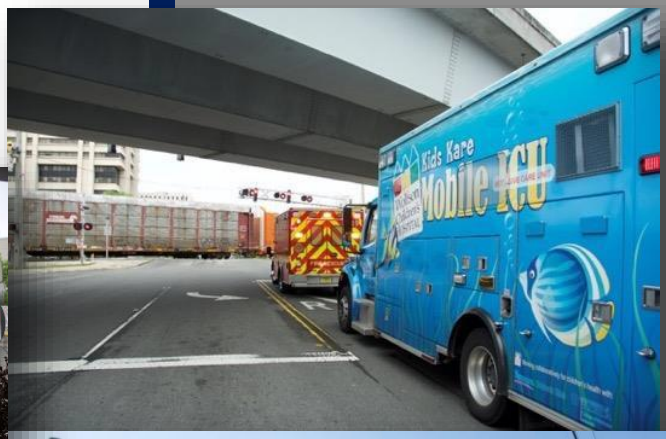
Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program

October 2018

Mitigating Jacksonville's Freight Train-Vehicle/Pedestrian/Bicyclist Conflicts



Rickey Fitzgerald, Manager Freight & Multimodal Operations Florida Department of Transportation
605 Suwannee Street, MS 25
Tallahassee, FL 32399
rickey.fitzgerald@dot.state.fl.us

Jacksonville, Florida

Federal Railroad Administration
Consolidated Rail Infrastructure and Safety Improvements 2018
GRANT APPLICATION

Project Title: Mitigating Jacksonville's Freight Train-Vehicle/ Pedestrian/ Bicyclist Conflicts	
Applicant	Florida Department of Transportation
Project Tracks	2 and 3
Will this project contribute to the Restoration or Initiation of Intercity Passenger Rail Service?	No
Was a Federal grant application previously submitted for this project?	Yes, for FASTLANE Cycle 1 and 2 (April and December 2016, respectively); title was *North Florida Freight Rail Enhancement Program (Phase II)*
If applicable, what stage of NEPA is the project in (e.g., EA, Tier 1 NEPA, Tier 2 NEPA, or CE)?	The project is eligible for a Categorical Exclusion (worksheet attached, Appendix F)
Is this a Rural Project?	No
What percentage of the project cost is based in a Rural Area?	0 %
City(ies), State(s) where the project is located	Jacksonville, Florida, 4th Congressional District
Urbanized Area where the project is located	Jacksonville, Florida
Population of Urbanized Area	937,934 (2010 Census)
Is the project currently programmed in the: State rail plan, State Freight Plan, TIP, STIP, MPO Long Range Transportation Plan, State Long Range Transportation Plan?	Yes, it is included in the MPO Long Range Transportation Plan and the State Freight Plan
DUNS #	004078374

Funds Requested: $17,615,500
Funds Matched: $17,615,500
Total Project Cost: $35,231,000

Contact: **Rickey Fitzgerald, Manager, Freight & Multimodal Operations**
Florida Department of Transportation
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Tallahassee, FL 32399
rickey.fitzgerald@dot.state.fl.us

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I. PROJECT SUMMARY

The *Mitigating Jacksonville's Freight Train-Vehicle/Pedestrian/Bicyclist Conflicts* project will alleviate significant conflicts between freight trains and vehicular/pedestrian/bicyclist traffic at major arteries that connect communities to downtown Jacksonville. Vehicles, pedestrians, and bicyclists are affected at seven grade crossings by freight trains that stop approximately one time per day. The delay lasts from several minutes to three hours due to the lack of appropriate storage track, communications and signaling, and switching infrastructure. The congestion causing the delays also has impacts throughout the southeast US freight system since the chokepoint is at a critical junction seeing freight moving south throughout Florida and north out of Florida to parts throughout the country. This project will allow northbound freight trains to continuously move through the San Marco neighborhood and over the St. Johns River rail bridge without stopping and blocking grade crossings, and will alleviate congestion at the Beaver Street and Moncrief yards allowing freight movements to flow north and south more efficiently.

The benefits of the project are: (1) the normal movement of vehicular and pedestrian traffic, (2) improved and consistent access to a major medical center for first responders, (3) an increase in quality of life for residents, (4) a decrease in travel time for commuters, (5) an increase in safety by eliminating situations for pedestrians to cross the tracks while trains are stopped, (6) increase in freight train velocity, and (7) a decrease in stationary emissions.

II. PROJECT FUNDING

Task #	Task Name/Project Component	Cost	Percentage Total
1.	Task 1 includes engineering, permitting, wetland mitigation, fencing, hazardous materials and on-track protection. Upgrading turnouts and crossovers in Moncrief yard to install radio controlled power switches.	$5,610,000	
2.	Task 2 includes signal and fiber upgrades. The scope of this task includes Track 30 and 31 signal upgrades, tape loads for CTC upgrades for CSX and FEC dispatch, fiber backbone for the limits of the project, submarine conduit for the Jacksonville bridge, and CTC upgrades from the Jacksonville bridge (MP 0.5) to Bowden yard (MP 5.4).	$20,678,000	
3.	Task 3 comprises of FEC track upgrades including the installation of eight #10 turnouts and upgrading Track 39, including the extension and tie in. Total project cost is $6,632,500.	$6,633,000	

Task #	Task Name/Project Component	Cost	Percentage Total
4.	Task 4 comprises of safety and technology upgrades through San Marco including the communication center at Jacksonville Bridge (MP 0.5), crash walls at Park Street, additional gates at Prudential and San Marco grade crossings and quad gates at Atlantic Blvd. and Emerson Blvd. grade crossings.	$2,310,000	
		Cost	**Percentage**
Total Project Cost		$35,231,000	100%
Federal Funds Received From Previous Grant		$0	0%
CRISI Federal Funding Request		$17,615,500	50%
Non-Federal Funding/Match		Cash: $17,615,500 In Kind: $0	50%
Portion of Non-Federal Funding from the Private Sector		$1,957,750	11.11%
Portion of Total Project Costs Spent in a Rural Area		$0	0%
Pending Federal Funding Requests		$0	0%

III. APPLICANT ELIGIBILITY

This multi-agency effort is supported by a local, regional and state partnership led by the Florida Department of Transportation (FDOT). Project partners include the Jacksonville Transportation Authority (JTA), City of Jacksonville, CSX (Class I Railroad), and FEC Railway (Class II Railroad).

IV. PROJECT ELIGIBILITY

The project is eligible under the following multiple categories:

(1) **C(3)(a)(i). The Deployment of Non-PTC Railroad Safety Technology and Rail Integrity Inspection Systems.** Centralized Traffic Control.
(2) **C(3)(a)(iii). A Capital Project Necessary to Address Congestion Challenges Affecting Rail Service.** A capital project (track, crossover, and switch infrastructure).
(3) **C(3)(a)(v). Highway-Rail Grade Crossing Improvements.** A highway-rail grade crossing improvement project (eliminates freight trains from blocking seven grade crossings at one time when stopped awaiting dispatch clearance).

(4) **C(3)(a)(vii). A Capital Project to Improve Regional Railroad Infrastructure.** A capital project to improve short-line or regional railroad Infrastructure (FEC Railway).

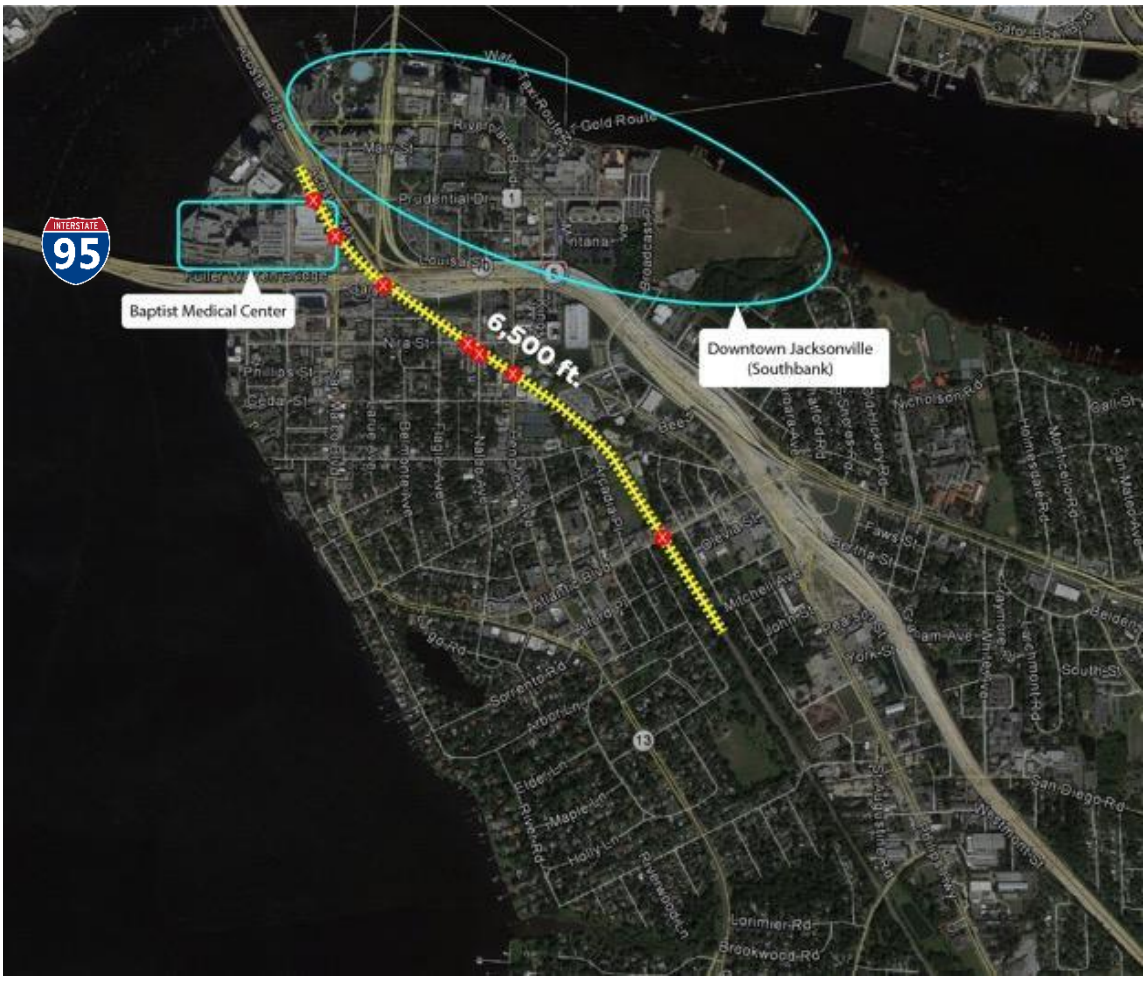
V. DETAILED PROJECT DESCRIPTION

a. Background on the Challenges Addressed by the Project

The Mitigating Jacksonville's Freight Train-Vehicle/Pedestrian/Bicyclist Conflicts grant application addresses the challenges created by three major railroads interchanging within Jacksonville's urban core. The project makes improvements to three distinct components of the rail system in Northeast Florida: (1) the FEC corridor between its Bowden Rail Yard (northern most rail yard for the system) and the St. Johns River rail bridge, (2) the Beaver Street interlocking, and (3) the southern end of the CSX rail yard just north of downtown Jacksonville. The upgraded switches, new trackage, and technology improvements provide the opportunity to improve freight rail operations, while affording clear community benefits, including (1) the normal movement of vehicular, pedestrian, and bicycle traffic, (2) improved and consistent access to a major medical center for first responders and patients, (3) an increase in quality of life for residents, (4) a decrease in travel time for commuters blocked by trains, (5) an increase in safety by eliminating situations for pedestrians to cross the tracks while trains are stopped, (6) increase in freight train velocity, and (7) a decrease in stationary emissions.

The challenge to the system is created when, at a minimum, six northbound FEC trains leave the Bowden Rail Yard every day heading north to interchange with CSX.[1] Approximately five miles into the train trip, along a corridor which is not tied into a centralized dispatch system, the FEC train crew frequently is requested to hold south of the St. Johns River rail bridge while the tracks are cleared of other trains and switches are aligned correctly. Currently no pocket track exists to move a waiting train off the bridge and into the yard. Instead the only option is to stop the train at the southern end of the bridge traversing the St. Johns River until the yard is cleared. This solution creates the blockage of up to seven (7) crossings throughout the San Marco neighborhood. If there is significant train activity at the CSX rail yard, the FEC train can stay in place for up to three hours blocking up to seven crossings at one time since FEC trains traveling to the CSX rail yard can reach up to 6,500 feet. See map on the next page.

[1] The number of daily trains on this stretch of line varies between a total of 10 to 20 trains.



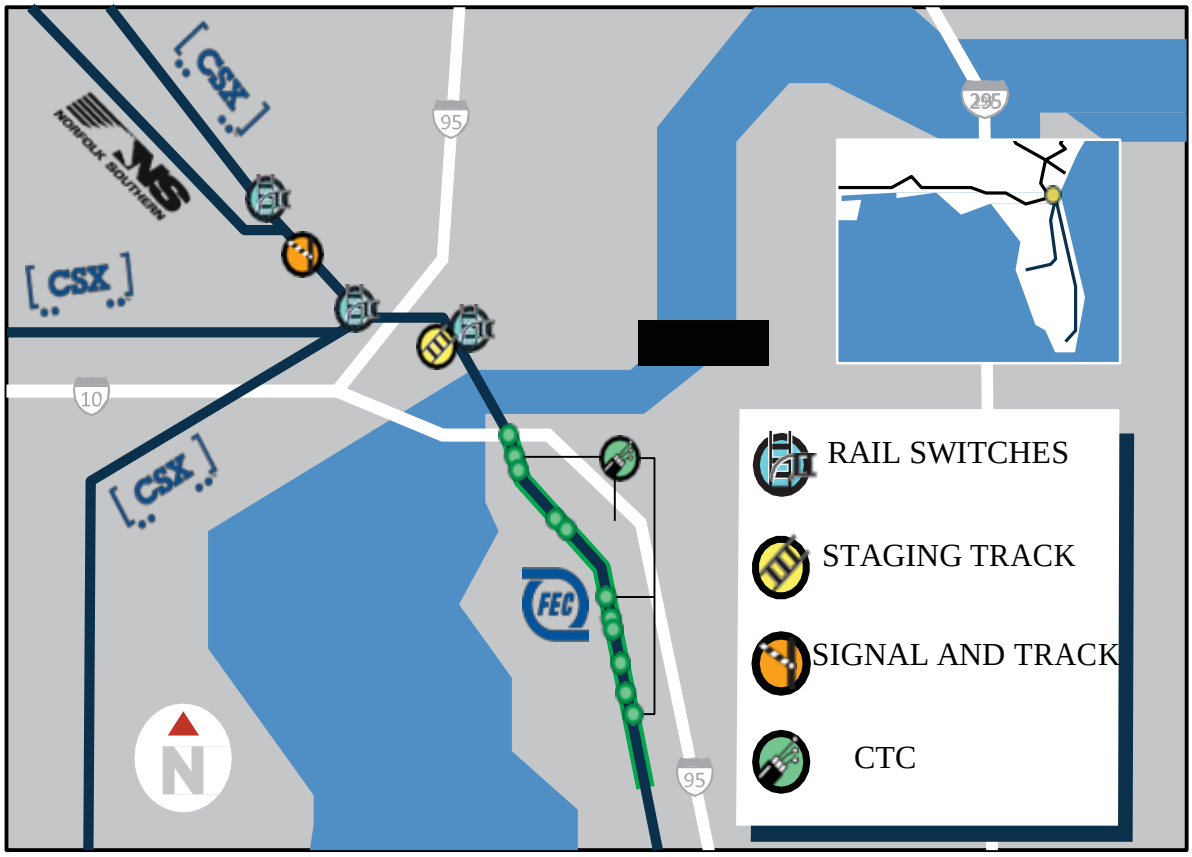
Rail crossings blocked by train stopped at the southern end of the rail bridge over the St. Johns River.

As motorists approach downtown Jacksonville from the south, they must navigate several rail crossings intertwined with interstate ramps, local streets, and multiple bridge crossings over the St. Johns River. The addition of a stopped train for several minutes to three hours creates a significant challenge to an already challenged roadway system. This impacts commuters and first responders trying to access the Baptist Health complex that includes Baptist Medical Hospital, Baptist MD Anderson Cancer Center, and Wolfson Children's Hospital.

As the North American economy continues to improve, the movement of freight by rail will continue to increase along with the length of train sets. The Florida Chamber estimates that six million people will move to Florida by 2030.[2] This will create more traffic on the road system and will increase the demand for freight movements to serve a growing population. Jacksonville is a major railroad connection to the national rail network and is the interchange point for CSX, Norfolk Southern and FEC Railway. This increase in freight traffic has a direct result on congestion. Additionally, railroads are now moving trains that are longer in length. For example, CSX trains have grown 13 percent year over year to an average to 6,430 feet to 7,421 feet.

[2] Did You Know that Florida's Population Could Increase to Nearly 26 Million by 2030, Florida Chamber of Commerce, Melissa Roberts, https://www.flchamber.com/did-you-know-that-floridas-population-could-increase-to-nearly-26-million-by-2030/ (last visited Sept. 3, 2018).

As the demand for freight movement increases, train lengths will get longer and continue to block more grade crossings for longer periods of time if this project is not funded. This will make an already difficult situation worse. This interchange sees traffic of all types from coal cars to underwear deliveries (Hanes, Fruit of a Loom, Victoria's Secret and more) to UPS shipments. More than 80 percent of all goods moving south of Jacksonville throughout Florida and north to parts out of Florida will move through this yard. As the economy grows this interchange will become more congested having a ripple effect throughout the entire Florida freight network as well as the freight network throughout the southeast part of the country.



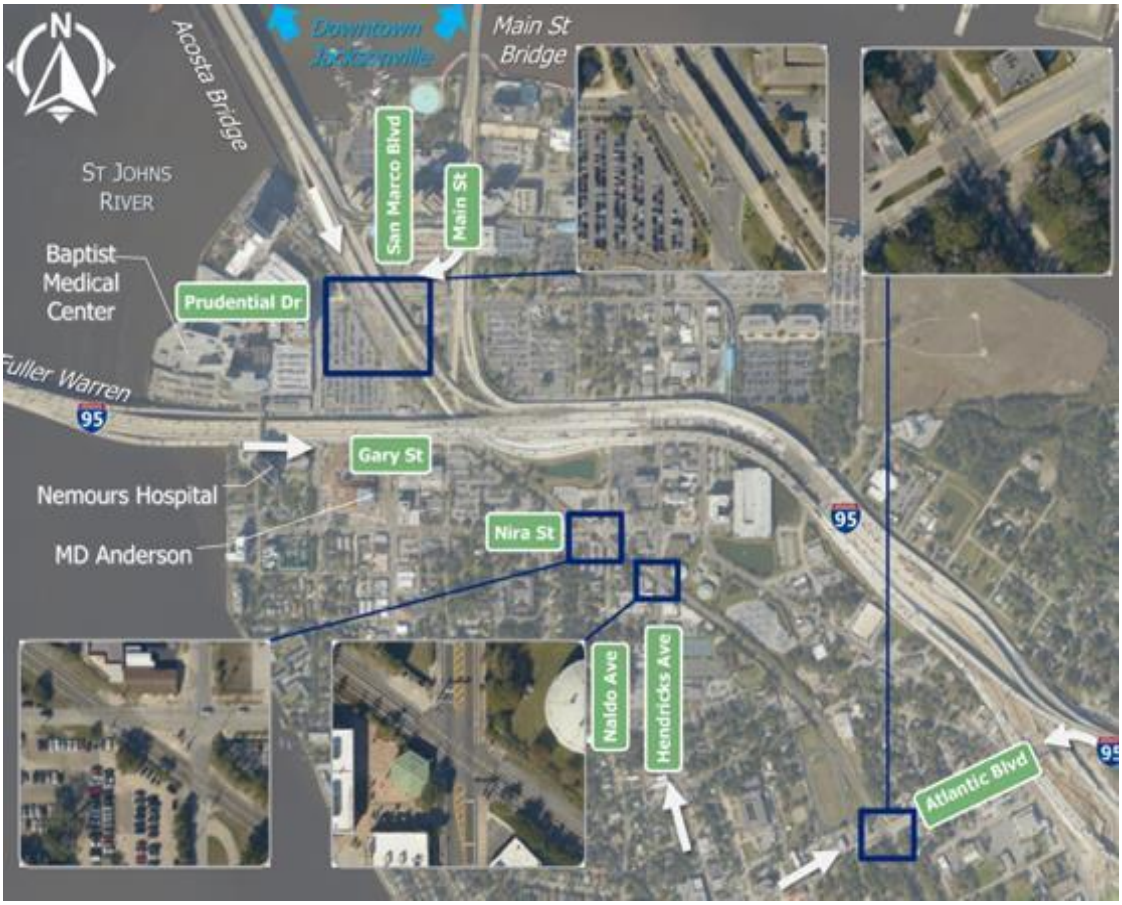
For an example of the local community's frustration, please see the local news video at https://www.firstcoastnews.com/video/life/driving-me-crazy-san-marco-train/77-8116575 describing the typical experience residents have in the neighborhood regarding the train stoppages. There has also been a Twitter account created to highlight this specific congestion issue which can be seen at https://twitter.com/sanmarcotrain?lang=en. News stories such as one in February 2018 also help put this challenge into context. News4Jax reported that vehicles were backed up for 2 miles (Miramar community referenced in the headline is 2 miles south of the Hendricks Avenue grade crossing).[3]

The seven affected crossings have the following Average Daily Trip count, from north to south (AADT taken from FRA Web Accident Prediction System, *see* Appendix E).

[3] Train Stopped on Tracks Snarls San Marco Traffic Again!, News4Jax, Crystal Moyer, 02/21/2018, https://www.news4jax.com/news/train-stopped-on-tracks-snarls-san-marco-traffic-again (last visited Sept. 3, 2018).

ADT	Grade Crossing
9,100	Prudential Drive
10,300	San Marco Boulevard
286	Gary Street
339	Nira Street
4,155	Naldo Avenue
14,200	Hendricks Avenue
11,000	Atlantic Boulevard

Some important facts on traffic flow are important to be able to understand the overall impact of trains coming to a complete stop for an extended period of time. Hendricks Avenue is a main artery from the southernmost neighborhood of Jacksonville to the Main Street Bridge which crosses the St. Johns River and facilitates traffic in and out of downtown Jacksonville throughout the day. Prudential Drive and San Marco Boulevard serve as the entrance to Baptist Medical Center. San Marco Boulevard also connects to the Acosta Bridge which facilitates traffic in and out of downtown Jacksonville. Lastly, a new interchange at Atlantic Boulevard opened this summer creating significant traffic growth at this grade crossing (FDOT, I-95 Overland Bridge Replacement Project Phases, http://www.i95overlandbridge.com/phases-of-construction.shtml).



Another key point about the project is that two of the blocked crossings are directly outside the Baptist Health Center. Baptist Health Center's concern is two-fold. First, first responders are often delayed entering the medical center. Approximately 16,000 ambulances access the medical complex

annually. Assuming an even distribution throughout the day, approximately two ambulances arrive at Baptist Health every hour. If one train stopped per day, then up to 730 ambulances could be delayed every year. Second, employees whose jobs are to provide medical care are often delayed arriving to the hospital due to trains delays.

Baptist Health in background (looking north)

Traffic beginning to queue on off-ramp from Interstate-10

b. Expected Users and Beneficiaries of the Project, including all Railroad Operators

The three main railroad operators affected by this project are two Class I railroads (CSX and Norfolk Southern) and one Class II railroad (FEC Railway). While NS has no ownership in the system the railroad will benefit from this project. FEC and CES jointly own and operate the railyard. These three rail lines will move freight more efficiently through the downtown Jacksonville region after this project is constructed. The trains will no longer be encumbered by switching delays and the project will improve train travel time.

The project significantly benefits the vehicular, pedestrian, and bicycle traffic that crosses one of seven grade crossings at issue. The AADTs for each crossing on page 6. The project increases pedestrian safety in part due to residents expectation of slow and/or stopped trains leading to some deciding to climb over trains. In fact, sometimes the delay in the train moving again is due to pedestrians seen climbing over the train. A 2015 news article stated, "because pedestrians were seen trying to climb between the cars while the train was stopped, CSX police along with officers with the Jacksonville Sheriff's Office had to walk the length of the train to make sure no one was on the tracks before the train could start moving again. The search took more than an hour, and the train, which was stopped before 9 a.m. didn't move [sic] start moving again until 10:16 a.m." Railroad Apologizes for Train Blocking Traffic, Marques White, April 4, 2015, https://www.news4jax.com/news/local/railroad-apologizes-for-train-blocking-traffic (last visited Sept. 3, 2018). A pedestrian injury or fatality is likely if a train starts to move while someone was in the process of climbing over the train. This project will reduce the likelihood of such an event and will reduce delay and improve roadway access to nearby hospitals and a major adult and children's trauma center.

A train crossing the Hendricks Avenue crossing in San Marco.

c. Specific Components and Elements of the Project

Improvements to the rail interchange include four primary components:

1. Modernize rail switches and connective track primarily used for FEC Railway traffic and Class I interchange.

2. Installation of 7,000 feet staging track that exceeds standards and considers future technological advances in rail engineering to eliminate congestion and grade crossing blockages.

3. Upgrade signal and track at joint CSX/FECR Beaver Street Interlocking.

4. Installation of Centralized Traffic Control (CTC) improvements over 5.35 miles of FECR track and at all road crossings.


SWITCHES
NORFOLK SOUTHERN
CSX
MONCRIEF YARD
MCQUADE ST PED BR
SCHOOLS
CSX 'S' LINE
BEAVER ST
TRACKWORK AND SWITCHES
TRACKWORK AND SWITCHES
95
CONVENTION CENTER
PARK ST
FEC LINE
N
RAIL TRACKWORK
SWITCH

At the CSX Moncrief Yard, the following improvements will be made:

1. Five #10 replacement turnouts
2. One #10 replacement crossover
3. Rehabilitate one grade crossing
4. Turnouts, track upgrades, and signal upgrades to two yard tracks
5. Add two crossovers to two mainline tracks

On CSX corridor, the following improvements will be made:

1. Construct fiber backbone from CSX Moncrief Yard to north side of St. Johns River bridge.

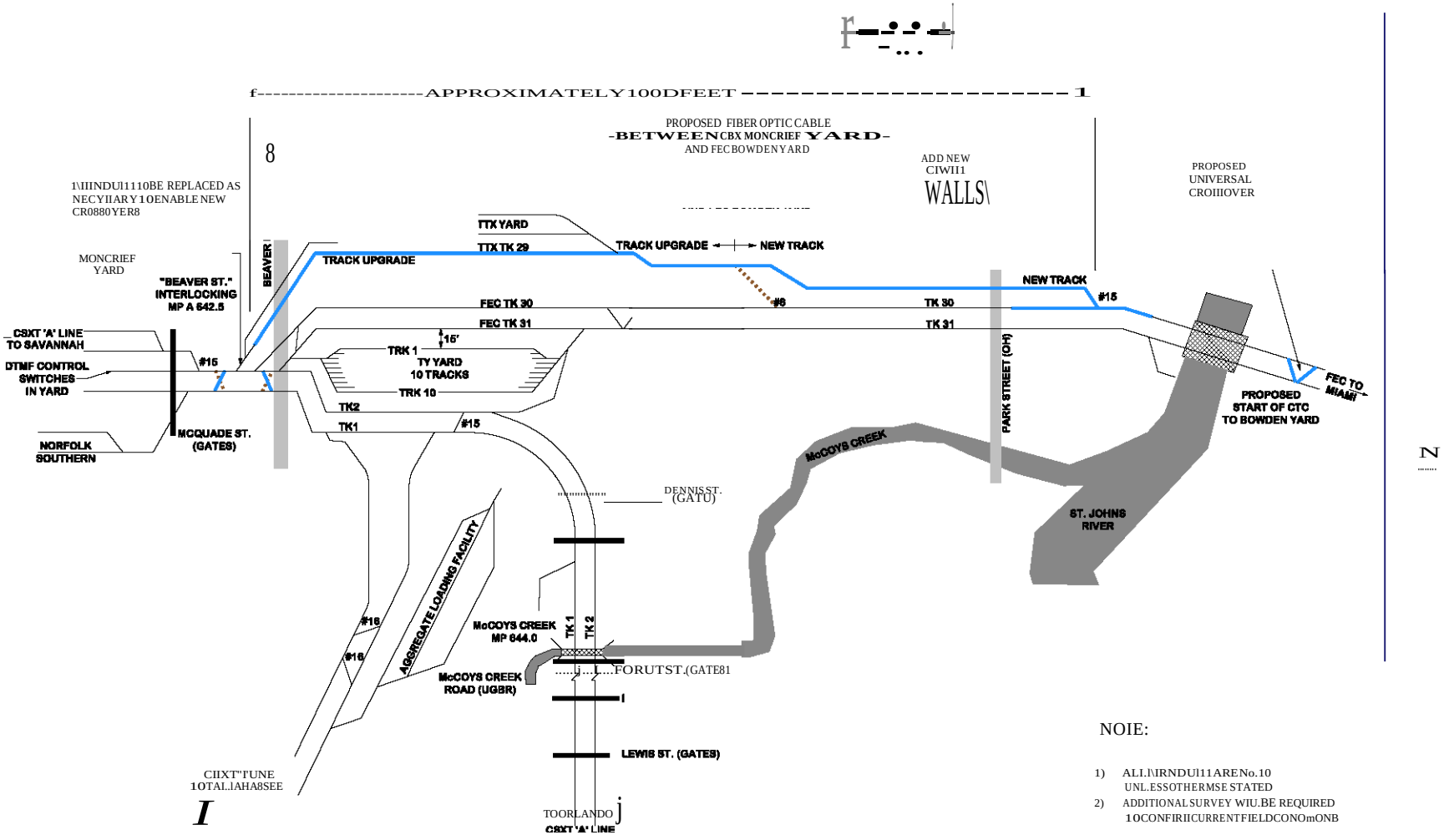
On FEC corridor, the following improvements will be made:

1. Construct fiber backbone from south side of St. Johns River bridge to FEC Railway's Bowden Rail Yard
2. Construct submarine conduit under the St. Johns River
3. Install Centralized Traffic Control signal upgrades from MP 0.05 to 5.40.[4]
4. Install one #10 crossover
5. Add in additional gates and safety improvements at Prudential Drive grade crossing, which is in the top quartile of grade crossings on the FEC Railway system ranked by probability of a collision.[5]
6. Add in additional gates and safety improvements at San Marco Boulevard grade crossing, which is in the top quartile of grade crossings on the FEC Railway system ranked by probability of a collision according to FRA's Web Accident Prediction System.[6]
7. Add in additional gates and safety improvements at Emerson Street (2nd highest collision probability on entire FEC Railway system) and Atlantic Boulevard grade crossing.

Construct a new Jacksonville Bridge Communications Center.

Construct 7,000 foot storage track to accommodate northbound FEC Railway trains that need to be placed in a siding (in lieu of blocking up to seven grade crossings south of the St. Johns River).

[4] For an overview of the benefits of a CTC system, please view How Centralized Traffic Control Makes Rail Traffic More Efficient, https://www.youtube.com/watch?v=MpCsAQuWaH8 (last visited Sept. 3, 2018).
[5] *See* FRA Web Accident Predictions System Report, Appendix E.
[6] *See* id.


APPROXIMATELY 1000 FEET
PROPOSED FIBER OPTIC CABLE
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AND FEC BOWDEN YARD
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TRACK UPGRADE
NEW TRACK
FEC TK 30
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TK 30
TK 31
#15
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15'
TRK 1
TY YARD
10 TRACKS
TRK 10
TK2
TK1
CSXT 'A' LINE
TO SAVANNAH
DTMF CONTROL
SWITCHES
IN YARD
NORFOLK
SOUTHERN
MCQUADE ST.
(GATES)
PARK STREET (OH)
FEC TO
MIAMI
PROPOSED
START OF CTC
TO BOWDEN YARD
McCOYS CREEK
ST. JOHNS
RIVER
DENNIS ST.
(GATU)
AGGREGATE LOADING FACILITY
#16
McCOYS CREEK
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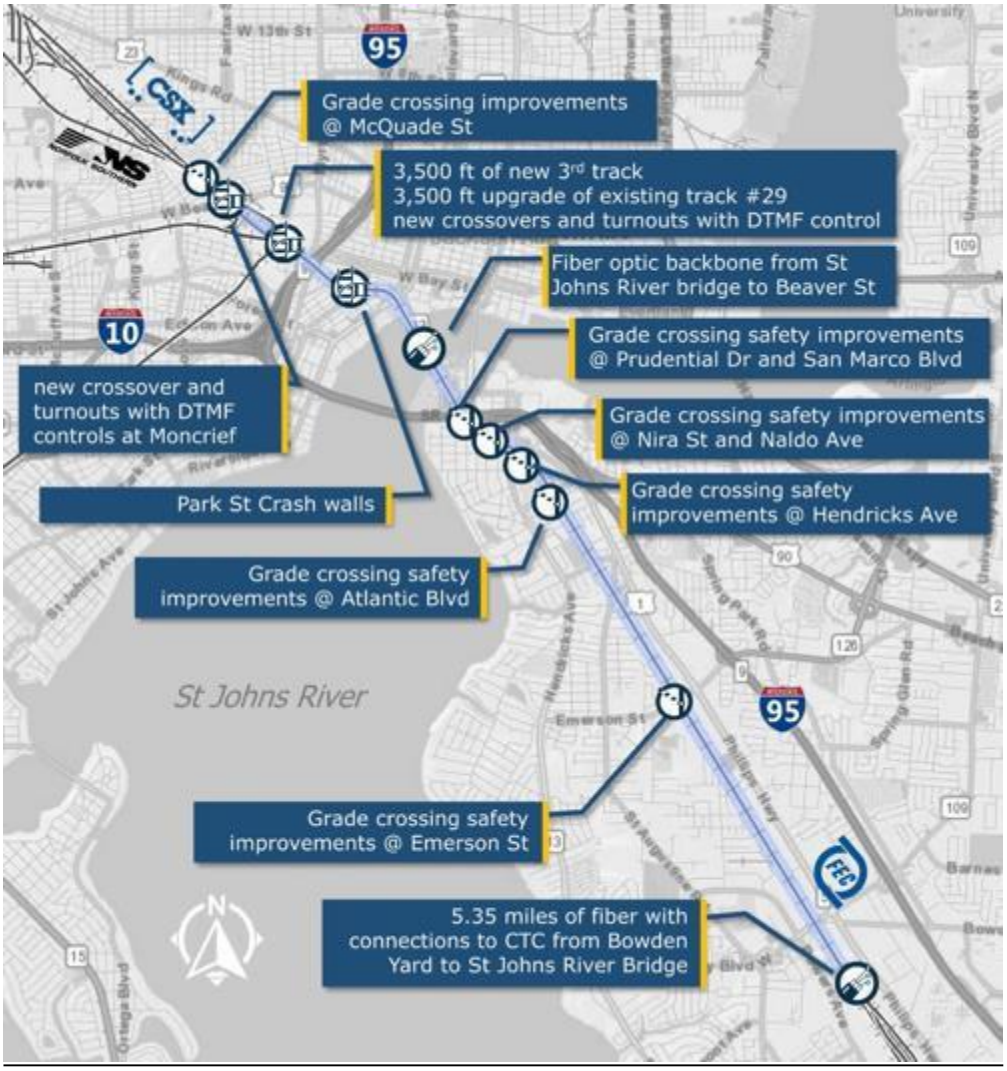
d. Proposed Performance Measures

If awarded, two performance measures would be appropriate to measure the success of this grant.

1. Number of trains stopped across the seven crossings identified in this grant application for more than 5 minutes, measured monthly, to confirm congestion relief. This reduces the safety risk to pedestrians and bicyclists; confirms that new track infrastructure, upgraded switches, and new signal and communications systems increase capacity and allows trains to move quickly through downtown.
2. Travel time per northbound train trip, measured monthly to confirm quality of life and economic competitiveness. This measure will confirm that the new infrastructure and signal and communications systems are maintained to ensure existing problem is continuously mitigated.

e. Grade Crossing Information



Railroad that owns the infrastructure at the crossing	Primary Railroad Operator	DOT Crossing Inventory Number	Roadway at the Crossing
FEC Railway	FEC Railway	271800H	Prudential Drive
FEC Railway	FEC Railway	271801P	San Marco Boulevard
FEC Railway	FEC Railway	271803D	Gary Street
FEC Railway	FEC Railway	271807F	Nira Street
FEC Railway	FEC Railway	271808M	Naldo Avenue
FEC Railway	FEC Railway	271809U	Hendricks Avenue
FEC Railway	FEC Railway	271816E	Atlantic Boulevard
FEC Railway	FEC Railway	271819A	Emerson Street

VI. PROJECT LOCATION

The proposed rail improvements are located in Jacksonville, Florida. The city is strategically located in the northeast region of Florida. It is known as the largest city by land area in the contiguous U.S. with an estimated population of 937,934 (2010 U.S. Census) in the Jacksonville urbanized area. Jacksonville, and the North Florida region, is the gateway into the state by virtue of its geography, as well as the intersection of Interstate 10 (east-west), Interstate 95 (north-south) and several U.S. Highway corridors that connect Florida to the Southeastern U.S. From a surface transportation standpoint, Jacksonville is the point of entry for two Class I railroads, CSX and NS, and serves as the northern terminus of the FEC Railway, one of the nation's most important Class II railroads.

The project is located within the San Marco neighborhood on the Southbank and is within the Fourth Congressional District of Florida. Downtown Jacksonville is connected by seven bridges, two of which (i.e. Acosta and Main Street bridges) are connected to the roadway system that is directly affected by grade crossings blocked by the trains.

The project's limits are approximately seven miles apart, see map on page 13, extending from the FEC Railway's Bowden Rail Yard (30.262921, -81.618897) to CSX's Moncrief Rail Yard (30.338164,-81.690034). The entire scope of work for this grant application will be performed within existing railroad right-of-way, *see* Appendix D, Statement of Work.

VII. EVALUATION AND SELECTION CRITERIA

PROJECT BENEFITS

EFFECTS ON SYSTEM AND SERVICE PERFORMANCE

The installation of Centralized Train Control (CTC) will allow freight trains traveling in the northbound direction to move continuously and more efficiently through downtown Jacksonville. The installation of new crossovers, turnouts and track will allow a centralized dispatch operation to stage and build trains in a location that will not block grade crossings. Today, CSX, Moncrief Railyard, Beaver Street Interlocking and FEC Railway operations conflict due to a lack of clear communications between FEC Railway and CSX's dispatch centers and a lack of track space to move trains out of the way. Alleviating the need for freight trains to stop once a day for up to three hours has a significant impact on service

performance and crew fatigue. The project also signalizes the Beaver Street Interlocking and upgrades track bringing the infrastructure to a state of good repair. Increasing train velocity also affects safety. Individuals have jumped over slow moving trains in the past. Keeping trains moving quickly prevents these types of incidents. See https://www.youtube.com/watch?v=uP-cyQx4Q1Y of one example of someone hopping over a moving train.

EFFECTS ON SAFETY, COMPETITIVENESS, RELIABILITY, TRIP TIME, AND RESILIENCE

Safety

As documented in various news articles, eyewitness accounts, a major public safety benefit of this project is keeping pedestrians and bicyclists from being tempted to cross the rail tracks when a train is stopped. It is not feasible, nor practical, to fence the entire right-of-way to prevent encroaching when a train is stopped or moving slowly. Additionally, fencing would not eliminate the problem since people could cross at the grade crossings that are blocked by a stopped train.

Public safety is also impacted by blocking off direct access to the Baptist Health complex (Baptist Health, Baptist Health, https://www.baptistjax.com/, which includes an adult trauma center, Jacksonville's only dedicated children's trauma center, www.wolfsonschildren.com, the M.D. Anderson Cancer Center, and a maternity center. Baptist Health is building a state of the art prenatal/child intensive care wing at this site. First responders are often rerouted when non-normal train operations occur. This can create delays in people receiving medical attention.

Furthermore, the project will enhance safety at two important crossings, Atlantic Boulevard and Emerson Street. These crossings have some of the highest probability of accidents throughout the entire FECR system. The project will install quad gates at each of these crossings reducing the probability of accidents at these crossings. The crossing at Atlantic Boulevard will see increased traffic in the coming months due to the new I-95 interchange and new residential developments going up in this area.

Competitiveness

Freight train operations in Northeast Florida will become more competitive as interchange traffic will no longer be held up due to out-of-date rail infrastructure. When the initial rail infrastructure was put in place, there was less freight traffic, trains were shorter, and the surrounding community was not as developed. This project will make the rail system more competitive, the neighborhood more desirable from a business and resident standpoint, and the development of downtown more likely since the road system will work as designed.

Improving freight mobility utilizing rail infrastructure is a national and state priority, especially for states like Florida. In fact, truck freight movements into and out of Florida has grown by 2.5 million trucks over the past three years and has reached a record level of 15 million freight trucks entering/exiting the State during 2017.

Reliability

When a train crew leaves the FEC Railway's Bowden Rail yard today it has no knowledge of whether it will have to stop short of the St. Johns River Bridge and block the crossings. If the crew knew it would need to stop, it would not leave the rail yard. This outdated communications and switching system reduces the reliability of the system. The installation of CTC will help make this line more reliable. This project will resolve the reliability issue. Additionally, vehicular, pedestrian and bicyclist traffic are the mercy of the freight railroads and cannot rely on a roadway system that allows free flow of traffic.

Trip Time

While the freight railroads will have a significant improvement in trip times since trains will not be stopped for long periods of time, the real trip time benefit is to the general commuting public. These trains stop traffic along the roadways that connect to two bridges that provide access to downtown Jacksonville. The Average Daily Trip counts are listed earlier in the application. If an even distribution of vehicles is assumed between the hours of 6 a.m. and midnight, then up to 46 vehicles are impacted every minute a train stops.[7] In 2014, there were 1.22 people per automobile meaning up to 56 people could be affected every minute.[8] A three hour train delay could result in over 10,000 people being delayed during their regular commute. This project will provide a significant travel savings for residents and commuters.

EFFICIENCIES FROM IMPROVED INTEGRATION WITH OTHER MODES

Northeast Florida is the only location where CSX, Norfolk Southern and FEC Railway interchange traffic. FEC Railway is the only railroad to connect to PortMiami, Port Everglades and Port of Palm Beach. Therefore, if this interchange does not operate efficiently, intermodal freight that must compete with I-95 truck lane transit times becomes less competitive. Interchanging freight rail traffic efficiently is extremely important for intermodal traffic. Improving rail fluidity at this key Northeast Florida interchange between CSX, Norfolk Southern and FEC Railway is vital to all three railroads' growing volumes.

ABILITY TO MEET EXISTING OR ANTICIPATED DEMAND

The improvements to existing track, construction of a new 7,000 foot storage track, and the installation of CTC ensures that current and future interchange growth can be handled without affecting the Jacksonville community. The storage track is being sized to anticipate future needs, the location of new crossovers and turnouts are being designed to handle current and future operational needs, and the three grade crossings are being improved to handle future train, vehicular, pedestrian, and bicycling traffic.

a. TECHNICAL MERIT

[7] 46 vehicles were calculated by taking the total number of trips at the seven grade crossings (i.e. 49,380), dividing by 18 hours, and then dividing by 60 minutes.

[8] How Many People Per Automobile in the U.S.? http://overflow.solutions/demographic-data/how-many-people- are-there-per-automobile-in-the-us/ (last visited Sept. 3, 2018).

i. STATEMENT OF WORK - A detailed Statement of Work is attached as Appendix D.

ii. PROJECT READINESS AND PROJECT TRACKS – The project is eligible for Tracks 2 and 3. A CE needs to be completed (see DRAFT CE attached as Appendix F). Final design must be completed for the project.

iii. TECHNICAL QUALIFICATION AND EXPERIENCE OF KEY PERSONNEL/ORGANIZATION

The project will be administered by FDOT. The work performed on this project will be done by CSX and FEC Railway. Below are the qualifications and experience of key personal at each of the railroads. Each of the individuals have been involved in grant administration and/or constructing federally funded projects on time and within budget.

Florida Department of Transportation (FDOT)

Rickey Fitzgerald, FDOT Freight and Multimodal Operations (FMO) Manager leads FDOT statewide rail and freight functions; in addition, he is an advocate of reducing conflicts between users for improved safety. Mr. Fitzgerald will facilitate project delivery and will work in partnership with FRA and private, state and local partners to deliver a successful implementation for this project. Mr. Fitzgerald will be the primary individual responsible to the FRA for the project as well as track the appropriate performance measures including schedule and budget. Mr. Fitzgerald has years of experience both with the railroads and working closely with the Federal government and local partners and is supported by capable and experienced consultants on staff to implement and oversee the project.

Program Management Team is responsible for the full range of oversight and project management tasks including grant management administration, engineering review, rail safety inspectors trained and certified by the FRA, and oversight for the data analysis and reporting. This team includes **Holly Cohen**, Freight and Rail Planning Administrator with 9 years of experience supporting FDOT statewide planning efforts. **Catherine Bradley, P.E.**, Rail Capacity Production Engineer has over 10 years with the Department and has experience reviewing engineering plans and administering grant reimbursement contracts.

FDOT District Rail and Freight Team provides critical resources in each region of the state. FDOT District 2 team in Jacksonville includes Kelli Phillips, CPM and Kyle Coffman, District Rail Administrators, and Justin Ryan, District Freight Coordinator. These rail and freight staff have extensive experience with project management, knowledge of railroad and supply chain processes, and have relationships with local partners. These partners include railroads, ports, various trucking and retail companies that move goods, and applicable city and county government offices.

CSX Transportation

CSX Transportation Director of Network Planning, Eric Hendrickson
Mr. Hendrickson started in 1994 with the Soo Line Railroad in Milwaukee, WI, which became

Canadian Pacific. In 2001 Mr. Hendrickson went to Amtrak in Chicago as a Trainmaster. He worked as a crew Dispatcher, Train Dispatcher, Chief Dispatcher, Locomotive Manager, Corridor Manager, Trainmaster, Superintendent of Operations, Director of Network Operations, and is Black Belt qualified for Six Sigma. Mr. Hendrickson is a member of the International Association of Railroad Operating Officers. Mr. Hendrickson is a board member of the Beaver Street Tower Company that controls the yard subject to this application, a subsidiary of CSX Transportation.

CSX Transportation Director Construction Engineering, Charles Bailey
Mr. Bailey began his railroad career in 1978 in the Bridge Department with the Chessie System Railroad in Huntington, WV. He held positions of increasing responsibility in various disciplines within the Engineering Department assuming his present role leading the Construction Engineering team in 2001. Under his direction the team manages Capital Construction Projects that include grading, track infrastructure, structural and railroad signaling components.

Florida East Coast Railway

Florida East Coast Railway Senior Vice President, General Counsel and Corporate Secretary, Robert Ledoux
Mr. Ledoux has more than 25 years of legal and management experience in corporate law and business and transportation transactions. Prior to joining FECR, Bob worked at CSX Transportation, Inc in various legal positions including Assistant General Counsel for public project initiatives, engineering, passenger services, and Intermodal. From 1981 to 1987, he worked as a budget analyst for the Department of the Navy, and then served for five years as Corporate Counsel & Secretary for Planning Systems Inc., in McLean, Virginia. He spent the next six years as Senior Attorney and Assistant Secretary for Software AG of North America, Inc. From 1998 to 2002, he worked as Associate General Counsel and Assistant Secretary with PSINet, Inc. He is affiliated with the Virginia State Bar, the Maryland State Bar, the Florida State Bar and the American Corporate Counsel Association.

Florida East Coast Railway Senior Vice President and Chief Operating Officer, Fran Chinici
Mr. Chinici joined FECR in 2013 after a 29 year career with CSX Transportation where he held positions in Operations and Finance. He began his railroad career in 1984 with the Chessie System Railroad as Metallurgical Engineer in the Research and Test Department at Huntington, WV. He held positions of increasing responsibility in Mechanical and Transportation, and served as Vice President Purchasing and Materials in Jacksonville, FL for the 9 years prior to his departure. He has also served as a Board Member and Chairman of Rail Marketplace, Inc., a consortium purchasing organization funded by the Class I Railroads.

iv. BUSINESS PLAN CONSIDERS PRIVATE SECTOR PARTICIPATION IN FINANCING, CONSTRUCTION OR OPERATION

The project will be funded in part by CSX and FECR. The maintenance and the operations cost will be funded entirely through the annual operating budgets of the two railroads. The railroads each commit to maintaining the upgrades throughout their useful life. This interchange is key to the operations of both railroads and each railroad will budget appropriately to maintain the new infrastructure. The Beaver Street Interchange is governed by a CSX/FEC joint use agreement.

v. LEGAL, FINANCIAL AND TECHNICAL CAPACITY

There are no outstanding legal issues that prevent the work from moving forward. The work will be done within the railroad right-of-way, no land acquisition issues exist. The financing for the match is committed evidenced by the Match Letters attached as in Appendix G. CSX and FEC Railway have the technical capability to perform the work proposed. FDOT has the capacity to manage the grant to ensure on time delivery. Key personnel qualifications are discussed in the technical qualifications section above.

C. SELECTION CRITERIA

i. PROPOSED FEDERAL SHARE

The proposed federal share is 50 percent of the project cost. The Florida Department of Transportation recognizes the competitive nature of this grant program so it has elected to request a federal share of 50 percent instead of the 80 percent allowed in the Notice of Funding Opportunity.

ii. PROPOSED NON-FEDERAL SHARE

The proposed non-federal share is 50 percent of the project cost. Five partners have come together to make this grant possible and each is contributing matching funds in the following amounts:

- Florida Department of Transportation (FDOT) - $13,700,000
- City of Jacksonville - $978,875
- Jacksonville Transportation Authority (JTA) - $978,875
- CSX - $978,875
- Florida East Coast Railway - $978,875

The number of funding partners illustrates the strength of community and statewide support.

iii. NET BENEFITS

The net benefits are detailed in the Benefit Cost Analysis attached as Appendix A and B.

iv. SUPPORTS ECONOMIC VITALITY

The benefits to the economic vitality of the city of Jacksonville are significant in reduced time lost waiting in cue, and reduction in safety costs. The increased velocity of the trains will improve the economic vitality of the railroads.

v. LEVERAGES FEDERAL FUNDING

This project leverages federal funds by providing a 50 percent state, local, and private match (*See* Appendix G, Match Letters). The funds will go toward upgrading two private railroads that will cover the costs of all future operations and maintenance for the project.

vi. Operations and Maintenance Costs Plan

CSX Operations and Maintenance Costs

Upon completion of the project, CSX is committed to maintaining the additional infrastructure according to the existing operating and maintenance agreements between the Railroads involved. The estimated annual maintenance cost for these improvements is $90,000.

FEC Operations and Maintenance Costs

Upon completion of the project, the FEC the increases for operation will be an additional $120,000 annually. FEC will cover this expense through reduction in overtime costs of crews and increased business volume. FEC is committed to handling the additional cost.

vii. Performance and Measurable Outcomes

Please see Appendix D, Statement of Work for a detailed listing of performance and measurable outcomes.

VIII. Project Implementation and Management

FDOT's key personnel have the demonstrated experience to lead and perform the technical efforts required for this project. FDOT's Manager of Freight and Multi-Modal Operations, the Program Management Team, the District Rail and Freight Team, as well as CSX and Florida East Coast Railway leadership will be the primary staff responsible to the FRA for the successful implementation of the project. Key personnel qualifications are discussed in the technical qualifications section below.

FDOT has an established reimbursement process with the Federal Rail Administration (FRA) and this project delivery method would add another level of assurance that funds would only be used in accordance with applicable regulations and the terms of the agreement for eligible costs. Once awarded, FDOT Central Office and District 2 would confer and assign an FDOT project manager.

FDOT will incur minimal support and administrative costs. The revenue from FDOT and local partners would be posted to the same financial project for the match, and the railroads will be reimbursed for the work as completed. FDOT will provide additional engineering review and rail safety inspections as needed to support the project. Local Funds Agreements and/or tri-party agreements will be set up as needed. FDOT will work with all parties to maintain a successful administrative process.

FDOT will be responsible for reporting to the FRA based on the project's performance in achieving the goals and objectives using performance measures mutually agreed upon by FRA to assess progress.

It is anticipated the terms of the agreement will include quarterly invoicing to occur the month before quarterly financial reports are due. FDOT and the Program Management Team will partner with the FRA to ensure transparent and timely reporting and open communication with all parties.

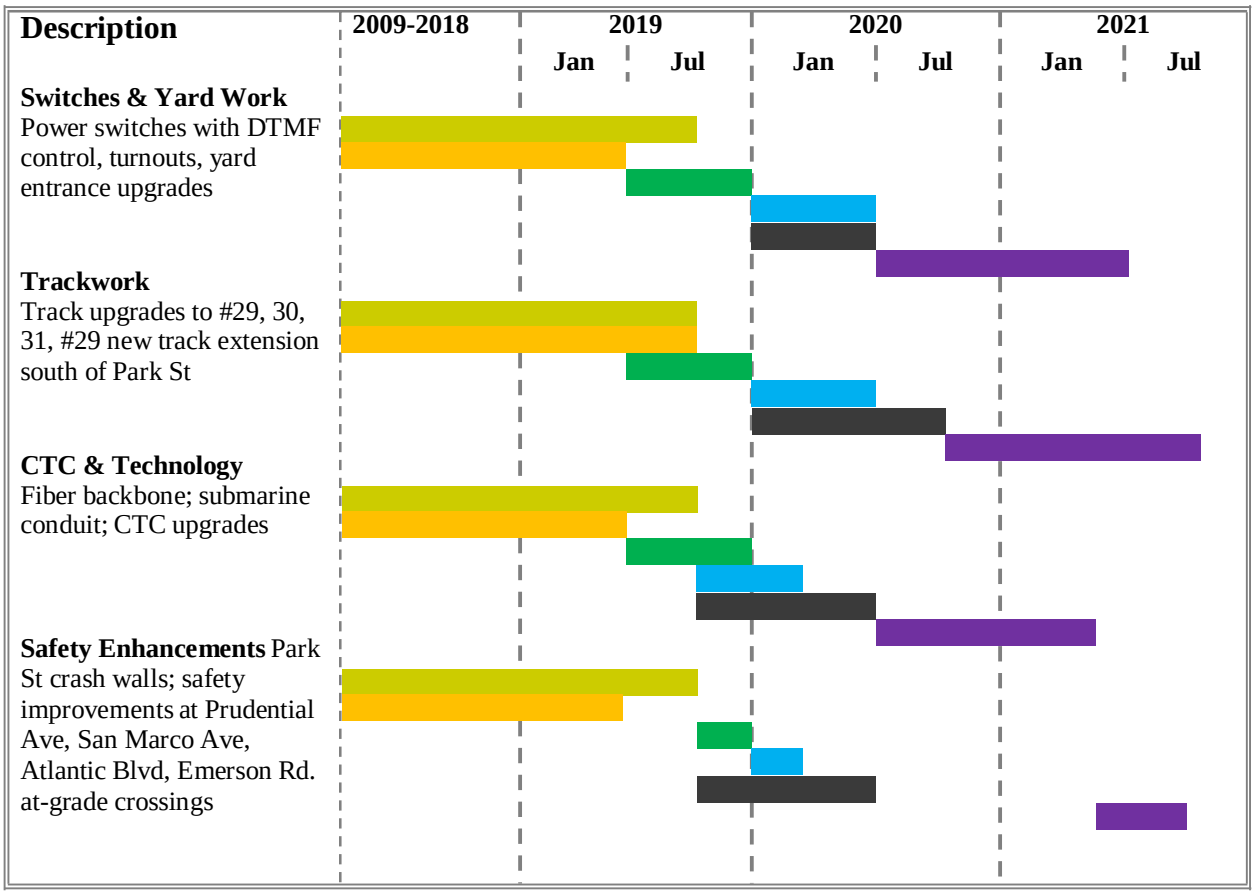
IX. PLANNING READINESS

Technical Feasibility

All engineering and design studies will be complete by the time contracts are executed between FDOT and USDOT. Included with this application is a string diagram for the infrastructure improvements at Beaver Street Interchange, see Appendix D, Statement of Work.

Project Schedule

Please see the Gantt Chart below.



Legend	State & Local Planning & Approval	NEPA Approval & Re-Evaluation	Preliminary Design Activities	Final Design	Railroad Implementation Agreements	Procurement & Construction

X. ENVIRONMENTAL READINESS

All work will be done within the existing CSX and FECR railroad rights-of-way. It is anticipated that the Categorical Exclusion Worksheet can be approved by the Federal Railroad Administration within three months. No additional permits or approvals are needed.[9]

XI. SUMMARY OF BENEFIT-COST ANALYSIS

Benefits are discussed in narrative form in the application and, when possible, are quantified in the attached benefit-cost analysis Excel worksheet.[10] In addition, a technical appendix that provides all assumptions and parameters is provided as a part of this application package.

Several major benefit categories were identified:

1. Restoration of the normal movement of vehicular, pedestrian, and bicycling traffic
2. Improved and consistent access to a major medical center for first responders
3. Increase in quality of life for residents
4. Decrease in travel time for commuters
5. Increase in safety by eliminating situations for pedestrians to cross the tracks while trains are stopped
6. Increase in freight train velocity
7. Decrease in stationary emissions.

GENERAL ASSUMPTIONS

Discount Rate

A discount rate of 7.0% was used in the Benefit-Cost Analysis as recommended by the USDOT guidance for CRISI grants (Benefit-Cost Guidance June 2018). Other parameters (e.g., value of time) were also utilized in the BCA per USDOT guidance related to benefit-cost analysis.

Growth

The Florida Chamber estimates 6 million people will move to Florida by 2030. Northeast Florida is expected to absorb some of the growth which would add road traffic. In addition, the city is putting a major emphasis on getting new development in its downtown core which would cause people to use the roads in the project area more frequently.[11]In estimating AADT over time, a rate of 1.5 percent per year was assumed, based on studies recently completed for the Jacksonville area.[12] In addition, development in the area was also reflected into the traffic projections developed for the project area. It is assumed, based on development activity, that 1,000 new residential units will become available over the next two years.

Evaluation Period

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[9] *See* Appendix F, NEPA DRAFT Categorical Exclusion Worksheet.
[10] *See* Appendix A, Benefit-Cost Analysis.
[11] DT JAX Development, Downtown Vision, Inc. http://www.downtownjacksonville.org/DoingBusinessDowntownJacksonville/DowntownDevelopments.aspx.
[12] Hart Bridge Access traffic study, Traffic Group Leader.

The evaluation period for the project includes both the grant award and agreement period (one year), construction time (two years), and the post-construction period (twenty years of operations) that lasts until 2041.

BENEFIT-COST ANALYSIS OUTPUTS

Travel Time

The primary benefit generated by this project is the reduction in wait time for vehicles that are delayed because trains are not able to traverse the study area efficiently. According to the FEC and CSX, delay times for vehicles can range from a few minutes to three hours every time one of the 10 trains per day leaves the yard. For the BCA, it is assumed that 10 percent of all vehicles that cross the seven railroad grade crossings in the study area are delayed one hour. Because trains operate 365 days per year, the delay time generated by this inefficiency is significant. Based on the BCA, the improvements included in this project would generate $204 million in travel time savings benefits when discounted by the recommended 7 percent.

Safety

There was one property-damage-only (PDO) crash at the Atlantic grade crossing over the past five years. USDOT guidance suggests that the elimination of one PDO crash generates $4,327 per crash. Because the grade crossing improvements are expected to improve safety at both Emerson and Atlantic crossings, some safety benefits are anticipated. These are relatively small, however, valued at $20,281 when discounted.

Emissions

Emissions benefits are expected to be generated because trains are likely to idle less with the proposed improvements. Based on conversations with CSX and FEC, the types of locomotives vary significantly. As a result, estimating an average level of emissions reduction would be difficult and potentially inaccurate. The BCA does not include emissions reduction benefits associated with less idling time and is likely conservative.

Operating Costs

The Benefit-Cost Analysis reflects a reduction in railroad operating costs due to improved efficiencies. Specifically, $40,000 per year is anticipated to be saved as a result of the proposed improvement. When discounted by 7 percent over the study period, an operating cost reduction of $323,285 is generated.

BENEFIT-COST RATIO

The Benefit-Cost Ratio for this project is 7.36 The estimated payback period is 8 years. Total discounted benefits are estimated to be more than $200 million. Capital costs, along with operating and maintenance cost savings, are expected to be $27 million over the study period.

Project Evaluation Metric	7% Discount Rate
Travel Time Savings	$204.4
Safety Benefits	$0.0
Total Discounted Benefits	$204.4
Total Discounted Costs	$27.4
Net Present Value	$176.9
Benefit / Cost Ratio	7.36
Internal Rate of Return (%)	52.42
Payback Period (years)	8

Actual Screen Shot of San Marco Train Twitter account
(https://twitter.com/sanmarcotrain?lang=en)

XII. APPENDIX

Benefit Cost Analysis	A
Benefit Cost Analysis Write Up	B
Budget	C
Statement of Work	D
FRA Web Accident Prediction Report	E
Draft Categorical Exclusion Worksheet	F
Match Letters	G
Support Letters	H

XIII. SUPPORTERS

The Florida DOT request for a CRISI grant is supported by a diverse group of elected officials and stakeholders due to the significant safety and economic impact the project will have on the region. Additional letters will be sent directly to the Federal Railroad Administration.

United States Senator Bill Nelson
United States Representative John Rutherford
United States Representative Al Lawson
Florida State Senator Aaron Bean
Florida State Senator Audrey Gibson
Florida Representative Jason Fischer
Jacksonville City Council President Aaron L. Bowman
Jacksonville Sheriff Mike Williams
Jacksonville Fire Department Chief Kurtis Wilson
Baptist Health
Jacksonville Chamber
North Florida Transportation Planning Organization
Florida East Coast Railway