Gulf Coast Working Group
Report to Congress

Prepared for: Committee on Commerce, Science and Transportation of the Senate and Committee on Transportation and Infrastructure of the House of Representatives

Submitted by: The Gulf Coast Working Group

Final Report

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EXECUTIVE SUMMARY

The Federal Railroad Administration (FRA) and the Southern Rail Commission (SRC) held the first meeting of the Gulf Coast Working Group (GCWG). Congress directed the formation of the GCWG in December 2015 in the Fixing America's Surface Transportation (FAST) Act (P.L. 114-94, § 11304, 129 Stat. 1312, 1655 [Dec. 4, 2015]).

Section 11304 of the FAST Act requires the GCWG to evaluate the restoration of intercity passenger rail service between New Orleans, LA and Orlando, FL and to submit a report (Report) to Congress that includes a preferred option for restoring service; the reasons for selecting that option; a prioritized inventory of capital projects; the infrastructure, costs, and benefits associated with restoration of service; potential funding sources; and any other related information.

This Report, which fulfills the requirements of Section 11304, identifies the preferred option as restoring service between:

- New Orleans, LA and Orlando, FL via long-distance train for one daily round trip, and
- New Orleans, LA and Mobile, AL via state-supported train for one daily round trip.

This option consists of two of the five alternatives studied by Amtrak for its December 2015 report for the SRC. That report, titled *Potential Gulf Coast Service Restoration Options*, included an analysis of ridership levels, projected revenues, and associated costs. For the purpose of this Report, Amtrak's analysis was used to estimate annual operating needs for each service: $5.48 million for the long-distance train between New Orleans and Orlando, and $4 million for the state-supported train between New Orleans and Mobile.

The GCWG identified the Orlando and Mobile services as preferred because they outperformed the other options studied by Amtrak in terms of ridership demand and operating funding needs. In addition, they are expected to expand markets for tourism and business travel; reduce vehicular congestion on Interstate 10; improve access to jobs, education, and healthcare; and provide support for disaster and emergency response in a region susceptible to coastal storm events.

This Report considers restoring passenger rail service on the aforementioned corridor segments at two investment levels:

- Minimum needed for passenger rail service[1] – primarily station improvements. This investment level would support restoration of a long-distance train only at the level similar to the suspended *Sunset Limited* operations between New Orleans, LA and Orlando, FL; and
- Service level for ongoing operations – improvements that are intended to reduce trip times and enhance service reliability. This investment level would support the addition of the state-supported train, which would operate during the day when freight traffic between New Orleans and Mobile is higher; as a result, more improvements are recommended. However, the effectiveness of the improvements for on-time performance has not been validated as part of this Report, but doing so is recommended as a next step.

[1] The minimum needed for passenger rail service does not include Positive Train Control since the specific need for it has not yet been determined.

The GCWG discussed different proposals that require further discussion. FRA also identified a program of capital improvements and developed preliminary costs at each investment level for each corridor segment. See the Capital Cost Summary table below. Existing station improvements and associated costs were derived from Amtrak's 2016 analysis regarding the condition of suspended service stations along the Gulf Coast Corridor in Mississippi, Alabama, and Florida. All other improvements and costs listed were developed from infrastructure analysis conducted by FRA, which is the result of evaluating CSX's track charts, outputs from CSX's model that shows the freight activity along the corridor (i.e., string line diagrams), and recent aerial photos of the corridor.

Furthermore, for the service level for ongoing operations investment level, most of the proposed improvements for the restoration of passenger rail service from New Orleans to Orlando will benefit the freight operations and the proposed passenger service. With the exception of the passenger station related work, the following improvements will help the rail freight services as well as accommodate the passenger service: additional yard bypass tracks; improvements to passing sidings; addition of higher speed turnouts to existing siding tracks; and upgrades to miter rails on moveable bridges, which would allow for higher speeds, as well as others identified in Chapter 4.

It should be noted that Positive Train Control (PTC) and any associated signal system needs and costs are not included in FRA's recommendation because FRA, Amtrak, and CSX Transportation (CSX), which owns the right-of-way along this corridor, need to further assess the existing and planned operations on the line to make a final determination on those items before passenger rail service is restored, in accordance with federal law. A range of preliminary estimates for the cost of installing a PTC system is provided in Chapter 4 (Section 4.5.2.3), but these estimates relate only to PTC installation costs, not ongoing operation and maintenance (O&M) costs.

Capital Cost Summary – FRA's Identified Improvements for Restoration of Gulf Coast Intercity Passenger Rail Service[2]

Costs shown are in 2016 dollars.

Project Element	New Orleans to Mobile		Mobile to Orlando*		Subtotals		Total
	Minimum Needed for Passenger Rail Service	Service Level for Ongoing Operations	Minimum Needed for Passenger Rail Service**	Service Level for Ongoing Operations	Minimum Needed for Passenger Rail Service	Service Level for Ongoing Operations	
Planning & Project Development							$5,000,000
Siding Improvements		$45,880,000				$45,880,000	$45,880,000
Grade Crossings		$2,604,000				$2,604,000	$2,604,000
Yard Bypass Tracks		$28,036,000				$28,036,000	$28,036,000
Interlocking Improvements		$6,892,000				$6,892,000	$6,892,000
Movable Bridge Miter Rails		$7,277,000				$7,277,000	$7,277,000
Upgrade Existing Stations	$3,478,000		$4,342,000		$7,820,000		$7,820,000
New Station W. of Mobile		$4,192,000				$4,192,000	$4,192,000
Mobile Station Track	$1,898,000				$1,898,000		$1,898,000
Jacksonville Terminal				$8,073,000		$8,073,000	$8,073,000
Totals**	**$5,376,000**	**$94,881,000**	**$4,342,000**	**$8,073,000**	**$9,718,000**	**$102,954,000**	**$117,672,000**

** Infrastructure improvements end in Deland, FL*

***Positive Train Control (PTC) & base signal system installation needs and costs from Flomaton, AL to Jacksonville, FL and Flomaton, AL to Tallahassee, FL, respectively, have not been determined by the time this report was finalized. The installation of PTC could significantly increase the service restoration costs.*

As part of its infrastructure analysis, FRA considered and incorporated some of the elements (e.g., yard bypass tracks) from two infrastructure improvement plans produced by CSX. CSX's initial plan, which has a $2.3 billion estimate, was based on operations modeling analysis performed by CSX and its consultants; however, CSX stated it still may not be possible for passenger trains to operate with an on-time performance of 80% at all stations even after such investments were made. CSX then developed a plan with a reduced scope of improvements, which is based on a site visit of the Gulf Coast Corridor (operations modeling analysis was not conducted), and includes new and extended sidings as well as track, yard, bridge, and signal improvements. The revised plan's cost estimate is $780 million. In CSX's view, the improvements identified in its infrastructure plans provide necessary capacity to increase service reliability and limit impacts that would interfere with CSX's freight operations.

However, since providing the reduced scope of improvements, CSX has determined it is not valid and insists that their initial plan's $2.3 billion cost estimate is necessary to support passenger service. CSX believes that the most accurate analysis of what would be required to add modified Amtrak service described in this Report is the initial modeling authorized and funded by FRA and conducted by HDR with CSX as the intermediary.

The HDR study found that monumental capacity challenges exist along the CSX rail line, from New Orleans, LA to Mobile, AL to Deland, FL, which will make operating the proposed new passenger service that meets the required on-time performance of 80% very difficult and very expensive. Even with targeted capital projects estimated to cost more than $2.3 billion, the modeling estimates the long-distance train would still only reach 67% on-time performance, well below the federal requirement. CSX asserts that other efforts to seek fewer infrastructure enhancements and lower cost alternatives fail to adequately address federally mandated on-time performance requirements, potential degradation of freight service, and major causes of delay including moveable bridges. However, the HDR study was conducted solely by HDR and CSX,

[2] This table does not include operating costs.

and the non-proprietary assumptions, methodology, and inputs used to develop the model have not yet been fully shared with any other members of the GCWG. As such, the GCWG could not validate the results of the HDR study. The GCWG cannot concur with any proposed capital investment from CSX without understanding how the proposal was developed.

It is CSX's position that if Amtrak wishes to add modified passenger rail service along the Gulf Coast, the appropriate next step is for it to initiate the planning process with a formal notice to CSX so that the two parties, and ultimately the Surface Transportation Board (STB), can establish a path forward.

To illustrate an implementation schedule, FRA prepared an estimate of capital funding needs to implement FRA's identified improvements over the next five years, which is shown in the Five-Year Funding Plan table below.

Five-Year Funding Plan for FRA's Identified Improvements

Costs shown are in 2016 dollars. For planning purposes, FRA assumes a federal share of 80% and non-federal share of 20%.

	Planning and Project Development		Minimum Needed for Passenger Rail Service*				Service Level for Ongoing Operations					
			Year 1		Year 2		Year 3		Year 4		Year 5	
Project Element	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal
Planning & Project Development	$4,000,000	$1,000,000										
Stations			$3,887,200	$971,800	$3,887,200	$971,800	$3,270,667	$817,667	$3,270,667	$817,667	$3,270,667	$817,667
Infrastructure & New Stations							$24,183,733	$6,045,933	$24,183,733	$6,045,933	$24,183,733	$6,045,933
Annual Totals	**$4,000,000**	**$1,000,000**	**$3,887,200**	**$971,800**	**$3,887,200**	**$971,800**	**$27,454,400**	**$6,863,600**	**$27,454,400**	**$6,863,600**	**$27,454,400**	**$6,863,600**

** Positive Train Control (PTC) & base signal system installation needs and costs from Flomaton, AL to Jacksonville, FL and Flomaton, AL to Tallahassee, FL, respectively, have not been determined by the time this report was finalized. The installation of PTC could significantly increase the service restoration costs.*

As indicated above, a combination of local, state, and federal funding needs to be secured to support initial and ongoing capital costs. This is also the case for O&M needs; although, at this time, a funding plan for O&M needs has not been determined. However, in accordance with the requirements of FAST Act, Section 11304, this Report identifies potential funding and financing sources, both existing and anticipated, that could support the restoration of passenger rail service:

Existing

- Railroad Rehabilitation and Improvement Financing (RRIF) Program
- Transportation Infrastructure Finance and Innovation Act (TIFIA) Program
- Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program
- Restoration and Enhancement (REG) Program
- Infrastructure for Rebuilding America Grant Program
- Transportation Investment Generating Economic Recovery (TIGER) Program
- Railway-Highway Crossings (Section 130) Program
- Fiscal Year 2006 Gulf Coast High-Speed Rail Corridor Earmark Funds
- Local Community Funds

Anticipated

- British Petroleum's (BP) Oil Spill Proceeds

The next steps outlined in this Report are critical to advance the investment plan. CSX, FRA, Amtrak, and the SRC need to verify the recommended improvements to ensure the proper investments are identified for the restoration of service. Also, determining a funding plan for O&M needs and capital improvements will require additional analysis, coordination, and

collaboration among GCWG members. To maintain the momentum achieved by the GCWG, this Report recommends that Congress act quickly to provide at least $5 million (estimated) for planning and project development—which would include additional planning for operations modeling, required environmental studies, property acquisition for new station and terminal facilities, design/engineering, and construction.

Lastly, GCWG members, CSX, and Norfolk Southern Railway (NS), as host railroads, have been key stakeholders throughout this process, as have Amtrak and SRC. This Report identifies a number of important elements for the restoration of passenger service as well as additional considerations that need to be examined. However, CSX and NS have expressed concerns with some of the details in the Report, which are outlined in their letters to FRA dated April 18, 2017. CSX and NS remain important partners that the other stakeholders will continue to look to for input to make the restoration of passenger rail service a reality. FRA also received a letter from Amtrak expressing their support for this Report and their commitment to seeking solutions concerning the agreed upon infrastructure improvements. The SRC also provided a letter to FRA expressing their support for this Report and implementation of the preferred option, along with sentiments of disappointment regarding actions and statements made by CSX at a stakeholder meeting. Copies of letters from the aforementioned members are in Appendix A.

1 OVERVIEW

In 2005, Hurricane Katrina caused significant damage to the rail infrastructure in the Gulf Coast Corridor, leading to the suspension of Amtrak's passenger rail service east of New Orleans. Over the course of the past decade, it has become clear that the restoration of passenger rail service along the corridor is important to the region in order to sustain its economic growth and provide additional connectivity between growing economic centers and the region's smaller communities and rural areas and north-south intermodal routes.

As described further below, the FAST Act called for the preparation of a report that would identify plans, costs, funding options, and potential benefits for the restoration of passenger rail service. This legislation directed the Secretary of Transportation to create the GCWG to assess and present findings of capacity, cost, and implementing actions necessary to restore passenger service in the Gulf Coast region. The GCWG—a collaborative effort among the SRC, the States of Alabama, Florida, Louisiana, and Mississippi, local agencies, Amtrak, CSX, and other stakeholders—is chaired by FRA, under the direction of the FRA Administrator.

In order to facilitate the reading of this Report, Appendix B provides a glossary of railroad terms.

2 BACKGROUND AND HISTORY

2.1 DESCRIPTION OF GCWG SCOPE OF WORK

2.1.1 THE FAST ACT AND RESPONSE TO CONGRESS

The FAST Act comprehensively addressed all aspects of surface transportation—including roads, bridges, transit systems, and passenger rail—across the United States. Title XI – Rail authorizes numerous grants and initiatives, including Amtrak reforms, Intercity Passenger Rail Policy, Safety, Project Delivery, and Financing. Section 11304 of Title XI requires the Secretary of Transportation to establish GCWG with representatives from Amtrak, the states along the route, regional transportation planning organizations, metropolitan planning organizations (MPO), municipalities, communities along the proposed routes, the SRC, railroad carriers whose tracks may be used for such service, and other entities as deemed appropriate by the Secretary.

The responsibilities of the GCWG identified in Section 11304 include:

- Evaluate all options for restoring intercity rail passenger service in the Gulf Coast region, including options outlined in the report Amtrak transmitted to Congress pursuant to Section 226 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) (division B of P.L. 110–432);
- Select a preferred option for restoring the selected service;
- Develop a prioritized inventory of capital projects and other actions required to restore the selected service and cost estimates for such projects or actions; and
- Identify federal and non-federal funding sources required to restore the selected service, including options for entering into public-private partnerships to restore the selected service.

The GCWG is also tasked with creating this Report, to include the approach and rationale employed in recommending a preferred option for restoring intercity rail service, to submit to the Committee on Commerce, Science and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives.

2.1.2 GOALS

The immediate goal of the GCWG, reflected throughout the Report, is to provide sufficient, reliable information to be the starting point for restoring passenger rail service. In support of this goal, the GCWG's objective is to define the restored intercity passenger rail service in a manner that will ultimately achieve a new and improved schedule (timetable), increasing frequency and improving reliability compared to its historic counterpart, and operate without unreasonably impairing CSX's freight operations.[3] While the primary goal for the GCWG is to comply with the FAST Act, it is also helping to define the structure to develop a more robust multi-modal transportation network serving the Gulf Coast region. This is important to the affected states, cities, and communities that recognize how essential this will be to continue the growth that has occurred in the region during the past decade and promote further economic development.

2.1.3 REPORT ORGANIZATION

This Report provides an overview of the tasks assigned to the GCWG, the background of intercity passenger rail service along the Gulf Coast, and a proposed restoration and implementation plan developed by FRA, as Chair of the GCWG. This Report also provides descriptions of the parties involved and their commitment to seeing rail service restored to the region. Additionally, it outlines the station and infrastructure improvements required to restore service, along with the associated costs and benefits. Potential sources of funding are also identified.

2.2 HISTORY

2.2.1 PREVIOUS PASSENGER RAIL SERVICE TO THE GULF COAST

There is a long history of passenger rail service along the Gulf Coast Corridor between New Orleans and Jacksonville. Early on, service was provided by the *New Orleans-Florida Limited*, plus one or two very slow, unnamed local trains that stopped at every town along the way. The *New Orleans-Florida Limited* was replaced by the streamlined *Gulf Wind* in 1949. These trains were jointly operated by the Seaboard Air Line (later Seaboard Coast Line) and Louisville and Nashville railroads, now all part of CSX. By the time Amtrak took over intercity passenger service in 1971, service had dwindled to just the *Gulf Wind* and was reduced to a tri-weekly schedule. Between Flomaton, AL and New Orleans, service was also provided by a daily New Orleans-Cincinnati train, and as ridership declined on this segment, the two trains were often combined. Subsequent to 1971, there were several initiatives to provide service to all or portions of the corridor.

Between April 1984 and January 1985, and again between June 1996 and March 1997, Amtrak operated a daily state-funded train called the *Gulf Coast Limited* between New Orleans and Mobile, AL. Despite the evidence that there was strong ridership potential, the problems securing annual operating funds from the states of Louisiana, Mississippi, and Alabama resulted in the train's termination.

Between October 1989 and April 1995, Amtrak operated a daily through service between Mobile and New York via the *Gulf Breeze*, which operated as a section of the New York-New Orleans *Crescent*, separating from the *Crescent* at Birmingham. Amtrak discontinued the train in 1995 as

[3] See 49 U.S.C. § 24308(e)(2).

part of a broad cost-cutting measure.

Starting in April 1993, Amtrak extended tri-weekly Los Angeles-New Orleans *Sunset Limited* service east of New Orleans to Jacksonville and south to Miami, restoring passenger rail service over the full length of the Gulf Coast Corridor. In 1996, Amtrak cut back the eastern terminus to Sanford, FL, and in 1997 extended it to Orlando. As rail freight traffic congestion grew, on-time performance for the *Sunset Limited* became increasingly difficult, with the train often operating many hours late, and in extreme cases a day late, with on-time performance declining to 7% in the final year of service. This was exacerbated by the unusually long length of the route, resulting in frequent substitution of bus service east of New Orleans so that the rail equipment could be returned to New Orleans to get back on schedule. The poor on-time performance for the service, coupled with an inconvenient departure time from New Orleans, led to a significant decline in ridership between 2000 and 2004 (the last full year of operations). Gulf Coast trips (including trips where the origin, destination, or both were east of New Orleans) declined from 53,256 to 37,375.

The full corridor route is shown in

Figure **1**, and the evolution and configuration of various rail services are illustrated graphically in the series of schematic service diagrams located in Appendix C.

Figure 1 – Corridor Route Map

2.2.2 RECENT HISTORY OF LOCAL SUPPORT TO RESTORE PASSENGER SERVICE

Starting in 2010, mayors, businesses, and civic organizations on the Gulf Coast initiated conversations and individual recommendations, including use of potential BP oil spill settlement monies to fund restoration of a daily intercity passenger rail service to the region. In 2012, led principally by the mayors of Tallahassee, FL and Mobile, AL, a consensus was formally established by the municipal leaders of the 12 station communities affected by suspended service that the service should be restored and its operation should be a daily level of service far better than its predecessor. The SRC, a strong partner with the mayors in restoring passenger rail service to the Gulf Coast, has led this effort since 2014 as mayoral leadership changed in key coastal cities. Local support culminated in February 2016 during the Amtrak and SRC-hosted Gulf Coast Inspection Train trip to examine existing infrastructure and gauge public interest in restored service.

2.3 REGIONAL ECONOMIC SUMMARY

2.3.1 POTENTIAL ECONOMIC BENEFITS

To fully assess the potential return on an investment to support the restoration of passenger rail service along the Gulf Coast, the region is presented as a whole, looking across political boundaries. Appendix D provides a detailed presentation of the overall region's economic dynamics. Over twenty-two million people live in the four-state region, working in crucial U.S. industries like commercial seafood, shipping, tourism, and oil and gas production.

By the year 2050, the Gulf Coast megaregion's population is expected to increase by an estimated 10 million people, or 76%; similarly, the Florida megaregion is expected to grow by an estimated 13.8 million people, or 80%.[4] Passenger rail service could improve links between growing economic centers and the region's smaller communities and rural areas.

In addition to restoring passenger service, the continued viability of freight rail service to freight customers along the line is vital to growing the regional economy. As previously stated, one of the GCWG's goals is to reintroduce passenger trains while not unreasonably impairing CSX's ability to maintain freight service to its existing customers.

Chapter 4 identifies the GCWG's infrastructure analysis for restoring passenger rail service. The proposed services (including long-distance service between Orlando and New Orleans and daily state-supported service between Mobile and New Orleans) are anticipated to provide a number of economic benefits to communities, residents, visitors, and businesses across the Gulf Coast region:

- Expanded customer markets for tourism and business travel;
- Improved access to labor markets, educational opportunities, and healthcare; and
- Expanded transportation options.

[4] According to the America 2050 website (http://www.america2050.org), the Gulf Coast megaregion extends from the southern coast of Texas to the western Florida panhandle; principal cities include Houston, New Orleans, and Baton Rouge. The Florida megaregion includes most of Florida, areas east and south of Lake City, FL; principal cities are Miami, Orlando, Tampa, and Jacksonville.

Among the proposed passenger rail services' benefits are the expansion of business sales, income, and jobs along the corridor itself, as well as within its greater service area. Construction of needed capacity improvements, as well as operation of the proposed services, would also provide additional temporary and full-time jobs. The creation of economic investments in the corridor has already begun, and local examples are provided in Appendix D.

Additional station and infrastructure improvement projects described in Section 4.5.1 will create both temporary and permanent jobs through construction and operations. They also establish initial route-specific expenditures that start the multiplier effect of downstream economic impacts. These downstream economic impacts will likely be the greatest contributors to tourism and business travel.

The proposed long-distance service anchors two of the region's largest tourist economies—New Orleans and Orlando. In between these two cities lies Mississippi, with its coastal gaming and resort venues, Alabama's and Florida's gulf beaches, and a coastal region already offering the 20+ millions of annual visitors vibrant experiences in outdoor recreation, military history, collegiate and professional sports, culture, and the arts.

2.4 DESCRIPTION OF PARTIES INVOLVED

As the Chair of the Working Group, FRA identified the GCWG representatives who met Congress' intent and provided a range of representation and perspectives.

2.4.1 GULF COAST WORKING GROUP STRUCTURE & MEMBERSHIP

Members of the GCWG include representatives from FRA (Chair); Amtrak; State Departments of Transportation from Louisiana, Mississippi, Alabama, and Florida; municipalities and communities along the proposed route; regional transportation planning organizations; MPOs; the SRC; and railroad carriers whose tracks may be used for the proposed service (CSX, NS, and Florida DOT/SunRail). Appendices E and F provide a complete listing and detailed description of the over 60 groups/organizations that participated in the GCWG. Organizations that have submitted a resolution in support of the GCWG's goals are noted in Appendix G.

Members of the GCWG have demonstrated a deep commitment to the process and have met bi-weekly from March 2016 through September 2016, on the second Thursday of each month (via teleconference) and the fourth Thursday of the month (in-person meeting hosted by a city along the proposed route). After September 2016, the GCWG was unable to conduct routine in-person meetings due to limited travel allowances. From October 2016 to February 2017, CSX, Amtrak, SRC, and FRA formed a Technical Group and held three in-person meetings to undertake the highly technical aspects of planning for this effort. Minutes of each meeting were prepared by FRA's Monitoring and Technical Assistance Contractor, Urban Engineers, Inc., which are available from FRA upon request. Urban Engineers, Inc. also assisted the GCWG in preparing this Report.

2.4.2 GCWG INTERACTION WITH CONGRESSIONAL MEMBERS

A kick-off to the work of the GCWG was held in February 2016 during the Amtrak and SRC--hosted Gulf Coast Inspection Train trip referenced in the Executive Summary. Interested state and local elected officials and Congressional members participated in this effort in order to view, first-hand, the infrastructure and station improvements that would be required to restore passenger service. As noted in Section 2.4.1 above, the GCWG began meeting in March 2016 in

cities along the proposed route. Congressional staff members participated in some of these meetings and provided input. In September 2016, FRA, as the GCWG Chair, provided a detailed briefing to Senate Commerce Committee staff and Senator Roger Wicker on the status of the GCWG's efforts. This was followed by status update letters submitted to Congressional members on September 2, 2016 and December 14, 2016, provided in Appendix H.

3 EXISTING CONDITIONS

3.1 EXISTING RAILROAD INFRASTRUCTURE

3.1.1 ELEMENTS OF RAIL INFRASTRUCTURE

There are many elements of railroad infrastructure that impact the ability to accommodate freight and passenger rail traffic, as well as the speed and reliability of that traffic. They include track, signals, grade crossings, and bridges. Appendix I provides a detailed description of these elements in order to better understand how they influence current operations and future service needs.

3.1.2 EXISTING GULF COAST CORRIDOR RAIL INFRASTRUCTURE

This section identifies the existing rail infrastructure in the Gulf Coast Corridor. General characteristics are summarized in Table 1, and are located graphically on the map in Figure 2. The characteristics show the route's challenges regarding signal systems (or lack thereof), track speeds, track capacity, and other considerations.

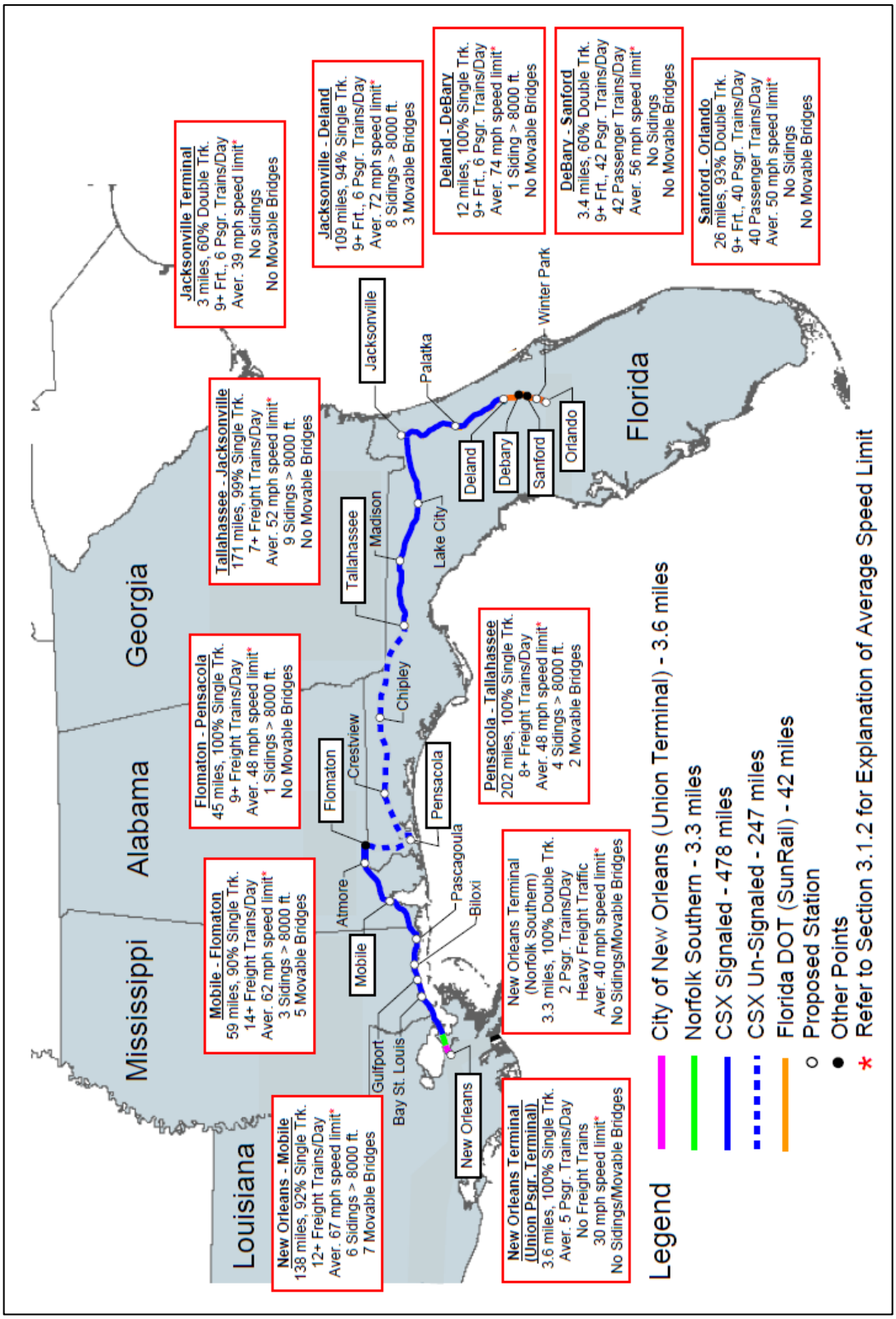
The Gulf Coast Corridor between New Orleans and Orlando is 775 miles in length and is almost entirely single track. There are 17 movable bridges between New Orleans and Orlando, seven of which are between New Orleans and Mobile. Between Flomaton and Tallahassee, a distance of 247 miles, there is no signal system. The average speed limits shown are for passenger trains and are calculated based on the various speed limits posted in the railroad employee timetable and the distances over which they apply. The average speed achieved by a passenger train would be lower, taking into account station stops, bridge openings, and variable operating conditions such as interaction with freight trains.

Table 1 – Existing Gulf Coast Rail Infrastructure

			New Orleans Terminal		New Orleans to Mobile	Mobile to Flomaton	Flomaton to Pensacola	Pensacola to Tallahasee	Tallahasee to Jacksonville	Jacksonville Terminal	Jacksonville to Deland	Deland to DeBary	Debary to Sanford	Sanford to Orlando
Owner			NOUPT	NS	CSX	CSX	CSX	CSX	CSX	CSX	CSX	Florida DOT	Florida DOT	Florida DOT
Route Length (miles)			3.6	3.3	137.7	59	45	202	171	3	109	12.2	3.4	26.19
Route Miles	Single Track		3.6	0	127.1	53.4	45	202	168.8	1.1	103.3	12.2	1.3	1.9
	Double Track		0	3.3	10.6	5.6	0	0	2.2	1.9	5.7	0	2.1	24.29
Signal System			Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Aver. Passenger Speed Limit (mph)			30	40	67	62	48	48	52	39	72	74	56	50
Siding Lengths (No.)	<4000 feet		0	0	1	2	1	0	3	0	0	0	0	0
	4000 to 8000 feet		0	0	3	3	1	1	3	0	0	0	0	0
	>8000 ft.		0	0	6	3	1	4	9	0	8	1	0	0
Siding Type (No.)	Signaled		0	0	3	5	0	0	5	0	8	0	0	0
	Controlled		0	0	7	3	3	5	10	0	0	1	0	0
Average Siding Spacing (Miles)			n/a	n/a	12.7	6.7	15.0	40.4	11.3	n/a	12.9	12.2	n/a	n/a
Number of Movable Bridges			0	0	7	5	0	2	0	0	3	0	0	0
No. of Grade Crossings	Flashers and/or Gates		0	0	152	11	57	156	127	1	111	3	2	68
	No Auto Devices		0	0	26	6	9	28	28	0	23	3	1	0
Aver. Weekday Trains (No.)*	NB or WB	Psgr.	2.5	2	0	0	0	0	0	3	3	3	21	20
		Frt.	0	*	6.3	7.4	4.6	4.2	3.7	4.7	4.7	4.7	4.7	4.7
	EB or SB	Psgr.	2.5	2	0	0	0	0	0	3	3	3	21	20
		Frt.	0	*	6.4	7.2	4.6	4	3.6	4.3	4.3	4.3	4.3	4.3

Freight movements are frequent but variable; average not applicable.

Figure 2 – Map of Existing Gulf Coast Rail Infrastructure



3.1.2.1 OTHER INFRASTRUCTURE

POSITIVE TRAIN CONTROL

Under 49 U.S.C. § 20157, each Class I railroad and each entity providing regularly scheduled intercity or commuter rail passenger transportation must implement a PTC system on: (1) its main line over which 5 million or more gross tons of annual traffic and poison- or toxic-by-inhalation hazardous materials are transported, and (2) its main line over which intercity or commuter rail passenger transportation is regularly provided.[5] By law, a PTC system must be designed to prevent train-to-train collisions, over-speed derailments, incursions into established work zones, and the movement of a train through a switch left in the wrong position.[6]

CSX must implement PTC systems on each main line track segment subject to the statutory mandate, unless it receives FRA approval of a *de minimis* exception, a routing change request, or a passenger main line track exception under FRA's regulations. Moreover, if any new passenger service is added to CSX's main line that triggers the need for PTC system implementation, CSX must submit to FRA a request for amendment (RFA) to its PTC Implementation Plan (PTCIP) for FRA review and approval under FRA's RFA procedures.[7] If the new passenger service qualifies for a passenger main line track exception under 49 CFR § 236.1019, the RFA may also include a request, subject to FRA review and approval, for an applicable exception for all or part of the main line track segment, as appropriate.

Cost sharing options will be explored as appropriate for sections of the rail line where it is determined that PTC system implementation is not required unless there is the addition of passenger rail service.

Lastly, separate from this restored passenger rail service effort, CSX has stated it will implement a PTC system between New Orleans and Flomaton and between Jacksonville and Deland. In addition, SunRail has stated it will implement a PTC system on its entire network, which includes the Deland to Orlando segment where the restored passenger service would operate. SunRail will coordinate with CSX and Amtrak to achieve interoperability of their PTC systems where they operate over the same track.

ORLANDO

Upon arriving in Orlando and deboarding passengers, the long-distance passenger train will need to reverse direction to return north to Sanford, where Amtrak has facilities for parking and servicing the train between runs. For departure back to New Orleans, the train will need to return south to Orlando and again reverse direction before departing north toward New Orleans. There are two wyes[8] approximately 6 and 8.5 miles, respectively, south of the Orlando station. One of these could be potentially used to turn around a train terminating at Orlando. Both wyes include a highway grade crossing, across which a turning train would have to make a backup

[5] Rail Safety Improvement Act of 2008, P.L. No. 110-432, § 104(a), 122 Stat. 4848, 4857–58 (Oct. 16, 2008), as amended by the Positive Train Control Enforcement and Implementation Act of 2015, Pub. L. No. 114-73, 129 Stat. 568, 576–82 (Oct. 29, 2015) and the Fixing America's Surface Transportation Act, P.L. No. 114-94, § 11315(d), 129 Stat. 1312, 1675 (Dec. 4, 2015).

[6] *See, e.g.*, 49 U.S.C. § 20157(i)(5); 49 CFR § 236.1005.

[7] 49 CFR §§ 236.1009(a)(2)(ii), 236.1021; 49 U.S.C. § 20157(a)(2)(C).

[8] This railroad term and others are defined in Appendix B.

move. Between the two wyes there is a controlled siding 6,989 feet in length. At the Orlando station, SunRail recently added a third track that could be used. More information on the Orlando area and SunRail's operations can be found in Section 4.4.1.3. In general, servicing the Orlando station will require further study.

NEW ORLEANS RAIL GATEWAY

The New Orleans Rail Gateway (NORG) (also known as the New Orleans Terminal Gateway) is an area within Jefferson and Orleans Parishes that provides a critical link in the east-west distribution of freight traffic and allows access to Canada and Mexico; it is where six of the seven U.S. Class I Railroads and one short line railroad converge. The NORG stretches from the City of Avondale, LA via the Huey P. Long Bridge to just west of Gentilly Yard in New Orleans. Located in the center of the NORG is the New Orleans Union Passenger Terminal (NOUPT).

The NORG's rail corridor is mostly double track with some single-track segments, and the infrastructure currently accommodates three existing Amtrak routes—the *City of New Orleans*, the *Sunset Limited*, and the *Crescent*—as well as the freight trains of Burlington Northern Santa Fe (BNSF), Canadian National (CN), CSX, Kansas City Southern (KCS), NS, New Orleans Public Belt (NOPB), and Union Pacific (UP). Each of these railroads maintains a major facility within the New Orleans Gateway. Initiating additional passenger frequencies in this congested area may have operational impacts beyond those already studied separate from this effort, as a result of the occupation of the terminal area track that is otherwise used by these freight carriers on through and connecting routes, and in order to interchange traffic with each other. Additionally, within one 3.3-mile segment of an anticipated new route, there are three different dispatching entities (Amtrak, NS, and CSX). A separate study is currently underway (although it is on hold) to address overall freight movement needs through the New Orleans area, including areas adjacent to the NOUPT.

4 PROPOSED RESTORATION PLAN

4.1 PREVIOUSLY STUDIED OPTIONS

As required by PRIIA, Amtrak studied restoration of service between New Orleans and Sanford, FL, issuing a report in 2009. After initially considering 12 different service alternatives, Amtrak selected three options for further analysis:

- Restoration of tri-weekly *Sunset Limited* service between Los Angeles and Orlando;
- Extension from New Orleans to Orlando of the daily *City of New Orleans* operating between Chicago and New Orleans; and
- A separate overnight service operating daily between New Orleans and Orlando.

As noted on page 44 of the 2009 Amtrak report, coastal communities preferred daily service:

"*…Most of those in the Gulf Coast Region who provided comments via Amtrak's stakeholder interviews and outreach efforts considered…a daily…train between New Orleans and Orlando… to be the most desirable of the three preferred options because it would provide a reliable daily service….*"

In 2015, Amtrak again studied restoration of service, this time at the request of the SRC, and completed a report in December 2015. Amtrak dropped the previously studied alternative of extending the tri-weekly *Sunset Limited* from consideration because of the extremely long route

between Los Angeles and Orlando, and the associated history of severe on-time performance issues, with the train routinely operating many hours late and in extreme cases as much as a day late. The 2015 report contains updated figures reflecting changes in market demand and operating assumptions, such as a modified schedule assumption and more economical train assumptions. Furthermore, the financial forecasts included in this 2015 evaluation reflect updated base cost data from more recent system-wide cost experience, and identifies and prices state-supported service under the PRIIA 209 methodology[9]. The 2015 study considered five alternatives, including options for daily corridor service between New Orleans and Mobile, AL. The service alternatives studied are as follows:

- Alternative A: A daily overnight long-distance train operating each way between New Orleans and Orlando that would operate as an extension of the Chicago-New Orleans *City of New Orleans,* with through equipment from Chicago to Orlando, plus a daily state-supported train operating round trip between New Orleans and Mobile.
- Alternative A1: A daily overnight long-distance train operating each way between New Orleans and Orlando that would operate as an extension of the Chicago-New Orleans *City of New Orleans,* with through equipment from Chicago to Orlando.
- Alternative B: Two daily state-supported trains operating round trip between New Orleans and Mobile, with no service east of Mobile to Orlando.
- Alternative B1: Two daily state-supported trains operating round trip between New Orleans and Mobile, with a Thruway bus connecting with one of the trains to provide service east of Mobile to Jacksonville.
- Alternative C: A daily overnight long-distance train operating each way between New Orleans and Orlando.

The ridership, passenger miles, revenue, operating costs (not including incremental operating cost of CSX track and infrastructure maintenance), and subsidy requirements of the five alternatives are summarized in

Table **2**.

[9] Section 209 led to the development and implementation of a single, nationwide standardized methodology for establishing and allocating operating and capital costs among the States and Amtrak associated with trains operated on each of the routes described in section 24102(5)(B) and (D) and section 24702.

Table 2 – Summary of Alternatives Considered in Amtrak 2015 Study

	Alternatives	A	A1	B	B1**	C
Projected Annual Passengers	Long Distance Train	119,100	138,300			69,100
	State Supported Train	34,800		38,400	43,400	
	Total	153,900	138,300	38,400	43,400	69,100
Annual Rail Passenger Miles (millions)	Long Distance Train	61.30	63.00			24.04
	State Supported Train	3.80		3.79	5.23	
	Total	65.10	63.00	3.79	5.23	24.04
Annual Ticket, Food & Beverage Revenue (millions)	Long Distance Train	$11.96	$12.25			$4.03
	State Supported Train	$0.76		$0.70	$1.05	
	Total	$12.72	$12.25	$0.70	$1.05	$4.03
Annual Operating Cost (millions)	Long Distance Train	$17.67	$17.73			$18.43
	State Supported Train*	$4.54		$7.67	$9.30	
	Total	$22.21	$17.73	$7.67	$9.30	$18.43
Annual Incremental Operating Loss (millions)	Long Distance Train	$5.71	$5.48			$14.40
	State Supported Train	$3.78		$6.97	$8.26	
	Total	$9.49	$5.48	$6.97	$8.26	$14.40

* Includes annual equipment capital expense charges to state partners

** State supported train numbers include Thruway bus between Mobile and Jacksonville

During the February 2016 inaugural GCWG meeting, the members formally agreed to adopt Alternatives A and Al from Amtrak's 2015 study for further consideration in this Report. Alternative A generates the highest levels of ridership and passenger miles and provides service to the entire Gulf Coast region. Alternative C generates lower ridership than A1 because it would require passengers to and from points north of New Orleans to change trains in New Orleans. Alternatives B and B1 have lower ridership and passenger miles because they do not provide rail service between Mobile and Orlando.

4.2 DESCRIPTION OF PROPOSED SERVICE OPTIONS

4.2.1 ALTERNATIVE A

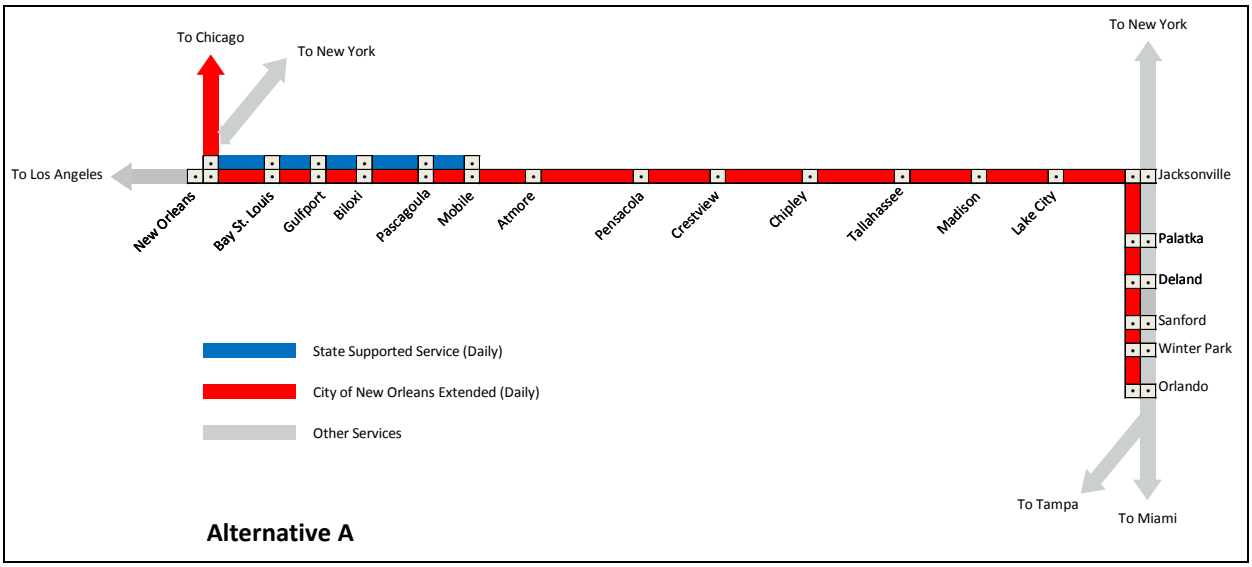
Alternative A provides daily service each way between New Orleans and Orlando, operating as an extension of the Chicago-New Orleans *City of New Orleans* train. The train would offer through service between Orlando and points north of New Orleans, including Jackson, MS; Memphis, TN; and Chicago, IL. At Jacksonville, the train would offer connections to points north toward Georgia, the Carolinas, Virginia, and Washington, DC, and points in the Northeast Corridor including Philadelphia, PA; New York City, NY; and Boston, MA.

At Orlando, connections would be available to both Tampa and Miami. Amtrak Thruway motor coach service would provide connections to additional Florida cities. At New Orleans, an overnight connection to the tri-weekly *Sunset Limited* to points west including Houston, San Antonio, and Los Angeles would be available three days each week. Three sets of rail equipment including cars and locomotives would be required to operate this service. Through-running equipment from the *City of New Orleans* would include a Superliner coach, Superliner coach-baggage, Superliner Cross-County Café car (offering food service), and a Superliner sleeping car.

In addition, Alternative A provides an additional state-supported train between New Orleans and Mobile, resulting in two trains that would provide service between those cities. This additional

service results in the highest total ridership of the alternatives considered, but requires additional equipment and incurs additional operating cost. Equipment for the extended *City of New Orleans* would include a Superliner coach, Superliner coach-baggage, Superliner Cross-County Café car (offering food service) and a Superliner sleeping car. The state-supported train would include coach service (Superliner or single-level Horizon coach) and food service (Superliner Sightseer Lounge or single-level Horizon or Amfleet-I Club dinette. Both services are shown schematically in Figure 3.

Figure 3 – Alternative A

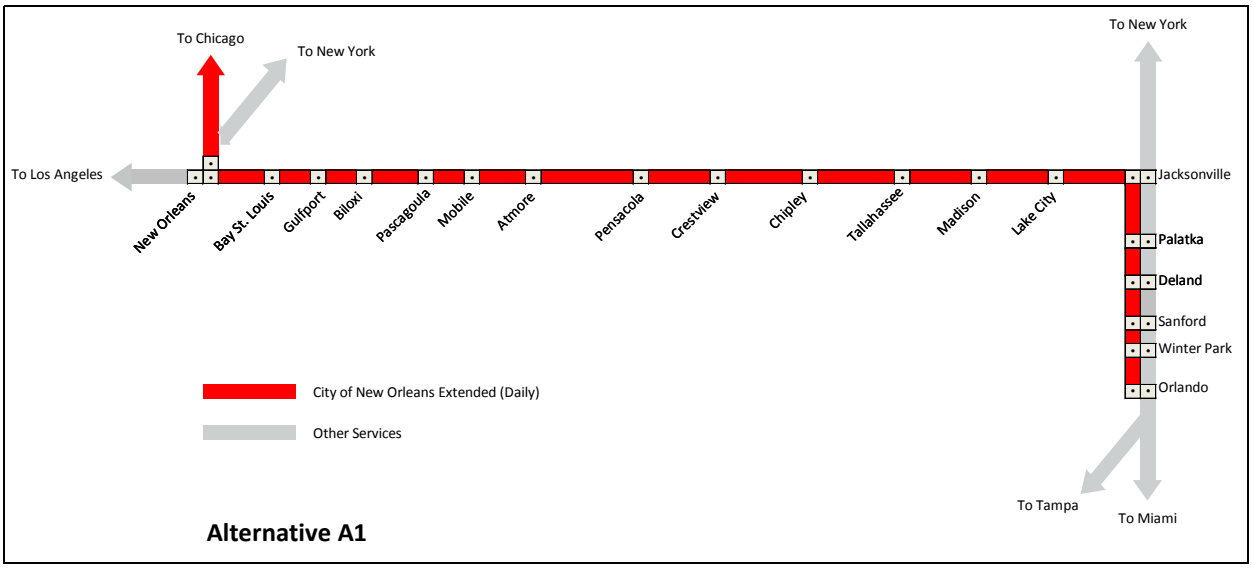


4.2.2 ALTERNATIVE A1

Alternative A1 provides service between New Orleans and Orlando, but does not include a daily state-supported train between New Orleans and Mobile. Similar to Alternative A, the train provides daily service each way between New Orleans and Orlando, operating as an extension of the Chicago-New Orleans *City of New Orleans* train. The train would offer through service between Orlando and points north of New Orleans, including Jackson, Memphis, and Chicago. At Jacksonville, the train would offer connections to points north in Georgia, the Carolinas, Virginia, Washington, DC, and points in the Northeast Corridor including Philadelphia, New York City, and Boston.

At Orlando, connections would also be available to both Tampa and Miami. Amtrak Thruway motor coach service would provide connections to additional Florida cities. At New Orleans, an overnight connection to the tri-weekly *Sunset Limited* to points west, including Houston, TX; San Antonio, TX; and Los Angeles, CA, would be available three days each week. Three sets of rail equipment including cars and locomotives would be required to operate this service. Through-running equipment from the *City of New Orleans* would include a Superliner coach, Superliner coach-baggage, Superliner Cross-County Café car (offering food service), and a Superliner sleeping car. The service is shown schematically in Figure 4.

Figure 4 – Alternative A1



4.2.3 PREFERRED OPTION

The GCWG selected Alternative A as the preferred service option as it would provide a daily, round trip long-distance train and a daily, round trip corridor train. However, the GCWG supports Alternative A1 as an option to restore service in the near term if initial funding resources are only available for the long-distance train.

4.3 PASSENGER SERVICE SCHEDULE COMPARISON

Amtrak's 2015 report on *Potential Gulf Coast Service Restoration Options* included a proposed schedule for the long-distance service operating as an extension of the Chicago-New Orleans *City of New Orleans* train. Similar to previous schedules when the train operated as an extension of the Los Angeles-New Orleans *Sunset Limited*, the run between New Orleans and Orlando spans the overnight hours; although, there are variations in the arrival and departure times at the two cities. The schedules of the service proposed in 2015 and the schedules of the train when it previously operated in 1999 and 2005 are shown for comparison in Table 3. The end-to-end running times and average speed obtained, accounting for station stops and other operating conditions including interaction with freight trains, in the proposed 2015 schedule are similar to the schedule in 1999. The 2005 schedule was slower due to reduced speed limits in some areas and additional recovery time built into schedules to account for increased delays.

Table 3 – Schedule Comparison of Long-Distance Train

	Eastbound				Westbound			
		1999*	2005*	Proposed in 2015		1999*	2005*	Proposed in 2015
		From Los Angeles	From Los Angeles	From Chicago		To Los Angeles	To Los Angeles	To Chicago
New Orleans (CT)	↓	8:15 PM	10:30 PM	5:00 PM	↑	11:26 AM	9:20 AM	9:30 AM
Orlando (ET)		3:20 PM	8:45 PM	11:30 AM		6:50 PM	1:45 PM	4:15 PM
Running Time (Hrs:Min)		18:05	21:25	17:30		17:36	20:35	18:15
Average Speed (Mph)		43	36	45		44	38	43

** Source: Amtrak Public Timetables*

4.4 OPERATIONAL REQUIREMENTS

4.4.1 TERMINALS

Appropriate facilities will be required to store and service trains at their terminals. It is important to understand these requirements because they will influence the capital needs for restoring the service described in Alternatives A and A1.

4.4.1.1 NEW ORLEANS

The NOUPT (owned by the City of New Orleans) already serves two daily plus one tri-weekly Amtrak trains. This station has sufficient facilities for servicing both an extension of a section of the *City of New Orleans* overnight train to Orlando plus a daily service between New Orleans and Mobile. The facilities include a wye track, used for turning a train around.

4.4.1.2 MOBILE

A day train operating from New Orleans to Mobile and returning the same day would need a track on which to park the train during the middle of the day. If a push-pull pull train is used with a locomotive on one end and a cab control car on the other end, the train can operate in reverse to return to New Orleans, and a simple single-ended storage track is all that would be needed. The seats on the train could be reversed during the layover. Otherwise, the train will have to be turned around on a wye track. The nearest existing wye is about 13 miles south in the direction of New Orleans and would require a backup move of 13 miles in each direction, which is not considered desirable. In the other direction, the nearest wye is about 24 miles away in Bay Minette, requiring a 48-mile round trip to turn the train.

4.4.1.3 ORLANDO AREA AND SUNRAIL OPERATIONS

There are limited facilities for servicing or turning a long-distance train at or near the Orlando Station, and with only three station tracks already serving 18 SunRail commuter trains in each direction, and two Amtrak trains in each direction, there is little or no opportunity for parking another long-distance train there for any length of time. However, there is a wye track for turning a train about 8.5 miles south of Orlando, and there are existing Amtrak facilities for servicing and storing trains plus a wye at Sanford, 26 miles to the north. In the past, after deboarding its passengers at Orlando, the long-distance train (*Sunset Limited*) from New Orleans would proceed south to the wye, turn around, and then head north to Sanford, where it would again turn on a wye and back into Amtrak's facility for servicing and overnight storage. The next

day, the train would back out onto the main line and head south to the wye south of Orlando, where it would again turn around and then head back north to Orlando, where it would load passengers and begin its trip to New Orleans. This procedure is still possible using existing infrastructure; however, it involves a total of 86 miles of dead head running, three turnings of the train, and unlike in the past, must now be integrated with frequent SunRail commuter operations. The procedure will likely take significantly more time than in the past.

SunRail will consider another option, which would be a new process since it added a third track at the Orlando station. The restored passenger service would run on the third track at the Orlando Station and detrain the passengers. Amtrak would then cut the locomotive power off the south end of the train and run around the train on track #2 and couple up on the north end on the train. Once the locomotive power is on the north end, Amtrak would operate northbound back to the Amtrak Auto Train Facility. SunRail would handle the dispatching for this option. This procedure would require the Amtrak train to operate with two locomotives coupled back-to-back in order to have a control cab facing forward for the run back to the Amtrak facility in Sanford.

4.4.1.4 ROLLING STOCK EQUIPMENT

For the restored Gulf Coast passenger rail service, Amtrak could utilize equipment associated with the *City of New Orleans'* equipment as well as add equipment to run the long-distance train east to Orlando to maximize capacity. For the New Orleans to Mobile service, Amtrak will explore the availability of equipment currently used on corridors elsewhere in the country. There are no plans to purchase new rolling stock for this service, and, therefore, any associated costs would be considered an O&M expense.

4.5 CAPITAL IMPROVEMENTS

4.5.1 STATION REVIEW

An Amtrak team of engineers and architects with significant station design experience conducted on-site surveys during the week of July 10-16, 2016, to prepare the individual (Amtrak) Station Condition Assessment provided in Appendix J. The comprehensive reports provide a condition overview assessment for the 12 stations located along the Gulf Coast in Mississippi, Alabama, and Florida, where Amtrak service was suspended. The assessment's reports encompass the station site, station building (interior and exterior and building systems), and Americans with Disabilities Act (ADA) accessibility observations for these 12 stations. The reports also include photographic records of observed conditions and an order-of-magnitude cost estimate that considers local conditions to restore service to the stations based on 2016 costs and appropriate contingencies. The estimated order-of-magnitude capital costs for the comprehensive list of improvements is $13.4 million. And, per the GCWG's request to identify an incremental approach for improvements, Amtrak provided a narrower list of essential (i.e., minimum) improvements needed to restore service, which are estimated to cost $7.8 million (in 2016 dollars).

4.5.1.1 APPROACH TO DEFINING INCREMENTAL STATION IMPROVEMENTS

As noted above, to reduce the immediate capital funding needs for station improvements, critical upgrades essential for the restoration of passenger rail service were identified by Amtrak. The assessment team defined "restoration of service" to each station to be the minimum required to achieve the following three objectives (also referred to as the "minimum required"):

- Allow a train to safely load and detrain passengers;
- Allow passengers to travel safely from the public right-of-way to the train via a safe and code-compliant platform and path of travel; and
- Comply with all current required codes and 49 CFR part 37 "Transportation Services for Individuals with Disabilities" (hereafter "49 CFR 37"). 49 CFR 37 provides the ADA Standards issued by the Department of Transportation that apply to facilities used by state and local governments to provide designated public transportation services, including bus stops and stations, and rail stations. Meeting 49 CFR 37 requirements will allow the first two objectives to be met.

Consequently, the revised assessment, providing the immediate increment of improvements and associated capital costs needed to restore passenger rail service, excludes restoration of, or other improvements to, the following:

- Amenities that existed at the time of service suspension, including baggage handling;
- Existing station buildings or shelter construction or other appurtenances thereto;
- Parking facilities not required to achieve a 49 CFR 37 compliant path from the public right-of-way to platforms; and
- Site, civil, electrical, mechanical, plumbing, storm water remediation, or other utilities that are the responsibility of local municipalities that do not hinder the minimum required above.

The revised/minimum required assessment recommended that the existing station buildings or shelters be immediately and completely closed and protected with access granted only to those whose duties require entry. However, individual communities are welcomed to improve these facilities to suit local needs and through separate efforts, since these facilities are not required to restore passenger rail operations.

Existing parking lot surfaces that require patching, restriping, regrading or full resurfacing should also be addressed by each individual city/municipality, and are not included in the revised assessment of required improvements to initially restore service. Finally, while this assessment identifies those items required to restore service, it is understood that the responsibility for implementing these items rests with each individual city/municipality.

Restoration of Gulf Coast passenger rail service need not wait for all stations to be made ready for service. Amtrak anticipates that, if necessary, service could be resumed bypassing certain stations until they have been made ready for service.

4.5.1.2 HIGHLIGHTS/SUMMARY OF ASSESSMENT FINDINGS

All of the 12 stations surveyed require some prior repair work to minimally restore passenger service to this portion of the route from New Orleans to Orlando. The key observations regarding the minimum requirements for service restoration at the majority of stations are:

- Sites are in adequate condition: In general, the sites and landscaping at all of the stations are in adequate condition and do not require any immediate work. Common to most stations is a general deterioration of parking lot surfacing, which requires patching, restriping, or resurfacing. As noted above, these improvements were not addressed or included in the immediate list of improvements. The exception is Pascagoula, at which a comprehensive rework of the site is required as a result of a CSX track relocation that occurred after 2005, leaving the existing passenger platform several feet away from the tracks.

- Signage requires a full upgrade: All signage at all the stations is outdated and does not meet current Amtrak or ADA standards. Signage is required to be upgraded for both operational need and ADA compliance. Signage replacement should be accomplished on a programmatic basis for all stations.
- Platform Conditions: The platforms, with a few notable exceptions, are in acceptable condition and could be restored to safe service with routine patching and minor repairs. At Pascagoula and Atmore, however, a full replacement of the platforms is required prior to the restoration of service. At these stations, the platforms have deteriorated to the point where patching is not a viable solution. For both stations, an eight-inch (8") top of rail platform is proposed in keeping with 49 CFR § 37.42 for stations adjacent to freight rail traffic. Where they exist, platform canopies are in sound physical condition; although, some require roof system repair to eliminate leaks.
- Tactile Warning Surfaces require full replacement: With very few exceptions, the tactile warning surface systems require a full replacement along the full length of each platform as they are uniformly beyond a state of good repair. Like the signage replacement, this, too, should be a programmatic effort in order to ensure that work is accomplished in a uniform manner, meeting both FRA and Amtrak requirements.
- ADA Considerations: All stations require ADA improvements to render them accessible to passengers with disabilities under the current requirements of 49 CFR 37, inclusive of path of travel, provision of wheelchair lifts and/or enclosures, and platform work.
- Passenger Information Display systems are absent: All stations could remain without Passenger Information Display Systems (PIDS) as there were none in place before 2005, which is allowable under ADA regulations if a public address system is not present.
- Electrical and Lighting Recommendations: Another programmatic recommendation is to replace all existing lighting fixtures to provide sufficient lighting to meet ADA requirements for accessible paths of travel, and test all existing utilities to ensure that required lighting can be adequately powered by these utilities in their current condition. Some have not powered facilities for over 10 years.

4.5.1.3 ORDER-OF-MAGNITUDE CAPITAL COST SUMMARY

The Project Design & Construction Budget provided in Table 4 identifies a total estimated capital cost of $7.8 million to implement the recommended station improvements that are essential to restore passenger service. The notes in Table 4 identify several of the key assumptions made in developing these order-of-magnitude cost estimates. Appendix J provides the complete summary of the assessment findings essential to the restoration of passenger rail service, as well as a very detailed description of individual station findings, recommended improvements, and the order-of-magnitude cost of returning these stations to a state of good repair. In both cases, the cost includes design, construction, soft costs (administration, construction management, etc.), and a 30% contingency, which is an industry standard.

Table 4 – Summary of Essential Station Restoration Costs

Project Design & Construction Budget					9/22/2016
Overall Estimate to Meet Minimum Requirements to Restore Service					
Station	Design	Construction	Soft Costs	Contingency	Total Costs
Lake City FL	$30,527	$305,273	$30,527	$109,898	$476,226
Madison, FL	$29,134	$291,339	$29,134	$104,882	$454,489
Tallahassee, FL	$17,999	$179,993	$17,999	$64,797	$280,789
Chipley, FL	$30,130	$301,302	$30,130	$108,469	$470,031
Crestview, FL	$30,266	$302,664	$30,266	$108,959	$472,156
Pensacola, FL	$39,969	$399,693	$39,969	$143,889	$623,521
Atmore, AL	$100,299	$1,002,987	$100,299	$361,075	$1,564,660
Mobile, AL	$17,514	$175,144	$17,514	$63,052	$273,225
Pascagoula MS	$105,659	$1,056,586	$105,659	$380,371	$1,648,274
Biloxi, MS	$20,787	$207,874	$20,787	$74,835	$324,283
Gulfport, MS	$41,600	$416,001	$41,600	$149,760	$648,962
Bay St. Louis, MS	$37,369	$373,686	$37,369	$134,527	$582,950
Grand Total	**$501,254**	**$5,012,542**	**$501,254**	**$1,804,515**	**$7,819,566**

Notes:

1. Assumes no escalation. Based on 2016 Dollars, and construction within 2016.
2. Assumes no PIDS.
3. Assumes no environmental work.
4. Does not include additional 10% Owner's reserve.
5. Assumes Construction, Design (10% of Construction), Soft Costs (10% of Construction),
6. Contingency (30% of Design, Construction, Soft Costs Total)

4.5.2 RAIL INFRASTRUCTURE

4.5.2.1 BACKGROUND

The Gulf Coast Corridor between New Orleans and Orlando is 775 miles in length, and is composed of four different owners:

- City of New Orleans: Within NOUPT's boundary, 3.6 miles of track is currently used by Amtrak passenger trains to access the New Orleans terminal station.
- New Orleans Terminal: This belt line owned by NS is on the north side of New Orleans and is currently used by freight and Amtrak passenger trains. The portion that would be used by Gulf Coast passenger trains is approximately 3.6 miles in length.
- CSX: From New Orleans to Deland, FL, a distance of 727 miles, the route is owned by CSX. The segment from New Orleans to Jacksonville, 615 miles, is currently freight only, while the Jacksonville station segment (3 miles) and the segment from Jacksonville to Deland (109 miles) is used by freight and Amtrak passenger trains.
- SunRail: The 42 miles of track from Deland to Orlando is owned by Florida DOT and is operated by SunRail. This segment operates commuter service and accommodates freight trains and Amtrak passenger trains.

The portion of the Gulf Coast Corridor owned and operated by CSX between Gentilly Yard on the eastern side of New Orleans and Jacksonville, 618 miles or 80% of the entire New Orleans-Orlando route, is the primary segment where infrastructure improvements could benefit passenger rail operations. This segment is currently occupied only by rail freight service. Freight operations are largely unscheduled and can vary from day to day based on the needs of local freight customers, the varying arrival of freight trains from connecting railroads, and general levels of freight traffic. While the existing infrastructure is adequate for freight operations, there are physical limitations (e.g., limited space within/adjacent to rail yards and bridge crossings) that may present a challenge to operating passenger trains on schedule.

Furthermore, since the suspension of Amtrak service in 2005, Congress has enacted Section 213 of the PRIIA (49 U.S.C. § 24308[f]). Section 213 authorizes the STB to investigate, among other things, intercity passenger train delays. In July 2016, the STB issued a final rule specifying the formula for calculating on-time performance under Section 213. The Association of American Railroads (AAR), together with several freight railroads, have challenged this rulemaking in court, and the dispute is currently pending before the U.S. Circuit Court of Appeals for the Eighth Circuit.

Due to the large territory reviewed in this analysis, train volumes vary dramatically. Between New Orleans and Mobile, CSX operates approximately 11 trains per day, excluding local traffic. The volume is made up of unscheduled and scheduled merchandise traffic (due to handoff between railroads), unscheduled unit trains, and several intermodal trains. Between Mobile and Baldwin, FL, 7 to 13 trains per day operate, primarily unit trains and merchandise traffic. The total daily train volume in the vicinity of Jacksonville station is approximately 39 trains per day, the majority of which are intermodal trains.

4.5.2.2 ASSESSMENT OF INFRASTRUCTURE IMPROVEMENTS

Identifying the rail infrastructure improvements for restoring passenger rail service was an iterative process and is described below.

CSX MODELING ASSESSMENT

To identify the infrastructure improvements to support the restoration of passenger service over the 724 miles of CSX-hosted track, CSX, at FRA's direction and with support from the GCWG, engaged a consulting firm, HDR, Inc., to perform rail service modeling. The Rail Traffic Controller (RTC) model was used to forecast future shared freight and passenger operations, estimate the infrastructure required to operate safely and reliably over the route, and test proposed train schedules. The RTC model is a tool to assess the rail infrastructure necessary to accommodate various levels of service. The full report of the CSX/HDR RTC results is provided in Appendix K.

The outcome of this initial effort identified more than $2.3 billion in infrastructure improvements to support the passenger service, including lengthening existing passing sidings throughout the route, installing new tracks and yard improvements, and other projects. However, even with the addition of these projects, the modeling suggested that service may not meet the 80% threshold for passenger on-time performance. CSX's analysis estimates an end-point on-time performance of 67% for the New Orleans to Orlando service and 75% for the New Orleans to Mobile service.

REVIEW & REFINEMENT OF INITIAL CSX RECOMMENDATIONS

Due to the scope and cost of the initial list of infrastructure improvements developed by CSX, the other members of the GCWG found them to be disproportionate to the level of proposed passenger service, and subsequently the GCWG Technical Group was formed to conduct additional technical reviews. As a result, the Technical Group held meetings in October and December 2016. The meeting participants reviewed key infrastructure needs and developed next steps for resolving outstanding issues. The key areas along the CSX route discussed included: Gentilly Yard (New Orleans) and adding capacity through this area; the installation of a second track in the Pascagoula Yard area; improvements to Sibert Yard (Mobile) to accommodate GCWG members' interest in having the state-supported corridor train terminate in Atmore, AL; PTC signal improvements; possible station relocation in Jacksonville; selected track upgrades to permit higher operating speeds; the construction of new sidings and extensions of existing sidings to 15,000 feet to provide improved freight operations flexibility; and other projects. CSX then conducted a site visit and more closely examined the options, focusing on a minimum set of improvements to restore passenger service without constraints of a pre-determined schedule or service frequencies. It was discussed that the schedules would be adjusted after additional analysis was completed taking the infrastructure into account. CSX presented a revised list of improvements at a GCWG Technical Group meeting on February 8, 2017. CSX's revised cost estimate for improvements including the New Orleans to Orlando route is approximately $780 million. The New Orleans to Atmore, AL route cost estimate is approximately $515 million; if the corridor train terminates in Mobile, CSX's cost estimate is approximately $424 million for that segment of the corridor. On-time performance analysis was not performed for this revised suite of projects. Additional discussions, modeling, and negotiations amongst the stakeholders are needed to further advance the reduce scope of improvements.

For both the initial and revised cost estimates, CSX developed the order-of-magnitude capital costs as follows:

- CSX took a "Program" approach given the number of projects required, and thus the individual project costs were not broken down as the estimate confidence was based on the average project cost within the program.
- CSX applied historical costs based on CSX's extensive track and signal construction knowledge.
- Costs are in 2016 dollars and do not account for escalation to the time period when construction would occur.
- Contingency ranged from 25-35% based on historical risks as identified by different scopes of work.
- The estimates include property acquisition and environmental permitting/mitigation.
- Costs for the program were compared to the highly successful and recent North Carolina DOT Piedmont Improvement Program (PIP) and were relatively close on a per mile basis ($3-million per mile for the PIP and $1 million per mile for the revised Gulf Coast proposal).

However, within a couple of months after completing the reduced scope and estimate, CSX determined it is not valid and insists that their $2.3 billion proposal is necessary to support passenger service. CSX believes that the most accurate analysis of what would be required to add modified Amtrak service described in this report is the initial modeling authorized and

funded by FRA and conducted by HDR with CSX as the intermediary. It is CSX's position that if Amtrak wishes to add modified passenger service along the Gulf Coast, the appropriate next step is for it to initiate CSX's planning process with a formal notice to CSX so that the two parties, and ultimately the STB, can establish a path forward.

AMTRAK RECOMMENDATIONS

Amtrak has identified recommended improvements for restoring service, which is supported by the SRC. While recognizing the benefits of capital improvements, Amtrak believes the only necessary improvement to CSX's line is the installation of PTC, if it is confirmed that the sole presence of passenger service warrants it, on some or all, of the segment between Flomaton, AL and Jacksonville, FL. PTC was discussed in Section 3.1.2.1, and this matter will require further review.

Amtrak recommends that the priority should be restoring the maximum allowable speeds (MAS) on the corridor to their 1999 levels. Since 1999, CSX has significantly reduced passenger train speeds along the route. In total, these and other speed reductions add approximately 80 minutes to the running time between New Orleans and Jacksonville, versus when Amtrak last operated on the route. See Table 3 to compare the service running times and average speeds for 1999, 2005, and the schedule proposed in 2015.

Amtrak has recognized the need to work with CSX to jointly assess intercity passenger rail service restoration and reach an agreement on the equitable distribution of costs for improvements to increase passenger service operating speed levels.

In terms of capacity improvements, Amtrak supports a phased approach after service is restored. Initial phases would include improvements that provide routes around major rail yards to increase speed and minimize risk of delays and provide flexibility for meets between opposing Amtrak trains. Subsequent phases would involve improvements that would facilitate meets and overtakes between Amtrak and freight trains. After Gulf Coast service is restored, the process of identifying exact infrastructure improvements would involve a more in-depth review of the existing infrastructure and be informed by actual experience. See Amtrak's November 10, 2016 letter to FRA in Appendix A for more details on their recommendation.

FRA EVALUATION

Following the February 8, 2017 Technical Group meeting, FRA, Chair of the GCWG, took action, independent of the HDR modeling analysis, to identify the infrastructure improvements that FRA considered necessary for passenger rail service. In particular, service between New Orleans and Mobile was considered crucial to the time competitiveness of a state-supported day train between the two cities. FRA identified improvements by reviewing and analyzing CSX's track charts, outputs from CSX's model that shows the freight activity along the corridor (i.e., string line diagrams), and recent aerial photos of the corridor.

Improvements identified for CSX's infrastructure were divided into two segments:

- New Orleans to Mobile: This segment would host two daily trains in each direction—a long-distance train operating between New Orleans and Orlando, plus a state-supported train operating between New Orleans and Mobile; and
- Mobile to Orlando: This segment would host only the daily long-distance train operating between New Orleans and Orlando.

4.5.2.3 FRA IDENTIFIED IMPROVEMENTS

This section outlines the improvements FRA identified for enhancing the operations of passenger trains on the corridor without unreasonably impairing freight operations. Aside from the passenger station related improvements, most of the proposed improvements for the restoration of passenger service from New Orleans to Orlando will benefit both the freight operations and the proposed passenger service. Improvements including, but not limited to, additional yard bypass tracks, improvements to passing sidings, and addition of higher speed turnouts to existing siding tracks, will help the rail freight services as well as accommodate the passenger service.

Developing this list into an implementation plan that finalizes how the proposed improvements will be advanced will require additional operations analysis and discussions among CSX, Amtrak, and the SRC. Where appropriate, the locations of proposed improvements are noted by railroad milepost (MP) and city location, and are shown on the maps in Figure 5. For additional context, see Appendix L.

PASSING SIDINGS

The Gulf Coast Corridor is largely a single track railroad. Adding passing sidings will allow trains traveling in opposite directions to pass one another or allow a faster train, such as a passenger train, to overtake and pass a slower train.

Many of the passing sidings on the Gulf Coast Corridor require upgrading for one or more of the following reasons:

- Siding is too short to accommodate most freight trains;
- Location of sidings is based on current freight operations, not on additional passenger service;
- Small turnouts leading to a siding significantly reduce operating speeds;
- Siding is not signaled, restricting speed to 15 mph; and
- Siding contains a highway grade crossing, which restricts the ability to stop long trains in the siding.

Identified Improvements:

- MP 780.4.4 to MP 781.9, Lake Catherine, LA: Replace No. 15 turnouts with No. 20 turnouts, modify signals, and upgrade track to permit high speeds.
- MP 766.3 to MP 768.1, Magnolia Ridge, MS: Replace No. 15 turnouts with No. 20 turnouts, modify signals, and upgrade track to permit higher speeds.
- MP 764.2, East of Ansley, MS: Install new 10,000-foot passing siding that will also allow switching of local industry without blocking the main line.
- MP 745.1 to MP 746.9, White Harbor, MS: Re-align and extend siding, and replace No. 15 turnouts with No. 20 turnouts, modify signals, and upgrade track to permit higher speeds.
- MP 730.3 to MP 731.9, Beauvoir, MS: Replace No. 15 turnouts with No. 20 turnouts, modify signals, and upgrade track to permit higher speeds. Also includes closing of Iris Street crossing in middle of siding.
- MP 709.9 to MP 711.4, Gautier, MS: Replace No. 15 turnouts with No. 20 turnouts, modify signals, and upgrade track to permit higher speeds.
- MP 699.4 to MP 701.2, Orange Grove, MS: Replace No. 15 turnouts with No. 20 turnouts,

modify signals, and upgrade track to permit higher speeds.

- MP 685.6 to MP 687.4, St. Elmo, AL: Replace No. 15 turnouts with No. 20 turnouts, modify signals, and upgrade track to permit higher speeds.
- MP 669.7 to MP 671.8, Mobile, AL: Replace No. 15 turnouts with No. 20 turnouts, modify signals, and upgrade track to permit higher speeds.

GRADE CROSSINGS

Existing public highway grade crossings in the corridor are equipped with different types of protection. Many are protected by flashing lights and/or gates that are automatically activated by the approach of a train. Private roads have only warning signs (crossbucks) or standard stop signs, relying on the motorist to watch for the approach of a train. Grade crossings are a source of numerous concerns:

- Crashes: Motorists can ignore flashing lights, drive around gates, or fail to stop or yield to an oncoming train, resulting in a collision between a vehicle and a train that may cause injuries and/or fatalities, damage to vehicles and trains, damage to infrastructure, and extensive delays to trains.
- Operations: To avoid blocking a highway grade crossing for extended periods of time, trains may restrict operations, such as switching and occupying sidings that have grade crossings.
- Maintenance and Inspection: Crossing protections need periodic inspection and maintenance.
- Ride Quality: A sudden change in track condition at grade crossings can often be felt by passengers on trains traveling at higher speeds.
- Speed Restrictions: Restricting the speed of trains through grade crossings may be necessary or may be requested by the local municipality.

The Gulf Coast Corridor includes a large number of grade crossings. Some have a history of frequent accidents, are closely spaced, and/or restrict switching operations and use of sing tracks. Proposed improvements will require proper coordination with the respective State Department of Transportation and local jurisdiction.

Identified Improvements:

- MP. 799.3, New Orleans, LA: Remove crossing at Old Gentilly Road, which could improve switching of Gentilly Yard and reduce blockage of main track by switching operations when combined with additional track capacity.
- MP 795.2, New Orleans, LA: Remove Michoud Boulevard grade crossing. This will provide CSX with an additional length of track to park freight trains, allowing passage of passenger trains on main track.
- West of Bay St. Louis: Remove two grade crossings to allow use of second track as passing track.
- West of Gulfport through Biloxi: Out of 14 crossings in a 20-mile stretch, remove three and upgrade warning signals at two others to potentially allow removal of voluntary 45 mph speed restriction, subject to further study by CSX. FRA will need to coordinate an onsite grade crossing diagnostic team for the two locations slated to be upgraded. Team members should include (but not be limited to) state and local officials, the railroad and its signal consultants, emergency personnel, and any other stakeholders.
- Mobile: Close three lightly used and closely spaced crossings to improve operational

flexibility.

YARD BYPASS TRACKS

Yards are used for assembling and disassembling trains, and sorting and storing of rail cars. They may also have facilities for servicing and fueling locomotives, minor car repair, and changing of crews. While most yard facilities are separate from main tracks, they can impact traffic on main tracks by trains pulling into and out of the yard, and in some locations, due to site limitations, require using main tracks for assembling and disassembling trains and/or for pushing and pulling strings of cars to and from yard tracks.

Operations at Gentilly Yard on the east side of New Orleans, Bayou Cassotte Yard in Pascagoula, and Sibert Yard in Mobile frequently block main tracks for extended periods, which would impede the passage of passenger trains.

Identified Improvements:

- Gentilly Yard in New Orleans: Construct a new, fully signaled bypass track around Gentilly Yard in New Orleans for passenger trains on the north side of the existing main line for approximately two miles with No. 20 turnouts at each end.
- Bayou Cassotte Yard in Pascagoula: Install approximately 21,000 feet of fully signaled passing track with No. 20 turnouts to allow passenger trains to bypass freight trains stopped for switching on the main track. As of March 2017, the Port of Pascagoula is working on a TIGER 2013 funded project that includes rail improvements (i.e., new rail track) in the same vicinity as this proposed passing track, east of the yard. Although construction has not started yet, CSX and Amtrak will need to coordinate with the Port to see if design modifications can be made so both projects can be built to meet the needs of each entity.

INTERLOCKING IMPROVEMENTS

Interlockings are locations where there are remotely controlled turnouts, crossovers, diamond crossings, and other special track work that is fully signalized. The interlocking primarily assists with moving trains to different tracks.

Identified Improvements:

- Gulfport, MS: Revise the interlocking where KCS trains cross CSX track to give CSX priority control for expediting passenger trains.
- Theodore, AL: Replace hand thrown turnouts with interlocked remote control powered turnouts to expedite freight movements to and from the Theodore Industrial track, reducing freight train occupancy time on the main track.
- Mobile, AL: Interlock and remote control the interlocking where CN trains cross CSX track to give CSX priority control for expediting passenger trains.

MOVABLE BRIDGES

Movable bridges, whose jurisdiction is under the U.S. Coast Guard (USCG), are those that do not have enough clearance above the water to allow passage of many types of boats. Thus, they must be opened by raising or swinging out of the way to allow passage of marine vessels.

To prepare for any potential challenges with any of the bridges' open/close cycle time, the USCG described their drawbridge operating regulation procedure for requesting modifications to bridge movements for train crossings in an October 3, 2016 letter to Senator Roger Wicker, see

Appendix M. With an understanding that the modification process is not guaranteed, this topic will need to be further explored by some of the GCWG members for the restoration of passenger service.

FRA's only recommendation for the moveable bridges is concerning the miter rails. When a movable bridge closes, it must be locked in position with the rails on the movable part of the bridge precisely aligned with the rails on the fixed part of the bridge. To ensure proper alignment is maintained, special miter rails are required. The type of miter rails impacts the allowable speed of trains. The type of miter rail used at most of the CSX bridges currently restricts train speeds.

Identified Improvements:

Upgrade to the miter rails and perform a structural analysis to potentially permit faster speeds at the following movable bridges:

- MP 787.3, Chef Menteur
- MP 775.3, Rigolets
- MP 768.8, Pearl River
- MP 753.0, Bay St. Louis
- MP 724.4, Biloxi Bay
- MP 706.8, Pascagoula River

IDENTIFIED (PROPOSED) NEW STATIONS - FOR FURTHER CONSIDERATION

As part of the Service Level for Ongoing Operations category of investments, FRA recommends that Amtrak and the cities of Mobile, AL and Jacksonville, FL consider the addition of two new stations as part of a long-term strategy to help encourage additional ridership. The basis for the recommendation is described further within each city's section below. The planning and design of new stations would need to follow the respective city's land development process as well as applicable state and federal regulations. In addition, new stations are considered a modification of service under the Amtrak-CSX contract, requiring a joint planning process between the two parties.

Proposed Suburban Station West of Mobile:

To improve access to the passenger service from suburban points north, northwest, and southwest of Mobile, FRA recommends that the City of Mobile consider a park and ride station with convenient highway access. This station would be in addition to restoring the downtown Mobile station, and it would eliminate the need for suburban passengers to drive 6-10 miles east to that station in order to travel west on the train. The proposed location is a site at the intersection of the railroad with Highway Route 193, which passes over the railroad. The site is near to full interchanges with I-10 and US 90, with an existing frontage road providing access to the site. The station would have a 300-foot platform adjacent to the existing main track, plus parking for 150 cars. On other passenger routes around the U.S., properly located suburban stations (a.k.a., beltway stations) have attracted ridership beyond what was expected in the planning stages.

Proposed Additional Jacksonville Station:

The existing Jacksonville station is located north of a direct route for a train traveling between New Orleans and Orlando. To serve this station, the train would have to make a 3-mile detour

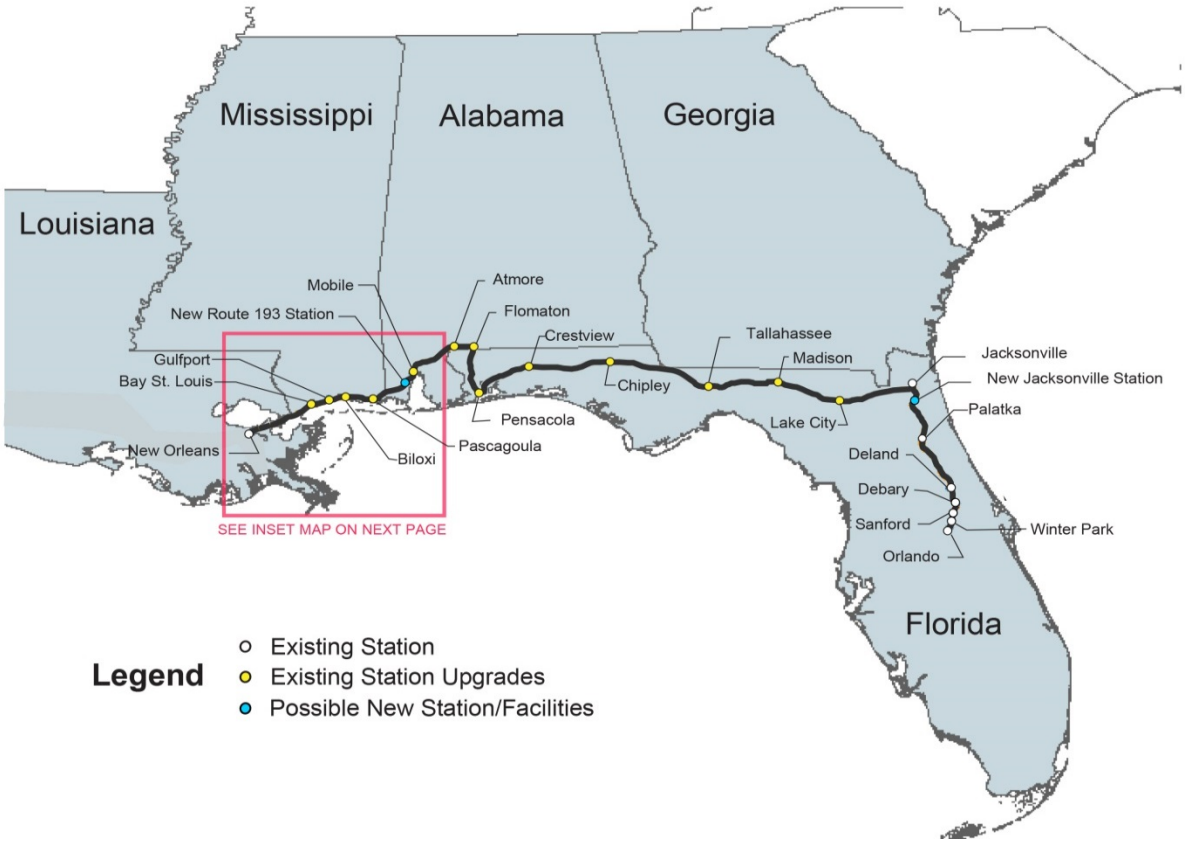
through a very congested freight switching area and reverse direction on a wye track with a backup move. The detour and backup move is estimated to require 23 additional minutes of schedule time and would likely be subject to additional delays due to freight train activity.

FRA recommends that the City of Jacksonville consider an additional station that could be located on the southwest side of Jacksonville. The new station would improve access to some suburban areas and could also be served by existing Amtrak trains. Furthermore, the station would incorporate a simple platform and canopy with vehicular access and parking, and is not intended to replace the existing Jacksonville station, which would require more extensive facilities.

MOBILE STATION TRACK

A daily round trip train operating from New Orleans to Mobile will need a place to park in Mobile during the middle of the day. A 1,000-foot track on the west side of the existing Mobile station platform and connected to the main track with a fully signaled and interlocked No. 10 turnout is proposed.

Figure 5 – Maps of FRA's Identified Improvements



IMPROVEMENTS REQUIRING FURTHER CONSIDERATION:

PTC and Signal Systems:

Based on the information provided in Section 3.1.2.1, CSX and Amtrak will need to further assess the traffic levels, precise volume of poison- or toxic-by-inhalation hazardous materials transported over each territory along the corridor, and precise beginning and end points where passenger service would be provided for a final determination on the needs and costs for PTC and any associated signal system installation, in accordance with federal law. Once the specific passenger service beginning and end points have been determined, Amtrak and CSX can detail the PTC project needs and submit to FRA, for review and approval, a request for amendment to CSX's PTC Implementation Plan, as explained in Section 3.1.2.1.

The total cost for fully implementing a PTC system on the Gulf Coast Corridor, including costs for PTC system installation, deployment, operation, and ongoing maintenance, is not yet known. PTC installation costs are very specific to each territory; as such, more detailed planning and design work is needed to develop an estimate for the Gulf Coast route. An initial projected cost range based on the experience of other railroads across the country shows that installing PTC could cost between $200,000 and $850,000 per track mile where PTC is required. The exact cost per mile is highly dependent upon many factors, including, but not limited to, the amount of work required to bring the supporting signaling infrastructure to an adequate state of

repair and/or installation of a supporting signal system to support the proposed method of operations, which has not been determined yet. As mentioned in Section 3.1.2 and shown in Figure 2, there is no signal system between Flomaton, AL and Tallahassee, FL.

Amtrak and CSX also provided preliminary PTC installation cost estimates during the process of preparing this Report. Amtrak's preliminary PTC installation cost estimate is $50 million, and it has indicated the AAR's industry average is $170,000 per mile, which includes costs for research and development and equipping locomotives with a PTC system. Furthermore, CSX provided a $93 million preliminary estimate for the cost of installing a PTC system, including signal upgrades. The varying cost estimates are likely based on PTC installation projects that do not require the installation of a base signal system because it already exists.

4.5.2.4 FRA IDENTIFIED IMPROVEMENTS FOR CSX LINE AND ORDER OF MAGNITUDE CAPITAL COSTS

For the New Orleans to Mobile daily state-supported train and the New Orleans to Orlando daily long-distance train, FRA identified infrastructure improvements for the CSX-owned line at two levels to illustrate the differences in capital needs and costs: 1) Minimum needed for passenger rail service; and 2) Service level for ongoing operations. The infrastructure improvements comprising each level and their estimated costs are shown in Table 5.

MINIMUM NEEDED FOR PASSENGER RAIL SERVICE

These improvements are primarily comprised of station improvements that are needed to restore passenger service. This investment level would support the long-distance train only since the proposed restoration of the long-distance service is very similar to the suspended *Sunset Limited* operations between New Orleans, LA and Orlando, FL.

SERVICE LEVEL FOR ONGOING OPERATIONS

These improvements include the addition of signals, larger turnouts, and track upgrades for increased speeds in and out of passing tracks in order to improve overall capacity and expedite all train movements, installation of new miter rails on moveable bridges, grade crossing improvements, yard improvements, and other projects. These improvements are intended to enhance the reliability and reduce the trip time of passenger trains. The effectiveness of the improvements for on-time performance has not been validated as part of this Report and is recommended as a next step. Moreover, these improvements are targeted to support the addition of the state-supported train as it would operate during the daytime (also based on the schedule in Amtrak's 2015 report) when freight traffic between New Orleans and Mobile is higher.

The order-of-magnitude capital costs incorporated the following list of assumptions:

- Design and construction management (CM) costs were each calculated as percentages of the program subtotal (10% and 5%, respectively).
- Unallocated Contingency of 35% was included.
- Costs are in 2016 dollars and do not account for escalation to the time period when construction would occur.
- For grade crossing closures, it was assumed that in all cases the "most reasonable" approach would be taken, recognizing that there may be local opposition to a crossing closure.
- The ownership of right-of-way that may be required to implement the improvements was not considered, and real estate/property acquisition costs have not been included.

- The CSX Timetable speed restrictions (via the Train Performance Calculator output) were used to determine track class and crossing systems/software, and to provide backup for other assumptions. The majority of the main line track was determined to be Class 4 track (60 mph max speed for freight, 80 mph max speed for passenger); therefore, no improvements are included.
- It was assumed that track could be upgraded from Class 2 track (25 mph max freight, 30 mph max passenger) to Class 3 track (40 mph max freight, 60 mph max passenger) on many existing sidings by making improvements rather than replacing the track structure (for a much lower cost). Actual site surveys may reveal that track may, indeed, need to be replaced.
- It was assumed that all environmental, National Environmental Policy Act (NEPA), and related clearances can be obtained, but this may be difficult with some of the work that is required, particularly in the wetland regions. The cost estimates do not include any environmental or hazardous material removal or mitigation costs.

The capital needs for each line segment (New Orleans to Mobile, and Mobile to Orlando) and their associated order-of-magnitude capital cost are summarized and provided in Table 5. These are initial cost estimates; preliminary engineering and design is needed for more accurate and detailed cost estimates. Supporting capital cost documentation for Table 5 is provided in Appendix L.

Table 5 – Capital Cost Summary - FRA's Identified Improvements

Costs shown are in 2016 dollars.

Project Element	New Orleans to Mobile		Mobile to Orlando*		Subtotals		Total
	Minimum Needed for Passenger Rail Service	Service Level for Ongoing Operations	Minimum Needed for Passenger Rail Service**	Service Level for Ongoing Operations	Minimum Needed for Passenger Rail Service	Service Level for Ongoing Operations	
Planning & Project Development							$5,000,000
Siding Improvements		$45,880,000				$45,880,000	$45,880,000
Grade Crossings		$2,604,000				$2,604,000	$2,604,000
Yard Bypass Tracks		$28,036,000				$28,036,000	$28,036,000
Interlocking Improvements		$6,892,000				$6,892,000	$6,892,000
Movable Bridge Miter Rails		$7,277,000				$7,277,000	$7,277,000
Upgrade Existing Stations	$3,478,000		$4,342,000		$7,820,000		$7,820,000
New Station W. of Mobile		$4,192,000				$4,192,000	$4,192,000
Mobile Station Track	$1,898,000				$1,898,000		$1,898,000
Jacksonville Terminal				$8,073,000		$8,073,000	$8,073,000
Totals**	**$5,376,000**	**$94,881,000**	**$4,342,000**	**$8,073,000**	**$9,718,000**	**$102,954,000**	**$117,672,000**

** Infrastructure improvements end in Deland, FL*

***Positive Train Control (PTC) & base signal system installation needs and costs from Flomaton, AL to Jacksonville, FL and Flomaton, AL to Tallahassee, FL, respectively, have not been determined by the time this report was finalized. The installation of PTC could significantly increase the service restoration costs.*

5 IMPLEMENTATION

5.1 FRA IDENTIFIED PROGRAM OF IMPROVEMENTS

FRA's identified program of improvements for consideration and associated capital costs are described below. The O&M costs associated with the state-supported, corridor train, and the long-distance train, are described as well. The O&M costs are of particular significance because Amtrak projects the two services to yield annual incremental operating losses; both federal and/or non-federal (state and/or local) funding sources will need to be identified prior to the restoration of passenger service.

5.1.1 OPERATIONS AND MAINTENANCE (O&M) COSTS

Amtrak's 2015 report contains estimated passenger revenue and O&M costs[10] for the service along the entire route from New Orleans to Orlando (Alternative A1 in Section 4.2.2, without the additional round trip between New Orleans and Mobile) to yield an annual incremental operating loss of $5.48 million. If operated as a standalone service, the operation between New Orleans and Mobile (Alternative A1 subtracted from Alternative A in Table 2) would yield an annual incremental operating loss of $4 million, due primarily to the reduction in passenger volume and other sources of revenue. The combined service (Alternative A in Section 4.2.1) would yield an annual incremental operating loss of $9.49 million.

Amtrak's estimated revenues and O&M costs for restored passenger rail service are based on the corridor's 1999 operating speeds, which were faster than the rail infrastructure currently allows, and do not incorporate any rail infrastructure improvements. As such, additional analysis of the revenues and O&M costs is recommended.

In addition, ongoing capital lifecycle costs, including PTC system maintenance, have not been estimated as part of the evaluation for this Report. Lifecycle costs should be assessed as a next step when more detailed planning efforts are underway.

5.1.2 SUMMARY OF STATION, INFRASTRUCTURE & OTHER IMPROVEMENT COSTS

FRA's recommended capital improvements for restoring passenger rail service are discussed in Sections 4.5.2.3 and 4.5.2.4. The suggested approach would be to first implement the minimum improvements needed to restore service, to be followed by the service level for ongoing operations improvements as additional funding becomes available. The total estimated amount of capital investment for the recommended improvements that will be required is $117.67 million in 2016 dollars, and includes the elements shown in Table 6.

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[10] Assumptions from 2015 Amtrak report: the financial forecasts based in the evaluation reflect updated base cost data from more recent system-wide cost experience, and identifies and prices state-supported service under the PRIIA 209 methodology. Methodology: In order to forecast the operating results for the proposed Gulf Coast services, including PRIIA 209 methodology pricing, Amtrak Market Research and Amtrak Finance relied on modeling processes consistent with those used for studies of other service changes throughout the Amtrak system.

Table 6 – Capital Cost Summary by Phased Implementation

Project Element	Minimum needed for passenger rail service *	Service level for ongoing operations	TOTAL
Planning and Project Development	$ 5,000,000		$ 5,000,000
Station Improvements	$ 7,820,000		$ 7,820,000
New Station/Terminal	$ 1,898,000	$ 12,265,000	$ 14,163,000
Infrastructure Improvements		$ 90,689,000	$ 90,689,000
TOTAL	$ 14,718,000	$102,954,000	$ 117,672,000

** Positive Train Control (PTC) & base signal system installation needs and costs from Flomaton, AL to Jacksonville, FL and Flomaton, AL to Tallahassee, FL, respectively, have not been determined by the time this report was finalized. The installation of PTC could significantly increase the service restoration costs.*

5.2 FUNDING

A key challenge to implementing the restored passenger rail service will be securing the necessary funds for both capital improvements and sustained financial support to cover projected operating losses. At this time, specific source(s) of funds have not been identified to cover the projected operating losses identified above.

An estimate of capital funding needs to implement the identified improvements over the course of the next five years has been projected and is shown in Table 7 below.

Table 7 – Five-Year Funding Plan for FRA's Identified Improvements

Costs shown are in 2016 dollars. For planning purposes, FRA assumes a federal share of 80% and non-federal share of 20%.

	Planning and Project Development		Minimum Needed for Passenger Rail Service*				Service Level for Ongoing Operations					
			Year 1		Year 2		Year 3		Year 4		Year 5	
Project Element	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal
Planning & Project Development	$4,000,000	$1,000,000										
Stations			$3,887,200	$971,800	$3,887,200	$971,800	$3,270,667	$817,667	$3,270,667	$817,667	$3,270,667	$817,667
Infrastructure & New Stations							$24,183,733	$6,045,933	$24,183,733	$6,045,933	$24,183,733	$6,045,933
Annual Totals	**$4,000,000**	**$1,000,000**	**$3,887,200**	**$971,800**	**$3,887,200**	**$971,800**	**$27,454,400**	**$6,863,600**	**$27,454,400**	**$6,863,600**	**$27,454,400**	**$6,863,600**

** Positive Train Control (PTC) & base signal system installation needs and costs from Flomaton, AL to Jacksonville, FL and Flomaton, AL to Tallahassee, FL, respectively, have not been determined by the time this report was finalized. The installation of PTC could significantly increase the service restoration costs.*

The following section outlines potential or existing sources of funding that can be considered to support the restoration of passenger rail service.

5.2.1 LOCAL FUNDING

5.2.1.1 LOCAL MATCH TO FRA GRANTS

Several communities along the suspended service route in Louisiana, Mississippi and Alabama will invest local dollars to match federal funds to complete a variety of planning studies and construction projects. The SRC and FRA are using the $2.45 million in FY 2006 Gulf Coast High Speed Rail Corridor earmark funds to set up railroad planning and development grants. The grant will require a 50% cash match, and the SRC has received commitments from the

potential grant recipients to supply the full match for their respective project(s).

5.2.1.2 OTHER LOCAL FUNDING INITIATIVES

The City of Live Oak, FL does not currently have a passenger station, but has expressed strong support for one. The Suwanee County Economic Development Office, a GCWG member, has identified $2.5 million that is available for potential platform and passenger station facilities.

5.2.1.3 BP OIL SPILL SETTLEMENT PROCEEDS

In April 2010, BP's offshore oil rig *Deepwater Horizon* (off the Louisiana Coast) exploded, sending millions of gallons of oil into the Gulf of Mexico. Following a number of lawsuits, a $20 billion settlement was reached, providing funds to the five affected Gulf Coast states (Texas, Louisiana, Mississippi, Alabama and Florida) and localities to address environmental damage and other claims. The spill restoration funding is accessed through multiple sources, each having its own requirements and limitations on use of the monies. Only two sources offer opportunities for possible use in restoration and resilience investments, such as the restoration of passenger rail service. The sources are the Gulf states' economic damages settlement awards and certain funds under the Revived Economies of the Gulf Coast States Act (RESTORE Act) (included in the settlement).

Although no specific amount of funding has been identified from the settlement proceeds available to the Gulf States that might be directed toward possible eligible uses to support the proposed activities in this Report, this remains a viable source for potential future funding.

5.2.2 THE FAST ACT

The recently passed federal surface transportation authorization, the FAST Act, includes a passenger rail title. The passenger rail programs are not guaranteed to be funded at the authorized funding levels included in the Act, in contrast to most highway and transit programs. Rather, these rail programs must rely on the federal appropriations process to receive annual funds, if any. The FY 2017 appropriations act provides some passenger rail funding available as grants to states and local governments, which is the first time since 2010 that Congress has provided these entities with passenger rail funding. These grant programs will be awarded on a competitive basis according to the statutory requirements.

5.2.2.1 CONSOLIDATED RAIL INFRASTRUCTURE AND SAFETY IMPROVEMENTS (CRISI) PROGRAM

The CRISI program's (Section 11301 of the FAST Act) purpose is to improve the safety, efficiency, and reliability of passenger and freight rail systems. This program did receive $68 million in the FY 2017 appropriations act.

5.2.2.2 RESTORATION AND ENHANCEMENT (REG) PROGRAM

The REG program (Section 11303 of the FAST Act) provides up to six operating assistance grants to support initiated, restored, or enhanced intercity passenger rail transportation. This program received $5 million for operating costs in the FY 2017 appropriations act.

5.2.2.3 FASTLANE GRANTS

The FASTLANE program (Section 1105 of the FAST Act) authorizes funding for critical freight and highway projects across the country. Projects are selected by the Secretary of Transportation on a competitive basis. The program limits funding to multi-modal non-freight highway projects

to $500 million over the life of the FAST Act, which expires in 2021. These funds are guaranteed on an annual basis, unlike passenger rail programs.

5.2.3 TIGER GRANTS

TIGER grants are another federal funding source that the SRC and the Gulf States are familiar with through past applications. To date, roughly $500 million has been appropriated annually for capital investments in surface transportation infrastructure of all sorts.

5.2.4 HIGHWAY-RAIL GRADE CROSSINGS

The Federal Highway Administration (FHWA) administers the Railway-Highway Crossings (Section 130) Program. According to FHWA's website, "[the] Program provides funds for the elimination of hazards at railway-highway crossings. The Section 130 Program has been correlated with a significant decrease in fatalities at railway-highway grade crossings." The Program funds are apportioned to states by formula, and serve as a potential funding source.

The following section is a summary of the Alabama DOT's and Louisiana Department of Transportation & Development's (DOTD) Section 130 Program.

5.2.4.1 ALABAMA DOT

The Alabama DOT's (ALDOT) Section 130 Program is a 100% federally funded program dedicated to reducing crashes, injuries and deaths at highway-rail grade crossings. The Section 130 Program initiates railroad safety projects that provide for the construction and installation of active warning devices at high-risk rail-highway grade crossing locations throughout the State of Alabama. In FY 2016, the ALDOT initiated 19 projects at an estimated cost of $5.8 million.

Alabama has approximately 2,748 public highway-rail grade crossings. Forty-eight percent of these grade crossings have active warning devices (signals, bells, and gates), and the remaining rail-highway crossings are equipped with passive warning devices.

The ALDOT uses the U.S. DOT/AAR Accident Prediction Formula Index (Index) to establish the potential risk of a crossing and to determine which rail-highway grade crossings to select for safety improvements using Section 130 funds. This Index is used nationally by several states to rank rail-highway crossings. On average, Alabama experiences about 70 crashes between trains and vehicles each year, resulting in 35 injuries and seven to eight fatalities.

On an annual basis, ALDOT selects the top 20 highway-rail grade crossing locations from the U.S. DOT/AAR Accident Prediction Formula Index. The scope of work generally consists of installing active and passive warning devices at each highway-rail grade crossing location listed. Once the Phase Document is approved by FHWA, ALDOT will initiate, process, and complete projects at each location to install warning devices.

5.2.4.2 LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT (DOTD)

Louisiana has approximately 2,800 public at-grade crossings (open to the public and road approaches are maintained by the DOTD, Parish [similar to counties] or a municipality). Over 50% of these Louisiana public at-grade crossings have railroad active warning devices (railroad flashing lights with or without gates).

Louisiana DOTD has a Railroad Safety Program to fund about $8 million of railroad safety projects each year. This uses the 130 Program funds and other federal funds to accomplish this effort. Louisiana DOTD uses the FRA Accident Prediction System (APS) to initially rate

crossings based on inventory data. The highest APS crossings (the top 200 plus a few over 200), and those crossings with at least two collisions within five years per FRA collision data, go through an additional review by DOTD railroad safety personnel to determine proposed railroad safety projects. Some of the recommended railroad safety projects will include multiple crossings to be upgraded.

5.2.5 RRIF/TIFIA PROGRAMS

The U.S. Department of Transportation's Build America Bureau oversees innovative financing tools for the agency—such as the TIFIA and RRIF Programs, which provide low-interest loans for capital improvements to eligible borrowers who meet credit worthiness criteria. The TIFIA programs' project cost floors have been lowered to $10 million for station/transit area development/local projects in the FAST Act and may be a viable option for service restoration and eligible capital work.

5.3 NEXT STEPS

There are a number of critical next steps that will need to be addressed in order to progress the restoration of passenger rail service in the Gulf Coast Corridor within a reasonable timeframe, as discussed below.

5.3.1 VERIFY RECOMMENDED IMPROVEMENTS

CSX, Amtrak, FRA, and the SRC will need to hold collaborative meetings to verify and detail the recommended improvements. Capital improvements need to be confirmed for the New Orleans to Mobile, AL segment due to the higher volume of freight operations between these cities compared to points east. For these discussions to be productive, a certain level of conceptual engineering will need to be completed to identify fatal flaws and gain confidence in the proposed improvements.

5.3.2 CONFIRM PTC REQUIREMENTS

As previously mentioned, PTC system implementation is required on main line track where intercity or commuter rail passenger service is regularly provided, in accordance with federal law. The costs for implementing a PTC system on the tracks from Flomaton, AL to Jacksonville, FL, or any segment thereof, and equipping locomotives will need to be determined by CSX and Amtrak, if passenger service is restored. The full implementation of a PTC system could significantly increase the service restoration costs.

5.3.3 EVALUATE SAFETY AT GRADE CROSSINGS

5.3.3.1 PROPOSED GRADE CROSSING STUDY

Highway-rail grade crossing safety is an important topic for State DOTs and local communities. To evaluate grade crossing improvement needs along the Gulf Coast Corridor, local stakeholders and State DOTs should determine if a grade crossing study is needed. The study could evaluate installing active warning devices, upgrading active warning devices, improving roadway approaches (including elimination of "humpback" crossings capable of hanging up low-profile vehicles), and closing crossings.

5.3.3.2 MISSISSIPPI RAILROAD CORRIDOR WORKING GROUP

The Mississippi Railroad Corridor (MRC) Working Group is an example of a grade crossing safety effort that is underway. In 2016, the Gulf Regional Planning Commission (GRPC) formed

the MRC Working Group as an initiative under its ongoing transportation safety program in support of advancing multi-modal transportation options. The GRPC serves three counties (Hancock, Harrison and Jackson) and 12 cities of the Mississippi Gulf Coast. The MRC Working Group's efforts are funded by the GRPC's FHWA/Federal Transit Administration's MPO Planning funds and local match.

The MRC Working Group has hosted discussions focused on safety and the need for cooperation to achieve zero loss of life. The MRC Working Group has also met with CSX regarding highway grade crossing upgrades and closures. Ongoing discussions have included the CSX corridor; in particular: 1) identifying the condition of highway grade crossings across the three counties; 2) improvements to increase the safety and efficiency of the CSX rail corridor; 3) determining if safety improvements are practical and feasible; and 4) identifying resources to assist the local governments to make the safety improvements.

Furthermore, members of the MRC Working Group have noticed acceptance from the public on closing crossings. In 2017, GRPC launched an initiative to create a programmatic approach for the safety and security of the entire CSX rail corridor. Once the group becomes more established and schedules regular meetings, this initiative could expand to include the entire Gulf Coast Corridor.

5.3.4 NEPA ENVIRONMENTAL REVIEW

The infrastructure improvements recommended for the restoration of passenger rail service will require compliance with NEPA if federal funds are used. Section 102 of NEPA requires federal agencies to incorporate environmental considerations in the planning and development of new initiatives. There is a general hierarchy to the assessment of environmental impacts, beginning with consideration for a Categorical Exclusion (CATEX). Projects that do not have a significant impact can be categorically excluded from a detailed environmental analysis. If a CATEX does not apply, then an Environmental Assessment (EA) may be required. An EA discusses the need for a project, alternatives considered, and any environmental impacts that may ensue. If a project is found not to have a significant impact on the environment, a Finding of No Significant Impact is made. If the EA determines that a project will yield significant environmental impacts, then an Environmental Impact Statement (EIS) is prepared. The regulatory requirements for an EIS are more detailed and rigorous than those required for an EA.

5.3.5 EXECUTE NECESSARY AGREEMENTS

In order to operate passenger service on CSX's line from New Orleans to Deland, Amtrak must have an operating agreement with CSX. Similarly, from Deland, FL to Orlando, FL, Amtrak will need to establish an operating agreement with SunRail.

For the existing passenger stations, the legal status of leasing and ownership needs to be determined by the respective local government, Amtrak, and/or CSX. In particular, if any agreements were in place in 2005, all parties need to know if those agreements are still valid. If a new station is built or if a station is relocated, agreements also need to be established to determine ownership and leasing responsibilities.

5.3.6 APPLICATION OF POTENTIAL FUNDING

While capital costs and potential funding sources have been identified in this Report, adequate funding will be necessary for continuing the work started by the GCWG and returning passenger

rail service to the Gulf Coast Region. In addition, a stable and ongoing funding source will be required for the service's O&M costs.

5.3.6.1 REQUEST FOR FUNDING:

The short-term (years 2017-2020) items include:

- Additional planning such as modeling and project development (including NEPA/environmental studies);
- Design/Engineering;
- Rehabilitation of existing stations;
- Refurbishing of rolling stock; and
- Construction of initial capital improvements

The long-term items include:

- Construction of new stations (which will need to go through the respective city's development process and Amtrak's process); and
- Construction of ongoing capital improvements.

5.3.7 IDENTIFICATION OF REAL ESTATE REQUIREMENTS & DEVELOPMENT OPPORTUNITIES

The possible addition of one or more new stations and new infrastructure may require property acquisition and/or easements from existing property owners. Therefore, real estate needs will need to be assessed, along with the identification of associated costs. Development opportunities and public-private partnerships to construct these new facilities will also be explored.

5.3.8 OTHER RECOMMENDATIONS

5.3.8.1 EXTEND LONG-DISTANCE SERVICE TO TAMPA, FL

The possible extension of passenger rail service beyond Orlando to Tampa has been recommended for consideration. Ending the line at the existing terminus in Orlando presents several challenges for Amtrak to service trains at this location. Trains would need to turn on a wye at Stanton (8.4 miles south of Orlando), travel back north to Sanford for servicing and turning on a wye there, then return south and turn again on the wye at Stanton, and finally move north to the Orlando station to begin the trip to New Orleans, a process that would add time for the train crew. Extending the train to Tampa would encourage additional ridership while avoiding the challenging turning moves in Orlando. This alternative would have to be studied to understand the associated capital and operating costs.

5.3.8.2 ASSESSMENT OF EXTENDING STATE-SUPPORTED SERVICE TO ATMORE, AL

This Report identifies the improvements needed to support an initial state-supported service between New Orleans and Mobile. However, there is strong local support for extending the state-supported train to Atmore. This extension needs further evaluation, particularly regarding identifying improvements in the Sibert Yard (Mobile) area and any potential increase to incremental operating losses and capital costs.

6 CLOSING STATEMENT

In the more than 10 years since Hurricane Katrina struck, Gulf Coast leaders and residents have made great strides in rebuilding businesses, communities, and infrastructure that connect cities across the region. In the last five years, more than $3 billion in private funds were invested in industrial, medical, IT, and aerospace sectors.

As mentioned earlier in this Report, during the next 30 years the Gulf Coast and Florida megaregion's populations are expected to increase by 10 million and 13.8 million, respectively. For the region to harness this projected population growth, it needs a multi-modal transportation system that provides transportation alternatives.