at MP 341.26, with some interrelated with the operations at the CSX bridge over the New River at Interstate 95.

INTRODUCTION:

The FRA – DEIS Document dated September 19, 2014 is the subject of review and comments as presented in this report. The format takes sections of the DEIS document reproduced in this document in blue font. Comments regarding the particular section are incorporated within or following each section of the DEIS being discussed. The comments are supported by references and exhibits which will be appended to this report. The engineering comments will be based on conceptual engineering investigation sufficient to prove the basis for the comment and will not include in-depth preliminary or final engineering analysis. The level of engineering investigation performed for the DEIS as described in the DEIS is conceptual in nature only without extensive engineering analysis, and is based on assumptions regarding structure types, number of tracks, and railroad construction required for the corridors included in the project. Budget estimates included in the DEIS and the TRI-Rail Environmental Analysis for proposed construction are based on S.F. costs and the cost for similar construction obtained from other similar projects.

The DEIS was prepared for the purpose of presenting the proposed AAF passenger service and to describe the various alternates considered for the combined existing and future freight service and the proposed passenger rail service which will operate on the existing FEC corridor from Jacksonville to Miami and also for the proposed extension to Orlando.

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NOTE: this TOC follows the section numbering in the DEIS

EXHIBITS:

Following are the sections of the DEIS shown in **blue font** together with the review comments for each section cited. It is presented in this manner to assist the persons reviewing the comments by providing all of the information in a single document.

SECTION, SUMMARY, REVIEW AND COMMENTS

PAGE S-1 & S-2 Summary

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 $1.6 billion in federal funds through the Railroad Rehabilitation and Improvement Financing (RRIF) program, which is a loan and loan guarantee program administered by 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 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.

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 Railroad (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 in Figure 1.1-1.

COMMENT: AAF wants to implement the project in two phases. The first phase would be from West Palm Beach to Fort Lauderdale and Miami. This phase requires construction of stations and improvements to the existing rail corridor to accommodate the proposed passenger service. FEC has made improvements in this corridor to allow increased freight rail traffic anticipated from port improvements at Port Everglades and Port Miami in part to allow "Post Panamax" container ships to use Port Everglades and Port Miami which would increase the number of containers at these ports to be carried by FEC. The DEIS has not addressed all of the impacts from this increased freight traffic nor has it considered the additional passenger operations proposed by SEFCC (formerly Tri-Rail) on the same FEC corridor. Specific impacts will be discussed in the appropriate sections of this DEIS comment document. Whereas the existing conditions at the FECR moveable bridge are obstructive today, the impacts from increased rail operations will more severely impact navigation on the existing FEC movable bridge at MP 341.26 over the New River in Fort Lauderdale.

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 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). FRA has made no decision under the Railroad Rehabilitation and Improvement Financing (RRIF) program as to whether a loan would be provided for Phase I.

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 for public review of this new site concurrent with this DEIS. 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 DEIS analyzes the cumulative effects of completing both phases of the Project, although the impacts exclusively from Phase 1 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 and incorporating the mitigation measures identified therein. The bulk of the information in this DEIS 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), adding a second track within 128.5 miles of the FECR Corridor between West Palm Beach and Cocoa, and additional bridge work 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.

COMMENT: Phase II operations must also consider the increase in freight rail and passenger rail operations on all of the waterways which are crossed by FEC in addition to the New River Bridge on the movable bridges at the St. Lucie River and Loxahatchee (Jupiter) River bridges.

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.

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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. The Notice of Intent for the AAF Project was published 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 DEIS, including concerns about noise and vibration impacts, impacts to navigation, impacts to wildlife and protected species, safety and 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).

Comment: During the scoping period significant issues which were to be identified should have included all of the rail operations that are being proposed which will utilize the FEC corridor. These rail operations should have included the plan

to have Tri-Rail commuter operations joint use of the FEC corridor through Fort Lauderdale which would impact navigation on the New River. FEC is in negotiations with Tri-Rail and has provided scheduling information and rail operations models to Tri-Rail as discussed and cited in the Tri-Rail Preliminary Project Development Report, Appendix 3: Rail Operations Analysis Report and Materials, Dated April 2014, Prepared by RS&H, CH2M HILL, AECOM, Ernst & Young, Communikatz, Inc., as directed by FDOT – District 4. It is totally improper to omit any discussion of the proposed Tri-Rail Coastal Link Study in the AAF DEIS when the project plans have been developed to the point that a Preliminary Project Development Report has been presented to the public and is actively being brought into reality with service being proposed along the existing FEC Corridor in the near future (2016) following the NEPA requirements for a EIS and securing project approval.

- 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 has prepared and published this DEIS 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 will be held during the 75-day public comment period.

Comment: As stated above the purpose of the Draft EIS is to disclose all environmental effects associated with the project alternatives. Omission of any discussion of impacts resulting from the combined corridor use of the existing FEC operations, Tri-Rail and increased freight operations attributable to Post Panamax Container Ships using Port Everglades and Port Miami is a blatant omission of potential major impacts which will affect navigation on all of the movable bridges on the FEC corridor and the most heavily impacted movable Bridge will be the FEC bridge at MP 341.26 over the New River.

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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.

The DEIS 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.

Comment: All future planned uses of the FEC corridor should be included in the DEIS and the method for dealing with the increased traffic should be included in the project improvements regardless of whether or not the planned use of the corridor by Tri-Rail or increased freight traffic occurs by AAF's target date of 2016. Shared use of facilities such as stations and trackage requires that these issues be included in the DEIS and the planning of improvements required for all of the proposed use.

Page S-7 Table S-1 DEIS Alternatives

Table S-1 DEIS Alternatives				
Segment/Project Element	**No-Action**	**Alternative A**	**Alternative C**	**Alternative E**
MCO	No construction	2.5-mile new rail corridor	2.5-mile new rail corridor	2.5-mile new rail corridor
E-W Corridor	No construction	1.5-mile new rail corridor west of Narcoosee Road 17.5-mile new rail corridor within current SR 528 OOCEA ROW 15-mile new rail	1.5-mile new rail corridor west of Narcoosee Road 17.5-mile new rail corridor along boundary of current SR 528 OOCEA ROW	1.5-mile new rail corridor west of Narcoosee Road 17.5-mile new rail corridor 100 feet south of current SR 528 OOCEA ROW
N-S Corridor	No construction – Freight trips increase to 20 trips/day in 2016	128.5 mile corridor Add second track, straighten curves,	128.5 mile corridor Add second track, straighten curves,	128.5 mile corridor Add second track, straighten curves,
WPB-M Corridor	No construction – Freight increases to 20 trips/day in 2016	66.5-mile corridor Add second track	66.5-mile corridor Add second track	66.5-mile corridor Add second track
VMF	No construction	New VMF on south portion of GOAA property Construct 1	New VMF on south portion of GOAA property Construct 1	New VMF on south portion of GOAA property Construct 1
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

Alternative E differs from Alternatives A and C within the OOCEA ROW section of the E-W Corridor. Alternative E would include a new rail corridor extending north through MCO to SR 528 (the MCO Segment), including the proposed VMF; a new rail alignment 200 feet south of the SR 528 OOCEA ROW (the E-W Corridor) from MCO SR 520 and then within the SR 528 FDOT ROW to the FECR Corridor in Cocoa; 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. Alternative E also includes

modifications to seven bridges within the WPB-M Corridor, a new location for the proposed Fort Lauderdale Station and minor track modifications at the Miami Viaduct.

Comment: The estimated increase in freight operations to 20 trips per day in 2016 is in conflict with stated projected freight operations presented to the Florida legislators and at several other rail conferences by FEC rail, and is a marked increase from the forecast discussion in the Environmental Assessment. The alternatives do not include any comment or consideration of the addition of a two track mid-level movable bridge adjacent to the existing FEC bridge 341.26 over the New River to carry Tri- Rail commuter passenger rail. The proposal by Tri-rail calls for shared stations at Ft. Lauderdale and other locations in the WPB to Miami corridor. If there are to be shared stations FEC and AAF must take them in to consideration in this DEIS. According to the DEIS, AAF plans to be at grade with their proposed passenger operations at the proposed Ft. Lauderdale Station and on the existing New River Bridge. With the Tri-Rail Passenger operations operating over a mid-level movable bridge over the New River this is a direct conflict. The DEIS should include an alternate to have all passenger operations carried on the proposed mid-level bridge in order to make it possible to have a joint shared station as proposed by Tri-Rail and to separate freight and passenger operations which would minimize the number of bridge openings required if the 32 passenger trains per day proposed by AAF were also carried on the higher Mid-Level bridge.

The following presentation was given by James Hertwig, FEC on 08/07/2013 at the 16th Annual Transportation & Infrastructure Summit conference:

FEC Overview

- 351 miles of mainline track
  - Only railroad along Florida's east coast
  - Unparalleled link between Florida rail traffic and nation's rail network
- Most direct and efficient North/South mode for transporting multiple types of freight
  - Competitive advantage over motor carriers due to highly congested roadways and challenging trucking environment
- Attractive freight mix
  - Intermodal containers and trailers
  - Carload
- Crushed rock (aggregate)
- Automobiles, food products and other industrial products
- Connect to national freight network via CSX and Norfolk Southern in Jacksonville

Key Florida Attributes

- Large Consumer Market
  - 4th largest state economy in the U.S. (by GDP) (1)
  - Over 19 million residents, 3rd largest state population behind California and Texas (2)
  - More than 85 million out-of-state visitors annually (3)
- Strategic Location
  - Primary gateway to Latin America; accounts for more than one-third of all U.S. trade with Latin America
  - 3 of the nation's 15 largest container seaports
  - Closest U.S. ports of call from Panama Canal (Port Miami and Everglades)

- Large Consumer Market
  - 4th largest state economy in the U.S. (by GDP) (1)
  - Over 19 million residents, 3rd largest state population behind California and Texas (2)
  - More than 85 million out-of-state visitors annually (3)

- Strategic Location
  - Primary gateway to Latin America; accounts for more than one-third of all U.S. trade with Latin America
  - 3 of the nation's 15 largest container seaports
  - Closest U.S. ports of call from Panama Canal (Port Miami and Everglades)

The Asian Market Opportunity

- Panama Canal expansion will allow larger vessel passage
  - Currently can accommodate 4,800 TEU vessels
  - Post expansion, Canal will accommodate 13,000 + TEU vessels which will allow for faster all-water times to the East Coast for the more cost efficient "large vessels" (larger vessels are 30% more cost efficient)
- Currently only 2 ports on the eastern seaboard with 50' water depth
- Over the last 3 years, the Port Miami received funding for over $1.0 billion in infrastructure improvements, which combined with the Panama Canal expansion, will make it a gateway for import/export activity
  - On-dock rail restoration, with direct rail access to intermodal yard (FEC), and straight-track access to North Florida and beyond utilizing FEC Railway infrastructure (Completion: 2nd half 2013)
  - The Tunnel project will allow for better, and incremental access of freight flows in/out of the Port (Completion: May 2014)
  - 50' dredge expected to be completed in 2015 in concert with the Panama Canal expansion project

Strategic Initiative: On-dock rail service at Port Miami

- Implementing on-dock rail service at Port Miami allows FEC to directly serve Port customers
  - Only railroad with direct access to the Port
  - Trains will be run directly from the Port to the FEC mainline
- Total project cost $45-50 million
  - Federal TIGER II grant ($23M)
  - Florida DOT (up to $9M)
  - Miami Dade County (up to $5M)
  - FEC (up to $9M)
- Q2 2013 Update
  - Rail line lead to Port has been completed
  - Bascule Bridge rehabilitation phase has begun
  - Joint marketing program with the Port has begun
- Estimated startup date: 2nd half 2013

Strategic Initiative: ICTF and near dock rail service at Port Everglades

- ICTF Groundbreaking Event took place on January 17th to announce the start of construction on a 42 acre Intermodal Container Transfer Facility
- Total Cost: $73M
  - FEC-State Loan and Cash ~ $35M
  - Broward County ~ $20M
  - State Grants ~ $18M
- Q2 2013 Update
  - Lease agreement with Broward County executed
  - ICTF design-build request has been awarded to The Milord Company
  - Received State Loan funding in Q3
- Estimated completion during the 1st half of 2014|

Comment: Future rail operations will consist of the exiting freight rail and the proposed passenger rail operations; also the probability of increased freight traffic due to the planned improvements at Port Everglades and Port Miami need to be considered. These have been extensively described by FECR (including in their presentation to the 16th annual Transportation and Infrastructure Summit) and by the Florida Department of Transportation, the Florida Seaports Council, and the Metropolitan Planning Organizations of the three South Florida Counties, among others. The increased tonnage expected at these ports is order of magnitude three times greater than presently handled at these ports according to the FECR presentation. There is therefore a possibility for rail freight operations to triple to meet this additional demand required to move the container (intermodal) traffic northward from Port Miami and Port Everglades to Jacksonville and connections to other freight carriers. The train movements to be accounted for in the future would consist of 33 (11X3) freight trains per day and the 32 planned passenger trains proposed by AAF. In addition to the FEC and AAF planned train movements Tri-Rail Coastal Link is proposing up to 60 trains per day on the FEC Corridor originating from the Tri-Rail Red Line Corridor crossing on the Pompano Connector to the FEC Corridor. These estimates contradict the estimated 20 freight trips per day listed in the DEIS. This dramatic increase in freight, passenger and commuter Rail operations requires consideration of separation of freight and passenger operations to improve the service on the existing corridor and lessen the impact on navigation at the New River and the other movable bridges at St. Lucie and Loxahatchee Rivers.

SECTION 1, INTRODUCTION, REVIEW AND COMMENTS

Page1-1 **Introduction**

This Draft Environmental Impact Statement (DEIS) evaluates a proposal by All Aboard Florida - Operations LLC (AAF) to institute intercity passenger rail service between Orlando and Miami, Florida with station stops in Orlando, West Palm Beach, Fort Lauderdale, and Miami (Project). The Project would consist of a 235-mile intercity passenger rail service with an anticipated three-hour travel time.

The Federal Railroad Administration (FRA) published a Notice of Intent to prepare an Environmental Impact Statement (EIS) for the Project in the Federal Register on April 15, 2013. FRA is the lead federal agency responsible for conducting the environmental review and preparing the National Environmental Policy Act (NEPA) environmental documentation related to the Project described in this DEIS

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1.5 **Development of this Environmental Impact Statement**

As it has in the past, FRA has used a third party contracting process in preparing this DEIS. FRA does not have appropriated funds to support the development of EISs for RRIF loan applications. As a result, FRA requires the applicant to engage the services of a qualified consultant approved by FRA to assist FRA in preparing the EIS. Consistent with a memorandum of agreement among the parties, the third party contractor is paid for by AAF but reports to and takes direction from FRA. In developing the proposed action, AAF engaged the services of consultant firms to prepare engineering designs for the Project and to prepare technical reports documenting existing environmental conditions and analyses of environmental consequences. FRA's third party contractor reviewed all materials provided by AAF; assisted FRA in determining that this information was complete, accurate, and relevant; and assisted FRA In the preparation of this DEIS.

Comment: It is apparent that AAF did not disclose all issues to the third party contractor which should be a part of the discussion and be included in the impacts and issues discussed in the DEIS document. It may also be possible that the Third party contractor ignored the issues if in fact they were provided which in either case is a mistake in not including them in the DEIS.

This document does not question the Purpose and need for the proposed action. Therefore we do not have comments regarding Section 2 of the DEIS.

SECTION 3, ALTERNATIVES, REVIEW AND COMMENTS

Page 3-1 Alternatives

3 Alternatives

The Council on Environmental Quality (CEQ) regulations that implement the National Environmental Policy Act of 1969 (NEPA) state that the alternatives section is the heart of an Environmental Impact Statement (EIS) (40 CFR § 1502.14). Those regulations and accompanying guidance, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (CEQ 1981), require a federal decision-maker, in this case the Federal Railroad Administration (FRA), to:

- Develop and describe the range of alternatives capable of achieving the purpose and need (1505.1(e)), including alternatives not within the jurisdiction of the lead agency and the No-Action Alternative (1502.14(d)); and
- Rigorously explore and objectively evaluate these alternatives, and provide reasons why the lead agency eliminated certain alternatives from further study (1502.14(a)).

This chapter describes the process through which the Proposed Action (Build) Alternatives and the No-Action Alternative for Phase II of the Orlando-Miami Passenger Rail Project were identified and evaluated, and provides a detailed description of the alternatives evaluated in this Draft Environmental Impact Statement (DEIS). The environmental impacts of each of the alternatives that were carried forward from this screening process are evaluated in Chapter 5, Environmental Consequences, of this DEIS.

Comment: The DEIS is not in compliance with this directive to include all of the alternatives to achieve the purpose and need of the project when significant issues (proposed freight increase and Tri-Rail passenger operations) concerning rail operations and impacts on navigation have not been addressed in the DEIS. In other words, all prior alternatives (such as a tunnel, and mid-level or high level bridges should have been analyzed in the DEIS instead of dismissed.

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3.2 Alternatives Identification and Screening

This section describes the alternatives that were identified and developed for the Project and the criteria used to evaluate each alternative. The analysis also included a preliminary comparison of potential impacts to key environmental resources. Alternatives were identified and screened in an iterative, three level process:

- Level 1 identified and screened overall routes connecting Orlando with the previously reviewed West Palm Beach to Miami service, and identified a preferred route alternative.
- Level 2 was more fine-grained and evaluated segment alternatives within the preferred route.
- Level 3 evaluated alternatives within one segment (the Orlando-Orange County Expressway Authority (OOCEA)-controlled segment of the East-West Corridor) of the preferred route.

Figure 3.2-1 shows the screening process graphically. In order to identify and consider alternatives that will satisfy the Project's purpose, including its feasibility as a private enterprise, AAF developed evaluation criteria, including six critical determining factors (Critical Determining Factors) that must be met in order for AAF to be able to proceed with the Project. These screening criteria recognize that AAF is a private enterprise that cannot rely on government operating subsidies and that does not have the authority to acquire property by eminent domain (condemnation). To be feasible as a private enterprise, AAF must be able to:

- Provide reliable and convenient intercity passenger rail transportation connecting Orlando and Miami, Florida, by extending previously reviewed passenger rail service between West Palm Beach and Miami;

- Gain access to the lands on which alternatives are proposed through viable acquisitions, leases, licenses, permits, or other arrangements that do not preclude the feasibility of the Project as a private enterprise;
- Deliver a travel time that will meet the ridership targets necessary for a sustainable commercial initiative;
- Commence construction in the near term in order to control costs;
- Remain in close proximity to existing or planned transportation corridors in order to limit land acquisitions and related impacts; and
- Limit cost of development, including cost of land acquisitions, access, construction, and environmental mitigation.

AAF identified the alternatives at each level, and developed and applied screening criteria to determine whether each alternative was reasonable and capable of being implemented in accordance with these overall objectives. FRA has independently evaluated AAF's analysis, validated assumptions, and has prepared the following summary of the alternatives evaluation process.

Comment: In order to satisfy the above criteria the full impact of all rail operations must be evaluated in the alternatives. The omission of any future rail operations will impact the ability of the alternative selection to satisfy the project purpose, it will also affect projected travel times and prohibits the ability to perform a complete evaluation as to the necessity of providing additional ROW and infrastructure to support the project. The projected costs to implement the project will not be accurate without the consideration of those costs for future freight and passenger operations by AAF and Tri-Rail. Impacts on the environment and on Navigation in particular will not be accurately identified without inclusion of all of the possible future rail operations on the FEC corridor.

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3.2.1.3 Route Alternatives Screening

The four Level 1 Route Alternatives were evaluated using screening criteria specific to the overall Project objectives and the level of design available for these routes. This section describes the screening criteria and how the criteria were applied to identify a preferred route. Table 3.2-1 presents the results of the Level 1 screening analysis. Shaded cells indicate that the alternative does not satisfy the screening criterion. As shown in Table 3.2-1, the CSX, Florida's Turnpike, and I-95 Route Alternatives do not meet the overall screening criteria.

The CSX Route Alternative does not meet the Project purpose. Trip times would exceed the 3-hour target. Because of the substantial number of private land acquisitions, the Project could not be constructed in a reasonable time frame and would not be practicable if AAF was unable to purchase these properties. Because it requires an operating agreement with CSX, there is a potential that an acceptable operating agreement would not be developed and this route would not be practicable. In addition, the CSX Route Alternative would have the second-highest level of wetland loss based on wetland acreage, and would not be the least environmentally damaging alternative as defined by the U.S. Army Corps of Engineers (USACE) with respect to Section 404 permitting.

Table 3.2-1 Screening Analysis Results – Level 1 Route Alternatives

		Alternative			
Criterion	**Metric**	**CSX**	**Florida Turnpike**	**I-95**	**FECR**
Land Access	Requires new rail connector across West	Yes	Yes	Yes	No
	Requires RR operating agreement for shared	Yes	No	No	Yes (in place)
	Requires land from private landowners	Substantial	Substantial (211 parcels)	Substantial (743 parcels)	2 private parcels
	Requires lease from public transportation	Yes	Yes	Yes	Yes (in place)
Logistics					
Use of Existing Infrastructure	Does the alternative use existing infrastructure?	Partially	No	No	Partially
Train Signaling and Control Systems	Does the alternative have a rail signal and control system in place?	Partially	No	No	Partially
Route Length and Time	Does the alternative meet the target travel time	264 miles	226 miles	229 miles	235 miles Time = target
Environmental					
Wetlands and Waterways[1]	Amount of resource directly or indirectly	268 acres	243 acres	272 acres	134 acres
Conservation Lands[2]	Amount of resource potentially affected	13 miles	0 miles	12 miles	5 miles
Threatened and Endangered	Number of habitats directly or indirectly	14	10	3	11

1 Within a the construction footprint (100-feet wide for new track)

2 Miles crossed or adjacent to the alternative

3 Within a 300-foot corridor centered on the track

Comment: Omitted from the screening analysis for the Level 1 Route Alternatives is the impact on Navigation for the FECR alternative Routes. This impact should be considered when evaluating all of the possible routes. Additionally, diversion of freight traffic from the FEC line to the CSX line or other future planned rail corridors should be considered to make way for increased passenger traffic. Referred to as "freight rationalization," and advanced by the Treasure Coast Regional Planning Council (represented on the Coastal Link Steering Committee) this means should be considered in the context of the cumulative impact of future rail traffic on South Florida rail corridors.

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At-Grade Crossings and Railroad Bridges

The alternatives analysis considers the number of existing at-grade crossings that would have to be modified and the number of new at-grade crossings that would need to be constructed where a grade-separated crossing was not feasible

or necessary. The total number of at-grade crossings would potentially impact train speeds as trains must reduce speeds in some areas with at-grade crossings. New at-grade crossings would add to the Project cost and would impact traffic on local roads. Improvements or widening of existing at-grade crossings would also impact Project cost. The number of at-grade crossings for each alternative was estimated using GIS mapping.

The alternatives analysis also considers the number of new bridges over waterways or highways that would be required for each alternative. Bridge construction would impact Project cost and schedule, as bridges require longer construction time than at-grade railroad infrastructure. The number of new or modified bridges associated with each alternative was estimated using GIS mapping. For the FECR Corridor, the analysis includes those existing bridges that would require modification or replacement.

Comment: The Mid-Level Movable bridge to be constructed over the New River on the FEC ROW as proposed by Tri-Rail should be included in the discussion on railroad bridges in the screening analysis of the alternatives.

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Table 3.2-2 Screening Analysis Results – Level 2 FECR Route Segment Alternatives

Criterion	Metric	2A	2B	2B GOAA	2C
Time of Execution	Can the alternative be constructed in the near-term?	No	Yes	No	No
Logistics					
Land Access	Number of landowners	279	5	100	63
At-Grade Crossings	Number of new or extended crossings	8	0	8 (existing)	16
Bridges	Number of new or reconstructed bridges over waterways/over roads	27/10	27/10	27/8	26/37
Route Length and Time	Does the alternative meet the target travel time (3 hrs. 15 min. or less)?	248 miles Time> target	235 miles Time= target	233 miles Time>target	238 miles Time>target
Environmental					
Wetlands and Waterways 1	Amount of resource directly or indirectly	534 acres	134 acres	285 acres	674 acres
Conservation Lands 2	Amount of resource potentially impacted	7 miles	5 miles	9 miles	5 miles
Threatened and Endangered Species 1	Number of habitats directly or indirectly impacted	33	11	7	8

Source; AMEC 2014d, Addendum to Technical Memorandum 3, Screening Analysis for Alternatives Identification.
1 Within a 300-foot corridor centered on the track
2 Miles crossed or adjacent to the alternative

Comment: The Mid-Level Movable bridge to be constructed over the New River on the FEC ROW as proposed by Tri-Rail should be included in the discussion on railroad bridges in the screening analysis of the alternatives.

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3.3.2 No-Action Alternative

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 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. Table 3.3-1 shows the future freight operations within the FECR Corridor that would occur in the absence of the Project.

Table 3.3-1 Existing and Future Freight Train Operations (No-Action Alternative)

Day	2013 (Existing)		2016	
	Number of trains per day (7:00 AM-10:00 PM)	Number of trains per night (10:00 PM-7:00 AM)	Number of trains per day (7:00 AM-10:00 PM)	Number of trains per night (10:00 PM-7:00 AM)
Monday	10	5	16	8
Tuesday	11	6	16	9
Wednesday	11	6	17	9
Thursday	10	7	15	9
Friday	11	5	12	6
Saturday	6	3	8	2
Sunday	4	6	11	6
Total	**63**	**38**	**95**	**49**
Average Trains per	**14**		**20**	

Source: AAF. 2013a. Modeling Assumptions. May 2013. Report.

Comment: The existing and future freight train operations are incorrect; they do not include the increase in freight traffic planned for by FEC due to the Post Panamax expansion and the dredging and rail infrastructure improvements at Port Miami and Port Everglades to accommodate the larger Post Panama expansion container ships.

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Bridge and Structures

Bridge construction over waterways would be required at the 18 locations listed in Table 3.3-5, either to rehabilitate the existing bridges (two locations), replace the original bridge with two new single-track

Bridge	Existing	Number of New Single- Track Bridges	Length (ft)	Width (ft)	Number of Spans
Horse Creek	Retain	1	72	16	3
Eau Gallie River	Demolish	2	580	16	(15)1
Crane Creek	Demolish	2	660	16	(17)
Turkey Creek	Demolish	2	180	16	3
Goat Creek	Demolish	2	120	16	5
St. Sebastian River	Demolish	2	1625	16	(43)
North Canal	Retain	1	100	16	4
Main Canal	Retain	1	118	16	4
South Canal	Retain	1	125	16	5
Taylor Creek	Rehabilitate	-	210	16	8
Moores Creek	Retain	1	72	16	3

Rio Waterway	Demolish	2	95	16	4
St. Lucie River	Rehabilitate	-	1270	24	49
Salerno Waterway	Retain	1	40	16	2
Salerno Waterway 2	Demolish	2	103	16	4
Manatee Tributary 1	Demolish	2	34	16	1
Manatee Tributary 2	Demolish	2	34	16	1
Loxahatchee River	Rehabilitate	-	585	28	9
Earman River	Retain	1	175	16	7

1 Number of spans has not been determined for the new structure. (X) is number of existing spans.

Comment: The existing and future freight train operations are incorrect; they do not include the increase in freight traffic planned for by FEC due to the Post Panama expansion and the dredging and rail infrastructure improvements at Port Miami and Port Everglades to accommodate the larger Post Panama expansion container ships.

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3.3.3.4 West Palm Beach – Miami Corridor

The Project within the WPB-M Segment remains the same as the project evaluated in the 2012 EA and 2013 FONSI. Phase I of the Project includes reconstructing the former second track within the FECR ROW from West Palm Beach to Miami and constructing new passenger rail stations in West Palm Beach, Fort Lauderdale, and Miami. New elements of the Phase II Project that were not previously evaluated in the WPB-M Segment include replacing or reconstructing seven bridges over waterways.

Bridges

As shown in Table 3.3-6, AAF proposes to improve seven bridges within the WPB-M Segment to accommodate the proposed second track. As long-range operational flexibility for full operations from Orlando to Miami has been further studied and understood, AAF has determined that double-tracking these bridges would be warranted for Phase II operations. As shown in Table 3.3-6, four bridges would be rehabilitated, and seven would require construction to replace the original bridge with two new single track bridges (the two Middle River crossings and the Oleta River), or retain the existing bridge and construct a new single-track bridge adjacent to the existing structure (four locations) (Figure 3.3-4). All new structures would be concrete, supported by concrete pilings, and would retain the existing vertical and horizontal clearances. The moveable bridge at the New River in Fort Lauderdale would be rehabilitated as part of Phase 1.

Table 3.3-6 Proposed Bridges over Waterways, West Palm Beach-Miami Corridor

Bridge	Existing	Number of New Single-Track Bridges	Length (ft)	Width (ft)	Number of Spans
West Palm Beach Canal	Retain	1	200	16	9
Boynton Canal	Retain	1	154	16	6
Hidden Valley Canal	Rehabilitate	-	171	13	6
Hillsboro Canal	Retain	1	206	16	8
Cypress Creek Canal	Retain	-			
North Fork Middle River	Demolish	2	192	16	(8)1
South Fork Middle River	Demolish	2	192	16	(8)1
New River	Rehabilitate	-	210	30	6

Tarpon River	Retain	-			
Dania Canal	Rehabilitate	-	79	30	1
Oleta River	Demolish	2	82	16	(26)1
Snake Creek Canal	Rehabilitate	-	160	27	7
Arch Creek	Retain	1	75	16	1
Biscayne Park Canal	Retain	-			
Little River Canal	Retain	-			

1 Number of spans has not been determined for the new structure. (X) is number of existing spans.

Comment: The DEIS does not discuss the movable bridge over the New River being planned by Tri-Rail and included in their Environmental Assessment. AAF in their DEIS proposes a rehabilitation of the New River Bridge. FEC has been in discussion with Tri-Rail and has provided data to Tri-Rail. If this bridge being proposed by Tri-Rail is included in their plan, FEC needs to discuss how this will affect their planned operations for freight as well as their planned AAF passenger operations. AAF should include in their alternates the shared use of this proposed bridge and consider its construction in the initial stage of the AAF project rather than after Tri-Rail commences their project. Such coordination should be motivated by the most efficient and prudent expenditure of the public's investment through proper forethought, planning and coordinated design.

Fort Lauderdale Station

Subsequent to the publication of the 2012 EA and 2013 FONSI, AAF shifted the proposed Fort Lauderdale Station building to the opposite (west) side of the tracks, along NW 2nd Avenue between NW 4th Street and Broward Boulevard. On March 27, 2014 FRA issued a Re-Evaluation that determined the new location would not change the environmental impacts identified in the 2012 EA and previously found to be not significant (Appendix 3.3-A).

Comment: AAF plans for the Fort Lauderdale Station are for an at-Grade Station. Tri-Rail in their Environmental Assessment discusses a mid-level movable bridge which would be at a minimum clearance of 21 feet over MHW. This would require that the Ft. Lauderdale Station be an elevated station. Since a shared station is proposed by Tri-Rail with AAF this needs to be included and considered in the AAF DEIS so the final design and construction does waste taxpayer investment in this joint public-private project.

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3.4 Operations

The Project's planned service between Orlando and Miami would consist of 16 revenue round-trips leaving hourly in each direction from 5:00 AM to 9:00 PM, with planned stops at the two intermediate stations in West Palm Beach and Fort Lauderdale. The last Orlando-bound revenue train would arrive in Orlando at 12:10 AM and the last Miami-bound revenue train would arrive in Miami at 11:10 PM. Total scheduled travel time, including stops, is anticipated to be 3 hours, 10 minutes between the terminal stations. Station to station travel time would be 1 hour, 50 minutes from Orlando to West Palm Beach, and 1 hour, 20 minutes from West Palm Beach to Miami. The planned operating speed has three components: a maximum speed of 125 mph from Orlando to Cocoa; a maximum speed of 110 mph from Cocoa to West Palm Beach; and a maximum speed of 79 mph from West Palm Beach to Miami. Table 3.3-9 depicts the projected average operating speeds for passenger and freight rail service by county and the net change in freight rail average operating speed over today's performance. The E-W Corridor from MCO to Cocoa would be a dedicated-use corridor with only passenger service and no grade crossings, while the N-S Corridor would be a shared-use corridor with freight and passenger service and grade crossings.

Table 3.3-9 Projected Average Passenger Rail Operating Speeds by County

County	2013 Freight/ 2016 No-Action Alternative (mph)	2016 Freight (with Project) (mph)	2016 Passenger (mph)	Change in Average Freight Speed with Project (mph)
Orange	N/A1	N/A	68.472	N/A1
Brevard	31.95	40.97	93.77	9.02
Indian River	38.57	43.45	103.34	4.88
St. Lucie	33.48	35.55	93.38	2.07
Martin	31.76	37.06	76.96	5.30
Palm Beach	34.89	40.42	75.37	5.53
Broward	31.57	38.11	61.72	6.54
Miami-Dade	39.63	39.91	55.67	-0.72

Source: AAF. 2013a. Modeling Assumptions. May 2013. Report.

1 Only the E-W Corridor enters Orange County, which does not carry freight traffic

Comment:

The operations described in the DEIS do not accurately reflect the total projected increase in freight traffic throughout Florida due in part to increased activity at Port Everglades and Port Miami following the Panama Canal Expansion. FEC has on numerous occasions discussed the increased traffic on FEC with Florida Legislators, senior Florida agency staff, and Industry leaders. FEC has made substantial improvements to their rail facilities at the Ports due to this proposed Panama Canal generated shipping, and the State of Florida has made substantial investments in seaports, Strategic Intermodal System planning, and the Florida Freight Mobility and Trade Plan- Investment Element, July 2014 (see http://www.freightmovesflorida.com/docs/default-source/fmtpdocs/draft-fmtp-investment-element_2014-08-18. pdf). It is a major omission to exclude this projected increase from the DEIS. Shared use of the corridor by Tri-Rail also needs to be considered and evaluated with regard to train speeds.

SECTION 4, AFFECTED ENVIRONMENT, REVIEW AND COMMENTS

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4.1.2.1 Rail Transportation

There are three primary north-south rail corridors in the Project Study Area. One corridor runs along the east coast of Florida between Jacksonville and Miami and is owned by FECR. According to the FECR operations data from 2012, this route consists of four flat switching yards, 72 industry turnouts, and 21 over-grade and under-grade bridges. CSX owns tracks through the center of the state between Winter Haven and Palm Beach that connect to a third set of tracks owned by the State of Florida between Palm Beach and Miami (South Florida Rail Corridor). There is no existing rail infrastructure in the E-W Corridor.

Existing Passenger Train Service

The National Railroad Passenger Corporation (Amtrak) provides passenger rail service between Orlando and Miami on their Silver Star and Silver Meteor services. These services originate in New York City and operate between Orlando and Miami via CSX tracks to West Palm Beach and the South Florida Rail Corridor tracks between West Palm Beach and Miami. These services stop at ten stations including Orlando, Kissimmee, Winter Haven, West Palm Beach, and Miami. One train operates per service each day in each direction with travel times ranging from 5 hours, 45 minutes to 7 hours, 34 minutes. The average round trip cost for the service is $100.00 for one adult passenger. In 2012, ridership for the entire Silver Star service was 425,794 passengers, while ridership for the entire Silver Meteor service was 375,164 passengers. Combined ridership was 800,958 annual passengers (Brookings 2013).

The South Florida Regional Transit Authority (SFRTA) serves the Project Study Area with commuter rail service between Mangonia Park in West Palm Beach and Miami (approximately 70 miles), called "Tri-Rail." Only the northernmost station, Mangonia Park, is within the Orlando to West Palm Beach study area. Tri-Rail operates on the South Florida Rail Corridor and serves 17 stations with 25 southbound (SB) and 25 northbound (NB) trains per weekday, and 15 SB/15 NB trains per weekend day. The travel time between West Palm Beach and Miami is 1 hour, 40 minutes. Tri-Rail has a zone based fare system which ranges from $2.50 to $6.90 per trip. Fare discounts are available. Average monthly ridership for 2012 ranged from less than 12,000 to over 14,000 riders, which is an increase over the previous year (SFRTA 2013b). Figure 4.1.2-2 shows the Tri-Rail service.

Existing Freight Rail Service

Regular freight traffic currently operates within the FECR Corridor from Jacksonville to Miami. The freight track within the FECR Corridor was evaluated from Mile Post (MP) 170 in Cocoa (Brevard County) to MP 299 in West Palm Beach (Palm Beach County). The existing freight traffic consists of an average of 15 trains per day with a low of nine daily trains on Saturday and a high of 17 daily trains Tuesday through Thursday. This includes both NB and SB trains. The average train length is 8,150 feet, which includes two locomotives and 101 cars. Regular freight traffic also operates within the CSX/South Florida Rail corridors from Orlando to Miami. Figure 4.1.2-3 shows the CSX tracks in the Project Study Area.

Comment: The shared use of the FEC corridor for FEC freight operations, AAF proposed passenger operations and Tri-Rail commuter rail service must be fully analyzed in the AAF DEIS in order to understand and evaluate the impact of these multiple rail operations on the existing corridor. The DEIS should be clear on what rail infrastructure is contemplated by each railroad. The impact of combined service on the existing single track and double track corridor must be fully explored and evaluated. The DEIS should be clear on how many tracks are being provided throughout the length of the existing corridor; it should also discuss the potential for use of the CSX tracks in Figure 4.1.2-3 since the CSX corridor will be integrated with future rail traffic of all types.

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4.1.3 Navigation

The United States Coast Guard (USCG) has reviewed the Project and determined that six of the proposed bridges (the new bridge across the St. Johns River parallel to SR 528, and the proposed second-track bridges across the Eau Gallie River, St. Sebastian River, Crane Creek, Turkey Creek, and the Hillsboro Canal in Broward County) will require bridge permits (USCG letter May 1, 2013, Appendix 4.1.3-B). The USCG requested that a navigation analysis of these bridges be included in the EIS (USCG letter July 24, 2013, Appendix 4.1.3-A). This detailed analysis is provided in Appendix 4.1.3-C, Navigation Discipline Report. The USCG determined (USCG letter May 1, 2013) that an additional twelve bridges that would be reconstructed as part of the Project are exempt from obtaining bridge permits. The reasons provided by the USCG for their exemption include that they are either not navigable other than by rowboats, canoes, or small motorboats and existing navigational clearances would be maintained; fall under the Coast Guard Authorization Act of 1982; or are not subject to tidal influence, not used for substantial interstate or foreign commerce, and not susceptible to such use in their natural or potentially improved condition. USCG did not make any findings concerning other fixed-span bridges where superstructure replacement would be required to accommodate the proposed second track. At a meeting held on August 12, 2013 (see Appendix 4.3.1-A for meeting notes), USCG indicated that information on the operations of all moveable bridges within the Project Study Area would be required to determine if there would be any operational effects on navigation. USCG also requested information on the navigation conditions at the New River Bridge within the WPB-M Corridor.

This section provides a summary of existing navigational conditions for the proposed new fixed bridge over the St. Johns River and for three existing moveable bridges (Figure 4.3.1-1):

- The St. Lucie River (St. Lucie/Martin County);
- The Loxahatchee River (also known as the Jupiter River, Martin/Palm Beach County); and
- The New River in Fort Lauderdale (Broward County).

4.1.3.1 Methodology

This section describes the methods used to evaluate existing vessel traffic at the three moveable bridges and to evaluate existing economic conditions associated with the maritime industry at these locations. This study considers data presented in previous traffic studies performed by others, and includes detailed analyses and simulation modeling results based on current and future freight train operations, proposed passenger rail, and recent boat traffic surveys. These studies and analyses include:

- Literature reviews of vessel traffic studies conducted at each bridge;
- Summaries of 2014 vessel traffic surveys gathered through video assessments;
- Summaries of bridge closure data;
- A detailed analysis of the existing vessel traffic and bridge schedules;
- A detailed analysis of the marine industry at each bridge;
- Socioeconomic analyses; and
- Results from a discrete-event simulation model of vessel traffic.

Vessel Survey Modeling

Vessel traffic on the New River, Loxahatchee River, and St. Lucie River were characterized based on a traffic survey and video survey.

2014 Vessel Traffic Survey

As described in the 2014 *Navigation Discipline Report* (Appendix 4.1.3-C) video recordings from cameras located at FECR's bridges at the St. Lucie River, Loxahatchee River, and New River were provided by FECR. The videos contain approximately two to three weeks of data from the peak vessel traffic season, and in some instances a holiday, and were used to quantify the number and types of recognizable vessels that pass under the bridges under existing conditions. The raw data collected includes the number and size of commercial and recreational vessels that pass under the bridges. These data were summarized and organized to show differences and patterns between and within weekdays, weekends, and different times of the day (AMEC 2014a).

Comment: The USCG reviewed the Navigation Discipline Report (NDR) for the AAF Passenger Rail Project prepared by AMEC for AAF. The USCG commented on the report in a letter dated 02 June 2014 to Charlene Stroehlen, P.E. Senior Associate Engineer AMEC – Environment & Infrastructure authored by Barry L. Dragon, Director, District Bridge Program, Seventh Coast Guard District. The letter makes the following comments:

> *In Sections 2.6.2 and 6.0, the NDR addresses evaluation criteria and a criteria matrix for assessing the No-Build alternative and the Proposed Action's impact on identified navigation needs. While information on the impacts on navigation received from the applicant will be analyzed, the Coast Guard will make the ultimate determination as to whether or not the impacts on navigation are unreasonable.*
>
> *The Coast Guard, in making a permit decision, must preserve the public right of navigation while maintaining a reasonable balance between competing land and waterborne transportation needs. We do so by taking a balanced approach to total transportation systems, both land and water modes, in all bridge actions. At this time, we are unable to fully assess the potential impacts and will require more information on the following issues prior to making a permit decision:*
>
> *1. The impacts on navigation from the natural flow of these waterways, including currents and water velocity fluctuations, while vessels await openings at these drawbridges remain unknown;*
>
> *2. The affected drawbridges set the most restrictive vertical clearance on these waterways, and a large percentage of vessels cannot transit the bridges in the closed position;*
>
> *3. Any increase in the existing closure periods at the drawbridges spanning these waterways may not provide for the reasonable needs of navigation;*
>
> *4. The methodology used in the NDR may be sufficient to assess the waterways' trends and uses for purposes of making a navigation impact determination. However, the Coast Guard is unfamiliar with the model and needs to evaluate the assumptions and data therein.*
>
> *Accordingly, additional study will be required to determine the reasonable needs of navigation on these three waterways in the vicinity of the drawbridges. To advance the NEP A process, we support including the NDR as an attachment to the DEIS as it informs the choice of alternatives for analysis. The DEIS should note that the Coast Guard still must make a determination as to the prospective impacts on navigation in the vicinity of the three*

drawbridges spanning the New River in Broward County, Loxahatchee River in Palm Beach County, and the St. Lucie River in
Martin County and that the DEIS will be used to inform that Coast Guard determination.

If the Coast Guard determines the proposed AAF operating schedule unreasonably impacts navigation on the New River, Loxahatchee River and St. Lucie rivers, it may be necessary for the Coast Guard to amend existing bridge regulations and require modifications to those bridge operations so that navigation is not unreasonably burdened.

Comment: This author is in agreement with the comments and recommendations contained in the above letter. We also believe the Vessel Traffic Study and the impact on navigation is flawed in part as a result of the inaccuracy introduced in the model by not including the planned Tri-Rail Commuter Operations and all of the increase in Florida freight rail operations. The number of trains per day and the length and speed of the freight trains not accounted for result in far more numerous openings and closure times at the FEC New River Bridge. The impact on navigation at the New River, Loxahatchee and St. Lucie river movable bridges is far greater than shown in the NDR prepared by AMEC which forms the basis for the impacts on navigation contained in the DEIS. In addition a study of marine traffic at the New River presents information indicating the number, type and height above waterline of vessels navigating the New River, at the FEC New River Bridge is greater than the vessel traffic study contained in the DEIS. The Vessel Study referred to is the:

Vessel Traffic and Bridge Closure Survey New River, Fort Lauderdale, Florida. Prepared by: Susan Engle, John Maxted, James Anaston-Karas, of Envirocare Solutions International, with subcontractor support provided by: Photography and Video, Ken Maff, Susan (Suki) Finnerty, Lucas Suski and John Place and Watercraft Identification performed by Ken Maff, Debora Radtke, and Wendy Umla.

The report is dated November 2014, with excerpts included as an Appendix to this document submitted by the Coalition of Concerned Ft. Lauderdale Area Property Owners, Boaters, and Marine Industry Businesses.

The DEIS in its present form regarding impacts on navigation must be rejected and revised to include an assessment of all future projected rail traffic at the New River, Loxahatchee and St. Lucie river movable bridges.

Finally, the vessel traffic simulation (as it was demonstrated at FRA's public forums in South Florida) was unrealistic. Licensed sea captains and casual boat operators alike with local knowledge of New River are aware of its treacherous conditions, not the least of which is tidal current with occasional velocity exceeding 4 knots. Accordingly, a computer model which demonstrates vessel maneuverability similar to automobiles is unrealistic and not representative of the real river navigation conditions.

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4.1.3.2 Existing Navigation Conditions

This section describes the nine waterways and the existing (2013) navigation conditions and operations at each waterway.

Comment: This report does not comment on the navigation conditions at the St. Lucie and Loxahatchee river movable bridges. Comments on these bridges have been submitted by other parties. In addition this report does not comment on the fixed bridges.

New River

The New River originates in the Everglades and flows east to the Atlantic Ocean, entirely within Broward County. The New River is an extensive branched tidal waterway in Fort Lauderdale, which discharges to the ocean at Port Everglades. The waterway travels from the Intracoastal Waterway east to the west past residences and through the Central Business District of the City of Fort Lauderdale. West of the Central Business District, the river splits into North and South forks.

The North Fork of the New River is a shallow meandering tributary, bordered primarily by residences with private docks. The South Fork is a wider, deeper tributary, which supports larger vessels and is bordered by residences and commercial marine industries. Most marinas at the South Fork are located approximately 2.5 to 3.5 miles from the New River Bridge, and numerous boat yards extend to approximately 6.8 miles from the New River Bridge

The New River has a robust waterfront industry, with vessel traffic utilizing a broad array of public and private marine facilities including 12 marinas and four boat ramps; there are also four boat/yacht clubs, two waterfront restaurants, and two waterfront hotels that cater to mariners. The marinas range in scale from five slips to more than 190 slips, with an average of approximately 42 slips per marina. Marinas on the New River comprise approximately one third of all marinas in Broward County. The largest concentration of marinas is located on the South Fork of the New River approximately two miles west of New River Bridge (AMEC 2014a). The majority of Fort Lauderdale's recreational boating industry (repair facilities, boatyards, boat sales, equipment sales) are also west of the bridge. Residential and commercial development occurs along the navigable extent of the New River, which provides approximately 280 private slips and 3,750 private docks. Hundreds of private docks, with boats up to 100 feet long, are also upriver of the bridge. According to a Broward County vessel traffic study (Mote Marine Laboratory 2005), recreational boating represents an estimated $8.8 billion segment of the local economy. In addition to private recreational boats, the New River is also used by commercial sightseeing vessels. The New River going inbound (or up river) starts at river markers five and six. The river is approximately 450 feet wide through marker 11 where the river makes an "S" turn to marker 12, known as the Tarpon Bend. Beyond marker 12 and into the Central Business District, the river is on average less than 150 feet wide, but can be as little as 100 feet wide at some narrower turns. This section of the river can be too narrow for larger vessels, which can include yachts up to 140 feet in length. Towboats are often utilized to tow 100-foot yachts and larger vessels up and down the New River to and from several large boat yards that cater to yachts (e.g., Lauderdale Marine Center). All of the commercial vessels; such as the tour boats, tow boats and fuel barge boats; as well as bridges (including the FECR New River Bridge), monitor very high frequency (VHF) channel 9.

The New River Bridge is located approximately 4 miles west of the New River's inlet. The FECR railroad bridge, a 2-track bascule bridge, crosses the waterway west of St. Andrews Avenue. The river at this location is approximately 135 feet wide. The bridge has a vertical clearance of four feet and a horizontal clearance of 60 feet (AMEC 2014a). The bridge is currently kept in the open position and lowered for freight train passage in accordance with USCG Drawbridge Operation Regulations at 33 CFR 111.313(b). A bridge operation survey performed through observations of live feed shows that the New River Bridge is closed on average 19 minutes per closure.

Comment: The closure time reported in the Vessel Traffic and Bridge Closure Survey New River, Fort Lauderdale, Florida. Prepared by: Evirocare Solutions International indicates closures with rail operations as they exist today, marine vessel traffic is delayed at the FEC bridge by approximately 9 to 72 minutes, which occurs 2 to 7 times per day during daylight hours.

Based on the January 2014 FECR video, an average of 157 vessel crossings occurred at the New River Bridge (Min=99; Max=289) on a daily basis (6:00 AM to 6:30 PM) from Monday through Friday compared to an average of 356 vessels (Min=262; Max=508) per day on a weekend day. As shown in Table 4.1.3-2, the average count of commercial vessels per day ranged from 29 to 59 and the average count of recreational vessels per day ranged from 64 to 356. There was an increase in recreational vessel traffic by approximately 64 percent during the weekend; an increase in commercial crossings during the weekend was not observed during this two-week assessment. Both Sundays observed during this two week video assessment (January 19 and January 26) had the most vessel activity, with a total 304 and 508 vessel counts from 6:00 AM to 6:30 PM, respectively. Wednesdays and Thursdays reported the lowest vessel activity with an

average of 114 and 136 vessel counts, respectively. The average vessel count for Monday is likely higher than normal since it includes data from January 20, 2014, which was a holiday.
(AMEC 2014a).

The average vessel count observed during the February 2014 New River live feed observations was lower than values obtained from the January 2014 New River Bridge video assessment (Table 4.1.3-2). However, the density of traffic was similar throughout the week, with lower vessel traffic on Thursdays and an increase in vessel traffic over the weekend. A higher traffic of recreational vessels was observed compared to commercial vessels. Most commercial vessel trips account for those made by taxi boats, the Jungle Queen, a sightseeing riverboat cruise, and towing services (AMEC 2014a).

Table 4.1.3-2 Daily Vessel Traffic at the St. Lucie, Loxahatchee, and New River Bridges, January 2014 [1]

	St. Lucie River	Loxahatchee River	New River
Recreational Vessels			
Minimum	26	5	64
Maximum	406	500	356
Average	117	148	166
Commercial Vessels			
Minimum	2	0	29
Maximum	21	14	59
Average	4	9	49
Total Vessels			
Minimum	28	5	99
Maximum	413	502	508
Average	121	157	215

Source: AMEC. 2014a. *Navigation Discipline Report for the AAF Passenger Rail Project from Orlando to Miami, Florida*. July 2014.

1 Vessel traffic was assessed during January daylight hours, from 6:00 AM to 6:30 PM

Comment: The Vessel Count contained in the Vessel Traffic and Bridge Closure Survey New River, Fort Lauderdale, Florida. Prepared by: Evirocare Solutions International, disagrees with the number reported in the DEIS as shown in the following excerpt from the study.

"The variance of vessel traffic during high season (i.e. tourist season/ non-hurricane season from December to May) versus low season (hurricane season June to October) was examined. Based on three years of data from Broward County bridge operations in the downtown only (with some extrapolations for missing monthly data), the average:

- High season number of vessels is 1,272 and bridge openings is 925
- Low season number of vessels is 979 and bridge openings is 781

Thus, about 30 percent more vessel traffic is experienced in the height of season, with about 18 percent more bridge openings".

The variance in the number of vessels indicates that the DEIS is seriously flawed with respect to the impact on navigation at the New River Bridge.

SECTION 5, ENVIRONMENTAL CONSEQUENCES, REVIEW AND COMMENTS

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5.1.2.2 Environmental Consequences
This section presents the potential impacts of the Project on rail transportation, highways, and local roads, in comparison to the No-Action Alternative in the same analysis year (2016, projected to be the first year of revenue service).

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Rail Impacts
The Project passenger operations would include 16 round-trip passenger trains per day, which amounts to a maximum frequency of two passenger trains crossings per hour. Maximum operating speeds would range from 79 to 125 mph, depending upon the location along the E-W or N-S Corridors. Operating speeds will be greatest along the E-W Corridor where there are no highway-rail grade crossings. From the station at MCO to the station at West Palm Beach, service would be nonstop, as there are no intermediate stations proposed.

The N-S Corridor has been designed to cause no adverse impact on freight operations, and has an assumed beneficial impact on freight operations. The addition of passenger rail service would require modifying the mostly single-track system to a mostly double track system, which would be used by both passenger and freight operations. This will improve freight efficiency by increasing average operating speeds. As a result, the Project would have beneficial impacts on future freight traffic along the N-S Corridor. There are no existing freight rail operations within the E-W Corridor; therefore, no impacts to freight rail operations would occur in the E-W Corridor with Alternatives A, C, or E.

The Project would also have a beneficial impact on the passenger rail transportation network between Orlando and Miami by providing potential customers with an alternative means of rail transportation. The Project is designed to provide a direct, nonstop rail service from MCO to West Palm Beach, which is a different service geographically and functionally compared to the existing Amtrak service. The Project would also provide more frequent and regular service, which would result in more flexibility to potential customers. Riders for AAF are expected to be primarily diverted from automobile modes (69 percent of forecast ridership). However, 2 percent of the AAF ridership is forecast to accrue from competing passenger rail services, which would include the existing Amtrak service. In 2019, this amounts to approximately 30,526 annual trips (Table 5.1.2-3) diverted from Amtrak, which is about 4 percent of Amtrak's FY2012 ridership along the Silver Star (425,794) and Silver Meteor (375,164) corridors (Amtrak 2012). No diversion from Tri-Rail is anticipated. Tri-Rail provides frequent commuter-rail service between West Palm Beach and Miami, with multiple stops and relatively low fares. The infrequent intercity passenger rail service provided by AAF would have fewer stops and higher fares, and would not be expected to divert a significant number of riders.

> "It's hard to get an exact estimate of the number of vessels that travel west of the FEC rail bridge, but larger boats that require openings of the nearby Andrews Avenue bridge, can be tracked by looking at the bridge tender logs." The number of openings for the Andrews Avenue Bridge is stated in the article as, "All told, the Andrews Avenue Bridge does about 10,000 openings per year. Peak months are March, April and May. The highest month was March, with 962 openings. The lowest month was September, with 623. And that's just counting the larger boats that need more than the 18 feet of vertical clearance provided by the Andrews Bridge when it's closed. Smaller powerboats such as center consoles, runabouts and skiffs — all of which would still require the FEC rail bridge to open — are not counted. Working by remote control, the FEC bridge is lowered for about a dozen freight trains each day. But the new passenger service would double, even triple the number of times it would have to go down."

Existing and Proposed Rail Operations were described as follows in the presentation to The Florida Senate, Committee for Commerce and Tourism, On October 7, 2013, by Rusty Roberts, FECI. Excerpts from the report:

Proposed Passenger Operation Details:

- Hourly northbound and southbound service starting in the early morning and ending in the evening
- Trains will travel
  - – Up to 79 mph between Miami and West Palm Beach
  - – Up to 110 mph between West Palm Beach and Cocoa
  - – Up to 125 mph between Cocoa and Orlando
- Speed is based on factors such as curvature, signaling, track condition and the number of grade crossings

All Aboard Florida claims its passenger trains will:

- Be faster and lighter than the freight trains that currently operate in the existing rail corridor
- Consist of two locomotives and seven passenger cars – train sets will be less than 1,000 feet
- Clear intersections in less than a minute
- Use clean diesel fuel and meet the highest emissions standards

Differences between Freight and Passenger Trains in the Existing Rail Corridor

	Freight Current Conditions	Passenger Expected Conditions
Average Train Length	7,800 feet	900 feet
Trains Per Day	18	32
Average Speed	38-52 MPH	79-125 MPH

Future Freight

AAF's proposal hinges on what this report considers a faulty assumption- that there will be no additional bridge closure delays due to volume of train traffic, freight and passenger combined. As stated in AAF, Environmental Assessment:

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

We consider this vastly understated, with our engineering assessment arriving at an estimate three times the AAF claim. This is supported by extensive evidence presented below.

First, the national and international attention, 13 international Enterprise Florida Offices abroad including the cargo-rich Pacific Rim (Shanghai, Hong Kong, Taiwan, and Tokyo),[1] private and public investments in Florida Seaports, intermodal logistics centers, and inland ports – all portend more freight traffic. Some question whether one of the main drivers of extra freight, which is the completion of the Panama Canal extension, will be delivered on time. A recent conference presentation by a Canal representative, and ***(coincidentally) moderated by Florida East Coast Railway (FEC) President*** and Chief ***Executive Officer Jim Hertwig***, downplayed the recent work stoppage and reassured the audience that the

[1] See also article available [online] http://government.brevardtimes.com/2014/03/florida-opens-business-development.html , March 31, 2014.

massive public works project is on target for end of 2015 completion.[2] Of course increased shipping through the Panama Canal will mean little to Florida if the freight can't be captured and distributed through the Port of Miami. "The port [of Miami]'s access to rail and intermodal connections will be key to making it an attractive port for shippers," said Bill Johnson, Director of the Port of Miami. [3]

Next, consider the overview of testimony of FEC President and CEO James Hertwig at the 16th Annual Transportation & Infrastructure Summit Conference held in Irving Texas (August 7, 2013) which underscores freight opportunities, and public and private investment at the Port of Miami and Port Everglades:

FEC Overview

- 351 miles of mainline track
  - Only railroad along Florida's east coast
  - Unparalleled link between Florida rail traffic and nation's rail network
- Most direct and efficient North/South mode for transporting multiple types of freight
  - Competitive advantage over motor carriers due to highly congested roadways and challenging trucking environment
- Attractive freight mix
  - Intermodal containers and trailers
  - Carload
- Crushed rock (aggregate)
- Automobiles, food products and other industrial products
- Connect to national freight network via CSX and Norfolk Southern in Jacksonville

Florida Market Overview

- Large Consumer Market
  - 4th largest state economy in the U.S. (by GDP)[4]
  - Over 19 million residents, 3rd largest state population behind California and Texas [5]
  - More than 85 million out-of-state visitors annually [6]
- Strategic Location
  - Primary gateway to Latin America; accounts for more than one-third of all U.S. trade with Latin America
  - 3 of the nation's 15 largest container seaports
  - Closest U.S. ports of call from Panama Canal (Port Miami and Everglades)

The Asian Market Opportunity

- Panama Canal expansion will allow larger vessel passage
  - Currently can accommodate 4,800 TEU vessels

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[2] Available [online] http://www.progressiverailroading.com/shippers/article/Panama-Canal-expansion-will-be-completed-by-2015s-end-canal-official-says--39862 , March 31, 2014.

[3] Available [online] http://www.progressiverailroading.com/shippers/article/Panama-Canal-expansion-will-be-completed-by-2015s-end-canal-official-says--39862 , March 31, 2014.

[4] Bureau of Economic Analysis, University of Florida.

[5] Florida Chamber Foundation and Florida Department of Transportation report (December 2010).

[6] VisitFlorida.com: http://media.visitflorida.org/new/news.php?id=230

- Post expansion, Canal will accommodate 13,000 + TEU vessels which will allow for faster all-water times to the East Coast for the more cost efficient "large vessels" (larger vessels are 30% more cost efficient)

• Currently only 2 ports on the eastern seaboard with 50' water depth

• Over the last 3 years, the Port Miami received funding for over $1.0 billion in infrastructure improvements, which combined with the Panama Canal expansion, will make it a gateway for import/export activity

- On-dock rail restoration, with direct rail access to intermodal yard (FEC), and straight-track access to North Florida and beyond utilizing FEC Railway infrastructure (Completion: 2nd half 2013)
- The Tunnel project will allow for better, and incremental access of freight flows in/out of the Port (Completion: May 2014)
- 50' dredge expected to be completed in 2015 in concert with the Panama Canal expansion project

Strategic Initiative: On-dock rail service at Port Miami

• Implementing on-dock rail service at Port Miami allows FEC to directly serve Port customers

– Only railroad with direct access to the Port
– Trains will be run directly from the Port to the FEC mainline

• *Total project cost $45-50 million*

– Federal TIGER II grant ($23M)
– Florida DOT (up to $9M)
– Miami Dade County (up to $5M)
– FEC (up to $9M)

• Q2 2013 Update

– Rail line lead to Port has been completed
– Bascule Bridge rehabilitation phase has begun
– Joint marketing program with the Port has begun

• Estimated startup date: 2nd half 2013

Strategic Initiative: ICTF and near dock rail service at Port Everglades

• ICTF Groundbreaking Event took place on January 17th to announce the start of construction on a 42 acre Intermodal Container Transfer Facility

• Total Cost: $73M
– FEC-State Loan and Cash ~ $35M
– Broward County ~ $20M
– State Grants ~ $18M

• Q2 2013 Update
– Lease agreement with Broward County executed
– ICTF design-build request has been awarded to The Milord Company
– Received State Loan funding in Q3

• Estimated completion during the 1st half of 2014

COMMENT: It is therefore clearly evident that FECR and FECI fully expect to provide increased freight rail operations in the near future**.** The AAF proposal for Passenger Rail Service is only one component of the total rail traffic that needs to

be analyzed in considering all of the impacts which will have an effect on marine traffic transiting the FECR corridor and the marine community in general i.e., yachting service industry, real estate interests, marinas and repair facilities, which are located west of the FECR corridor.

The FRA, USCG and other permitting agencies must also not neglect analysis and engagement with CSX railway. Recalling that CSX is approximately four times the size of FEC in Florida, this is another huge factor driving future rail planning in South Florida. While CSX rail lines are not directly connected dockside like FEC, CSX is integral to cargo movement throughout the State and to seaports outside of South Florida. If there is any doubt about its future business interest moving freight, one example is its April announcement of the opening of the Central Florida Intermodal Logistics Center in Winter Haven, FL. Owned by Evansville Western Railway, the 318-acre facility… "will be operated by CSX Intermodal Terminals Inc. and served by CSX Transportation. Containerized freight previously handled at CSX's Orlando terminal will be shifted to the Winter Haven facility, while the Taft yard in Orlando will continue to serve other CSX needs. [It will] … serve as a centralized hub for transportation, logistics and distribution needs in Orlando, Tampa and South Florida." [7]

3. Time and delay of rail operations, existing and future

Pictured above, FEC Rail Bridge in down position causing transiting boats to circle or temporarily tie up to limited dock space (if available). (2014 photos)

[7] Available [online] at http://www.progressiverailroading.com/prdailynews/news.asp?id=39979, April 03, 2014.

Pictured above, FEC Rail Bridge closing with boat traffic approaching). [2014 photos]

The operation of the movable bridges falls under the jurisdiction of the USCG and is regulated by Rules and Regulations published in The Code of Federal Regulations under Title 33, "Navigation and Navigable Waters". The FECR bridges in question are presently unmanned and opening and closing operation is fully automatic utilizing electronic sensors and cameras located at the bridge site. The opening and closing operations are controlled utilizing the information transmitted from the sensors and cameras at the bridge site to the FECR central control board located at New Smyrna Beach.

The existing rail operations on the FECR Bridge 341.26 as shown in Table 3.3-1 Existing and Future Freight Train Operations (No-Action Alternative) in the DEIS consists of an average of 14 freight trains per day. The bridge is normally left in the open position to allow navigation unrestricted access. The bridge is operated remotely and the operation to close the bridge to navigation and permit rail traffic to cross commences when the control center is alerted to an approaching train which requires the bridge to be closed. When trains approach, a horn blows and a timing board with neon numerals visible to boaters is activated with a 5-minute countdown by seconds to span closure. Additionally, electric eyes scan the channel to assure clearance before closing. Machinery will not operate automatically until all systems are cleared. Trains are warned when bascule operations are interrupted and begin slowing for a stop until fully cleared to transit the bascule bridge. Eye witness accounts of the closing procedure have reported that the initial 5-minute countdown has been in some

cases 6 minutes in duration. Presently there is no rule in the CFR regarding the FEC New River Bridge. The USCG has asked FEC to request a rule for Bridge 341.26 however FEC has not complied. A specific rule regarding the amount of time the bridge is to be open per hour is a necessity for the FEC bridge when considering the planned operations by FEC, AAF and Tri-Rail.

Train lengths reported in presentations made by FECR are 7800 feet long and travel at speeds varying from 38 to 52 MPH. Several videos of FECR trains transiting one of the three movable bridges indicate the train consisted of two engines pulling 161 cars of intermodal freight. 161 intermodal cars having a length of 64 +/- feet per car would have an overall length of 10300 feet. Other videos found during research for this report also indicate FECR intermodal trains containing more than 200 cars which would have a length of 12800 feet.

Assuming a speed at the lower range of 38 MPH approx. 50 feet per second, is more likely to occur in the Ft. Lauderdale area with numerous grade crossings and the New River Bridge. Using the 7800 foot train length quoted by FECR the time required for the train to travel across the bridge is 7800 feet / 50 FPS= 156 seconds which equals 2.6 minutes. Likewise the 12800 foot train passage is 12800 feet / 50FPS= 256 seconds which equals 4.3 minutes. Slower speeds would increase the time required for a train to pass the bridge.

The most optimistic total time to close the bridge to navigation, allow the train to pass over the bridge and open the bridge to navigation can be estimated to be 5 minutes for the initial countdown, 1.5 minutes to lower the bridge, 4 minutes for the train to pass over the bridge and 1.5 minutes to open the bridge for navigation to pass which totals ***12 minutes per freight train passage***. The ***total delay time for the 14 freight trains per day*** would be 168 minutes or 2.8 hours which can be rounded to ***3 hours*** (considering the variables) where navigation is halted.

Future Rail Operations

Future rail operations will consist of the exiting freight rail and the proposed passenger rail operations proposed by AAF and Commuter Rail Operations proposed by Tri-Rail; also the probability of increased freight traffic due to the improvements at Port Everglades and Port Miami described by FECR in their presentation to the 16th annual Transportation and Infrastructure Summit need to be considered. The increased tonnage expected at these ports is order of magnitude ***three times greater than presently handled at these ports according to the FECR presentation.*** There is therefore a possibility for rail freight operations to triple to meet this additional demand required to move the container (intermodal) traffic northward from Port Miami and Port Everglades to Jacksonville and connections to other freight carriers. Accordingly, this author anticipates that train movements to be accounted for in the future would consist of 33 (11X3) freight trains per day, plus the 32 planned passenger trains proposed by AAF and up to 60 trains per day proposed by Tri-Rail Coastal Link service..

Summary of Possible Freight plus Passenger Time Delay

The total time required for freight operations would be 2.5 hours (present closure time) multiplied by 3 equals 7.5 hours. The total time for passenger operations would be ***8.5 minutes per train*** passage based on an 800 foot long passenger train operating at a speed of 20 MPH average due to the close proximity of the proposed train station to the bridge and the same 5 minute countdown and 1.5 minutes to close and open the bridge. The total time for passenger operations can be estimated at ***8.5 minutes*** multiplied by 32 trains equals 272 minutes or 4.5 hours. ***Future rail delays for the combined freight and passenger operations would therefore be estimated in the range of 12 hours per day*** during which navigation would be halted. The Tri Rail Coastal link service is proposed to cross the New River in Fort Lauderdale on a mid-level movable bridge having a minimum vertical clearance of 21 feet above mean high water. Not all vessels will be able to navigate under the proposed Tri Rail bridge without an opening. The number of openings required by navigation to cross under the Tri-Rail Bridge will need to be factored in to the total number of openings. The combined effect of all of these rail operations must be included in the AAF DEIS to properly evaluate the impact on Navigation. In this regard the Draft DEIS is seriously flawed.

This time delay is considered extremely conservative, given eye witness accounts of closures ranging between 17 to 20 minutes (under current conditions). Absent closure records from FEC/AAF, Envirocare Solutions International conducted video and web cam monitoring to accurately document closure times.

Assuming freight traffic 3 times higher than AAF's published forecast, The Table below presents a sensitivity analysis considering what likely scenarios result from real world conditions (i.e. train delays, switching delays, etc.). Considering average passenger closure times ranging from 8.5 to 12.5 minutes, and average freight closure times from 12 to 19 minutes, ***the duration of closure per day could be as high as 17 hours.***

Bridge closure time scenarios

Train Type	AAF train forecast			Best case scenario A			Likely scenario B			Likely scenario C		
	Trains / day	Min./ closure	Closure time (hrs.)	Trains / day	Min/ closure	Closure time (hrs.)	Trains / day	Min./ closure	Closure time (hrs.)	Trains / day	Min./ closure	Closure time (hrs.)
Passenger	32	8.5	4.5	32	8.5	4.5	32	10.5	5.6	32	12.5	6.7
Freight	11	12	2.2	33	12	7.5	33	17	9.4	33	19	10.5
Total Hours Closed			**7**			**12**			**15**			**17**

1. The number of trains in this table only considers FEC and AAF rail traffic. Tri-Rail Trains will operate over a separate mid-level movable bridge which requires a separate evaluation of estimated closure times for the number of trains/day proposed by Tri-Rail (60 trains per day in the Tri-Rail Coastal Link EA) and an estimate of vessels taller than 21 feet requiring an opening to pass through this part of the channel.
2. This report also recommends that AAF Passenger Rail service should run on the proposed Mid-Level Bridge along with Tri-Rail commuter service.

Even if the increase in freight traffic is not realized fully, the paramount question remains – what will be the impact of the Coastal Link project, which goal is to bring passenger rail to the FEC line? For comparison, the Tri-Rail passenger rail now runs at 40-50 trains daily.

4. Impacts on navigation and the marine community

The impact on navigation is an increase in delays caused by the bridge closures which at present are approximately 2.5 hours per day which would increase to approximately 12 hours or more per day (best case scenario from above). The 12 hours per day is based on a single one direction train movement over the bridge. The possibility of combined movements one in each direction will be discussed later in this report.

Negative impacts on the marine community and navigation resulting from the reduced time allowed for navigating the New River are:

- Additional cost of fuel resulting from slowed or stopped navigation.
- Additional time delay related cost for tow services required for larger vessels.
- Increase in travel time to reach destination points.
- Additional cost of crew time.
- Cost of time related delays to commercial and fishing operations.
- Loss of revenue to the various providers of services to the marine community i.e., marinas, repair facilities, yacht sales etc. resulting from mariners seeking more convenient locations.
- Loss of value to property resulting from mariners and the marine community seeking more readily accessible locations.

5. Engineering recommendations

The engineering challenge is to mitigate negative impacts of unreasonable bridge closure. Under the NEPA (EIS) process, credible engineering comments filed with the Federal government will elicit responses from the applicant. Though AAF

dismissed several options such as tunneling, elevated tracking or separated tracks in its EA, those options and others should be advanced again if the project's impact, together with future Coastal Link impacts, is to be mitigated.

Viable options that need to be discussed in the DEIS should include the following possible means of mitigating negative impacts:

- Revisit earlier proposals to elevate over the New River at the FECR crossing. From a recent field observation,[8] the other bascule bridges spanning the New River offer overhead clearance of between 17 and 21 feet above the mean water level. [9]
- Revisit earlier proposals to tunnel under the New River at the FECR crossing.
- Shift some of the proposed rail operations to an adjacent rail corridor i.e., CSX or Tri-Rail.
- Combine train movements to occur simultaneously in two directions thereby reducing the number of closures required.
- Shift train movements to off peak periods i.e. after midnight affording more daylight time for navigation to transit the waterway.
- Optimize train lengths to reduce the number of train movements.
- Provide a full time bridge operator at the bridge to reduce the initial 5 minute countdown period required by the current remote operation of the bridge.
- Improve the waterway using contributions from AAF/FECR/FECI which would aid navigation permitting easier faster passage along the waterway.
- Investigate the possibility of constructing a new movable bridge at an elevation less than the required 55 feet for a fixed bridge that would permit both freight and passenger operations on a suitable approach grade, thereby reducing the number of openings required to pass smaller vessels.
- Investigate providing a parallel high level fixed bridge adjacent to the existing FECR Bridge to accommodate all AAF passenger operations while keeping freight operations on the existing bridge.
- Investigate improvements in the machinery and power requirements for the existing bridge to reduce the time required to open and close the bridge.
- Investigate replacing the movable bridge with a different type movable bridge that would require less time to open and close.
- Investigate any combination of the above suggested measures which would be of benefit.

Some of the above recommendations have been included in the draft DEIS in similar form.

Included in this report are suggested alternates for mid-level movable bridges for combined passenger rail operations for AAF and Tri-Rail and a high level alternate for a fixed and a movable bridge with approach viaducts for combined AAF and Tri-Rail Passenger and commuter rail operations. The suggested alternates have examined the Tri-Rail Environmental assessment and found that the proposal for a two track mid-level movable bridge adjacent to the existing FEC New River Bridge is not feasible within the existing ROW. The width of the framing for the existing bridge which is centered on the FEC ROW leaves insufficient room on either side to construct a new double track bridge. Our investigation concludes that it is possible to build two separate movable mid-level bridges one on each side of the existing bridge. This needs to be evaluated and included both in the AAF DEIS and the Tri-Rail EA and EIS.

The alternates investigated and recommended by this report to be included in the AAF and Tri-Rail documents are:

- Mid-Level Movable Bridges (21 foot vertical clearance above MHW in the closed position)
- Fixed High Level Bridge (55 foot vertical clearance above MHW)

[8] Observed by Jim Karas, March 2014 boat tour.

[9] This does not consider sea level rise predictions of 9 to 24 inch water level increase by the year 2060 as discussed elsewhere in this report.

- Fixed High Level Bridge with a movable span permitting tall masted vessels to pass thru without having to step their masts.

Mid-Level Movable Bridge Alternate

A mid –Level movable bridge carrying all proposed AAF passenger rail and Tri-Rail commuter traffic has the capability of reducing the number of openings required for a low level bridge such as the existing FEC New River Bridge. The Existing bridge is situated such that the vertical clearance is 4' at MHW. This permits only rowboats, canoes, kayaks and small motor boats to pass without requiring an opening. A mid-level bridge or set of bridges would allow passage of vessels having a height of 21 feet or less at MHW to pass without requiring an opening, and is consistent with the nearby downtown moveable road bridges. The other distinct advantage is that the existing bridge FEC bridge need only carry freight operations and could conceivably be left in the open position for longer periods.

High Level Fixed Bridge Alternate

The High level fixed bridge alternate (55 foot vertical clearance above MHW) would carry all proposed AAF passenger rail and Tri-Rail commuter traffic. This alternate while it would greatly reduce the number of required bridge openings however limits passage to only those vessels that require less than 55 feet of vertical clearance. Sail boats with masts taller than 55 feet would not be able to pass without stepping their masts. This alternate was included in our evaluation however it is not recommended as many tall masted vessel owners lying west of the FEC New River Bridge would no longer be able to pass through this part of the channel without having to step their mast. If the process to step the mast were required perhaps only one time during the boating season this would not present a major hardship. However it was determined in the vessel study conducted by Envirocare Solutions International that many of these tall masted sail boats are berthed at locations west of the existing FEC bridge and frequently navigate this part of the river to the Intracoastal Waterway and the Atlantic Ocean. Likewise they return to their home berth also on a frequent basis. It is for this reason that we do not recommend this alternate.

High Level Fixed Bridge with a Movable Span

This alternate is the best alternate that provides the least impact on navigation and would serve FEC's freight operation's needs on the existing FEC movable bridge and AAF's and Tri-Rails passenger and commuter rail needs on the high level movable bridge. While Bridge openings would be required for most vessels at the existing FEC bridge the number of closures would be limited only to the freight operations as passenger rail would operate over the high level bridge. The number of openings at the high level bridge also are less in number than for the Mid-Level movable bridge alternate as the 55 feet of clearance provided in the closed position allows most vessels except the tall masted vessels to pass without an opening thereby maximizing use of the bridge in the closed position for rail operations. This alternate is therefore the recommended alternate to accommodate future rail traffic and have the least impact on navigation.

Appended to this report are several exhibits for the alternates presented.

FEC BR. NO 341.26 OVER THE NEW RIVER

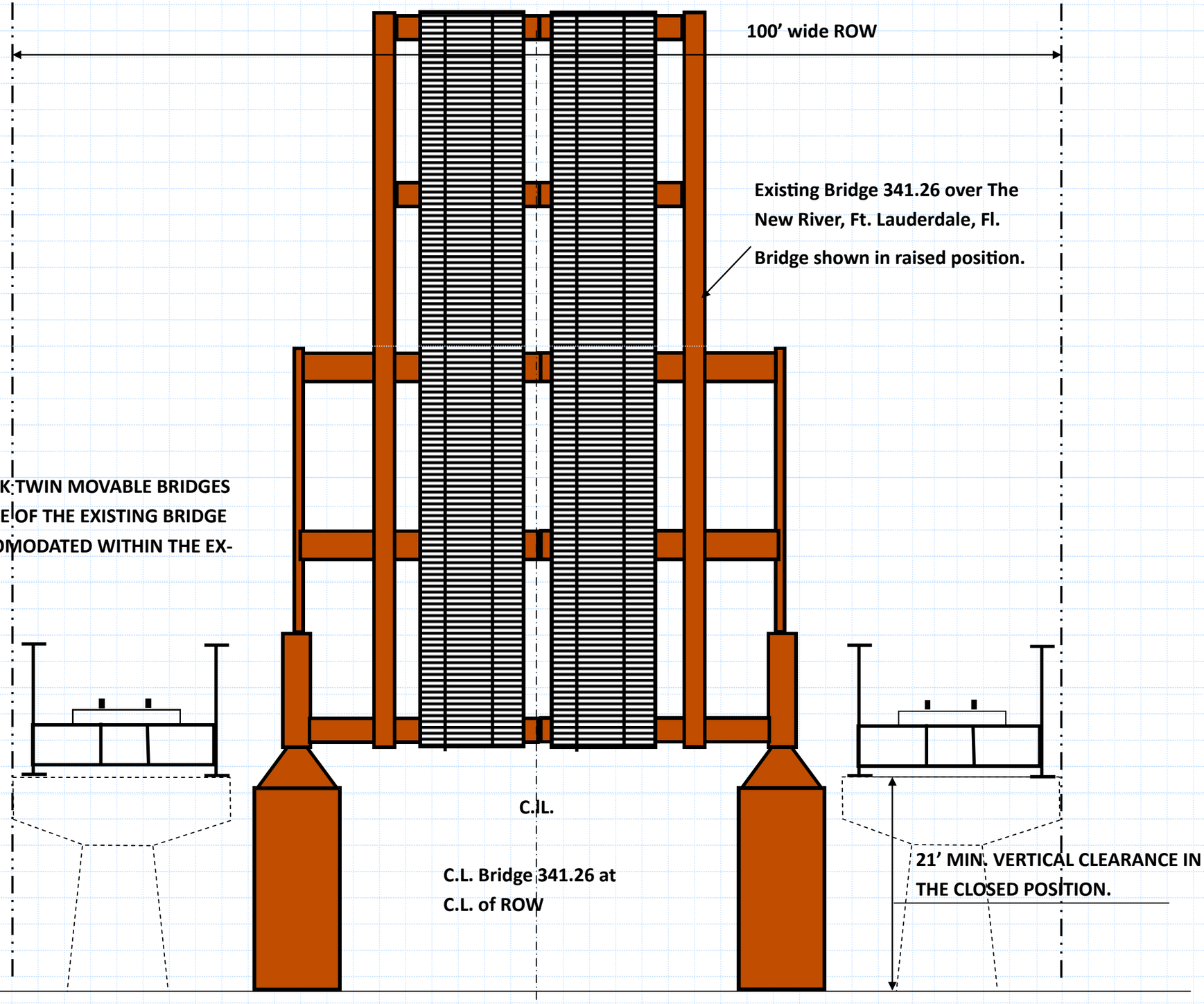
Ft. Lauderdale, Fl. Looking South

100’ wide ROW

Existing Bridge 341.26 over The New River, Ft. Lauderdale, Fl.

Bridge shown in raised position.

SINGLE TRACK TWIN MOVABLE BRIDGES ON EACH SIDE OF THE EXISTING BRIDGE CAN BE ACCOMODATED WITHIN THE EX-ISTING ROW.



MID LEVEL TWIN MOVABLE BRIDGE ALTERNATE TO CARRY AAF AND TRI-RAIL PASSENGER SERVICE. NO ADDITIONAL ROW REQUIRED.

C.L.

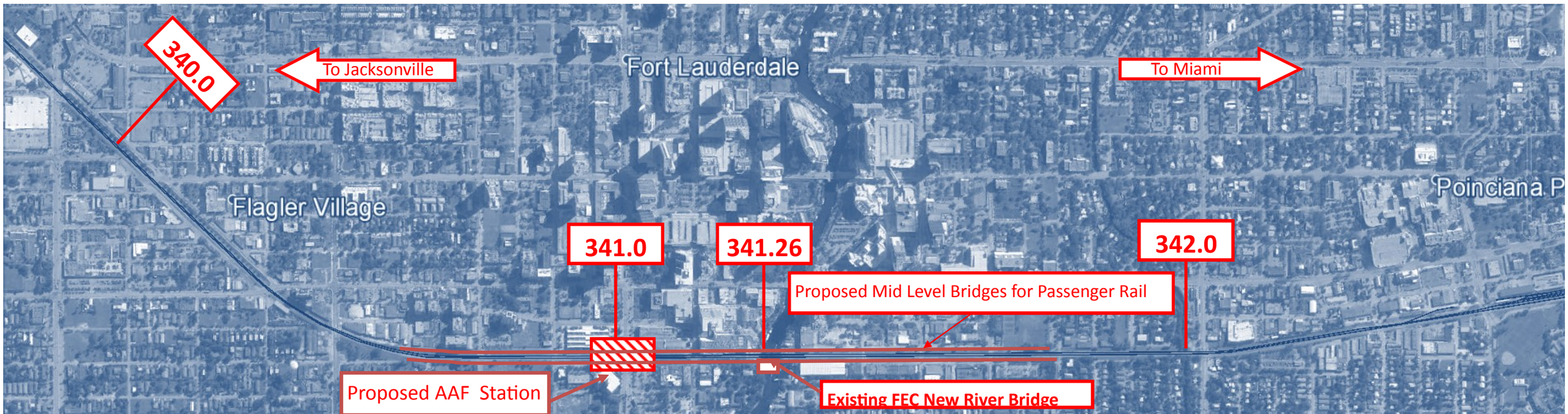
C.L. Bridge 341.26 at C.L. of ROW

21’ MIN. VERTICAL CLEARANCE IN THE CLOSED POSITION.

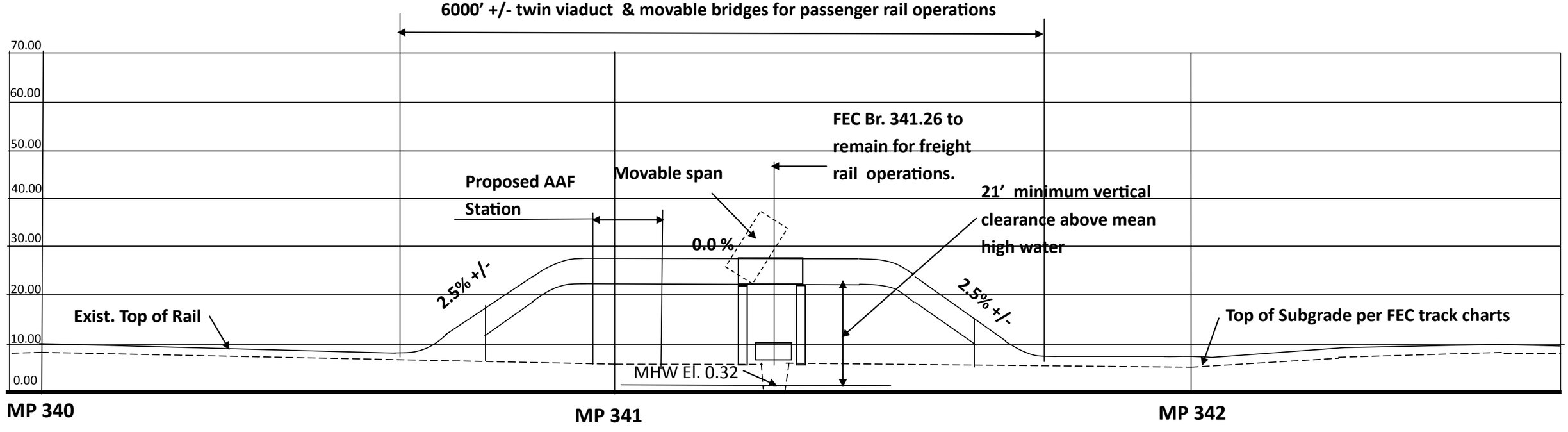
MHW EL 0.32

VINCENT N. CAMPISI, .P.E
CONSULTING ENGINEER, LLC
92 TINSMAN ROAD

Cross Section At Existing FECR Bridge 341.26 Looking South



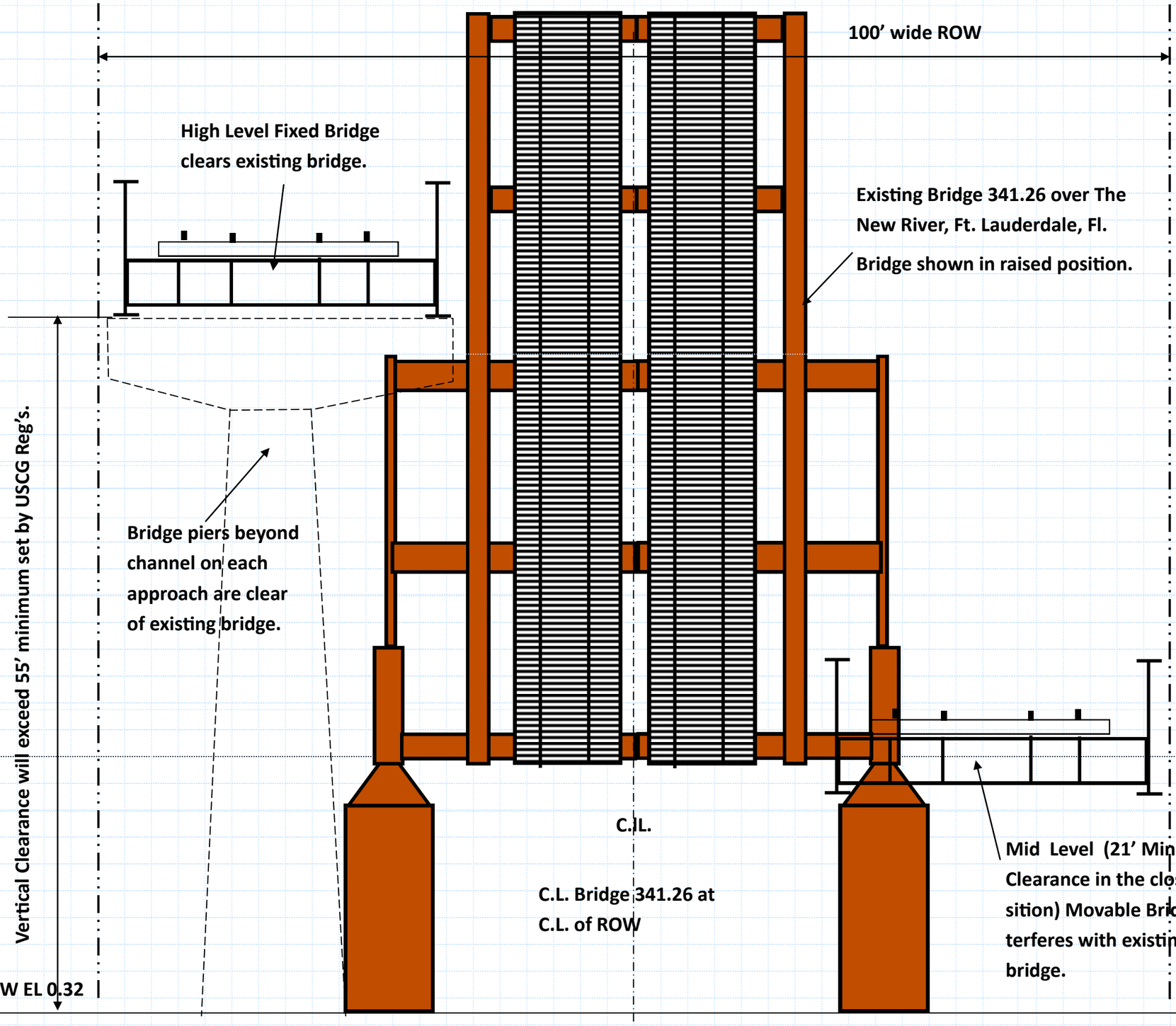
PLAN FEC Alignment from MP 340 to MP 342



PROFILE FEC Alignment from MP 340 to MP 342

CONCEPTUAL PLAN FOR AAF & TRI-RAIL PASSENGER RAIL MID LEVEL TWIN MOVABLE BRIDGES OVER THE NEW RIVER

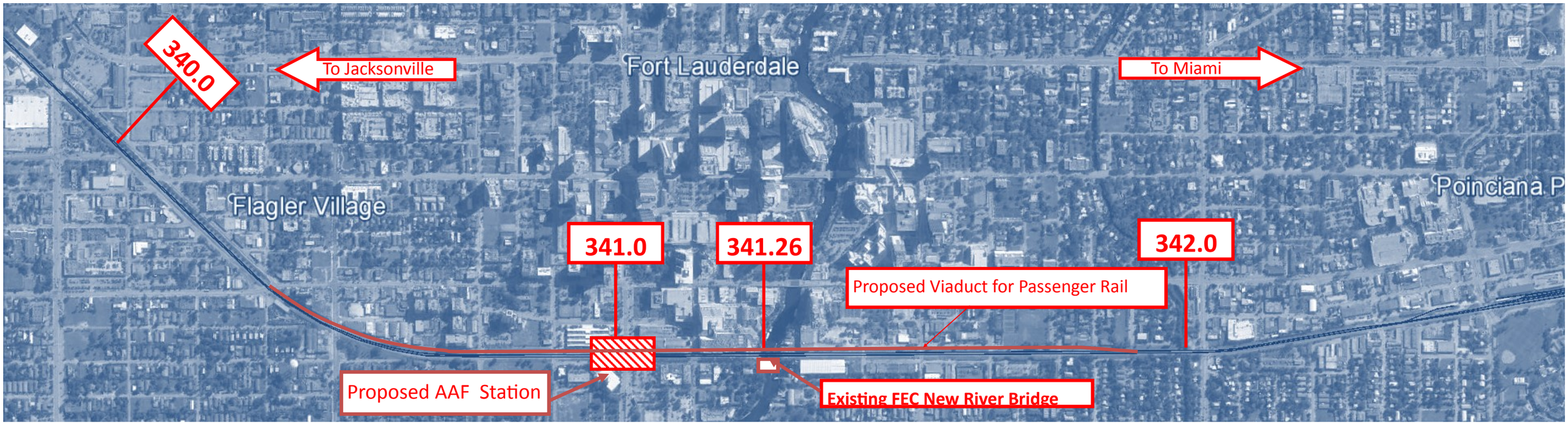
CONCEPTUAL RENDERING MID LEVEL TWIN MOVABLE PASSENGER RAIL BRIDGES OVER THE NEW RIVER



HIGH LEVEL FIXED BRIDGE ALTERNATE TO SERVE AAF AND TRI-RAIL PASSENGER SERVICE. NO ADDITIONAL ROW REQUIRED.

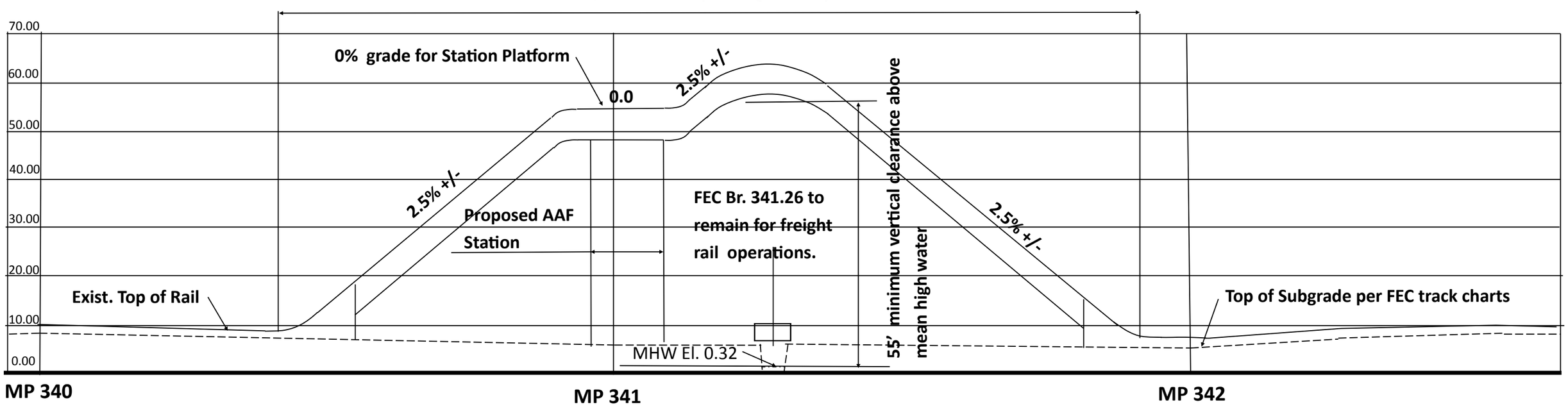
VINCENT N. CAMPISI, .P.E
CONSULTING ENGINEER, LLC

Cross Section At Existing FECR Bridge 341.26 Looking South



PLAN FEC Alignment from MP 340 to MP 342

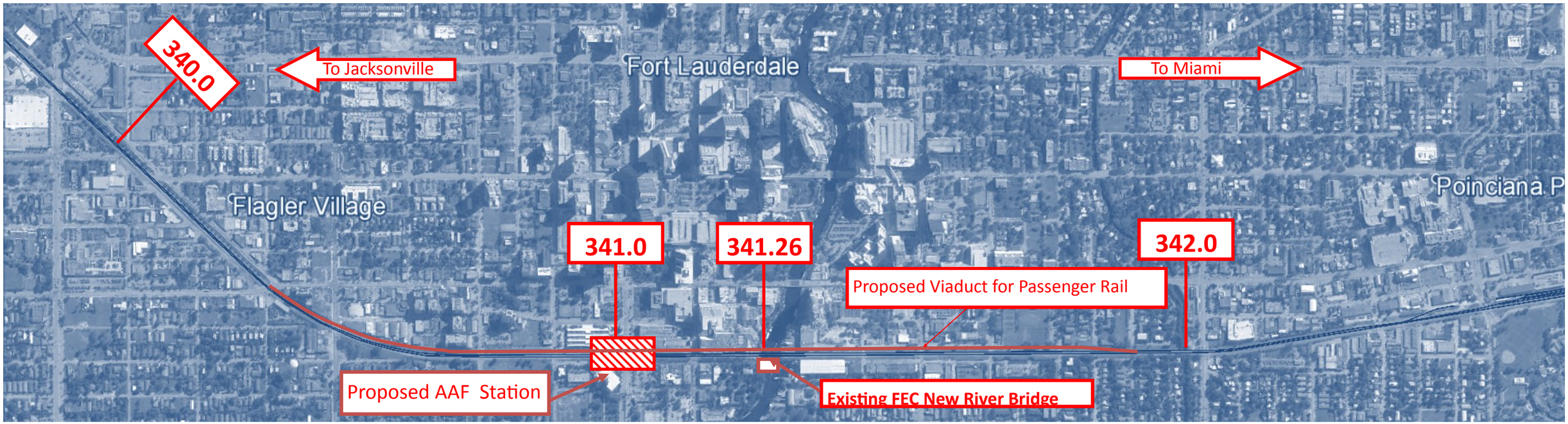
8000' +/- viaduct for passenger rail operations



PROFILE FEC Alignment from MP 340 to MP 342

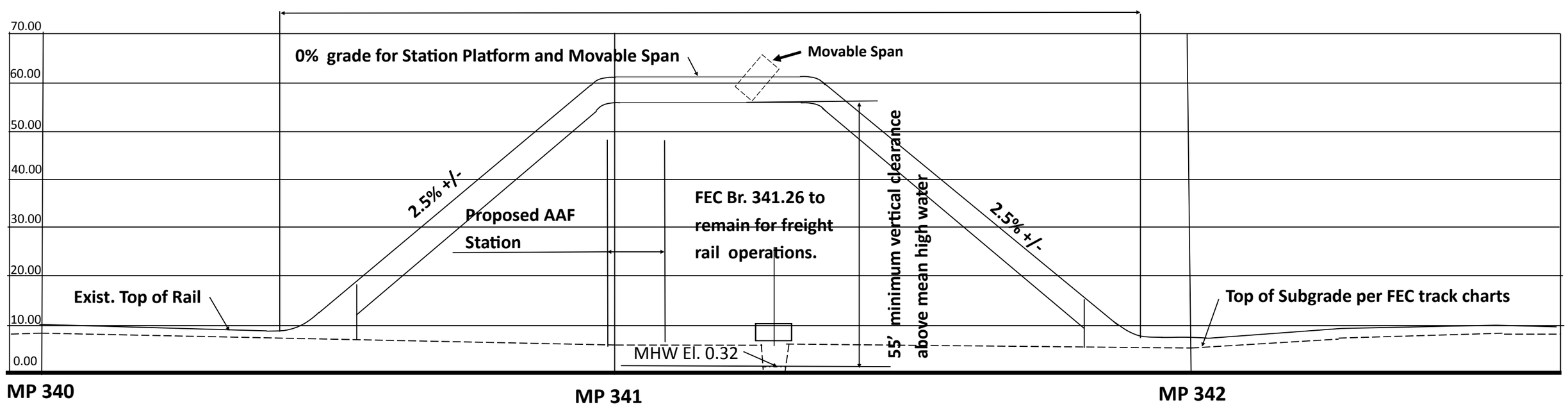
CONCEPTUAL PLAN FOR AAF & TRI-RAIL PASSENGER RAIL FIXED BRIDGE VIADUCT OVER THE NEW RIVER

CONCEPTUAL RENDERING OF HIGH LEVEL FIXED PASSENGER RAIL VIADUCT OVER THE NEW RIVER



PLAN FEC Alignment from MP 340 to MP 342

8000' +/- viaduct for passenger rail operations



PROFILE FEC Alignment from MP 340 to MP 342

CONCEPTUAL PLAN FOR AAF & TRI RAIL PASSENGER HIGH LEVEL VIADUCT WITH MOVABLE SPAN OVER THE NEW RIVER

CONCEPTUAL RENDERING OF HIGH LEVEL MOVABLE PASSENGER RAIL BRIDGE AND VIADUCT OVER THE NEW RIVER

Marine Vessel Traffic and Bridge Closure Survey
New River, Fort Lauderdale, Florida

Residential waterfront boaters and commercial marina properties (approx.1600 acres) upriver of the 2 rail bridges crossing the New River, Ft. Lauderdale, FL.

Prepared by:
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EnviroCare Solutions International, Inc.

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Photography and Video, Watercraft Identification

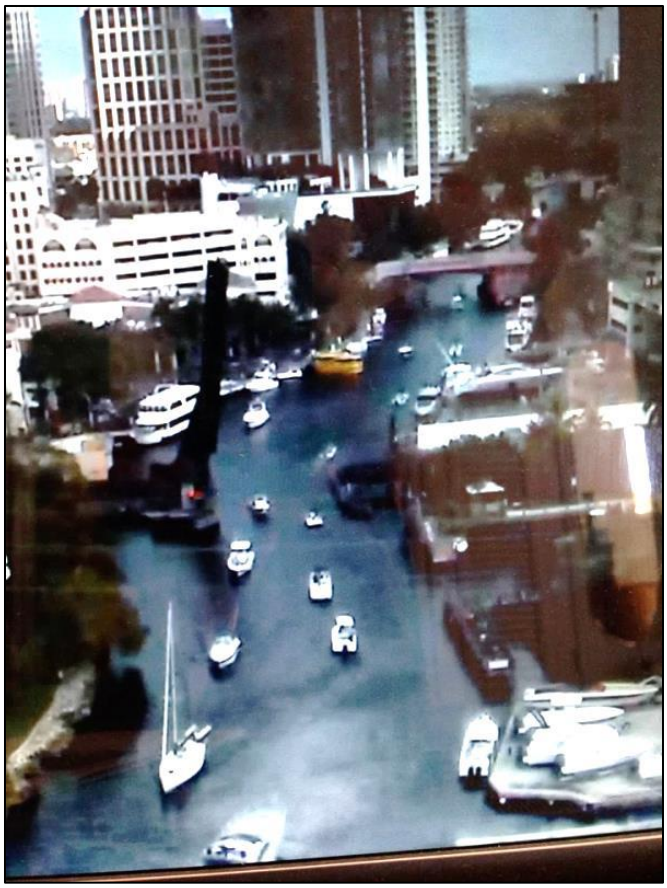
Peer Reviewer:
Vincent N. Campisi, *P.E., M.ASCE, Consulting Engineer, LLC*

December 2014

Contents

Executive Summary

Prompted by the US Coast Guard's solicitation of navigational surveys, and because of the 2012 proposal by All Aboard Florida to increase train traffic which increases FEC Bridge closure time for the busiest portion of the New River waterway, this study (a) measures the volume, size and types of vessel traffic passing the FEC and CSX bridges during 21 days of study in May and June 2014, (b) quantifies rail bridge closings during a May 2014 study period, (c) examines marine vessel traffic patterns in peak and off-peak seasons, and (d) investigates the relationship between the FEC and CSX rail bridges, and the other moveable bridges on the New River waterway.



To conduct a thorough, objective and reliable study within a reasonable cost, a professional study team was engaged and a method was designed which relied first upon reviewing past studies of the waterway, and considering other similar vessel traffic and bridge monitoring in Florida. A combination of digital photography, videography and human monitoring/ observation and validation was selected to obtain high quality data for reliable analyses. A valuable feature of the study method is the application of photo imaging software and surveyed elevation data to establish the height of boats above the waterline. As evidence of the report's validity and objectivity, the results have been reviewed by Vincent N. Campisi P.E., Consulting Engineer, LLC with a long career in movable bridge and navigation related issues, who now serves as an expert engineering witness.

While this report contains marine vessel counts and bridge closure data, it also provides summary vessel detail (for example size, type, category and height above waterline) as a window to a large data base (over 30,000 photo images and videography over 21 days of observation) so these data can be referenced in the future for additional analysis. In parallel with this study is a data base of recent reports of bridge obstruction as reported to the USCG by local mariners.

Monitoring locations were established at the FEC and CSX bridges for cameras and survey staff to monitor traffic and bridges on a 24-hour data collection basis. Licensed captains, engineers, and other marine professionals were used to design the study method, ensure accuracy, and apply boating knowledge to the data gathering, standardization, and quality assurance.

External factors such as weather, tides and current, navigability of the waterway, etc. were considered in the data collection and analysis of results however statistical correlation has not yet been calculated among the data collected. Permanent webcams which monitor portions of the New River were discovered which could prove valuable for future studies.

Summary study results conclude the following:

- For the Rail Bridges:
  - CSX Bridge average closure time of 10:22 minutes 1 to 3 times/ day during daylight.
  - FEC Bridge average closure time of 24:18 minutes 2 to 7 times/ day during daylight.
  - The variance in FEC Bridge closure time is significant, making it harder for mariners to predict the bridge's closure time.
- Vessel traffic at the FEC bridge, for the 21 days of this study included weekdays, weekends, and at least one holiday:
  - The mean average vessel traffic was 292-350 vessels per day, with a wide variance ranging from 105 to 848 vessels per day.
  - Between 14 and 22 % of traffic was commercial, 8 to 15% of the vessels are tall enough above the waterline to trigger road bridge openings.
- Vessel traffic at the CSX Bridge, in the 21 days of this study included weekdays, weekends, and at least one holiday:
  - Mean average Vessel traffic was between 130-138 vessels per day, with a wide variance ranging from 60-274 vessels per day.
  - Between 8 and 18 % of traffic was commercial, and 13 to 20% of the vessels were tall enough above the waterline to trigger road bridge openings.
- Average transit time between the two rail bridges (about 2.6 statute miles) was 29 minutes, at 4.7 knots speed.
- The seasonal variance in larger vessel traffic, as measured by downtown bridge openings, was about 30 percent more vessel traffic and 18 percent more bridge openings.

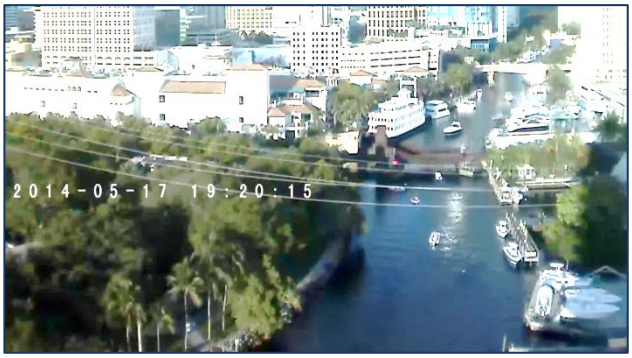
A data base of vessel photos collected for this study can be accessed by the Federal Railroad Administration, US Coast Guard, or other interested parties to further investigate the wide diversity of vessels which regularly use the New River waterway. These range in size from non-motorized rowboats, paddleboards and kayaks (4 feet or less in height and able to pass under closed rail bridges), on up to motorized super yachts over 200 feet in length which cannot clear a 55-foot fixed bridge, and sailing yachts with masts taller than 65-foot fixed bridges. They also range in type, from small pleasure craft to commercial fishing and charter boats, sightseeing tour boats, commercial power yachts, law enforcement and military vessels, tug/tow boats, and industrial barges.

1.0 Introduction

This study was prompted mainly because a navigational evaluation was not included in the 2012 Environmental Assessment of the All Aboard Florida (AAF) project; it was begun prior to the release of the subsequent 2014 Draft Environmental Impact Statement for AAF.

Foremost, this study recognizes the responsibility of the US Coast Guard (USCG) to protect navigational rights, and the Federal regulations governing bridge construction and operations (33 USC § 401, 491-535 and 33 CFR § 114-118). The USCG has published a manual to help implement these requirements (United States Coast Guard, 2004), and written a white paper on the regulatory aspects of potentially obstructive bridges in the United States (United States Coast Guard, 2012). The white paper describes the activities conducted as part of the regulatory process, and which entity (USCG, the applicant, or others) is responsible for each activity. The document (pg. 2) specifies that a "navigational evaluation" "should be conducted by the project sponsor or potential permit applicant early in project planning …" and updated periodically since the waterway and its usage is dynamic so may change over time.

This survey study stands apart from prior studies in that it examines marine vessel traffic ***throughout the busiest*** section of the New River waterway. Hence CSX Bridge operation and traffic was studied ***in addition to*** the FEC Bridge, since the combined railroad bridge operation should be considered in concert with the road bridges (as well as any other impacts to navigability). If the system of bridges were better synchronized, obstruction to navigation would be minimized for a large constituency of thousands of property owners, commercial and safety marine vessel traffic, and marine businesses reliant on unimpeded deep water/ocean access.



Closed FEC bridge, facing east.

FEC Bridge just opened, vessel traffic.

CSX Bridge open position, facing northeast.

Measuring marine traffic and bridge closures on any one day, weekend, month, or year limits the temporal scope of the data. Traffic on any waterway is inherently variable depending on many factors including time of year, time of day, and weather. In coastal areas tides and conditions in the ocean (e.g., wave height) also affect boating use. Repeating this survey at different times of the year will allow for the direct assessment of seasonal and year-to-year variations. In the meantime, longer term data from bridge logs were acquired to allow for the prediction of boating use over longer periods of time than the limited time (21 days) surveyed in this study.

Climate change affects many natural processes including sea level, ocean water temperature, and weather. The International Panel on Climate Change's (IPCC) most recent report on climate change is available at: http://www.ipcc.ch/. The report identifies the Southeast Coast of Florida and the Florida Keys as particularly vulnerable to climate change effects. The southeast Florida region (Palm Beach, Broward, Miami-Dade, and Monroe Counties) have formed a working coalition and executed the Regional Climate Change Compact. Through its credible and peer reviewed modeling work the group has predicted that sea levels along the SE coast will rise 9 to 24 inches (1-2 feet) in the next 50 years (from 2010 to 2060).[1] Therefore, the discussions in this survey regarding overhead clearances and bridge height should take into account the continual rising sea level. In other words, overhead clearances measured in the current day are *maximums* which are expected to diminish.

The results of this study will be useful in evaluating the effects on marine vessel traffic of the various replacement and rehabilitation alternatives, and in particular the vertical clearances of any bridge improvements.

1.1 Objective

This study seeks to:

- measure volume, size and types of vessel traffic passing the FEC and CSX bridges, and bridge closings during 21 days of study (from May 16-18, 20, and May 23-June 10, 2014),
- examine typical vessel traffic patterns in the peak and off-peak seasons, and
- analyze the relationship between the FEC and CSX rail bridges, and the other moveable bridges on the New River waterway.

[1] See http://southeastfloridaclimatecompact.org/pdf/Sea%20Level%20Rise.pdf.

2.0 Methodology

2.1. Prior or Recent Studies

To formulate the approaches used in this study, literature was searched for past studies of marine vessel traffic in the New River. Two studies were found. In April 2009, a limited survey of boat traffic was conducted only at the CSX bridge in support of the Environmental Assessment for the proposed bridge improvements (Scheda Ecological Associates, Inc., 2009) . A total of 511 boats were surveyed over the 3-day period during which the railroad bridge closed 12 times. The total number of boats recorded over the 3-day weekend were 95 (Friday), 169 (Saturday), and 247 (Sunday). A wide variety of boat types were noted, ranging from kayaks and canoes to large cruising and fishing vessels. Cruising and sport fishing boats were the most common types, and 87 percent of all boats were less than or equal to 20 feet in height.

In May 2009, Gannett Fleming prepared a Technical Memorandum that evaluated available data on boat use and bridge activities near the FEC railroad bridge (Gannett Fleming, 2009). The purpose of this report was to assess reasonable needs for navigation in support of the FDOT's South Florida East Coast Corridor (SFECC) Transit Analysis Study. [2]

In that study, the FEC railroad bridge and Andrew's Avenue drawbridge logs for 30-day periods (November 2007 and November 2008, respectively) were assessed to determine the frequency of bridge operations. In addition, phone interviews and field measurements were made to determine the tallest boats upstream of the FEC Bridge. Interviews were conducted with staff from two boat yards. Field measurements were limited to measuring of the heights of four sailboats near the bridge (52, 47, 67, and 52 feet) using a laser range finder.

The monitoring of two railroad bridges with some parallels to the New River was initiated in 2014, driven primarily from the anticipated conflict with passing marine traffic and the All Aboard Florida project. Conducted by Taylor Engineering, the ongoing studies quantify marine vessel traffic and bridge operations at the moveable (bascule) bridges along the FEC rail line at the Loxahatchee River bridge in Jupiter and at the St. Lucie River bridge in Stuart, Florida. The methodology at both locations (outlined in the scope of work) is to remotely photograph the bridges every 20 seconds to produce a movie of bridge and boat activities. Vessel data derived from the digital images includes date/time, direction of travel, length (5-ft increments), vessel air draft, and tide stage (low, flood, high, ebb). Boat types are not being recorded. Bridge activity data includes start time (beginning to close), time train arrives, time train departs, time cycle ends (bridge fully open again).

Subsequent to the preparation of this vessel traffic and bridge closure survey, at least one other effort to monitor vessel traffic and bridge closure has been initiated. The Marine Industry Association of South Florida is recording data for bridge closure and vessel passage at the FEC Bridge. That effort is not as expansive as the scope and detail herein, since it does not contain vessel type, category, size, height, etc. and does not include studying traffic at the CSX Bridge (which is considered vital in order to understand vessel traffic patterns on the entire New River waterway).

In addition, recent complaint reports of FEC bridge obstruction have been filed with the US Coast Guard (primarily by commercial mariners and licensed captains who transit the New River regularly). These were prompted in large part by the recent navigational survey initiated by the USCG. The reports seek

[2] See http://tri-railcoastallinkstudy.com/index.php.

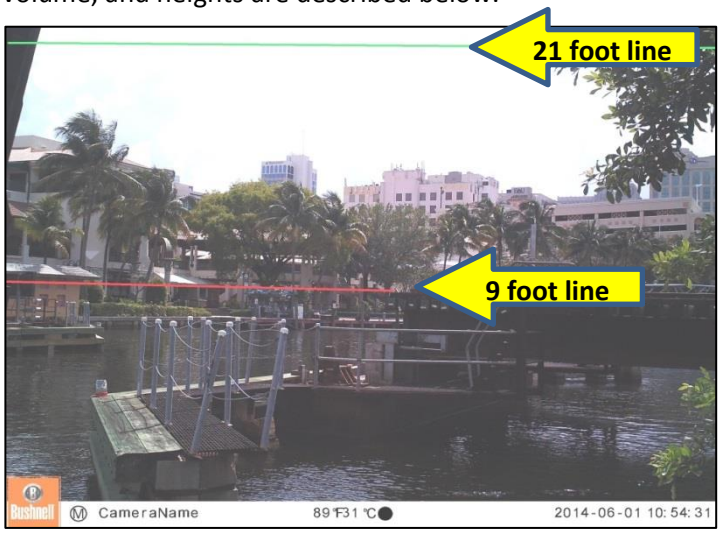
to comply with the Code of Federal Regulations (CFR) §116.05 regarding complaints which states that: "Any person, company, or other entity may submit to the District Commander of the Coast Guard district in which a bridge over a navigable water of the United States is located, a complaint that a bridge unreasonably obstructs navigation. The complaint must be in writing and include specific details to support the allegation."

The complaints from commercial mariners focus on operations of the FEC Bridge beginning in December 2014. The complaints document cases of extended bridge closure, closures when no train is present or crossing the river, and other alleged violations of USCG rule. A complete copy of the reports can be obtained from this report's authors.

For this study, it was concluded that the ease and limited cost of digital photography and videography makes it a preferred method to obtain high quality digital data for reliable analyses. In particular, this method accommodates the evaluation of marine traffic and vessel heights above the waterline which is vital to determine appropriate bridge design and operation to minimize obstruction of marine navigation.

2.2. Field Methods for this Study

The methods used to collect data on rail bridge closure; and marine vessel traffic characteristics, volume, and heights are described below.



In order to obtain elevation reference points to measure boat heights, McLaughlin Engineering (land surveyor) was contracted to survey the FEC and CSX bridges. The FEC tracks were shown to be at elevation + 9 feet NGVD, and the vertical height of the bridge in the open position at approximately 89 feet NGVD. A field survey was also used to establish a clearance line projected from the existing open span to gauge vessels 21 feet more or less above mean high water. In other words, using imaging software the photos taken from a fixed webcam position allow each passing vessel to be referenced with the 21 foot line to determine those under and over that height. Twenty-one feet is the approximate height that triggers bridge openings on most of the New River network. See inset photo.

Camera images were collected from the same location and with the bridge structure in the photo. Using imaging software, a known reference point of 9 feet above the waterline was conveyed into each photo. Each image was then viewed to delete duplicate images or other anomalies, and the viewer used a computer's mouse to represent the highest point of the vessel, meaning the highest point of the superstructure or attachments (e.g. radar or non-moveable antenna). The imaging software then measured the vessel in two categories- over or under 21 feet height above the waterline. For a more detailed measure, vessel images can be re-referenced to determine more precise height.

Because CSX would not allow access to the bridge or tracks, no field survey was conducted at that location. Instead, the Team's Project Manager and Senior Engineer established the same 21-foot height

reference line by first, assuming the tracks at elevation + 9, and using the underside height of the Tri-Rail Bridge in the raised position as a reference point, which we know to be 55 feet above MHW.

For the study of traffic May 16-18, 2014, recording stations were set up at each bridge. The FEC bridge site was located at the end of the east dock of the Riverfront Marina on the west side of the bridge with photo and video views facing east. The CSX bridge site was located at the end of Marina Bay Drive with photo and video views also facing east. Both sites were operational from 0600 to 2000 hours over a 3-day period (May 16th through 18th; Friday through Sunday). The FEC site was operational on Saturday May 17, 2014 until 2011 hours to cover the entire period when the bridge was closed and to record vessels passing after the bridge was opened; this was done just before dark.

The FEC site had a crew of two people to ensure data quality due to the anticipated larger volume of boat traffic. Captain Debora Radtke managed the FEC site to ensure consistent methodology among field crews over different days and locations. Captains Debora Radtke and Wendy Umla shared the boat identification duties on May 17, 2014. The CSX site was managed and operated by Captain Ken Maff because he had the qualification to do both tasks and the anticipated traffic was estimated to allow him to maintain data quality. Field crews were as follows:

- CSX; all days; video/photo technician and vessel expert – Captain Ken Maff
- FEC; Friday; video/photo technician – Lucas Suski (Intuit Media Group)
- FEC; Friday; vessel expert – Captain Debora Radtke
- FEC; Saturday; video/photo technician – Lucas Suski (Intuit Media Group)
- FEC; Saturday; boat experts – Captain Debora Radtke, Captain Wendy Umla
- FEC; Sunday; video/photo technician – John Place
- FEC; Sunday; vessel expert – Captain Debora Radtke

All videos and photos were taken from the same location and the same view. At the CSX site, a Canon 5D MKII camera was used for both videos and still photos, and was mounted on a tripod. At the FEC site on Friday and Saturday, the video camera was a GoPro Hero3 black edition mounted on the pier, and the still camera was a Canon 7D mounted on a tripod. At the FEC site on Sunday, the video camera was a Canon XA20 mounted on the pier, and the still camera was a Canon 7D mounted on a tripod. Video recordings were made each time the bridge closed. Video recordings were made over the entire time the bridge was closed; the number of files for each closure depended on the length of time the bridge was closed.

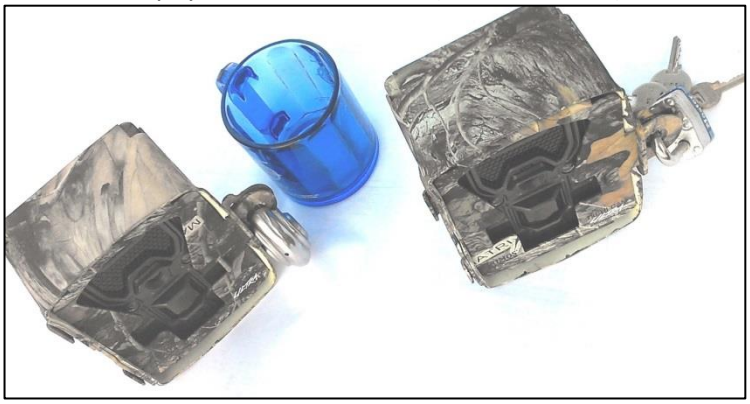
Recorded on the field data sheets were the time the bridge started to close, the time the bridge was open again, and the total elapsed time the bridge was closed. Digital still photos were taken of each boat as it passed the bridge at any time. The still photos were taken with a view of the bridge structure in the background so that estimates of bridge height could be made after the survey using other methods. The following boat information was recorded on the field data sheet: image number, boat name, boat type (e.g., manufacturer, sport fishing, center console, pontoon, cruise, sailboat, megayacht), boat operation (e.g., power, towed, hand, sail), boat length and height (estimated), and direction of travel (eastbound or westbound).

Length and height were estimated by the observer (see field crew listed earlier). Height was estimated on the assumption that the height of an average person captaining such a vessel would be approximately six feet; therefore the height of the vessel is estimated in relation to the height of the person (e.g. 12 feet equals to persons high). These estimates can be refined or confirmed using the photos collected and indexed.

Digital still photo files were downloaded from the cameras and the file numbers associated with each boat and the time each photo was taken were entered into the field data sheet. Video files were also downloaded and stored. The time stamp that goes with each video was recorded from each video file. The method of recording real time on each video camera was as follows:

- Canon 5D MKII camera (CSX)
- GoPro Hero3 black edition (FEC, Friday and Saturday)
- Canon XA20 (FEC, Sunday) – the time code was set as "free run" at 6:00a EST to match the time on the bridge clock. The time codes on each video file were also recorded.

For the study May 23- June 10, 2014 , the Project Team hired MTS Yachts, Inc. to purchase and install two remote day night infrared battery cameras. Video and still photo images were captured using a Bushnell Trophy Camera HD Brown (Model 119676) mounted and secured at location facing NE at each of the bridges. (See photo inset showing cameras and other objects for scale.) Security boxes were fabricated to fit each camera, and they were mounted to a piling on private property to obtain a close view of the boats navigating and the bridge opening and closures. The camera installed facing the CSX bridge was further away from the bridge than the camera mounted near the FEC bridge. Each camera was tested for time lapse and motion capture. Every other day a technician would check the cameras and download the information. The downloaded information was converted into 32,209 images. An imaging program was subsequently created to capture the number of vessels, height and type of vessel.



2.3. Analytical and Data Quality Assessment Methods

For the May 16-18, 2014 study period, field sheet data were transcribed into excel spreadsheets for analysis. Boat types were standardized using the following categories.

Vessel Categories and Names, Nomenclature, Abbrieviation for Field Notes							
CSX Report (2009), EA (2012), or FONSI (2014)	**** Maff**		*** Radtke/Umla**		**Selected categories**		
name	name	abbr used	name	abbr	group	name	abbr
Cruise	motor yacht	MY	manufacturer	MY	Recreation power	motor yacht	MY
Fish	sport fishing center	SF	manufacturer			sport fishing center	SF
none	console	CC	manufacturer	CC		console	CC
none	runabout	RB	manufacturer			runabout	RB
none	speed boat	SB	cigarette			speed boat	SB
Sail	sail	S	sail			sail	SA
Pontoon	pontoon boat	PB	pontoon			pontoon boat	PB
Inflatable	inflatable	I	rigid inflatable boat	RIB		Inflatable (including RIBs)	IN
Dinghy	dingy	D	flats			dingy	DI
PWC (jet ski)	jet ski	JS	jet ski	PWC		personal watercraft	PWC
Tour	commercial riverboat	CRB	jungle queen	JQ	Commercial	commercial riverboat	CRB
none	commercial fishing	CF				commercial fishing	CF
Towboat	towboat	TB	towboat	TB		towboat, tugboat	TB
			water taxi	WT		water taxi	WT
Kayak	paddleboard	HP	kayak/paddleboard		Recreation hand paddled	canoe, kayak, paddleboard	HP
					Other	Police	
						Jon fuel vessel	

Data quality was assessed using the following data quality objectives (DQOs). DQOs include methods and procedures to ensure data quality. First, trained videographers set up and operated the cameras. Second, licensed marine vessel captains, familiar with the full range of boats that use the New River, recorded vessel specific data. The licenses of the vessel captains include:

- Ken Maff – Maritime Coastal Agency (United Kingdom); Master Class 4, 3000 ton, commercial endorsement
- Debora Radtke – USCG 1600/3000 ton ITC Near Coastal

- Wendy Umla – USCG 1600/3000 ton ITC Master upon Oceans

Relief of Captain Maff at the CSX site was done for short periods of time (20 to 40 minutes) 1-2 times each day. He trained each reliever to operate the camera and enter the photo number on the field data sheets. Captain Maff then reviewed the video and still photos and entered the vessel specific data into the field sheets. Relievers did not enter vessel specific data. Third, the field sheets were checked for missing values. Fourth, 10% of the vessel entries were selected randomly and the data checked using the video recording and still photos. 100% of the bridge closing entries were checked. Fifth 10% of the boat height estimates were checked against data available on the internet; e.g., manufactures web sites, yachting web sites. These five DQOs ensured accuracy and consistency in the data recorded on the field data sheets. Lastly, 100% of the spreadsheet entries were check against the field sheets. This DQO ensured the accuracy of the data entered in the spreadsheet.

2.4. Conditions Affecting Navigation on the New River

To put this vessel traffic study into context, a full suite of variable conditions which can affect navigation on the New River should be considered. In addition to weather, wind, tides and current (further described below), other conditions unique to New River include:

- Horizontal clearance at the FEC Bridge is the narrowest part of the River passage at 60 feet; in many instances this prevents more than one vessel passing at a time.
- Horizontal clearance at the CSX Bridge is also the narrowest part of the River passage at 60 feet; in many instances this prevents more than one vessel passing at a time.
- The North and South Forks of the New River provide attractive habitat for Manatees, especially from warm water from the FPL cooling ponds during colder winter months (which is also high season for tourism and boating). The majority of New River in the area of interest is either Idle Speed/No Wake or Slow Speed/ Minimum Wake year-round. [3]
- The river meanders extensively in the study area, with vessels docked on both sides of the river in many places. While there are a few rare locations in excess of 40 feet, the vast majority of the waterway ranges between 8 to 9 feet in depth (with some shoal areas) in the dredged channel. Therefore, when piloting a boat constant vigilance to remain in the main channel is essential.

2.4.1. Existing Webcams for Regular Monitoring of Conditions

In addition to the vessel traffic and bridge monitoring cameras installed for this study, there are some existing stationery webcams which provide regular monitoring of conditions affecting navigation and could assist the future study of New River vessel traffic. Two existing webcams were discovered which show the general environmental conditions for a portion of the New River and vessel traffic of interest, as follows:

[3] The New River is Slow Speed from the mouth of the river west to Tarpon River. West of that it is Idle Speed west to the confluence of the New River and the North Fork of the New River (The North Fork the New River is Slow Speed). It then reverts back to Slow Speed until Secret Woods Park, where it becomes Idle Speed Again. West of the boat yards it becomes Slow Speed west to the Sewell Lock. The South Fork of the New River is Idle Speed from the New River, south to just past I-595. Source: Broward County Marine Advisory Committee staff.

- River Reach - http://www.river-reach.net/location_map.htm (New River between the two railroad bridges, just downstream of Davie Blvd.)
- Esplanade Condo - http://www.microseven.com/tv/livevideo-esplanade.html (New River showing FEC bridge)

The River Reach webcam only shows the river. The owner was contacted but does not record the images, so this source of information was not pursued further for this study.

The Esplanade Condo webcam is mounted on a balcony near the top floor of the building (estimated 17 stories) and shows the river, the FEC bridge, and the Andrews Avenue bridge. Stored video files are not readily available from personal webcams. Therefore, screen captures of the webcam images were made at selected times when the FEC Bridge was closed during the 3-day survey. Selected images are presented in Appendix B.

These data supplement field data by providing a spatial perspective of how closures affect boat traffic. The images document the number of boats waiting at the FEC Bridge, particularly on the west side since the east side is partly obscured by the railroad bridge. The images do not represent all the boats waiting for the bridge, only those waiting in the channel.

The quality and accuracy of the Esplanade Condo webcam images was assessed. First, the time of the image was compared to the present time by coordinating the time of an event on site (e.g., the time the bridge closed) with the image from the webcam shown on a computer. For each day the image on the webcam was within 1-2 seconds of real time indicating that the image was very close to real-time.

Second, the time and date stamp on the image was checked against actual time as shown on the clock on the FEC Bridge. On May 17 (Saturday) the webcam time of 07:03:45 compared to the clock on the bridge reading 06:54:00. On May 18 (Sunday) the webcam time of 6:27:31 compared to the clock on the bridge reading 06:18:00. These data indicated that the webcam time stamp was ahead by 9:45 and 9:31 (min: sec), respectively. The webcam image is occasionally interrupted. When the image restarts, the time stamp resets, indicating that the time stamp tracks with the image.

2.4.2. Tides, Current, and Weather

Tide and Current

Corroborated by towboats, commercial captains, boat yards, and the bridge opening data from Broward County, vessel traffic is generally highest at high tide during daylight hours. This is true particularly for larger vessels with greater draft.

New River tidal current is substantial; according to NOAA data[4] it has been measured in exceedance of 4 knots.

[4] SEE NOAA, Tides and Currents, for example January 2014. Available [online] June 19, 2014. http://tidesandcurrents.noaa.gov/get_predc.shtml?year=2014&stn=5484+Miami%20Harbor%20Entrance&secstn=Fort+Lauderdale,+New+River&sbfh=-0&sbfm=14&fldh=-0&fldm=01&sbeh=%2B0&sbem=28&ebbh=%2B0&ebbm=52&fldr=1.4&ebbr=0.8&fldavgd=005&ebbavgd=130&footnote=

Stormwater runoff and discharges are another factor affecting tidal height and current in the New River. Since the New River is connected to a major regional drainage canal under the jurisdiction of the US Army Corps of Engineers and local sponsor South Florida Water Management District, additional velocity of current in the New River may result from high stormwater discharge conditions- which in subtropic South Florida happen frequently and in extreme storm events (hurricanes) will increase even further and in essence replace the low tide condition for extended periods.

In parts of the River including just east (downstream) of the FEC Bridge, large storm water outflows and/ or pipes can cause sudden and unpredictable cross currents to complicate navigation.

Tidal fluctuation in the New River is generally around 2-3 feet. "The mean range of tide at the Andrews Avenue Bridge, New River, is 2.1 feet. The range increases towards the mouth of the river and is 2.4 feet at the Bahia Mar yacht basin, Fort Lauderdale." [5]

For the study period May 17-18, 2014, the tidal variation in the New River was reported at 2.91 feet (Andrews Avenue data shows high of 2.54 and low of -0.37 feet)[6] and 3.46 feet (Port Everglades Turning Basin data showed high of 2.99 and low of -0.47 feet).[7] These data are also presented in Appendix A.

Assuming the high tide at the FEC Bridge is identical to tide gauge at the Andrew's Avenue Bridge,

- the **High Tides** of the 3-day study period are estimated at late morning to mid-day (on May 16 – 1045 hours; May 17 – 1135 hours; May 18 – 1227 hours);
- the **Low Tides** of the 3-day study period are estimated at early morning and early evening (May 17 and 18- 0539 and 0630 hours; May 17 and 18- 1755 and 1849 hours)

Therefore vessel traffic during the study period may be influenced to be higher at mid-day, and lower during early morning and early evening. This relationship has not been statistically analyzed in the data for this report, however the data base collected lends itself to that examination.

For the study period May 23, June 10, 2014 the tidal variation remained in the typical 2-3 foot range. Over such a long duration (18 days), the high and low tide time of day variance is substantial (as is normal). Using the tidal highs and lows presented in Appendix A, specific day vessel data can be examined for possible influence. This relationship has not been statistically analyzed in the data for this report, however the data base collected lends itself to that examination.

Wind

Because of the density and height of buildings in the ever-growing Ft. Lauderdale downtown, a wind phenomenon occurs known as wind tunnel effect or "channeling of wind through urban canyons." [8] Prevailing SE winds tend to produce winds against vessels proceeding downstream toward the east. The result is unpredictable buffeting and gusting which can further complicate challenging navigational conditions in the New River. This includes making it harder to hold station in close quarters.

[5] SOURCE: http://fl.usharbors.com/harbor-guide/andrews-avenue-bridge-new-river#sthash.09hpFin3.dpuf.

[6] SOURCE: http://tides.mobilegeographics.com/locations/152.html?y=2014&m=5&d=17

[7] SOURCE: http://tidesandcurrents.noaa.gov/noaatidepredictions/NOAATidesFacade.jsp?Stationid=8722951&bmon=05&bday=17&byear=2014&edate=&timelength=daily

[8] http://www.rgs.org/OurWork/Schools/Geography+in+the+News/Ask+the+experts/Urban+climatology.htm

Weather

The general weather conditions during the study periods are described below, with more detail in Appendix A.

For the study period May 16-18, 2014, the weather was partly cloudy, windy, seasonally cool (average 75° to 77°F); with no precipitation.[9] The windy conditions were:

- May 16, 2014 – average wind 5-14 knots, gusts 10-20 knots; from N
- May 17, 2014 – average wind 10-20 knots, gusts 20-25 knots; from NE
- May 18, 2014 – average wind 15-20 knots, gusts 20-25 knots; from NE

North and Northeast winds generally create the roughest conditions on the ocean, so it is probable that many commercial and recreational boaters were deterred from leaving the dock on these days. On the other hand, inland cruising such as the New River and ICW could be more appealing on such days since leeward conditions from land and buildings buffers the wind. It is possible that the vessel count for the three day period might have increased with more moderate weather conditions.

For the study period May 23-June 10, 2014, general weather was not extreme for the Season. Rain occurred on seven of the 18 days of study, with most light; Two days experienced rain exceeding 1 inch. June 8 was the most extreme weather, with 1.21 inches of rain, and stormy wind conditions (a 46 mph wind gust).

3.0. Results

3.1. Rail Bridge Closure

The observed rail bridge closure patterns and time over a 3- day period (May 16-18, 2014) at two study sites (CSX and FEC bridges) are summarized in the following text and table, with raw field data in Appendix D. The field data were collected to parallel the format used in the Taylor Engineering studies of the Loxahatchee and St. Lucie Bridges, so initial closure, time to close, time closed, time to open, etc. can be discerned.

During the study period and with rail operations as they exist today, marine vessel traffic was delayed at the CSX Bridge by an **average 10:22 minutes, ranging from 5 to 13 minutes**. Bridge closure occurred 1 to 3 times per day during daylight hours.

During the study period and with rail operations as they exist today, marine vessel traffic was delayed at the FEC Bridge by an **average of 32:20 minutes, with a large variance from 9 to 82 minutes**. Bridge closure occurred 2 to 7 times per day during daylight hours.

[9] Source for wind information: www.windfinder.com (Port Everglades station). See also Appendix A.

The field observations confirm reports that bridge closures sometimes occur ***without*** trains crossing the bridge. Seven of the 18 closures recorded in the 3-day period occurred when no train was crossing the bridge.

All of the observed trains were freight trains. Field data for such observations are presented in Appendix D.

Summary Results- Observed Marine Vessel Delay from CSX and FEC Bridge Closures
May 16-18, 2014, 0600-2000 hours

	CSX (duration of delay, minutes)		FEC (duration of delay, minutes)	
	Train	**No Train**	**Train**	**No Train**
May 16	8:03	13:03	20:00	25:00
			26:00	9:00
			21:00	20:00
			26:00	
Total & time of day	2 in AM		4 in AM, 3 in PM	
May 17	11:03		18:00	82:00
			72:00	
Total & time of day	1 in PM		2 in AM, 1 in PM	
May 18	12:00	13:03	50:00	
		5:03	19:00	
Total & time of day	3 – PM		1 in AM, 1 in PM	

Additional rail bridge closure information is available in the camera and video image data collected during the period May 23 through June 10, 2014. It is has not been summarized in this report, however is available upon request.

3.2. FEC Bridge Vessel Traffic

Vessel traffic was surveyed for two time periods, May 16 through 18, and May 23 through June 10, 2014.

3.2.1. May 16-18, 2014 (FEC)

A 3-day count was performed using a camera and observer at the FEC Bridge. Electronic data was verified by the observer and field notes. Data were further quality controlled by omitting possible incomplete or duplicates.

With photos as backup for verification, vessel type and size (length and height) were identified by the observer. As shown in the table below, **traffic varied from 172 to 497 vessels per day for an average of 350 vessels per day passing the bridge.** From approximately 4 to 8 percent of those vessels were

assumed small enough to pass under a closed FEC rail bridge, which clearance is reported at 4 feet MHW.

The large **majority of traffic was non-commercial (86 %), with 14% commercial (including police**). A large majority (92%) were smaller vessels (under 21 feet in height), whereas the remaining 8% were 21 feet an over in height (to trigger a bridge opening on the other New River bridges).

The following summary table provides only a basic breakdown of type of vessel (categorized as commercial or other), a more detailed description of vessel, vessel name, length, type of propulsion, etc. is contained in the raw data collected. An example of such data is presented in Appendix E.

Vessels Transiting the FEC Bridge, May 16- 18, 2014 (0600-2000 hours)						
Day		Vessels/ day	Type		Height	
			Commercial **	Other	Under 21'	21' & Over
16-May	Fri	172	47	125	133	39
17-May	Sat	382***	55	327	351	31
18-May	Sun	497***	40	457	481	16
Average		**350**	**47**	**303**	**322**	**29**
		% of Total	**13.5%**	**86.5%**	**91.8%**	**8.2%**

NOTES: * Datum omitted due to partial day observation - NONE

** Includes Police Vessels.

*** Windy weather conditions.

May 16- 7 vessels air draft 3' or less = 4 % of total

May 17- 23 vessels air draft 3' or less = 6% of total

May 18- 40 air draft 3' or less = 8% of total

3.2.2. May 23- June 10, 2014 (FEC)

An 18-day count was performed using a camera at the FEC bridge which was triggered by a passing vessel, then quality controlling the data by omitting duplicates, outliers, and rail bridge closure. Before editing, over 37,000 images were collected to assure a thorough capture of actual vessel transit past the FEC and CSX bridges. Examples of the vessel images are presented in Appendix D.

Vessel image data were measured for height using an interpretative photo program, and categorized under 21 feet, or 21 feet and over above the waterline. Since the cameras were triggered by any type of vessel, very small boats (kayaks or dinghies) and paddleboards are included in the count. The total of such vessels is estimated at 1 %, so the total count of vessels that could not pass under a closed FEC bridge might be reduced by this amount.

As shown in the table below, an average of 292 vessels per day passed the bridge with a large variance from 105 to 848. The large majority of traffic was non- commercial (78 %), with 22% commercial, and less than 1% safety (i.e. law enforcement). While virtually all of those vessels would require an FEC bridge opening, about 15 percent were 21 feet and over in height (to trigger a bridge opening on the other New River bridges), with the remaining 85% under 21 feet.

Vessels of All Types Transiting the FEC Bridge,
May 23 – June 10, 2014 (24-hour cycle)

Day		Time	Vessels/ day	Type			Height	
				Commercial	Safety	Other	Under 21'	21' & Over
23-May		1905 to 2351	87 *	16*	0 *	71*	55 *	32 *
24	Sat	0307 to 2359	654	75	6	573	579	75
25	Sun	0601 to 2355	848	65	5	778	763	85
26	Holiday	0035 to 2339	637	71	5	561	573	64
27		0138 to 2358	193	79	3	111	127	66
28		0455 to 2353	165	68	1	96	117	48
29		0530 to 2322	148	84	0	64	90	58
30		0017 to 2316	152	57	0	95	116	36
31	Sat	0543 to 2327	257	64	0	193	225	32
1-Jun	Sun	0545 to 2306	342	45	1	296	316	26
2	*	0843 to 2218	58 *	28 *	2*	28*	47 *	11*
3		0611 to 2057	117	55	7	55	84	33
4		0721 to 2042	105	43	0	62	71	34
5		0857 to 1040	165	52	1	112	129	36
6		0905 to 2043	213	67	0	146	176	37
7	Sat	0848 to 2130	323	62	0	261	282	41
8**	Sun	0011 to 2359	213**	66	1	146	195	18
9		0223 to 2324	139	51	2	86	107	32
10		0628 to 0841	7 *	5*	0*	2*	6*	1*
Average			**292**	**63**	**2**	**227**	**247**	**45**
			% of Total	**21.5%**	**0.7%**	**77.8%**	**84.6%**	**15.4%**

NOTES: * Datum omitted due to partial day observation
** Storm/rainy weather conditions with 46 mph wind gust recorded likely deterred vessel traffic.

3.3. CSX Bridge Vessel Traffic

Vessel traffic was surveyed for two time periods, May 16 through 18, and May 23 through June 10, 2014.

3.3.1. May 16-18, 2014 (CSX)

A 3-day count was performed using a camera and observer at the CSX bridge. Electronic data was verified by the observer and field notes. Data were further quality controlled by omitting possible incomplete or duplicates. With photos as backup for verification, vessel type and size (length and height) were identified by the observer. As shown in the table below, vessel traffic **varied from 70 to 193, with an average of 130 vessels per day passing the bridge.** A very small range (less than 1%) of those vessels are assumed small enough to pass under a closed rail bridge, which design clearance is 4 feet MHW. The large majority of traffic was non- commercial (91 %), with 9% commercial (including police). A large majority (87%) were smaller vessels (under 21 feet in height), whereas the remaining 13% were 21 feet and over in height (to trigger a bridge opening on the other New River bridges). The following summary table provides only a basic breakdown of type of vessel (categorized as commercial or other), a more detailed description of vessel, vessel name, length, type of propulsion, etc. is contained in the raw data collected. An example of such data is presented in Appendix E.

Commercial Vessel Passing CSX Bridge

Vessels Transiting the CSX Bridge,
May 16- 18, 2014 (0600-2000 hours)

Day		Vessels/ day	Type		Height	
			Commercial **	Other	Under 21'	21' & Over
16-May	Fri	70	19	51	46	24
17-May	Sat	126	7	119	112	14
18-May	Sun	193	8	185	182	11
Average		**130**	**11**	**118**	**113**	**16**
		% of Total	**8.7%**	**91.3%**	**87.4%**	**12.6%**

NOTES: * Datum omitted due to partial day observation - NONE

**** Includes Police Vessels**

May 16- 0 vessels air draft 3' or less = 0 % of total

May 17- 0 vessels air draft 3' or less = 0% of total

May 18- 2 vessels air draft 3' or less = 1% of total

3.3.2. May 23- June 10, 2014 (CSX)

As shown in the table below, vessel traffic **varied from 60 to 274, with an average of 138 vessels per day passing the CSX Bridge**; this is a little less than half of those transiting the FEC bridge. While virtually all of those vessels would require a CSX bridge opening, about 20 percent were 21 feet and over in height (to trigger an automobile bridge opening) which is slightly higher than those observed at the FEC bridge. The large majority of traffic was non- commercial (82%), with 18% commercial, and less than 1% safety (i.e. law enforcement). These ratios are not significantly higher than the vessel mix at the FEC bridge.

Vessels of All Types Transiting the CSX Bridge, May 23 – June 10, 2014 (24 hour cycle)

Date	Time	Day	Vessels/ day	Type			Height	
				Commercial	Safety	Other	Under 21'	21' & Over
23-May	1831 to 2137		19 *	2*	0 *	17*	17 *	2 *
24	0545 to 2343	Sat	237	15	2	220	198	39
25	0056 to 2352	Sun	274	13	1	260	239	35
26	0030 to 2219	Holiday	201	9	0	192	171	30
27	0650 to 2109		87	47	0	40	49	38
28	0811 to 2156		60	22	0	38	35	25
29	0930 to 1219		22*	13*	0*	9*	11*	11*
30	0853 to 1139		8*	4*	0*	4*	3*	5*
31	*	Sat	*	*	*	*	*	*
1-Jun	*	Sun	*	*	*	*	*	*
2	*	*	*	*	*	*	*	*
3	*	*	*	*	*	*	*	*
4	1723 to 2202		26*	11*	0*	15*	18*	8*
5	0714 to 2227		87	33	4	50	62	25
6	0027 to 2316		119	42	0	77	95	24
7	0230 to 2309	Sat	155	20	1	134	135	20
8	0054 to 2023	Sun	95	16	0	79	77	18
9	0618 to 2229		69	28	3	38	51	18
10	0539 to 0806		10 *	7*	0*	3*	8*	2*
Average			**138**	**25**	**1**	**113**	**111**	**27**
			% of Total	**17.7%**	**0.8%**	**81.5%**	**80.3%**	**19.7%**

NOTES: * Datum omitted due to partial day observation, or no data collected.
Totals may not add due to rounding.

3.4 Transit Time from FEC to CSX Rail Bridges

In consideration of a schedule for bridge operating rules, a cursory analysis of the transit time from the FEC to the CSX bridge is presented. The distance between the two bridges is approximately 2.62 statute miles.[10] A sampling of seven different size vessels which transited the 2 bridges was selected from the vessel traffic on May 18, 2014 as shown in the table below.

Transit Time Between FEC and CSX Bridges (Summary data)		
Type of Boat	Size (Length in feet)	Time elapsed between bridges (minutes)
River Boat	18	29
Pontoon	20	114
Motor Yacht	30	120
Sport Fish	36	83
Motor Yacht	42	29
Motor Yacht	70	23
Commercial River Boat	150	31

A simple average of the time data collected from all trips yields an average transit time of 50 minutes, however omitting the outlier data (highs and lows) and then averaging, the more realistic **estimate of travel time is 29 minutes.**[11] Explanations for the wide variation in transit time are speculative, however may include boaters who stop for dinner, visitation, or other business along the way. Calculated speed over this distance means an average of 4.7 knots between the bridges (speed over ground), and which takes into account other vessel traffic, tidal current, wind, no wake/slow speed zones, etc.
The US Coast Guard may find this initial study of transit time helpful in examining the need for operating schedules of the various bridges along the New River, and including the railroad bridges. The data collected for this study can be further analyzed to determine the typical number of vessels which travel the entire length of the New River, however that detailed analysis was not performed for this more limited scope.

3.5. Monthly Vessel Traffic Transiting New River Downtown Bridges

Broward County operates three road drawbridges near the FEC crossing- SE 3rd Ave., Andrews Ave., and SW 4/7th Ave. For a description and location, see http://www.broward.org/ Streets/ Drawbridges/ Pages/ Default.aspx.

To examine trends of vessel traffic at these bridges, three years of data were acquired from the County Department of Public Works. The data include date and time of openings and closings (for which an opening was requested), the name of each boat passing, direction of travel, and tide stage; they do not include ***all*** marine vessels passing the bridge. They were used to assess the use of the river by boats larger than 21 feet air draft which therefore require the drawbridge to be opened. The vertical clearances of each road bridge at mean high tide (MHW) are:

[10] As measured through Bing mapping tool.
[11] All time data considered is not presented in Table ?

- SE 3rd Avenue Bridge – 18.6 feet
- Andrews Avenue Bridge – 18.25 feet
- SW 4/7 Avenue (Marshal Point) Bridge – 18.25 feet

From Broward County bridge tender data, additional patterns of larger vessel traffic can be discerned. The data represent the monthly number of vessels transiting the New River which are large enough (with air draft in excess of approximately 18 ½ feet) to warrant bridge openings at the three downtown automobile/pedestrian bridges. Thus, the totals below do not include total number of vessels using the waterway.

The variance of vessel traffic during high season (i.e. tourist season/ non-hurricane season from November to May) versus low season (hurricane season June to October) was examined. Based on three years of data from Broward County bridge operations in the downtown only (with some extrapolations for missing monthly data), the average:

- High season number of vessels is 1,272 and monthly bridge openings is 925
- Low season number of vessels is 979 and monthly bridge openings is 781

Thus, about 30 percent more traffic (larger vessels requiring bridge openings) occurs in the height of season, with about 18 percent more bridge openings. The data used to reach these observations are presented in the table below, with data sources further explained in the bibliography.

Variance of New River Vessel Traffic, High and Low Season

(V= Number of vessels transiting the bridge when open, and which requested an opening; O= Opening of bridge)

	2012		2013		2014		High (N-M)		Low (J-O)	
	V	O	V	O	V	O	V	O	V	O
Jan	na	na	1172	893	1133	871				
Feb	na	na	1220	877	1327	955				
Mar	na	na	1239	909	1393	1024				
Apr	na	na	1215	1000	1344	975				
May	na	na	1277	950	1192	893				
Ju	na	na	973	789						
Jul	860	723	970	790						
Aug	na	na	896	752						
Sept	na	na	752	629						
Oct	1257	894	1147	891						
Nov	1113	846	1271	920						
Dec	1160	918	1197	921						
Average of H & L season months							1232	925	979	781

NOTES: 1. Based on average of vessel traffic and openings for 3 downtown bridges, namely Andrews Ave., SE 3rd Ave., and SW 4/7 Ave.; Source- Broward County.
2. Some May 2014 data are extrapolated due to daily logs missing at the time of this research.

4.0 Sources Cited

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Appendix A- Tide and Weather During the Study Periods

A.1. May 16-18, 2014, Tides and Weather

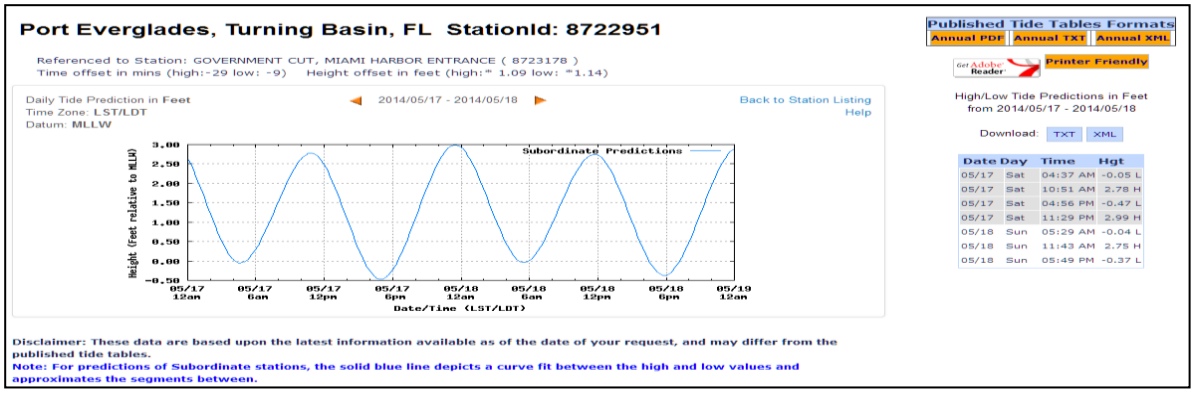
Tide table for Andrews Avenue Bridge, May 17 -21, 2014:

Andrews Avenue bridge, New River, Fort Lauderdale, Florida
26.1183° N, 80.1450° W

2014-05-17 5:39 AM EDT -0.02 feet Low Tide
2014-05-17 6:33 AM EDT Sunrise
2014-05-17 11:22 AM EDT 2.38 feet High Tide
2014-05-17 5:55 PM EDT -0.37 feet Low Tide
2014-05-17 8:00 PM EDT Sunset
2014-05-18 12:02 AM EDT 2.54 feet High Tide
2014-05-18 6:30 AM EDT 0.01 feet Low Tide
2014-05-18 6:32 AM EDT Sunrise
2014-05-18 12:16 PM EDT 2.33 feet High Tide
2014-05-18 6:49 PM EDT -0.26 feet Low Tide
2014-05-18 8:01 PM EDT Sunset
2014-05-19 12:55 AM EDT 2.46 feet High Tide
2014-05-19 6:32 AM EDT Sunrise
2014-05-19 7:26 AM EDT 0.04 feet Low Tide
2014-05-19 1:14 PM EDT 2.27 feet High Tide
2014-05-19 7:47 PM EDT -0.13 feet Low Tide
2014-05-19 8:02 PM EDT Sunset
2014-05-20 1:53 AM EDT 2.37 feet High Tide
2014-05-20 6:31 AM EDT Sunrise
2014-05-20 8:25 AM EDT 0.07 feet Low Tide
2014-05-20 2:18 PM EDT 2.21 feet High Tide
2014-05-20 8:02 PM EDT Sunset
2014-05-20 8:50 PM EDT -0.00 feet Low Tide
2014-05-21 2:54 AM EDT 2.29 feet High Tide

SOURCE: http://tides.mobilegeographics.com/locations/152.html?y=2014&m=5&d=17

Tides May 17-18, 2014, Port Everglades: +2.99 H, -0.47 L

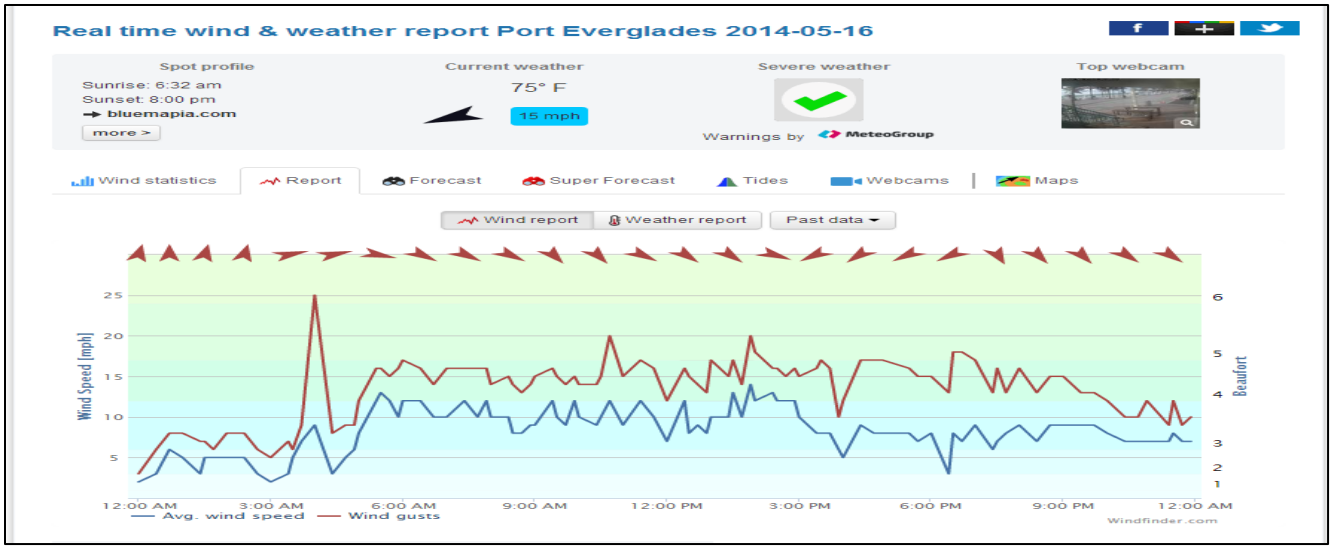


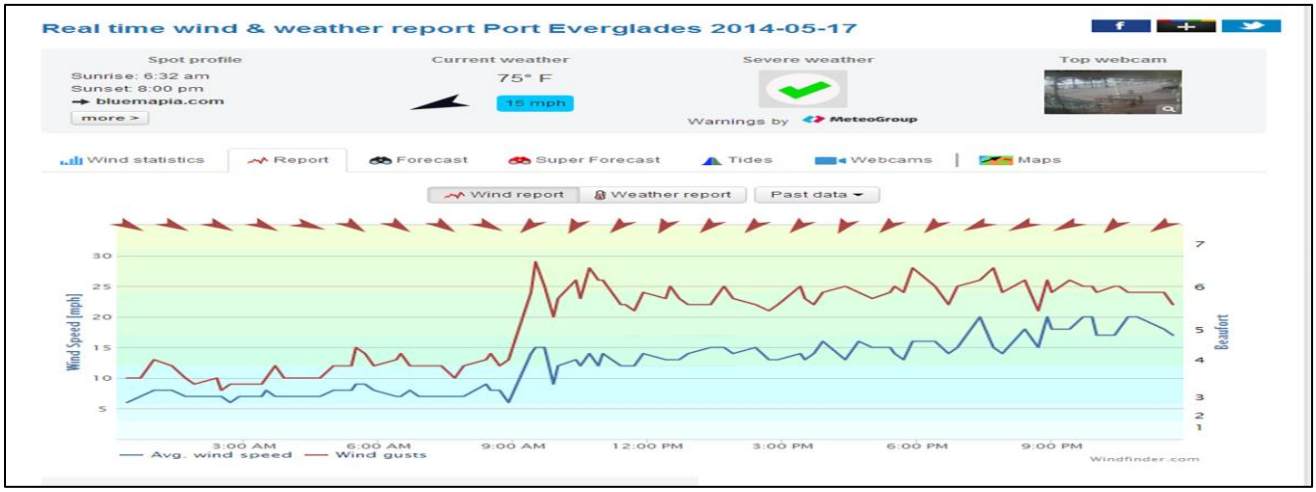
SOURCE: http://tidesandcurrents.noaa.gov/noaatidepredictions/NOAATidesFacade.jsp?

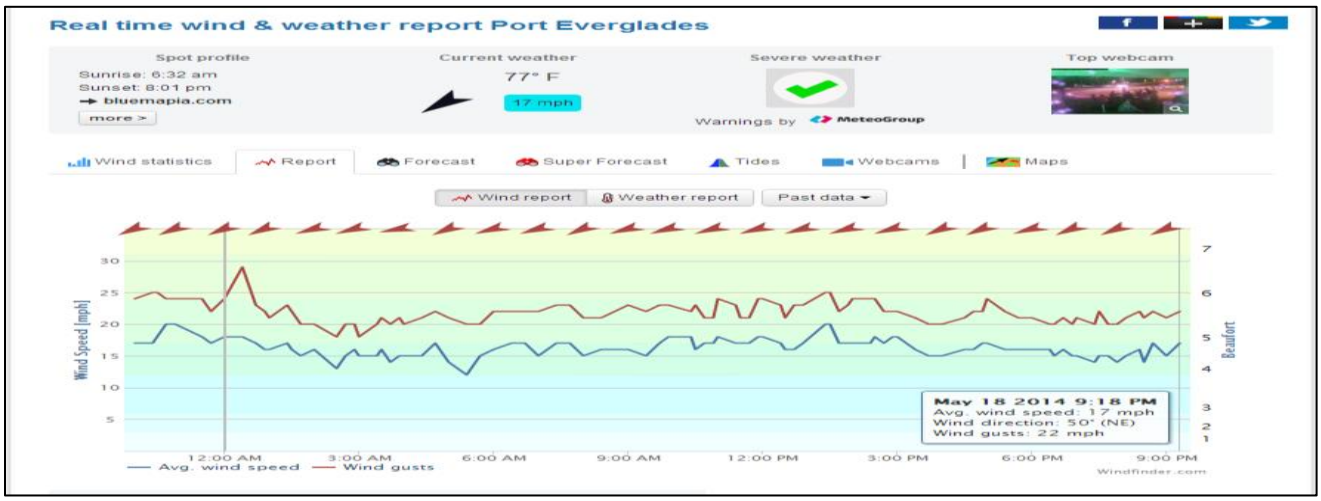
Stationid=8722951&bmon=05&bday=17&byear=2014&edate=&timelength=daily

Weather

Wind and weather summary, May 16-18, 2014 (Source: http://www.windfinder.com/report/wind/port_everglades/2014-05-16







A. 2. May 23- June 10, 2014 Tides and Weather

Tide

(Andrews Avenue Bridge tidal gauge.) Over such a long study period, high and low tide times varied substantially, as listed below. Vessel volume on particular days should be compared to tidal fluctuation to discern any possible relationships; that analysis was not conducted in this study however the collected data base lends itself to such examination.

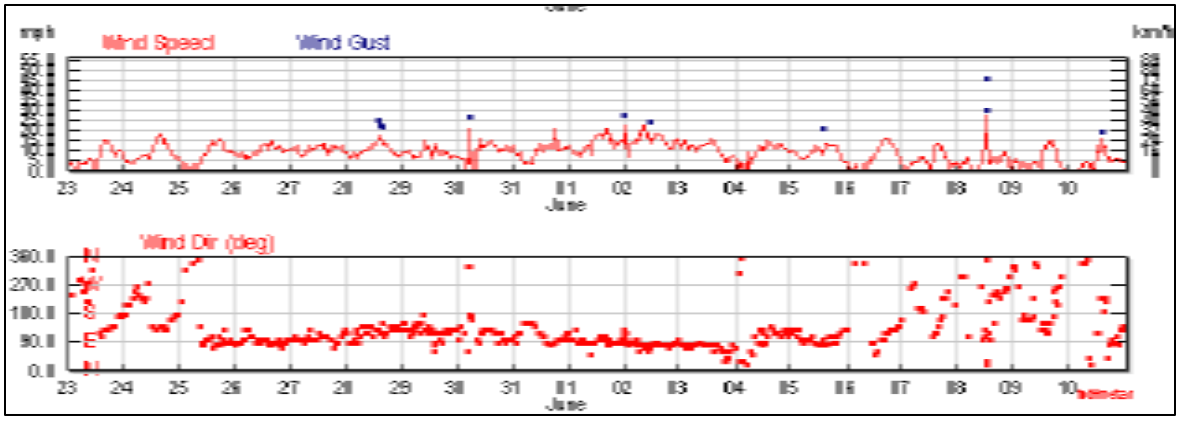
Fri 23	4:59 AM EDT / 2.23 ft	11:36 AM EDT / -0.06 ft	5:40 PM EDT / 2.26 ft				6:30 AM EDT	8:04 PM EDT
Sat 24		12:07 AM EDT / 0.14 ft	5:58 AM EDT / 2.24 ft	12:34 PM EDT / -0.15 ft	6:39 PM EDT / 2.34 ft		6:30 AM EDT	8:04 PM EDT
Sun 25		1:05 AM EDT / 0.12 ft	6:52 AM EDT / 2.26 ft	1:27 PM EDT / -0.24 ft	7:33 PM EDT / 2.40 ft		6:30 AM EDT	8:05 PM EDT
Mon 26		1:58 AM EDT / 0.09 ft	7:42 AM EDT / 2.28 ft	2:15 PM EDT / -0.30 ft	8:22 PM EDT / 2.45 ft		6:29 AM EDT	8:05 PM EDT
Tue 27		2:46 AM EDT / 0.07 ft	8:28 AM EDT / 2.28 ft	3:01 PM EDT / -0.33 ft	9:07 PM EDT / 2.46 ft		6:29 AM EDT	8:06 PM EDT
Wed 28		3:31 AM EDT / 0.08 ft	9:12 AM EDT / 2.27 ft	3:43 PM EDT / -0.31 ft	9:50 PM EDT / 2.45 ft	New Moon	6:29 AM EDT	8:06 PM EDT
Thu 29		4:14 AM EDT / 0.10 ft	9:53 AM EDT / 2.22 ft	4:24 PM EDT / -0.26 ft	10:31 PM EDT / 2.40 ft		6:29 AM EDT	8:07 PM EDT
Fri 30		4:55 AM EDT / 0.14 ft	10:35 AM EDT / 2.16 ft	5:04 PM EDT / -0.17 ft	11:11 PM EDT / 2.33 ft		6:28 AM EDT	8:07 PM EDT
Sat 31		5:36 AM EDT / 0.19 ft	11:16 AM EDT / 2.08 ft	5:45 PM EDT / -0.07 ft	11:50 PM EDT / 2.25 ft		6:28 AM EDT	8:07 PM EDT

Day	High	Low	High	Low	High	Moon	Sunrise	Sunset
Sun 1		6:17 AM EDT / 0.25 ft	11:58 AM EDT / 2.00 ft	6:25 PM EDT / 0.06 ft			6:28 AM EDT	8:08 PM EDT
Mon 2	12:31 AM EDT / 2.16 ft	7:00 AM EDT / 0.31 ft	12:42 PM EDT / 1.92 ft	7:08 PM EDT / 0.18 ft			6:28 AM EDT	8:09 PM EDT
Tue 3	1:13 AM EDT / 2.07 ft	7:45 AM EDT / 0.35 ft	1:29 PM EDT / 1.84 ft	7:54 PM EDT / 0.30 ft			6:28 AM EDT	8:09 PM EDT
Wed 4	1:58 AM EDT / 1.99 ft	8:32 AM EDT / 0.38 ft	2:21 PM EDT / 1.80 ft	8:44 PM EDT / 0.40 ft			6:28 AM EDT	8:09 PM EDT
Thu 5	2:45 AM EDT / 1.92 ft	9:22 AM EDT / 0.37 ft	3:17 PM EDT / 1.79 ft	9:39 PM EDT / 0.46 ft		First Quarter	6:27 AM EDT	8:10 PM EDT
Fri 6	3:35 AM EDT / 1.89 ft	10:14 AM EDT / 0.32 ft	4:14 PM EDT / 1.83 ft	10:36 PM EDT / 0.47 ft			6:27 AM EDT	8:10 PM EDT
Sat 7	4:26 AM EDT / 1.90 ft	11:06 AM EDT / 0.22 ft	5:11 PM EDT / 1.92 ft	11:32 PM EDT / 0.44 ft			6:27 AM EDT	8:11 PM EDT
Sun 8	5:18 AM EDT / 1.94 ft	11:57 AM EDT / 0.08 ft	6:04 PM EDT / 2.04 ft				6:27 AM EDT	8:11 PM EDT
Mon 9		12:26 AM EDT / 0.36 ft	6:08 AM EDT / 2.02 ft	12:46 PM EDT / -0.08 ft	6:55 PM EDT / 2.18 ft		6:27 AM EDT	8:12 PM EDT
Tue 10		1:17 AM EDT / 0.25 ft	6:58 AM EDT / 2.12 ft	1:35 PM EDT / -0.24 ft	7:44 PM EDT / 2.32 ft		6:27 AM EDT	8:12 PM EDT

SOURCE: http://tides.mobilegeographics.com/calendar/month/152.html?y=2014&m=5&d=1

Weather

Using source Wunderground data for Ft. Lauderdale Airport weather station, wind during this study period was mostly moderate and prevailing east and southeast, with some periods of north and west corresponding to precipitation and the highest wind gust. Wind varied between 0 and 28 mph during the period, with average velocity at 9 mph. There was a one-day gust of 46 mph on June 8, which corresponds to the highest rainfall.



Source: http://help.wunderground.com/knowledgebase/topics/17761-history-almanac

As shown below, general weather during this period 12 was not extreme for Spring in South Florida. While some rain occurred on 7 days of the 18-day study period, most was light. Two days over the study period experienced rain exceeding 1 inch, with June 8 as the highest rain (1.21") and wind (46 mph gust).

2014	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
May	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
23 (/history/airport/KFLL/2014/5/23/DailyHistory.html)	89	81	73	69	67	64	84	65	46	30.11	30.07	30.01	10	10	10	16	7	20	0.00	
24 (/history/airport/KFLL/2014/5/24/DailyHistory.html)	91	83	75	71	68	63	79	60	41	30.09	30.06	30.01	10	10	10	20	9	22	0.00	
25 (/history/airport/KFLL/2014/5/25/DailyHistory.html)	90	83	75	73	72	70	87	73	59	30.12	30.07	30.02	10	10	10	16	8	22	0.00	
26 (/history/airport/KFLL/2014/5/26/DailyHistory.html)	87	83	78	72	71	69	79	68	57	30.17	30.12	30.08	10	10	10	17	10	23	0.00	
27 (/history/airport/KFLL/2014/5/27/DailyHistory.html)	86	82	78	72	70	68	74	68	61	30.14	30.10	30.04	10	10	10	16	11	21	0.00	
28 (/history/airport/KFLL/2014/5/28/DailyHistory.html)	87	82	77	73	72	70	85	72	59	30.08	30.04	30.00	10	10	9	21	10	25	T	Rain
29 (/history/airport/KFLL/2014/5/29/DailyHistory.html)	84	78	71	77	73	69	91	78	65	30.05	30.01	29.96	10	9	2	20	9	24	1.14	Rain , Thunderstorm
30 (/history/airport/KFLL/2014/5/30/DailyHistory.html)	87	80	72	77	72	70	82	70	57	30.03	30.00	29.96	10	9	1	21	9	26	0.64	Rain , Thunderstorm
31 (/history/airport/KFLL/2014/5/31/DailyHistory.html)	87	83	79	76	72	69	79	70	61	30.03	30.00	29.96	10	10	3	20	10	23	0.06	Rain
2014	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Jun	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
1 (/history/airport/KFLL/2014/6/1/DailyHistory.html)	88	82	76	74	72	70	85	72	59	30.04	30.01	29.97	10	10	9	24	14	29	0.28	Rain
2 (/history/airport/KFLL/2014/6/2/DailyHistory.html)	82	79	75	76	73	68	94	80	65	30.09	30.03	29.99	10	8	2	23	15	29	0.40	Rain
3 (/history/airport/KFLL/2014/6/3/DailyHistory.html)	83	80	77	68	66	61	71	61	51	30.06	30.01	29.98	10	10	9	18	10	23	0.00	

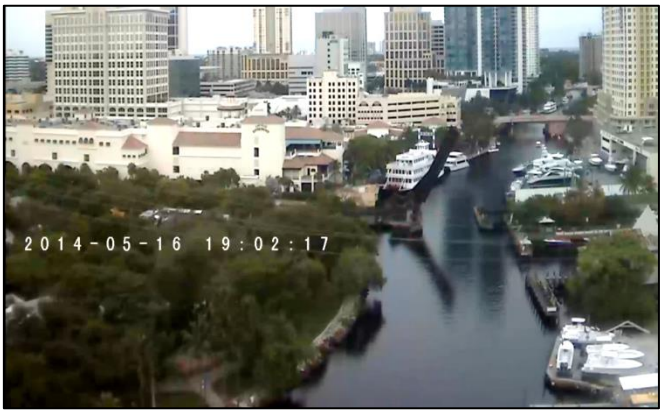
http://www.wunderground.com/history/airport/KFLL/2014/5/23/CustomHistory.html?dayend=10&monthend=6&yearend=201... 12/12/2014

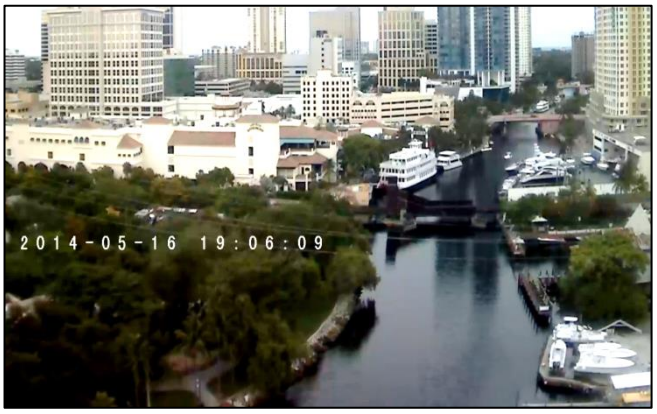
2014	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
4 (/history/airport/KFLL/2014/6/4/DailyHistory.html)	83	79	75	74	70	67	82	72	62	29.98	29.96	29.93	10	10	7	16	9	19	0.19	Rain
5 (/history/airport/KFLL/2014/6/5/DailyHistory.html)	86	81	75	69	67	65	74	65	55	29.98	29.94	29.90	10	10	10	16	9	22	0.00	
6 (/history/airport/KFLL/2014/6/6/DailyHistory.html)	91	83	74	74	69	65	84	64	44	29.99	29.96	29.91	10	10	10	18	7	22	0.00	
7 (/history/airport/KFLL/2014/6/7/DailyHistory.html)	91	85	78	74	72	70	85	69	52	30.01	29.97	29.94	10	10	10	16	5	22	0.00	Thunderstorm
8 (/history/airport/KFLL/2014/6/8/DailyHistory.html)	88	80	71	78	72	67	87	76	65	30.02	29.98	29.93	10	9	1	28	5	46	1.21	Rain , Thunderstorm
9 (/history/airport/KFLL/2014/6/9/DailyHistory.html)	90	82	74	74	71	69	93	76	59	30.01	29.97	29.91	10	8	2	21	5	26	0.00	Thunderstorm
10 (/history/airport/KFLL/2014/6/10/DailyHistory.html)	90	83	75	76	72	65	88	74	59	30.04	30.01	29.97	10	10	7	20	5	25	0.22	Rain , Thunderstorm

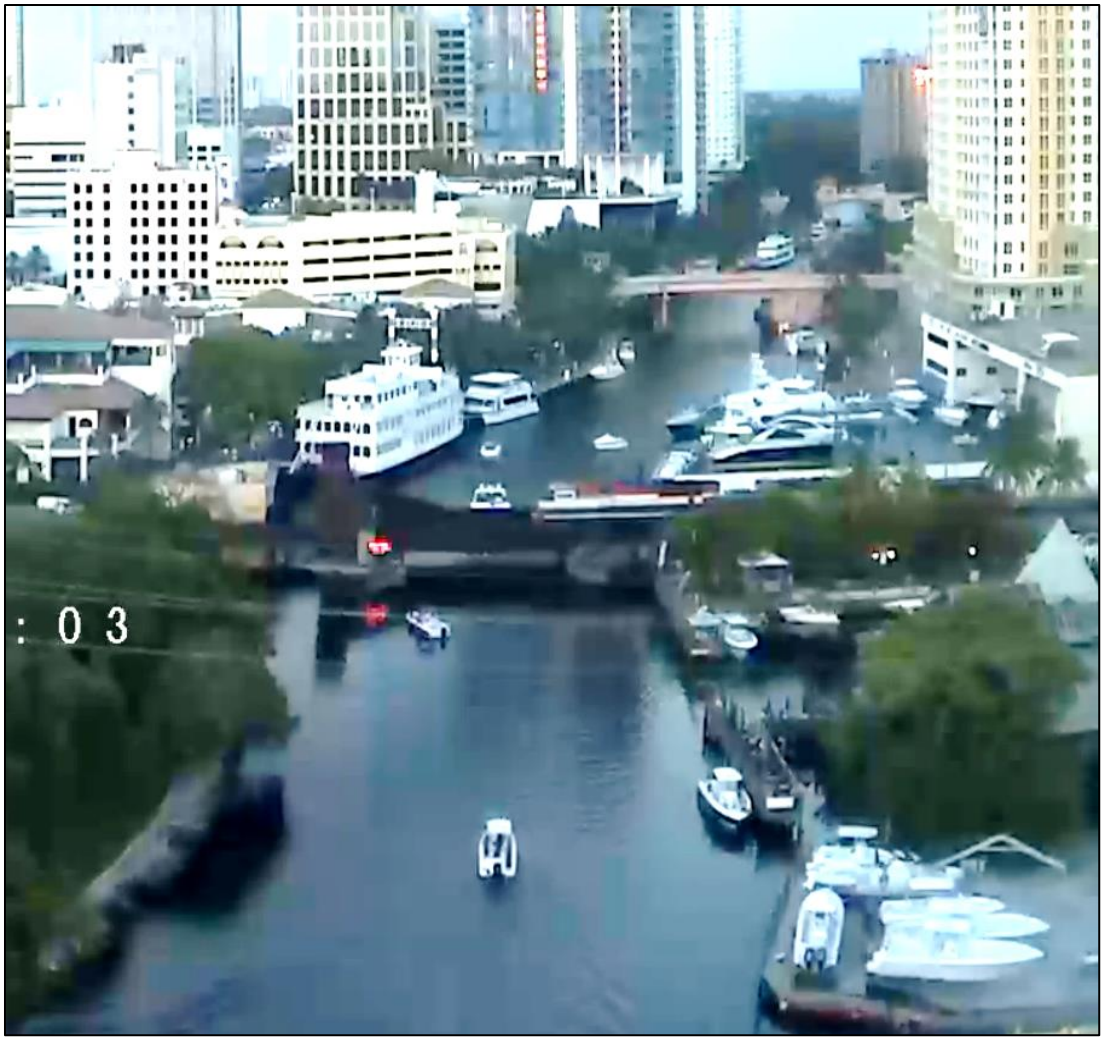
[12] Source: Weather Underground.

Appendix B- Selected Images of New River Traffic at FEC Bridge

Screen capture images from the Webcam at Esplanade Condominium are another source of observation of bridge closure and vessel traffic. Examples of such images from May 16 and 17 are provided below.

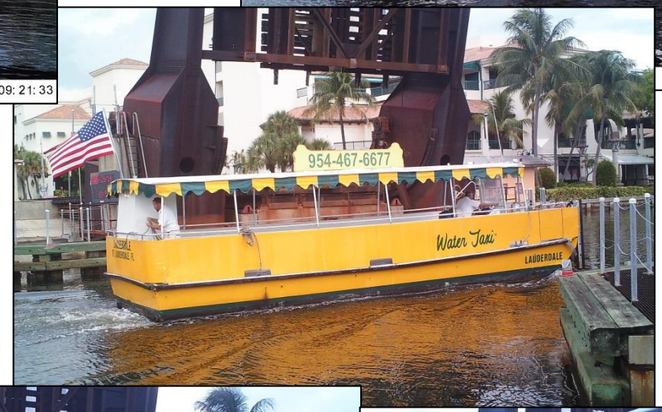






Bridge down, train crossing. 5-17-14

Appendix C- Representative Vessel Photos at FEC bridge, May 23- June 10, 2014



Appendix D- Bridge Closure Field Observation

FIELD OBSERVATION OF FEC AND CSX BRIDGE CLOSINGS, MAY 17-19, 2014

Field Sheet Quality Assurance Check

Bridge closure data (sheets and videos)

last updated 5.30.2014

red = clock time at tape end from video properties ("modified")

green = calculated from video run time

blue = iphone time

site	date	event	video	file format	Action	real time	run time (from video)	QA notes	Train	bridge closing time check recorded (sheet) start	bridge closing time check QA check (video) start	bridge closing time check recorded (sheet) end	bridge closing time check QA check (video) end	bridge down elapsed time sheet values down time	bridge down elapsed time QA check (sheet) down time	train arrives	train ends	TOTAL MARINE VESSEL DELAY TIME		
CSX 16	5.16.2014	1	MVI-1740	quick time movie	tape starts		0:00:00		N	8:46:00	8:46:52	8:59:00	8:59:46	13	0:13:00			0:13:03		
					bridge starts down	8:46:52	0:00:00	missed first few seconds (no warning)												
					bridge fully down		0:01:11													
					bridge starts up		0:11:16													
					bridge fully up	8:59:46	0:12:54													
					tape ends	8:59:46	0:12:54													
CSX	5.16.2014	2	MVI-1756	quick time movie	tape starts		0:00:00		Y	9:12:00	9:12:43	9:20:00	9:20:30	8	0:08:00			0:08:03		
					bridge starts down	9:12:43	0:00:00	missed first few seconds (no warning)												
					bridge fully down		0:01:42													
					train arrives		0:03:54													
					train ends		0:04:20													
					bridge starts up		0:06:11													
					bridge fully up	9:20:30	0:07:47													
					tape ends	9:20:30	0:07:47													
			MVI-1842	quick time movie	no closures on tape															
CSX 17	5.17.2014	3	MVI-1988	quick time movie	tape starts		0:00:00		Y	16:05:00	16:05:44	16:16:00	16:16:42	11	0:11:00			0:11:03		
					bridge starts down	4:05:44	0:00:00	missed first few seconds (no warning)												
					bridge fully down		0:01:34													
					train enters		0:06:34													
					train ends		0:09:01													
					bridge starts up		0:09:47													
					tape ends	4:16:42	0:10:58													
					bridge fully open	4:16:42	no data	tape stopped a few seconds before fully up; boats passing												
CSX 18	5.18.2014	4	MVI-2077	quick time movie	tape starts		0:00:00		N	12:16:00	12:16:06	12:29:00	no time	13	0:13:00			0:13:03		
					bridge starts down	12:16:06	0:00:00	missed first few seconds (no warning)												
					bridge fully down		0:01:34													
					tape ends	12:29:06	0:13:00													
			MVI-2078	quick time movie	tape starts		0:00:00													
					bridge starts up		0:00:37													
					tape stops	no time	0:01:17													
					bridge fully open		no data	tape stopped a few seconds before fully up; boats passing												
CSX	5.18.2014	5	MVI-2090	quick time movie	tape starts		0:00:00	missed first few seconds (no warning)	N	12:39:00	12:39:37	12:44:00	12:43:08	4	0:05:00			0:05:03		
					bridge starts down	12:39:37	0:00:00													
					bridge fully down		0:01:27													
					bridge starts up		0:02:22													
					tape ends	12:43:08	0:03:31													
					bridge fully open	12:43:08	no data	tape stopped a few seconds before fully up; boats passing												
CSX	5.18.2014	6	MVI-2218	quick time movie	tape starts		0:00:00		Y	18:10:00	no data	18:22:00	no data	12	0:12:00			0:12:00		
					bridge starts down		0:00:09													
					bridge fully down		0:02:04													
					train enters		0:08:45													
					train ends		0:10:10													
					bridge starts up		0:11:11													
					tape ends	no time	0:11:53												0:10:22	CSX average
					bridge fully open		no data	tape stopped a few seconds before fully up; boats passing												

FEC 16	5.16.2014	1	GOPR001	MP4	tape starts		0:00:00		N	7:00:00		7:25:00		20	0:25:00				0:25:00	0:25:00	25
					bridge starts down		0:00:00														
					bridge fully down		0:01:42														
					tape ends		0:02:22														
			GOPR002	MP4	tape starts		0:00:00	bridge still down													
					tape ends		0:02:56	bridge still down													
			GOPR003	MP4	tape starts		0:00:00	bridge still down													
					tape ends		0:00:04	bridge still down													
					bridge starts up		no data	not recorded													
			GOPR004	MP4	no closures on tape		0:00:53														
FEC	5.16.2014	2	GOPR005	MP4	tape start		0:00:00		Y	8:55:00		9:15:00		15	0:20:00	0:01:27	0:03:58	0:02:31	0:20:00	0:20:00	20
					bridge starts down		0:00:00														
					bridge fully down		0:01:46														
					end of tape		0:03:43	bridge still down													
			GOPR006	MP4	tape start		0:00:00														
					end of tape		0:02:56	bridge still down													
			GOPR007	MP4	tape start		0:00:00														
					train arrives		0:01:27														
					train ends		0:03:58														
					tape ends		0:04:05	bridge still down													
			GOPR008	MP4	tape starts		0:00:00														
					bridge starts up		0:00:57														
					tape ends		0:02:16														
					bridge fully open		0:02:16														
FEC	5.16.2014	3	GOPR009	MP4	tape start		0:00:00		N	11:20:00		11:29:00		7	0:09:00				0:09:00	0:09:00	9
					bridge starts down		0:01:20														
					bridge fully down		0:02:59														
					end of tape		0:02:59														
			GOPR010	MP4	tape start		0:00:00	bridge still down													
					tape		0:03:03														
			GOPR011	MP4	tape start		0:00:00	bridge still down													
					bridge starts up		0:01:28														
					end of tape		0:02:24	bridge still down													
			GOPR012	MP4	tape start		0:00:00	bridge going up													
					bridge fully up		0:00:39														
					tape ends		0:00:39														
			GOPR013	MP4	no closure activity		0:01:44														
			GOPR014	MP4	no closure activity		0:02:51														
FEC	5.16.2014	4	GOPR015	MP4	tape start		0:00:00		N	11:39:00		11:59:00		20	0:20:00				0:20:00	0:20:00	20
					bridge starts down		0:00:21														
					bridge fully down		0:02:22														
								bridge still down; Jungle													
					end of tape		0:09:53	Queen blocks view													
					bridge fully up		no data	not recorded; view blocked													
								bridge open, Jungle Queen													
			GOPR016	MP4	no closure activity			departs													
FEC	5.16.2014	5	GOPR017	MP4	tape start		0:00:00		Y	12:43:00		13:10:00		25	0:27:00	0:00:25	0:03:05	0:02:40	0:26:00	0:26:00	26
					bridge starts down		0:01:30														
					end of tape		0:02:38	bridge still going down													
			GOPR018	MP4	tape start		0:00:00														
					bridge fully down		0:01:08														
					end of tape		0:12:12	bridge still down													
			GOPR019	MP4	tape start		0:00:00	bridge still down													
					train arrives		0:00:25														
					train ends		0:03:05														
					tape ends		0:03:35	bridge still down													
			GOPR020	MP4	tape start		0:00:00	bridge still down													
					bridge starts up		0:00:00														
					bridge fully open		0:01:50														
					end of tape		0:02:31														
			GOPR021	MP4	no closure activity		0:00:58														
			GOPR022	MP4	no closure activity		0:01:12														
FEC	5.16.2014	6	GOPR024	MP4	tape start		0:00:00		Y	14:24:00		14:45:00		20	0:21:00	0:05:29	0:08:16	0:02:47	0:21:00	0:21:00	21
					bridge starts down		0:06:08														
					bridge fully down		0:08:03														
					end of tape		0:08:33	bridge still down													
			GOPR025	MP4	tape start		0:00:00	bridge still down													
					train arrives		0:05:29														
					train ends		0:08:16														
					bridge starts to go up		0:09:37														
					bridge fully up		0:11:19														
			GOPR026	MP4	no bridge activity		0:01:43														
FEC	5.16.2014	7	GOPR027	MP4	tape start		0:00:00		Y	18:47:00		19:13:00		25	0:26:00	0:00:07	0:03:54	0:03:47	0:26:00	0:26:00	26
					bridge starts down		0:01:08														
					bridge fully down		0:03:01														
					end of tape		0:03:43														
			GOPR028	MP4	tape start		0:00:00	bridge still down													
					train arrives		0:00:07														
					end of tape		0:03:54														
			GOPR029	MP4	tape start		0:00:00	train still on bridge													
					end of train		0:00:02														
					end of tape		0:01:07	bridge still down													
			GOPR030	MP4	tape start		0:00:00	bridge still down													
					bridge starts up		0:00:00	missed first few seconds													
					tape ends		0:01:09														
								missed few seconds of													
					bridge fully open		not recorded	opening; channel open													
FEC 17	5.17.2014	1	GOPR0042		bridge starts down		not recorded		Y	6:15:00		6:33:00		15	0:18:00				0:18:00	0:18:00	18
					bridge fully down		not recorded	bridge already down													
					start tape		0:00:00														
					train arrives		0:00:05														
					end of train		not recorded														
					end of tape		0:01:40	train still on bridge													
FEC	5.17.2014	2	GOPR0044		start tape		0:00:00		No	8:40:00		9:02:00		20	0:22:00				0:22:00		
					iphone time		0:00:51	iphone shows 6:53p													
					bridge starts down		0:02:20														
					bridge fully down		0:04:10														
					end of tape		0:17:26	bridge still down													
FEC	5.17.2014	3	GP010044		start tape		0:00:00	bridge still down	No	14:03:00		14:33:00		30	0:30:00				0:30:00		
					end of tape		0:00:41	bridge still down													
FEC	5.17.2014	4	GOPR0045		bridge starts up		not recorded	missed start of bridge raising	No	14:46:00		15:16:00		30	0:30:00				0:30:00		
					bridge going up		0:00:00												82:00:00	1:22:00	82
					iphone		0:00:06	iphone shows 7:41p													
					bridge fully up		0:01:35														
					bridge starts down		0:02:05	again													
					bridge fully down		0:03:59														
					end of tape		0:05:00														
FEC	5.17.2014	5	GOPR0046		start tape		0:00:00	train already on bridge	Y	18:48:00		20:02:00		72	1:14:00				00:72:00	1:12:00	72
					train enters		0:00:13														
					end of train		0:04:32														
					bridge starts up		0:06:04														
					iphone		0:06:29	iphone shows 8:03a													
					bridge fully up		0:07:57														
					end of tape		0:11:02														
FEC 18	5.18.2014	1	MVI-0035	quick time movie	no closures on tape				Yes	7:46:00		8:36:00		no data	0:50:00				0:50:00	0:50:00	50
			MVI-0036	quick time movie	tape starts		0:00:00														
					bridge starts down		0:04:50														
					bridge fully down		0:06:56														
					tape ends		0:24:19	bridge still down													
			MVI-0037	quick time movie	tape starts		0:00:00														
					train enters		0:12:20														
					train ends		0:24:05	bridge still down													
			MVI-0038	quick time movie	tape starts		0:00:00														
					bridge starts up		0:01:01														
					bridge fully open		0:02:52														
FEC	5.18.2014	2	MVI-0039	quick time movie	tape starts		0:00:00		Y	7:15:00		7:34:00		no data	0:19:00				0:19:00	0:19:00	19
					bridge starts down		0:05:50														
					bridge fully down		0:07:52														
					train enters		0:16:27													32:20	32
					train ends		0:19:54														
					bridge starts up		0:21:12														
					bridge fully open		0:23:03														

May 16 at FEC Bridge - Boat Traffic study - Boat data [excerpt]

last update: May 30, 2014
Data transferred from field data sheets by:
_____

			ID #		(boat type)	Assigned by JK	(tow, power, sail, hand)	(E or W)	length	_	height above waterline	_	name
boat #	date	time	Photo	boat name	boat description	Commercial or other	boat operation	direction	in feet	how estimated	in feet	how estimated	recorder
1	16	6:22	7345	contender	cc	o	power	east	30	eye	11	eye	dr
2	16	6:46	7367	winim	catamaran	o	sail	east	35	m	45	m	dr
3	16	7:01	7372	ladyfin	cc	o	power	east	8	m	8	eye	dr
4	16	7:46	7377	carolina	skiff	o	outboard	west	14	manif	2	eye	dr
5	16	8:39	7385	mako	cc	o	outboard	east	20		3	eye	dr
6	16	8:55	7391	stat	tow boat	c	power	east	20	m	12	m	dr
7	16	9:33	7406	clover leaf	motor yacht	o	power	east	65	eye	30	eye	dr
8	16	9:00	7393	bay view	water taxi	c	power	east	38	actual	15	actual	dr
9	16	9:01	7395	fiesta	water taxi	c	power	east	60	actual	19	eye	dr
10	16	9:21	7397	c chele	hattaras	o	power	east	52	o	18	o	dr
11	16	9:21	7399	provider ll	barge	c	power	east	60	eye	35	eye	dr
12	16	9:21	7401	peter sc	barge	c	power	east	50	eye	35	eye	dr
13	16	9:23	7403	cadyse azin	motor yacht	o	power	west	62	m	25	eye	dr
14	16	0:00	7404	mine stars	horizon motor yacht	o	power	east	90	m	35	eye	dr
15	16	9:32	7406	clover leaf	motor yacht	o	power	east	65	eye	30	eye	dr
16	16	9:33	7407	rio vista	water taxi	c	power	east	38	actual	15	actual	dr
17	16	9:34	7408	pontoon	pontoon	o	power	west	15	eye	9	eye	dr
18	16	9:36	7409	ohyeah	cabo	o	power	east	35	eye	15	eye	dr
19	16	9:42	7410	aquah	silvator	o	power	east	36	m	19	eye	dr
20	16	9:54	7411	isla exp	water taxi	c	power	east	64	actual	21	actual	dr

May 17 at FEC Bridge - Boat Traffic study - Boat data [excerpt]

last update: May 30, 2014

Data transferred from field data sheets by: _____

			ID #		(boat type)	Com or Other	(tow, power, sail, hand)	(E or W)	length		height above waterline		name
boat #	date	time	Photo	boat name	boat description		boat operation	direction	in feet	how estimated	in feet	how estimated	recorder
146	17	5:35	2009	bayliner	rb	o	power	e	12	eye	6	eye	KM
118	17	3:31	1980	nedia	cc	o	power	w	12	eye	6	eye	KM
110	17	2:59	1971	sportsman	cc	o	power	e	14	eye	6	eye	KM
145	17	5:30	2008	well	cc	o	power	e	18	eye	6	eye	KM
109	17	2:55	1970	whaler	cc	o	power	w	12	eye	6	eye	KM
6	17	9:37	1914	crab	cf	o	power	e	10	eye	8	eye	KM
125	17	4:05	1987	doui	i	o	power	e	10	eye	8	eye	KM
91	17	1:44	1951	ganret	rb	o	power	w	10	eye	8	eye	KM
4	17	9:34	1912	geness dawn	my	o	power	w	10	eye	8	eye	KM
18	17	12:02	1927	georges way	rb	o	power	e	12	eye	8	eye	KM
115	17	3:24	1976	johnson	cc	o	power	w	15	eye	8	eye	KM
12	17	11:15	1921	robolo	cc	o	power	w	14	eye	9	eye	KM
168	17	7:06	2032	jungle queen	crb	c	power	e	14	eye	10	eye	KM
134	17	4:47	1997	farra	rb	o	power	e	18	eye	10	eye	KM
23	17	12:43	1932	jet ski	js	o	power	e	14	eye	10	eye	KM
162	17	6:55	2026	nauper	cc	o	power	e	18	eye	10	eye	KM
169	17	7:08	2033	nori	i	o	power	w	18	eye	10	eye	KM
128	17	4:17	1991	noui	i	o	power	e	16	eye	10	eye	KM
172	17	7:28	3037	pontoon	p	o	power	w	20	eye	10	eye	KM
82	17	1:20	1941	proline	rb	o	power	e	18	eye	10	eye	KM
178	17	5:38	2010	proline	cc	o	power	w	16	eye	10	eye	KM
175	17	7:45	3040	reavis	cc	o	power	w	16	eye	10	eye	KM
171	17	7:16	3036	running flat	cc	o	power	w	26	eye	10	eye	KM
104	17	2:42	1964	seaboard	cc	o	power	e	18	eye	10	eye	KM
156	17	6:10	2020	see pro	cc	o	power	e	16	eye	10	eye	KM
89	17	1:39	1949	seevee	cc	o	power	e	18	eye	10	eye	KM

Appendix F- Example (Excerpt) of May 23- June 10, 2014 Field Data, Vessel Traffic Observation (June 7 only)

Ship Type	Height	Bridge	Date	Time	Image	Skipped
Other	>21	FEC	6/7/2014	04-42-30	2014-06-07 at 04-42-30.JPG	
Other	<21	FEC	6/7/2014	6/11/2011	2014-06-07 at 06-11-11.JPG	
Other	<21	FEC	6/7/2014	6/12/2009	2014-06-07 at 06-12-09 (1).JPG	
Other	>21	FEC	6/7/2014	6/13/1932	2014-06-07 at 06-13-32 (1).JPG	
Other	<21	FEC	6/7/2014	6/29/2005	2014-06-07 at 06-29-05.JPG	
Other	>21	FEC	6/7/2014	06-54-54	2014-06-07 at 06-54-54.JPG	
Other	<21	FEC	6/7/2014	7/15/1950	2014-06-07 at 07-15-50.JPG	
Other	<21	FEC	6/7/2014	7/26/1947	2014-06-07 at 07-26-47.JPG	
Other	>21	FEC	6/7/2014	7/31/2024	2014-06-07 at 07-31-24.JPG	
Other	<21	FEC	6/7/2014	8/27/1943	2014-06-07 at 08-27-43.JPG	
Other	<21	FEC	6/7/2014	8/27/1959	2014-06-07 at 08-27-59.JPG	
Other	<21	FEC	6/7/2014	08-36-12	2014-06-07 at 08-36-12 (1).JPG	
Commercial	<21	FEC	6/7/2014	08-48-57	2014-06-07 at 08-48-57.JPG	
Other	>21	FEC	6/7/2014	08-49-57	2014-06-07 at 08-49-57.JPG	
Other	<21	FEC	6/7/2014	9/1/1952	2014-06-07 at 09-01-52.JPG	
Other	<21	FEC	6/7/2014	9/8/1952	2014-06-07 at 09-08-52.JPG	
Other	<21	FEC	6/7/2014	9/10/2013	2014-06-07 at 09-10-13.JPG	
Commercial	<21	FEC	6/7/2014	9/11/2023	2014-06-07 at 09-11-23.JPG	
Other	<21	FEC	6/7/2014	9/11/1945	2014-06-07 at 09-11-45 (1).JPG	
Commercial	<21	FEC	6/7/2014	9/14/2024	2014-06-07 at 09-14-24 (1).JPG	
Other	<21	FEC	6/7/2014	9/14/1954	2014-06-07 at 09-14-54.JPG	
Other	<21	FEC	6/7/2014	9/16/1948	2014-06-07 at 09-16-48 (1).JPG	
Other	<21	FEC	6/7/2014	9/19/1940	2014-06-07 at 09-19-40.JPG	
Other	>21	FEC	6/7/2014	9/23/2020	2014-06-07 at 09-23-20.JPG	
Other	>21	FEC	6/7/2014	09-31-16	2014-06-07 at 09-31-16.JPG	
Other	<21	FEC	6/7/2014	09-31-27	2014-06-07 at 09-31-27.JPG	
Other	<21	FEC	6/7/2014	09-32-17	2014-06-07 at 09-32-17.JPG	
Other	<21	FEC	6/7/2014	09-43-31	2014-06-07 at 09-43-31.JPG	
Commercial	<21	FEC	6/7/2014	09-49-58	2014-06-07 at 09-49-58 (1).JPG	
Other	<21	FEC	6/7/2014	09-50-21	2014-06-07 at 09-50-21.JPG	