BEFORE THE
SURFACE TRANSPORTATION BOARD
DOCKET NO. FD 36496

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(e) – CSX TRANSPORTATION, INC. AND NORFOLK SOUTHERN CORPORATION

CSX TRANSPORTATION, INC.'S AND NORFOLK SOUTHERN RAILWAY COMPANY'S OPENING EVIDENCE

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Dated: November 3, 2021

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EXECUTIVE SUMMARY

Earlier this year, Amtrak unilaterally refused to renew an agreement with CSX Transportation, Inc. ("CSXT") and Norfolk Southern Railway Company ("NSR") to conduct a joint modeling study of a proposed new passenger service between New Orleans, Louisiana and Mobile, Alabama (the "Gulf Coast Corridor"), and instead chose to file an Application under 49 U.S.C. § 24308(e) and begin this litigation. At the time Amtrak filed its Application, Amtrak indicated that it would be making certain infrastructure improvements to support its proposed new service.[1] It has since declared that it should be allowed to immediately begin this passenger service on the Gulf Coast Corridor without funding any supporting infrastructure outside of passenger stations. Amtrak has provided no study that supports this position, instead asserting that it does not "believe we need more studies."[2]

Congress has made clear, however, that the Board may only order freight railroads to accept additional Amtrak trains under 49 U.S.C. § 24308(e) if those new passenger trains would not "impair unreasonably freight transportation." And this Board has made clear that, in applying § 24308(e), it "recognizes the importance of a

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[1] Amtrak suggested in its Application that it would fund the infrastructure projects set forth in Table 5 of the Gulf Coast Working Group's 2017 Report to Congress, *see* Application at 3 n.3, but more recently has claimed that no infrastructure improvements are required to support passenger service other than passenger station improvements.

[2] Madeleine Ngo, *An Obstacle to Amtrak Expansion That Money Won't Solve*, N.Y. TIMES (Aug. 6, 2021), https://www.nytimes.com/2021/08/06/us/politics/amtrak-expansion-freight.html (quoting Amtrak's Chief Executive Officer).

study that models—in the context of the line's present and future traffic volumes and engineering design and conditions—the specific service that Amtrak proposes in its application."[3] The Board specifically encouraged parties to submit "evidence on the service's potential effects on freight transportation, such as a RTC study or other study or studies" to "allow the Board to assess whether the proposed additional train service can proceed without impairing unreasonably freight transportation."[4]

CSXT and NSR are submitting the evidence that the Board requested. The 2021 Gulf Coast Rail Traffic Controller ("RTC") model and report—attached as Appendix A to the Joint Verified Statement Charles H. Banks and Larry R. Guthrie—was jointly developed by HNTB Corporation ("HNTB") and R.L. Banks & Associates, Inc. ("R.L. Banks") (collectively, HTNB and R.L. Banks, the "RTC Modelers"), using industry-standard techniques, conservative assumptions, and the same inputs provided for the joint RTC study that Amtrak unilaterally refused to renew. The model, along with the attached verified statements, demonstrates that Amtrak's proposal would impair unreasonably the freight transportation services that CSXT and NSR provide over the Gulf Coast corridor and potentially impair the freight services of other rail carriers who interchange traffic using the New Orleans gateway. The introduction of Amtrak service without the necessary infrastructure

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[3] Decision at 7, *Application of Nat'l Passenger R.R. Corp. Under 49 U.S.C. § 24309(e)—CSX Transp., Inc., & Norfolk S. Ry. Co.*, Docket No. FD 36496 (STB served Aug. 6, 2021) ("August 6 Decision").

[4] *Id.*

investments will cause substantial and immediate harm to the freight transportation that CSXT's and NSR's rail customers rely upon. The model examines "the specific service that Amtrak proposes in its [A]pplication,"[5] and is explained in detail below and in the Verified Statement of Charles H. Banks and Larry R. Guthrie and the Verified Statement of Hannah Rosse and Holly Sinkkanen.

The 2021 Gulf Coast RTC Model first confirms that CSXT and NSR have funded sufficient infrastructure on the Gulf Coast Corridor to accommodate current freight service and expected growth. Following standard practice, the RTC Modelers prepared a "base case" for 2019 that modeled existing freight traffic on the Gulf Coast Corridor with no passenger service. That 2019 base case shows that the existing infrastructure on the Gulf Coast Corridor is adequate to accommodate current freight service. Consistent with standard industry practice, the RTC Modelers also prepared a "base case" for 2039 that modeled projected growth in freight traffic for CSXT and NSR in 2039. That 2039 base case showed that the current infrastructure plus planned or anticipated additional freight infrastructure improvements will be sufficient to accommodate expected 2039 freight volumes.

When passenger trains are added to the 2039 Base Case with no supporting infrastructure, however, the result is a systematic failure in CSXT's and NSR's ability to provide freight service. In 2039, even accounting for already planned or

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[5] *Id.*

anticipated infrastructure investment to accommodate freight, the model cannot find a dispatching solution to accommodate passenger trains with no new infrastructure unless it permits freight trains to block grade crossings for two and a half hours.[6] Even more importantly, as shown in the 2039 Passenger Case, the proposed passenger service in 2039 "will increase freight delays by 20.4%, reduce freight train speeds by 4.5%, increase dispatching conflicts by 42.8%, increase recrews on CSX by 42.9%, and increase the variability of freight operations."[7] Notably, the 20.4% increase in freight delays reflects average degradation across all train types on both railroads. CSXT local trains would suffer far more service degradation, with delays increasing as much as 80% for some local trains. This would devastate first-mile last-mile service to freight customers in the region.

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[6] Ex. 2, Verified Statement of Charles H. Banks and Larry R. Guthrie ("Banks & Guthrie V.S."), App'x A – New Orleans – the Mobile Gulf Coast Passenger Service RTC Modeling Report ("2021 Gulf Coast RTC Report"), at 4, 32 (Exec. Summary, § 4.0).

[7] *Id.* at 5 (Exec. Summary), *accord id.* at 33 (§ 4.1).

2021 Gulf Coast RTC Report Table 11

Table 11: Change in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with Increased Grade Crossing Blockages

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[8]	% Change in Recrews
20.4% ↑	-4.5% ↓	42.8% ↑	-23.1% ↓	42.9% ↑

Source: *Id.* at 5 and 34, Table 11 (Exec. Summary, § 4.1).

The 2019 Passenger Case shows that in 2019, the situation is similar. If Amtrak's proposed passenger trains are added in 2019 with no additional infrastructure, "adding the proposed passenger trains . . . [will increase] freight delays by 22.7%, reduce train speeds by 4.5%, increase dispatching conflicts by 38.1%, increase recrews by 37.7%, and increase the variability of service."[9] As in 2039, local trains experience the greatest degradation.

[8] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

[9] *Id.* at 47 (§ 6.0).

2021 Gulf Coast RTC Report Table 19

Table 19: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[10]	% Change in Recrews
22.7% ↑	-4.5% ↓	38.1% ↑	33.6% ↑	37.7% ↑

Source: *Id.* at 45, Table 19 (§ 6.0).

The results of the 2021 Gulf Coast RTC Model flow directly from the physical and operational realities of the Gulf Coast Corridor.

First, the physical limitations of the Gulf Coast Corridor are unique compared to other lines over which Amtrak operates. The Gulf Coast Corridor is directly impacted by 13 movable bridges (seven of which are located on the proposed Amtrak route between New Orleans and Mobile), which are required by federal regulation to be opened at unpredictable times and for extended periods and for multiple times per day.[11] Moreover, the Gulf Coast Corridor is primarily single track, with passing sidings that frequently intersect with highway-rail grade crossings. While current freight-only operations can rely on dispatching maneuvers to attempt to minimize the length of time freight trains block those crossings, the addition of passenger traffic would foreclose that strategy. That means the only

[10] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

[11] *Id.* at 17, 28 (Exec. Summary, § 3.6).

option is for trains to enter sidings long enough to enable freight trains and passenger trains to meet or pass. Since only a few existing sidings are long enough, the predictable result will be delays and blocked crossings—with additional negative effects on motor vehicle traffic.

Second, the planned service involves use of a rail corridor with unusually high freight demands. New Orleans and Mobile are both major terminals that host the operations of multiple railroads. These terminals are highly congested—demand is high, track capacity is limited, and train operations involving multiple carriers already require blocking the mainline and crossings, causing delays and affecting other modes of transportation. The operation of the movable bridges further complicates the situation. Adding passenger service would exacerbate each of these problems, creating operational dilemmas and substantial delays for all nine of the freight railroads operating at one or both terminals.

Third, Amtrak's proposed service operates in peak freight service hours, where there is maximum potential for conflict with maritime traffic and the local trains serving freight customers. In contrast, Amtrak's pre-2005 Sunset Limited service over the Gulf Coast Corridor operated three times a week in the middle of the night, when local freight traffic service is significantly reduced and bridge openings are far less frequent.[12] Even so, one study from 2006 noted that Sunset Limited service posed operational difficulties for crowded freight operations.[13]

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[12] *Id.* at 18 (§ 2.2).

[13] Burk-Kleinpeter, Inc., *New Orleans to Mobile Corridor Development Plan: Gulf*

Amtrak now proposes to operate four trains *per day*, and during primetime hours—when freight demand and disruption from bridge operations are at their respective peaks. Those proposed operations consume far more capacity than the pre-2005 service did, so it is no surprise that the 2021 Gulf Coast RTC Model shows that they have a significant negative impact on rail service.

CSXT and NSR are not opposed to Gulf Coast passenger service. But Amtrak must account for the actual impact that its proposed operations would have on freight customers, including adding the infrastructure necessary to prevent unreasonable interference with freight operations and paying the costs of its service. Congress struck a balance between the interest of Amtrak in securing rights to operate over existing freight lines and the rights of the freight customers who rely on and ultimately fund that freight network.[14] That balance provides that Amtrak may have access to freight lines to offer new passenger service—so long as it pays the full costs of that access and so long as its access does not unreasonably interfere with freight service. There is no reading of § 24308(e)[15] that could require

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Coast High-Speed Rail Corridor at vol. II, at 2.14 (May 2006) (noting that "the main line at Sibert and Gentilly yards is usually occupied by trains being assembled and by trains doing pick up and/or set off of cars," and that "[k]eeping an open slot for [Amtrak] trains, even if they are on time, poses a challenge for the [freight] dispatchers and the yard personnel").

[14] *See* 49 U.S.C. § 24308.

[15] 49 U.S.C. § 24308(e) provides that:

> (1) When a rail carrier does not agree to provide, or allow Amtrak to provide, for the operation of additional trains over a rail line of the carrier, Amtrak may apply to the Board for an order requiring the carrier to provide or allow for the operation of the requested trains. After a hearing on the

freight customers to subsidize passenger service—whether by bearing the cost of the physical improvements that new passenger service necessitates, or by settling for degraded service because Amtrak refuses to pay for the infrastructure needed to support the new service it proposes and to meet the minimum standards for a passenger operation.[16]

Because Amtrak's proposed service would unreasonably impair CSXT's and NSR's freight service (as demonstrated by the 2021 Gulf Coast RTC Model), Amtrak cannot prevail under § 24308(e), and its Application should be denied. The Board would be well-justified in simply dismissing this case. In the event the Board does

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> record, the Board may order the carrier, within 60 days, to provide or allow for the operation of the requested trains on a schedule based on legally permissible operating times. However, if the Board decides not to hold a hearing, the Board, not later than 30 days after receiving the application, shall publish in the Federal Register the reasons for the decision not to hold the hearing.
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> (2) The Board shall consider— (A) when conducting a hearing, whether an order would impair unreasonably freight transportation of the rail carrier, with the carrier having the burden of demonstrating that the additional trains will impair the freight transportation; and (B) when establishing scheduled running times, the statutory goal of Amtrak to implement schedules that attain a system-wide average speed of at least 60 miles an hour that can be adhered to with a high degree of reliability and passenger comfort.
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> (3) Unless the parties have an agreement that establishes the compensation Amtrak will pay the carrier for additional trains provided under an order under this subsection, the Board shall decide the dispute under subsection (a) of this section.

[16] Freight railroads are held accountable for unsatisfactory passenger performance. *See* Metrics and Minimum Standards for Intercity Passenger Rail Service, 85 Fed. Reg. 72791 (Nov. 16, 2020), codified at 49 C.F.R. Part 273, which was passed to measure intercity passenger train service performance.

not dismiss or deny Amtrak's request, at a minimum, the Board should impose conditions requiring Amtrak to fund, build, and install the additional infrastructure required to prevent a near catastrophic meltdown of freight operations—and to do so in a manner that does not unreasonably interfere with freight operations.

CSXT and NSR have developed a set of projects (the "Proposed Passenger Infrastructure") that would allow Amtrak to institute its desired service without unreasonably impairing freight operations.[17] In light of the Board's direction,[18] CSXT and NSR have endeavored to develop a subset of solutions that would allow Amtrak to institute its desired service without adversely affecting freight operations, in the near term or in the future. This subset of solutions was tested in the 2021 Gulf Coast RTC Model, which demonstrated that they effectively mitigate the harms that otherwise would be caused by Amtrak's service. CSXT and NSR

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[17] Even with the interim set of projects identified as the Proposed Passenger Infrastructure, the introduction of the passenger service when combined with the mitigation projects results in an adverse effect on an important subset of freight traffic: inbound freight traffic to the New Orleans area from the west. 2021 Gulf Coast RTC Report at 50 (§ 7.1) (Table 23 depicts an increase of 40.2% in delay to other New Orleans railroads that are not CSXT and NSR). Under the traditional approach to the introduction of rail service, there would be time to identify an infrastructure set that addresses this impact as well.

[18] August 6 Decision at 7 ("The Board therefore expects that evidence on the service's potential effects on freight transportation, such as an RTC study or other study or studies, will be part of the record in this proceeding, as well as any competing studies or other competing evidence, together with all of the inputs, assumptions, and methodologies underlying any study results, including all relevant traffic projections (filed under seal, if necessary). As part of this effort, the Board also expects the parties will detail any infrastructure that they consider necessary for Amtrak to operate additional trains by its proposed start date as well as infrastructure needed in the future to factor in anticipated growth in traffic.").

would withdraw their objection to Amtrak's proposed new service if Amtrak agreed to fund and construct the full slate of Proposed Passenger Infrastructure prior to implementing service. While this filing focuses primarily on infrastructure needs, there are other terms and conditions for this service that will need to be negotiated by the parties, including maintenance and operating costs.

This Opening Evidence is supported by three verified statements. The Joint Verified Statement of Ricky Johnson, the Senior Vice President of Engineering and Mechanical for CSXT, and Randall W. Hunt, the Senior Director – Interline Services for NSR, provides an overview of the unique features of the Gulf Coast Corridor between New Orleans, Louisiana, and Mobile, Alabama, and the needs of freight customers served by the Gulf Coast Corridor. The Verified Statement of Charles H. Banks and Larry R. Guthrie of R.L. Banks presents the 2021 Gulf Coast RTC Model that was jointly sponsored by R.L. Banks and HNTB and explains the key assumptions and analyses from that report. The Banks and Guthrie Verified Statement also discusses the key features of the Gulf Coast Corridor based on Mr. Banks' and Mr. Guthrie's review of the Gulf Coast Corridor's infrastructure and the usefulness of the Proposed Passenger Infrastructure. Finally, the Verified Statement of Hannah Rosse, former Director of Service Measurements and Network Modeling for CSXT, and Holly Sinkkanen, Manager – Strategic Capacity for NSR explains the RTC modeling process and the information that CSXT and NSR provided to support the 2021 Gulf Coast RTC Model. The Gulf Coast RTC Model itself is Appendix A to the Banks and Guthrie Verified Statement. Appendix B to

the Banks and Guthrie Verified Statement is a Report of Ted Niemeyer that estimates construction costs for the Proposed Passenger Infrastructure.

I. THE BOARD'S PRECEDENTS ESTABLISH A LEGAL AND FACTUAL FRAMEWORK TO GOVERN THIS CASE.

While this case is the first to be brought under 49 U.S.C. § 24308(e),[19] the Board has clear guidance from the statute, prior precedent, and established policy about the considerations that should guide its decision. The statute is clear that Amtrak may not add passenger service that would unreasonably impair freight service and that Amtrak is required to pay for the full costs of imposing passenger service. The factual framework for the Board to analyze these questions is equally clear. The Board has long recognized the value of RTC for modeling rail operations

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[19] This is the first proceeding filed under § 24308(e) and will be precedent setting. As such, the Board should be mindful of the standards and procedures being applied. While all of these facts are not present here, although some are, the statute requires the Board to account for all unreasonable impacts to freight operations such as delays to both local and overhead freight traffic, including impacts on the services provided by connecting carriers over lines not directly subject to Amtrak's request. Additional factors include impacts on other existing intercity and commuter passenger services, which in turn could impact freight service; the needs of the passengers; the interplay between the passenger and freight plans of the states that by Federal law, may be financially responsible for the intercity passenger aspirations of Amtrak; and whether other types of capacity studies and improvements should be considered. Moreover, the Board has an obligation to carefully consider any damage that will be imposed on freight customers whose operations and operating protocols (such as daytime delivery and receipt being forced, by the introduction of passenger service, to nighttime delivery and receipt) might have to be restructured to accommodate passenger operations. That damage specifically and directly affects the viability of the customer's operations and is a direct consequence of the proposed Amtrak passenger operations. The Board should not, in this case, act in a manner that would limit its ability to carefully consider these factors in this or future cases.

and analyzing the sufficiency of rail infrastructure. RTC continues to be the industry standard for measuring the impact of new passenger service. Here, the 2021 Gulf Coast RTC Model shows that Amtrak's proposal that its new passenger service be added with no additional infrastructure would cause immediate and substantial harm to freight service on the Gulf Coast Corridor.

A. The existing legal framework requires Amtrak to pay for the actual incremental costs rendered for Amtrak and incurred by CSXT and NSR and prohibits new Amtrak service that would "impair unreasonably freight transportation."

With the passage of § 24308, Congress struck an important balance between the needs of freight service and Amtrak's ability to provide passenger service. Amtrak is given the right to use freight railroad lines to provide passenger service, but it must pay for all costs related to that service. Relatedly, Amtrak may add new passenger service, but only if such new service can be implemented without unduly impairing freight service. Fundamental to this statutory scheme is the principle that Amtrak be required to pay its own way such that passenger service does not degrade freight service.

Although this is the first proceeding to be brought under § 24308(e), the Board's § 24308(a) cases provide useful guidance on how to strike the balance that Congress intended between Amtrak and incumbent freight railroads.[20] Those cases

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[20] *Cf.* 49 U.S.C. 24308(e)(3) ("Unless the parties have an agreement that establishes the compensation Amtrak will pay the carrier for additional trains provided under an order under this subsection, the Board shall decide the dispute under subsection (a) of this section.").

make clear that Amtrak must pay all costs associated with passenger service, without subsidy from freight rail shippers. The Board "prescribe[s] reasonable terms and compensation" that represent at least the "incremental costs" of passenger service.[21] Incremental costs are "those costs that the carrier incurs as a result of Amtrak's use of its facilities"[22] that the carrier "would not have incurred 'but for' the presence of Amtrak."[23] Incremental cost includes, but is not limited to, capital costs of new infrastructure as well as the ongoing costs of maintaining that infrastructure.[24]

The Board has long recognized that freight customers should not be required to cross-subsidize other parts of the freight network by paying rates that are higher than necessary to cover the full costs of the rail facilities that the freight customer

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[21] 49 U.S.C. 24308(a)(2)(A)(ii), (B).

[22] *Application of Nat'l R.R. Passenger Corp. Under 49 U.S.C. 24308(a)—Union Pac. R.R. Co. & S. Pac. Transp. Co.*, 3 S.T.B. 143, 145 (1998).

[23] *Application of Nat'l R.R. Passenger Corp. Under 49 U.S.C. § 24308(a)—Canadian Nat'l Ry. Co.*, STB Docket No. FD 35743, at 22 (served Aug. 9, 2019); *see also Application of Nat'l R.R. Passenger Corp. Under 49 U.S.C. 24308(a)—Union Pac. R.R. Co. & S. Pac. Transp. Co.*, 3 S.T.B. at 156 n.24 ("The Board emphasizes that, as a matter of course, we view all costs that a freight carrier would not incur but for the operations of Amtrak as incremental costs.").

[24] *Application of Nat'l R.R. Passenger Corp. Under 49 U.S.C. 24308(a)—Union Pac. R.R. Co. & S. Pac. Transp. Co.*, 3 S.T.B. at 145 (noting that Amtrak's plan "could further strain" tight freight capacity and both "require additional infrastructure investment[] and impose other substantial costs"); *id.* at 155 ("Should Amtrak's increased express service cause capacity constraints requiring additional infrastructure investment, we see no reason why we would not include those directly attributable costs in a compensation order.").

uses.[25] Freight customers are similarly not required to cross-subsidize passenger service. Indeed, eliminating these cross-subsidies was a key objective of the Rail Passenger Service Act of 1970, which created Amtrak.[26] Capital costs and maintenance of the freight network are the responsibility of freight railroads and, ultimately, of freight customers. Railroads make investment decisions based on current and future needs of freight rail customers in places where the expected return on investment justifies the expense. Forcing railroads to make investments to support passenger service (with no contribution from the passenger provider) reallocates capital investment dollars away from freight customer needs. Consuming capacity with passenger service without requiring Amtrak to pay for all costs associated with its operations would force freight railroads to either cross-subsidize Amtrak by making their own investments so as to restore freight service to pre-passenger levels or reduce service to their freight customers. Requiring

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[25] *See, e.g.*, *PPL Mont., LLC v. BNSF Ry. Co.*, 7 S.T.B. 769, 771–72 (2004).

[26] *See, e.g.*, *Passenger Train Service: Hearings Before the Subcomm. on Transp. & Aeronautics of the H. Comm. on Interstate & Foreign Com.*, 91st Cong. 346 (1969) (statement of Kenneth H. Tuggle, Commissioner, Interstate Commerce Commission) ("[I]f [passenger service entails] a substantial loss, obviously that has to be made up by profits from the freight service, and in that way becomes a burden on interstate commerce, because the shippers of freight must pay a higher rate for moving their commodities to the market because they have to finance a deficit passenger operation."); *see also* 116 Cong. Rec. 13,599 (1970) Remarks by Sen. Claiborne Pell proposing an Amendment (No. 606) to S. 3706 ("The main issue . . . is usually whether or not the public interest requires service to an extent which would justify subsidy, either publicly provided, or through cross subsidy from the revenues of other operations of the carriers such as, for example, freight service.").

freight rail customers to accept degraded service is effectively another form of cross-subsidy.

Indeed, if freight rail customers were required to subsidize passenger service, it would disadvantage freight rail service over other modes like trucks and barges. The competitiveness of Gulf Coast ports is especially tied to consistent and reliable freight rail service in the region, which makes maintaining freight capacity a matter of the utmost importance to key regional stakeholders.[27] The Board has rightly recognized how important reliable rail service is to rail customers, and it should not ignore their interests in this proceeding. Inconsistent and delayed service can have real effects on a customer's business, and the freight impacts shown by the 2021 Gulf Coast RTC Model would have a devastating effect on the customers that rely on CSXT's and NSR's rail service.

In short, Congress's admonition in § 24308(e) that the Board not allow Amtrak to impose additional trains on freight lines if those additional trains would unreasonably impair freight service must be read in conjunction with the Board's

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[27] *See* Letter from Governor Kay Ivey, Doc. No. 301867 (filed Apr. 1, 2021) ("Alabama businesses and important transportation hubs like the Port of Mobile depend upon reliable and safe freight service over the lines on which Amtrak proposes to operate."); Letter from Senator Richard Shelby at 1, Doc. No. 301856 (filed Mar. 31, 2021) ("[M]ultiple entities – such as freight operators, the Alabama State Port Authority, several of the Port of Mobile's customers, and local government officials – voiced concern about the potential effect that passenger rail service could have on economic growth and commerce in the region."); Letter from Alabama State Port Authority at 2, Doc. No. 301883 (filed Apr. 5, 2021) ("Amtrak's STB petition deprives our seaport, our shippers and our freight railroads of appropriate assessments to preserve the safety and reliability of freight rail service at one of the nation's larger seaports.").

other precedents regarding terms and conditions for Amtrak service. In doing so, the principle is clear: Amtrak is required to pay for the full costs of the service that it requests, and it has no right to impose a cross-subsidy on other freight customers by degrading service or by requiring freight customers to pay for capacity-enhancing projects that are only needed because of Amtrak's demands.

B. RTC modeling is the right methodology for determining whether Amtrak's proposal will unreasonably impair freight service.

In its August 6 decision, the Board "recognize[d] . . . the need for a study to assess . . . impacts [of new passenger service] and identify mitigation measures."[28] The Board was right to call for a study of the impacts of Amtrak's proposal, and in this case, RTC is the right methodology for that study.

As the Board has recognized, "the RTC model has been thoroughly tested and has gained widespread acceptance among railroads, transit authorities, and government agencies."[29] That widespread acceptance makes it the right tool to identify the additional infrastructure needed to support passenger service on the Gulf Coast.

In the context of Stand-Alone Cost freight rail rate cases,[30] litigants develop a model to demonstrate that the hypothetical rail network for the Stand-Alone

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[28] August 6 Decision at 7.

[29] *Pub. Serv. Co. of Colo. d/b/a Xcel Energy v. The Burlington N. and Santa Fe Ry Co.*, 7 S.T.B. 589, 614 (2004).

[30] *See, e.g.*, *Consumers Energy Co. v. CSX Transp., Inc.*, STB Docket No. NOR 42142, at 30–31 (served Aug. 2, 2018); *Total Petrochemicals & Ref. USA, Inc. v. CSX Transp., Inc.*, STB Docket No. NOR 42121, at 16 (served Sept. 14, 2016); *Sunbelt*

Railroad has sufficient capacity to handle the selected traffic group.[31] The Board endorsed the use of RTC based on long experience in Stand-Alone Cost cases and its conclusion that string modeling programs were "unreliable."[32] Indeed, the Board has advised FRA that "combining [RTC] software with Amtrak's and host railroads' real-world train movement data [would] assist FRA decision-making about shared-use corridors."[33]

The Board's use of RTC for regulatory purposes parallels the real-world use of RTC models by freight railroads and Amtrak to assess infrastructure needs.[34] Amtrak previously committed to a joint RTC study of Gulf Coast service to be conducted by HDR Engineering, Inc. ("HDR")[35], before Amtrak refused to renew that study so it could pursue this litigation. Amtrak is also on the record asking for an RTC study for projects between New Orleans, Louisiana and Orlando, Florida (which route includes this corridor) in a 2009 submission to Congress.[36] RTC is also

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Chlor Alkali P'ship v. Norfolk S. Ry. Co., STB Docket No. NOR 42130, at 5–6 (served June 30, 2016); *E.I. DuPont de Nemours & Co. v. Norfolk S. Ry. Co.*, STB Docket No. NOR 42125, at 36 (served Mar. 24, 2014).

[31] Fed. R.R. Admin., *Report to Congress: Shared-Use of Railroad Rights-of-Way* 36 (July 2019).

[32] *Pub. Serv. Co. of Colo.*, 7 S.T.B. at 614.

[33] Fed. R.R. Admin., *Report to Congress*, *supra*, note 34 at 17.

[34] *Id.*

[35] *See* Joint Motion to Dismiss (Apr. 5, 2021), at Ex. E – RTC Study Agreement, by and among CSX Transportation, Inc., Norfolk Southern Railway Company, and National Railroad Passenger Corporation Regarding the Joint Evaluation of Intercity Passenger Rail Service Operations between New Orleans, LA and Mobile, AL, dated January 24, 2020.

[36] *See* Amtrak, *P.R.I.I.A. Section 226 Gulf Coast Service Plan Report* 4, 6 (July 16,

regularly used to evaluate new or modified commuter rail service. For example, the Minnesota Department of Transportation conducted a RTC study with a 20-year planning outlook to evaluate the proposed extension of the Northstar commuter service.[37] And the Federal Transit Administration sponsored an RTC study of commuter passenger service issues to identify meaningful ways to increase capacity to accommodate growing commuter service demand.[38]

When conducting an RTC study, it is customary to use a 20-year planning horizon when modeling projected future freight growth. The FRA has acknowledged that operations simulation modeling "attempt[s] to take into account the plans of intercity rail passenger service, local commuter rail service, and rail freight operators over a relatively long period of 20 years."[39] As the RTC Modelers explain,

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2009), http://floridacoalitionofrailpassengers.memberlodge.com/resources/Documents/GulfCoastServicePlanReport.pdf (explaining that implementation of "daily stand-alone overnight service between New Orleans, Louisiana and Orlando, Florida"—known as "Option 3"—"should be determined through capacity modeling undertaken in collaboration with CSX").

[37] *See* Northstar Commuter Rail Extension Feasibility Assessment, App'x F – Technical Memorandum on Rail Operations Modeling, Minn. Dep't of Transp., available at https://www.dot.state.mn.us/passengerrail/northstar-study/index.html; *see id.* at 1 (""RTC is North America's industry standard railroad planning software. RTC is unique among planning tools because it contains n-logic problem solving technology, allowing the user to simulate countless railroad operating scenarios.").

[38] *See* Rail Capacity Improvement Study for Commuter Operations, Transp. Tech. Ctr., Inc., at iii, 30 (Nov. 2012) ("When commuter rail operates on corridors shared with freight rail operators, the freight operators must be kept whole in terms of their ability to provide service as needed to their freight customers.").

[39] Federal Railroad Administration, Rail Corridor Transportation Plans, A Guidance Manual (2005), https://railroads.dot.gov/elibrary/railroad-corridor-transportation-plans-guidance-manual.

a 20-year time horizon "is used to test the long-term sustainability of the various services and their ability to share infrastructure without degrading performance."[40] In other words, the amount of infrastructure necessary to support the introduction of passenger service today may be insufficient five, ten, or twenty years down the road as customers grow their businesses and reasonably expect the freight railroads to provide sufficient capacity.[41]

The Board has also received comments from many parties in this proceeding who explicitly requested that an RTC study be conducted to assess Amtrak's proposal.[42] The enclosed 2021 Gulf Coast RTC Model and Report directly respond to these concerns and gives the Board the factual tools that it needs to assess the

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[40] 2021 Gulf Coast RTC Report at 22 (§ 3.0).

[41] *See* Ex. 2, Verified Statement of Ricky Johnson and Randall W. Hunt at 13–14 ("Johnson & Hunt V.S.").

[42] *See, e.g.*, Letter from Governor Kay Ivey, Doc. No. 301867 (filed Apr. 1, 2021) ("An operational modeling study is needed to adequately understand the impact of new Gulf Coast passenger service on freight rail traffic. This study will help to identify what additional infrastructure may be necessary to support passenger service while both preserving the existing level and quality of freight service and accommodating the anticipated growth of freight movement through the Port of Mobile and the region more broadly."); Letter from Senator Richard Shelby at 2, Doc. No. 301856 (filed Mar. 31, 2021) ("[I]t is essential that a comprehensive analysis be completed that definitively determines the impact such [passenger] service would have on existing freight rail service and the Port of Mobile."); Letter from Board of Commissioners of the Port of New Orleans and New Orleans Public Belt Railroad Commission for the Port of New Orleans at 2, Doc. No. 302124 (filed Apr. 23, 2021) (the need to protect the Port's role as an economic engine demands a "comprehensive study . . . to adequately understand the impact the Passenger Rail Service will have on current and future freight service through the region").

impact that Amtrak's proposal would have on freight service in the Gulf Coast region.

II. THE 2021 GULF COAST RTC MODEL SHOWS THAT THE PROPOSED PASSENGER SERVICE WOULD SUBSTANTIALLY IMPAIR FREIGHT TRANSPORTATION.

The 2021 Gulf Coast RTC Model shows that Amtrak's proposal to operate two daily roundtrip passenger trains during peak hours with no additional infrastructure would have a devastating impact on freight service over the Gulf Coast Corridor from New Orleans to Mobile. Using straightforward assumptions and the same data sources that would have been used for the joint HDR RTC study that Amtrak refused to have completed, the 2021 Gulf Coast RTC Model shows that CSXT and NSR have sufficient infrastructure (either current or planned and anticipated) to support current freight traffic and expected freight traffic growth.[43] But when passenger trains are added with no infrastructure improvements, there is immediate, substantial, and unreasonable degradation to freight service that only worsens over time. As discussed below, the unique features of the Gulf Coast corridor create serious capacity constraints that do not make it possible to simply add passenger trains and expect no adverse and unreasonable impact on freight service. The 2021 Gulf Coast RTC Model proves this definitively.

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[43] 2021 Gulf Coast RTC Report at 4, 32 (Exec. Summary, § 4.0).

A. The 2021 Gulf Coast RTC Model reflects the unique features of the Gulf Coast and, specifically, the Gulf Coast Corridor over which Amtrak proposes to operate.

Before reviewing the 2021 Gulf Coast RTC Model in detail, it is helpful to review some of the key factors contributing to the 2021 Gulf Coast RTC Model's conclusion. The Gulf Coast Corridor faces unique capacity constraints and operating challenges. Any new passenger trains would operate over approximately 150 miles of predominantly single-tracked mainline and connecting trackage that "has 13 moveable bridges that statutorily prioritize waterway traffic over rail traffic under Coast Guard regulations."[44] These features of the corridor limit the locations where trains can meet and pass one another, introduce a level of variability that can be difficult to dispatch even under normal conditions, and make achieving federally mandated on-time performance ("OTP") standards more challenging.[45]

First, the Gulf Coast Corridor between New Orleans and Mobile is predominantly single-tracked.[46] This is significant because "[o]n a single-track route, the capacity of the route is limited by the distance between locations where trains may pass each other," and passenger trains "utilize a disproportionate amount of capacity" because they receive preference over freight traffic under federal law.[47] And because passenger trains travel at higher speeds than freight

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[44] Johnson & Hunt V.S. at 6.

[45] *Id.* at 7.

[46] 2021 Gulf Coast RTC Report at 14 (§ 1.1.3).

[47] *Id.* at 13, 15 (§§ 1.1, 1.2) (citation omitted).

trains, this preference results in overtakes—forcing freight trains into sidings, increasing delays, and worsening blocked crossing events.[48] It logically follows that "[t]he farther the sidings or double track are apart, the more time is required for one train to wait for another train."[49] And as freight trains grow longer over the next 20 years, based on expected growth, this problem will only worsen.

Second, Amtrak's proposed service route includes more than 160 grade crossings.[50] "There are . . . only a limited number of sidings on the Gulf Coast route with no grade crossings that could be used for a freight train and passenger train to meet or pass."[51] This matters because CSXT and NSR work diligently to avoid blocking crossings in a given community for more than 20 minutes, and this principle was built into the 2021 Gulf Coast RTC Model as an assumption.[52] To abide by this principle while still giving Amtrak proper preference requires the 2021 Gulf Coast RTC Model to hold freight trains in sidings with few to no grade crossings for longer periods of time.

Third, the Gulf Coast Corridor operations are directly impacted by 13 movable bridges on or adjacent to the Gulf Coast Corridor. The movable bridges "open on demand for maritime traffic," which "has priority over all rail traffic on all

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[48] *Id.* at 13, 15, 32–33 (§§ 1.1, 1.2, 4.0).

[49] *Id.* at 13 (§ 1.1).

[50] *Id.* at 14 (§ 1.1.3).

[51] *Id.* at 16 (§ 2.1).

[52] Ex. 3, Verified Statement of Hannah Rosse and Holly Sinkkanen at 10 ("Rosse & Sinkkanen V.S.").

the bridges throughout the corridor."[53] Accounting for the bridges in developing an operating plan is challenging because "[e]ach bridge along the corridor has different opening frequencies, opening durations, and peak times of day for marine traffic."[54] And in Mobile, yard switching movements in Sibert Yard spill out onto the mainline when trains are cut and moved over the Three Mile Creek and Chickasaw River Bridges and then shoved back into the yard.[55] "When the bridges are open, northbound (eastbound) trains are unable to work in the yard or depart while southbound (westbound) trains cannot arrive to begin their work. Trains longer than the length of the siding will sit across the Three Mile Creek bridge and not be able to work while the bridge is open."[56] There can be no question such congestion and gridlock contributes to freight and passenger delays.

Fourth, the Gulf Coast Corridor is a vital transportation artery that facilitates domestic and international trade in the Southeastern United States by connecting four international ports with the major city centers of the East Coast and the industries that populate America's heartland on both sides of the Mississippi River.[57] At either end of the proposed passenger service route are two major interchange points. At one end, New Orleans serves as one of only five

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[53] 2021 Gulf Coast RTC Report at 17 (§ 2.2).

[54] *Id.* at 17 (§ 2.2); *see id.* at 70–82 (App'x E).

[55] *Id.* at 20 (§ 2.4).

[56] *Id.*

[57] Johnson & Hunt V.S. at 4.

gateways in the United States "where eastern and western Class I rail carriers interchange the vast majority of freight traffic moving across the continent."[58] At the other end, two Class I carriers and three smaller carriers interchange in Mobile and move freight to and from the ever-growing Port of Mobile.[59]

Shippers along the Gulf Coast Corridor expect and depend upon reliable common carrier service from CSXT and NSR.[60] As the ports continue to invest in infrastructure projects to increase the freight volumes they can handle, freight rail customers will look to expand their access and transportation volumes to keep pace with these exciting business opportunities. The 2021 Gulf Coast RTC Model reflects a projected annualized growth of less than 1.5% in merchandise traffic traveling over CSXT and NSR over the next 20 years.[61] The projected growth in freight traffic by 2039 "will utilize more of the available track capacity," thereby further shrinking the available capacity for even a prioritized passenger train.[62] Indeed, "[w]hen passenger traffic is added, there is less capacity or operating margin to allow passenger trains to operate without significantly delaying the customers' freight traffic, magnifying the impact of the proposed passenger service."[63]

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[58] *Id.*

[59] *Id.*

[60] *Id.*

[61] 2021 Gulf Coast RTC Report at 23 (§ 3.3).

[62] *Id.* at 34 (§ 4.1).

[63] *Id.*

Fifth, both ends of the proposed Amtrak service occur in complex terminals with operational and dispatching challenges. For example, in New Orleans, six of the seven Class I rail carriers converge on NSR's Back Belt trackage ("Back Belt") to interchange with one another and the two smaller carriers in the region.[64] As Mr. Hunt explains in his verified statement, "movement across that segment of railroad requires close coordination by dispatchers from three railroads controlling access to and from the route (NSR, CSXT, and Amtrak)," as well as Union Pacific that "controls access to and from the west end of the NSR trackage."[65] Because of the high degree of coordination required, there are "multiple potential points of failure in the dispatching relationships that often lead to lengthy delays."[66] And the dispatchers lose a full two hours of operation time when the Back Belt needs to be cleared to allow Amtrak's Crescent service trains to operate in and out of the passenger station.[67] Additional passenger trains would consume additional hours of operation time on the Back Belt that could otherwise be used for freight traffic.[68]

Thus, to the extent Amtrak causes delays and service disruptions to NSR's interchange operations in New Orleans, those service disruptions will have a rippling effect on the freight service provided by NSR's connecting carriers—

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[64] Johnson & Hunt V.S. at 4.

[65] *Id.* at 8.

[66] *Id.*

[67] *Id.*

[68] *Id.*

especially those carriers who depend on and use the Back Belt for interchange operations. These impacts are not addressed by the 2021 Gulf Coast RTC Model and are not accounted for in Amtrak's proposed service. Yet the statute specifically recognizes that unreasonable impairment of freight services must be considered. The Board should be mindful of, and should account for not only the adverse impacts directly affecting the specific carriers on whose lines Amtrak intends to operate, but also the adverse impact on freight rail service that will occur on the lines of other freight rail carriers, especially the lines of connecting carriers.

One way to resolve such impacts would be to also undertake a NSR project to extend the NSR Freight Lead track within the New Orleans terminal from its current 3,900 feet to approximately 12,000 feet. This project was preliminarily reviewed and analyzed.[69] The extended NSR Freight Lead track project would permit NSR to work trains at Oliver Yard, and to hold trains moving to/from NSR off of the mainline trackage over which the passenger trains operate. The extended Freight Lead would not only benefit passenger trains through elimination of certain conflicts with freight trains on NSR trackage, but also the carriers operating freight trains across NSR trackage in New Orleans. The project, with an estimated cost of $80 million, was not ultimately recommended for funding due to the high cost and direct benefits to freight service. Though the project is not being advanced by either NSR or CSXT as part of the Proposed Passenger Infrastructure package of

[69] 2021 Gulf Coast RTC Report at 54 (§ 8.0).

projects to support introduction of passenger service over the Gulf Coast Corridor, it without question is an impactful project that would benefit freight and passenger service in the New Orleans gateway, and this project should be strongly considered for future infrastructure investment.

The operational challenges differ in Mobile, but are no better. There, CSXT yard trains must occupy the mainline tracks around Sibert and Choctaw Yards in order to have sufficient headroom to complete their switching work.[70] CSXT trains will often operate over the Three Mile Creek bridge, which increases delays when vessel traffic is moving through.[71] Further complicating matters is the lack of a dedicated station or layover track in Mobile, which means that Amtrak trains preparing for the commencement of service or conducting post-trip maintenance and cleaning will sit and block the mainline in the middle of these yard moves.[72]

B. The cases developed for the 2021 Gulf Coast RTC Model show that Amtrak's proposal would substantially harm freight service and identify a solution.

The 2021 Gulf Coast RTC Model consists of six primary cases. Four of these are the standard cases used to assess a proposal to add new passenger service to a rail line: (1) a 2019 Base Case, which models existing operations over existing infrastructure; (2) a 2039 Base Case forecasting freight operations in 20 years, using current growth expectations and existing freight infrastructure plus planned

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[70] Johnson & Hunt V.S. at 10; 2021 Gulf Coast RTC Report at 20 (§ 2.4).

[71] Johnson & Hunt V.S. at 10; 2021 Gulf Coast RTC Report at 20 (§ 2.4).

[72] 2021 Gulf Coast RTC Report at 68 (App'x D).

freight improvements; (3) a 2039 Passenger Case that adds passenger trains to the 2039 Base Case; and (4) a 2039 Build Case setting forth what infrastructure is necessary to support the passenger service 20 years into the future. Two more cases were developed to account for Amtrak's unusual position that its proposed passenger service should be permitted to commence immediately without any infrastructure improvements. One of these is a 2019 Passenger Case that assesses the impact to freight service if passenger service is added to the 2019 Base Case. The second is a 2019 Build Case, which evaluates what subset of the 2039 Build Case infrastructure projects would need to be in place now to support the passenger service without degrading freight service.

The 2019 and 2039 Base Cases and the 2019 and 2039 Passenger Cases are discussed in the following sections. The 2019 Build Case and 2039 Build Case are discussed in Section III.

1. The 2019 Base Case and 2039 Base Case show that CSXT and NSR have sufficient infrastructure to accommodate current operations.

The base case is the foundation of an RTC model. It serves to validate model inputs, network operations, and infrastructure in the control year. As Hannah Rosse and Holly Sinkkanen explain in their verified statement, "the 2019 Base Case accurately reflects 'present day' operations for both railroads in 2019" before any future freight growth or the addition of passenger trains is considered."[73] CSXT and

[73] Rosse & Sinkkanen V.S. at 11.

NSR provided the RTC Modelers with the standard files and data needed to develop the base case of an RTC model, from track charts and timetables to traffic data and maintenance-of-way windows.[74] The 2039 Base Case uses current growth projections from CSXT and NSR to model expected 2039 freight volumes. The 2039 Base Case also assumes construction of certain planned or anticipated improvements on CSXT's portion of the Gulf Coast Corridor.[75]

As demonstrated in the 2021 Gulf Coast RTC Model, the 2039 Base Case "was able to find suitable dispatching solutions to accommodate the projected freight demands with the capacity CSXT and NSR expect to have in place in 2039."[76] Put differently, in the absence of passenger service, CSXT and NSR have, or will have, sufficient capacity between New Orleans and Mobile "to handle the projected freight demands over the next 20 years."[77]

The inputs and assumptions that went into the development of the 2019 and 2039 Base Case are described in the Verified Statement of Hannah Rosse and Holly

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[74] *Id.* at 4–7. All inputs are included in CSXT's and NSR's workpapers.

[75] Specifically, CSXT intends to construct four siding extensions over the next several years between Mobile and Montgomery, Alabama, which it believes will have a positive impact on the Gulf Coast Corridor's capacity. Because these projects are designed to support freight operations, they were included in the 2039 Base Case rather than the 2039 Build Case. 2021 Gulf Coast RTC Report at 26 (§ 3.3); Rosse & Sinkkanen V.S. at 11. CSXT does not expect Amtrak to contribute financially to the construction of these siding extensions, even if Amtrak benefits from their addition.

[76] 2021 Gulf Coast RTC Report at 32 (§ 4.0).

[77] *Id.*

Sinkkanen and in the 2021 Gulf Coast Model itself. But two unique aspects of these Base Cases bear mentioning.

The first is movable bridges. The simulated network studied by the RTC Modelers includes 13 movable bridges on or adjacent to the Gulf Coast Corridor that impact operations over the Gulf Coast Corridor.[78] Maritime traffic has priority over rail traffic under United States Coast Guard regulations.[79] Bridge openings can delay freight and passenger trains directly by causing them to wait to cross the bridge, or indirectly by causing cascading congestion and delays up and down the corridor. It is thus important to incorporate the movable bridges into the 2021 Gulf Coast RTC Model, accounting for the variability in number and duration of openings.[80] CSXT and NSR provided bridge logs for the study period of September 2019 to November 2019, and the RTC Modelers then used this data "to create random distributions for the opening times and durations" so as to "accurately represent[] the variability of bridge openings and their impact on operations."[81] The freight railroads also provided routes and timing of hi-rail movements used to transport bridge tenders to and from their operational posts on the bridges because these hi-rail movements also consume corridor capacity and may cause service

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[78] *Id.* at 17 (§ 2.2).

[79] *See generally* 33 C.F.R. § 117.5 ("Except as otherwise authorized . . . drawbridges must open promptly and fully for the passage of vessels when a request or signal to open is given . . . .").

[80] Rosse & Sinkkanen V.S. at 13–14; 2021 Gulf Coast RTC Report at 31 (§ 3.6).

[81] 2021 Gulf Coast RTC Report at 28–29 (§ 3.6).

delays.[82] For the 2039 Base Case, the 2021 Gulf Coast RTC Model used the United States Department of Transportation's 2040 Freight Analysis Framework to develop a growth projection for maritime traffic and expected bridge openings.[83]

The second is grade crossings. Amtrak's proposed passenger service route traverses more than 160 grade crossings.[84] The RTC Modelers used the FRA's grade crossing database to identify all crossings with an average annual daily traffic volume of more than 200 vehicles for inclusion in the 2021 Gulf Coast RTC Model.[85] CSXT and NSR work diligently to structure freight operations so as to minimize the length of time a freight train occupying a siding during a meet or pass event blocks a crossing.[86] The FRA has also publicly discouraged prolonged blocked crossing events by asking the public to report grade-crossing blockages of more than 20 minutes.[87] For these reasons, freight and passenger trains were restricted in the 2021 Gulf Coast RTC Model from dwelling on crossings for more than 20 minutes.[88]

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[82] Rosse & Sinkkanen V.S. at 6.

[83] 2021 Gulf Coast RTC Report at 29 (§ 3.6).

[84] *Id.* at 3, 14 (Exec. Summary, § 1.1.3).

[85] *Id.* at 23 (§ 3.2).

[86] Rosse & Sinkkanen V.S. at 10.

[87] Fed. R.R. Admin., *Stuck at a #BlockedCrossing?*, Facebook (July 28, 2021), https://m.facebook.com/USDOTFRA/photos/a.246307702143616/4189178157856531.

[88] 2021 Gulf Coast RTC Report at 23 (§ 3.2); Rosse & Sinkkanen V.S. at 10.

2. The 2019 Passenger Case and 2039 Passenger Case show immediate and significant degradation of freight service if passenger trains are added without additional infrastructure.

The 2019 Passenger Case and the 2039 Passenger Case add Amtrak's proposed passenger service to the 2019 Base Case and 2039 Base Case, respectively. Each case reflects the current Amtrak proposal for two daily roundtrips during peak hours between New Orleans and Mobile. This current proposal is far different than pre-2005 Sunset Limited service (which was only three trains per week overnight) and differs from more recent proposals that have been studied.[89]

The Sunset Limited Amtrak trains "traveled between New Orleans and Mobile between midnight (12 AM) and 8 AM three times a week,"[90] thereby significantly diminishing the impact of the passenger service on freight congestion during the day. The passenger schedules proposed by Amtrak here "coincidently are also high (rush hour) motor vehicle traffic times, further amplifying any crossing blockages during these rush hours."[91] And the proposed service "operates during daylight hours when bridge openings are much more frequent," rendering it more

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[89] For example, the 2016 Gulf Coast Working Group assessed a proposed service between New Orleans and Orlando, and, as to state-supported service between New Orleans and Mobile, only a single round-trip frequency. *See* GCWG Final Report to Congress, at ES-1 ("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.").

[90] 2021 Gulf Coast RTC Report at 18 (§ 2.2).

[91] *Id.* at 16–17 (§ 2.1).

likely that passenger trains will experience delays directly due to the movable bridges, and also indirectly when freight trains are delayed by these daytime movable-bridge openings.[92]

The 2021 Gulf Coast RTC Model reflects actual service expectations and assumes that passenger operations would be expected to comply with Customer OTP standards. The 2021 Gulf Coast RTC Model shows that 100% customer OTP performance is effectively impossible to achieve because of movable bridge interference.[93] However, it is important to model as close to 100% customer OTP as possible because an RTC study models train operations under normal operating conditions and does not consider severe weather events, heat orders, programmed and unexpected maintenance, derailments, unintended emergencies, brake applications, and other similar factors present in real life railroading.[94] Real world performance will generally lag RTC performance, in part because real world operations must account for unexpected challenges and in part because a human dispatcher cannot match the perfect future knowledge of an RTC model.[95] The 2021 Gulf Coast RTC Model also assumes that Amtrak trains would receive preference

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[92] *Id.* at 18 (§ 2.2).

[93] *Id.* at 42–43 (§ 5.2) ("Even with no freight traffic on the line, as modeled with the 2039 Passenger Only Case, the passenger service could at most obtain an OTP of 98.7% due to bridge openings and delays between passenger trains.").

[94] *Id.* at 6, 23 (Exec. Summary, § 3.1)

[95] For example, the RTC Model knows in advance when moveable bridges will open and for how long, and it can optimize operations around that delay. *See id.* at 6, 32 (Exec. Summary, § 3.7).

over freight traffic, as required by statute.[96] To deliver on this mandate, the 2021 Gulf Coast RTC Model avoids placing Amtrak trains in sidings; instead, the model has been designed to dispatch freight trains into sidings when they meet Amtrak trains.[97] This design is in accord with Amtrak's public positions.[98]

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[96] 49 U.S.C. § 24308(c) ("[I]ntercity and commuter rail passenger transportation provided by or for Amtrak has preference over freight transportation in using a rail line, junction, or crossing . . . .").

[97] *See* 2021 Gulf Coast RTC Report at 25 (§ 3.4) ("Because sidings must be coded to allow two passenger trains to pass one another, on rare occasions, the model did permit a passenger train to enter a siding to allow a freight train to pass.")

[98] *Examining the Surface Transportation Board's Role in Ensuring a Robust Passenger Rail System: Remote Hearing Before the Subcomm. on R.Rs., Pipelines, & Hazardous Materials of the H. Comm. on Transp. & Infrastructure*, 116th Cong. 90–100 (2020) (statement of Stephen J. Gardner, Senior Exec. Vice President, Chief Operating and Com. Officer, Nat'l R.R. Passenger Corp. (Amtrak)) ("Freight train interference is caused by . . . relegating the passenger train to wait in sidings for freight trains to pass. These delays . . . demonstrate[] that on many host railroads Amtrak trains are not receiving the preference over freight transportation required by law."); Nat'l R.R. Passenger Corp., *Amtrak Host R.R. Report Card and FAQs* 3 (2020), https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/HostRailroadReports/Amtrak-2020-Host-Railroad-Report-Card-FAQs.pdf ("Sometimes a host railroad will . . . force Amtrak passengers to wait in a siding . . . ."); Nat'l R.R. Passenger Corp., *General and Legislative Annual Report & Fiscal Year 2021 Grant Request* 34 (2020), https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/reports/Amtrak-General-Legislative-Annual-Report-FY2021-Grant-Request.pdf ("When . . . the Amtrak train must enter the siding and wait for the freight train to pass on the main track" it causes "detrimental effects on Amtrak passengers, freight shippers, and the national rail network.").

a. The 2039 Passenger Case results in complete gridlock unless grade crossings are blocked for over two hours, and massive freight interference even with such blockages.

The 2039 Passenger Case adds Amtrak's proposed passenger trains to the 2039 Base Case, without making any infrastructure improvements to accommodate passenger service. The RTC simulation for the 2039 Passenger Case shows that Amtrak's proposed service would cause catastrophic delays that literally make it impossible to dispatch the Gulf Coast Corridor without planning to park freight trains at grade crossings for extended periods. In RTC terms, the 2021 Gulf Coast RTC Model failed to run because it "could not find a dispatching solution" when passenger trains were added to the 2039 Base Case.[99] In other words, the introduction of passenger trains operating on Amtrak's proposed Gulf Coast service schedule will result in network gridlock and completely unreliable freight service in 2039.[100] The only way the RTC Modelers could find a dispatching solution for the 2039 Passenger Case was to program the 2021 Gulf Coast RTC Model to allow trains to block crossings for more than 20 minutes.[101] The maximum restriction on blocked crossings between New Orleans and Mobile was raised from 20 minutes to **150 minutes**. Only then could the 2021 Gulf Coast RTC Model find a dispatching

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[99] 2021 Gulf Coast RTC Report at 32 (§ 4.0); *see also id.* at 22 (§ 3.1) ("When the RTC simulation model is unable to find a dispatching solution to the trains, it will fail. Higher failure rates of models indicate unreliable and constrained operations that likely will require additional track capacity.").

[100] *Id.* at 32 (§ 4.0).

[101] *Id.*

solution.[102] Of course, it would be completely unacceptable in the real world to allow blocked crossing delays of two and a half hours as a matter of course.

Although the 2021 Gulf Coast RTC Model was able to dispatch the 2039 Passenger Case after "substantially relaxing the blocked crossing constraints," there was still "significant degradation to the underlying freight traffic."[103] The RTC Modelers evaluated the operating performance of the 2039 Passenger Case against the 2039 Base Case to determine the extent of the degradation of freight service. The 2021 Gulf Coast RTC Model predicted that with the increase in blocked crossings and none of the proposed 2021 Gulf Coast RTC Model infrastructure improvements, "the proposed passenger service in 2039 will increase freight delays by 20.4%, reduce freight train speeds by 4.5%, increase dispatching conflicts by 42.8%, increase recrews on CSXT by 42.9%, and increase the variability of freight operations."[104]

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[102] *Id.*

[103] *Id.* at 5 (Exec. Summary); *accord id.* at 32 (§ 4.0).

[104] *Id.* at 5, 33 (Exec. Summary, § 4.1). The 2039 Base Case, on which the 2039 Passenger Case is modeled, assumes that the only improvements to the Gulf Coast Corridor are currently planned freight improvements. *See id.* at 22, 24 (§§ 3.0, 3.3).

2021 Gulf Coast RTC Report Table 11

Table 111: Change in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with Increased Grade Crossing Blockages

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[105]	% Change in Recrews
20.4% ↑	-4.5% ↓	42.8% ↑	-23.1% ↓	42.9% ↑

Source: *Id.* at 5 and 34, Table 11 (§ 4.1).

This 20.4% change in delay per 100 train miles reflected the degradation across all train types on both railroads. CSXT local trains were hit the hardest, with changes in delay per 100 train mile as high as 80% for some local trains.

The addition of passenger trains in 2039 also impacts the delay and variability of through trains, which are "often scheduled to operate over several days and often originate hundreds of miles away from a particular study geographic area, thereby increasing the number of potential events that could impact operations."[106] Take CSXT F as an example. Not only does CSXT F experience a 59.9% increase in delay per 100 train miles, its variability changes by 47% percent.[107] There is now a far higher likelihood that CSXT F will experience higher runtimes, making it much more difficult for CSXT to plan its freight operations, and

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[105] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

[106] *Id.* at 36 (§ 4.1).

[107] *Id.*

to anticipate and avoid delays. There can be no question that the introduction of passenger service in 2019 and 2039, without sufficient infrastructure improvements, would substantially and unreasonably impair freight service.

2021 Gulf Coast RTC Report Table 12

Table 12: Change in Freight Train Operating Performance between 2039 Base Case and 2039 Passenger Case with Increased Grade Crossing Blockages[1]

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-21.1%	2.5%	-11.6%
	CSXT 2	80.6%	-19.0%	22.0%
	CSXT 3	40.3%	-7.2%	6.2%
	CSXT 4	79.8%	-11.3%	46.9%
	CSXT 5	40.1%	-5.5%	28.3%
	TASD	66.5%	-19.1%	50.1%
	CSXT LOCAL TOTAL	**38.7%**	**-7.2%**	
CSXT Through Trains	CSXT A	11.3%	-2.1%	7.0%
	CSXT B	41.1%	-7.8%	68.2%
	CSXT C	8.1%	-2.1%	28.7%
	CSXT D	29.5%	-6.9%	-2.0%
	CSXT E	25.9%	-6.3%	7.2%
	CSXT F	59.9%	-9.4%	47.0%
	CSXT G	11.7%	-2.2%	28.1%
	CSXT H	31.3%	-5.8%	3.0%
	COAL	17.5%	-4.6%	45.6%
	CSXT THROUGH TOTAL	**24.3%**	**-4.6%**	
NSR Trains	NSR A	-11.8%	1.4%	-5.7%
	NSR B	-5.4%	1.2%	-1.7%
	NSR C	-32.3%	1.0%	-25.5%
	NSR D	-4.6%	2.2%	-23.1%
	NSR E	18.6%	-3.9%	8.0%
	NSR F	9.8%	-1.6%	10.4%
	NSR G	7.5%	-1.7%	2.8%
	NSR H	-16.2%	1.8%	2.9%
	INTERCHANGE	8.8%	-4.4%	6.3%
	NSR TOTAL	**5.4%**	**-1.6%**	
OVERALL TOTAL		**20.4%**	**-4.5%**	

[1] The operating metrics were evaluated for all freight trains in the model except yard train movements that occupy the mainline for headroom. Only select train profiles that operate on the New Orleans to Mobile study corridor are highlighted. While only specific train profiles are shown in the tables, the subtotals of the three groups of trains are inclusive of all trains in the model between New Orleans and Montgomery. The overall numbers are inclusive of all trains represented in the three subtotals. For further description of the metrics and calculation of subtotals see Section 3.7.

Source: *Id.* at 35, Table 12 (§ 4.1).

b. The 2019 Passenger Case results in immediate and substantial degradation of freight service.

The RTC Modelers evaluated in the 2019 Passenger Case what would happen if Amtrak's proposed passenger service was added to the 2019 Base Case without any infrastructure projects. The results were substantial harm to freight service. In the RTC Modelers' words, "adding the proposed passenger trains . . . [will increase] freight delays by 22.7%, reduce train speeds by 4.5%, increase dispatching conflicts by 38.1%, increase recrews by 37.7%, and increase the variability of service."[108]

2021 Gulf Coast RTC Report Table 19

Table 19: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[109]	% Change in Recrews
22.7% ↑	-4.5% ↓	38.1% ↑	33.6% ↑	37.7% ↑

Source: *Id.* at 45, Table 19 (§ 6.0).

Local trains experienced the greatest degradation. For example, CSX 4 experienced more than a 100% increase in delay and increased variability of more than 60%.[110] NSR trains and CSXT through trains fare only marginally better. And

[108] *Id.* at 45 (§ 6.0).

[109] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

[110] *Id.*

while a handful of NSR trains had minor improvements in service, this was "the result of those freight trains' ability to utilize the cleared mainline resulting from the . . . passenger service," or "draft[] behind the passenger train that had cleared all conflicting traffic due to its priority."[111]

[111] *Id.*

2021 Gulf Coast RTC Report Table 20

Table 20: Change in Freight Train Operating Performance between 2019 Base Case and 2019 Passenger Case[1]

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSX Local Trains	CSXT 1	-8.3%	0.5%	3.3%
	CSXT 2	122.4%	-20.4%	5.6%
	CSXT 3	64.6%	-8.3%	28.6%
	CSXT 4	106.5%	-11.3%	63.3%
	CSXT 5	54.7%	-6.6%	-4.4%
	TASD	33.6%	-7.8%	22.1%
	CSXT LOCAL TOTAL	**45.4%**	**-6.9%**	
CSX Through Trains	CSXT A	4.9%	-0.7%	7.0%
	CSXT B	10.3%	-1.9%	8.2%
	CSXT C	6.1%	-1.4%	10.7%
	CSXT D	53.7%	-8.6%	36.5%
	CSXT E	36.7%	-7.4%	5.0%
	CSXT F	75.2%	-10.8%	27.2%
	CSXT G	19.4%	-3.5%	7.2%
	CSXT H	30.3%	-5.8%	-9.7%
	COAL	26.9%	-5.5%	15.5%
	CSXT THROUGH TOTAL	**25.9%**	**-4.4%**	
NS Trains	NSR A	-23.5%	0.0%	-8.5%
	NSR B	18.8%	-1.1%	21.3%
	NSR C	19.1%	-0.3%	8.5%
	NSR D	10.0%	-4.3%	68.3%
	NSR E	26.0%	-4.9%	6.0%
	NSR F	-14.6%	1.9%	-6.8%
	NSR G	38.0%	-3.7%	17.3%
	NSR H	-13.6%	3.2%	11.8%
	INTERCHANGE	10.9%	-4.3%	7.1%
	NSR TOTAL	**7.4%**	**-2.3%**	
OVERALL TOTAL		**22.7%**	**-4.5%**	

[1] The operating metrics were evaluated for all freight trains in the model except yard train movements that occupy the mainline for headroom. Only select train profiles that operate on the New Orleans to Mobile study corridor are highlighted. While only specific train profiles are shown in the tables, the subtotals of the three groups of trains are inclusive of all trains in the model between New Orleans and Montgomery. The overall numbers are inclusive of all trains represented in the three subtotals. For further description of the metrics and calculation of subtotals see Section 3.7.

Source: *Id.* at 46, Table 20 (§ 6.0).

It should be noted that the number of recrews needed per week in this situation increases more than 41% for CSXT local trains and by at least 23% for CSXT through trains and NSR trains.[112] The heavy delays experienced by local trains drive the need for more recrews which will "increase railroad costs or directly impact the service to the customers along the corridor" because local trains will be unable to complete planned service to customers on a given day.[113]

2021 Gulf Coast RTC Report Table 21

Table 21: Change in Recrews between 2019 Base Case and 2019 Passenger Case

	ADDITIONAL RECREWS PER WEEK[114]	% CHANGE IN RECREWS
CSXT Local Trains	2.0	41.5% ↑
CSXT Through Trains	0.2	23.3% ↑
NSR Trains	0.3	28.9% ↑
All	2.4	37.7% ↑

Source: *Id.* at 47, Table 21 (§ 6.0).

The 20-minute blocked crossing constraint remained in effect for the 2019 Passenger Case because the 2021 Gulf Coast RTC Model was able to find a dispatching solution even after the passenger trains were added. However, even with that constraint in place, "the number of daily crossing blockages between Flomaton and New Orleans that are longer than 10 minutes will increase 6.7% and overall blockage time increase by 5.1%" if passenger trains are added in 2019

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[112] *Id.* at 47, Table 21 (§ 6.0).

[113] *Id.* at 47.

[114] Numbers do not add up due to rounding.

without supporting infrastructure.[115] The reason for this is simple: the addition of four daily passenger trains "will require freight traffic to dwell longer for meets or while being overtaken by passenger trains."[116]

The use of Choctaw Yard for storage increased congestion in the 2019 Passenger Case. Storing the passenger trains at Choctaw Yard requires 15-minute deadhead moves to and from Choctaw Yard at the beginning and conclusion of each trip.[117] In the absence of a dedicated station and layover track, Amtrak trains would also occupy or dwell on one of the two mainline tracks for 15 minutes at the start and end of each trip.[118] As the RTC Modelers noted, "Choctaw Yard is currently used for freight operations and the use of yard track to store a passenger train will limit current yard capacity and utilization. The mainline tracks north of Choctaw Yard are heavily used for freight train yard switching, merchandise train mainline work, and crew change and interchange train movements."[119]

As the 2021 Gulf Coast RTC Model clearly shows, there will be an immediate and significant degradation to freight service if the passenger trains are added without any additional infrastructure. Freight customers will face delays and

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[115] *Id.* at 48 (§ 6.0).

[116] *Id.*

[117] Ex. 4, Amtrak's Answers and Objections to CSX's Second Set of Interrogatories, at 6–7; 2021 Gulf Coast RTC Report at 26 (§ 3.4).

[118] Ex. 4, Amtrak's Answers and Objections to CSX's Second Set of Interrogatories, at 6–7; 2021 Gulf Coast RTC Report at 26 (§ 3.4).

[119] 2021 Gulf Coast RTC Report at 68 (App'x D).

uncertainty in the timeliness of incoming and outgoing shipments, and the increased variability of through trains will negatively reverberate across CSXT and NSR's networks, making operational and dispatch planning more challenging.[120] And the impairment to freight grows worse over time as the freight railroads experience future growth, to the point where Gulf Coast corridor congestion will be an unmitigated disaster in 2039 without additional infrastructure.

III. AMTRAK'S PROPOSED NEW SERVICE WOULD IMPAIR UNREASONABLY FREIGHT SERVICE UNLESS AMTRAK AGREES TO FUND IMPROVEMENTS NECESSARY TO SUPPORT ITS PROPOSAL.

A. Amtrak's request for new Gulf Coast service without any infrastructure improvements should be denied.

The statutory language of 49 U.S.C. § 24308(e), under which Amtrak has brought its case, clearly instructs the Board to reject any new service requested by Amtrak if that new service "would impair unreasonably existing freight transportation."[121] Here, the 2021 Gulf Coast RTC Study leaves no doubt that introducing passenger rail with no infrastructure improvements would result in an unreasonable impairment of freight service.

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[120] New Orleans is an important gateway with a complicated network. Any degree of delay or impacts on either CSXT or NSR trains caused by Amtrak service could have a cascading effect throughout the freight networks of the other freight railroads that operate in New Orleans. Amtrak service in New Orleans is therefore likely to adversely impact more than just the CSXT or NSR operations. The 2021 Gulf Coast RTC Model does not account for these potential impacts on other freight railroads.

[121] 49 U.S.C. § 24308(e)(2)(A).

CSXT and NSR have carried their burden of proof. The 2021 Gulf Coast RTC Model definitively demonstrates that Amtrak's proposal to introduce passenger rail with no infrastructure improvements would result in immediate, substantial, and unreasonable impairment to freight service. Accordingly, Amtrak's petition to request service on those terms should be denied.

Denial of Amtrak's petition is not the end of the road for a potential Gulf Coast passenger service. It would only be the end of Amtrak's ill-advised strategy to abandon cooperation and instead attempt to litigate its way into obtaining Gulf Coast service without paying for the infrastructure necessary to support that service. The 2021 Gulf Coast RTC Model creates a framework for a negotiated solution, and CSXT and NSR are committed to negotiating with Amtrak in good faith. If terms and conditions for new service cannot be reached, the Board has jurisdiction to decide such a future dispute under § 24308(a). But the statute simply does not allow Amtrak to force CSXT and NSR to accommodate additional passenger trains in the face of clear evidence that those additional trains would substantially impair freight service.

B. CSXT and NSR have developed a plan for potential passenger infrastructure to support Amtrak's proposed service.

Amtrak's Application for an order requiring new Gulf Coast passenger trains with no supporting infrastructure plainly does not satisfy § 24308(e), and the Board would be well-justified in simply denying its Application and closing this docket. Absent dismissal, the Board should adopt conditions requiring Amtrak to fund the necessary infrastructure investments needed to prevent unreasonable interference

with freight operations. To that end, CSXT and NSR have identified the passenger infrastructure that could permit Amtrak to run its four daily trains between Mobile and New Orleans without impeding existing or future freight traffic (the "Proposed Passenger Infrastructure"). The Proposed Passenger Infrastructure consists of fourteen separate projects, which are detailed in the Verified Statement of Charles Banks and Larry Guthrie and the enclosed Report of Ted Niemeyer.[122]

The Proposed Passenger Infrastructure is different from previous infrastructure proposals, because it is designed to reflect the particular schedule and route that Amtrak has proposed. Some of the proposed projects overlap with the recommendations of the Gulf Coast Working Group ("GCWG"), but the Proposed Passenger Infrastructure adds several projects to the list of projects identified by FRA in the GCWG, and omits others. The RTC Modelers modeled the original FRA recommendations and determined that they were insufficient to achieve Amtrak's service objectives and did not adequately address the delays and disruptions that would result from the addition of passenger rail to the Gulf Coast without any infrastructure improvements. The FRA did not use an RTC study to test or validate its recommendations.

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[122] *See* Banks & Guthrie V.S., App'x B – Engineering Cost Assessments Report, New Orleans – Mobile Gulf Coast Proposed Infrastructure Projects by V3 Companies. The proposed passenger infrastructure plan does not account for other impacts to service that are likely to be incurred by the other connecting New Orleans railroads, especially those who rely on the Back Belt for interchange. Mr. Hunt's Verified Statement contains an alternative infrastructure project that would yield systemic benefits in the New Orleans area and avoid impacts to interchanging railroads. *See* Johnson & Hunt V.S. at 9–10.

The current proposals also differ from those recommended by the 2016 HDR study, which was performed by CSXT at FRA's direction and with support from the GCWG, and the 2018 HNTB study commissioned by the Florida Department of Transportation. Both of these prior studies modeled different Amtrak service proposals over the longer New Orleans to Orlando line. The service proposed and modeled in these previous studies also largely involved Amtrak trains running outside of peak freight hours. The demands on the existing rail network and the corresponding required infrastructure improvements are necessarily different from those contemplated by these prior studies as Amtrak's proposed objectives have shifted to providing two daily round-trips between New Orleans and Mobile during some of the busiest times of day on the existing tracks.

The Proposed Passenger Infrastructure comprises fourteen specific projects along the Gulf Coast. These proposed projects would ensure that no aggregate freight service delays would result,[123] no schedules would be adjusted, and that passenger service will achieve a 95% OTP rate.[124] Plus, the projects will minimize

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[123] The proposed suite of 14 infrastructure projects does not fully mitigate against delays incurred by eastbound interchange trains operated by BNSF, or UP. The Freight Lead extension project described in the Verified Statement of Ricky Johnson and Randall W. Hunt, while not among the NSR and CSXT recommended infrastructure projects, would mitigate the unreasonable interference with interchange operations over the Gulf Coast Line. This project remains highly beneficial to both freight and passenger trains now and in the future, and should be strongly considered by the Board as an additional infrastructure project.

[124] 2021 Gulf Coast RTC Report at 6, 27 (Exec. Summary, § 3.5). The target for Customer OTP was set at 95% because an RTC model cannot account for all variables in train operations such as weather events, unexpected maintenance, and derailments. *See id.* at 6, 32 (Exec. Summary, § 3.7).

instances where grade crossings are blocked for more than twenty minutes. The Proposed Passenger Infrastructure retains "flexibility and fluidity to the terminal areas in New Orleans and Mobile, limit[s] passenger train delays, allow[s] freight movements where the proposed passenger trains meet, and provide[s] sidings to allow freight trains to clear the mainline so as not to block crossings."[125] The estimated costs for the Proposed Passenger Infrastructure is between $405 million and $440 million, as explained fully in the Niemeyer Report.[126]

The Proposed Passenger Infrastructure includes a total of 122,000 feet of additional track. This includes the extension of sidings at Harbin, St. Elmo, and Brookley, adding segments of double tracking at Michoud, Claiborne, Beauvoir, and Mobile, a new 14,000 foot bypass at Gentilly, a new 12,100 foot siding at Fountainbleau, and 3,200 feet of new track at the Mobile station. It also includes new powered turnouts at Theodore and Bayou Cassotte.

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[125] *Id.* at 41(§ 5.0); *accord id.* at 6 (Exec. Summary).

[126] *See* Banks & Guthrie V.S. at App'x B.

2021 Gulf Coast RTC Report – Summary of Proposed Project

Summary of Proposed Projects

Project	Included in 2019	New Track (ft)	Notes
NSR Terminal Improvements	Y		5 crossovers
Gentilly Bypass	Y	14,000	3 crossovers
Michoud Double Track		12,500	2 crossovers
Claiborne Double Track	Y	16,500	2 crossovers
Nicholson Siding Extension	Y	12,600	
Harbin Siding Extension	Y	1,700	flip mainline and siding
Beauvoir Double Track	Y	28,600	
Fountainbleau Siding Extension	Y	12,100	
Bayou Cassotte Power Turnouts	Y		2 powered turnouts
St. Elmo Siding Extension		3,500	
Theodore Improvements	Y		3 powered turnouts
Brookley Siding Extension	Y	3,900	
Mobile Double Track		14,000	3 crossovers
Mobile Station Track	Y	3,200	
2019 Total		**92,600**	
2039 Total		**122,600**	

Source: 2021 Gulf Coast RTC Report at 7 (Exec. Summary).

The RTC Modelers tested the Proposed Passenger Infrastructure in the 2039 Build Case, and they found that the proposed infrastructure was adequate to support Amtrak's proposed passenger service at acceptable OTP and without undue aggregated degradation of freight service.[127]

Any order permitting Amtrak to initiate Gulf Coast Passenger service must at a minimum include a condition that would require Amtrak, prior to initiating service, to fund the construction of Proposed Passenger Infrastructure projects and negotiate the scope and implementation of such projects. As the 2019 Passenger

[127] 2021 Gulf Coast RTC Report at 6, 39 (Exec. Summary, §§ 5.0, 5.1).

Case demonstrated, adding passenger trains before that infrastructure is installed will result in immediate harm to freight customers on the Gulf Coast Corridor.

Accordingly, any order by the Board authorizing new passenger service on the Gulf Coast must include a requirement for the requisite investment by Amtrak to support the infrastructure improvements needed to permit freight traffic to run unimpaired pursuant to 49 U.S.C. § 24308(e)(2)(A). These investments by Amtrak should be ordered by the Board as a necessary precondition to the initiation of passenger service between New Orleans and Mobile.[128]

IV. CONCLUSION

The 2021 Gulf Coast RTC Model shows that Amtrak's proposed new service would cause significant impairment to freight transportation in the Gulf Coast region, absent conditions requiring Amtrak to build adequate infrastructure to support is new service. Section 24308 does not permit Amtrak to force freight railroads to accept new passenger trains that will unreasonably impair freight service, and thus Amtrak's Application must be denied.

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[128] CSXT and NSR note that any Board order to require infrastructure could have substantial environmental consequences that will need to be considered under NEPA. The Board should reconsider its refusal to conduct a NEPA analysis of the impact of its decision on the environment and local communities. Indeed, the Biden Administration has recently reaffirmed the importance of NEPA and the breadth of its applicability in an Executive Order and proposed rulemaking, emphasizing that "all agencies are charged with administering NEPA." 86 Fed. Reg. 55762. Pressing forward with a major federal action without the required NEPA review would be plain legal error.

Respectfully submitted,

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Dated: November 3, 2021

CERTIFICATE OF SERVICE

I hereby certify that on this 3rd day of November, 2021, a copy of the foregoing Opening Evidence was served by email or first class mail on the service list to Finance Docket No. 36496.

/s/ Raymond A. Atkins
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SIDLEY AUSTIN LLP

EXHIBIT 1

BEFORE THE
SURFACE TRANSPORTATION BOARD
DOCKET NO. FD 36496

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(e) – CSX TRANSPORTATION, INC. AND NORFOLK SOUTHERN CORPORATION

CSX TRANSPORTATION, INC. AND NORFOLK SOUTHERN RAILWAY COMPANY'S JOINT OPENING EVIDENCE

JOINT VERIFIED STATEMENT OF
RICKY JOHNSON AND RANDALL W. HUNT

TABLE OF CONTENTS

I. INTRODUCTION

Our names are Ricky Johnson and Randall Hunt. We are, respectively, the Senior Vice President of Engineering and Mechanical for CSX Transportation, Inc. ("CSXT"), and the Senior Director – Interline Services for Norfolk Southern Railway Company ("NSR"). Our joint verified statement provides an overview of the unique features of the Gulf Coast corridor between New Orleans, Louisiana and Mobile, Alabama ("Gulf Coast Corridor"), and the needs of freight customers served by that line.

NSR, CSXT, and the National Railroad Passenger Corporation ("Amtrak") have been collaborating for years to reach mutually agreeable terms and conditions to permit Amtrak to institute a new Gulf Coast passenger service between Mobile and New Orleans to serve the needs of future passengers, while also protecting the interests of existing freight customers along the route. Although the completion of a Rail Traffic Controller ("RTC") model is the accepted and time-tested approach for implementing new passenger service, the good-faith efforts undertaken by NSR and CSXT proved futile due to Amtrak's unilateral termination of those collaborative efforts last year. Amtrak now asks the STB to impose passenger service on the line with no added infrastructure, a move that would ensure the new service would be unreliable for passengers, and that would immediately and substantially degrade freight service provided to customers on the route.

CSXT and NSR's RTC modeling study of the proposed passenger service between New Orleans and Mobile conducted by R.L. Banks & Associates and HNTB Corporation ("2021 Gulf Coast RTC Model" or the "Model") demonstrates definitively that adding Amtrak's proposed service to the current network causes immediate and unacceptable deterioration in freight service. CSXT and NSR have worked to develop a set of reasonable infrastructure solutions that would most cost-

consciously allow Amtrak to begin its proposed service while minimizing these negative impacts on freight customers and protecting Customer On-Time Performance for the new passenger service.

II. BACKGROUND AND QUALIFICATIONS

A. Ricky Johnson

My name is Ricky Johnson. I am the Senior Vice President of Engineering and Mechanical for CSX Transportation, Inc. I have held that position since November 2020. From March 2016 to November 2020, I served as Vice President of Engineering. Prior to that, I served as the Chief Engineer of Maintenance of Way. Throughout my almost 20 years at CSXT, I have held various management and other positions within the Engineering Department, including Track Supervisor, Assistant Division Engineer of Track, and Division Engineer. My business address is 500 Water Street, 15th Floor, Jacksonville, Florida 32202.

I have 28 years of experience in the rail industry. Before beginning my career in the railroad industry, I served in the United States Army, including tours of duty in Operation Desert Storm and Desert Shield. Prior to joining CSXT, I worked for the Alabama Gulf Coast Railroad and BNSF Railway. Today, I am responsible for oversight of CSXT's entire physical plant, including track, bridges, facilities, tunnels, and signal infrastructure, as well as the car and locomotive assets. I hold a Bachelor of Arts degree from Excelsior College, and a Masters of Business Administration from the University of Maryland. I have also completed CSXT's Executive Education Program at Harvard Business School.

B. Randall W. Hunt

My name is Randall W. Hunt. I am Senior Director – Interline Services for Norfolk Southern Corporation ("Norfolk Southern") and its subsidiary, NSR. I joined Norfolk Southern in 2004, and have occupied my present position since 2018.

The responsibilities of my present position include serving as Norfolk Southern's National Railroad Passenger Corporation Operations Officer ("NRPC Officer"), a position designated by the Amended and Restated Off-Corridor Operating Agreement between Norfolk Southern and Amtrak, dated February 1, 2006, as responsible for Norfolk Southern's performance of its contractual obligations under the Off-Corridor Operating Agreement. Prior to assuming my present position, I served as Director - Joint Facilities from 2014 to 2018, while also serving as NRPC Officer and directly overseeing Amtrak operations on NSR trackage in that role. I have also worked in various operating capacities at NSR during my career, including as Assistant Trainmaster, Trainmaster, and Assistant Terminal Superintendent. I hold Bachelor of Arts degrees in Political Science and History from Duke University, and a Juris Doctor from Georgia State University College of Law. My business address is 650 W. Peachtree Street, NE, Atlanta, Georgia 30308.

During my time with Norfolk Southern, and while I have served as NRPC Officer, Norfolk Southern and Amtrak have collaborated, and in several cases with State sponsors, to introduce new Amtrak services on Norfolk Southern lines. Without exception, these efforts included a necessary review of existing operational constraints and necessary infrastructure in the context of the new Amtrak service being introduced, all with the goal to provide the traveling public with a reliable and efficient transportation option. These collaborative reviews and the implementation of identified improvements resulted in the introduction of passenger services that now operate at high levels of on-time performance, while also permitting the safe and fluid operation of freight service on the shared passenger-freight corridors.

III. FREIGHT SERVICE ON THE GULF COAST CORRIDOR PLAYS AN IMPORTANT ROLE IN THE REGIONAL AND NATIONAL ECONOMIES.

The freight network that runs along the Gulf Coast is a key conduit for domestic and international trade in the Southeastern United States. There are four major international ports in the region: New Orleans, Gulfport, Pascagoula, and Mobile. Operations at the ports of New Orleans and Mobile are particularly complex because of the numerous railroads that conduct operations in and around their vicinity.

New Orleans is one of only five primary gateways in the United States where eastern and western Class I rail carriers interchange the vast majority of freight traffic moving across the continent. Six of the seven Class I railroads operate in New Orleans—CSXT, NSR, Union Pacific Railroad Company ("UP"), BNSF Railway, Canadian National Railway Company ("CN"), and the Kansas City Southern Railway Company—as well as the New Orleans Public Belt Railroad and the New Orleans & Gulf Coast Railway. The traffic to and from each Class I carrier moves over the same NSR trackage (the NSR "Back Belt") over which Amtrak's proposed Gulf Coast passenger service would operate. Amtrak also currently operates the daily roundtrip Crescent service over the Back Belt.

Mobile is also a busy gateway that handles interchange traffic between five rail carriers—CSXT, NSR, Alabama Export Railroad, Terminal Railway Alabama State Docks ("TASD"), and the Alabama & Gulf Coast Railway ("AGR"). TASD serves the needs of the Port of Mobile, which continues to invest substantially in both waterborne or surface transportation infrastructure projects to support growing demand from shippers.

Since Hurricane Katrina struck the Gulf Coast in 2005 and Amtrak suspended operation of the former Sunset Limited Service east of New Orleans—

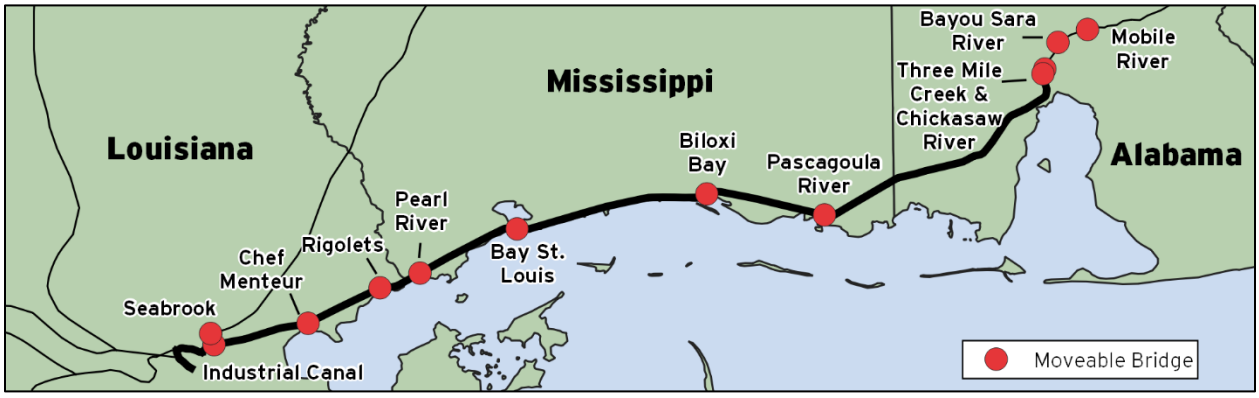
which previously operated three days per week at night—the route over which the new Gulf Coast passenger service would operate has undergone significant changes. Freight service to customers and port facilities along the Gulf Coast Corridor has grown markedly, and customer locations and the nature of business conducted along the corridor has also undergone changes in the years since passenger trains last operated. As our customers have grown and developed their businesses, we have grown and adjusted our facilities to accommodate their changing business needs. The traffic volume increase from CSXT and NSR's various lines of business have largely been accommodated in existing train service, and has left freight operation on the route very different from that which Amtrak last encountered nearly two decades ago.

CSXT and NSR's customers expect and need reliable common carrier service from freight railroads. Reliable freight rail service provides these shippers with a competitive alternative to other forms of transportation such as trucks or barges. Indeed, CSXT and NSR expect the demand for freight service to steadily increase in coming years. Amtrak now proposes a passenger service between New Orleans and Mobile that is a 367% increase in the weekly passenger train count compared to the previous Sunset Limited service. Moreover, the pre-2005 Sunset Limited service largely operated overnight, when there is less interference from maritime traffic and local freight train service and when community impacts from blocking grade crossings are less severe. With no infrastructure improvements to support that increase in passenger train volume, the quality and reliability of freight service will severely degrade. The 2021 Gulf Coast RTC Model commissioned by NSR and CSXT reviewed the impact of the proposed Gulf Coast passenger service (which is different than the suspended Sunset Limited service in frequency, routing, and time-of-day operation), in the context of these very different operating conditions, as it is critical to gain a full and accurate picture of necessary infrastructure improvements to

protect both on-time performance for the proposed Gulf Coast passenger service, and the freight service to existing and future customers located along the route.

IV. THE GULF COAST CORRIDOR'S UNIQUE FEATURES CREATE CHALLENGES FOR PASSENGER SERVICE THAT WILL REQUIRE NEW INFRASTRUCTURE.

The roughly 150-mile corridor between Mobile, Alabama and New Orleans, Louisiana presents a number of unique operating challenges that must be considered and mitigated prior to the introduction of the proposed Gulf Coast passenger service. The Gulf Coast Corridor that includes New Orleans to Mobile is predominantly single-tracked and has 13 movable bridges that statutorily prioritize waterway traffic over rail traffic under Coast Guard regulations. CSXT and NSR are unaware of any other Amtrak service that contends with a comparable quantity of movable bridges over such a short distance. Seven of these bridges are located directly on Amtrak's proposed service route between New Orleans and Mobile. Five bridges are located just north of Mobile and one bridge is located immediately north of the NSR Back Belt in New Orleans, each impacting traffic flows to and from the Gulf Coast Corridor.

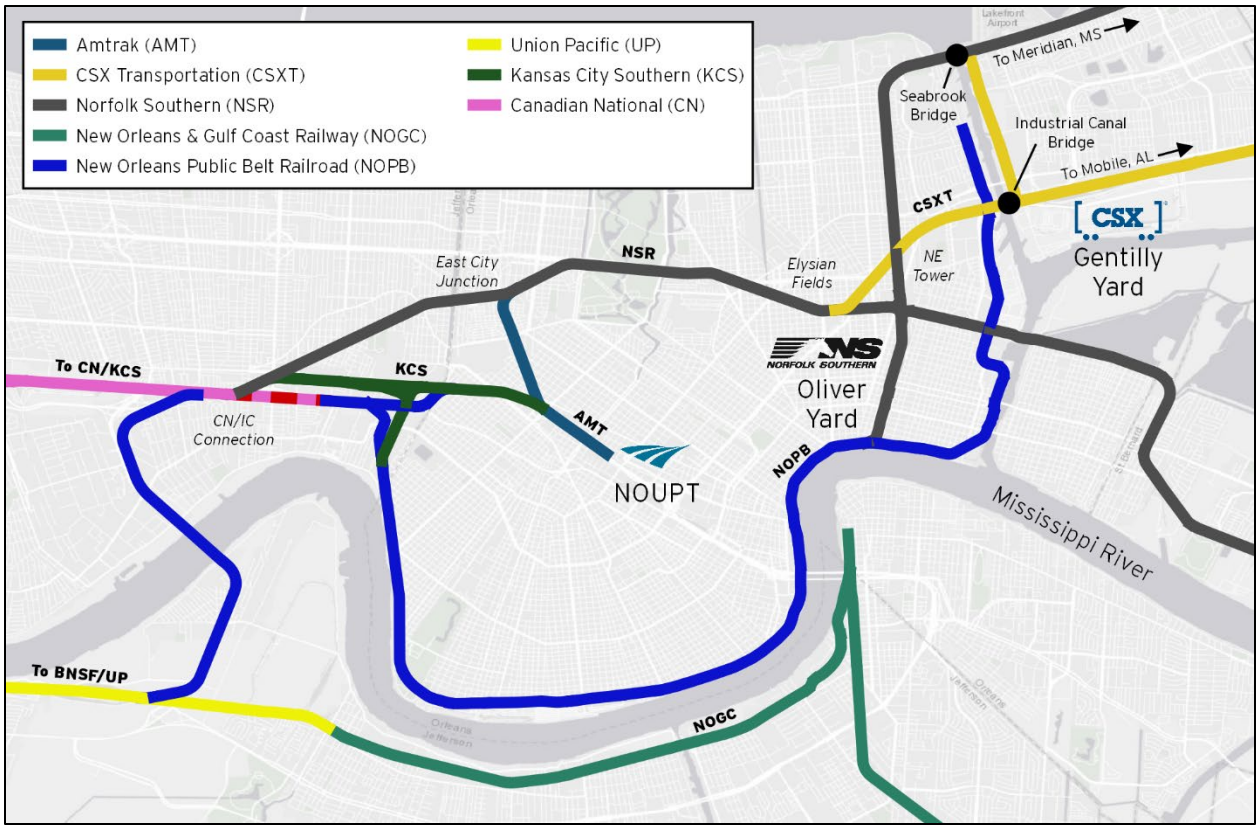


Source: *See* 2021 Gulf Coast RTC Model at 18, Figure 1 (§ 2.2).

By law, these bridges open on demand for maritime traffic pursuant to Coast Guard-related regulations, and some of the bridges are staffed by bridge operators who require shift changes by hi-rail vehicles, which consumes capacity on the Gulf

Coast Corridor especially for the more remote bridges. The drawbridges and single-tracked mainlines also significantly limit opportunities for meets and passes to where sidings are currently present. CSXT's mainline travels through coastal communities with more than 160 private and public grade crossings, further limiting when and where meets and passes may occur to avoid lengthy blocked crossings.

These physical features of the Gulf Coast Corridor amplify the operational challenges facing the railroads. As we previously noted, the port gateways of New Orleans and Mobile handle significant freight volumes from multiple rail carriers. Consider the roughly three miles of NSR's Back Belt trackage, over which the proposed Gulf Coast service would operate.



Source: *See* 2021 Gulf Coast RTC Model at 19, Figure 2 (§ 2.3).

Aside from the congestion one would expect with so many carriers operating in close proximity in a confined location, the dispatching structure on the Back Belt

also presents unique challenges. While NSR controls the roughly three-mile segment of the Back Belt over which the proposed Gulf Coast service would operate, movement across that segment of railroad requires close coordination by dispatchers from three railroads controlling access to and from the route (NSR, CSXT, and Amtrak). Compounding the dispatching challenges is the fact that UP also controls access to and from the west end of the NSR trackage that directly impacts fluidity across the Back Belt route. In short, there are multiple potential points of failure in the dispatching relationships that often lead to lengthy delays for trains traversing the Back Belt, all of which will be exacerbated by the introduction of the proposed Gulf Coast passenger service.

Under normal operating conditions, there are typically between 15 and 20 individual train movements per day over the Back Belt that touch two or more of the dispatchers in question. For approximately one hour, twice per day, the Back Belt is essentially cleared of all freight traffic to ensure on-time operation of the existing Crescent Amtrak service to and from the New Orleans Union Passenger Terminal. This effectively forces the freight movements over the route into a shortened, 22-hour operating day. The introduction of four additional passenger trains contemplated for the proposed Gulf Coast passenger service, and the associated operating windows required to facilitate that service, would further force existing and future freight service into a more confined roughly 18-hour operating day.

It is simply unrealistic to believe that this constriction of freight operating windows would not cause immediate degradation of service in the New Orleans gateway. This degradation will be experienced not just by freight customers of the six Class I railroads and the shortline operators who rely on the fluidity of NSR's Back Belt, but also by the passengers on the existing Crescent service and the proposed Gulf Coast service in the form of poor on-time performance. The

infrastructure identified by the RTC model is a reasonable, and cost-effective means of mitigating these impacts and ensuring as close to status quo operational flexibility as possible when the proposed Gulf Coast passenger service begins. Unfortunately, even with the proposed infrastructure in place, certain trains of the other Class I and shortline railroads operating in the New Orleans gateway will experience ongoing adverse impacts related to the introduction of the proposed Gulf Coast service that are not addressed in the proposed infrastructure package.

To help mitigate the adverse impacts the proposed Gulf Coast service will have on delays to other railroads in the New Orleans Terminal area, a project to extend the NSR Freight Lead track within the New Orleans Terminal from its current 3,900 feet length to approximately 12,000 feet in length was reviewed. The extended Freight Lead would permit NSR to work trains at Oliver Yard, and to hold trains moving to and from NSR and CSXT off of the mainline trackage over which the proposed Gulf Coast service and existing Crescent trains operate. The extended Freight Lead would be beneficial to passenger trains through the elimination of certain conflicts with freight trains on NSR trackage, but also to the freight trains of the carriers that operate across NSR trackage in New Orleans. The project, estimated to cost on the order of $80 million, was not ultimately recommended for funding due to the high cost and direct benefits to freight service. This project should, however, be strongly considered for infrastructure investment as the elimination, entirely, of various freight-freight and freight-passenger conflicts on NSR trackage this project would support is the best means to protect the reliability and success of both freight and passenger operations over the Gulf Coast Corridor well into the future.

Operations in Mobile present similar challenges. Sibert Yard is the primary destination along the coast for freight traffic from the various shippers in this heavily industrialized region of Mississippi and Alabama. Sibert Yard also receives

through traffic from other parts of the CSXT network and interchange traffic from NSR, Alabama Export Railroad, and the Alabama & Gulf Coast Railway. And CSXT interchanges traffic with the Terminal Railway Alabama State Docks, which serves the Port of Mobile. Although traffic volumes have grown in recent years, CSXT is unable to significantly expand Sibert Yard due to its wedged location between the Port of Mobile, Three Mile Creek, downtown Mobile, and other rail yards belonging to NSR, AGR, and TASD.

The density of traffic and lack of expansion space places constraints on CSXT's operating choices. Freight trains moving along the mainline cannot enter Sibert Yard to meet or pass other mainline trains because that would disrupt switching operations. Those trains are limited to using either the mainline track or the signaled siding to move through the terminal one at a time. Yard trains regularly occupy the mainline tracks north of Sibert Yard and between Sibert and Choctaw Yards for headroom to switch railcars. On the north side of Sibert Yard, these yard moves cross the Three Mile Creek drawbridge and are thus inordinately impacted by marine traffic. These switching activities operate around the clock and limit mainline track availability.

Freight trains traveling through Mobile that are scheduled to work in Sibert Yard must leave their railcars on the mainline track while making setouts and pickups, further consuming capacity. Sibert Yard typically receives 4 to 7 freight trains per day that are scheduled to work the yard. This work usually takes 2 to 3 hours per train, so the mainline track can be blocked for 14 to 21 total hours when there are 7 freight trains scheduled. This congestion often forces CSXT to stage inbound trains on sidings further north or south on the network.

Amtrak's legacy station in Mobile is located near the Convention Center, squarely between these two active rail yards. There is currently no dedicated station and layover track at that location, which means passenger trains will

compete with yard trains and through trains for space on the mainline during preparations before departing and after arrival. It should also be noted that the lines over which Amtrak proposes to operate are also situated in environmentally sensitive areas. The Gulf Coast between New Orleans and Mobile is dotted with wetlands and marshes, many of which are subject to federal and state protection. These environmental realities can limit where freight railroads may increase infrastructure to support their operations or the addition of passenger trains.

In sum, these unique features of the Gulf Coast Corridor strongly support the need to conduct a proper operations modeling study to understand the Gulf Coast Corridor constraints and impact of any additional trains or services that are introduced. This is especially true given that Amtrak's requested new service represents a 367% increase in passenger train traffic compared to the previous pre-Hurricane Katrina service. Fortunately, CSXT and NSR were able to successfully commission and complete an RTC study that accurately projects the impact of Amtrak's proposed Gulf Coast passenger service on freight service in the immediate future, and in the foreseeable future.

V. PASSENGER TRAINS CONSUME MORE CAPACITY THAN ADDED FREIGHT TRAINS BECAUSE OF THEIR FASTER SPEEDS AND HIGHER PRIORITY.

The adverse impact of introducing passenger trains on the already taxed capacity of the Gulf Coast Corridor is compounded by the very nature of the passenger trains because they operate at higher speeds than freight trains and receive dispatching preference. Amtrak's trains will inevitably overtake slower freight trains and as a result freight trains will need to take sidings to allow those Amtrak trains to pass when they meet. Attachment A to this statement is an animation that illustrates how competing train priorities impact network performance and necessary infrastructure.

At the start of the animation, only merchandise (mixed manifest trains) are on the network, all operating with the same priority. The network is fluid and delays caused by meets are minimal since the dispatcher can spread the delays evenly across all the merchandise trains. Passes are not necessary since the merchandise trains are all treated equally. Only two sidings are needed to accommodate all trains.

Next, passenger trains are introduced which operate with a higher level of priority than merchandise trains. Since passenger trains have higher priority, the merchandise trains must clear the way for the passenger trains and take additional delays in the sidings. Delays for the merchandise trains are no longer spread evenly, and three more sidings are needed to accommodate the meets and passes. Lastly, unit trains (solid bulk commodity trains) are introduced which have a lower priority than merchandise trains and therefore will take the largest amount of delay. The unit trains often have to wait at the origin terminal until there is space for them on the line of road.

VI. CSXT AND NSR ARE WILLING TO ACCOMMODATE NEW PASSENGER SERVICE ALONG THE GULF COAST SO LONG AS THE NECESSARY INFRASTRUCTURE IS BUILT AND IN SERVICE TO SUPPORT THAT SERVICE.

CSXT and NSR are fundamentally not opposed to passenger service along the Gulf Coast. Both railroads understand that Amtrak provides an important public benefit and that passenger rail service can play a helpful role in the economic growth of communities. Further, CSXT and NSR appreciate and intend to honor their statutory responsibility to provide Amtrak access to operate passenger service. However, CSXT and NSR have a responsibility to balance this statutory obligation with their equally important federal common carrier obligations to their customers.

Freight carriers design their infrastructure to provide freight rail service for freight customers. CSXT and NSR are no exception. Both railroads are private companies that invest their own resources into building and maintaining rail infrastructure in a manner that promotes efficient and reliable freight service to customers, and that supports partners, such as ports and shortline carriers, in the movement of freight. Further, customers often make significant investments on their properties along select freight corridors with the expectation that freight service along those corridors will continue to be offered reliably and consistently in the future.[1] Permitting new passenger service that would degrade freight service to such customers, without corresponding investment by the passenger operator to mitigate those adverse impacts, would unfairly deprive customers of the understood benefit of their reliance on, and investment in the relationship with their freight service providers.

When passenger service is introduced, it consumes capacity that railroads maintain to support new and existing customers to meet their transportation needs. When the introduction of new or expanded passenger service negatively impacts the quality of freight service, the freight railroads are no longer able to effectively compete for shippers' business with other modes of transportation such as trucks. In the context of the proposed Gulf Coast service, this means that Amtrak must fund infrastructure improvements and maintenance costs needed to ensure that CSXT and NSR customers do not experience a degradation in service quality or face the inability to grow their business because of the capacity consumed by passenger service. To be clear, CSXT and NSR are not interested in building more

[1] The types of investments these freight customers make are vastly different from the type of infrastructure identified in the 2021 Gulf Coast RTC Report that Amtrak must construct to support passenger service.

infrastructure than is necessary to support Amtrak's proposed service because the freight railroads bear the responsibility of maintaining that infrastructure in the long term. Over-construction and unnecessarily inflated maintenance obligations are simply not a smart business strategy. NSR and CSXT only seek to mitigate the negative impacts the proposed Gulf Coast service will impose on the customers who rely on the freight railroads that provide critical transportation support to their businesses along the Gulf Coast Corridor.

Any time the introduction of a new passenger service is contemplated, a number of factors inform the ultimate decision on what infrastructure improvements and other considerations are necessary in advance of the operation of the first passenger train. These considerations are often unique to the particular line of railroad over which service is proposed, but such considerations are universally important to ensure the success of the new passenger service while also protecting freight traffic moving on a particular line. These key data points drive the operations modeling that serves as the only real means of testing the changing operational conditions a new passenger service introduces.

RTC is an important modeling platform utilized in the rail industry, not only in consideration of creation of a new passenger service but also in the review of nearly all major infrastructure changes or other significant changes to railroad operating practices. RTC is an operational simulation tool that allows a user to quantify the impacts to train operations based on any number of inputs and variables while utilizing the actual, historical operational records for traffic moving in a studied corridor as a base-case comparison. RTC allows a user to take historical data and overlay contemplated freight or passenger services, as well as potential infrastructure solutions, based on any operational scenario being considered. In short, RTC provides an objective and consistent view of how a segment of railroad would operate differently for a given set of changed operational inputs, with the aim

of understanding and mitigating any negative impacts that might be identified through a study of proposed changes.

Amtrak and the freight industry have long used RTC to assess the impact of the introduction of new passenger services. For example, those recently initiated passenger services on NSR lines that are now running successfully relied on the results of RTC modeling to create schedules, to identify necessary infrastructure improvements to protect on-time performance, and to protect existing freight customers from adverse impacts prior to passenger service implementation.

Amtrak abruptly abandoned the collaborative RTC modeling efforts that were near completion in early 2021, and then refused to let CSXT and NSR pay for that modeling effort to be completed. NSR and CSXT thus engaged third-party consultants to perform modeling of the proposed Gulf Coast passenger service to provide a framework for a solution. The 2021 Gulf Coast RTC Model shows definitively that Amtrak's proposed new passenger service would result in an unreasonable impairment of freight service.

CSXT and NSR could have stopped there and left it to Amtrak to design a solution set that would accommodate its desired service without harming freight service. But CSXT and NSR constructively developed a set of infrastructure proposals that they believe would allow freight and passenger service to coexist on the Gulf Coast Corridor. The 2021 Gulf Coast RTC Model sets forth an infrastructure solution set that will largely mitigate the degradation to freight service caused by the introduction of the proposed Gulf Coast passenger service while ensuring Amtrak passengers experience the on-time performance to which they are entitled. The RTC study demonstrates that these solutions work and from our perspectives as operating and engineering experts, these are feasible improvements that will make it possible for Amtrak to add its desired service without degrading service to NSR's and CSXT's freight customers.

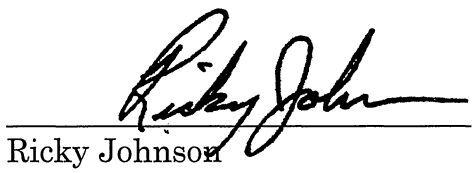
VII. CONCLUSION

Freight and passenger service have proven to be able to successfully coexist when new passenger services are implemented in a reasoned, thoughtful manner that considers the needs and requirements of all of a particular route's freight and passenger constituencies, without any one group benefiting to the detriment of another. Indeed, acceptance of the 2021 Gulf Coast RTC Model, and requiring the recommended infrastructure improvements prior to implementation of the proposed Gulf Coast passenger service, is the only means by which Amtrak's passengers and the freight customers along the route will be assured of receiving the quality level of service each is sure to demand of the Gulf Coast Corridor.

VERIFICATION

I, Ricky Johnson, declare under penalty of perjury that the foregoing information regarding CSXT is true and correct. Further, I certify that I am qualified and authorized to file this statement with regard to CSXT operations.

Executed on this 3rd day of November, 2021.



Ricky Johnson

VERIFICATION

I, Randall W. Hunt, declare under penalty of perjury that the foregoing information regarding NSR is true and correct. Further, I certify that I am qualified and authorized to file this statement with regard to NSR operations.

Executed on this 3rd day of November, 2021.

Randall W. Hunt

ATTACHMENT A

The animation that illustrates how competing train priorities impact network performance and necessary infrastructure can be downloaded in PowerPoint format at the below link:

https://spaces.hightail.com/space/ZfFQu9AWPx

EXHIBIT 2

BEFORE THE
SURFACE TRANSPORTATION BOARD
DOCKET NO. FD 36496

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(e) – CSX TRANSPORTATION, INC. AND NORFOLK SOUTHERN CORPORATION

CSX TRANSPORTATION, INC. AND NORFOLK SOUTHERN RAILWAY COMPANY'S JOINT OPENING EVIDENCE

JOINT VERIFIED STATEMENT OF
CHARLES H. BANKS AND LARRY R. GUTHRIE

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I. EXECUTIVE SUMMARY

We have been retained as experts by CSX Transportation, Inc. ("CSXT") and Norfolk Southern Railway Company ("NSR") to analyze the impacts of the proposed Amtrak Gulf Coast passenger service on CSXT and NSR freight operations, in light of existing and projected future operations, infrastructure, and geographic constraints as set forth in the Rail Traffic Controller ("RTC") model developed by HNTB's Mark Dingler and R.L. Banks & Associates, Inc.'s ("RLBA") Larry Guthrie ("2021 Gulf Coast RTC Model"). Attached to this Verified Statement as Appendix A is the 2021 Gulf Coast RTC Report. In this Joint Verified Statement, we synthesize and communicate in laymen's terms the results of those various model runs.

We both enjoy several decades of experience in the railroad industry, including in a variety of railroad departments and positions working both at railroads and in management consulting exclusively pertaining to railroad matters. We both have worked in Operations and Planning functions and bring significant experience as regards passenger rail shared-use planning and use of the RTC model.

We engaged in a detailed review of the proposed passenger route from New Orleans to Mobile ("Gulf Coast Corridor"), including site visits of the rail infrastructure between Mobile and New Orleans on CSXT and NSR to validate RTC track layout and, more importantly, to gain insights into: the location of switches, local switching constraints, local switching movements and spatial relationships along the network. RTC is the industry gold-standard rail simulation software package and is the go-to software used to simulate large freight networks. Every major railroad in the United States and Canada is a current licensee and has been for two decades. The STB also has recognized the superior nature of the RTC program multiple times as an extremely sophisticated calculator of practical capacity.

As regards the RTC methodology, RLBA worked closely with HNTB to validate the assumptions reflected in the 2021 Gulf Coast RTC Model. Mr. Guthrie coordinated with the HNTB modeler to validate the assumptions and techniques used in the Model Cases. This included examination of RTC simulation input and output

files as well as review of animations of all primary model Cases. The review also included observation of select train movements along portions of the Gulf Coast Corridor and site inspection of the location of each capital project recommended.

We also closely reviewed the results of six principal RTC simulation modeling cases developed in the 2021 Gulf Coast RTC Model. The six Cases are best understood as two chronological pairs (2019 and 2039) of identical, triplet hypotheses: 1) a ***Base Case***; 2) a ***Passenger Case*** and 3) a ***Build Case***. The ***Base Case*** regarding each of the two years was simulated to depict how CSXT and NSR freight trains did operate and would operate in the absence of any planned Amtrak service. The ***Base Cases*** set the standards against which the other two hypotheses are compared, because they depict how the freight railroads currently operate and would operate in the future to serve the needs of their customers under established policies and normal operating conditions.

The ***2019 Passenger Case***, as shown in Table 19 of the 2021 Gulf Coast RTC Report, demonstrated that the addition of passenger trains in 2019 resulted in a 22.7% increase in delay minutes per 100 train miles, a 4.5% reduction in freight train speed, a 38.1% increase in dispatching conflict, and a 37.7% increase in recrews, all of which represent changes no host railroad should have to endure to accommodate the introduction of passenger services. Not only would freight train operations be adversely affected, so would the local citizens along the Gulf Coast Corridor. Specifically, communities between Flomaton and New Orleans will experience a 6.7% increase in the number of grade crossing blockages in excess of 10 minutes as compared with the ***2019 Base Case***. Even with a Model-imposed limit of 20 minutes on blocked crossings in the ***2019 Passenger Case,*** drivers will be confronted with an overall blockage time increase of 5.1%.

In contrast, as shown in Table 23, the addition of recommended projects in the ***2019 Build Case*** mitigates most of the effects of adding passenger trains, resulting in a 4.4% decrease in delay minutes per 100 train miles, a 1.7% increase in freight train speed, a favorable 2.5% decrease in dispatching conflicts and a favorable 3.3%

decrease in recrews, returning the hypothetical railroad to the operating performance characteristics of the ***2019 Base Case*** for the most part. The one major exception to that remedial trend is the change in delay to other railroads operating into New Orleans, which interchange traffic suffers an extremely adverse 40.2% increase in delay minutes. In other words, the combination of recommended projects did not fully compensate for the adverse impacts on New Orleans interchange movements caused by the introduction of passenger service on the Gulf Coast Corridor.

Similarly, in the ***2039 Passenger Case***, as shown in Table 11 of the 2021 Gulf Coast RTC eport, the addition of passenger trains in 2039 resulted in a 20.4% increase in delay minutes per 100 train miles, a 4.5% reduction in freight train speed, a 42.8% increasre in dispatching conflicts, and 42.9% increase in recrews, all of which represent changes no host railroad should have to endure to accommodate the introduction of passenger services. Not only would freight train operations be adversely affected, so would the local citizens along the Gulf Coast Corridor. Specifically, as demonstrated in Table 10 of the 2021 Gulf Coast Corridor RTC Report, huge increases in grade crossing blockage time, ranging between 46% and 313%, would confront drivers seeking to use the eight crossings also identified in Table 10 of that Report at the eight most affected crossings. In this Case, the only solution to the gridlock was to allow all grade crossings to be blocked up to 150 minutes, which would harm communities all along the subject Gulf Coast Corridor. While those grade crossing blockage times may be impractical and politically untenable, it was necessary to relax blockage restrictions to 150 minutes to get the model to dispatch, given the absence of recommended improvements which characterizes this Case.

In contrast, as shown in Table 15 of that 2021 Gulf Coast RTC Report, the addition of recommended projects in the ***2039 Build Case*** mitigates the effects of the new Amtrak passenger trains, resulting in a 2.5% decrease in delay minutes per 100 train miles, a 2.0% increase in freight train speed, a favorable 2.9% decrease in dispatching conflict and a favorable, 15.1% decrease in recrews, thus returning the hypothetical railroad to the operating performance characteristics of the ***2039 Base***

Case for the most part. The one major exception to that remedial trend is the change in delay to other railroads operating into New Orleans, which interchange traffic suffers an adverse 18.5% increase. In other words, the combination of recommended projects did not fully compensate for the adverse impacts on New Orleans interchange movements caused by the introduction of passenger service on the Gulf Coast Corridor.

Based on all of the above, we reached three overarching findings.

First, the assumptions and methodologies employed in and the results of the 2021 Gulf Coast RTC Model's Cases are valid and should be accepted by the STB.

Second, the Gulf Coast Corridor is a very challenging corridor on which to impose the proposed Amtrak service due to an unfortunate combination of ingredients. Those ingredients include but are not limited to:

1) 13 movable bridges, seven of which are located on the Gulf Coast Corridor, with random openings whose timing is not under the control of CSXT nor NSR;

2) athe fact that the Gulf Coast Corridor is largely single-tracked, featuring short or insufficient length sidings, improperly spaced to efficiently pass trains;

3) significant local traffic that requires significant switching utilizing the main track;

4) tracks leading from several major yards out onto the mainlines on both railroads along the Gulf Coast Corridor are located close enough to bridges that switching operations are adversely affected by bridge openings; and

5) an unusually high number of grade crossings (more than 160) along the Gulf Coast Corridor such that bridge openings or freight trains held to accommodate Amtrak trains end up blocking the highway and street crossings if there are not sufficient sidings or siding lengths in which to hold them.

Third, if mitigation projects are not constructed, overlaying Amtrak train services over existing (2019) and projected (2039) freight operations clearly stresses the network. This is best evidenced by a comparison of the total freight train delay minutes per 100 miles in the ***2019 Passenger Case*** – no recommended projects (2021 Gulf Coast RTC Report Table 19) to that in the ***2019 Base Case*** – no recommended projects (both simulating 2019 train operations) and the ***2039 Passenger Case*** – no recommended projects (2021 Gulf Coast RTC Report Table 15) to the ***2039 Base Case*** – no recommended projects (both simulating 2039 train operations). Moreover, without infrastructure to support the proposed passenger trains, freight operations will not be satisfactory, as demonstrated in the 20.4% increase in delay minutes per mile encountered by freight trains in ***2039 Passenger Case*** – no recommended projects (2021 Gulf Coast RTC Report Table 11). In contrast, freight trains encountered a reduction of 2.5% delay minutes per 100 miles in ***2039 Build Case*** (2021 Gulf Coast RTC Report Tables 15 and 16), which reflects the inclusion of Amtrak service and capital projects designed to mitigate the effects of same, as compared to the ***2039 Base Case***.

In the ensuing sections, this Joint Verified Statement addresses our professional judgments about the assumptions, conclusions, and opinions offered in the 2021 Gulf Coast RTC Model.

Section II is a brief introduction that includes the **Background and Experience** of these witnesses.

Section III describes **Our Charge** in this matter.

Section IV provides a **Summary of Our Findings**.

II. BACKGROUND AND EXPERIENCE

Charles H. Banks ("Mr. Banks") is the President of RLBA, an economics, engineering, and service planning consulting firm, headquartered in Arlington, Virginia, that focuses exclusively on the freight and passenger rail transportation arenas. Mr. Banks has worked in the railroad transportation space since 1970,

including at five railroads in five different capacities and departments in five locations as well as at a position in the United States Railway Association ("USRA") before joining the firm in 1985 founded by his father in 1956.

During his career spanning five decades, Mr. Banks worked in various railroad operating positions, including working as a flat yard and hump yard Switchman in the Operations Department at a Class I railroad, an Inside and Outside Yard Clerk in the Traffic Department of another Class I railroad, and serving in the Market Research Section and Economic Analysis Section of another Class I railroad. Then, after earning a BA degree in Economics from Haverford College, he worked in the Bureau of Transportation Research ("BTR") in the Executive Department of the Southern Pacific Transportation Company at its headquarters in San Francisco, California.

After the BTR, Mr. Banks started working toward earning his Masters of Business Administration ("MBA") from the Wharton School at the University of Pennsylvania in Philadelphia. However, during that time, a new railroad, Consolidated Rail Corporation ("Conrail"), was created out of the bankruptcy of the Penn Central Transportation Company ("Penn Central") and about a half dozen other Eastern and Midwestern railroads whose already fragile financial positions were irreparably harmed by their dependence on and physical/commercial connectivity with Penn Central. During the time that Mr. Banks was pursuing his MBA, he began working at Conrail part-time as an assistant to the Assistant to the Chairman of the Board. After graduating from Wharton with an MBA, with concentrations in Finance and Transportation, Mr. Banks accepted a position in the Economic Analysis section of Conrail's Finance Department in Philadelphia where he focused on financial analysis of potential railroad investments.

During his tenure at Conrail, Mr. Banks also worked in the Strategic Planning Department at Conrail on a variety of projects related to railroad infrastructure issues or "maintenance of way and structures" ("MOW") in railroad parlance. Mr.

Banks' work included collaborating with other key players on an extensive Investment Planning Study,[1] leading the first capital audit conducted by Conrail,[2] and spending time analyzing Conrail's annual Discretionary Track Program and the extent to which promised benefits were being realized across the entire system.

By 1985, Mr. Banks joined RLBA and he became its President in 2005. Since joining the firm, Mr. Banks has worked on a variety of projects, exclusively rail assignments, and has participated to varying degrees in all of the firm's Rail Traffic Controller ("RTC") projects over the last two decades. Mr. Banks has been involved in dozens of staff discussions concerning issues that need to be resolved to reach realistic RTC results as well as effective communication of those results.

While the plurality of the projects in which Mr. Banks has been involved focused exclusively on freight rail economics, engineering, and service planning, he has worked on literally dozens of intercity, commuter, and light rail passenger projects, including several engagements on behalf of Amtrak, both in litigation and non-litigation contexts. In many, if not most, of those passenger rail projects, Mr. Banks was engaged by an agency at the federal, state, or local level to gain access to tracks owned by freight railroads, including CSXT and NSR, so as to facilitate the development of passenger rail systems across our country.

Mr. Banks' complete curriculum vitae is attached as Appendix C.

Larry Guthrie is the Director of Operations and Service Planning at RLBA. Mr. Guthrie's office is in Alpharetta, Georgia.

Mr. Guthrie has been a railroad transportation executive or manager over four decades with particular experience in railroad industry service planning and

[1] As part of the Investment Planning Study, Mr. Banks interviewed (in person and at their places of business) a large number of railroad executives about how those railroads planned their capital investments in infrastructure, including MOW which at the time was his responsibility to undertake on behalf of Conrail on that study effort.

[2] This involved analyzing how investing $100,000,000 in a rail line between Fort Wayne, Indiana and St. Louis, Missouri would have impacted travel times over the route.

operations. Mr. Guthrie held various operational, engineering, and managerial positions in the Transportation, Strategic Planning, Finance, Mechanical, and Information Technology Departments at NSR and its predecessors for about 42 years before retiring in 2010. While in the NSR Operations Department, Mr. Guthrie was responsible for oversight of the operation of Amtrak's Crescent service between New Orleans and Washington, D.C. While in the NSR Planning Department, Mr. Guthrie was responsible for all RTC work conducted in-house including capital improvement projects on the Heartland Corridor, Crescent Corridor, and NCRR Passenger Service Corridor.

After a successful career at Norfolk Southern, Mr. Guthrie joined TÜV Rheinland Mobility in 2010 as a full-time consultant, where he provided analytical, assessment, certification, and planning services to the rail industry as General Director of Operations. Mr. Guthrie provided those services by applying and utilizing computer simulation, process improvement techniques, and applied engineering methods to improve safe and efficient train operations, capacity planning, derailment prevention, and accident investigation.

In 2019, he left TÜV Rheinland and joined RLBA, where he consults on an array of rail operations issues including analytical, planning, financial analysis, industrial engineering, efficiency, safety, accident prevention, and technical certification services. Since joining RLBA, Mr. Guthrie has worked and continues working on two projects involving the capacity of rail lines and rights of way owned by Class 1 railroads to support the expansion of passenger rail services. One of those projects involves the expansion of MARTA service in Atlanta along two different rights of way, one owned by NSR and one owned by CSXT. The other project involves the westward expansion of Metra service in Chicago over the BNSF Railway line west of Aurora.

Mr. Guthrie's curriculum vitae is attached as Appendix D.

III. OUR CHARGE

RLBA was asked by CSXT and NSR to review, assess, and analyze the impacts of proposed Gulf Coast passenger service on CSXT and NSR freight service, in light of existing and projected future operations, infrastructure, and geographic constraints. RLBA was asked to do so by working with HNTB to develop the 2021 Gulf Coast RTC Model, which uses the Rail Traffic Controller program to develop six primary RTC simulation modeling cases. RLBA was also asked to prepare this Verified Statement and to synthesize and communicate in laymen's terms the results of those various modeled cases.

To accomplish those objectives, Mr. Banks and Mr. Guthrie engaged in a detailed review of the Gulf Coast Corridor, including:

- Examining NSR and CSXT Track Charts, Timetables, Train OS (On Station) Data, Drawbridge Tender Logs, RTC Model Network, RTC Train Files and RTC Track Infrastructure Files, Projected Freight Train Growth Forecasts, Local and Yard Train Movement Descriptions, Amtrak Station Locations and Proposed NSR/CSXT 2039 Track Infrastructure, CSXT 2019 Employee Operating Manual and NSR 2019 Operating Rule Book; and

- Conducting site visits of the rail infrastructure between Mobile and New Orleans on CSXT and NSR to validate RTC track layout and, more importantly, to gain insights into the location of switches, local switching constraints, local switching movements, and spatial relationships along the network. The review also included observation of selected train movements along portions of the Gulf Coast Corridor and site inspection of the location of each capital project recommended in the Executive Summary on page 7 of the 2021 Gulf Coast RTC Report, which is replicated below with one minor alteration in italics.

TABLE 1

Summary of Proposed Projects

Project	Included in 2019 Subset	New Track (ft)	Notes
NSR Terminal Improvements *(3 interconnected projects)*	Y		5 crossovers
Gentilly Bypass – CSXT	Y	14,000	3 crossovers
Michoud Double Track – CSXT		12,500	2 crossovers
Claiborne Double Track – CSXT	Y	16,500	2 crossovers
Nicholson Siding Extension – CSXT	Y	12,600	
Harbin Siding Extension – CSXT	Y	1,700	flip mainline and siding
Beauvoir Double Track – CSXT	Y	28,600	
Fountainbleau Siding Extension – CSXT	Y	12,100	
Bayou Cassotte Power Turnouts – CSXT	Y		2 powered turnouts
St. Elmo Siding Extension – CSXT		3,500	
Theodore Improvements – CSXT	Y		3 powered turnouts
Brookley Siding Extension – CSXT	Y	3,900	
Mobile Double Track – CSXT		14,000	3 crossovers
Mobile Station Track – CSXT	Y	3,200	
2019 Subset Total		**92,600**	
2039 Total		**122,600**	

IV. THE SIX PRIMARY RTC CASES

RLBA also closely reviewed the results of six principal RTC simulation modeling cases developed in the 2021 Gulf Coast RTC Model. The six Cases are best understood as two chronological pairs (2019 and 2039) of identical, triplet hypotheses: 1) a ***Base Case***; 2) a ***Passenger Case*** and 3) a ***Build Case***. The ***Base Case***

regarding each of the two years was simulated to depict how CSXT and NSR freight trains would operate in the absence of any planned Amtrak service.

The ***Base Cases*** set the standards against which the other two hypotheses are compared, because they depict how the freight railroads currently and would operate to serve freight traffic under established policies and normal operating conditions.

The ***Passenger Case*** regarding each of the two years was simulated to depict the impacts of adding the proposed Amtrak service on the extant and planned CSXT and NSR networks, without any additional physical plant capital projects to mitigate those impacts.

The ***Build Case*** regarding each of the two years was simulated to depict the impacts of adding the proposed Amtrak service on the extant and planned CSXT and NSR networks and recommended additional physical plant capital projects to mitigate those impacts.

The respective roles and relationships of each of the six Cases and four secondary or ancillary Cases are detailed below. To facilitate comparison across Cases, please note that key characteristics of the various Cases are characterized in digest form in Table 2, as drawn from the Definitions section on pages 11–13 of the 2021 Gulf Coast RTC Report.

TABLE 2

Primary Cases	Key Characteristics of Modeling Cases
2019 Base Case	Model representing existing (2019) infrastructure and operations. Allows validation of model against actual data.
2019 Passenger Case	2019 Base Case with no projects and the addition of the proposed passenger service.
2019 Build Case	Case with 2019 freight operations, proposed passenger service, and infrastructure changes. This case is used to determine projects required to mitigate impact of proposed passenger service.
2039 Base Case	Case representing future (2039) operations on the Gulf Coast Corridor without the proposed passenger service. The case incudes anticipated future freight growth, and any currently anticipated infrastructure. This case is sometimes referred to as the "No Build."
2039 Passenger Case	2039 Base Case with no projects and the addition of the proposed passenger service.
2039 Build Case	Case with 2039 freight operations, proposed passenger service, and currently anticipated infrastructure. This case is used to determine required projects to mitigate impact of proposed passenger service.
Secondary Cases	**Key Characteristics of Modeling Cases**
2039 Build Case With No Bridge Openings	2039 Build Case with no bridge openings to determine how bridge openings limit potential OTP of proposed service on the Gulf Coast Corridor with the inclusion of the 2039 projects.
2039 Passenger Only Case	Passenger service, with 2039 bridge openings, no freight operations, and no projects. Used to determine performance of proposed service alone.
2039 FRA Case	Case evaluating train performance with projects proposed by the FRA in the 2017 Gulf Coast Working Group Report to Congress.
2039 FRA Adjusted Case	Case evaluating train performance with projects proposed by the FRA in the 2017 Gulf Coast Working Group Report to Congress with projects that require approval outside the control of the railroads or are infeasible to build removed.

Case 1: *2019 Base Case* – The 2019 Base Case is best viewed as the most representative of the status quo freight operations on the affected rail network in 2019. Insofar as this Case reflects existing (2019) freight operations and existing (2019) infrastructure, it is the best depiction of the status quo and the inherent challenges of the route before any Amtrak service is modeled or freight traffic growth is represented. In addition, this Case allows the model to be corroborated against actual data depicting existing freight train performance, thereby establishing an accurate foundation and baseline upon which the remaining Cases can be built so that maximum confidence in the model results can be assured. We note that the 2019 Base Case includes existing Amtrak Crescent passenger service on the NSR network.

Case 2: *2019 Passenger Case* – Both current freight operations and Amtrak Crescent passenger service, as well as Amtrak's proposed passenger trains between New Orleans and Mobile, are simulated in the 2019 Passenger Case. In other words, this Case adds to the 2019 Base Case (Case 1) the proposed passenger services and simulates the movement of all trains. This Case examines the effect of adding Amtrak trains to the existing track infrastructure with no improvements. No additional infrastructure, capital projects to enhance capacity, and/or changes to expedite throughput on the Gulf Coast Corridor are included in this Case.

Case 3: *2019 Build Case* – The 2019 Build Case differs from the 2019 Passenger Case (Case 2) only by including in the simulation an enhanced physical track network reflecting the assumed completion of 14 capital projects as shown in Table 1. This Case examines the effect of adding additional Amtrak trains in 2019 after the construction of a subset of 11 of the 14 proposed projects to enhance capacity and expedite throughput, focused solely on the immediate, near-term adverse impacts.

Case 4: *2039 Base Case* – The 2039 Base Case reflects future freight growth and resulting operations on the Gulf Coast Corridor, absent proposed passenger service. It also incorporates freight-specific infrastructure projects already planned in the region by CSXT. This Case captures the impacts of freight growth on the status

quo rail network and the extent to which current infrastructure on the line can accommodate that growth.

The projects already planned to be constructed over the next two years between Mobile and Montgomery are four siding extension projects: 1) SE Searcy Siding; 2) SE Castleberry Siding; 3) SE Nokomis Siding and 4) connecting the SE Wilcox Siding and the NE Lachaussee Siding. These projects were incorporated into the 2039 Base Case (and all other 2039 Cases) and are being added for the sole purpose of supporting freight operations (at no cost to Amtrak).

Case 5: *2039 Passenger Case* – The ***2039 Passenger Case*** adds to the 2039 Base Case (Case 4) the proposed passenger services and simulates the movement of all trains expected to operate on or affect the Gulf Coast Corridor in 2039. This Case examines the direct, long-term effect of adding Amtrak trains assuming that no infrastructure projects are built to accommodate those trains other than currently planned improvements driven by freight requirements.

Case 6: *2039 Build Case* – Both 2039 freight operations and Amtrak's proposed passenger trains were simulated in the ***2039 Build Case*** as were all recommended infrastructure projects. This Case tests the utility of the recommended improvements to mitigate the direct, long-term impacts of the proposed passenger service on freight rail operations.

V. THE DEVELOPMENT OF RECOMMENDED INFRASTRUCTURE CAPITAL PROJECTS IN THE RTC SIMULATIONS

There are two overarching issues that merit special consideration as regards the development of recommended infrastructure capital projects in the subject RTC simulations.

The first issue relates to the nature and extent of the RTC program itself. RTC modeling is a well-accepted tool by both the Class 1 railroads and the STB to assist in determining infrastructure needs. RTC by Berkeley Simulation Software, LLC is a Windows-based program that simulates the movement of trains through rail

networks at a detailed and realistic level. RTC is the industry gold-standard rail simulation software package and is the go-to software used to simulate large freight networks. The key to RTC is its state-of-the-art dispatching logic, which can dispatch trains efficiently over a large network. RTC simulation results have been validated through hundreds of real-world networks modeled by all Class 1 railroads, CSXT, NSR, Union Pacific Railroad Company ("UP"), BNSF Railway Company ("BNSF"), Grand Trunk Corporation (including U.S. affiliates of Canadian National Railway) ("CN"), Soo Line Corporation (including U.S. affiliates of Canadian Pacific Railway) ("CP") and The Kansas City Southern Railway Company.("KCS").

The RTC program is so superior in terms of its ability to keep track of and simulate the interaction of literally hundreds of relevant pieces of data simultaneously that it is no surprise that every major railroad in the United States and Canada is a current licensee and has been for decades. That is because the major freight rail carriers operating in the United States and Canada utilize RTC continuously to inform and improve their internal capacity planning and its eternal evolution. Those railroads believe that the RTC software has no peer in terms of its ability to replicate the realities and vagaries of freight railroading "on the ground" particularly with regard to its ability to evaluate the capacity of rail network infrastructure to handle the various demands placed upon it.

The STB also has recognized the superior nature of the RTC program multiple times as an extremely sophisticated calculator of practical capacity. For example, 2004, the Board held in *Public Service Company Of Colorado D/B/A Xcel Energy v. the Burlington Northern and Santa Fe Railway Company* that "The record establishes that the RTC model has been thoroughly tested and has gained widespread acceptance among railroads, transit authorities, and government agencies."[3]

[3] *Total Petrochemicals & Ref. USA, Inc. v. CSX Transp., Inc.*, STB Docket No. NOR 42121 (served Sept. 14, 2016), at 16.

Similarly, in 2016, in *Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc.*, the STB "directed both parties to submit supplemental operating plans and RTC model evidence," underscoring the STB's acceptance of RTC modeling results.[4]

When the RTC program calculates that there is sufficient capacity, it is able to "dispatch" or permit the operations to run in the modeled environment. RTC modelers are then able to test one or more feasible solutions to resolve projected demands on existing or anticipated infrastructure capacity and complete their analysis. On the other hand, to the extent that projected demands on a rail network exceed existing infrastructure capacity simulated in the program, a "run" simply "fails."

When a "run" fails, the RTC program is indicating that the infrastructure capacity that has been simulated is not sufficient to handle the demands (number and types of freight and passenger trains) being simulated over the infrastructure. In such instances, the RTC program does not recommend the location, length, and/or type of infrastructure capital projects to solve the problem. What it does do, however, is indicate the location where the failure occurred, which may or may not be the best location at which to add more infrastructure in the next "run." At that point, it is up to the RTC modeler, perhaps working in conjunction with the modeler's client(s), to test one or more capacity-enhancing alternative projects or operational assumptions to resolve the issue causing the failure.[5] That testing is accomplished by adding data to the program so that it can consider the additional, hypothetical capital project or operational assumption in the next simulation, wait for the RTC program to complete its "run" and indicate whether capacity is then sufficient to meet the needs of the projected demand. Once the RTC program is able to complete its run, RTC modelers

[4] *Pub. Serv. Co. of Colo. d/b/a Xcel Energy v. The Burlington N. and Santa Fe Ry Co.*, STB Docket No. NOR 42057 (served June 8, 2004), at 27.

[5] A good example of this is the failure of the model to run with the proposed new passenger service assuming that grade crossings in communities across the Gulf Coast corridor could only be blocked for a period of 20 minutes at a time. That operational constraint had to be relaxed significantly even to permit the model to dispatch.

are able to review infrastructure projects that might resolve any adverse impact from the proposed set of assumptions being modeled.

As regards this project, because the modelers' clients are experienced in railroad freight and passenger matters and know their respective infrastructures intimately, the modelers sought input from CSXT and NSR concerning improvements at various locations that ultimately resulted in 14 recommended infrastructure capital projects necessary to accommodate the forecasted freight traffic, as listed in Table 1. Note that the RTC modelers did not implement every potential project recommended by CSXT and NSR—only the projects that proved necessary to mitigate freight train delay (as identified in RTC simulations) caused by the introduction of passenger service were recommended in Table 1. A subset of those improvements, also depicted in the second column of Table 1, are the only installations that would have to be completed before Amtrak service could commence on the Gulf Coast Corridor without producing devastating, near-term impacts on both freight train operations and the communities that neighbor the Gulf Coast Corridor, as will be explained in the next section.

The second important issue to consider when evaluating infrastructure capital projects in an RTC simulation is the need to evaluate greater demands upon capacity in a later Base Case year (*e.g.*, 2039) compared to the present-day Base Case year (*e.g.*, 2019). This may strike some as counterintuitive but there is a logical rationale underlying this approach. In many assignments, including this one, RLBA has been asked to recommend infrastructure capital projects to address not only the immediate, direct harm resulting from the proposed operations being modeled but the additional direct, harm resulting from the proposed operations in the future. Experienced RTC modelers faced with the challenge of testing both immediate and long-term issues develop a list of recommended projects in connection with a future year first and then test the removal of some of the same projects through various "runs" to determine if less capacity can meet the needs to be placed on railroad infrastructure in earlier, albeit, still future years. The reason experienced modelers

approach this dilemma in a "backward" fashion is simple economics. RTC experience proves that failure to utilize a long-term infrastructure solution in the shorter term may well result in the construction of a short-term infrastructure solution that is of little or no particular value in the long-term and therefore, may result in unnecessary expenditure. According to RTC model results, only a subset of 11 of the 14 recommended infrastructure capital projects are needed to mitigate the near-term impacts on freight rail operations, as indicated in Table 1.

VI. RTC VALIDATION METHODOLOGY

RLBA's work included both detailed work on the RTC methodology and a physical inspection of existing infrastructure itself and proposed projects as well as a review of data ultimately represented in the RTC model runs.

On the RTC methodology, RLBA worked closely with HNTB to validate the assumptions reflected in the 2021 Gulf Coast RTC Model. HNTB did much of the initial leg work to construct the model framework, and Mr. Guthrie coordinated with the HNTB modeler to validate the assumptions and techniques used in the Model Cases. This included examination of RTC simulation input and output files, review of animations of all primary and secondary model Cases, and extensive phone and in-person meetings to view the raw data files provided by NSR and CSXT to create the RTC user interfaces that identify track parameters, track geometry, authorized speeds, locomotive types, seed train characteristics, and train routing; review the analysis of randomized train starts and drawbridge openings and durations and talk through the Model assumptions, the simulations, and the simulation results.

In addition, Mr. Guthrie inspected the Gulf Coast Corridor between Mobile and New Orleans on CSXT and NSR to validate RTC track layout and, more importantly, to gain insights into the location of switches, local switching movements and constraints, spatial relationships along the network, and the location of recommended improvements identified in Table 1. Mr. Guthrie's inspection included all locations on the Gulf Coast Corridor where train delays occur (sidings, movable

bridges, grade crossings, yards, etc.) because our experience suggests that there is no good substitute for on-the-ground field inspection, especially in complex terminals such as New Orleans and Mobile;

Based on all of the above, Messrs. Banks and Guthrie concluded that the RTC model, which served as the basis of the 2021 Gulf Coast RTC Report, was well-constructed to model actual operations, employed reasonable assumptions, utilized generally accepted modeling practices, and produced realistic outcomes. Assumptions used to model all Cases are listed in Appendix F of the RTC Report. This work confirmed the following:

- CSXT and NSR independently provided the track infrastructure files merged by HNTB to replicate the existing 2019 track layout between Mobile and New Orleans in the RTC model. Modeling teams from CSXT and NSR reviewed and approved the modifications. Modifications to this RTC track layout were needed to best replicate via simulation the impact on operations from proposed track improvements due to the addition of four passenger trains in the last two 2019 and last two 2039 Cases. This methodology is consistent with generally accepted practices;
- Grade crossings were modeled in the RTC track layout based on acceptable criterion, *i.e.* active grade crossing with gates and/or lights, a 20-minute maximum occupancy limit (*i.e.*, fully stopped) hosting greater than 200 Average Annual Daily Traffic ("AADT"). Modeling grade crossings and the associated train delay were necessary to determine the best places at which to locate new or extended sidings or double track to alleviate train delay;
- Actual 2019 Train Data from between September 1 and November 30 provided by CSXT and NSR was used to create RTC Train Files. The three-month data sample in 2019 is without seasonal impacts or other anomolous traffic disruptions and is proper given the pandemic's economic impact in 2020 and the first half of 2021;

- CSXT train departure times were determined by uniform or triangular distributions based on historical data. Train dwells were developed using uniform and triangular distributions to approximate historical data. This method of creating train departure and dwell times using statistical distributions in RTC reflects best practices in light of the inherent operational variability reflected in the data;
- NSR train departure times and train lengths were developed with uniform or triangular distributions based on historical data;
- CSXT and NSR provided the expected train volumes and train lengths in 2039. Using this data, the freight growth was calculated to represent less than 1.5% annual growth rate on both CSXT and NSR. On CSXT, this growth was absorbed into existing merchandise and local trains in the Corridor, increasing maximum train lengths. On NSR, growth was accommodated by new scheduled merchandise trains. Existing train lengths did not change. Locomotives were added to trains to maintain 1 horsepower per ton when train size increased;
- Yard movement train lengths were held constant on both CSXT and NSR, but the frequency of yard movements was increased by the same percentage as the projected merchandise train growth applied in 2039;
- Yard movements requiring "head room" on CSXT and NSR main tracks to "double-up" trains were given relatively high priorities in RTC simulations to prevent unwarranted delays in the arrival and/or departure of through trains;
- On CSXT, MOW mainline blockage was modeled 3 times per day, 30 to 120 minutes per blockage. Amtrak was allowed to run through without delay, reflecting actual practice;
- On NSR, MOW mainline blockage was modeled 1 to 2 times per week, lasting 60 to 90 minutes per blockage;
- Curfews were applied to movable bridge frequency and duration using statistical distributions determined from historical data;
- Hi-rail bridge tender movements to movable bridges were modeled at 30 mph;

- Curfews were used to replicate delays due to interchange events between CSXT and NSR in New Orleans Terminal that RTC does not accurately simulate; and
- Interchange trains to and from CSXT, NSR, BNSF, CN, KCS, and UP were accurately modeled at New Orleans to reflect the variability of actual movements due to track congestion and yard switching operations requiring headroom on main tracks at Oliver and Gentilly yards.

VII. ANALYSIS AND SYNTHESIS OF PRIMARY RTC CASE RESULTS

As stated earlier, the six primary RTC Cases evaluated in this Joint Verified Statement are best understood as two pairs of triplets, structured identically. In both triplets, the 2019 triplet and 2039 triplet, there are three Cases. The first Case in each triplet is a ***Base Case***. The second Case in each triplet is a ***Passenger Case.*** The third Case in each triplet is a ***Build Case***.

Similarly, in each triplet, the ***Base Case*** captures the performance of freight trains in the respective years, significantly constrained by the random opening of bridges over which the railroads exercise no control but not constrained yet by the addition of four new, daily, Amtrak trains. The ***Passenger Case*** in each of the two respective years captures the impacts of the passenger service introduction absent the addition of any physical plant capital projects installed to mitigate those effects. The ***Build Case*** in each respective year captures forecasted freight traffic in that period, the addition of four daily Amtrak trains as well as the capital projects installed to mitigate the effects of adding the passenger services.

In each of the triplets, the two key issues are the extent to which the ***Passenger Case*** impacts freight operations and surrounding neighborhoods and the extent to which the ***Build Case*** mitigates the impacts of introducing four daily Amtrak trains on the Gulf Coast Corridor.

Specifically, the ***2019 Base Case*** ran without the need to add any physical infrastructure projects to the Gulf Coast Corridor. Delay minutes per 100 miles were

determined across the entire 144.1-mile passenger corridor. We participated in numerous discussions with CSXT and NSR RTC modelers and with representatives of both CSXT and NSR Operating departments to review carefully the extent to which the results of this Case, as it evolved, replicated what those representatives knew to be the situation "on the ground" today and to recommend changes to model inputs to the extent it did not. More detail surrounding these efforts can be gleaned from the Joint Verified Statement of Hannah Rosse and Holly Sinkkanen, and the Joint Verified Statement of Ricky Johnson, Senior Vice President of Engineering and Mechanical at CSXT, and Randall Hunt, Senior Director – Interline Services at NSR.

The ***2019 Passenger Case*** as shown in Table 19 of the 2021 Gulf Coast RTC Report, demonstrated that the addition of passenger trains in 2019 above and beyond the freight traffic by that year resulted in a 22.7% increase in delay minutes per 100 train miles, a 4.5% reduction in freight train speed, a 38.1% increase in dispatching conflict, and 37.7% increase in recrews, all of which represent changes no host railroad should have to endure to accommodate the introduction of passenger services. Not only would freight train operations be adversely affected, so would the local citizens along the Gulf Coast Corridor. Specifically, communities between Flomaton and New Orleans will experience a 6.7% increase in the number of grade crossing blockages in excess of 10 minutes as compared with the ***2019 Base Case***. Even with a Model-imposed limit of 20 minutes on blocked crossings in the ***2019 Passenger Case,*** drivers will be confronted with an overall blockage time increase of 5.1%.

In contrast, as shown in Table 23 the addition of recommended projects in the ***2019 Build Case*** mitigates most of the effects of adding passenger trains, resulting in a 4.4% decrease in delay minutes per 100 train miles, a 1.7% increase in freight train speed, a favorable 2.5% decrease in dispatching conflicts and a favorable 3.3 % decrease in recrews, returning the hypothetical railroad to the operating performance characteristics of the ***2019 Base Case*** for the most part. The one major exception to that remedial trend is the change in delay to other railroads operating into New

Orleans, which interchange traffic suffers an adverse 40.2% increase in delay minutes per 100 train miles. In other words, the combination of recommended projects did not fully compensate for the adverse impacts on New Orleans interchange movements caused by the introduction of passenger service on the Gulf Coast Corridor.

The ***2039 Base Case*** ran with the incorporation of four freight-specific infrastructure projects already planned by CSXT in the region between Mobile and Montgomery. Delay minutes per 100 miles were determined across the entire 144.1-mile passenger corridor.

The ***2039 Passenger Case*** as shown in Table 11 of the RTC Report, the addition of passenger trains in 2039 resulted in a 20.4% increase in delay minutes per 100 train miles, a 4.5% reduction in freight train speed, a 42.8% increase in dispatching conflicts, and 42.9% increase in recrews, all of which represents changes no host railroad should have to endure to accommodate the introduction of passenger services. Not only would freight train operations be adversely affected, so would the local citizens along the Gulf Coast Corridor. Specifically, as demonstrated in Table 10 of the 2021 Gulf Coast RTC Report, huge increases in grade crossing blockage time, ranging between 46% and 313%, would confront drivers seeking to use the eight crossings also identified in Table 10 of the Report. In this Case, the only solution to the gridlock was to allow all grade crossings to be blocked up to 150 minutes, harming mobility across communities all along the subject Gulf Coast Corridor. While those grade crossing blockage times may be impractical and politically untenable, it was necessary to relax blockage restrictions to 150 minutes to get the model to dispatch, given the absence of recommended improvements which characterizes this Case.

In contrast, as shown in Table 15, the addition of recommended projects in the ***2039 Build Case*** mitigates the effects of the new Amtrak passenger trains, resulting in a 2.5% decrease in delay minutes per 100 train miles, a 2.0% increase in freight train speed, a favorable 2.9% decrease in dispatching conflict, and a favorable 15.1% decrease in recrews, thus returning the hypothetical railroad to the operating

performance characteristics of the ***2039 Base Case*** for the most part. The one major exception to that remedial trend is the change in delay to other railroads serving into New Orleans, which interchange traffic suffers an adverse 18.5% increase. In other words, the combination of recommended projects did not fully compensate for the adverse impacts on New Orleans interchange movements caused by the introduction of passenger service on the Gulf Coast Corridor.

VIII. SUMMARY OF OUR FINDINGS

Based on all of the above, we reached three overarching findings.

First, the assumptions and methodologies employed in and the results of the 2021 Gulf Coast Corridor RTC Report Cases were valid and should be accepted by the STB.

Second, the Gulf Coast Corridor is a very challenging corridor on which to impose the proposed Amtrak service. Given the quality of the track and the related potential maximum track speeds on the Gulf Coast Corridor (79 mph passenger, 60 mph freight) as facilitated by a sophisticated CTC signal system, we initially thought that accommodating four daily Amtrak trains might not be a significant challenge to the existing freight operations and infrastructure. However, upon further review, our analysis shows that it will be quite challenging to accommodate the Amtrak trains, even in the short term, and give them the perference they are entitled to under the law because the Gulf Coast Corridor is anything but a typical route. The route's inhospitable posture to passenger service is not due to any particular aspect, but rather to an unfortunate combination of ingredients, which are discussed in the following paragraphs.

Movable bridges. There are 13 movable railroad bridges (seven of which are located directly on the Gulf Coast Corridor) that open on a random basis, which stay open a fairly long time due to the passage of taller ships underneath, whose daily openings are not under the control of either CSXT or NSR, and whose opening times are sufficiently irregular that even experienced railroad operations staff cannot plan around them effectively. The openings in and of themselves are extremely disruptive

to both passenger service and freight train movements, as best indicated by reviewing Table 17 in the 2021 Gulf Coast RTC Report. Table 17 displays some results from the ***2039 Build Case***. That Case is arguably the single most important Case insofar as it attempts to capture not only long-term Amtrak service and freight operating demands, and with regard to the Amtrak service, capital projects necessary to provide Amtrak trains the operating environment necessary to traverse the route reliably and quickly enough that Amtrak can meet its commercial, political and modal-competitive objectives, all without unreasonably impairing freight rail operations. Table 17 in the 2021 Gulf Coast RTC Report reflects a level of infrastructure necessary to achieve 96.5% Customer On-Time Performance ("OTP"). In RTC, an OTP over 95% is needed to ensure that actual passenger operations on the corridor can produce an OTP of over 80%, a metric required by Amtrak and federal regulation. The RTC model simulates an operating environment absent any disrupting events routinely encountered by passenger and freight trains and, as a result, a higher Customer OTP target is required to meet the 80% Amtrak metric. In that Case, randomized bridge openings represented 44.2% of Delay Minutes, only slightly less than the 50.0% of Delay Minutes caused by Freight interference. Amtrak trains interfering with other Amtrak trains caused the other 5.8% of Delay Minutes. The 44.2% of Delay Minutes attributable to bridge openings demonstrates how intractable the inherent characteristics of the Gulf Coast Corridor are and suggests why the costs of necessary projects to overcome those characteristics is as high as it is.

The tracks leading from several major yards out onto the mainlines on both railroads along the Gulf Coast Corridor are located close enough to bridges that switching operations are adversely affected by bridge openings. In other words, bridge openings adversely affect not only through freight and Amtrak train movements but freight yard operations as well.

Single-track lines. The Gulf Coast Corridor is largely single-track with short or insufficient length sidings, which are improperly spaced to efficiently pass trains (exacerbated in 2039 by increased train lengths and frequency).

Switching on main line. There is significant local traffic that requires significant switching utilizing the main track.

Grade crossings. There are a high number of grade crossings (more than 160) along the Gulf Coast Corridor such that bridge openings or freight trains held to accommodate Amtrak trains end up blocking the highway and street crossings if there are not sufficient sidings or siding lengths in which to hold them. The over 160 grade crossings equate to more than 1.11 crossings per route-mile, almost twice Alabama's public grade density per mile (.577), and significantly more than Mississippi's (.847) or Louisiana's (.911).[6] The crossings affect the introduction of Amtrak passenger service in multiple ways. First, the introduction of Amtrak service will force freight trains to stop on sidings to expedite the passage of Amtrak trains and thus substantially increase the number of delay minutes that the motoring public will be forced to endure, as suggested by the values in Table 10 of the 2021 Gulf Coast RTC Report. Second, there are only so many opportunities in which to locate a siding on the Gulf Coast Corridor long enough to hold a freight train. However, the existence of the 160 plus crossings of the Gulf Coast Corridor severely limit the practical opportunities to construct a siding of that length without the need to extend the siding on one end or the other in a manner that could result in blocking motor vehicular traffic. That theoretical number of locational opportunities is further reduced not only by a large number of movable bridges but also the larger number of fixed bridges that would require higher construction costs and permitting than otherwise would be the case. Regardless of what number of actual and practical locational opportunities exist, the number is small and suggests that costs of siding installations may be high, owing to the limited set of options likely to prove available.

[6] The specific website locations for the sources of grade crossing and railroad miles data are as follows: Number of public grade crossings by state: https://safetydata.fra.dot.gov/officeofsafety/publicsite/Query/PublicGradeCrossingInventoryByStateCounty.aspx. Miles of railroad in Alabama: https://rosap.ntl.bts.gov>dot>dot_15050_DS1(3).pdf. Miles of railroad in Louisiana: https://www.american-rails.com/la.html. Miles of railroad in Mississippi: https://www.american-rails.com/ms.html.

The RTC model simulation cases we reviewed show definitively that adding Amtrak trains on top of existing and projected freight train operations would cause serious interference to freight operations, resulting in failure to meet customer commitments, absent the installation of all recommended infrastructure capital projects prior to the commencement of any Amtrak service.

Our third overarching finding is that significant capital improvements are necessary to accommodate Amtrak trains without degrading freight operations. The RTC software suggests locations needing mitigation but does not recommend or even suggest the capital improvements sufficient to offset congestion impacts. Therefore, working collectively, NSR and CSXT operations staff and the RTC modelers have proposed mitigation capital infrastructure projects based on where delays occurred in the Cases before they were adequately mitigated by the proposed projects. Cost estimates of these mitigation projects have been developed in the report of Ted Niemeyer that is attached to this verified statement as Appendix B.

IX. GLOSSARY OF TERMS

Acronyms and Abbreviations

Amtrak	National Railroad Passenger Corporation
BNSF	BNSF Railway
CN	Canadian National Railway
CSXT	CSX Transportation, Inc.
FRA	Federal Railroad Administration
NSR	Norfolk Southern Railway Company
OTP	On-Time Performance
STB	Surface Transportation Board
UP	Union Pacific Railroad

Definitions

Case	Simulated combination of infrastructure, operations, and bridge operations.
random seed	A unique set of random numbers used to determine the variability of the random inputs into the model in each scenario. Variable model inputs include bridge opening times, train departure times, and train lengths. Each case with the same random seed and input files will have the same input variability.
2019 Base Case	Model representing existing (2019) infrastructure and operations. Allows validation of model against actual data.
2019 Passenger Case	2019 base case with no projects and the addition of the proposed passenger service.
2019 Build Case	Case with 2019 freight operations, proposed passenger service, and infrastructure changes. This case is used to determine projects required to mitigate impact of proposed passenger service.
2039 Base Case	Case representing future (2039) operations on the corridor without the proposed passenger service. This case incudes anticipated future freight growth, and any currently anticipated infrastructure. This case is sometimes referred to as the "No Build."
2039 Passenger Case	2039 Base Case with no projects and the addition of the proposed passenger service
2039 Build Case	Case with 2039 freight operations, proposed passenger service, and currently anticipated infrastructure. This case is used to determine required projects to mitigate impact of proposed passenger service.
2039 Build Case With No Bridge Openings	2039 Build Case with no bridge openings to determine how bridge openings limit potential OTP of proposed service on the corridor with the inclusion of the 2039 projects.
2039 Passenger Only Case	Passenger service, with 2039 bridge openings, no freight operations, and no projects. Used to determine performance of proposed service alone.
2039 FRA Case	Case evaluating train performance with projects proposed by the FRA in the 2017 Gulf Coast Working Group Report to Congress.
2039 FRA Adjusted Case	Case evaluating train performance with projects proposed by the FRA in the 2017 Gulf Coast Working Group Report to Congress with projects that require approval outside the control of the railroads or are infeasible to build removed.
Dwell	When a train is stopped to perform either planned (e.g. change crews, swap cars, or locomotives) or unplanned (e.g. conflicts with other trains, movable bridges) events.
Meet	When two trains operate on a mainline in opposite directions, requiring one of the trains to enter a siding to allow the other to pass by.

Pass	Also known as overtake, when a train traveling in the same direction as another train catches up to the second train, requiring the slower train to enter a siding to allow the faster train to pass by.
mainline	Primary track(s) designated to host train travel. Can be composed of one or multiple tracks.
Siding	Section of track that allows for train meets and passes.
Turnout	A type of special track that allows movement between two parallel sets of track. The crossover is composed of one turnout at each end.
crossover	A set of crossovers that allows trains to travel from one track to an adjacent track regardless of the direction of travel.
universal crossover	Primary track(s) designated to host train travel. Can be composed of one or multiple tracks.
train dispatcher	A railroad employee responsible for directing the movement of trains within a specified territory.
dispatching priority	Preference given to a train during dispatching decisions. A higher priority train is less likely to experience delays during conflicts between trains.
dispatching conflict	When two trains would require occupying the same track at the same time requiring the dispatcher to select which train to divert onto another track and/or potentially to delay.
Recrew	When a train must change crews due to the original crew reaching their maximum allowable hours of service. When a train is recrewed other than is scheduled or planned, results in additional delays to the train since the train must stop along the corridor, often in a siding, to allow for the swapping of the crews.
local freight trains	Trains that work from yards picking up and dropping off cars directly at the customer locations. Local freight trains often have the lowest priority of rail traffic.
through freight trains	Trains that carry commodities long distances between yards, ports, or mines. Through freight trains rarely have scheduled stops between major yards.

VERIFICATION

I, Charles H. Banks, declare under penalty of perjury that the foregoing information is true and correct. Further, I certify that I am qualified and authorized to file this statement.

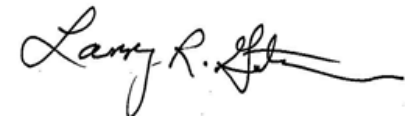
Executed on this 3rd day of November, 2021.

Charles H. Banks

VERIFICATION

I, Larry R. Guthrie, declare under penalty of perjury that the foregoing information is true and correct. Further, I certify that I am qualified and authorized to file this statement.

Executed on this 3rd day of November, 2021.



Larry R. Guthrie

APPENDIX A

NEW ORLEANS – MOBILE GULF COAST PASSENGER SERVICE RTC MODELING REPORT

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November 3, 2021

NEW ORLEANS – MOBILE GULF COAST PASSENGER SERVICE RTC MODELING REPORT

HNTB Corporation
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Executive Summary

The National Railroad Passenger Corporation, or Amtrak, has proposed to implement a new passenger train service between New Orleans, Louisiana, and Mobile, Alabama. The service will consist of four daily trains sharing the track infrastructure with freight trains and other passenger trains.[1] In response to the request to initiate the proposed service, a rail operations simulation study of the CSX Transportation, Inc. (CSXT) and Norfolk Southern Railway Company (NSR) rail networks was performed of the corridor. The modeling study was performed to simulate the impact of the proposed passenger service on the railroad corridor today and over a 20-year period. The study has identified potential infrastructure projects along the corridor necessary to provide reliable passenger service without materially impacting freight and existing passenger service along the route.

The proposed corridor has a number of existing operating constraints. New Orleans and Mobile are highly congested terminals and junctions today, with limited capacity to add passenger traffic. The proposed passenger service travels on three separate railroads, which have different owners and track characteristics. There are currently four key operating constraints on the corridor: (1) terminal operations in New Orleans and Mobile; (2) mostly single-track infrastructure; (3) over 160 grade crossings; and (4) thirteen movable bridges. Locations where trains are able to dwell on the corridor are limited, as railroads try not to block grade crossings to avoid causing delays to vehicular traffic for extended periods of time. When passenger service is introduced, these constraints will further degrade freight performance.

The thirteen movable bridges on or adjacent to the Gulf Coast Corridor,[2] in particular, present unique and complex operational challenges for the Gulf Coast corridor. The movable bridges open on-demand for maritime traffic, often for extended periods and in unpredictable patterns. The presence of these bridges, combined with numerous daily road trains and local traffic into the busy New Orleans and Mobile areas, magnifies the impact of implementing four daily trains over this corridor.

[1] The proposed Gulf Coast passenger service originates and terminates at the New Orleans Union Passenger Terminal (NOUPT), served by a track owned and operated by Amtrak, and through NSR's New Orleans Terminal, over which the Amtrak Crescent services operates.

[2] The United States Coast Guard may promulgate "rules and regulations" concerning the opening and closing of drawbridges built across navigable rivers and other waterways. 33 U.S.C. § 499(a).

Movable Bridges and Operations along the Route

Railroad	Bridge	Milepost	Daily Opening Frequency	Avg. Open Duration (min)	Operating Hours
CSXT	Tensaw	651.5	0.1	19	1000-1800
CSXT	Mobile	653.5	6.0	39	24 hrs/day
CSXT	Bayou Sara	658.3	0.2	24	1100-1900
CSXT	Chickasaw	663.2	8.7	45	24 hrs/day
CSXT	Three Mile Creek	664.1	2.8	20	24 hrs/day
CSXT	Pascagoula	706.8	6.5	92[1]	24 hrs/day
CSXT	Biloxi[2]	724.3	6.3	31	24 hrs/day
CSXT	Bay St Louis[2]	752.5	1.5	45	24 hrs/day
CSXT	Pearl River[2]	768.9	0.9	11	0600-2200
CSXT	Rigolets[2]	775.4	2.4	47	24 hrs/day
CSXT	Chef Menteur	787.2	3.8	35	24 hrs/day
Port NOLA	Industrial Canal	801.4	8.9	5	24 hrs/day
NSR	Seabrook	190.6	5.9	97[1]	24 hrs/day

1 Bridge remains open when no trains are approaching to reduce maintenance
2 Bridges that require hi-rail movements to transport operators to the bridge

Using the de facto industry standard Rail Traffic Controller (RTC) simulation model, we developed and tested multiple cases to understand and quantify train performance with current and forecasted freight rail operations. Understanding the impact of the new passenger service on future operations is necessary to determine how freight and passenger services can share infrastructure without degrading the overall performance of the corridor. Following the FRA recommended industry standard practice when adding passenger train service, modeling was performed to determine the passenger and freight performance 20 years in the future. Using 2019 data and projected freight growth provided by CSXT and NSR, models were built representing projected operations in 2039.

In the **2039 Base Case**, the RTC model shows that CSXT and NSR have sufficient capacity on the line to handle forecasted increases in freight demand. This changes dramatically when the four daily passenger trains are introduced to the corridor. Without any capacity projects, the RTC model cannot find a dispatching solution without permitting a freight train to be stopped blocking public crossings for more than 20 minutes. It was impossible to dispatch the freight and new passenger trains in the future without blocking crossings for extended period; ultimately, the model determined the only dispatching solution that would allow the model to run involved allowing the model to block crossings in excess of 150 minutes. Even with this relaxed crossing-constraint rule, the model found that freight traffic will suffer significant delays and local communities will experience large increases in blocked crossings, as shown below.

Grade Crossings with Increased Blockage Time in 2039 Passenger Case As Compared to 2039 Base Case

Road Name	Xing ID	City	State	% Increase in Blockage Time	Additional Extended Crossing Blockages per week
Gentilly Road	341059F	New Orleans	LA	313%	7.1
Michoud Boulevard	341062N	New Orleans	LA	257%	5.5
Beauvoir Road	340209H	Biloxi	MS	154%	3.5
Iris Street	340208B	Biloxi	MS	114%	3.0
West Oakridge Park	725712F	New Orleans	LA	60%	6.2
Farnham Place	725711Y	New Orleans	LA	60%	6.2
Hollywood Road	725710S	New Orleans	LA	50%	5.9
Read Road	352562S	New Orleans	LA	46%	1.9

After substantially relaxing the blocked crossing constraints in the **2039 Passenger Case** to 150 minutes, as described above, the model was able to dispatch the proposed passenger service but not without significant degradation to the underlying freight traffic. As shown in the **2039 Passenger Case**, the RTC results predict that by 2039—without the introduction of additional infrastructure—adding the proposed passenger service will increase freight delays by 20.4%, reduce freight train speeds by 4.5%, increase dispatching conflicts by 42.8%, increase recrews by 42.9%, and increase the variability of freight operations.[3] Increased crossing blockages, and resulting motor vehicle delays, enabled the RTC model to limit the interchange delays.

Change in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with Increased Grade Crossing Blockages

% Change in Modeled Freight Train Delay / 100 Train Miles		% Change in Modeled Freight Train Speed		% Change in Dispatching Conflicts		% Change in Delay to Other New Orleans Railroads[4]		% Change in Recrews	
20.4%	↑	-4.5%	↓	42.8%	↑	-23.1%	↓	42.9%	↑

Local freight trains, meaning trains that pick up and drop off cars directly at the customer locations, experience the greatest degradation of service. Local trains serving customers on this line would experience a 38.7% increase in delay with most facing an increase in variability of service, thus significantly degrading the predictability of first-mile last-mile operations. Overall, the immediate combined freight and passenger operations will increase congestion along the corridor, resulting in delays to customers' freight with increased grade crossing blockage times.

[3] As discussed, this material degradation of freight service is directly attributable to the introduction of the proposed passenger service, because this is the degradation over the freight service fluidity in that same year without the introduction of the passenger service. None of this material degradation is attributable to freight growth.

[4] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

The congestion from the proposed passenger trains will also increase train performance variability. High variability in train operations makes planning difficult and requires additional resources including locomotives, train cars, and operating crews for operations along the mainline and therefore create even more congestion. This will increase operating costs incurred by the freight railroads and will directly impact the rail customers along the corridor. It could result in customers needing to build additional storage capacity and/or halt or shift business due to an unreliable and costly rail supply chain.

Fourteen projects are identified to reduce overall delays to freight trains and minimize or eliminate the need for trains to be stopped on crossings in excess of 20 minutes. Projects were selected based on the results of the RTC model using the following criteria:

1) Provide capacity to achieve above 95% On-Time Performance (OTP)[5] by passenger trains and limit the need for a passenger train to enter and be delayed in a siding;
2) Restore freight traffic performance to at least the same level as before passenger trains are added to the corridor; and
3) No passenger or freight train schedule changes.

The fourteen projects identified both mitigate the aggregated impact of the passenger trains on freight operations and to limit freight train caused delays to the passenger trains. With these projects, the four daily passenger trains are able to achieve OTP ranging between 95.5% and 97.3%. As described below, because the RTC model represents a normal operating environment with no major disrupting events, and because RTC can foresee events that a human dispatcher cannot, the OTP produced by RTC will be superior to real-world OTP. RTC OTP performance over 95% is needed to ensure that actual operations could produce an OTP over 80%.

In 2019, there are lower volumes and shorter trains as compared to 2039, but the fundamental impact of the additional high-priority passenger trains remains the same. Without any projects on the corridor, the overall freight train performance will be degraded, and grade crossing blockages will increase. Using the projects proposed in 2039, a subset of eleven projects were identified to mitigate in the aggregate the introduction of passenger traffic in 2019.[6]

[5] As explained *infra,* increasing capacity in the RTC model to theoretically allow for 95% OTP is necessary to ensure that Amtrak's metric of 80% OTP is routinely achievable.

[6] A study of the impact of passenger service in 2019 is included because Amtrak intends to introduce service without additional infrastructure. Should the service be introduced with the 2019 infrastructure proposals, but without any planning for the introduction of the additional infrastructure included in the 2039 solution set, the freight and passenger operations on the corridor can reasonably be expected to degrade over time.

Summary of Proposed Projects

Project	Included in 2019	New Track (ft)	Notes
NSR Terminal Improvements	Y		5 crossovers
Gentilly Bypass	Y	14,000	3 crossovers
Michoud Double Track		12,500	2 crossovers
Claiborne Double Track	Y	16,500	2 crossovers
Nicholson Siding Extension	Y	12,600	
Harbin Siding Extension	Y	1,700	flip mainline and siding
Beauvoir Double Track	Y	28,600	
Fountainbleau Siding Extension	Y	12,100	
Bayou Cassotte Power Turnouts	Y		2 powered turnouts
St. Elmo Siding Extension		3,500	
Theodore Improvements	Y		3 powered turnouts
Brookley Siding Extension	Y	3,900	
Mobile Double Track		14,000	3 crossovers
Mobile Station Track	Y	3,200	
2019 Total		**92,600**	
2039 Total		**122,600**	

In addition to the proposed projects, key findings of the modeling study include:

1. Movable bridges impair passenger service along the corridor and reduce the potential OTP of the passenger service;
2. Increased train variability from passenger traffic will increase congestion in New Orleans and Mobile;
3. Local freight trains would experience the greatest degradation of service, which means that rail freight customers would experience more erratic service increasing their costs and reducing efficiencies in their own operations if sufficient track capacity is not constructed; and
4. In New Orleans, without additional infrastructure, the addition of passenger traffic will result in increased delays not only on NSR but also on the other Class I freight railroads attempting to interchange traffic to NSR and CSXT in New Orleans, which could adversely impact and spread further into their own networks.

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Acronyms and Abbreviations

AGR	Alabama & Gulf Railway
Amtrak	National Railroad Passenger Corporation
BNSF	BNSF Railway
CAGR	Compound Annual Growth Rate
CN	Canadian National Railway
CSXT	CSX Transportation, Inc.
FRA	Federal Railroad Administration
NO	New Orleans
Port NOLA	The Port of New Orleans
NOPB	New Orleans Public Belt Railroad
NOUPT	New Orleans Union Passenger Terminal
NSR	Norfolk Southern Railway Company
OTP	On-Time Performance
STB	Surface Transportation Board
TASD	Terminal Railway Alabama State Docks
UP	Union Pacific Railroad
USDOT	United States Department of Transportation

Definitions

case	Simulated combination of infrastructure, operations, and bridge operations.
scenario	Randomized version of each modeled case.
random seed	A unique set of random numbers used to determine the variability of the random inputs into the model in each scenario. Variable model inputs include bridge opening times, train departure times, and train lengths. Each case with the same random seed and input files will have the same input variability.
2019 Base Case	Model representing existing (2019) infrastructure and operations. Allows validation of model against actual data.
2019 Passenger Case	2019 base case with no projects and the addition of the proposed passenger service.
2019 Build Case	Case with 2019 freight operations, proposed passenger service, and infrastructure changes. This case is used to determine projects required to mitigate impact of proposed passenger service.
2039 Base Case	Case representing future (2039) operations on the corridor without the proposed passenger service. This case includes anticipated future freight growth, and any currently anticipated infrastructure. This case is sometimes referred to as the "No Build."
2039 Passenger Case	2039 Base Case with no projects and the addition of the proposed passenger service
2039 Build Case	Case with 2039 freight operations, proposed passenger service, and currently anticipated infrastructure. This case is used to determine required projects to mitigate impact of proposed passenger service.
2039 Build Case with No Bridge Openings	2039 Build Case with no bridge openings to determine how bridge openings limit potential OTP of proposed service on the corridor with the inclusion of the 2039 projects.
2039 Passenger Only Case	Passenger service, with 2039 bridge openings, no freight operations, and no projects. Used to determine performance of proposed service alone.
2039 FRA Case	Case evaluating train performance with projects proposed by the FRA in the 2017 Gulf Coast Working Group Report to Congress.
2039 FRA Adjusted Case	Case evaluating train performance with projects proposed by the FRA in the 2017 Gulf Coast Working Group Report to Congress with projects that require approval outside the control of the railroads or are infeasible to build removed.
Corridor	The rail route between the New Orleans Union Passenger Terminal in New Orleans, Louisiana, and the planned Amtrak station in Mobile, Alabama.
local freight train	Trains that work from yards picking up and dropping off cars directly at the customer locations. Local freight trains often have the lowest priority of rail traffic.
through freight train	Trains that carry commodities long distances between yards, ports, or mines. Through freight trains rarely have scheduled stops between major yards.
dwell	When a train is stopped to perform either planned (e.g. change crews, swap cars, or locomotives) or unplanned (e.g. conflicts with other trains, movable bridges) events.
meet	When two trains operate on a mainline in opposite directions, requiring one of the trains to enter a siding to allow the other to pass by.

pass	Also known as overtake, when a train traveling in the same direction as another train catches up to the second train, requiring the slower train to enter a siding to allow the faster train to pass by.
train dispatcher	A railroad employee responsible for directing the movement of trains within a specified territory.
dispatching priority	Preference given to a train during dispatching decisions. A higher priority train is less likely to experience delays during conflicts between trains.
dispatching conflict	When two trains would require occupying the same track at the same time requiring the dispatcher to select which train to divert onto another track and/or potentially to delay.
passenger recovery time	The additional time added to passenger train schedules to recognize normal delays and maintain adherence to the schedule.
pure running time	The travel time of a train if no other trains are operating on the corridor.
push or shove movement	The typical freight train movement is with the locomotive at the front of the train pulling the consist. When a train needs to move backward, a train will push or shove the consist. A backward movement is slower than a forward movement and often requires a second crew member outside the locomotive to guide the train movements.
mainline	Primary track(s) designated to host train travel. Can be composed of one or multiple tracks.
siding	Section of track that allows for train meets and passes.
turnout	A piece of special track that allows trains to switch tracks. Sometimes referred to as a switch. The size, or number, of the turnout, determines the allowable speed of trains; the larger the number the faster the allowable speed. Turnouts are either hand thrown, which requires the train to stop and a crew member to manually move the turnout, or powered, which is controlled by the train dispatcher.
crossover	A type of special track that allows movement between two parallel sets of track. The crossover is composed of one turnout at each end.
universal crossover	A set of crossovers that allows trains to travel from one track to an adjacent track regardless of the direction of travel.
wye	Three railroad tracks in a triangular form with switches at all three corners. For example, a wye allows train movements to enter a facility from either direction without a push or shove move.
slow order	When the track speed for a section of track is limited from its normal allowable speed. Slow orders are required, for example, to maintain safe train operations during track maintenance.
curfew	Track outage. Often required to facilitate track maintenance or construction. Curfews are also used in the simulation model to represent bridge openings or interchange delays.
recrew	When a train must change crews due to the original crew reaching their maximum allowable hours of service. When a train is recrewed other than is scheduled or planned, results in additional delays to the train since the train must stop along the corridor, often in a siding, to allow for the swapping of the crews.
extended blocked crossing	When a train blocks a crossing (when the gates are down) for more than 40 minutes.

1.0 Project Overview and Background

Amtrak has proposed to implement a new passenger train service between New Orleans and Mobile. Understanding the potential impact on freight operations of the proposed four daily passenger trains requires a detailed operations simulation study. Operations modeling helps determine the performance of the new passenger service and any track infrastructure modifications required to prevent unreasonable delay to current and future freight and existing passenger operations. Because no previous study of the proposed passenger train schedule over this precise route has been completed, an operations simulation study was performed to assess the impacts on the corridor of the proposed passenger trains. This report provides the analysis, findings, and recommendations for the proposed Amtrak service.

1.1 Current Corridor Infrastructure and Operations

The rail corridor between New Orleans and Mobile is a major corridor with connections to most of the United States Class 1 Railroads. The primarily single-tracked corridor is comprised of three sections, each with a different owner and track infrastructure (Table 1).

On routes with a single mainline track, when two trains traveling in opposite directions meet, they must pass where there is a second track. These second tracks, known as sidings, must be slightly longer than the length of the impacted trains and require a train to stop and wait while the opposing train passes. Alternatively, when there is a long segment of second track, known as double track, trains can meet and pass each other without stopping. Sometimes it is necessary for a train to overtake another train traveling in the same direction. In these cases, the leading train must wait in a siding or on double track for the trailing train to catch up and pass. Overtakes, sometimes called a "pass", are required to allow the faster passenger trains to overtake the slower freight traffic. On a single-track route, the capacity of the route is limited by the distance between locations where trains may pass each other. The farther the sidings or double track are apart, the more time is required for one train to wait for another train.

A track schematic of the existing track infrastructure on the corridor is in Appendix A. A more detailed discussion of the capacity constraints between New Orleans and Mobile, including the grade crossings and movable bridges, can be found in Section 2.0. An overview and key metrics of the subject route are shown in Table 1.

Table 1: Operations and Infrastructure Overview Between New Orleans and Mobile

Segment	Length (miles)	Owner	Typical Infrastructure	% Two Tracks	2019 Daily Freight Train Volumes	2019 Daily Passenger Train Volumes
NOUPT to East City Junction	3.6	Amtrak	Single Track	0%	0	4
East City Junction to NOT Junction	3.7	NSR	Double Track	100%	14	2
NOT Junction to Mobile	136.8	CSXT	Single Track with Sidings	18%	13	0

1.1.1 New Orleans Union Passenger Terminal Infrastructure and Operations

Starting in New Orleans, the first 3.6 miles is single-tracked between New Orleans Union Passenger Terminal (NOUPT) and East City Junction, which is the Amtrak-dispatched Union Passenger Terminal. The NOUPT terminal is the destination for the currently operated Amtrak Crescent (trains 19 & 20), City of New Orleans (trains 58 & 59), and Sunset Limited (trains 1 & 2).

1.1.2 NSR Infrastructure and Operations

For 3.7 miles from East City Junction to the junction between CSXT and NSR (referred to as NOT Junction by CSXT and Elysian Fields by NSR), the route is owned and operated by NSR. The route is entirely double-tracked currently running 14 freight trains and hosting two Amtrak passenger trains per day. The majority of the freight trains go to and from the many connecting railroads in the New Orleans terminal complex. Many of the freight trains will stop and work at Oliver Yard, located less than one mile to the east of NOT Junction, to swap cars and locomotives or change crews. Due to NSR's limited capacity in the terminal, NSR constantly communicates with the other railroads in New Orleans to plan freight train movements to maintain yard and network fluidity.

1.1.3 CSXT Infrastructure and Operations

The 136.8-mile corridor extending between NOT Junction and Mobile is owned and operated by CSXT. Roughly 3 miles to the east of NOT Junction is CSXT's Gentilly Yard. The yard is a major interchange location. Trains arriving from various Class I railroads in New Orleans enter the yard to sort their cars into trains heading to destinations on the CSXT network. Similarly, trains arriving from the east terminate at Gentilly Yard, and cars are sorted there before being transferred to other railroads.

The route between Gentilly Yard and Mobile is primarily single-track with sidings. On average about 13 freight trains operate on the corridor daily with no existing passenger service. The freight traffic is composed of local trains that pick up and drop off cars directly to customers, often blocking the mainline as they work, and merchandise trains that take the cars collected by the locals to other destinations throughout the CSXT rail network. The corridor has many complexities, including multiple movable bridges that are required by law to open on demand for maritime traffic during the planned Amtrak operating windows, and there are limited locations where trains can dwell without blocking one of the over 160 grade crossings along the route.

The other major terminal on the proposed passenger corridor is Mobile, Alabama. Mobile, like New Orleans, is a major junction with multiple railroads and is home to the Port of Mobile, a major origin and destination for freight traffic of all types, much of which moves to and from the Port by rail.

1.2 Shared Corridor Operations

Railroad corridors with both freight and passenger train operations are often referred to as "shared" corridors. The most common arrangement for shared corridors in the United States is for passenger trains to operate on freight-owned and dispatched railroad routes. The dispatcher, a railroad employee who is responsible for directing the movement of trains within a specified territory, manages a railroad corridor by balancing train performance requirements and network fluidity. One task of a dispatcher is to resolve conflicts when the movements of two trains require occupying

the same track at the same time. The train dispatcher determines which train will switch tracks and potentially experience additional delays. This determination is based on multiple factors, with the overall goal being to minimize delay and optimize network fluidity.[7] When sufficient capacity exists, the delay is given to the lower priority train. Trains with higher priority receive preference during dispatching decisions and will have fewer delays and higher average speeds.[8] However, when there is congestion or limited capacity, dispatchers are unable to give preference to any traffic.

Federal law requires host railroads to provide Amtrak passenger trains with preference except in an emergency.[9] This means that "railroad dispatchers have an obligation to plan for meets between Amtrak and other trains and to take steps to allow Amtrak to proceed without delay."[10] On a single-track route, to not delay passenger trains, the passenger traffic is given preference and freight trains are dispatched into sidings. The trains with the lowest priority will experience the greatest delays, potentially not completing their work, or requiring an unplanned recrew.

Because of the preference that passenger trains are granted by federal statute and their faster operating speeds, when operating on a freight railroad network, they utilize a disproportionate amount of capacity.[11] The addition of four passenger trains will utilize more capacity as compared to four additional freight trains even though the freight trains are longer and slower. This disproportionate capacity utilization is important because it will require additional infrastructure to mitigate the impacts to current and future freight operations so as not to "impair unreasonably freight transportation."[12] Accordingly, before the commencement of a new passenger service, the proposed operations need to be evaluated to determine the adequate amount of new track infrastructure capacity to mitigate the impacts of the additional passenger trains.

1.3 Passenger On-Time Performance Measure

In December 2020, the Federal Railroad Administration (FRA) issued a new Metrics and Minimum Standards for Intercity Passenger Rail Service (49 C.F.R. Part 273) rule to measure intercity passenger train service performance. The rule specifies the use of Customer OTP, defined as the percentage of all customers on an intercity passenger rail train who arrive at their detraining point no later than fifteen minutes after the published scheduled arrival time, reported by train and by route. The rule sets a minimum OTP standard of 80% for any train for any two consecutive calendar quarters, after which the Surface Transportation Board (STB) may initiate an investigation.

End-point OTP has historically been used to measure passenger train performance and is used in many of the railroad operating agreements between the freight railroads and

[7] Minimizing delays for a single train often results in increasing delays for another. Therefore, it is imperative for optimizing network fluidity to be considered, as opposed to isolating analysis and decision-making as to only a single train.

[8] Zhang, Kuilin et al., "Impact of High-Speed Passenger Trains on Freight Train Efficiency in Shared Railway Corridors," at 1 (2015).

[9] 49 U.S.C. § 24308 Use of facilities and providing services to Amtrak.

[10] Federal Railroad Administration, Root Causes of Amtrak Train Delays, Report No. CR-2008-076, at 4 (issued Sept. 8, 2008).

[11] Shih, Mei-Cheng, et al., "Impact of Passenger Train Capacity and Level of Service on Shared Rail Corridors with Multiple Types of Freight Trains," Transportation Research Record, Vol. 2475, No. 1, at 63–71 (Jan. 2015).

[12] 49 U.S.C. § 24308(e)(2)(A).

Amtrak. End-point OTP is measured at the final station or railroad transfer location (*e.g.*, NOT Junction and East City Junction on the study corridor) and any train arriving within the agreed-to-schedule threshold is considered on-time.

The change in OTP calculation from end-point OTP to Customer OTP, however, will affect the operation of passenger trains, delays to freight trains, and required infrastructure. Since Customer OTP is measured at each station along the route, recovery time is distributed along the route to account for normal operating delays in the schedule to maintain on-time arrivals. When creating schedules, sufficient recovery time should be included to enable regular, on-time passenger train arrivals. However, too much recovery time will result in passenger trains arriving early to intermediate stations. When a passenger train arrives early, it will wait and dwell, often blocking the mainline track to other rail traffic until its departure time, thereby increasing congestion and delays to all rail traffic traveling on a corridor which requires additional infrastructure to mitigate. This issue could be mitigated by building station tracks at each location, but these projects would add significant construction costs.

Because of the lack of station-specific historical ridership data, a variant of the Customer OTP measure was used in this analysis, a variant that weighs each station's on-time performance equally.

2.0 Corridor Capacity Constraints

Train operations on the rail corridor between New Orleans and Mobile have a number of constraints. The corridor is mostly single-tracked infrastructure forcing trains to use passing sidings to meet oncoming traffic. There is a high density of highway-rail grade crossings and movable bridges that open on-demand to marine traffic. The end point terminals are located in the congested rail hubs of New Orleans and Mobile. These constraints increase the complexity of the operations and require careful planning to maintain fluid train operations.

2.1 Grade Crossings

While a train may be able to completely fit within a siding, any highway-rail grade crossings within the siding limit the siding's functionality. During normal operations, railroads make every reasonable effort to not block these grade crossings. With freight-only operations, long blockages are avoided through a dispatching maneuver where one train will wait, blocking the mainline, until the second train arrives. These movements require planning and communication by the dispatcher and make operations along the corridor more difficult.

This maneuver is no longer possible when one of the two trains is a passenger train. The freight train must pull into the siding, blocking the crossing, in order to not delay an oncoming passenger train. When the siding has no grade crossings, this is not an issue. There are, however, only a limited number of sidings on the Gulf Coast route with no grade crossings that could be used for a freight train and passenger train to meet or pass.

If no projects are added to provide sufficient sidings that are long enough to support the freight traffic and keep freight trains clear of grade crossings, the number and duration of grade crossing blockage events at other sidings will increase. The proposed passenger service will operate in the morning and evening, which coincidently are also

high (rush hour) motor vehicle traffic times, further amplifying any crossing blockages during these rush hours.

2.2 Movable Bridges

There are 13 movable bridges on the simulated network, seven of which are directly on the proposed passenger route between New Orleans and Mobile that create operational challenges for the Gulf Coast corridor (Table 2). Maritime traffic has priority over all rail traffic on all the bridges throughout the corridor during the anticipated Amtrak operating hours. This priority means that the bridges along the corridor open on demand for maritime traffic. Each bridge along the corridor has different opening frequencies, opening durations, and peak times of day for marine traffic. The operational challenges from the movable bridges make freight planning difficult, result in delays to the underlying freight traffic, and also impact the proposed passenger service.

Table 2: Movable Bridges and Operations along Gulf Coast

Railroad	Bridge	Milepost	Daily Opening Frequency	Avg. Open Duration (min)	Operating Hours
CSXT	Tensaw	651.5	0.1	19	1000-1800
CSXT	Mobile	653.5	6.0	39	24 hrs/day
CSXT	Bayou Sara	658.3	0.2	24	1100-1900
CSXT	Chickasaw	663.2	8.7	45	24 hrs/day
CSXT	Three Mile Creek	664.1	2.8	20	24 hrs/day
CSXT	Pascagoula	706.8	6.5	92[1]	24 hrs/day
CSXT	Biloxi[2]	724.3	6.3	31	24 hrs/day
CSXT	Bay St Louis[2]	752.5	1.5	45	24 hrs/day
CSXT	Pearl River[2]	768.9	0.9	11	0600-2200
CSXT	Rigolets[2]	775.4	2.4	47	24 hrs/day
CSXT	Chef Menteur	787.2	3.8	35	24 hrs/day
Port NOLA	Industrial Canal	801.4	8.9	5	24 hrs/day
NSR	Seabrook	190.6	5.9	97[1]	24 hrs/day

1 Bridge remains open when no trains are approaching to reduce maintenance
2 Bridges that require hi-rail movements to transport operators to the bridge

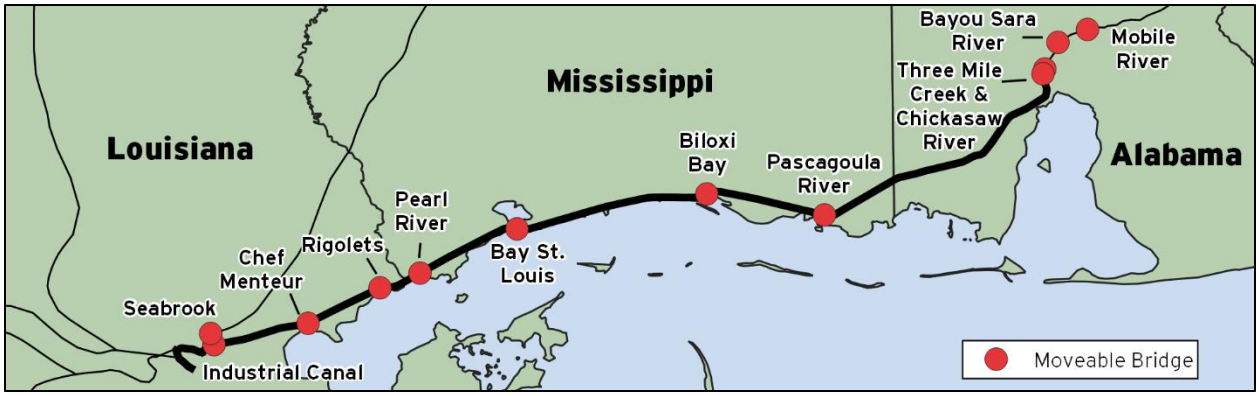
Four of the bridges on the route are staffed by a bridge operator. At each of the four bridges, three times a day, when the shift of the operator changes, a hi-rail vehicle will transport the new operator to the bridge house and return the relieved operator. These hi-rail moves are slower than typical trains and occupy the mainline track, creating further congestion. The use of hi-rail vehicles to transport the bridge operator is necessary because the bridge houses are located in remote locations that cannot be reached by automobile.

Delays from movable bridge openings will impact the performance of passenger service. Passenger trains are delayed directly due to the bridge openings ahead, and indirectly because all trains in the corridor are affected by bridge openings leading to

increased congestion. Bridge openings disrupt operations and dispatchers have limited options for dealing with train meets and minimizing passenger train delays. Since planned freight and passenger train meets are disrupted, freight trains are unable to clear for the oncoming or trailing passenger train causing additional delays. These delays, while they may initially appear to be attributable to freight trains, are ultimately due to the bridge openings and are not in the host railroad's control.

In addition to the seven bridges between New Orleans and Mobile, there are five bridges on CSXT north of Mobile and one bridge in New Orleans on NSR that impact the flow of trains and equipment to and from the corridor and can cause delays and therefore adversely impact passenger trains. Before indefinitely suspending operations east of New Orleans, the Sunset Limited Amtrak trains (train numbers 1 and 2) traveled between New Orleans and Mobile between midnight (12 AM) and 8 AM three times a week.[13] Since the new, proposed service operates during daylight hours when bridge openings are much more frequent (see bridge opening frequencies in Appendix E), the historical and potential bridge delays are not directly comparable.

Figure 1: Locations of Movable Bridges on or near Corridor



2.3 New Orleans

New Orleans terminal is a major junction for North American railroads. In addition to CSXT, NSR, and Amtrak, the following railroads all have operations in the terminal: Union Pacific (UP), BNSF Railway (BNSF), Canadian National Railway (CN), Kansas City Southern Railway Company (KCS), New Orleans and Gulf Coast Railway (NOGC), and New Orleans Public Belt Railroad (NOPB) (Figure 2). The majority of traffic across all carriers in the terminal traverses the same NSR-owned and operated portion of the corridor over which the proposed passenger service will operate. The west end of the NSR track is a major junction with CN, KCS, and NOPB. BNSF, CSXT, and UP train traffic all have trackage rights at this junction and across the NSR-owned corridor. The NSR track continues 7.5 miles to the east of Oliver Yard and connects to the rail line to Meridian, Alabama. Most of the NSR traffic works at Oliver Yard, with the trains picking up or setting out cars and locomotives. These work events occupy the mainline. Eastbound freight trains sit at Terminal Junction, with most freight trains blocking the Elysian Fields connection to CSXT, while longer freight trains will also block the Paris crossover. Longer freight trains leave only a single-track available for other train movements between Terminal Junction and East City Junction. Westbound trains stop at NE Tower diamond, with the freight train movements blocking the CSXT track for

[13] April 25, 2005 Amtrak timetable, http://www.timetables.org/full.php?group=20050425&item=0099, (last accessed June 16, 2021).

extended periods. Coming to and from Meridian are the regularly scheduled Amtrak Crescent trains.

CSXT's Gentilly Yard is immediately to the east of the industrial canal. CSXT traffic from the east and interchange traffic from New Orleans terminates at Gentilly Yard. The mainline at the north and south end of Gentilly are often occupied by yard trains, blocking the mainline when switching cars. Activity from these yard trains, Industrial Canal Bridge, and other mainline interchange activities can result in delays to the interchange traffic from NSR. Interchange trains traveling from UP, BNSF, and CN often experience delays en route to Gentilly Yard, regularly resulting in multiple hours of mainline delays.

There are often several freight trains dwelling on the NSR track either staged and ready to interchange with another carrier (sometimes for extended periods), or working at Oliver Yard. Twice per day a route through the terminal must be cleared to advance the existing Amtrak trains. Adding the proposed passenger service increases this frequency to six times per day. Additionally, the proposed passenger service crosses over three railroads staffed by separate dispatchers over a length of five miles (CSXT, NSR, NOUPT), which requires careful communication between the dispatchers.

Due to the limited track capacity to hold trains in the New Orleans terminal, NSR readiness and capability to interchange trains with other carriers will be negatively affected by the proposed passenger service. This will result in delays not just to CSXT and NSR trains but to the interchanging railroads' (BNSF, CN, KCS, and UP) trains as well.

Figure 2: Map of New Orleans Railroads

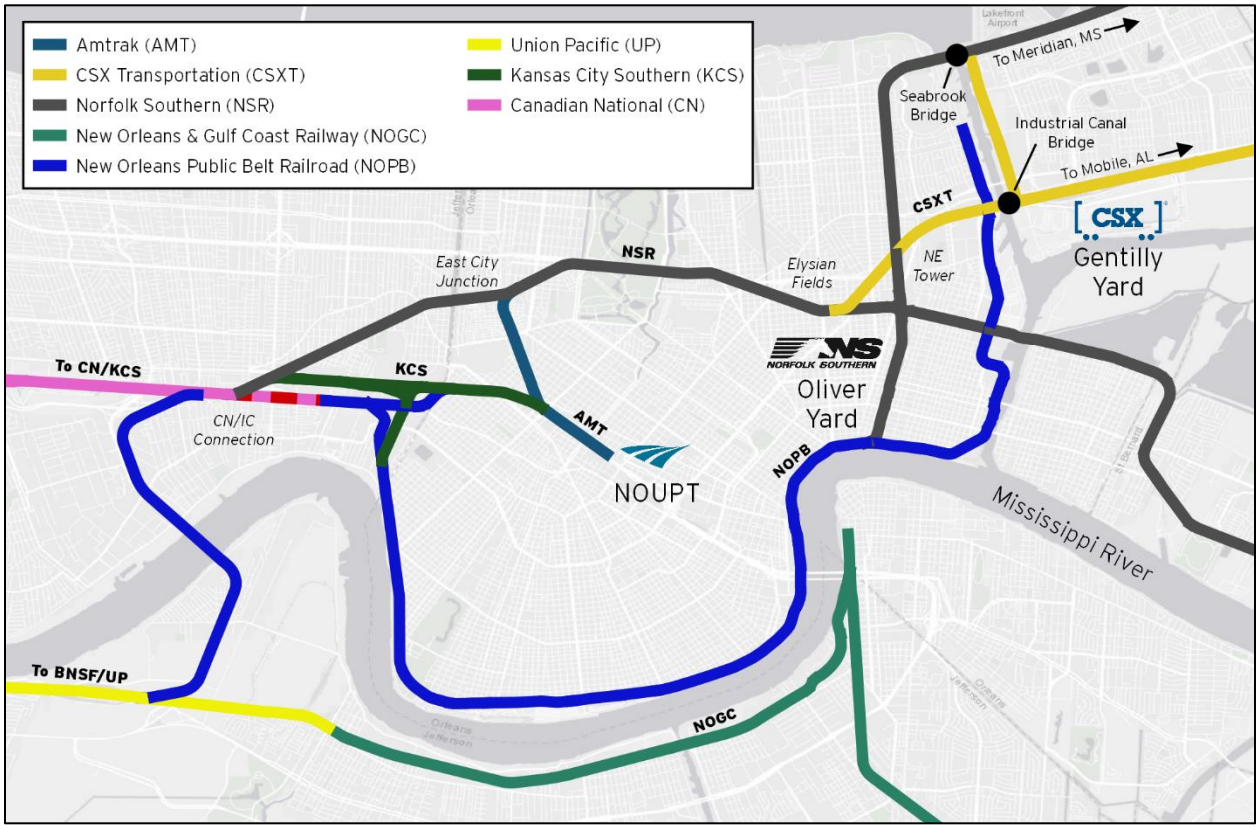
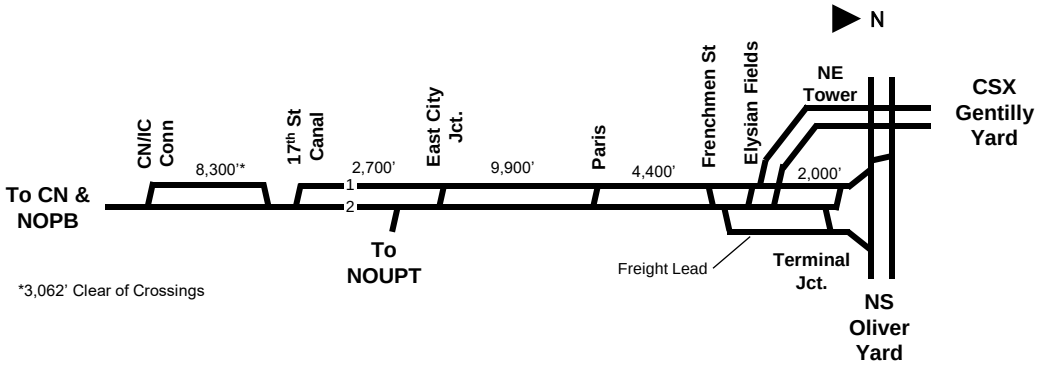


Figure 3: New Orleans Track Schematic



2.4 Mobile

Mobile terminal is another major junction on the proposed passenger corridor. The terminal includes multiple yards and operations not only by CSXT, but NSR, CN, Terminal Railway Alabama State Docks (TASD), and Alabama & Gulf Coast Railway (AGR) (Figure 4).

All CSXT trains stop at Mobile to change out train crews and/or pick up and drop off cars at Sibert Yard. The southbound (westbound) trains stop on the mainline at the south end of the yard and pull towards the Mobile Convention Center, before reversing to shove the cars into the tracks at Sibert Yard, completing the reverse move to bring the cars from the yard to the train. The northbound (eastbound) trains stop on the mainline at the north end of the yard and pull across the Three Mile Creek bridge before shoving back into the yard. Yard trains regularly occupy the mainline between Sibert and Choctaw Yards, utilizing the mainline for headroom to switch cars between tracks.

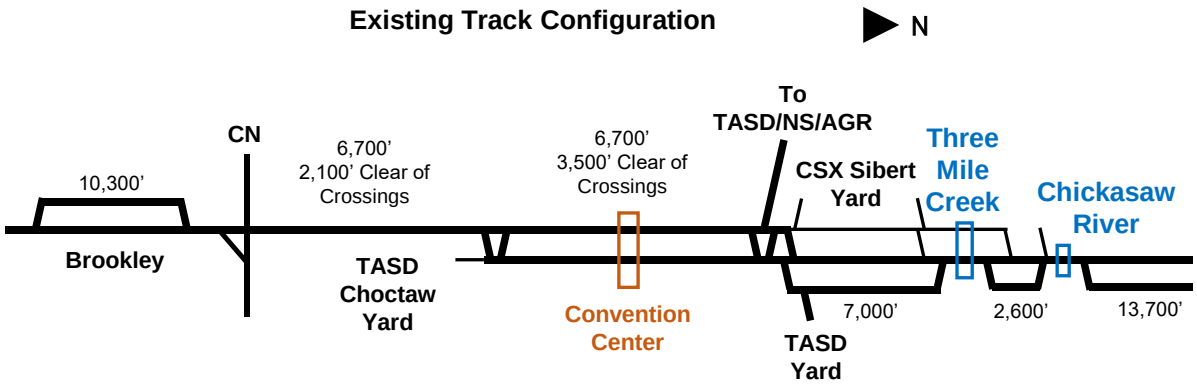
Currently, some trains are able to fit in the 7,000-foot siding adjacent to Sibert Yard, but longer trains anticipated in the future will prohibit a second train from passing by or working simultaneously. As train lengths are expected to increase in the future, fewer trains will continue to fit in the sidings. This limited throughput will result in trains waiting in each direction to pass through Mobile.

This congestion is intensified by the movable bridges over Three Mile Creek and the Chickasaw River just to the north of Sibert Yard. When the bridges are open, northbound (eastbound) trains are unable to work in the yard or depart while southbound (westbound) trains cannot arrive to begin their work. Trains longer than the length of the siding will sit across the Three Mile Creek bridge and not be able to work while the bridge is open. This further increases the delays to the traffic and increases congestion.

In addition to the merchandise operations, coal trains arrive at Mobile from the north. Coal is dropped off at the Port of Mobile at Choctaw Yard before returning empty to the north to receive another load. To serve the Port of Mobile, CSXT needs to use Choctaw Yard to shove cuts of coal cars into the Port tracks and the engines use the tracks in Choctaw Yard for running around the remaining cars that need to be switched into the Port. There are also daily interchange train movements between the TASD yards that must use the CSXT mainlines. Just to the south of the TASD and CSXT yards, CN tracks cross the CSXT mainline, resulting in delays to CSXT traffic when the CN trains slowly arrive at the port.

In the absence of passenger traffic, the freight trains have more options on where they can dwell. Circumstances change frequently at Mobile because the demand for loading coal on vessels frequently requires unconstrained access to the existing rail infrastructure for extended periods of time, and railroads need to adjust which trains to process in the yard daily to provide the most efficient operation and optimize overall network fluidity and freight-customer demand. However, with the introduction of passenger trains, this flexibility would be lost. In order to not block oncoming passenger trains, the freight trains would be unable to fully utilize the mainline track infrastructure. The existing siding provides limited alternative capacity to hold trains because of the presence of grade crossings. This results in delays, not just south where the passenger trains are operating to and from New Orleans, but to the north as well. The passenger trains would adversely affect the freight trains from progressing to New Orleans and could delay trains in other locations of the CSXT network such as Flomaton and Montgomery, Alabama.

Figure 4: Mobile Track Schematic



3.0 Simulation Modeling Methodology

The analysis used for this study follows the standard process as described by the FRA in *Railroad Corridor Transportation Plans: A Guidance Manual*.[14] The *FRA Guidance Manual* states that, except in the case of short and simple operations, it is necessary to use an operations simulation model. In accordance with both FRA guidance and accepted best practice,[15] this model uses a 20-year planning horizon. The *FRA Guidance Manual* states:

> [T]he Federal Railroad Administration and Amtrak have collaborated on a number of occasions to prepare a long-range planning document for various rail corridors that have been called master plans or transportation plans. These studies attempt to take into full account the plans of intercity rail

[14] Federal Railroad Administration, Rail Corridor Transportation Plans, A Guidance Manual ("FRA Guidance Manual") (2005), https://railroads.dot.gov/elibrary/railroad-corridor-transportation-plans-guidance-manual.

[15] National Academies of Sciences, Engineering, And Medicine, Capacity Modeling Guidebook for Shared-Use Passenger and Freight Rail Operation, At 35 (The National Academies Press, 2014).

passenger service, local commuter rail services, and rail freight operators over a relatively long period of 20 years.[16]

This time horizon is used to test the long-term sustainability of the various services and their ability to share infrastructure without degrading performance.

Using simulation modeling, the proposed passenger service between New Orleans and Mobile was studied using the following methodology:

- A **2019 Base Case** was created and validated by the host railroad. The Base Case represents the existing and currently planned infrastructure and operations.
- Anticipated 20-year freight growth was then added to the **2019 Base Case** to create the **2039 Base Case**, to determine the future operating performance with freight trains only.
- A **2039 Passenger Case** with no projects was modeled to determine the impact of proposed new passenger service on projected freight operations in 2039.
- **A 2039 Build Case** was created to determine required projects to mitigate the addition of passenger service on 2039 freight operations.
- A **2019 Passenger Case** was modeled to determine impact of starting the proposed new passenger service with no projects in 2019.
- A **2019 Build Case** was created to determine the subset of projects required in 2039 to mitigate the addition of passenger service with 2019 freight operations.

The Passenger and Build cases in 2039 and 2019 were compared back with the Base Case for each respective year to determine the impacts and effectiveness of the inclusion of mitigation projects. For all results presented in this report, CSXT, NSR, and other carriers' actual train symbols have been generalized to protect any proprietary information.

3.1 Operational Simulation Tool

This study was completed using Berkeley Simulation Software's Rail Traffic Controller (RTC) version 75T. RTC is the railroad industry standard for the simulation of both intercity passenger and freight train operations. RTC is used to assess the effects of infrastructure and operational alternatives on train performance. To represent the actual variability of operations along the corridor, multiple random scenarios were simulated for each case. Each random scenario represents a different set of operating variables including train departure times, train dwells, train sizes, and movable bridge opening times. Each scenario has a 14-day simulation, composed of 10 statistical days with 2 days of warm-up and cool-down to fully populate and clear the network. 30 random scenarios were performed for each case to represent a wide variety of operating conditions.

When the RTC simulation model is unable to find a dispatching solution to the trains, it will fail. Higher failure rates of models indicate unreliable and constrained operations that likely will require additional track capacity. In this study, one of the primary reasons for model failure is blocked grade crossings. The RTC model limits the time a train can dwell on a crossing. Due to this restriction, the model fails when it is unable to find a dispatching solution without dwelling on a crossing more than the allowable time period.

[16] FRA Guidance Manual, *supra* n.13, at 1.

Although RTC models are very detailed and a good tool for infrastructure project selection, the model only represents days with no major or unforeseen disruptions. Major or unforeseen disruptions include derailments, mechanical failures, emergency events (e.g., grade crossing collisions with vehicular traffic), weather events such as hurricanes, heat orders, passenger station delays, and major track maintenance or construction. Although these events are not captured in the RTC simulation, they substantially impact the performance of passenger and freight trains. On days with these disruptions, any excess capacity is consumed and the impact to the freight from the passenger traffic will be greater. Additionally, the RTC model is designed to consider all future information regarding planned train movements and drawbridge openings, allowing for more optimal train movements than possible with a human dispatcher. In other words, RTC has the ability to determine the best dispatching decisions with more precision than a human dispatcher.

3.2 2019 Base Case

The base model, including both CSXT and NSR operations, was built to represent rail operations in fall 2019.[17] Using RTC infrastructure and data files provided by CSXT and NSR, a single RTC network between New Orleans and Montgomery was created. Active grade crossings with greater than 200 average annual daily traffic (AADT) per the FRA grade crossing database were included in the model, with trains in the model limited to dwelling on a crossing no more than 20 minutes. This time is in alignment with FRA social media posts on blocked crossings.[18] The crossings are important to accurately depict the capacity impact of crossings and ensure additional passenger trains, and any proposed solution, will minimize any increase in blocked crossings.

A variety of freight train types are included in the model to provide a sufficient level of detail to accurately portray realistic train operations. Besides through and local freight trains, the model includes other train movements that occupy capacity, including interchange trains, yard train movements from train switching operations, and engine swaps. Daily maintenance-of-way activities and hi-rail movements of bridge operators were included, but track inspection and other engineering hi-rail activities were excluded because they could not be accurately represented in the RTC model. Trains were developed using data provided by CSXT and NSR between September and November 2019. This data was used to determine train routes, volumes, train departure time, and dwell randomization. CSXT and NSR reviewed the **2019 Base Case** for their respective network portions of the corridor and validated the model results.

A more detailed list of modeling inputs and assumptions can be found in Appendix G.

3.3 2039 Freight Growth

The railroads provided the expected train volumes and train lengths in 2039 to support the development of the **2039 Base Case**. Using this data, the freight growth was calculated to represent an approximate annual growth rate on CSXT and NSR. These calculations are set forth in the workpapers accompanying this report. However, both anticipated growth rates are less than 1.5% and thus conservative, as they are

[17] The dates were selected to match original modeling performed by Amtrak and Host Railroads. The decision to use train data from September 2019 to November 2019 stems from a recommendation by Amtrak to use October 2019 to December 2019 data to "maintain consistency and currency." The final dates were agreed upon as a more representative data set of typical operations.

[18] Federal Railroad Administration. Stuck at #BlockedCrossings?. *Facebook*, 28, Jul. 2021, 12:00 PM, https://m.facebook.com/USDOTFRA/photos/a.246307702143616/4189178157856531/, last accessed Oct. 7, 2021.

lower than the 2% annual growth mentioned in the *FRA Guidance Manual*[19] and used in other passenger train studies.

On CSXT, this growth will be absorbed onto existing merchandise and local trains on the corridor. The specific train length growth, provided by CSXT, increased the maximum train lengths of merchandise trains and local trains with the length of increase varying by train profile. The new maximum lengths were not simply applied to the entire route of the train. Due to planned work events, where a train will pick up and set out cars, a train's length will vary along its journey. Instead, for each train, the portion of the journey where the train's length is currently the longest was identified. The length of the train at that longest point was then increased to 10,000 feet, and the percent increase in length was calculated. That percentage increase in length at the point on the route where the train was the longest was then applied to the length, tonnage, and the number of cars over the train's entire route to determine the 2039 growth for that train.

NSR anticipates growth will be accommodated through new scheduled trains. Existing train and growth train departure times were adjusted where necessary to support additional traffic. NSR train lengths were held constant.

Yard movement train lengths were held constant on both CSXT and NSR, but the frequency of yard movements was increased by the same percentage as the projected merchandise train growth. NOPB, CN, and TASD train lengths were increased at two percent annual growth. As necessary, operations were adjusted based on changes in length. The updated model was provided to CSXT and NSR and each railroad validated their respective portions of the corridor.

CSXT provided a list of projects between Mobile and Montgomery, AL that is planned to be completed before 2039. Four projects—extensions to Nokomis, Castleberry, Searcy Sidings, and connecting Wilcox and Lachaussee Sidings—were included in the 2039 Base Case to support the freight operations along the corridor. Separately, to resolve modeling constraints in Montgomery, extending the McGehees Siding was identified as an additional project to support projected freight demand. However, because Montgomery was not comprehensively modeled due to its location on the periphery of the subject corridor, further study may show that this project is not necessary. NSR noted that the southeast connection at NE Tower would be reinstated upon completion of an ongoing Florida Avenue canal project, but reported no other projected projects in the study area before 2039.

3.4 Passenger Operations

The proposed passenger service is composed of two trains in each direction (four total trains) between NOUPT and Mobile. There are two morning passenger trains (23 & 24) and two afternoon trains (25 & 26). The even-numbered trains (24 & 26) travel northbound (eastbound) from New Orleans to Mobile, while the odd-numbered trains (23 & 25) travel southbound (westbound) from Mobile to New Orleans.

The RTC simulation assumes that the passenger service will be a pull-pull operation, with locomotives at each end of the train, eliminating the need to turn around at each terminus point. Any change in train consist would require another operational assessment of the infrastructure requirement. When traveling in each direction the trailing locomotive is assumed to not be operating. In addition to the two P42

[19] FRA Guidance Manual, *supra* n.13, at 10.

locomotives, the train set will include three Amfleet coaches, a combined total length of 478 feet.

In Mobile, Amtrak has proposed that the trains will use a platform on the mainline next to the Mobile Convention Center before being stored in nearby Choctaw Yard. Under this proposed plan, an arriving train will dwell on the mainline for fifteen minutes for passengers to disembark and to prepare the train for travel to Choctaw Yard. The travel time to the Choctaw Yard storage track is estimated to take an additional 15 minutes. An Amtrak train departing Mobile will make this movement in reverse, first departing Choctaw Yard thirty minutes before departure from the Mobile station, and then dwelling on the mainline while passengers board for 15 minutes prior to the scheduled departure.

The proposed passenger schedules were provided by Amtrak (Tables 4 to 7).[20] The schedules include the minutes of pure runtime (PRT), the minimum time a train takes to travel between stations if no other traffic is operating on the corridor, recovery time, the additional time included in a schedule to accommodate normal delays, and station dwell time. The proposed arrival times, departures times, and station dwell from the proposed schedules were used in the model. Schedules were converted to eastern standard time (EST) to use in the RTC model. Amtrak trains are modeled to always depart on-time from Choctaw Yard and the station platform in Mobile and NOUPT in New Orleans. The RTC simulation also assumes that Amtrak will not require connectivity with any other service operated by Amtrak (*e.g.*, City of New Orleans service, Crescent service), which may introduce additional performance variability.

When modeling the proposed passenger service, passenger trains were given preference, with the highest priority, and Amtrak's use of sidings to facilitate any meets with freight trains is limited. Because sidings must be coded to allow two passenger trains to pass one another, on rare occasions, the model did permit a passenger train to enter a siding to allow a freight train to pass.

Effective June 6, 2021, NSR and Amtrak amended the schedule of the Crescent Service (trains 19 & 20). The new schedules shift train 20's departure 135 minutes later and train 19's arrival in New Orleans 90 minutes later. This new schedule was used in the 2039 model. Two NSR trains, whose schedules conflicted with the new Crescent Service schedules, were shifted 90 minutes later in all 2039 Cases.

The proposed Gulf Coast passenger service creates potential conflicts with the amended Crescent schedules. In the 2019 Base Case, train 19 of the 2019 Crescent schedule is scheduled to arrive at East City Junction at 7:20 p.m., at approximately the same time that train 25 of the proposed Gulf Coast train schedule is scheduled to arrive at NOT Junction. Since both of these trains are traveling in the same direction and have similar arrival times, reducing the potential negative impact to NSR freight service as NSR has to keep a single track clear for the trains one less time during the day. However, under the amended Crescent service schedules, train 20 will depart NOUPT at 9:15 a.m. while train 23 of the Gulf Coast service will arrive at NOT Junction at 9:20 a.m. These trains are traveling in opposite directions and require NSR to keep two tracks clear of freight traffic to avoid delaying either train. Additionally, the schedules could result in Gulf Coast service train 23 being delayed waiting on Crescent service train 20 to clear the single track between NOUPT and East City Junction, further increasing the freight delays.

[20] *See Application of the National Railroad Passenger Corp. Under 49 U.S.C. § 24308(e) – CSXT Transportation, Inc. and Norfolk Southern*, S.T.B. Docket No. FD 36496 (filed Mar. 16, 2021), Appendix A.

Table 3: Amtrak 23 Train Schedule

Station	Mileage	PRT	Recovery	Dwell	Arrive	Depart
Mobile Convention Center	0					6:30
Pascagoula	39.9	37	4	2	7:11	7:13
Biloxi	60.4	22	6	2	7:41	7:43
Gulfport	72.5	15	1	2	7:59	8:01
Bay St. Louis	87.6	21	3	2	8:25	8:27
New Orleans (NOT Jct.)	136.8	48	5		9:20	
New Orleans (East City Jct.)	140.5	7	12		9:39	
New Orleans	144.1	9	5		9:53	
		159	36	8		

Table 4: Amtrak 24 Train Schedule

Station	Mileage	PRT	Recovery	Dwell	Arrive	Depart
New Orleans	0					7:35
New Orleans (East City Jct.)	3.4	9	9		7:53	
New Orleans (NOT Jct.)	7.1	7			8:00	
Bay St. Louis	56.5	48	4	2	8:52	8:54
Gulfport	71.4	20	5	2	9:19	9:21
Biloxi	84.1	17		2	9:38	9:40
Pascagoula	104.1	22	10	2	10:12	10:14
Mobile Convention Center	144.1	37	7		10:58	
		160	35	8		

Table 5: Amtrak 25 Train Schedule

Station	Mileage	PRT	Recovery	Dwell	Arrive	Depart
Mobile Convention Center	0					16:30
Pascagoula	39.9	37	4	2	17:11	17:13
Biloxi	60.4	22	6	2	17:41	17:43
Gulfport	72.5	15	1	2	17:59	18:01
Bay St. Louis	87.6	21	3	2	18:25	18:27
New Orleans (NOT Jct.)	136.8	48	5		19:20	
New Orleans (East City Jct.)	140.5	7	12		19:39	
New Orleans	144.1	9	5		19:53	
		159	36	8		

Table 6: Amtrak 26 Train Schedule

Station	Mileage	PRT	Recovery	Dwell	Arrive	Depart
New Orleans	0					17:31
New Orleans (East City Jct.)	3.4	9	9		17:49	
New Orleans (NOT Jct.)	7.1	7			17:59	
Bay St. Louis	56.5	48	9	2	18:53	18:55
Gulfport	71.4	20	5	2	19:20	19:22
Biloxi	84.1	17		2	19:39	19:41
Pascagoula	104.1	22	8	2	20:11	20:13
Mobile Convention Center	144.1	37	4		20:54	
		160	35	8		

3.5 Build Cases

In both 2019 and 2039, projects were evaluated to provide preference to passenger trains over other trains while not unreasonably impairing freight transportation. As such, the project selection must meet the following criteria:

1) Provide capacity to achieve above 95% On-Time Performance (OTP) for passenger trains and limit the need for a passenger train to enter and be delayed in a siding;
2) Restore freight traffic performance to at least the same as before passenger trains were added to the corridor; and
3) Cause no passenger or freight train schedule changes.

It was important to not change freight schedules to ensure that any proposed passenger traffic would not interfere with existing freight operations. Many freight trains involved in this study operate well off of the geography covered by this study and consequently have connections across the broader CSXT and NSR rail networks. Changing schedules could increase congestion or result in longer travel times for shipments. Additionally, the variability of freight operations makes the scheduling of freight around passenger schedules difficult. While rescheduling could reduce freight delays caused by the addition of passenger traffic, it will increase the density of traffic the rest of the day, resulting in increased delays, especially in congested terminal areas.

Projects were first selected to mitigate the passenger impact in 2039. These same projects were used to determine which subset of projects are required to mitigate passenger operations in 2019. It would not be a financially responsible use of railroad resources to propose to build projects that mitigated freight degradation in 2019 but would shortly thereafter become ineffective at reducing expected freight degradation in the near term.

The proposed projects were selected using the outputs from the RTC simulation model. After each project was added to the RTC model, the results were reviewed to determine if it met the selected criteria. If it did not, the locations and magnitudes of the remaining freight and passenger delays were evaluated. Projects were selected to reduce the root causes of the locations experiencing the largest delay.

The location where a train dwells to resolve a conflict is not always where the constraint exists and therefore, a train may sit many miles away from the bottleneck. In addition to the model's data outputs, the animation from the RTC model and engineering expertise and judgment were used to determine the exact location and specification of the recommended projects. In most cases, sidings were extended to the logical limits of the nearest grade crossings. Siding extensions were designed to allow the anticipated trains to fit between grade crossings. Where possible, siding speeds were upgraded to reduce the time for a freight train to clear the mainline for the oncoming passenger traffic.

The best location for a project is not always practical or feasible to construct. A high-level feasibility analysis was performed for each project using aerial images, site visits, and other publicly available information. A project was deemed infeasible based on the disproportionate cost, number of existing grade crossings, available right-of-way, terrain, and the presence of existing bridges. While crossing closures or grade separations could provide benefits along the corridor, these crossing projects were not included in the list of proposed projects because crossing closures or separations are subject to the authorization of state and local stakeholders, which is beyond the control of Amtrak, CSXT, or NSR.

3.6 Movable Bridge Randomization

As discussed earlier, movable bridges are one of the key constraints to the proposed passenger operations on the corridor. The RTC model includes thirteen movable bridges along the Gulf Coast, with seven on the study corridor between New Orleans and Mobile. Of the six bridges not on the study corridor, all have a direct impact on the corridor's operations. Five are immediately to the north of Mobile and directly impact Mobile operations and capacity. The remaining bridge is on the NSR, three miles to the north of NE Tower in New Orleans. Appendix A includes a diagram of the existing infrastructure and movable bridge locations.

Table 7: List of Movable Bridges along Gulf Coast

Tensaw	Chickasaw	Biloxi	Rigolets
Mobile	Three Mile Creek	Bay St. Louis	Chef Menteur
Bayou Sara	Pascagoula	Pearl River	Industrial Canal
Seabrook			

CSXT and NSR provided bridge logs between September and November 2019. The logs include each bridge's open and close times, and the number of vessels. This data was analyzed to determine the daily openings and to create random distributions for the opening times and durations used in the RTC model.

The average number of daily openings from the data was modeled in RTC. This was done for modeling purposes but does not fully account for the sometimes highly variable amount of openings between days. Since the data provided was from the fall of 2019, any seasonal impact of bridge openings was not considered. Bridge openings may increase on weekends and during the summer months due to an increase in pleasure craft.

When RTC modeling, it is important that adjustments be made to ensure that opening durations for higher-duration bridge openings do not continue after vessels pass and no additional vessel traffic is incoming to protect the accuracy of the model. To better represent the bridge openings in the model and their impact to train operations, it is assumed that the bridge will close as soon as possible after the passage of the vessels.

Accordingly, for each bridge, a representative random distribution was determined to match the expected duration when a single vessel passes. The daily opening frequency was increased to account for the additional openings that would be required if the bridge were to close after each vessel. The total number of vessels that passed the bridge were summed for the higher duration bridge openings that are not represented by the random distribution. The daily bridge opening frequency was increased assuming that these vessels would pass by the bridge with the same number of vessels per bridge opening as the openings represented by the distribution. Modeled frequencies and durations are shown in Table 8.

The Pascagoula and Seabrook bridges remain open between trains to reduce required maintenance on the bridge. CSXT and NSR provided the expected opening durations to use in the simulation for these bridges. The histograms of the actual data and simulated random distributions can be found in Appendix E.

For each random scenario, a new bridge file was created using a proprietary tool. The tool uses the selected random distributions for the bridge opening start times and

durations to create track outages in the model at the bridge locations. A new set of times and durations were created for each random scenario. This more accurately represents the variability of bridge openings and their impact on operations as compared to a single static file. With a single static file, projects could be selected that only improve freight and passenger train operations on the rare chance that the bridge openings match the simulation.

Table 8: Modeled Movable Bridges and Operations along Gulf Coast

Railroad	Bridge	Milepost	Daily Opening Frequency	Avg. Open Duration (min)	Operating Hours
CSXT	Tensaw	651.5	1 per week	10	1000-1800
CSXT	Mobile	653.5	6	28	24 hrs/day
CSXT	Bayou Sara	658.3	2 per week	10	1100-1900
CSXT	Chickasaw	663.2	12	14	24 hrs/day
CSXT	Three Mile Creek	664.1	3	10	24 hrs/day
CSXT	Pascagoula	706.8	1	10	24 hrs/day
CSXT	Biloxi	724.3	7	12	24 hrs/day
CSXT	Bay St Louis	752.5	2	15	24 hrs/day
CSXT	Pearl River	768.9	1	5	0600-2200
CSXT	Rigolets	775.4	3	15	24 hrs/day
CSXT	Chef Menteur	787.2	5	10	24 hrs/day
Port NOLA	Industrial Canal	801.4	9	5	24 hrs/day
NSR	Seabrook	190.6	6	6	24 hrs/day

In the future, both freight rail traffic and marine ship traffic are expected to increase. The increase in the number of ships will increase the number and duration of bridge openings along the corridor. The projected growth of shipping tonnage was obtained using the United States Department of Transportation's (USDOT) Freight Analysis Framework (FAF version 4.5.1) data.[21] The FAF data is only available in five-year increments so the 2020 FAF tonnage was used to represent the base volumes in 2019 and the projected 2040 FAF tonnage was used to represent the volumes in 2039. Four area FAF regions were evaluated for changes in marine traffic using the combined origin and destination maritime tonnage over the 20 years (Table 9). The change in tonnage was applied to the relevant bridges. It is assumed that for bridges with higher opening frequencies, any additional vessel traffic will arrive during the existing openings, increasing the duration of the openings. Bridges with less frequent openings will require additional openings to support the additional traffic. Accordingly, matching the USDOT growth rate, for bridges with lower frequency openings the number of bridge openings was increased, while for bridges with higher frequency the average duration of each opening was increased.

[21] The newer FAF version 5 was not used since it did not have future freight tonnage projections at the time of this analysis.

Table 9: Maritime Projected Increased Tonnage

Region	2020 to 2040 Tonnage Increase
Mobile AL	34%
Rest of AL	24%
New Orleans	25%
Mississippi	18%

On June 1, 2021, the Coast Guard and CSXT began a pilot program with scheduled openings for the Three Mile Creek bridge in Mobile, Alabama.[22] Three times per day between 06:30 to 07:30, 14:30 to 15:30, and 22:30 to 23:30 central standard time (CST), the Three Mile Creek bridge will be opened for maritime traffic. This schedule provides more predictability to vessel operations by providing guaranteed bridge-open windows and to freight operations by reducing the number of unplanned openings each day and allowing yard work on the bridge to complete outside of the prescribed time windows. While CSXT desires to make this pilot program permanent, the bridge could revert to historical operations at any time and accordingly, was not included in the model.

3.7 RTC Performance Metrics

RTC provides the ability to produce a number of different train operating metrics. For this study, six metrics are considered: on-time performance (OTP), train delay, average train speed, operating variability, recrews, and dispatching conflicts.

The operating metrics were evaluated for all trains in the model. For each comparison analysis, a table was created highlighting select train profiles (same train schedule on different days) that operate on the New Orleans to Mobile study corridor. The train profiles are aggregated into three groups: CSXT locals, CSXT through trains, and NSR trains, and reports out an overall total for each operating metric. These groups are inclusive of all trains in the model except yard train movements that occupy the mainline for headroom. Individual train profiles were evaluated as changes in operations can improve one train profile but hurt another. It is important for the railroads to know whether the improvements to one train profile will give rise to a decrease in performance to another train profile. While only specific train profiles are shown in the tables, the subtotals of the three groups of trains are inclusive of all trains in the model between New Orleans and Montgomery. The overall number includes all trains included in the three subtotals.

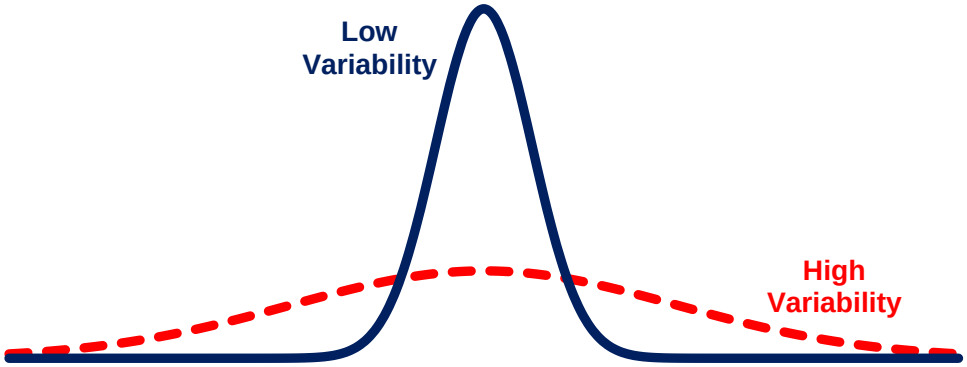
Train Delay is defined as the difference between the pure, or minimum, train runtime and the simulated runtime and is often normalized by train or by train miles. Delay per 100 train miles (Delay/100) is a common metric used in railroad simulation studies, and host responsible delays per 10,000 train miles is a standard metric of Amtrak. In RTC, delays are the result of the model's decisions to resolve train meets, passes, and waiting for bridge openings. Locations with high delays indicate potential operating constraints. The delays were used to determine the best locations for infrastructure projects.

[22] Docket 2021-11396 [https://www.federalregister.gov/documents/2021/06/01/2021-11396/drawbridge-operation-regulation-three-mile-creek-al] accessed July 15, 2021.

Average Train Speed is defined as the total traveled distance in miles divided by the simulated runtime in hours. The speed includes the time a train dwells for delays, work events, or a crew change.

Operation Variability is defined as the standard deviation of train runtimes. This measures the change in the unreliability of a train's performance. It is important to understand not only the average change in train performance but the change in variability. As depicted in Figure 5, two data sets with the same average can have different amounts of variability. Increased variability in train operations has a direct impact on railroad network performance and operating cost.

Figure 5: Data Sets Same Average but with High and Low Variability



Reduced train speeds and increased variability have a direct cost to both the railroads and their customers. Decreased train speeds require the use of additional locomotives and railcars (railcars are often owned by the customers). Greater variability increases operating expenses due to the inability to plan effectively, requiring the railroad to have additional crews and locomotives and causing network congestion and customers to increase inventories.

Recrews is defined as the number of times trains require an additional crew to complete their scheduled route. For example, delays en route to a destination can cause a train to need a new crew due to the original crew reaching their allowable hours of service. When a train is recrewed, it results in additional delays to the train since it must stop along the corridor, often in a siding, to allow for the swapping of the crews. Unexpected recrews are even more problematic. Recrews are an indicator of unreliable and unstable operations and are a major source of operating costs to a railroad.

Dispatching Conflicts are defined as the number of conflicts required by the RTC model to find a solution to the simulated parameters. A higher number of dispatching conflicts mean that operations are more complex. As the complexity of operations increases, it is less likely that a human dispatcher can match the performance the RTC simulation achieves.

Customer OTP is defined by the December 2020 final rule on the Metrics and Minimum Standards for Intercity Passenger Rail Service (49 C.F.R. Part 273). As the service has not begun, the simulation study distributed the ridership equally at all stations. Once the service begins, we can expect that Customer OTP will be significantly affected by the actual ridership detraining at each station on the route, which will likely be

different than the modeled results. Unless stated otherwise, references to OTP in the report refer to this variant of Customer OTP.

As discussed in Section 3.1, the RTC model does not account for failure events and can dispatch with higher precision than a human dispatcher. For these reasons, it is highly unlikely that the actual OTP could outperform the RTC-simulated OTP. Therefore, to achieve the minimum 80% Customer OTP for the proposed Amtrak trains, as required by FRA's Metrics and Standards, it is necessary to set a higher OTP target in RTC. For this analysis, 95% was used as the performance target for passenger trains.

4.0 2039 Operational Performance on Freight Trains with Added Amtrak Passenger Service and No Projects

When considering the addition of a new passenger service, it is essential that the freight and passenger train traffic will be able to efficiently share infrastructure, not only at the inception of the passenger service but in the long term. Freight volumes will continue to grow with the length of CSXT freight trains and the number of NSR freight trains is expected to increase in the future. As shown in the **2039 Base Case**, absent the proposed passenger service, the model was able to find suitable dispatching solutions to accommodate the projected freight demands with the capacity CSXT and NSR expect to have in place in 2039. **In other words, the freight railroads have sufficient capacity to handle the projected freight demands over the next 20 years.**

This changes when passenger trains are added to the network. In the **2039 Passenger Case**, **the RTC model could not find a dispatching solution**. This means that without additional projects, the rail network will experience gridlock, and freight traffic will be unable to reliably operate. One reason for the operating gridlock is an important built-in constraint used in the RTC model at grade crossings. Specifically, the RTC model was built with trains being limited from stopping on a grade crossing for more than 20 minutes. This constraint is important to ensure there is sufficient capacity without resulting in large impacts to vehicular traffic in the surrounding communities and municipalities.

If the passenger service was added without any additional projects, either the expected freight traffic will be unable to operate, passenger trains will be unable to have the requisite priority and a high OTP, or grade crossings will be blocked along the corridor. To find a dispatching solution, the grade crossing restriction in the RTC model had to be relaxed. The model found a dispatching solution for the congestion in **2039 Passenger Case** (without projects) only once the restriction of being stopped on crossings between New Orleans and Mobile was raised to 150 minutes.

Road crossings that are at critical locations in New Orleans and Biloxi had the largest increase in blockage time due to the addition of passenger service. These crossings will see both an increase in long blockages as well as an increase in overall blockage time. For each crossing, the blockage time in the **2039 Passenger Case** was compared to the **2039 Base Case** to determine the potential percentage increase in total blockage time and the number of additional "extended crossing blockages" per week, which are defined as events where the gates are down longer than 40 minutes. The crossings with the largest increase in crossing blockage time are shown in Table 10.

Even after relaxing the built-in restriction in the RTC model on blocked crossings, the model still shows significant congestion for freight trains in addition to the many blocked crossings. Due to a lack of long sidings with sufficient length for trains to clear

road crossings, freight traffic must block the crossings in order to clear the mainline for the passenger service. **Any case that requires extending the length of time that crossings are blocked should not be considered a feasible or acceptable solution.** These locations should be candidates for closure or grade separation.

Table 10: Grade Crossings with Increased Blockage Time in 2039 Passenger Case As Compared to 2039 Base Case

Road Name	Xing ID	City	State	% Increase in Blockage Time	Additional Extended Crossing Blockages per week
Gentilly Road	341059F	New Orleans	LA	313%	7.1
Michoud Boulevard	341062N	New Orleans	LA	257%	5.5
Beauvoir Road	340209H	Biloxi	MS	154%	3.5
Iris Street	340208B	Biloxi	MS	114%	3.0
West Oakridge Park	725712F	New Orleans	LA	60%	6.2
Farnham Place	725711Y	New Orleans	LA	60%	6.2
Hollywood Road	725710S	New Orleans	LA	50%	5.9
Read Road	352562S	New Orleans	LA	46%	1.9

4.1 Freight Train Performance with Blocked Crossings

When passenger service is added with no infrastructure projects in the **2039 Passenger Case**, in addition to increased blocked grade crossings, freight performance will still be degraded along the corridor. While the ability to block crossings reduces the impact of the passenger service, at the expense of motor vehicle traffic, most of the metrics still show degradation of service. See Table 11 and Table 13 below for a summary of freight performance metrics under this case.

As compared to the **2039 Base Case**, adding the proposed passenger service in **the 2039 Passenger Case** will increase freight delays by 20.4%, reduce train speeds by 4.5%, increase dispatching conflicts by 42.8%, increase recrews by 42.9%, and increase the variability of service. Table 11 below reports key metrics impacted by the immediate introduction of the proposed passenger service. The modeling shows that there will be a reduction in delays to other railroads in New Orleans. However, this benefit comes at the expense of vehicle traffic in the city. The modeling shows that crossings on the NSR will experience up to a 60% increase in the amount of time the crossings are blocked.

Table 11: Change in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with Increased Grade Crossing Blockages

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[23]	% Change in Recrews
20.4% ↑	-4.5% ↓	42.8% ↑	-23.1% ↓	42.9% ↑

Without the construction of additional capacity, the projected 2039 freight traffic will utilize more of the available track capacity. When passenger traffic is added, there is less capacity or operating margin to allow passenger trains to operate without significantly delaying the customers' freight traffic, magnifying the impact of the proposed passenger service. As shown in Table 12, while the impact varies between the train profiles, the overall result is that delays increased, reducing train speeds, and increasing the variability.

[23] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

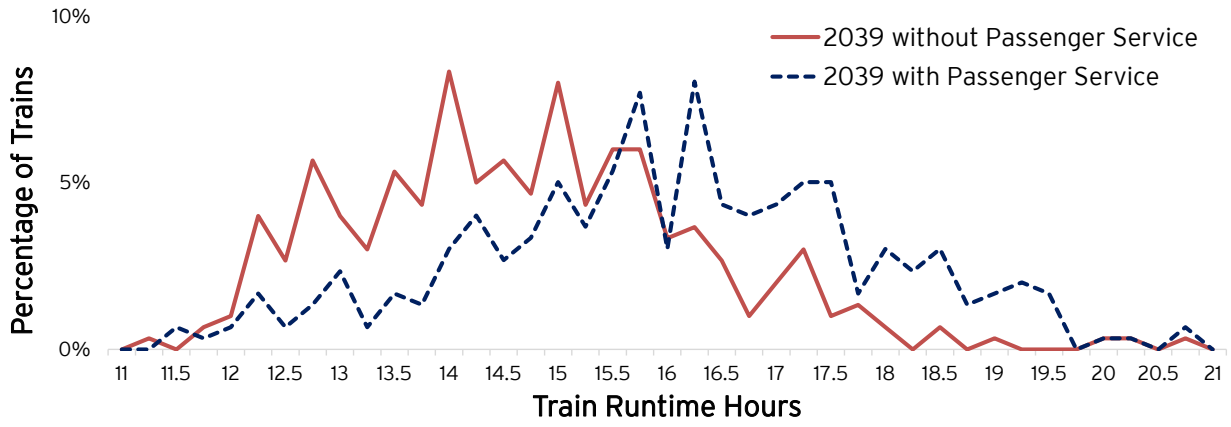
Table 12: Change in Freight Train Operating Performance between 2039 Base Case and 2039 Passenger Case with Increased Grade Crossing Blockages[24]

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-21.1%	2.5%	-11.6%
	CSXT 2	80.6%	-19.0%	22.0%
	CSXT 3	40.3%	-7.2%	6.2%
	CSXT 4	79.8%	-11.3%	46.9%
	CSXT 5	40.1%	-5.5%	28.3%
	TASD	66.5%	-19.1%	50.1%
	CSXT LOCAL TOTAL	**38.7%**	**-7.2%**	
CSXT Through Trains	CSXT A	11.3%	-2.1%	7.0%
	CSXT B	41.1%	-7.8%	68.2%
	CSXT C	8.1%	-2.1%	28.7%
	CSXT D	29.5%	-6.9%	-2.0%
	CSXT E	25.9%	-6.3%	7.2%
	CSXT F	59.9%	-9.4%	47.0%
	CSXT G	11.7%	-2.2%	28.1%
	CSXT H	31.3%	-5.8%	3.0%
	COAL	17.5%	-4.6%	45.6%
	CSXT THROUGH TOTAL	**24.3%**	**-4.6%**	
NSR Trains	NSR A	-11.8%	1.4%	-5.7%
	NSR B	-5.4%	1.2%	-1.7%
	NSR C	-32.3%	1.0%	-25.5%
	NSR D	-4.6%	2.2%	-23.1%
	NSR E	18.6%	-3.9%	8.0%
	NSR F	9.8%	-1.6%	10.4%
	NSR G	7.5%	-1.7%	2.8%
	NSR H	-16.2%	1.8%	2.9%
	INTERCHANGE	8.8%	-4.4%	6.3%
	NSR TOTAL	**5.4%**	**-1.6%**	
OVERALL TOTAL		**20.4%**	**-4.5%**	

[24] The operating metrics were evaluated for all freight trains in the model except yard train movements that occupy the mainline for headroom. Only select train profiles that operate on the New Orleans to Mobile study corridor are highlighted. While only specific train profiles are shown in the tables, the subtotals of the three groups of trains are inclusive of all trains in the model between New Orleans and Montgomery. The overall numbers are inclusive of all trains represented in the three subtotals. For further description of the metrics and calculation of subtotals see Section 3.7.

One merchandise train, CSXT F, experienced a 59.9% increase in delays with an increased variability of 47.0%. To better visualize these results, the runtimes of each simulated CSXT F were charted in a histogram (Figure 6). The impact of the passenger trains is immediately clear in the data. There is of course natural variability in freight train operations. Trains are often scheduled to operate over several days and often originate hundreds of miles away from a particular study geographic area, thereby increasing the number of potential events that could impact operations. However, without passenger service, the distribution is centered on a lower runtime (higher speed). The inclusion of passenger service both shifts the center of the data to higher runtimes, and increases the likelihood of higher runtimes.

Figure 6: "CSXT F" Train Runtimes in 2039 Base Case and 2039 Passenger Case



The delays resulted in a 42.9% increase in recrews. As shown in Table 13, the largest increase in recrews is with the CSXT local trains, which experience an additional 2.5 recrews per week. The increase in recrews to the local trains will have a direct impact on customers along the corridor. When a local train is delayed, the train is either recrewed or it is unable to complete the planned service to customers along the line that day. This will either increase railroad costs or directly impact the service to the customers along the corridor. The increased number of recrews is likely understated as the model does not account for significant unplanned events (e.g., severe weather events) that are often one of the key causes of recrews. The reduction in recrews on NSR is the direct result of the increased allowable grade crossing blockage time. The increased operational flexibility required to enable operations with passenger traffic serves to reduce recrews but at the expense of increased motor vehicle delays.

Table 13: Change in Recrews between 2039 Base Case and 2039 Passenger Case with Increased Grade Crossing Blockages

	ADDITIONAL RECREWS PER WEEK	% CHANGE IN RECREWS	
CSXT Local Trains	2.5	51.4%	↑
CSXT Through Trains	1.0	86.3%	↑
NSR Trains	-0.1	-7.6%	↓
All	**3.4**	**42.9%**	↑

The introduction of passenger traffic alters the duration and location of delays along the corridor (Figure 7 and Figure 8). The reduced flexibility in operations due to passenger traffic makes it difficult to hold freight trains at some locations that could have been used in the absence of the proposed new passenger traffic. This often results in a reduction in delay at one location but, in turn, results in the delays being both longer and at other locations.

Specifically, in the congested New Orleans terminal, even without passenger traffic there is limited capacity for NSR to hold trains on their network waiting to work or interchange with other railroads. The introduction of passenger traffic reduces the ability to hold these trains as the track must remain clear when the passenger trains travel across the NSR route. In these instances, NSR will be unable to accept an interchange train from other railroads. The trains will have to be held back at their originating railroad until a route across the corridor becomes available.

In this case, by relaxing the crossing blockage constraint, interchange trains can flow more freely into the terminal but are delayed longer on the NSR network. While the modeling results in the interchange delays decreasing by 23.1%, the resulting increased grade crossing delays would cause severe impacts to the city of New Orleans, and be unacceptable during regular operation.

Figure 7: Change in Freight Train Delay between 2039 Base Case and 2039 Passenger Case with Increased Grade Crossing Blockages by distance from New Orleans

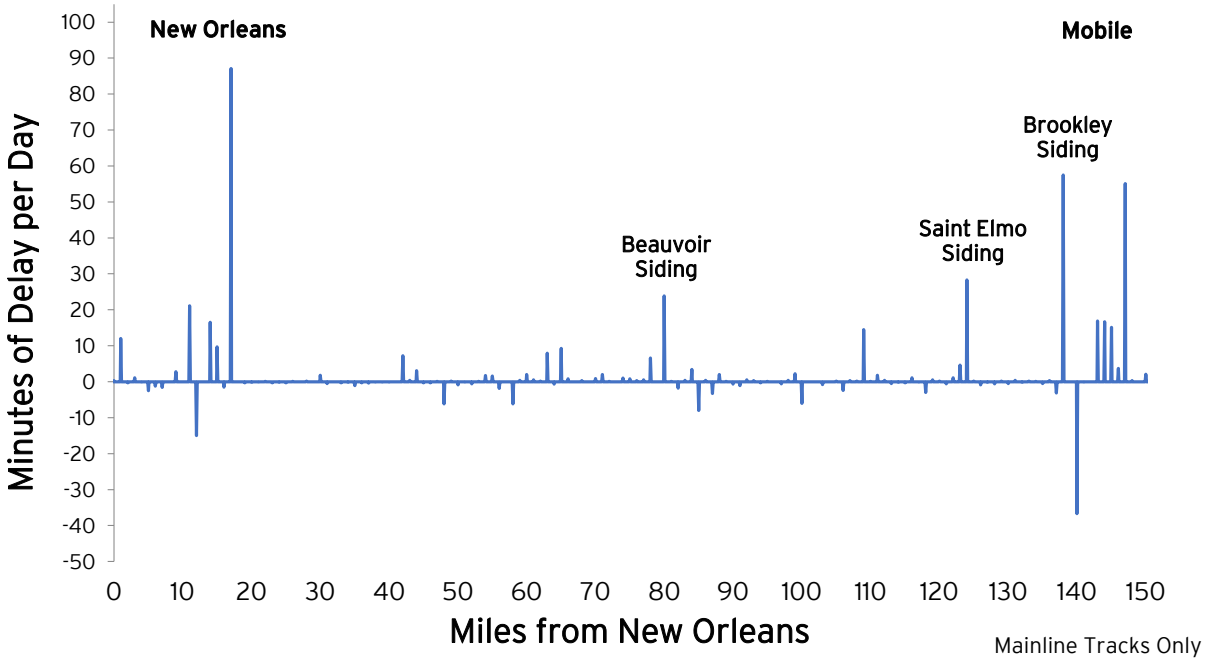


Figure 8: Change in Freight Train Delay between 2039 Base Case and 2039 Passenger Case with Increased Grade Crossing Blockages by Geographic Location

5.0 2039 Operations with Added Passenger Service and Proposed Projects

When adding a passenger service to a freight corridor, it is required by law to provide preference to passenger trains over other trains while not unreasonably impairing freight transportation. On the study corridor, this can be accomplished by adding infrastructure to mitigate the increased congestion caused by the introduction of the passenger trains.

Without passenger service, freight railroads are able to make use of the existing sidings by blocking the mainline and waiting for the oncoming train in a movement called a "saw-by" or accepting longer runtimes and delays. However, due to the statutory priority of passenger trains, this operational maneuver is not possible. And without sufficiently longer sidings to remedy the loss of this maneuver, passenger and freight trains will experience unacceptable delays. Amtrak claims this is a common problem,[25] and as such, no new service should be commenced without sufficient projects to avoid these delays.

The modeling found that fourteen projects are required to mitigate the passenger service's impact to freight operations, all of which meet the project selection criteria (Table 14). A schematic of the proposed projects is shown in Appendix B. Descriptions of and justifications for each project are found in Appendix D.

The proposed projects provide flexibility and fluidity to the terminal areas in New Orleans and Mobile, limit passenger train delays, allow freight movements where the proposed passenger trains meet and provide sidings to allow freight trains to clear the mainline so as not to block crossings.

Table 14: Summary of Proposed Projects in 2039

Project	New Track (ft)	Notes
NSR Terminal Improvements		5 crossovers
Gentilly Bypass	14,000	3 crossovers
Michoud Double Track	12,500	2 crossovers
Claiborne Double Track	16,500	2 crossovers
Nicholson Siding Extension	12,600	
Harbin Siding Extension	1,700	flip mainline and siding
Beauvoir Double Track	28,600	
Fountainbleau Siding	12,100	
Bayou Cassotte Power Turnouts		2 powered turnouts
St. Elmo Siding Extension	3,500	
Theodore Improvements		3 powered turnouts
Brookley Siding Extension	3,900	
Mobile Double Track	14,000	3 crossovers
Mobile Station Track	3,200	
Total	**122,600**	

5.1 2039 Freight Train Performance with Projects

The proposed projects provide sufficient capacity to retain freight train performance at a similar level to that which would exist if passenger trains were not operating on the corridor (Table 15). While a few freight trains had reduced performance versus the 2039 Base Case, the majority of the freight train performance is held constant.

[25] National Railroad Passenger Corporation, General and Legislative Annual Report & Fiscal Year 2021 Grant Request, at 34 (February 15, 2020).

Table 15: Change in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with Projects

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[26]	% Change in Recrews
-2.5% ↓	2.0% ↑	-2.9% ↓	18.5% ↑	-15.1% ↓

Assuming the completion of all proposed infrastructure improvements, the RTC model is predicting a return of dispatching conflicts to the same level as without the passenger trains. The restoration of freight service quality is reflected in the delay and speed for the freight trains, shown below in Table 16. It is important that the selected projects provide at least the same performance as compared to operations without passenger trains. The slight improvement in freight performance metrics indicates that there is likely sufficient capacity to maintain the high OTP for the passenger trains even during unplanned events that RTC does not capture (*e.g.*, severe weather events). As described earlier, if the proposed projects in the **2039 Build Case** only return the operational performance of freight service back to the level achieved in the **2039 Base Case**, whenever there is any unplanned event the network will be unable to maintain fluid operations creating passenger train delays, impacts to freight customers, or increased blocked crossings.

While the passenger train impact is mitigated to the operations overall, some freight trains still experience degraded operations (Table 16). In most cases, this degradation is the result of when the freight train is scheduled or, in the case of local freight trains, where they serve customers. For example, the delays to TASD trains increases 10.9% and the coal trains that terminated in Mobile had their variability increased by 39.5%.

While some freight traffic experiences improvements in speed, the overall delays to these trains actually increase. This is due to the availability of new routings, as is the case with NSR H using the new crossovers at Terminal Junction or CSXT 4 utilizing siding speed improvements.

The NSR trains experience the largest improvement of the freight train groups. This improvement results from the proposed crossover projects in New Orleans. The proposed crossovers are interconnected and critical to maintaining fluid freight operations while keeping a route clear for the passenger service through the terminal. Removal of any of the proposed crossovers will degrade both freight and passenger operations.

[26] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

Table 16: Change in Freight Train Operating Performance between 2039 Base Case and 2039 Build Case[27]

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-18.0%	21.5%	-15.1%
	CSXT 2	-4.8%	5.1%	2.4%
	CSXT 3	-15.9%	8.0%	-10.7%
	CSXT 4	14.0%	9.2%	0.0%
	CSXT 5	-3.2%	1.1%	-6.9%
	TASD	10.9%	-3.7%	21.5%
	CSXT LOCAL TOTAL	**3.2%**	**1.7%**	
CSXT Through Trains	CSXT A	-3.9%	0.3%	-9.6%
	CSXT B	2.5%	-0.6%	28.8%
	CSXT C	-9.8%	2.3%	-17.0%
	CSXT D	-1.1%	0.7%	-6.7%
	CSXT E	-0.7%	0.0%	-0.2%
	CSXT F	-0.6%	0.3%	3.0%
	CSXT G	-12.1%	3.2%	-4.2%
	CSXT H	-1.4%	0.2%	-17.0%
	COAL	5.4%	-1.6%	39.5%
	CSXT THROUGH TOTAL	**-2.8%**	**0.6%**	
NSR Trains	NSR A	-27.7%	3.2%	-34.3%
	NSR B	-12.7%	3.7%	-17.1%
	NSR C	-58.3%	1.6%	-37.0%
	NSR D	-5.2%	2.4%	-26.3%
	NSR E	-15.7%	3.4%	-21.8%
	NSR F	-21.3%	3.4%	-13.1%
	NSR G	-29.4%	5.3%	-28.8%
	NSR H	11.9%	17.6%	-18.5%
	INTERCHANGE	-1.4%	0.7%	5.5%
	NSR TOTAL	**-5.2%**	**4.8%**	
OVERALL TOTAL		**-2.5%**	**2.0%**	

[27]The operating metrics were evaluated for all freight trains in the model except yard train movements that occupy the mainline for headroom. Only select train profiles that operate on the New Orleans to Mobile study corridor are highlighted. While only specific train profiles are shown in the tables, the subtotals of the three groups of trains are inclusive of all trains in the model between New Orleans and Montgomery. The overall numbers are inclusive of all trains represented in the three subtotals. For further description of the metrics and calculation of subtotals see Section 3.7.

5.2 2039 Passenger Train Performance with Projects

The proposed projects enabled all four passenger trains to achieve a greater than 95% OTP (Table 17).

Table 17: Passenger Train OTP and Minutes of Delay by Cause in 2039 Build Case

Train	Customer OTP	% of Total Delay by Cause		
		Passenger	Freight	Bridges
23	97.3%	13.0%	43.9%	43.1%
24	97.1%	6.0%	36.7%	57.3%
25	95.5%	2.8%	62.1%	35.1%
26	96.0%	2.3%	53.8%	43.8%
	96.5%	5.8%	50.0%	44.2%

* Stop Delay Minutes per Train

The proposed infrastructure is sufficient to reach the desired 95% OTP for all passenger trains while mitigating the delays due to both freight and passenger traffic. Of the delays to the passenger trains, 44.2% are directly attributable to movable bridges, with 50.0% due to freight traffic and 5.8% due to other passenger trains. Bridge openings are one of the root causes of freight delays, which then, in turn, cause delays to the passenger trains. When the bridge openings are removed from the case with the proposed passenger service and projects, the delays due to freight are reduced by 16%.

Most of the degradation in OTP is due to bridge openings. The **2039 Build Case with No Bridge Openings** was simulated to determine what impact the bridges have on the simulated OTP. The modeling found that if the bridge openings were removed entirely, the passenger trains would experience a 98.6% OTP (Table 18), an increase of 2.1% from the **2039 Build Case**.

Table 18: Customer OTP in 2039 Build Case with and without Bridge Openings and without Freight Traffic

Train	2039 with Freight and Proposed Projects (2039 Build Case)	2039 with Freight, Proposed Projects, and No Bridges Openings (2039 Build Case with No Bridge Openings)	2039 with No Freight and No Projects (2039 Passenger Only Case)
23	97.3%	99.5%	99.5%
24	97.1%	99.7%	98.0%
25	95.5%	97.5%	98.2%
26	96.0%	98.0%	99.0%
	96.5%	**98.6%**	**98.7%**

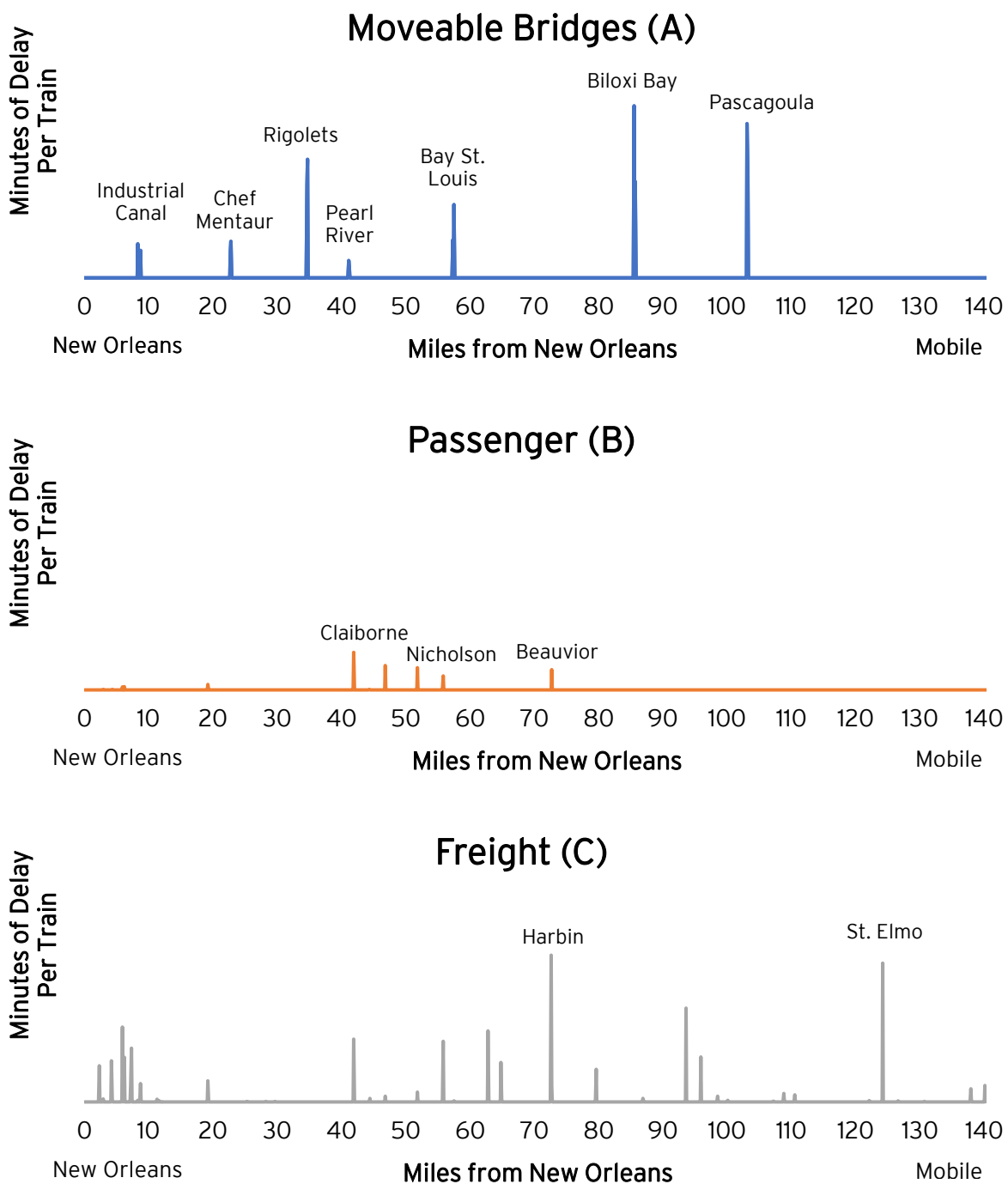
* Stop Delay Minutes per Train

Additional projects beyond those proposed are unlikely to further improve passenger OTP; however, replacement projects could be considered during the design phase as new information arises and additional stakeholders are involved. Even with no freight

traffic on the line, as modeled with the **2039 Passenger Only Case**, the passenger service could at most obtain an OTP of 98.7% due to bridge openings and delays between passenger trains. While the proposed projects mitigate the delays controlled by the railroad (delays from other trains), the bridge delays cannot be controlled. The magnitude of the passenger train delays directly attributable to bridges, other passenger trains, and freight trains are shown by location (Figure 9).

While Customer OTP is now the metric used by Amtrak and federal law, End-Point OTP is still used by many entities in the railroad industry to measure each host railroad's individual performance on a shared passenger service route. The simulation found that southbound passenger trains 23 and 25 would arrive at NOUPT within five minutes of the scheduled arrival for 94.3% and 93.7% of their trips, and within ten minutes for 95.3% of their trips. However, the End-Point OTP on CSXT's portion of the proposed passenger route measures the performance of the trains between NOT Junction and Mobile independent of train performance on the NSR portion. The simulation found that southbound passenger trains 23 and 25 would arrive at NOT Junction within five minutes of the scheduled arrival for 72.3% and 69.0% of their trips, and within ten minutes for 81.3% and 80.3% of their trips. The large difference between the End-Point OTP for the overall corridor and CSXT-specific End-Point OTP is due to the amount of recovery time included in the passenger schedules between NOT Junction and NOUPT. A train could arrive late to NOT Junction, but be able to travel faster than the scheduled time across NSR to NOUPT, and therefore arrive at the ultimate end station on-time.

Figure 9: Magnitudes of Delay by Train by Locations from (A) Movable Bridges, (B) Other Passenger Trains, and (C) Freight Trains



6.0 2019 Operational Performance on Freight Trains with Added Passenger Service and No Projects

When modeling the introduction of passenger operations onto a busy freight corridor, it is the recommended practice and industry norm to model the impact on freight operations over a 20-year horizon. However, this report also quantifies the immediate impact on the existing operations. All evaluations were completed using the existing infrastructure. The impact from the additional passenger traffic to the freight traffic without any new infrastructure projects was analyzed with 2019 volumes.

Even before taking into consideration the projected increases in freight demand for this corridor, adding the proposed passenger trains in the **2019 Passenger Case** resulted in an increase in freight delays by 22.7%, reduce train speeds by 4.5%, increase dispatching conflicts by 38.1%, increase recrews by 37.7%, and increase the variability of service as compared with those same metrics in the **2019 Base Case**. Table 19 below reports key metrics impacted by the immediate introduction of the proposed passenger service.

Table 19: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[28]	% Change in Recrews
22.7% ↑	-4.5% ↓	38.1% ↑	33.6% ↑	37.7% ↑

While train performance as a whole on the corridor is degraded due to the addition of passenger service, the impact varies between train profiles (Table 20). Nearly every freight train profile has an increase in variability. Generally, the local trains experienced the greatest degradation of service with local train CSXT 4 experiencing an over 100% increase in delay and increased variability of over 60%. While a few of the freight trains did have minor improvements, this improvement is the result of those freight trains' ability to utilize the cleared mainline resulting from the introduction of the passenger service. In other words, these freight trains were drafting behind the passenger train that had cleared all conflicting traffic due to its priority. While on the surface this drafting effect does improve these trains, it results in a net decrease to corridor performance as it increases the delays to the remaining freight traffic.

[28] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

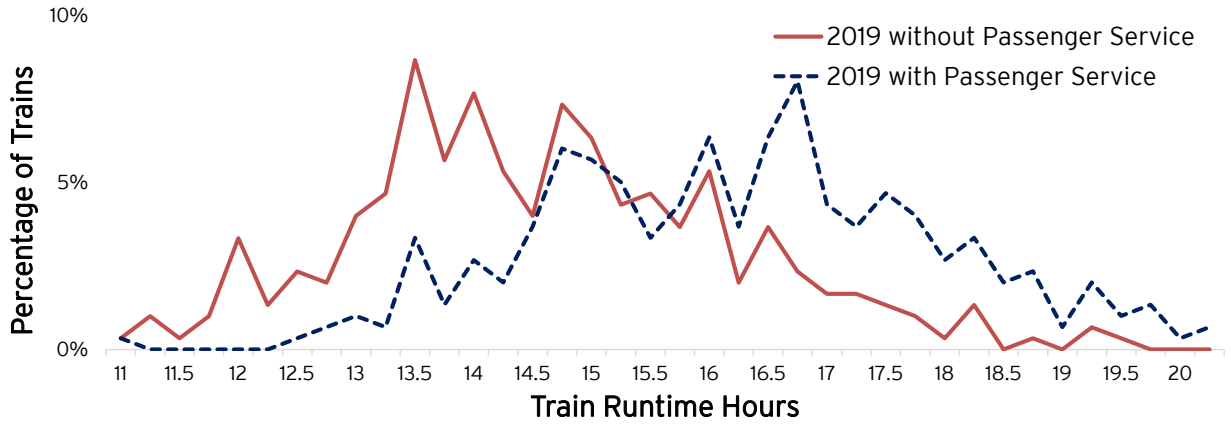
Table 20: Change in Freight Train Operating Performance between 2019 Base Case and 2019 Passenger Case[29]

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSX Local Trains	CSXT 1	-8.3%	0.5%	3.3%
	CSXT 2	122.4%	-20.4%	5.6%
	CSXT 3	64.6%	-8.3%	28.6%
	CSXT 4	106.5%	-11.3%	63.3%
	CSXT 5	54.7%	-6.6%	-4.4%
	TASD	33.6%	-7.8%	22.1%
	CSXT LOCAL TOTAL	**45.4%**	**-6.9%**	
CSX Through Trains	CSXT A	4.9%	-0.7%	7.0%
	CSXT B	10.3%	-1.9%	8.2%
	CSXT C	6.1%	-1.4%	10.7%
	CSXT D	53.7%	-8.6%	36.5%
	CSXT E	36.7%	-7.4%	5.0%
	CSXT F	75.2%	-10.8%	27.2%
	CSXT G	19.4%	-3.5%	7.2%
	CSXT H	30.3%	-5.8%	-9.7%
	COAL	26.9%	-5.5%	15.5%
	CSXT THROUGH TOTAL	**25.9%**	**-4.4%**	
NS Trains	NSR A	-23.5%	0.0%	-8.5%
	NSR B	18.8%	-1.1%	21.3%
	NSR C	19.1%	-0.3%	8.5%
	NSR D	10.0%	-4.3%	68.3%
	NSR E	26.0%	-4.9%	6.0%
	NSR F	-14.6%	1.9%	-6.8%
	NSR G	38.0%	-3.7%	17.3%
	NSR H	-13.6%	3.2%	11.8%
	INTERCHANGE	10.9%	-4.3%	7.1%
	NSR TOTAL	**7.4%**	**-2.3%**	
OVERALL TOTAL		**22.7%**	**-4.5%**	

[29] The operating metrics were evaluated for all freight trains in the model except yard train movements that occupy the mainline for headroom. Only select train profiles that operate on the New Orleans to Mobile study corridor are highlighted. While only specific train profiles are shown in the tables, the subtotals of the three groups of trains are inclusive of all trains in the model between New Orleans and Montgomery. The overall numbers are inclusive of all trains represented in the three subtotals. For further description of the metrics and calculation of subtotals see Section 3.7.

One merchandise train, CSXT F, saw delays increase 75.2% and increased variability by 27.2%. To better visualize these results, the runtimes of each simulated CSXT F were charted in a histogram (Figure 10). The impact of the passenger trains is immediately clear in the data. There is of course expected variability in freight train operations independent of any proposed passenger service. Freight trains are often scheduled to operate over several days, originating hundreds of miles away, thereby increasing the number of potential events that could impact operations. However, without passenger service, the distribution is centered on a lower runtime (higher speed). The inclusion of passenger service both shifts the center of the data to higher runtimes and flattens the distribution, increasing the likelihood of higher runtimes.

Figure 10: "CSXT F" Train Runtimes in 2019 Base Case and 2019 Passenger Case



As shown in Table 21, the delays resulted in a 37.7% increase in recrews, or 2.4 additional recrews per week. CSXT local trains had the greatest percentage and overall increase in recrews. When a local freight train is delayed, the train is either recrewed or it will be unable to complete the planned service to customers along the line that day. This will either increase railroad costs or directly impact the service to the customers along the corridor. The increased number of recrews is likely understated as the model does not account for unplanned events (e.g., severe weather events) that are often one of the key causes of recrews.

Table 21: Change in Recrews between 2019 Base Case and 2019 Passenger Case

	ADDITIONAL RECREWS PER WEEK[30]	% CHANGE IN RECREWS	
CSXT Local Trains	2.0	41.5%	↑
CSXT Through Trains	0.2	23.3%	↑
NSR Trains	0.3	28.9%	↑
All	2.4	37.7%	↑

[30] Numbers do not add up due to rounding.

Figure 11 and Figure 12 reveal the major chokepoints along the corridor. The addition of passenger traffic increases delays across the corridor, with the greatest increase in delay experienced in New Orleans at Michoud. The delays are to northbound (eastbound) freight trains departing Gentilly Yard. Freight trains are delayed by the northbound (eastbound) and southbound (westbound) passenger trains because there is limited existing siding infrastructure. Other large increases occur at Claiborne Siding in Ansley, MS, Orange Grove Siding in Orange Grove, MS, St. Elmo Siding in St. Elmo, AL, and in Mobile.

Due to the increased delays and limited capacity in New Orleans, freight trains are often delayed entering the simulation model. This occurs, for example, when NSR is unable to accept an interchange train from another railroad due to congestion, resulting in delays to the other freight railroads in the terminal complex. The addition of passenger traffic increases the delays due to freight trains being delayed on the other railroads in New Orleans by 33.6%.

Without any projects, the addition of the four daily passenger trains will result in increased blockages of the grade crossings on the corridor. The increased congestion from the additional high priority passenger traffic will require freight traffic to dwell longer for meets or while being overtaken by passenger trains. Even when restricting the maximum stop time on a crossing to 20 minutes, the number of daily crossing blockages between Flomaton and New Orleans that are longer than 10 minutes will increase 6.7% and overall blockage time increase by 5.1%.

Figure 11: Change in Freight Train Delay between 2019 Base Case and 2019 Passenger Case by distance from New Orleans

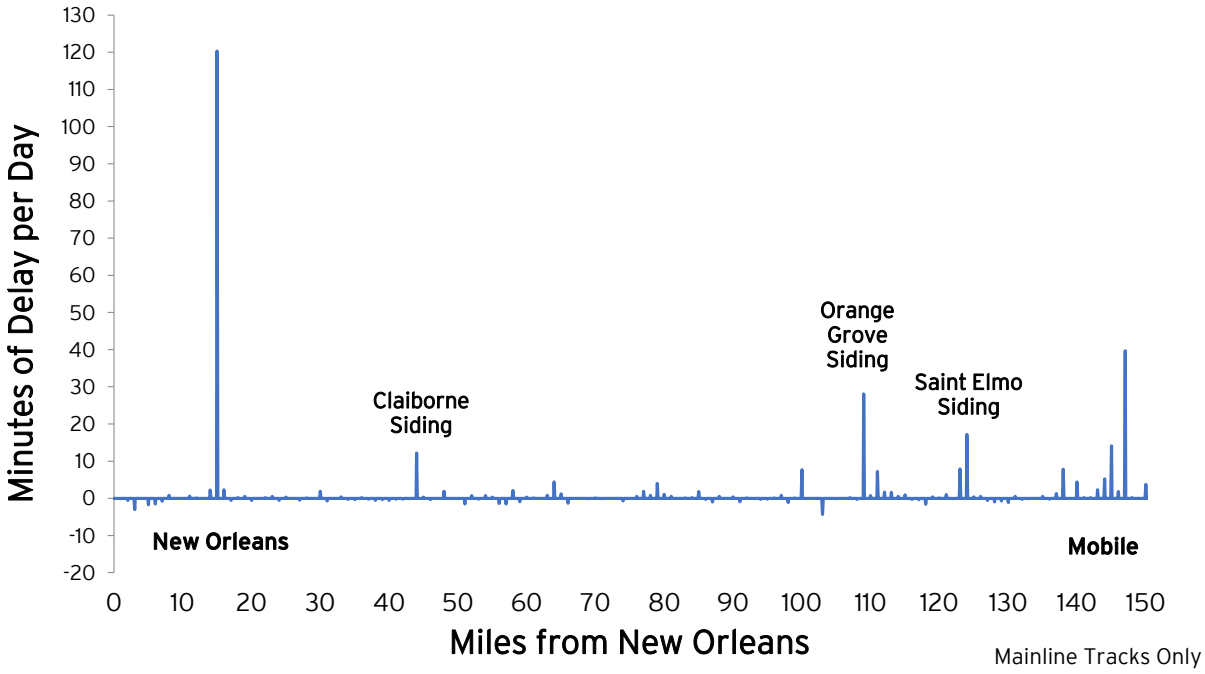


Figure 12: Largest Changes in Freight Train Delay
between 2019 Base Case and 2019 Passenger Case by Geographic Location

7.0 2019 Operations with Added Passenger Service and Proposed Projects

Although the 2019 Passenger Case does not incorporate the 2039 projected freight growth in the form of longer or additional trains, the number of meets between freight and passenger trains, the biggest causes of delays from passenger traffic, does not change. This is because passenger service still adds four more trains each day on the corridor in 2019, a 31% increase in non-local train traffic. As discussed in Section 3.5, developing an independent solution set to address only the introduction of four additional trains per day in 2019 is shortsighted given the expected freight growth over the next 20 years. Therefore, a subset to address this issue, a subset of projects proposed for 2039 was identified to mitigate the impact of passenger service starting in 2019. Without the 2039 projected growth, the freight trains are able to have a higher utilization of existing sidings, but the fundamental impact of the passenger

service remains the same. As a result, eleven of the projects proposed in the **2039 Build Case** are still required in the **2019 Build Case** (Table 22).

Table 22: Summary of Proposed Projects in the 2019 Build Case

Project	New Track (ft)	Notes
NSR Terminal Improvements		5 crossovers
Gentilly Bypass	14,000	3 crossovers
Claiborne Double Track	16,500	2 crossovers
Nicholson Siding Extension	12,600	
Harbin Siding Extension	1,700	flip mainline and siding
Beauvoir Double Track	28,600	
Fountainbleau Siding	12,100	
Bayou Cassotte Power Turnouts		2 powered turnouts
Theodore Improvements		3 powered turnouts
Brookley Siding Extension	3,900	
Mobile Station Track	3,200	
Total	**92,600**	

7.1 2019 Freight Train Performance with Projects

As shown in Table 23, the proposed projects in the **2019 Build Case** may provide sufficient capacity to retain freight train performance to a level similar to that if passenger trains were not operating on the corridor as in the **2019 Base Case**. While a few freight trains had reduced performance versus in the 2019 Base Case, the majority of the train performance is held constant. Even with the proposed projects, the interchange delays increase. With 2019 freight train volumes and freight train lengths, interchange delays are limited. In order to avoid delaying the additional four passenger trains, there is less time each day when during which interchange movements can occur.

Table 23: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019 with Projects

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[31]	% Change in Recrews
-4.4% ↓	1.7% ↑	-2.5% ↓	40.2% ↑	-3.3% ↓

With the proposed infrastructure improvements, the RTC model is predicting a return of dispatching conflicts to the same level as without the passenger trains. And this restoration of freight service quality is reflected in the delay and speed for the freight trains, shown below.

[31] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

The CSXT traffic experiences minor improvements in speed for both the local freight trains, while the delay actually increases (Table 24). Some of the freight trains have degraded operations driven by schedules or, in the case of local freight trains, where they serve customers. For example, the delay to CSXT 4 which travels from Mobile to Bayou Cassotte Yard and back to Mobile, serving a customer near Brookley Siding increased 59.6%. Merchandise train CSXT G has an increase in delay (23.1%) and a decrease in speed (-3.6%).

The additional projects also mitigate the potential impact to grade crossings along the corridor. While the overall amount of time the gates will be down between Flomaton and New Orleans will increase 4.7%, which is primarily the result of a 31% increase in train volumes due to the addition of passenger trains, the number of crossing blockages longer than 10 minutes will decrease 3.6%. The projects provide locations for freight trains to hold clear of crossings, reducing the impact to the municipalities along the corridor.

Table 24: Change in Freight Train Operating Performance between 2019 Base Case and 2019 Build Case[32]

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-18.6%	21.8%	-16.3%
	CSXT 2	29.7%	-2.7%	4.5%
	CSXT 3	-10.7%	5.8%	-1.7%
	CSXT 4	59.6%	5.3%	43.9%
	CSXT 5	1.4%	0.5%	-29.6%
	TASD	-3.5%	0.8%	-6.2%
	CSXT LOCAL TOTAL	**4.6%**	**1.3%**	
CSXT Through Trains	CSXT A	-38.9%	5.9%	-24.0%
	CSXT B	-20.5%	4.5%	-7.6%
	CSXT C	-5.5%	0.9%	-10.7%
	CSXT D	6.0%	-0.6%	-6.6%
	CSXT E	-10.0%	2.0%	-13.9%
	CSXT F	-16.2%	2.9%	-2.9%
	CSXT G	23.1%	-3.6%	2.9%
	CSXT H	7.4%	-1.8%	-0.2%
	COAL	-2.6%	0.7%	-1.3%
	CSXT THROUGH TOTAL	**-6.8%**	**1.1%**	
NSR Trains	NSR A	3.3%	-0.1%	11.0%
	NSR B	26.0%	-1.5%	38.3%
	NSR C	48.8%	-0.5%	16.8%
	NSR D	1.1%	-0.4%	19.1%
	NSR E	-24.3%	5.1%	-26.9%
	NSR F	-41.4%	6.7%	-26.2%
	NSR G	-39.5%	3.7%	-24.1%
	NSR H	21.4%	14.6%	-6.5%
	INTERCHANGE	-8.5%	4.0%	-3.1%
	NSR TOTAL	**-6.2%**	**3.4%**	
OVERALL TOTAL		**-4.4%**	**1.7%**	

[32] The operating metrics were evaluated for all freight trains in the model except yard train movements that occupy the mainline for headroom. Only select train profiles that operate on the New Orleans to Mobile study corridor are highlighted. While only specific train profiles are shown in the tables, the subtotals of the three groups of trains are inclusive of all trains in the model between New Orleans and Montgomery. The overall numbers are inclusive of all trains represented in the three subtotals. For further description of the metrics and calculation of subtotals see Section 3.7.

8.0 Discussion and Modeling Findings

Movable bridges impair passenger operations along the corridor

The movable bridges along the corridor must open on demand for maritime traffic, delaying current freight trains and the proposed passenger trains. The bridge openings delay the passenger trains in the study, both directly and indirectly, due to increased congestion which limits the passenger train's potential OTP.

When a passenger train is delayed due to a bridge opening, the planned meet location with the opposite direction train changes. This limits the ability of dispatchers to effectively plan out freight train movements and can result in indirect delays for freight.

Movable bridge operations are regulated by the U.S. Coast Guard and involve the competing interests of railroad and maritime traffic. Changes to operations in order to support railroad operations may unduly impact maritime operations. Any changes in bridge opening regulations along the corridor will change the underlying assumptions of the model, and the study findings will have to be revisited.

Increased train variability from passenger traffic will increase congestion in New Orleans and Mobile, and increase railroad operating cost

Variability in operations makes it more difficult and costly to plan a corridor's operations. Generally, freight trains are scheduled around network constraints to prevent multiple freight trains from arriving and departing at the same time. On the proposed passenger corridor, Mobile and New Orleans are two locations that require careful scheduling and planning. If variability increases, it becomes more likely that multiple freight trains could arrive simultaneously at Sibert, Gentilly, or Oliver Yards. This will require some of the freight trains to wait, further increasing delays and costs.

The variability in operations also limits the ability of the freight railroad to plan the use of resources including crews and locomotives, thereby increasing operating costs. For example, freight railroads plan in advance for the locomotives each freight train will use. If an inbound freight train is unable to regularly arrive at the planned time, the outbound freight train must use a different set of unplanned for locomotives. This requires additional locomotives that would not otherwise be required. Similarly, if a freight train crew does not arrive at its destination at the planned time, the freight train may not make the next planned departure because the crew is not sufficiently rested.

Local freight trains will experience the greatest degradation of service if insufficient track capacity is constructed

Local freight trains serve customer locations along the corridor and often need to occupy the mainline to pick up or drop off rail cars. With the addition of passenger service, local freight trains experience the most significant delays because they are provided with the lowest dispatching priority and therefore serving customers becomes increasingly difficult. If a local freight train is delayed, it may not have sufficient time to reach all the planned customers on its route. This increases the unreliability of the services provided by a freight railroad and ultimately, if the railroad

cannot provide consistent service, the customer may have to increase storage, truck its shipments, relocate its operations, or shut down its business.

Without additional infrastructure in New Orleans, the addition of passenger traffic will result in delays not only on NSR but the other railroads

When additional passenger traffic is added to the corridor the freight railroads are unable to use the limited capacity on the NSR corridor to hold freight trains. A clear path must remain to prevent delaying the passenger trains. As there is no capacity for the freight trains, the result is NSR must prevent the arrival of freight trains from the other freight railroads. The simulation found that delays to freight trains waiting to enter the NSR network would increase 33.6% in 2019 and would be much greater in 2039. This creates delays on the other railroads (CN, KCS, BNSF, UP, and NOPB) in the New Orleans terminal complex and increases their operating cost. While the proposed projects limit the impact of the Gulf Coast passenger trains to CSXT and NSR, they are unable to fully mitigate these additional delays to other railroads in both 2019 and 2039 – additional infrastructure is necessary to remove this remaining delay.

To help mitigate the adverse impacts passenger service will have on delays to other railroads in the New Orleans Terminal, a project to extend the NSR Freight Lead track within the New Orleans terminal from its current 3,900 feet to approximately 12,000 feet was preliminarily analyzed. *See* Appendix B to the Verified Statement of Charles Banks and Larry Guthrie. The extended NSR Freight Lead track project would permit NSR to work trains at Oliver Yard, and to hold trains moving to and from NSR off of the mainline trackage over which the passenger trains operate. The extended Freight Lead would be beneficial to the passenger trains through the elimination of certain conflicts with freight trains on NSR trackage, but also to the freight trains of the carriers that operate across NSR trackage in New Orleans. The project, estimated to cost on the order of $80 million, was not ultimately recommended for funding due to the high cost. Though the project is not being advanced for funding as part of the proposed infrastructure package to support the startup of the Gulf Coast service, it remains the single most impactful project that could be constructed in the New Orleans gateway to benefit freight and passenger service alike. This project should be strongly considered for future infrastructure investment, and it could be an alternate means to mitigate many of the freight/passenger conflicts that the current proposed infrastructure package is intended to address.

If further investigation finds projects to be infeasible or modeling assumptions need to be revised, the selected projects need to be re-evaluated

The proposed projects are based on the set of assumptions outlined in this report. If these assumptions change, more or less infrastructure may be required. The proposed infrastructure is designed to limit the use of passing sidings by passenger trains to only meet with another passenger train. If higher passenger train delays and use of sidings by passenger trains during meets with freight trains are allowed, less infrastructure may be required.

The selected projects were reviewed for constructability; however, further investigation needs to be performed before design and construction. If a project is deemed infeasible, alternative projects will need to be considered. Alternatively, if it is possible to close or grade separate strategic crossings along the corridor, and such crossing closures or separations reduce freight service degradation to the same degree as a siding or double track project, that would be a preferable course of action

since crossing modifications have less perpetual cost than maintaining additional railroad tracks.

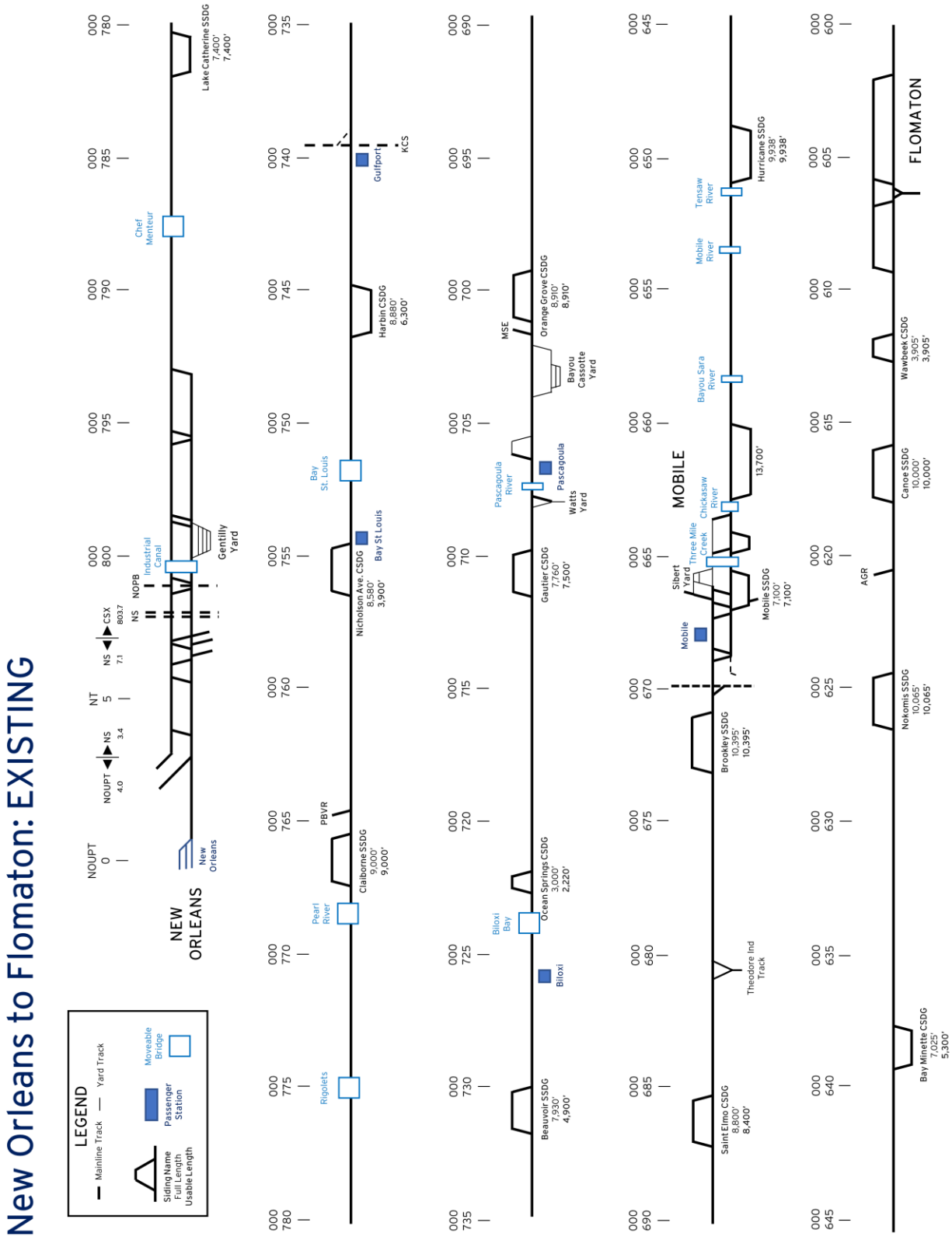
The proposed projects are just one set of possible solutions. As operations change over time, or due to constructability issues during design, projects may be adjusted. Alternative infrastructure solutions may provide the same benefit.

9.0 Conclusions

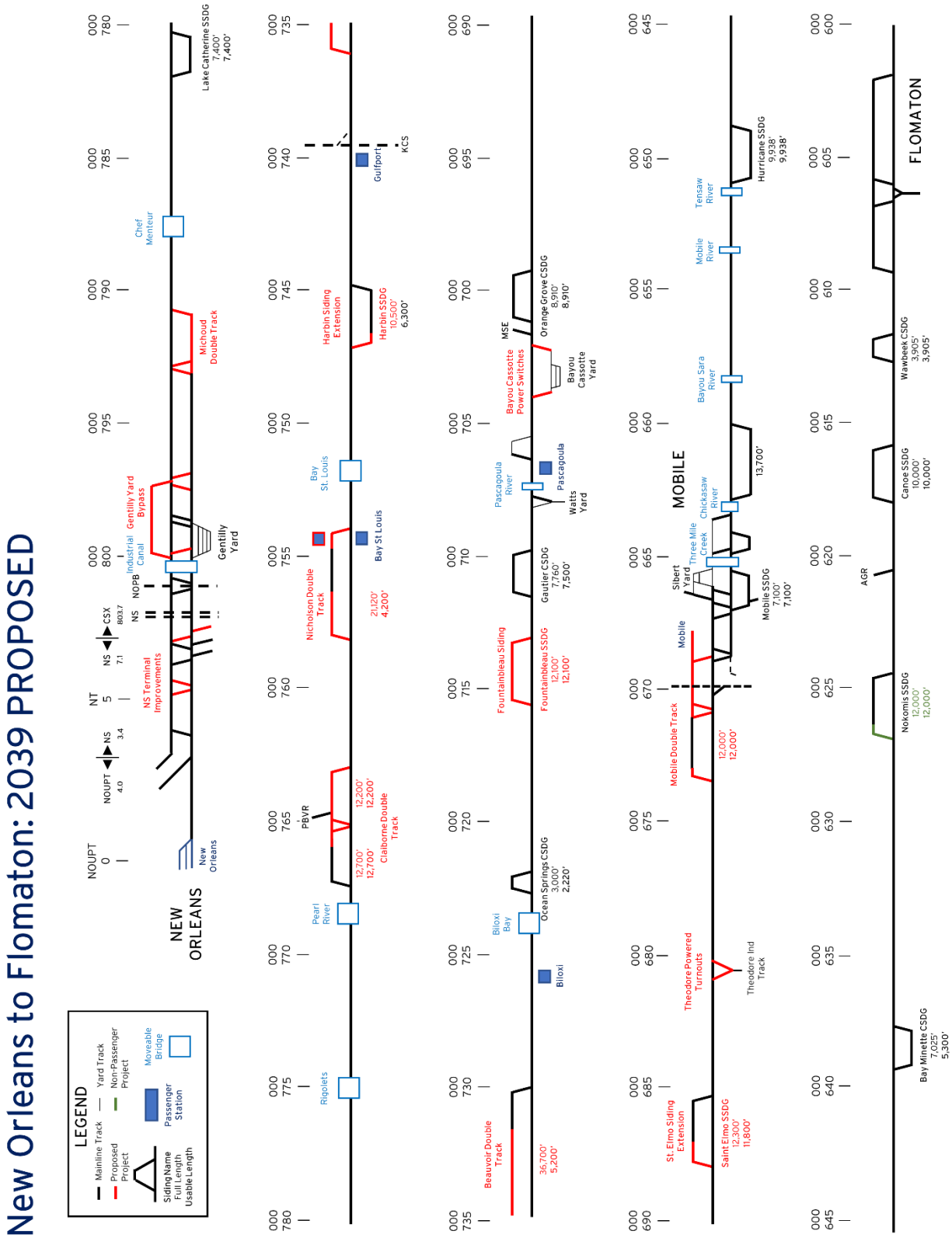
The authors believe that the analysis in this report follows industry best practices and that the RTC cases in this study accurately depict the current and future constraints on the Gulf Coast Corridor. The models were developed using the best information available and accurately reflect the potential impact of a new proposed Amtrak passenger service on the Mobile to New Orleans corridor. This evaluation found that the fourteen track infrastructure projects proposed on this corridor are a reasonable solution to ensure that the introduction of passenger service does not impair freight transportation on the host freight railroads.

The proposed fourteen projects both mitigate the impact of the passenger trains on freight operations and limit freight train-caused delays to the passenger trains. With these projects, the four daily passenger trains are able to achieve an OTP over 95% in RTC simulations, which is necessary to ensure that actual operations can produce for Amtrak an OTP metric of over 80% as required by federal law.

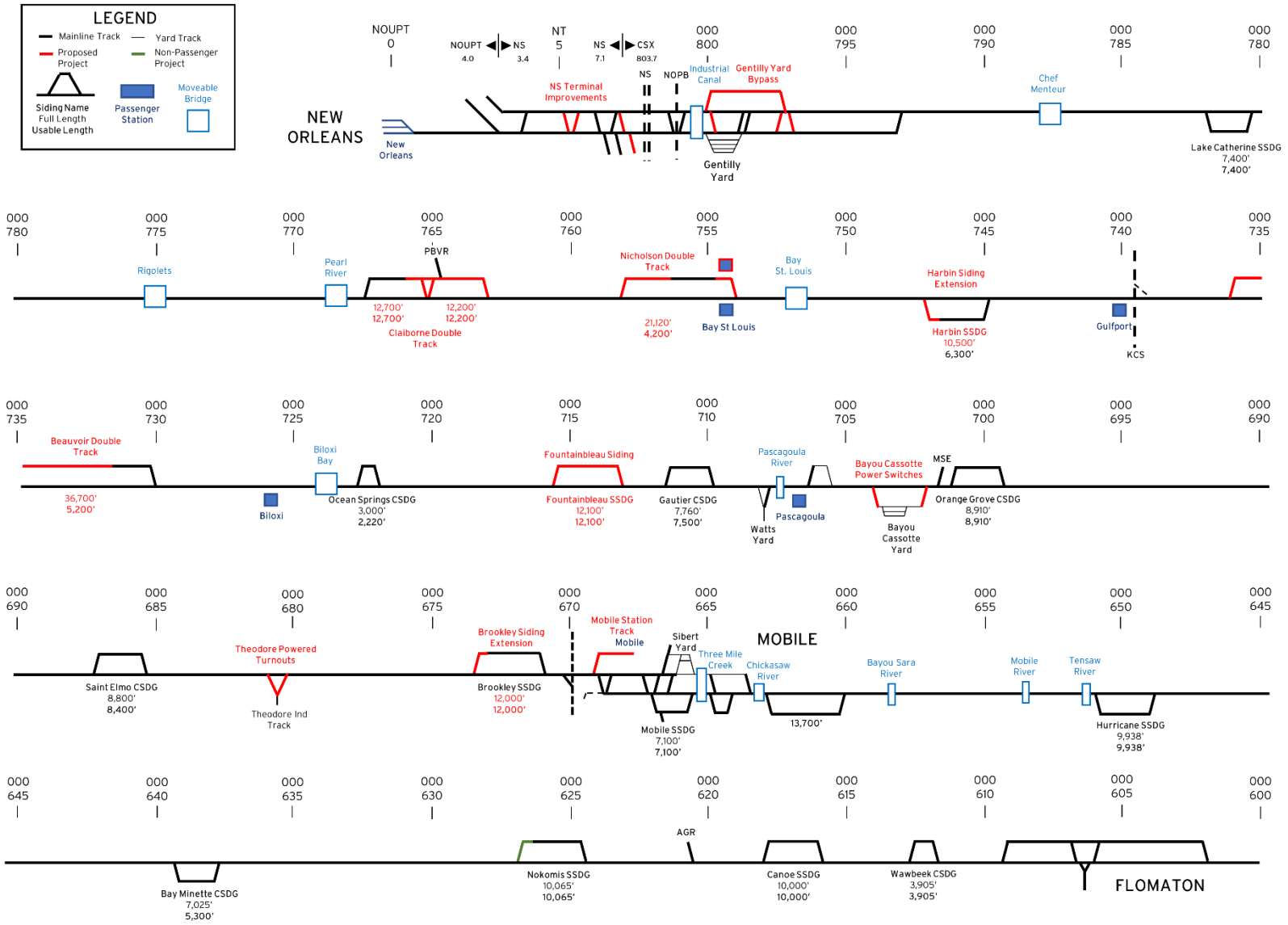
Appendix A: Existing Track Schematic



Appendix B: 2039 Proposed Projects Track Schematic



New Orleans to Flomaton: 2019 PROPOSED



Appendix D: Proposed Projects Descriptions and Justifications

Projects and descriptions are listed geographically from west to east.

NSR Terminal Improvements

Freight trains are positioned on both tracks between East City Junction and Terminal Junction to work at Oliver Yard, waiting for crews, delayed by congestion at NE Tower and Oliver Yard, or to interchange with another carrier. Whenever a passenger train passes through, the freight railroad must leave one of the tracks clear. The proposed passenger service adds four additional passenger trains to the existing pair from the Crescent service, for a total of 6 passenger trains per day, greatly limiting the windows when both tracks can be used. The proposed passenger trains will cause the interchange freight trains to hold back on the originating railroads, increasing delays to CN, BNSF, and UP. Further discussion of the congestion in the terminal can be found in the background section.

It is expected for longer freight trains working at Terminal Junction to block Paris. Creating a new universal crossover at Bayou St. John should provide sufficient space for freight trains to work without limiting other freight trains' movements. The new Bayou St. John crossover shortens the available space to hold a freight train between the crossover and East City Junction.

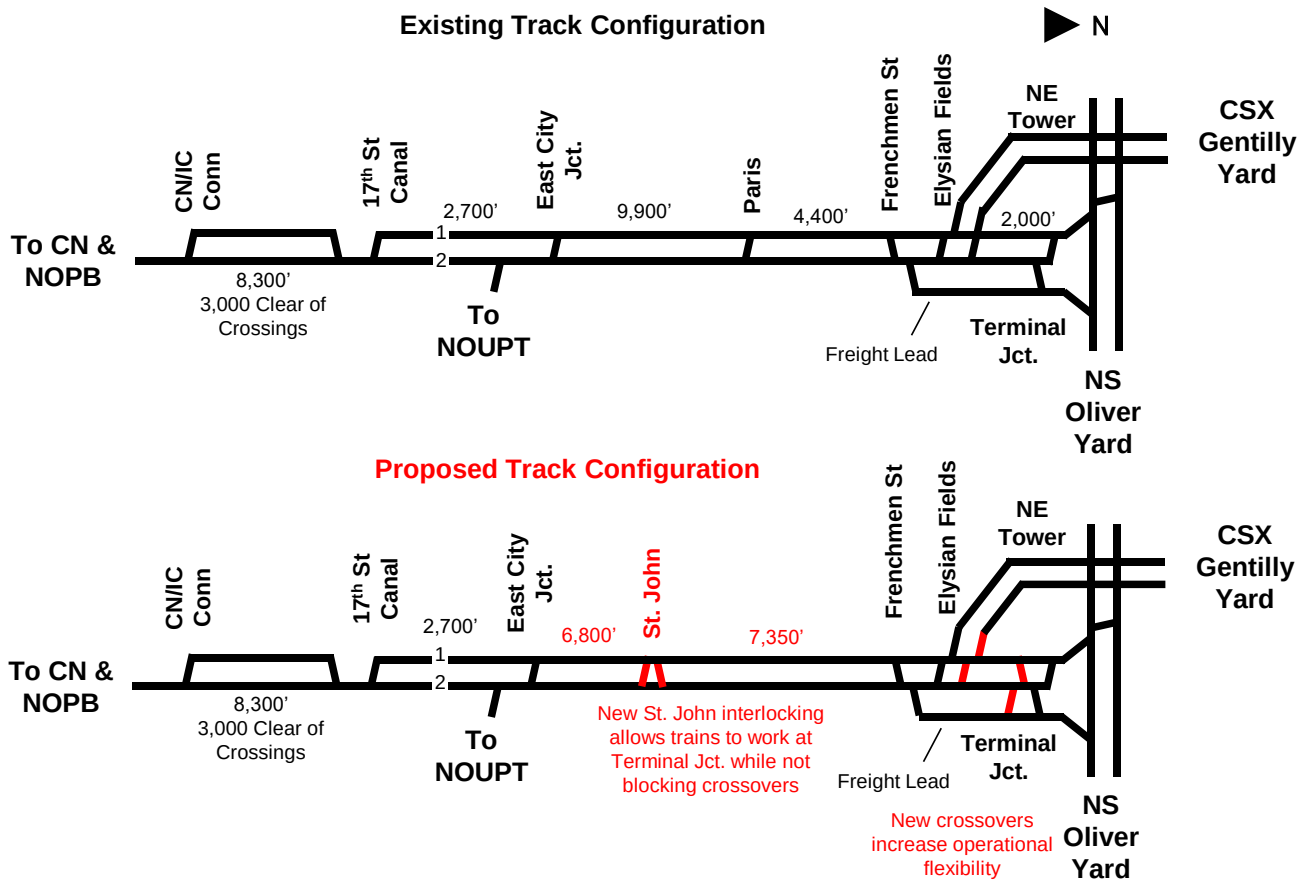
Current configuration at Terminal Junction does not allow freight train movements from Oliver Yard to track 1 with a freight train pulling up to NE Tower and shoving back into the yard. The new crossover will allow freight trains entering or leaving the yard to use track 1, without blocking NE Tower, thereby increasing dispatching flexibility to work around the passenger traffic.

The current configuration of the Elysian Fields control point does not allow a train to travel from NSR track 1 to CSXT track 2. A new crossover and turnout should be added to allow this movement while keeping the ability for parallel movements of trains traveling to and from CSXT.

Projects are proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D1. Key elements of the projects include:

- Terminal Junction Improvements
    - Two #10 powered crossovers
- New St. Johns interlocking
    - Two #15 powered crossovers
- Elysian Fields Improvements
    - One #15 powered crossover
    - One #15 powered turnout

Figure D1: New Orleans Existing and Proposed Infrastructure



Gentilly Bypass

Today, in and around Gentilly yard, freight trains can occupy the mainline to switch cars and build freight trains, or to perform other activities such as freight train inspections, interchange, and crew changes. There is currently only a single mainline track next to Gentilly Yard. With the proposed passenger service, this mainline must be left open to allow for passenger movements, requiring freight trains to be delayed in the yard, on NSR track, or in sidings north of the yard. The bypass allows the passenger service to keep clear of yard operations and switching operations at the north end of the yard.

An approximately two-mile bypass was proposed by the FRA. Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D2. Key elements of the project include:

- 14,000 feet of new mainline track
- Three #20 powered crossovers
- Two #20 powered turnouts
- Two #10 hand thrown turnouts

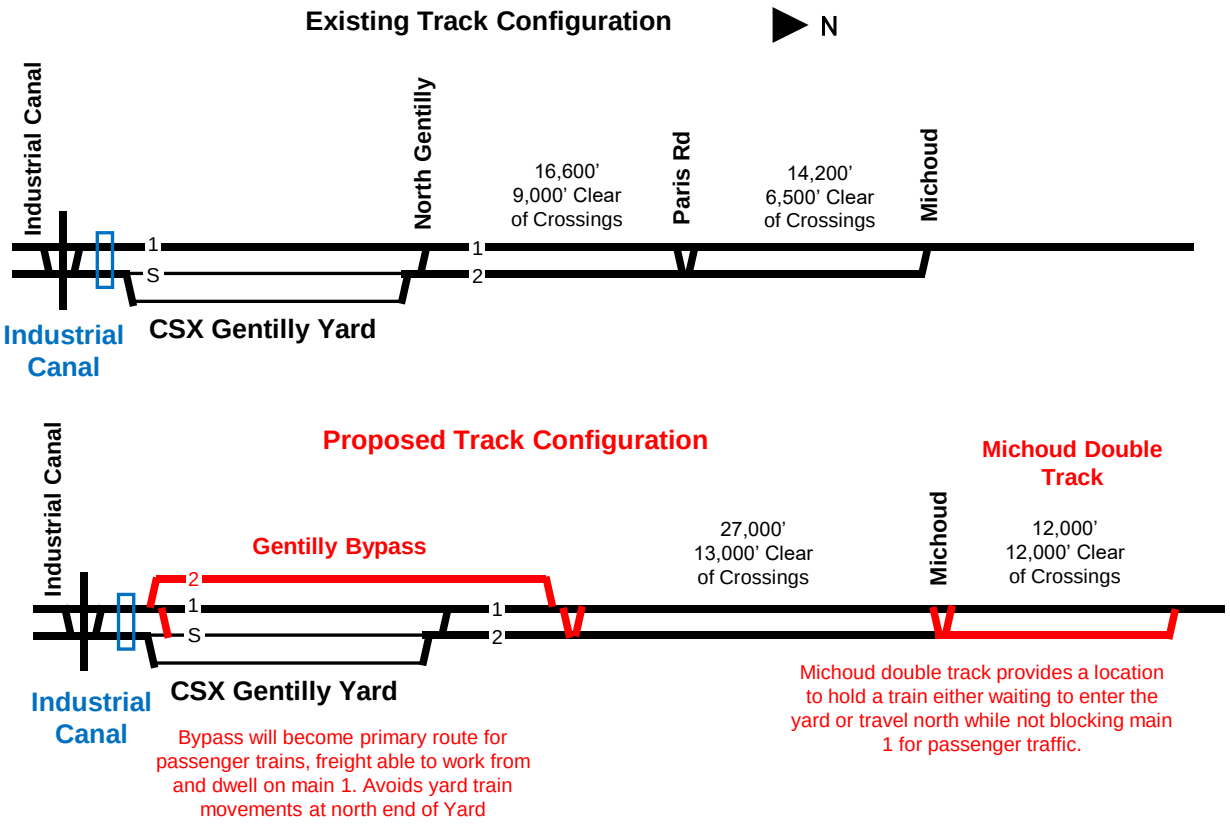
Michoud Double Track

The addition of passenger service will increase both the number and length of freight train dwells, while the number of locations where freight trains can dwell is reduced. The northbound (eastbound) and southbound (westbound) passenger trains are scheduled to pass by Gentilly within an hour of each other. Due to the shortness of this window, freight trains are unable to depart Gentilly during this window and are delayed. Additionally, to keep the mainline open for passenger traffic, freight trains can only sit on one of the tracks. The Michoud Double Track provides an additional location to hold a freight train and will reduce the travel time from to the next siding, reducing the length of any dwells.

Project is proposed for 2039. Diagrams of existing and proposed track infrastructure can be found in Figure D2. Key elements of the project include:

- 12,500 feet of new mainline track
- Two #20 powered crossovers
- One #20 powered turnouts

Figure D2: Gentilly Yard and Michoud Existing and Proposed Infrastructure



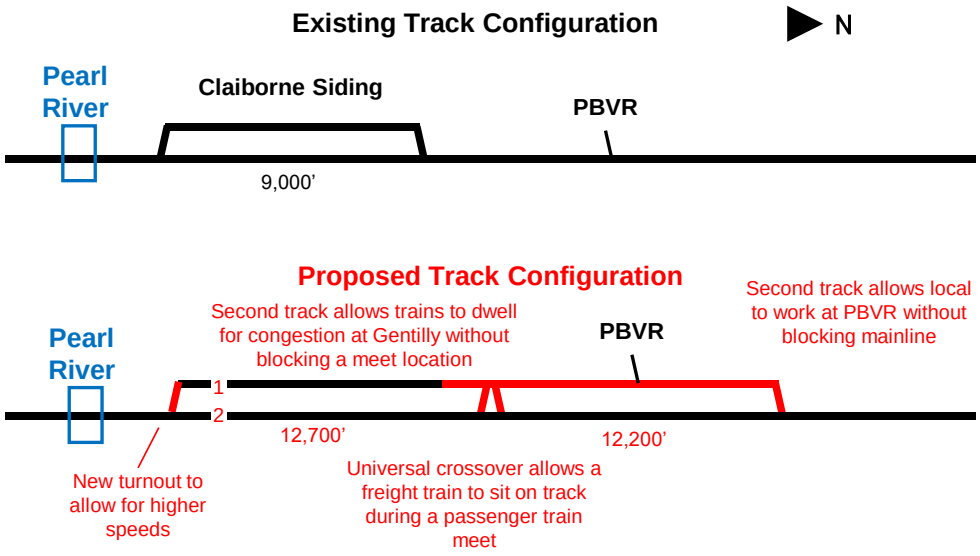
Claiborne Double Track

The passenger train pairs are scheduled to meet between Claiborne and Nicholson, and in the afternoon several miles north of the siding. By expanding Claiborne Siding into a segment of double track, the track may be used both for the passenger trains to meet and for a passenger train to meet with a freight train. The new track also allows the local serving the Port Bienville Railroad (PBVR) to not disrupt or be disrupted by passing traffic, and it provides a location where freight trains can meet or wait due to delays in either direction. There is an approximately 25-mile gap between Claiborne and the existing Michoud double track with three drawbridges and only one 7,400-foot siding (Lake Catherine). The potential for alterations to this 25-mile segment of track is limited due to constructability and cost constraints.

The FRA proposed a new 10,000-foot siding at this location. Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D3. Key elements of the project include:

- 16,500 feet of new mainline track
- Two #20 crossovers
- Two #20 turnouts
- Upgrade existing siding from FRA Track Class 4

Figure D3: Claiborne Double Track



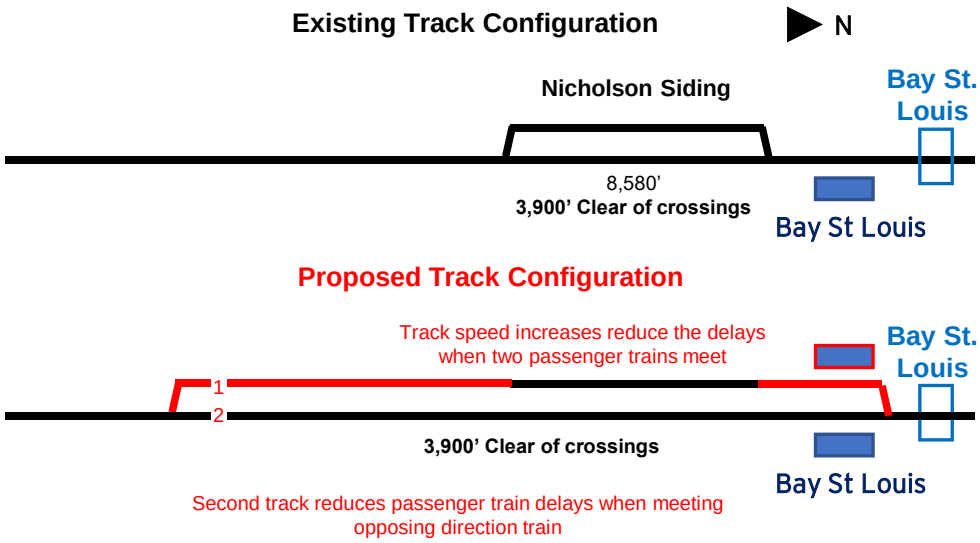
Nicholson Siding Extension

The passenger train pairs are scheduled to meet between Claiborne and Nicholson Sidings. While the extended siding cannot be used to hold freight trains during meets due to the number of crossings, the extended siding allows for the siding to have a higher speed and to meet passenger trains with fewer delays. The currently proposed schedules result in the northbound (eastbound) train often arriving early to Bay St. Louis. By extending the siding to the north it enables a freight train to meet a passenger train waiting at the station for its scheduled departure time. Without this project, the passenger trains are more likely to occupy existing sidings that are needed to hold freight clear of the passenger trains.

Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D4. Key elements of the project include:

- 9,200 feet new mainline track extended to the south
- 3,400 feet new mainline track extended to the north
- New passenger platform
- Two #20 powered turnouts
- Upgrade existing siding track to FRA Track Class 3

Figure D4: Nicholson Siding Existing and Proposed Infrastructure



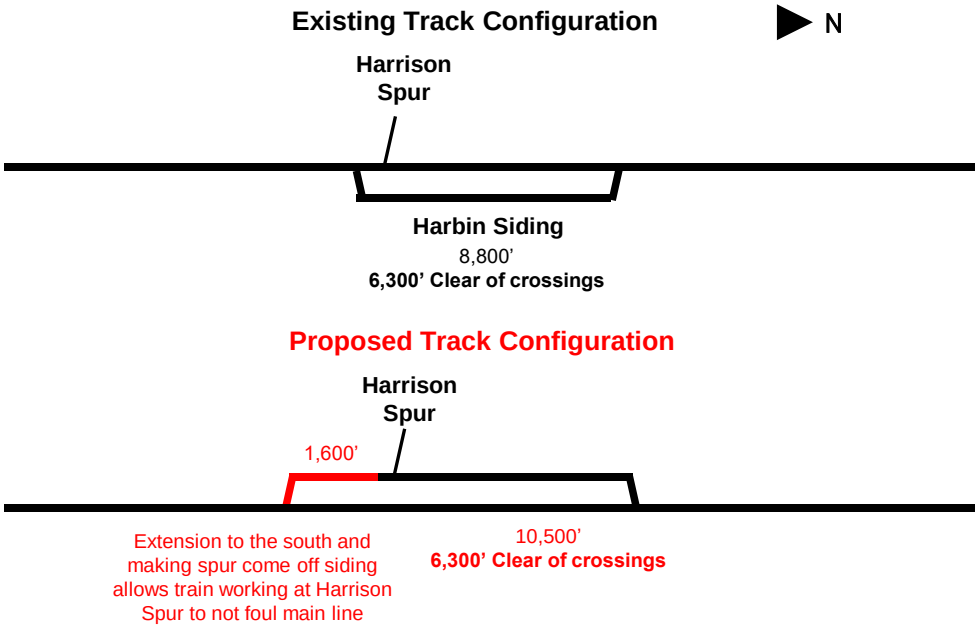
Harbin Siding Extension and Relocation of Mainline Operations

Harrison Spur comes off the mainline adjacent to Harbin Siding. A daily local train works the customers on the Harrison Spur, blocking the mainline for approximately 45 minutes. With the introduction of passenger trains, there are limited-time windows during the day with sufficient time for the local freight train to serve customers without delaying passenger trains. Extending the siding and flipping the tracks to have the local work from the siding, allows passing freight and passenger traffic to operate unimpeded on the mainline while the local completes its work using the siding.

A similar project with a 5,300-foot extension was proposed by the FRA. Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D5. Key elements of the project include:

- 1,700 feet new mainline track extended to the south
- Two #20 power turnouts
- Upgrade siding track to mainline and make main siding track.

Figure D5: Harbin Existing and Proposed Infrastructure



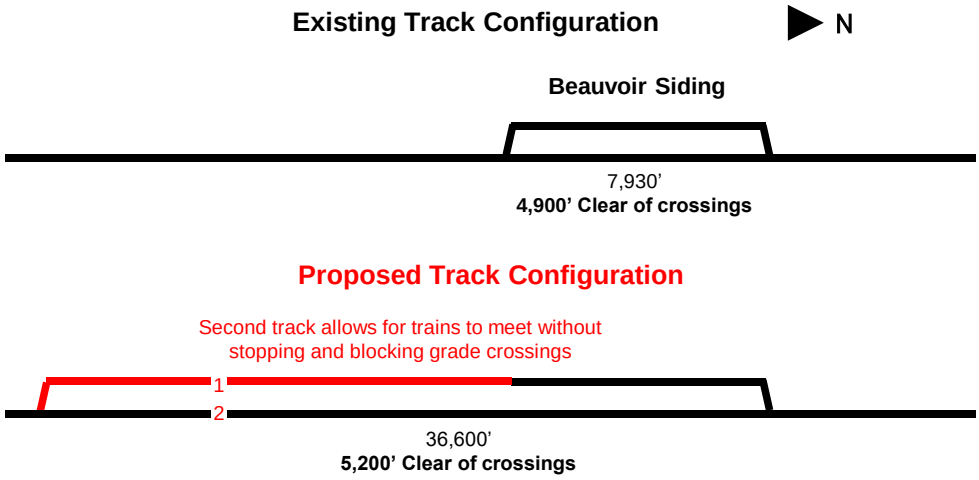
Beauvoir Double Track

The project provides a location for freight and passenger trains to meet between Fountainbleau and Nicholson. The double-track allows trains to meet without blocking existing grade crossings for extended durations. A siding extension does not provide much value without closing or grade separating the existing grade crossings as most train meets require one train to dwell for longer than 20 minutes.

Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D6. Key elements of the project include:

- 28,600 feet new mainline track
- Two #20 powered turnouts
- Upgrade existing siding track to FRA track Class 4

Figure D6: Beauvoir Existing and Proposed Infrastructure



Fountainbleau Siding

The new Fountainbleau Siding provides a location clear of crossings to meet trains. Existing sidings at Beauvoir, Ocean Springs, and Gautier, are limited in potential clear distance due to grade crossings. The new siding is spaced provides a long siding to meet trains or allow passenger trains to overtake freight trains.

Project is proposed for both 2039 and 2019. Key elements of the project include:

- 13,200 feet new siding track
- Two #20 powered turnouts

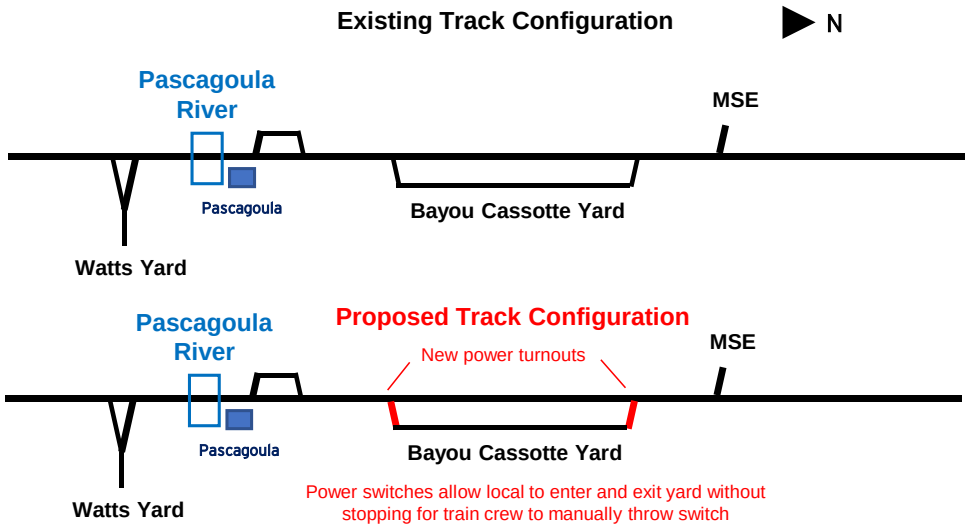
Bayou Cassotte Power Turnouts

Three daily locals serve Bayou Cassotte Yard which needs to enter and leave the yard multiple times. Every time a freight train leaves the yard, the train must stop on the mainline to allow a crew member to walk back and restore the turnout to only allow movement on the mainline. To avoid delaying other traffic, a sufficient gap must exist between these freight trains. With the addition of passenger traffic, the freight trains serving the yard experience increased delays as it becomes difficult to enter and leave the yard. As freight train lengths increase in the future, the time to complete these movements will increase, further blocking mainline capacity. The addition of power turnouts allows each turnout to be controlled by the dispatcher, removing the need for the freight train crew to manually operate the turnout.

Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D7. Key elements of the project include:

- Two #15 powered turnouts

Figure D7: Bayou Cassotte Existing and Proposed Infrastructure



St. Elmo Siding Extension

Extending St. Elmo Siding provides an additional location to hold freight trains clear of the mainline. Extending the track 3,500 feet to the south and upgrading the existing siding speed creates a 12,300-foot siding to hold trains.

Project is proposed for both 2039 and 2019. Key elements of the project include:

- 3,500 feet of new siding track extended to the south
- Two #20 powered turnouts
- Upgrade existing siding track to FRA Track Class 3

Theodore Industrial Park Improvements

The turnouts providing access to the Theodore Industrial Park are currently hand thrown. Currently, a local freight train leaving the Industrial Park must stop and block the mainline to allow a crew member to walk back and restore the turnout to only allow movement on the mainline. Replacing the hand-thrown turnouts with power turnouts eliminates this extra work.

Turnout improvements at Theodore Industrial Park were proposed by the FRA. Project is proposed for both 2039 and 2019. The key element of the project includes:

- Three #10 powered turnouts

Brookley Siding Extension

Brookley Siding is immediately to the south of the Mobile Terminal area. The siding is important to allow freight trains to hold clear of the mainline if there is congestion in Mobile. The longer siding ensures that the siding is sufficiently long to fit all freight trains and allows for the siding to have a higher speed, allowing freight trains to enter the siding faster, reducing delays to freight and passenger trains.

Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D8. Key elements of the project include:

- 1,700 feet of new siding track
- Two #20 powered turnouts
- Upgrade existing siding track to FRA Track Class 3

Mobile Double Track

The project extends the double track from Choctaw through the south end Brookley Siding. The track allows passenger trains to arrive and depart with less interference to freight movements in the congested Mobile terminal area.

Project is proposed for 2039. Diagrams of existing and proposed track infrastructure can be found in Figure D8. Key elements of the project include:

- 14,000 feet of new mainline track
- Four #20 powered crossovers

Mobile Station Track

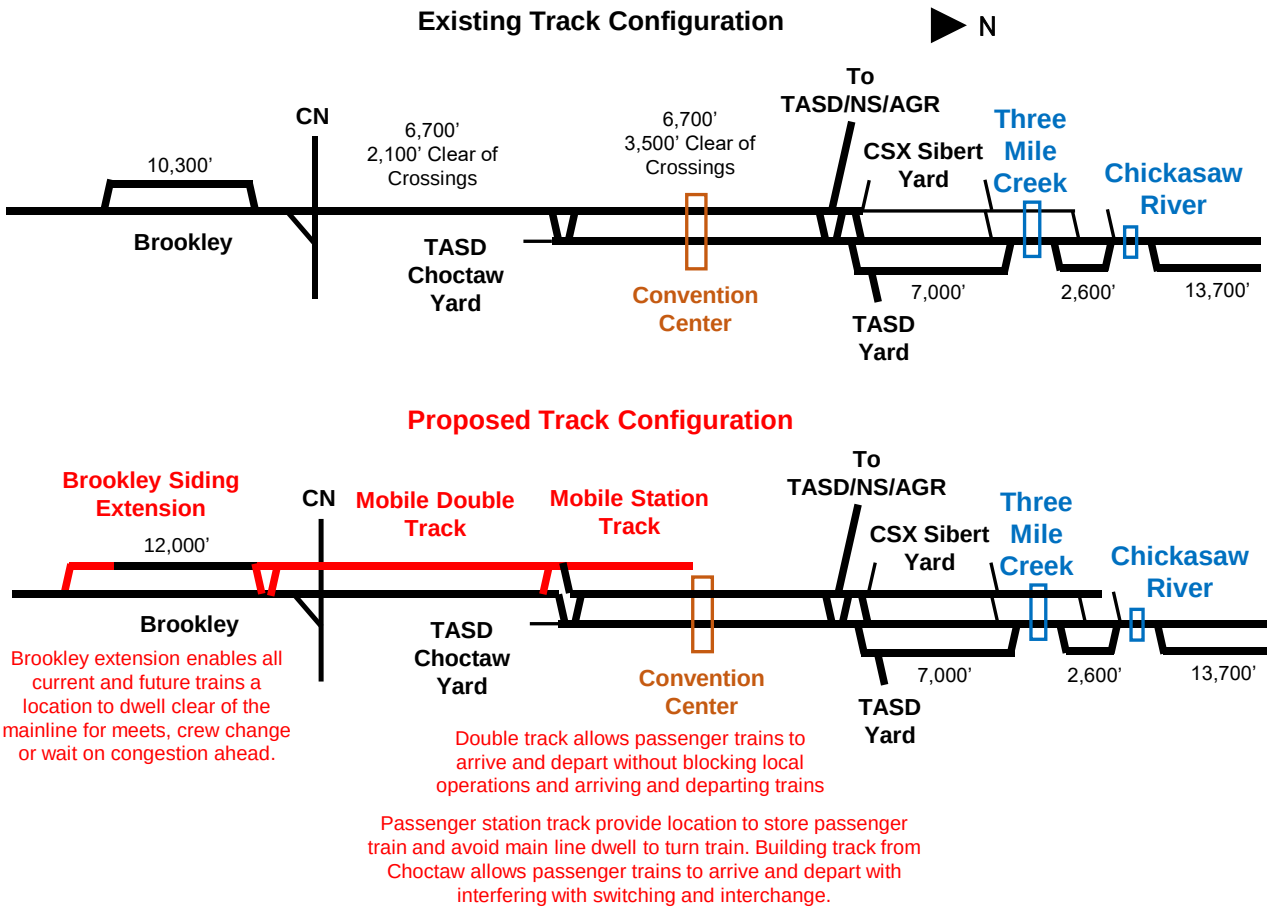
With the proposed passenger service, Amtrak intends to store the passenger train sets in Choctaw Yard. This will require a passenger train departing from Mobile to first depart from a storage track in Choctaw Yard thirty minutes before the scheduled service departure. The passenger train will then arrive at the station platform where the engineer will switch ends of the train and pick up passengers and prepare to depart, resulting in a dwell of fifteen minutes. During these fifteen minutes of dwell, the passenger train will block the mainline from being used by freight trains. A passenger train arriving in Mobile will make this movement in reverse, first arrive at the station and dwelling for fifteen minutes on the mainline to allow passengers to detrain and the engineer to switch ends. The passenger train will then take an additional fifteen minutes to travel on the mainline from the Mobile station to the storage track in Choctaw Yard.

Choctaw Yard is currently used for freight operations and the use of yard track to store a passenger train will limit current yard capacity and utilization. The mainline tracks north of Choctaw Yard are heavily used for freight train yard switching, merchandise train mainline work, and crew change and interchange train movements. The station and layover track would allow for the passenger train to avoid blocking the mainline and avoid storing the train in Choctaw Yard.

The FRA proposed a 1,000-foot station track. Project is proposed for both 2039 and 2019. Diagrams of existing and proposed track infrastructure can be found in Figure D8. Key elements of the project include:

- 3,200 feet of new siding track
- One #15 powered turnout

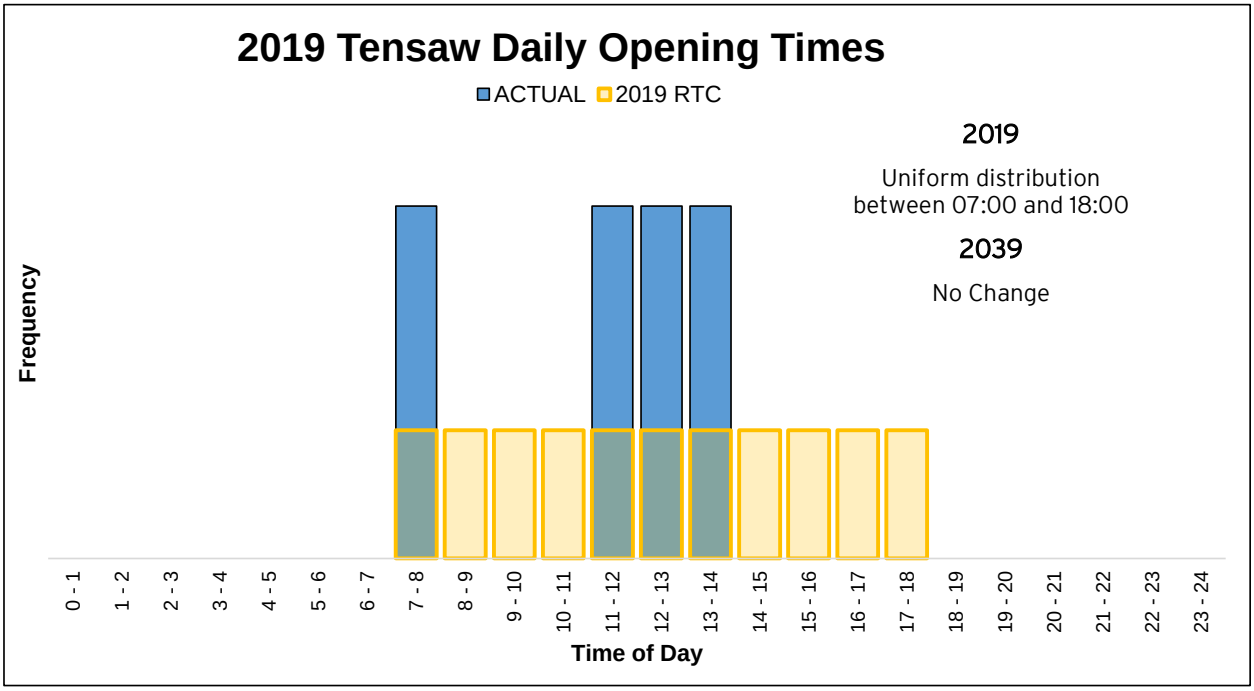
Figure D8: Mobile Existing and Proposed Infrastructure

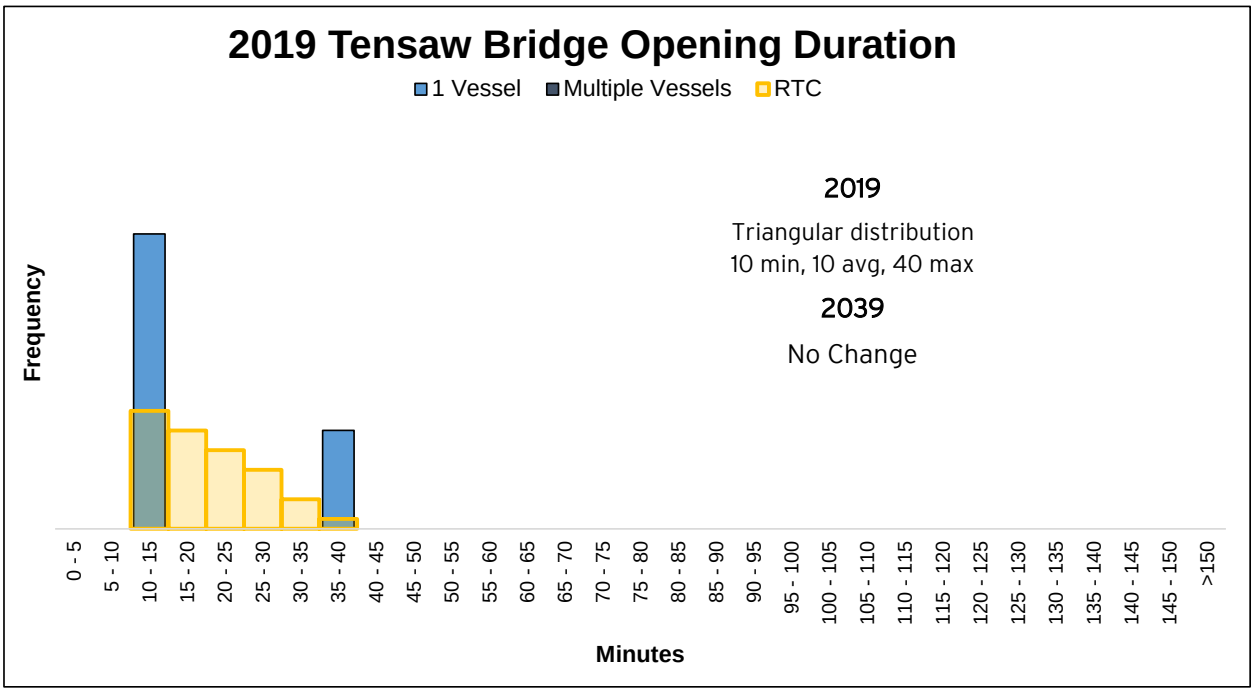


Appendix E: Movable Bridges Distributions and Growth

Tensaw Bridge

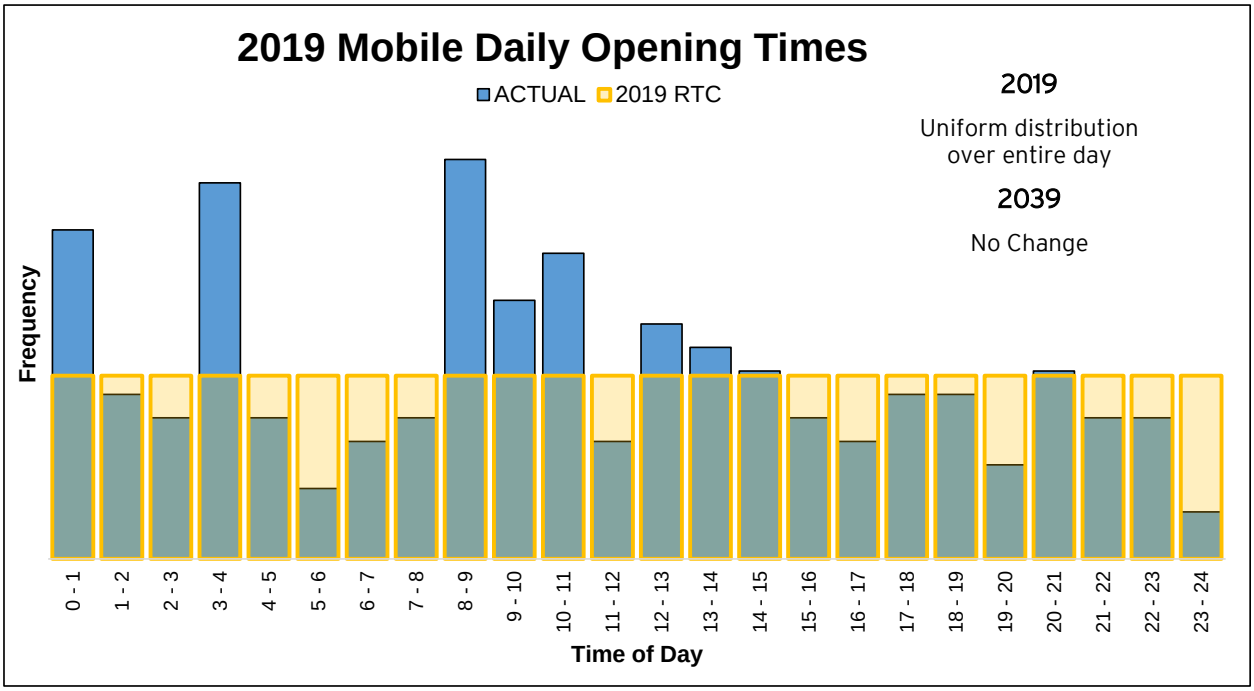
Opening Frequency (2019/2039)	*2039 Growth*
1 per week / **1.5** per week	+24%

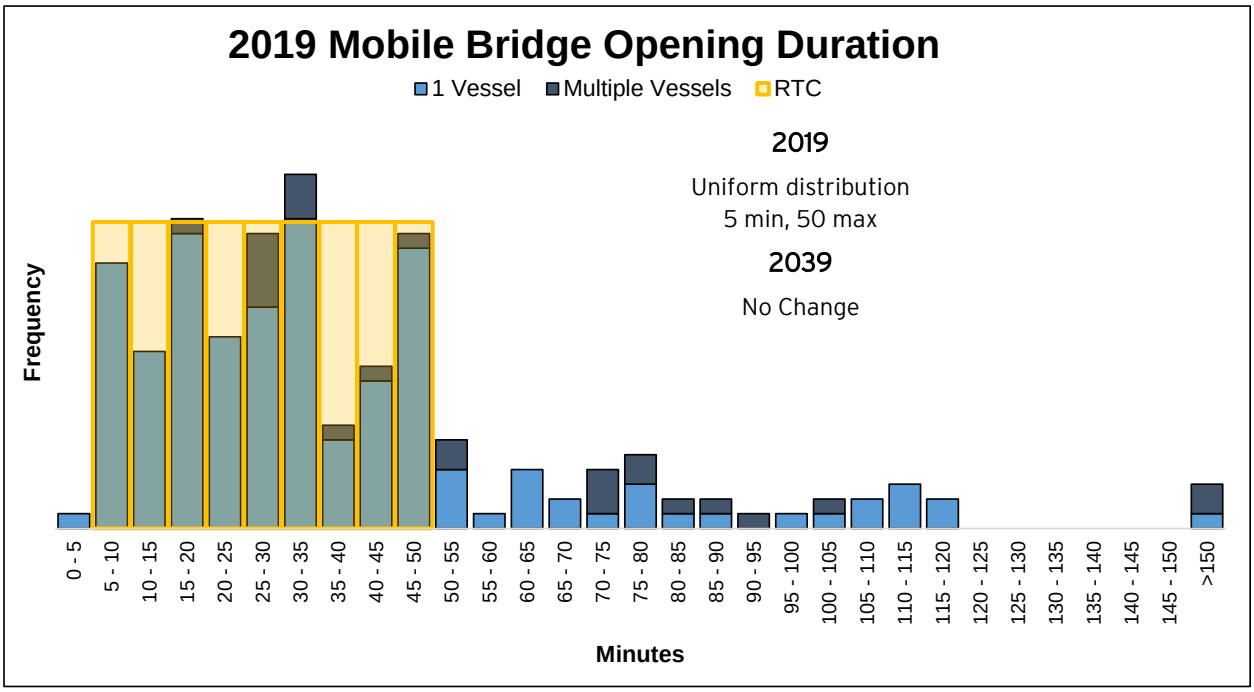




Mobile River Bridge

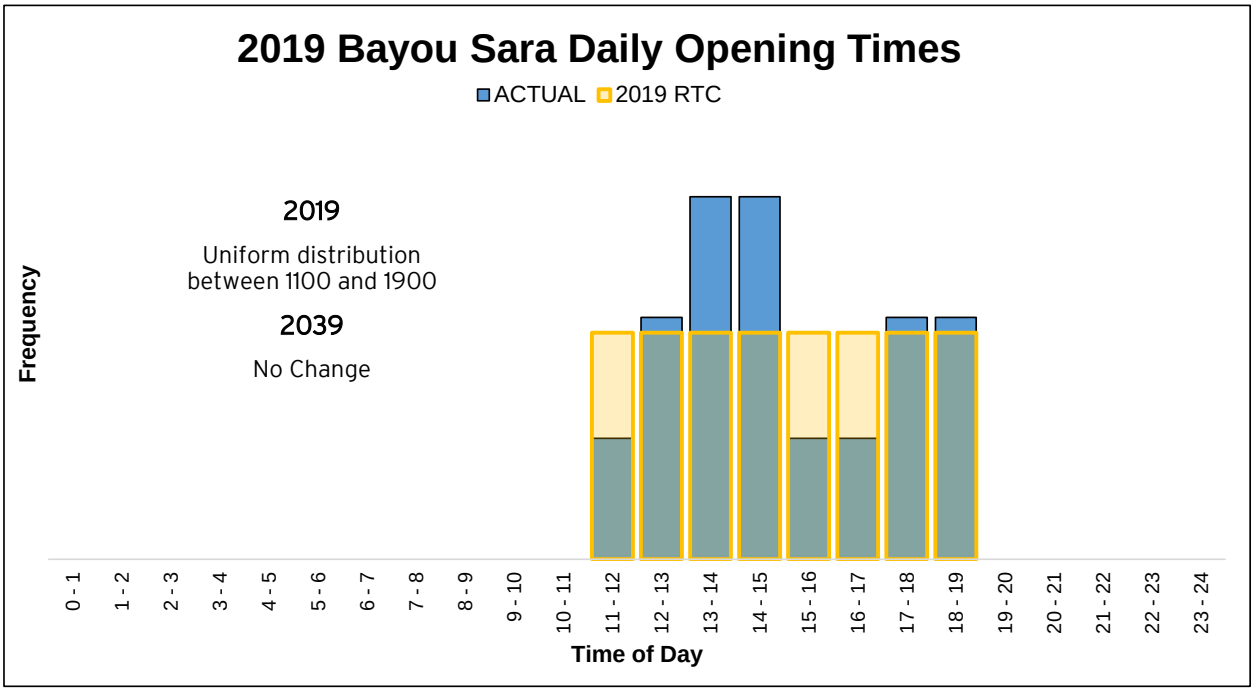
Opening Frequency (2019/2039)	*2039 Growth*
6 per day / **8** per day	+24%

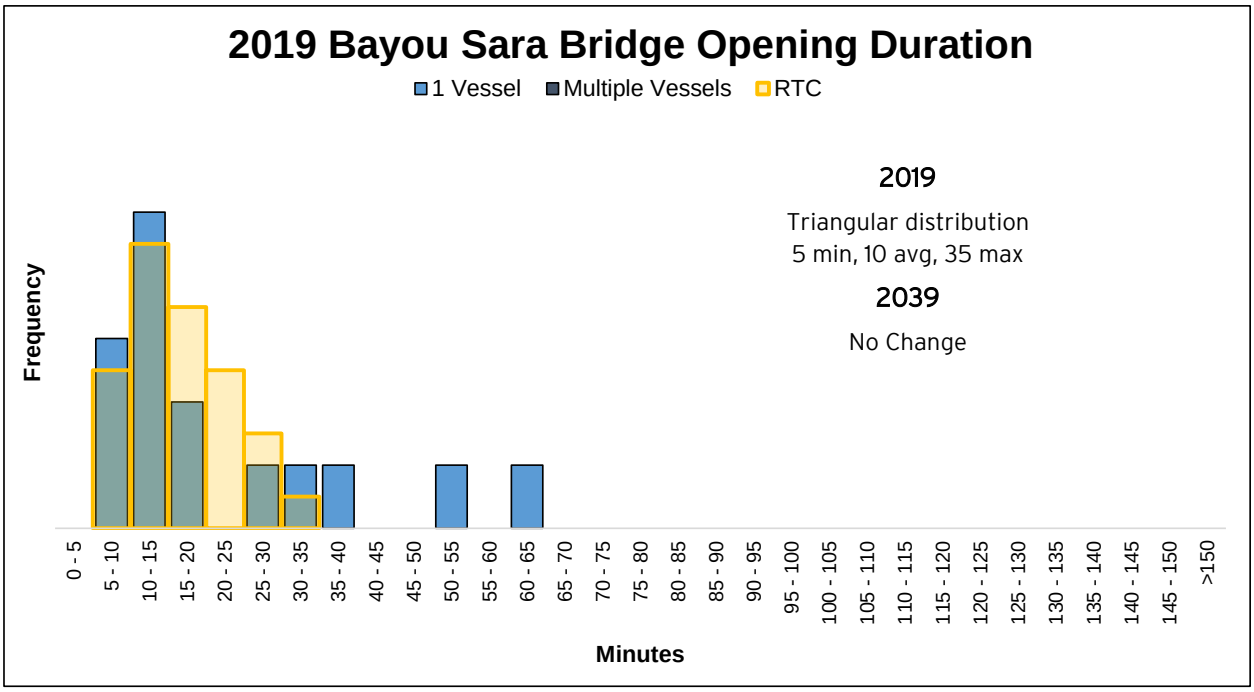




Bayou Sara Bridge

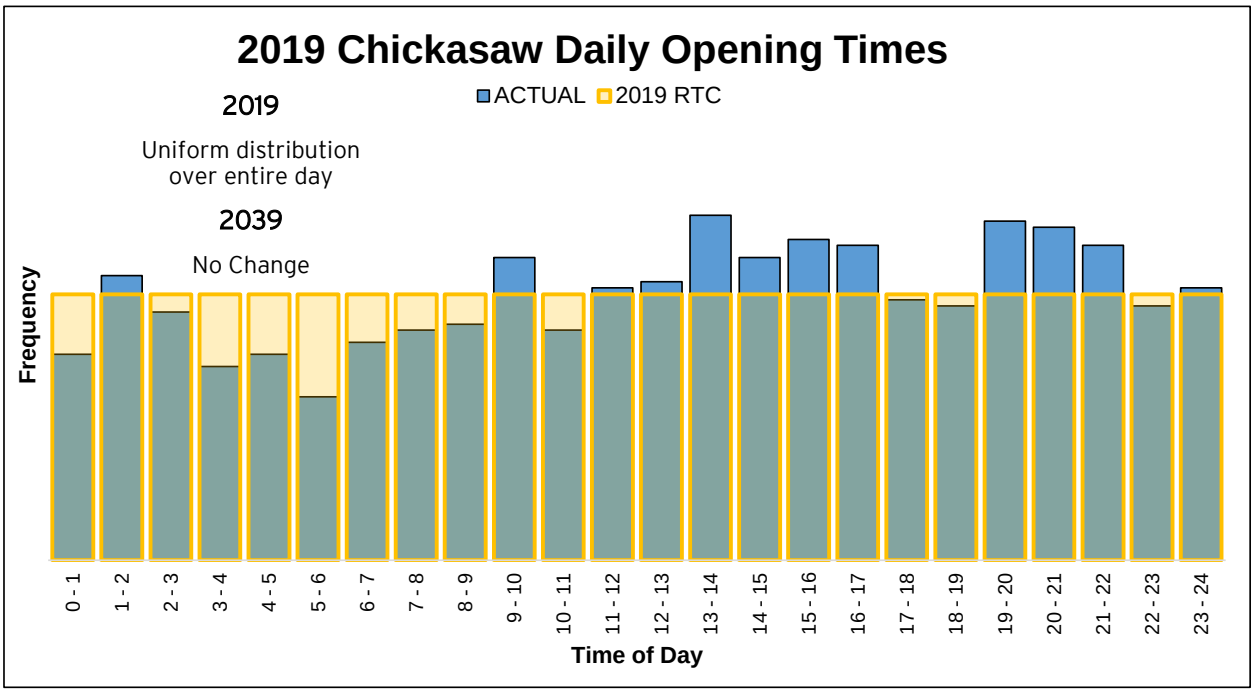
Opening Frequency (2019/2039)	*2039 Growth*
2 per week / **2.5** per week	+24%

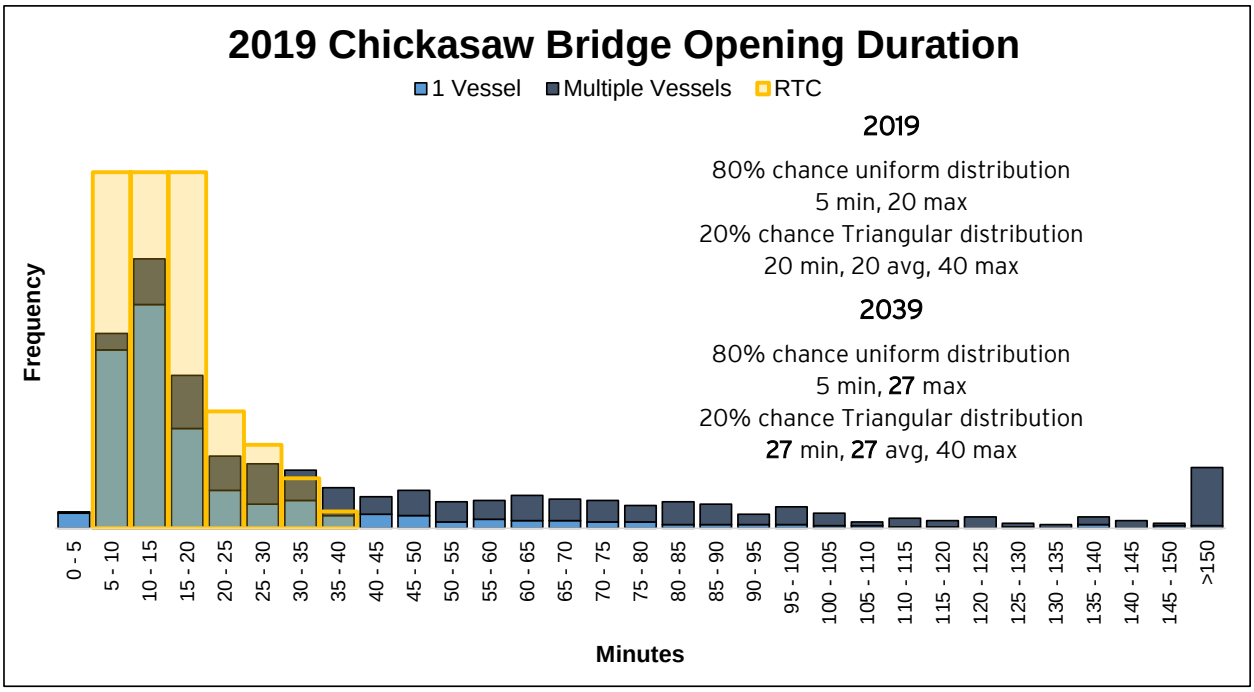




Chickasabogue (Chickasaw) River Bridge

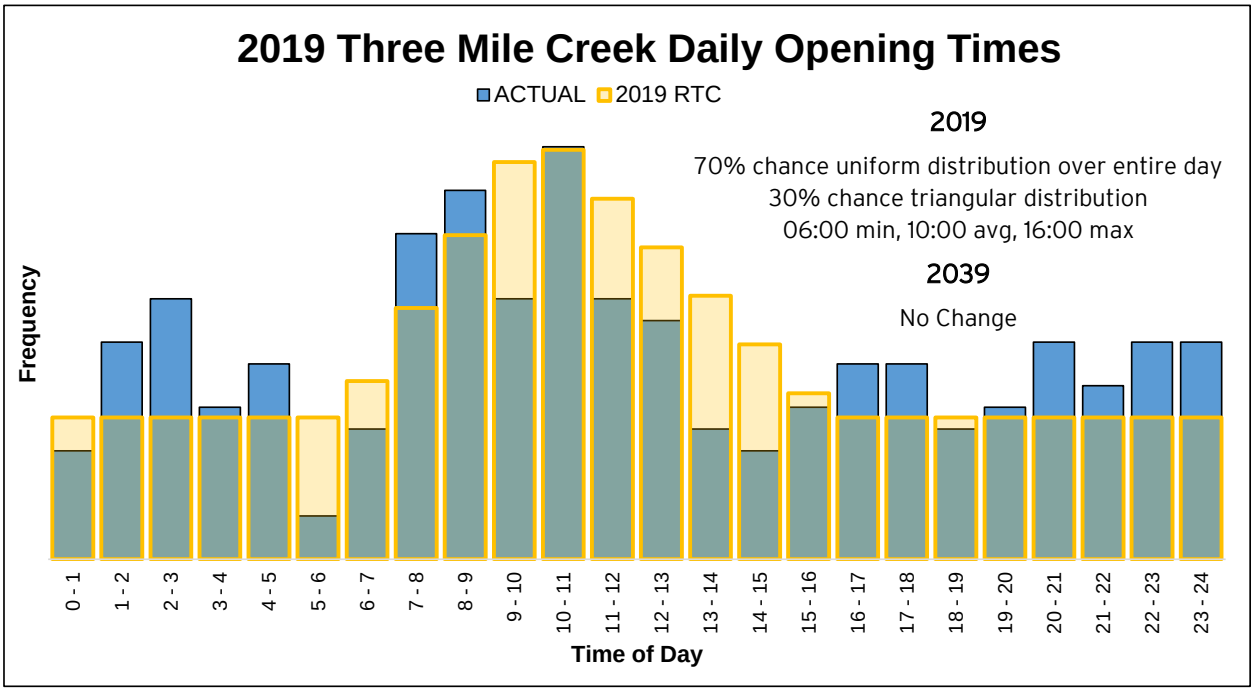
Opening Frequency (2019/2039)	*2039 Growth*
12 per day / 12 per day	+34%

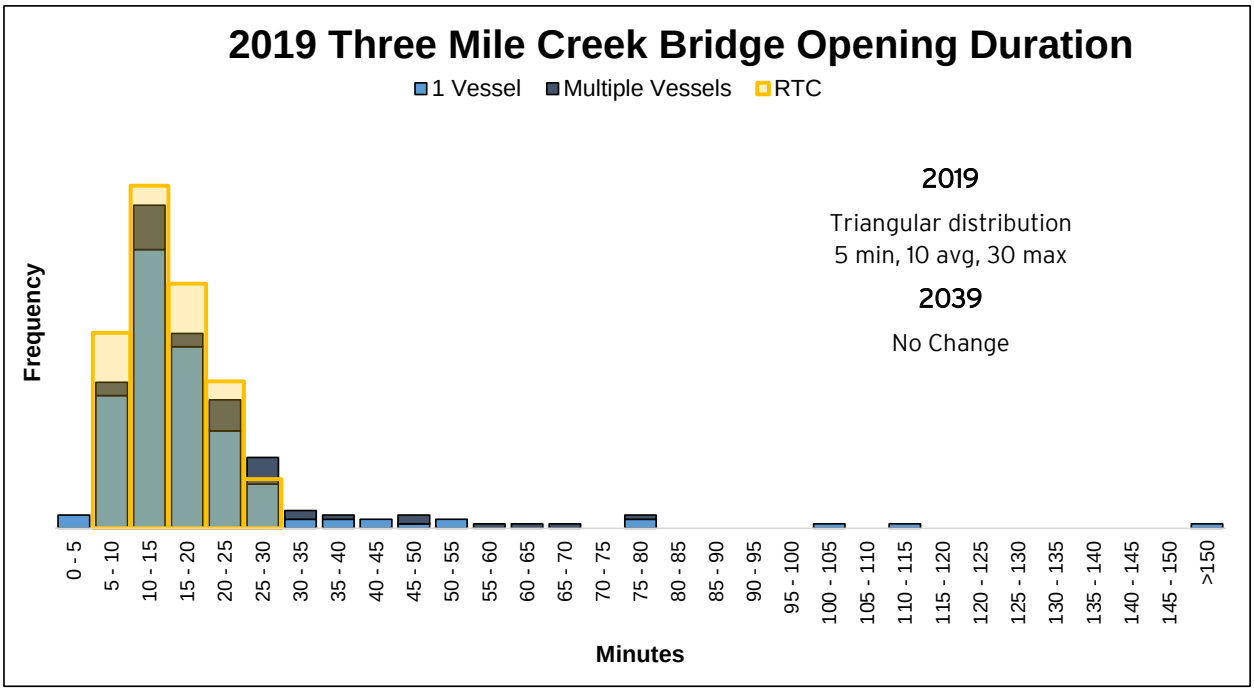




Three Mile Creek Bridge

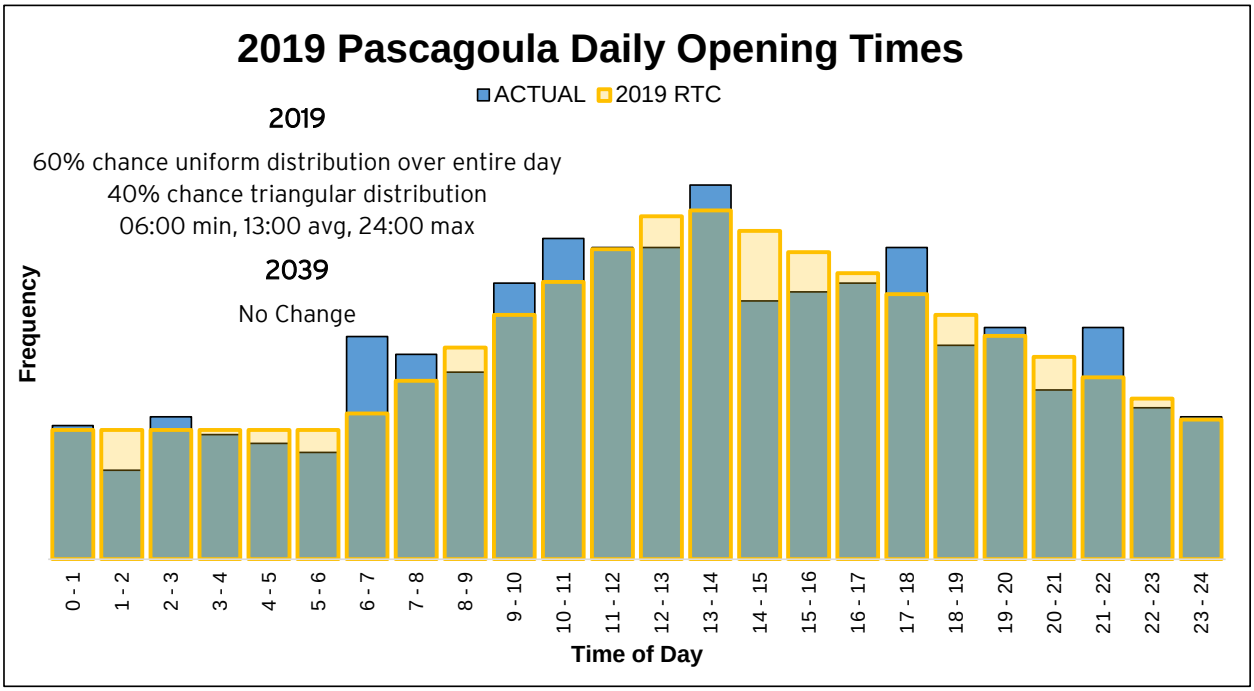
Opening Frequency (2019/2039)	*2039 Growth*
3 per day / **4** per day	+34%

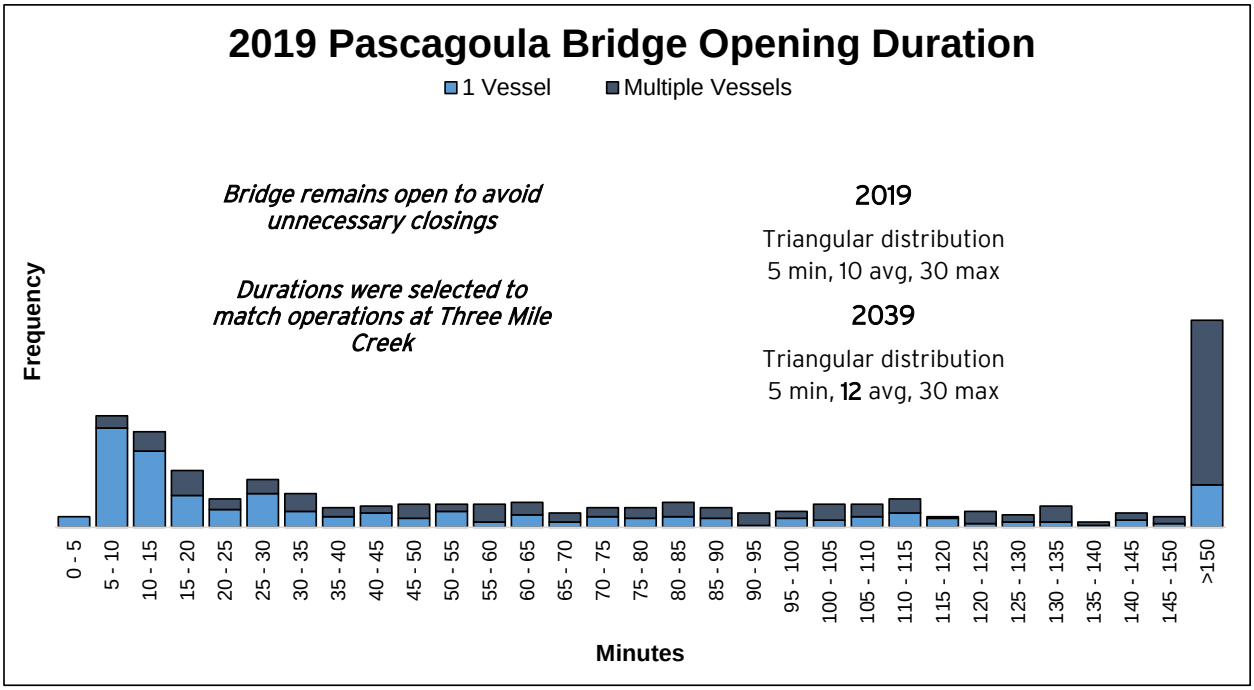




Pascagoula River Bridge

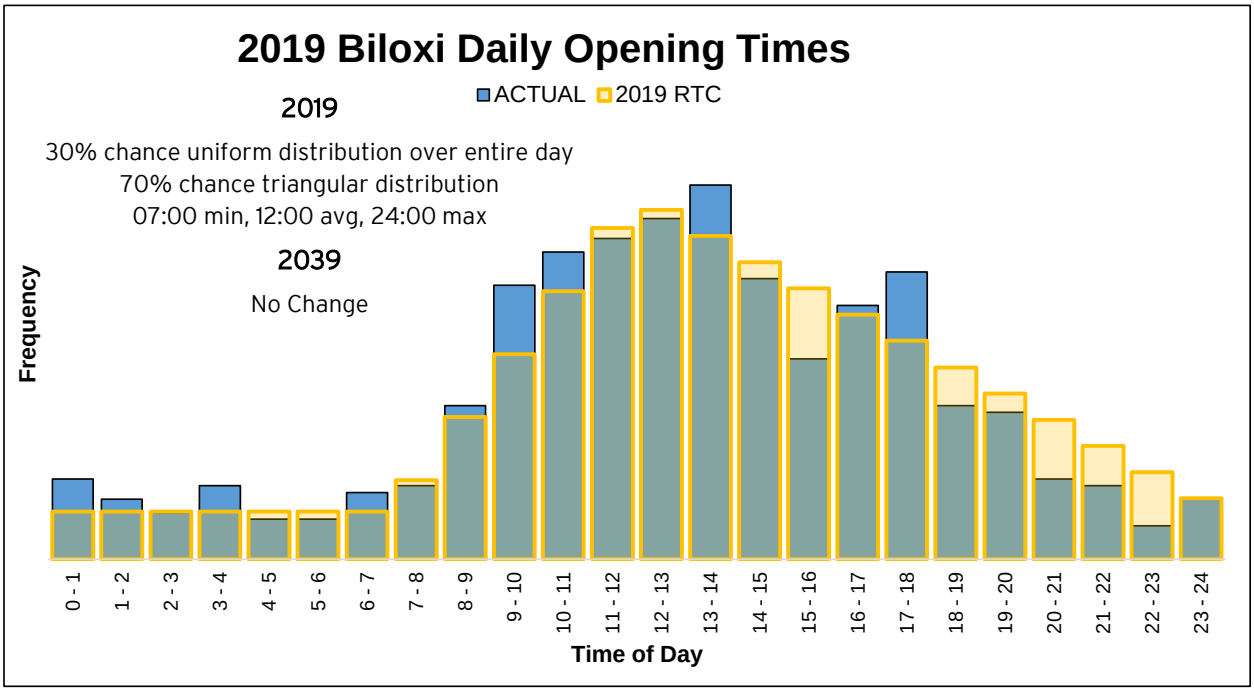
Opening Frequency (2019/2039)	*2039 Growth*
10 per day / 10 per day	+18%

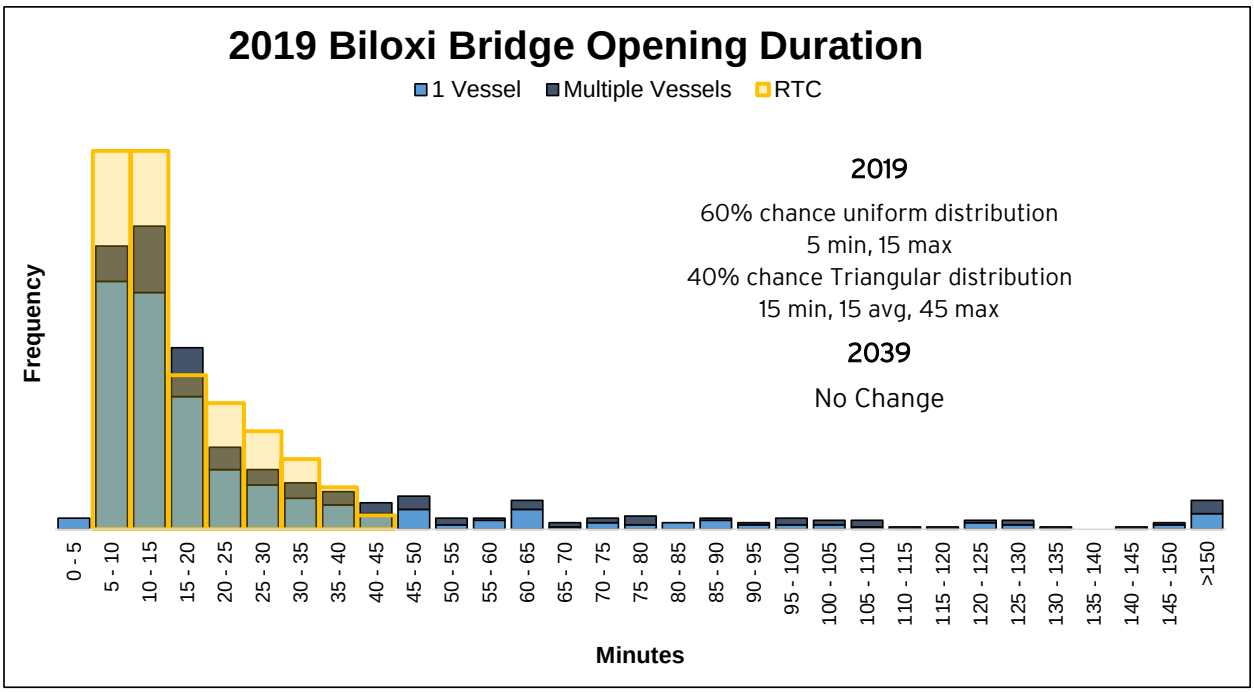




Biloxi Bay Bridge

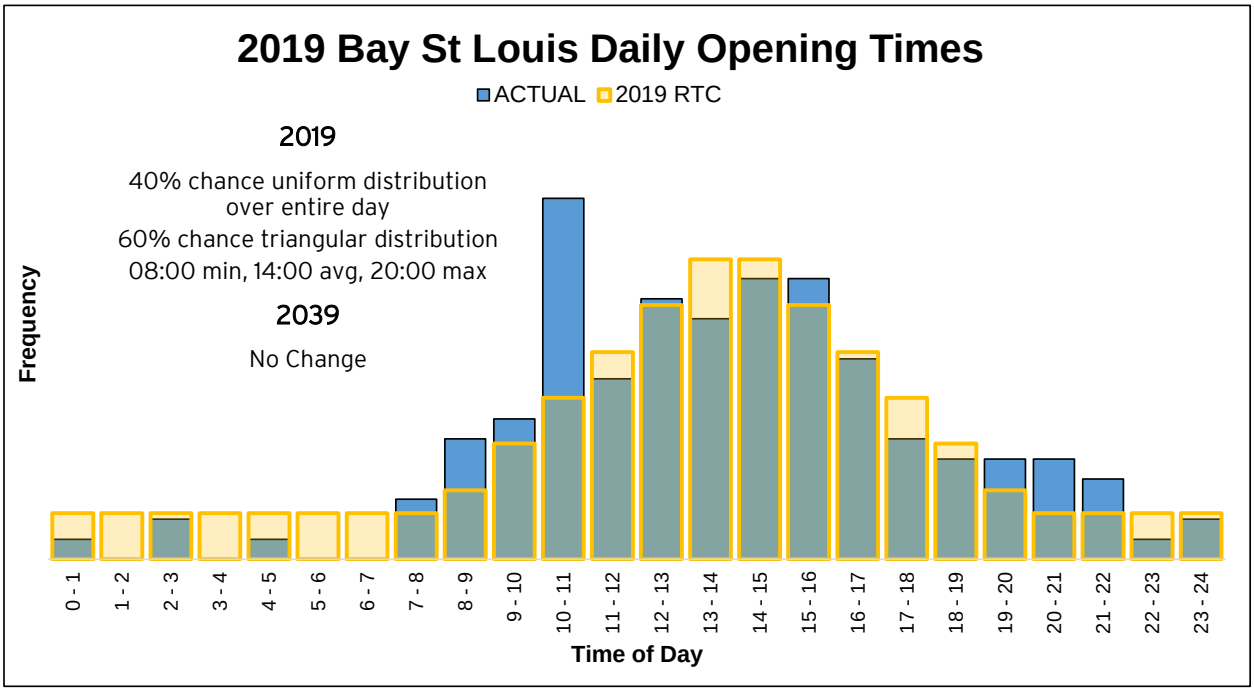
Opening Frequency (2019/2039)	*2039 Growth*
7 per day / **8** per day	+18%

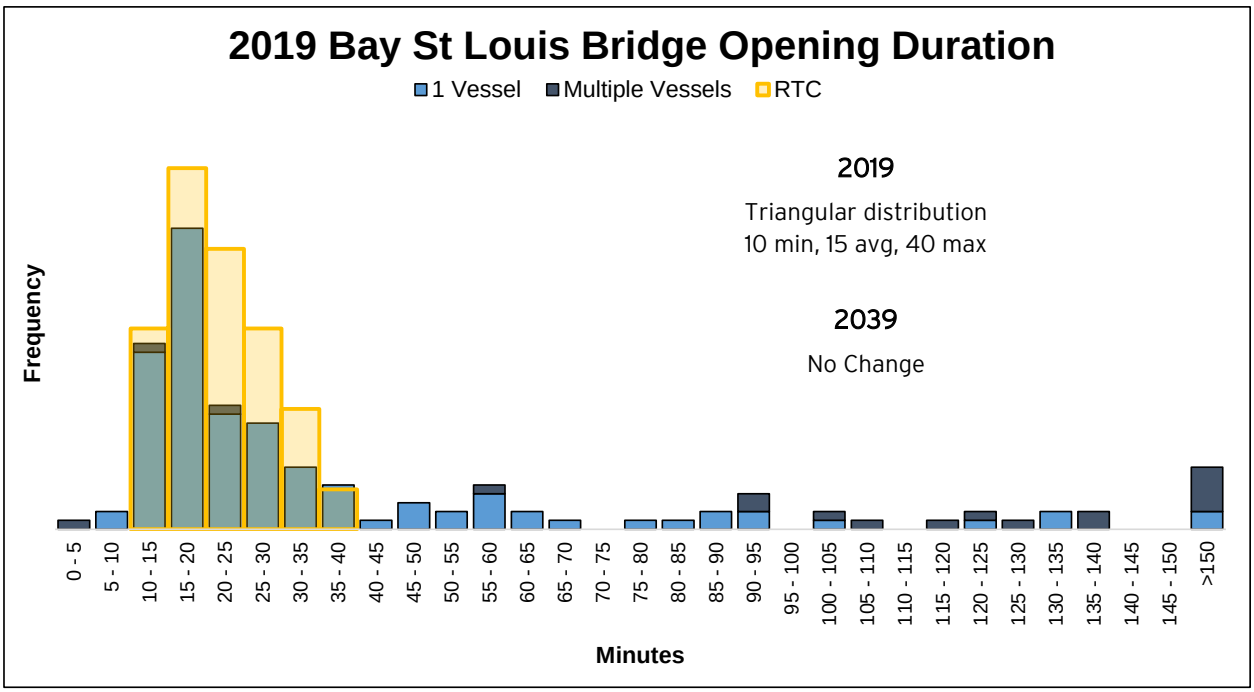




Bay St. Louis Bridge

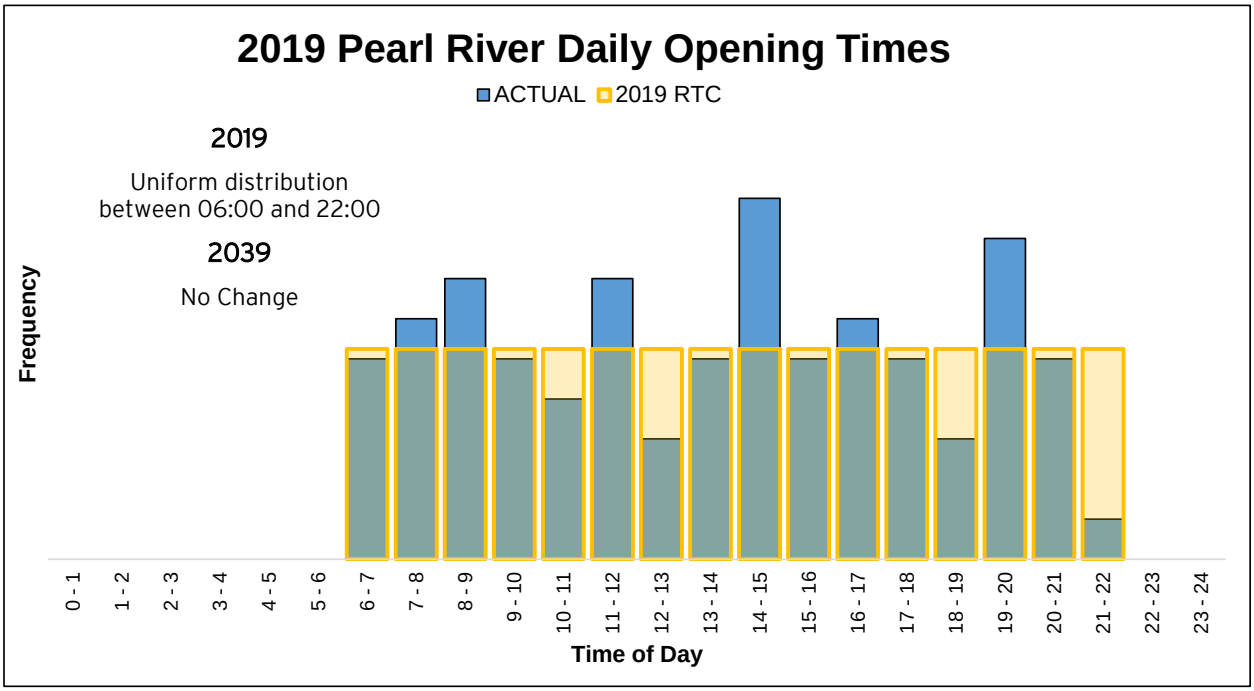
Opening Frequency (2019/2039)	*2039 Growth*
2 per day / **2.5** per day	+18%

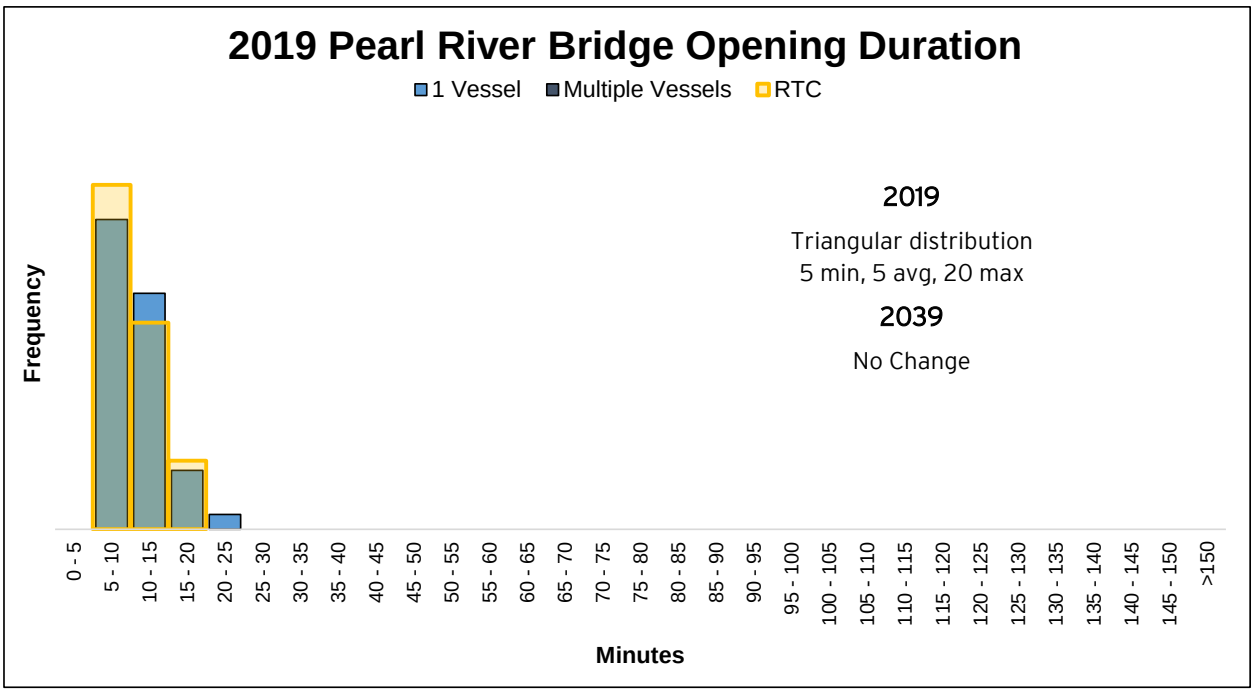




Pearl River Bridge

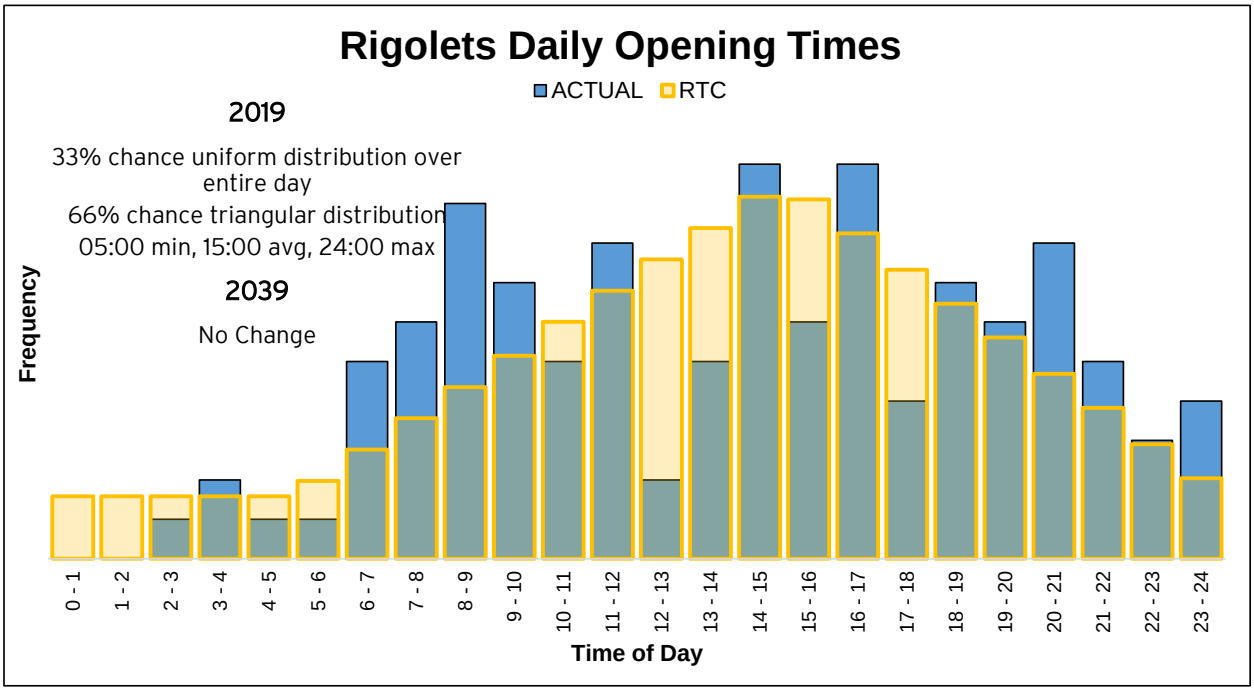
Opening Frequency (2019/2039)	*2039 Growth*
1 per day / **1.5** per day	+18%

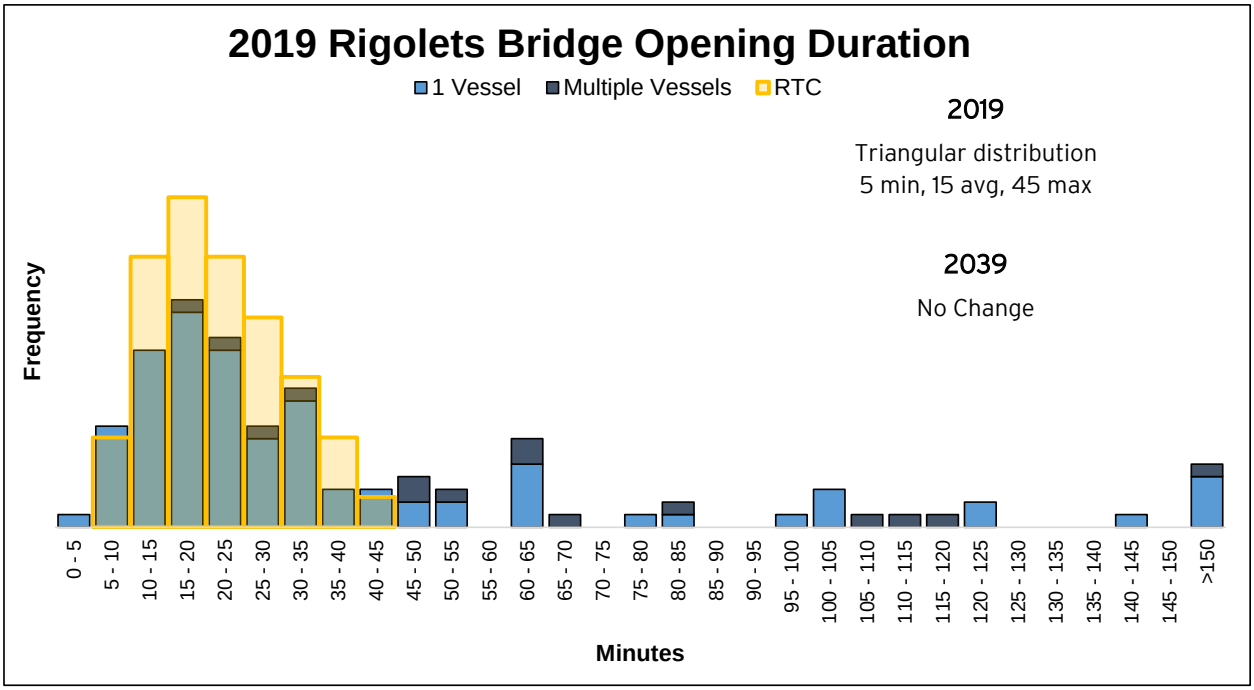




Rigolets Bridge

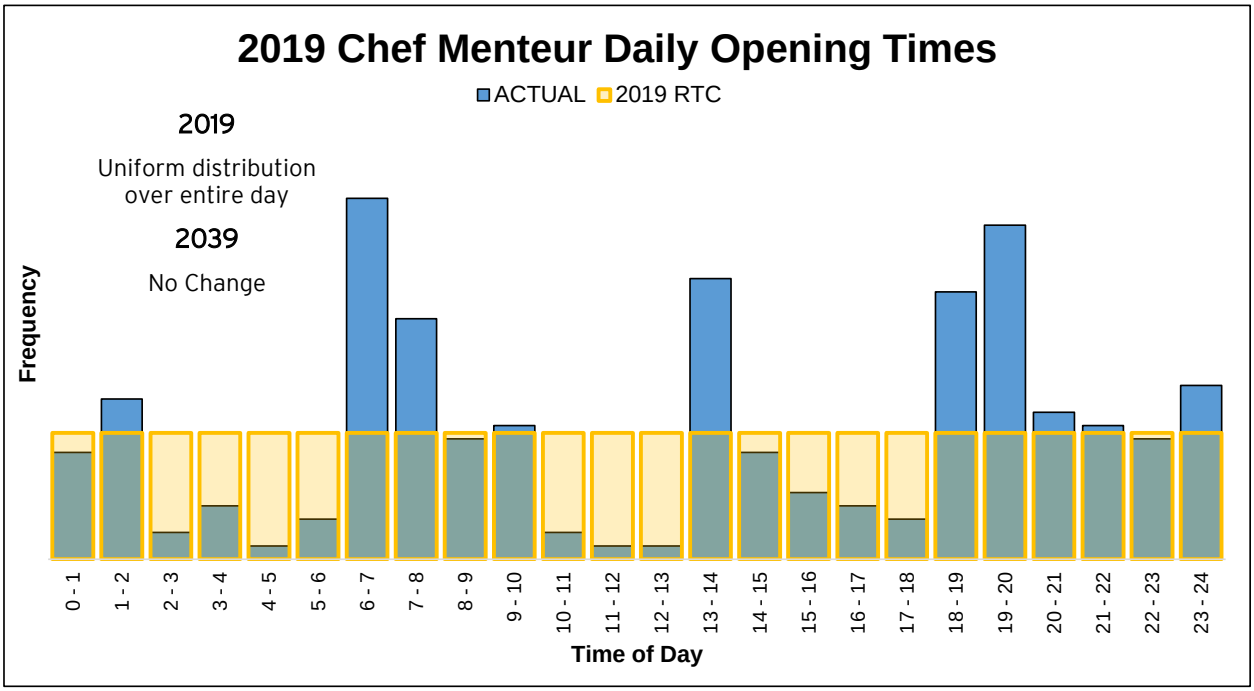
Opening Frequency (2019/2039)	*2039 Growth*
3 per day / 4 per day	+18%

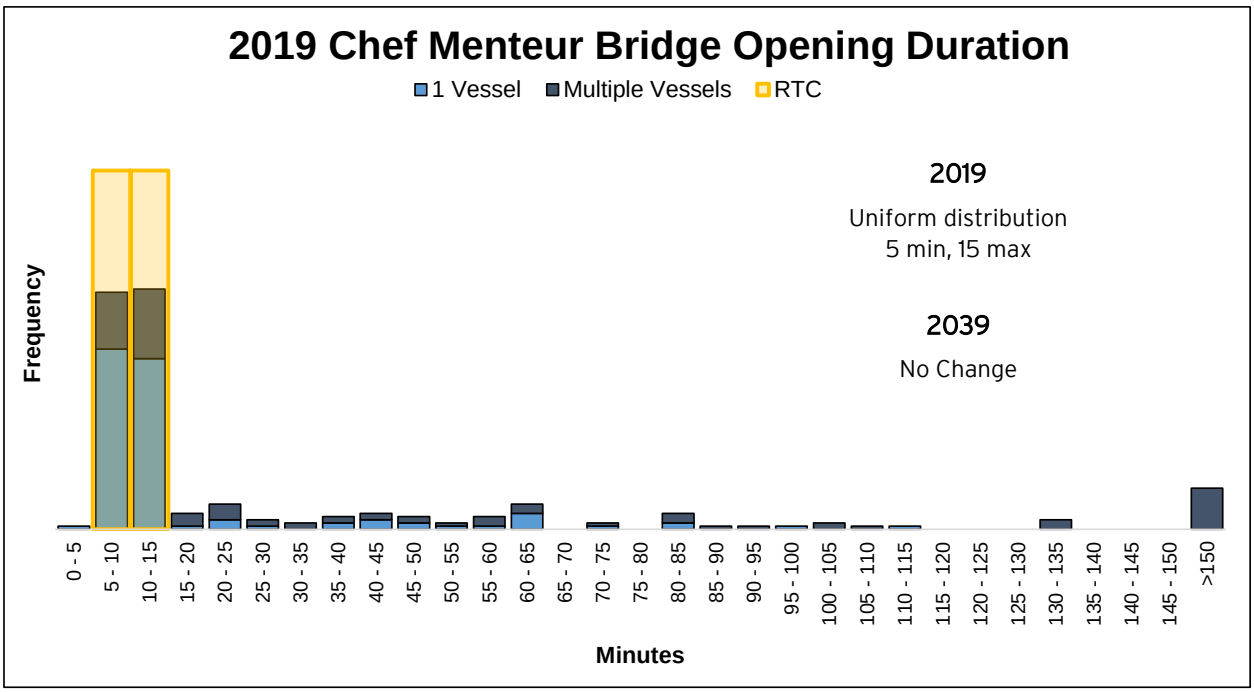




Chef Menteur Bridge

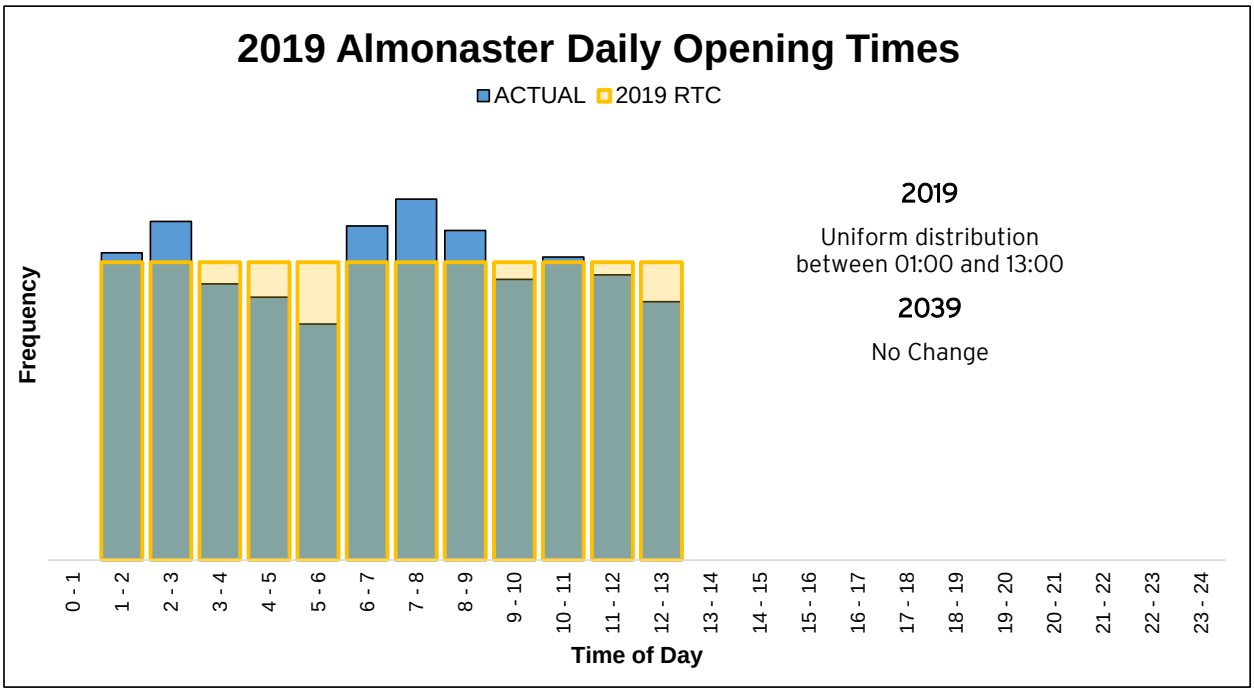
Opening Frequency (2019/2039)	*2039 Growth*
5 per day / **6** per day	+18%

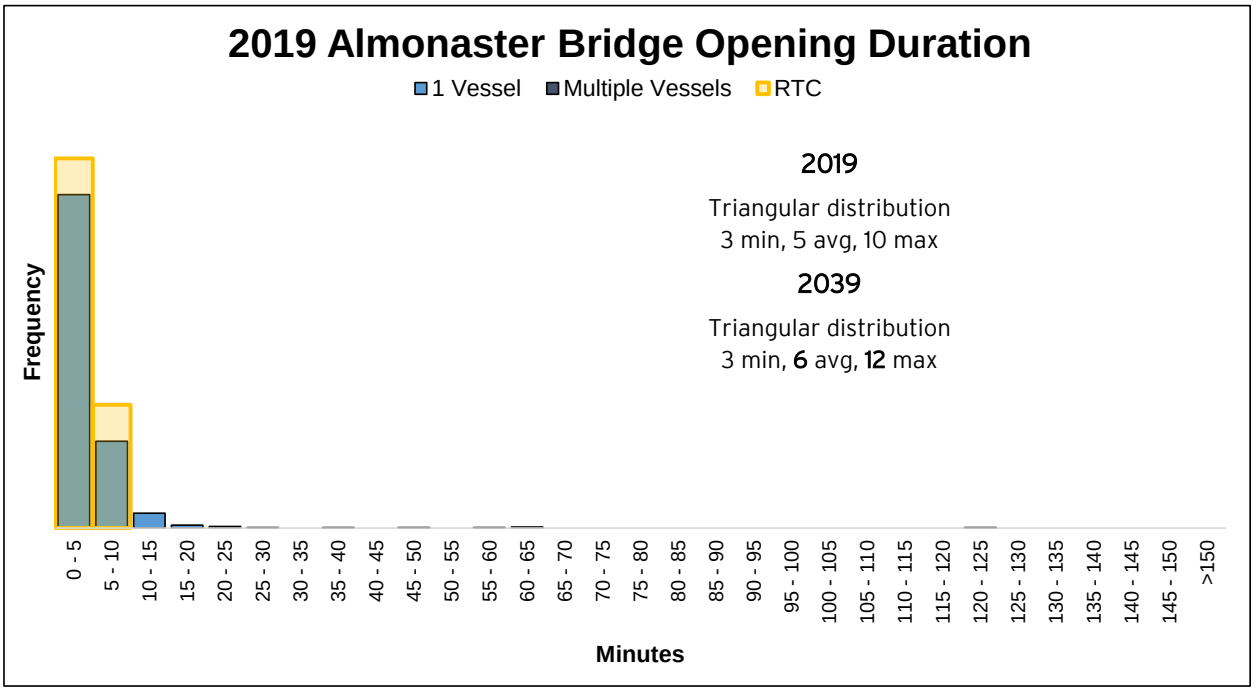




Industrial Canal (Almonaster) Bridge

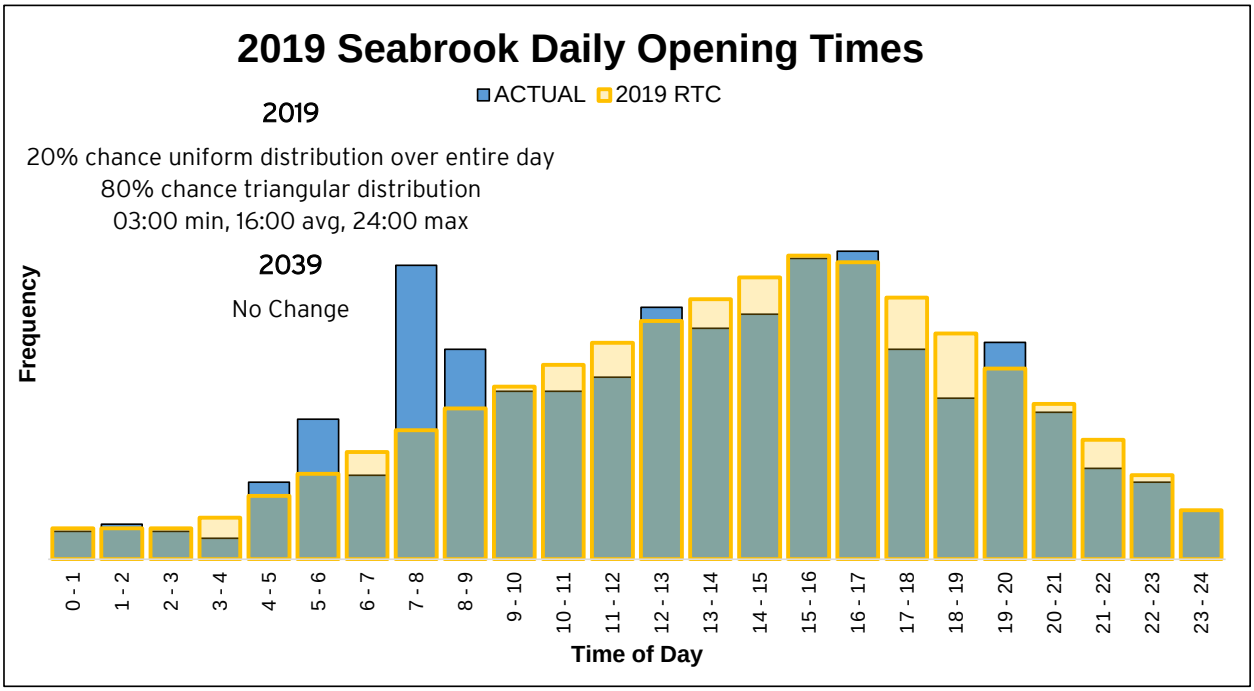
Opening Frequency (2019/2039)	*2039 Growth*
9 per day / 9 per day	+25%

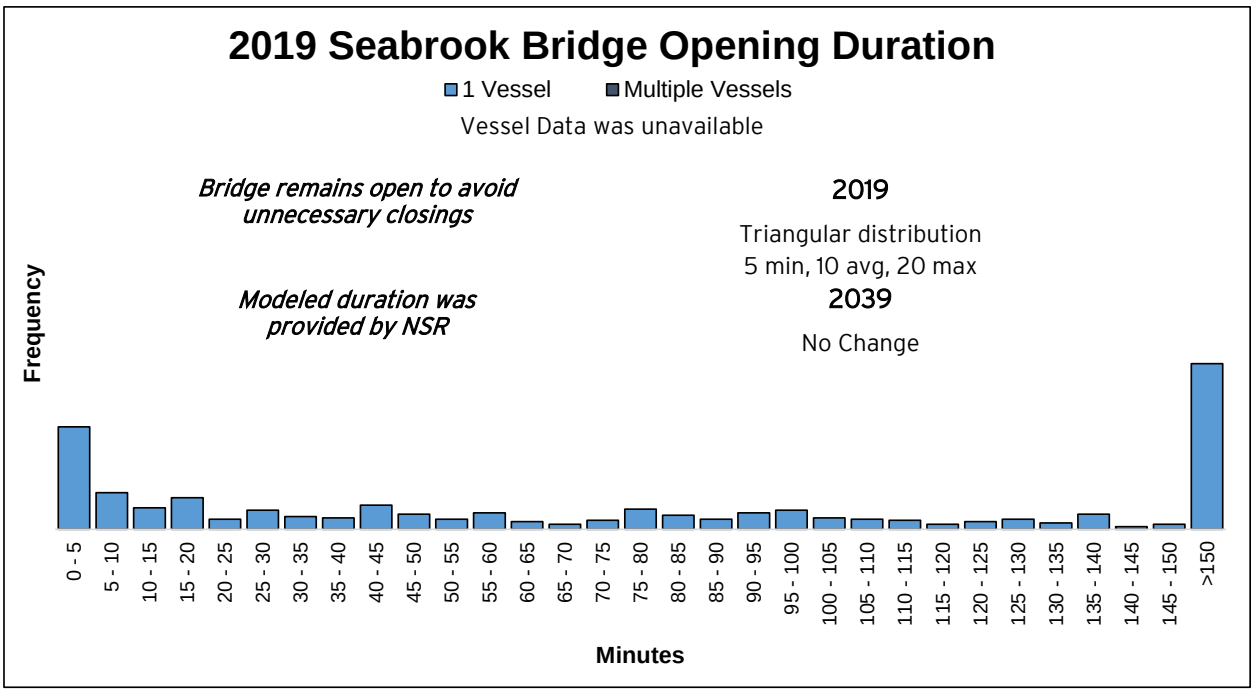




Seabrook Bridge

Opening Frequency (2019/2039)	*2039 Growth*
6 per day / **8** per day	+25%





Appendix F: Evaluation of FRA Proposed Projects

The 2017 Gulf Coast Working Group Report to Congress contained a list of projects proposed by the FRA to support passenger service.[33] The selection methodology and criteria for the projects are unclear since no analysis or data is included in the report, but Amtrak has publicly suggested it is willing to make these improvements in connection with the start of passenger service to the Gulf Coast.[34] The FRA proposed projects include one new siding, one siding extension, yard bypasses at Gentilly and Bayou Cassotte, siding and bridge speed upgrades, various grade crossing closures, turnout improvements, and a dedicated Mobile station track at the Mobile Convention Center (Listed in Table F1 and shown in Figure F1). The Gulf Coast Working Group Report to Congress failed to consider non-CSXT track in New Orleans.[35]

Table F1: FRA Proposed Project Summary

Project	New Track (ft)	Notes
Gentilly Bypass	10,500	
Michoud Blvd. Closure		*
Movable Bridge Miter Rails		
Lake Catherine Siding Speed Improvements		**
Claiborne Siding Speed Improvements		**
Ansley Siding	10,000	
Webb St. and Ballentine St. Closures		*
Harbin Siding Extension	5,300	
Crossing Diamond Improvements		
Beauvoir Siding Speed Improvements		**
Biloxi Crossing Closures		*
Gautier Siding Speed Improvements		
Bayou Cassotte Bypass	21,100	
Orange Grove Siding Speed Improvements		
St. Elmo Siding Speed Improvements		
Theodore Improvements		2 powered turnouts
Brookley Siding Speed Improvements		
Mobile Crossing Closures		*
Mobile Station Track	1,000	
Total	**47,900**	

* Grade Crossing Closure ** Infeasible Siding Speed improvement

A **2039 FRA Case** was developed to determine whether FRA's suite of proposed projects sufficiently addressed the impairment to freight caused by the introduction of passenger trains. The proposed projects do not mitigate the impact of the proposed

[33] Gulf Coast Working Group, Gulf Coast Working Group Report to Congress, Final Report, ("Final Report") at 30 (July 2017).

[34] *See Application of the National Railroad Passenger Corp. Under 49 U.S.C. § 24308(e) – CSXT Transportation, Inc. and Norfolk Southern*, S.T.B. Docket No. FD 36496 (filed Mar. 16, 2021), at 5 & n.12.

[35] *See* Final Report at 10 (describing concerns associated with the New Orleans rail gateway as being beyond those addressed in the Final Report).

passenger service (Table F2). While the projects mitigate some of the reduction in speed due to the passenger service on CSXT, there are no projects in New Orleans, and no such mitigation is achieved (Table F3). While the projects mitigate some of the speed reductions, the delays still increase on CSXT. Delay, as defined in Section 3.7, is calculated as the difference between the pure, or minimum, train runtime and the simulated runtime. Speed improvement projects, like the bridge miter rails, reduce the minimum runtime. As seen with the CSXT locals, if increased delays are not greater than the improvements in runtime due to the speed increases, trains could have both an improved average speed and an increase in delays.

Table F2: Change in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with FRA Proposed Projects

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[36]	% Change in Recrews
9.4% ↑	-0.9% ↓	34.7% ↑	29.6% ↑	16.0% ↑

Table F3: Change in Freight Train Operating Performance between 2039 Base Case and 2039 Passenger Case with FRA Proposed Projects

	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN RECREWS
CSXT Local Trains	12.6%	-1.7%	16.3%
CSXT Through Trains	8.5%	0.3%	31.4%
NSR Trains	8.7%	-2.5%	5.1%
All	**9.4%**	**-0.9%**	**16.0%**

A **2039 FRA Adjusted Case** was also developed where several projects from the FRA proposal were removed because they fall into one of two categories: (1) projects that require approval outside the control of the railroads and thus should not be considered or (2) projects that are infeasible to build. In the first category, FRA recommends grade crossing closures that require cooperation and approval from local stakeholders beyond the control of Amtrak, CSXT, or NSR. While these projects are beneficial, the modeling should not rely on a project that the railroads might not be able to implement. This approach is consistent with the modeling assumptions applied to all cases throughout this report. In the second category, the FRA also proposed a number of siding speed improvements that are not feasible. The proposed projects increase the speed of the sidings to "limited speed" (45 mph) by replacing turnouts and making signal adjustments. However, the lengths of all the affected sidings most likely do not support the proposed higher speeds. For a signal to be able to display "limited speed,"

[36] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

the worst case (longest) freight train must be able to stop within the length of the block or siding ahead. Unfortunately, many of the sidings along the corridor are shorter than this required braking distance and the FRA projects were therefore adjusted to only increase the speed to "medium speed" (30 mph). Since several of the affected sidings already are designed for 30 mph, they were removed as a potential project.

The FRA also proposed the installation of miter rails on several drawbridges with a goal to increase the track speed across the bridge. Without further investigation, it is unknown whether the bridge miter rails alone will enable these speed improvement. The speed improvements from the miter rails were left in the model, but bridge modifications and related additional costs beyond the miter rail installation may be required to achieve the proposed operational benefit.

The removed crossing closures and sidings improvements are identified in the track diagram in Figure F1. After removing these crossing closures and infeasible projects, the reduced list of FRA projects was modeled in RTC and the reduced list of FRA proposed projects does not mitigate the impact of the passenger traffic. Alternative projects need to be considered to not unduly impact freight.

Table F4: Change in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with FRA Proposed Projects and Projects Removed

% Change in Modeled Freight Train Delay / 100 Train Miles	% Change in Modeled Freight Train Speed	% Change in Dispatching Conflicts	% Change in Delay to Other New Orleans Railroads[37]	% Change in Recrews
12.5% ↑	-1.6% ↓	44.2% ↑	31.7% ↑	15.4% ↑

Table F5: Change in Freight Train Operating Performance between 2039 Base Case and 2039 Passenger Case with FRA Proposed Projects and Projects Removed

	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN RECREWS
CSXT Local Trains	15.4%	-1.9%	6.3%
CSXT Through Trains	17.0%	-1.4%	90.2%
NSR Trains	5.7%	-1.6%	-8.9%
All	**12.5%**	**-1.6%**	**15.4%**

With or without the infeasible projects, the FRA proposed projects do not address the limitations of the route such that passenger trains may be introduced without unreasonably interfering with current and future freight operations. If only these projects are constructed, this will inevitably lead to grade crossing blockages and unacceptable delays to the passenger trains and to the freight railroads' customers.

[37] This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

New Orleans to Flomaton: FRA PROPOSED

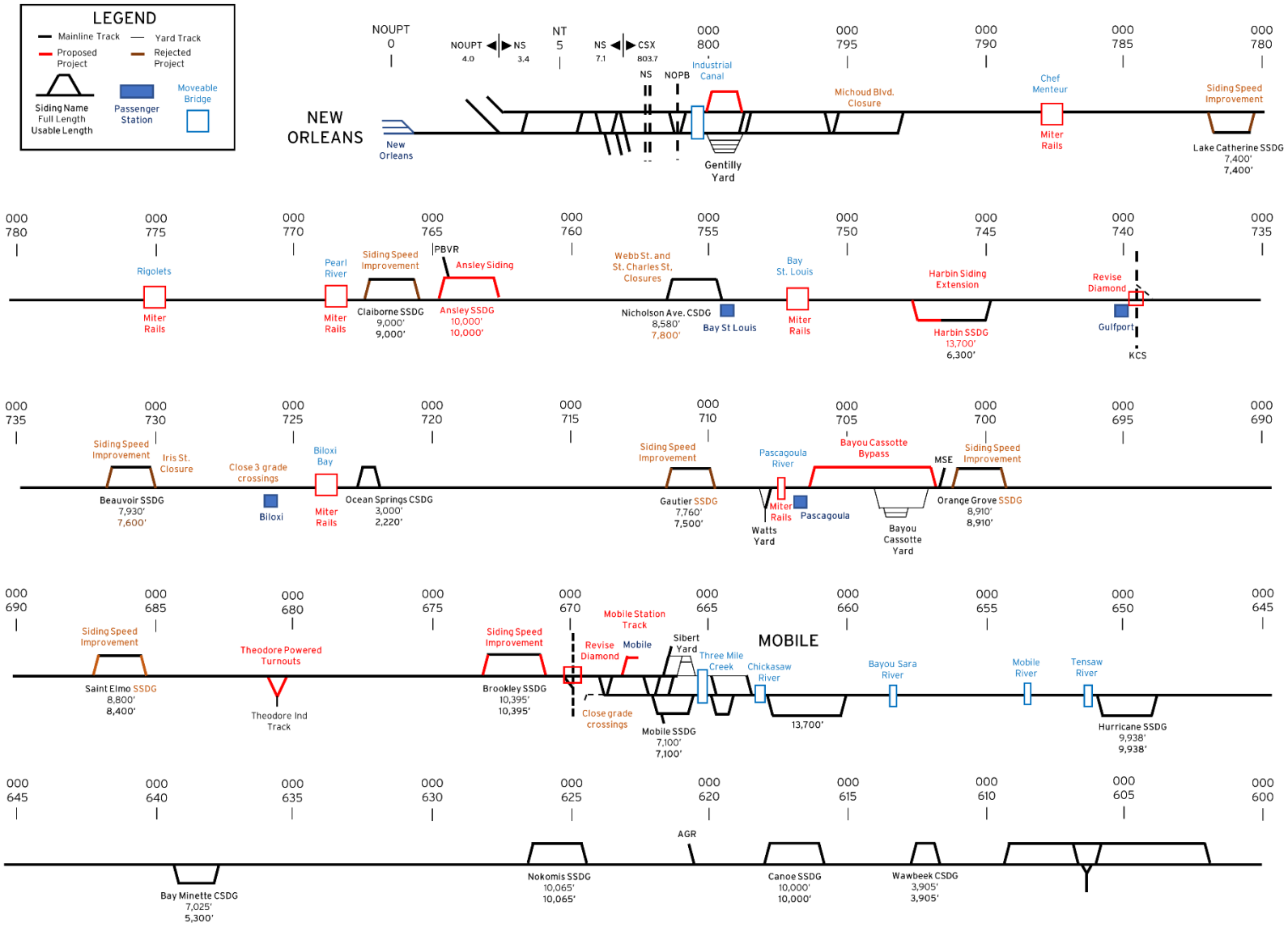


Figure E1: FRA Proposed Projects Track Schematic

Appendix G: RTC Modeling Assumptions

1. Track Infrastructure
   a. Base track infrastructure provided by CSXT and NSR
      i. Reviewed by the respective railroads' modeling teams, with adjustments to Mobile and New Orleans to correct switch and track infrastructure
   b. Grade crossings are included in the model based on the following criteria:
      i. 20-minute train stop time limit at grade crossings
      ii. >200 Average Annual Daily Traffic (AADT), 200 AADT is 1/2 of the Federal Highway Administration's definition of a low-volume roadway.
      iii. Active crossing with gates and/or lights
2. Train Operations
   a. Developed using 2019 Train Data from between September 1 and November 30, 2019
   b. CSXT Trains
      i. Used actual data to validate and update provided train file
      ii. Train dwells use a uniform or triangular distribution to match historical data. Triangular distributions were used with the average duration, a minimum of 15%, and 85% the maximum.
      iii. Train departure times were developed based on historical data.
      iv. Departure times are uniform and triangular distributions determined based on data provided by CSXT
      v. Multiple data sources and interviews to determine train operations when unclear of discrepancies
   c. NSR Trains
      i. Train operations developed based on operational descriptions provided by NSR
      ii. Train lengths and departure times follow uniform and triangular distributions developed based on discussion and with, and data provided by NSR
3. Growth information provided by railroads
   a. CSXT provided specific trains to grow by provided amount or 2% compound annual growth rate.
   b. NSR provided new trains and schedules projected for 2039.
   c. Yard jobs were increased proportionally to increase in Merchandise traffic
4. Non-Train Events
   a. Track Maintenance
      i. On CSXT, MOW mainline work 3 events per day on each sub, 30 to 120 minutes each event
      ii. NSR provided information on work by sub.
         1. NO/NE: 1–2 blockages per week, each blockage lasting 1–1.5 hours
         2. Back Belt (NT): 1–2 blockages per week, each blockage lasting 1–1.5 hours
   b. Curfews used for bridges with distributions determined using historical data
   c. Curfews used to replicate delays due to interchange events between CSXT and NSR
   d. Curfews used in New Orleans to limit freight train interference on NSR
5. Locomotives added to maintain 1 HPT when train sizes increase
6. Yard movements given high priority to prevent undue delays
7. Hi-Rail bridge tenders were given a top speed of 30 mph
8. Gate downtime was calculated by adding 30 seconds per train to the train event to represent early warning time.

APPENDIX B

Appendix B

Engineering Cost Assessments Report

New Orleans – Mobile
Gulf Coast
Proposed Infrastructure Projects

Prepared For
Sidley Austin LLP / Baker & Miller PLLC

Prepared By
V3 Companies

Author
Ted Niemeyer

November 3, 2021

I. QUALIFICATIONS AND EXPERIENCE

My name is Ted Niemeyer. I am a registered professional engineer with over 50 years of railroad engineering experience. I am a Life Member of the American Railway Engineering and Maintenance of Way Association (AREMA) and Member Emeritus of Committee 8, the Concrete Structures & Foundations and a member of Committee 9 Seismic Design for Railway Structures. From 1971 to 1989 I worked at the Chicago and NorthWestern Railroad (C&NW) in various positions including eight years working with C&NW's branch line program during which I prepared maintenance, upgrading and net salvage values and exhibits used in over 100 Interstate Commerce Commission proceedings. During that same period, I prepared estimates and oversaw construction on State and shipper-funded upgrading projects on over 500 miles of railroad valued at over $100,000,000. Over the next 6 years, I worked on construction of the Powder River Basin C&NW coal project consisting of over 125 miles of railroad and support facilities. During my last 2.5 years with C&NW, I managed capital projects in the Commuter Division serving Chicago. That assignment exposed me to the challenges of building and maintaining railroad infrastructure to meet the collective needs of shared use track.

In 1989, I left C&NW and founded Niemeyer & Associates, P.C. (N&A) developing a network of more than 100 associates working on railroads throughout the United States and four continents. N&A handled railroad-related projects valued at over $5 billion, in its 25 active years. In November 2014, I joined V3 and V3 acquired N&A's business. I am V3's Director of Railroad Services with experience in railroads, including economic viability studies, bridge inspection and bridge/track rehabilitation. My design experience includes route selection, environmental statement preparation, estimating, negotiation, and execution of permits and construction agreements.

II. Scope of Report

V3 has been asked by CSXT Transportation, Inc. (CSXT) and Norfolk Southern Railway Company (NSR) through their respective outside counsels, Sidley Austin LLP and Baker & Miller PLLC, to review the recommended infrastructure projects proposed in the RTC Report to accommodate the proposed Amtrak service between New Orleans, Louisiana and Mobile, Alabama, and to provide engineering cost assessments of those projects. As part of V3's scope of work, two engineering experts visited the subject corridor and spoke with the railroads' Engineering and Operations department personnel to ensure that costs and considerations related to the project were accurately reflected. V3 was asked to determine, in its expert engineering opinion, whether any additional improvements should be considered and/or whether rather less costly improvements could be made to facilitate the implementation of Amtrak passenger service without producing a net negative impact on freight rail operations. V3 was asked to prepare a report for CSXT and NSR regarding its findings.

III. Cost Estimating Methodology

V3's general approach to the project cost estimation was to use current-day pricing (2021) on all projects regardless of when they might be constructed. All material and construction efforts were priced as new work. In reviewing required work on projects, V3 included all reasonably potential work. In other words, since these projects have not yet been designed, our estimates reflect the potential costs of work that is in our opinion likely to be required. As an example, for track that was to have increased speed and class, a 25% tie renewal and with a small amount of ballast and surfacing was used in estimating the cost of track that was expected to operate at an increased speed and class, unless inspections and data analyzed indicated more or less work was required. Both low and high price range estimates were provided with a 15% contingency applied to the low end and a 25% contingency at the high end.

V3 developed estimated unit costs in connection with the work to be accomplished based on similar rail projects in which it was recently involved and updated those costs to current levels. V3 compared those unit costs to similar costs supplied by CSXT and NSR on work that will be done by railroad forces, the majority of such unit costs aligned well. Where there were differences, V3 chose the higher unit cost. Civil construction costs were developed with input and discussion with V3 Construction, V3's construction company that does civil construction. Costs were developed using current costs based off 1,000 linear feet of grading for a standard railroad section. Costs were adjusted for sub-grade, access, any necessary construction of an embankment, and overall location of projects. Bridge estimates were based on a per linear foot of bridge methodology, varying by construction type. Existing bridges were replaced if they could have adverse environmental or maintenance effects. For embankment widening at locations where there is a culvert, new culvert pipe will be installed for the full length and the existing culvert will be sealed and filled. All culvert pipe replacements will be smooth metal pipe installed with the jack-and-bore method. Signal estimates were based on all work using new material installed by railroad personnel and designed by consultants with review by railroad staff. Temporary work was included to keep the signals systems in full operation while new facilities were being constructed with all new material. Signal estimates include work that may be required to modify nearby facilities affected by the installation of the new facilities. No station building, platform, fence or other passenger amenity or safety work is included.

Attached hereto as Exhibit B-1 is a list of the documents furnished by CSXT and NSR that were used to gain project understanding and develop estimates as well as site visit notes. Estimate working files are included in the workpapers.

IV. Site Visit

On October 12 through 14, 2021, I made a site visit to the proposed route of new Amtrak service on the CSXT and NSR railroads between Mobile, AL and New Orleans, LA accompanied by John Klein of V3 and Larry Guthrie of R. L. Banks & Associates. The site visits started the morning of October 12th in Mobile, AL, accompanied by Will Roseborough, Director Project Management, CSXT Transportation who drove and toured us through October 13th ending in New Orleans, LA. On October 12th we visited all proposed RTC study project sites between Mobile, AL and the Nicholson Double Track, also station sites at Mobile, Bay St. Louis, Gulfport, Biloxi and Pascagoula, all in Mississippi and other points on the CSXT NO&M Subdivision. On October 13th we visited all remaining proposed RTC study CSXT project sites between Claiborne Siding Extension and the Gentilly Bypass extension, and additional locations on the CSXT NO&M Subdivision. At Claiborne siding we observed three CSXT system triple tie gangs that were performing scheduled tie replacement work. On the morning of October 14, 2021, Randy Hunt, Senior Director Interline Services of NSR, and Nick Delamarter, Senior Terminal Manager of NSR, accompanied us to NSR RTC Report project sites and other locations on NSR's Gulf (formerly Alabama) Division, New Orleans Terminal between Terminal Junction and Bayou St, John Bridge. During the inspection, I took 135 photographs of site conditions.

V. RTC Report Recommended Projects

V3 does not offer train simulation services or have the in-house capabilities to perform train simulations. Therefore, V3 cannot comment on infrastructure project needs determined from the simulations contained in the RTC Report. However, V3 reviewed the RTC Report infrastructure projects and made minor adjustments to limits given field conditions, and then estimated construction costs. V3 has accepted the RTC Report's Appendix D project descriptions and justification of the projects, unless an exception is taken in V3's project comments. The 14 projects[1] are listed from geographic west in New Orleans, Louisiana to Mobile, Alabama, which is railroad north for both CSXT and NSR. Estimate summary and details by STB accounts for the 14 RTC Report Projects are included in Exhibit B-2. Descriptions, estimates and comments, if any, regarding the 14 RTC Report Projects are as follows:

1. **NS Projects (Three in One)**

   (a) **St. John's Crossovers** – The project includes the installation of a new universal crossover north of Bayou St. John, at Mile Post (MP) 5.2, on the NSR New Orleans Terminal between Main Track 1 and Main Track 2. The crossovers

[1] The 2021 Gulf Coast RTC Report prepared by HNTB Corporation and R.L. Banks & Associates, Inc. groups three projects on the NSR portion of the passenger route together as one project for the purposes of this count.

will use four #15 turnouts with 136 pound (per yard) rail with dual control switch machines constructed on pads adjacent to the main tracks and slid into position during a track shutdown. Work will include a new signal bungalow, two 2 track cantilever signals and backup generator in separate bungalow. Paris crossover at MP 5.9 will remain with no changes. The estimated cost to install is between $4,619,000 and $5,021,000.

(b) **NOT Junction/Elysian Fields Crossovers** – The project includes realignment of the existing Control Point and connecting track at MP 7.0, on the NSR New Orleans Terminal that is utilizing a moveable point diamond, with 2 new crossovers, both from Main Track 2 to Main Track 1, south of 2 new turnouts to CSXT Main Tracks 1 and 2, respectively, at NO&M Subdivision MP 803.7. The crossovers and turnouts will use six #15 turnouts with 136 pound rail with dual power switch machines constructed on pads adjacent to the main tracks and slid into position during a track shut-down. Work will include three new signal bungalows, one backup generator in a separate bungalow, and three 2 track cantilever signals. The existing track will be realigned and rehabilitated with 25% tie renewal, ballast and surfacing to bring the track up to FRA Class 3 standards. The estimated cost to install is between $8,291,000 and $9,011,000.

(c) **Terminal Junction** – The project includes the installation of 2 new crossovers at MP 7.6 on the NSR New Orleans Terminal from Main Track 1 to Main Track 2 and from the Freight Lead Track to Main Track 2. The crossovers will use four, #10, turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and freight lead and slid into position during a track shut-down. Work will include two new signal bungalows, one backup generator in a separate bungalow, a cantilever signal bridge, and substantial temporary signal work. The existing track will be realigned and rehabilitated with 25% tie renewal, ballast and surfacing to bring the track up to FRA Class 3 standards. The estimated cost to install is between $7,602,000 and $8,263,000.

2. **Gentilly Bypass** – The project includes the construction of 13,300 track feet of main track west of Main Track 1 on the CSXT NO&M Subdivision between MP801.1 and MP 798.6. Both ends of the bypass will have #20 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut-down. At MP 800.5, there will be a hand throw #10 turnout with 136 pound rail and an electric lock to serve a transfer facility. A new crossover with two #20 turnouts and 136 pound rail with dual control switch machines will be constructed on pads adjacent to the main track and slid into position during a track shut-down. There will be signal bungalows at the south bypass turnout and at the new crossover, and two 2 track cantilever signals and one 3 track cantilever signal. Two new crossovers will be built north of the north bypass turnout and Old Gentilly Road MP 798.5 to enable a crossover from Main Track 1 to Mail Track 2 and from Main Track 2 to Main Track 1. There will be signal bungalows at the north bypass turnout and at the new double crossover, and one 2 track cantilever signal and one 3 track cantilever signal. Two grade crossings will require signal modifications due to the construction of the bypass. One culvert pipe will be replaced. Changes to RTC

Report information include moving the south Gentilly turnout approximately 500 feet to the north clear of the overhead bridge. This will eliminate replacing the hand throw turnout to NCPS and moving the south bypass turnout to MP 801.1. The north Gentilly bypass turnout also was moved to MP 798.6 south of Old Gentilly Road to avoid adding a grade crossing. The estimated construction cost is between $32,051.000 and $34,838,000.

3. **Michoud Double Track** – The project includes the construction of 12,500 track feet of second main track east of Main Track 1 on the CSXT NO&M Subdivision between MP793.2 and MP 790.8. The existing turnout at the north end of Main Track 2 MP 793.2 will be removed and replaced by a double #20 crossover with turnouts having 136 pound rail and dual control switch machines. The existing signal bungalow will be removed and there will be a new signal bungalow controlling the new double crossover with two 2 track cantilever signals. At MP 790.8 a new #20 turnout with136 pound rail with dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut down. There will be new signal bungalow for the north end turnout, and one 2 track cantilever signal. Three grade crossings of roads will have their road surface and signal systems replaced due to the addition of the second track. A new, 195 foot bridge of CSXT standard precast concrete spans on driven piles will be constructed at MP 792.0. The existing main track pile bridge will be replaced after the construction of Michoud double-track to avoid the additional piers and their potential debris accumulation in the channel. The estimated construction cost is between $34,650,000 and $37,663,000.

4. **Claiborne Double Track** – The project includes the construction of 16,500 track feet of second main track west of Main Track 1 on the CSXT NO&M Subdivision between MP766.3 and MP 761.8. The south turnout of the existing Claiborne second track at MP 768.1 will be removed and replaced with a new #20 turnout with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut-down There will be a new signal bungalow at the north end turnout, a 2 track cantilever signal. At MP 765.4, there will be a new, double #20 crossover with 136 pound rail and dual control switches. Signal bungalow will be installed at the new, double crossover, two 2 track cantilever signals and power line constructed to access commercial, electric power. The new north turnout of the Claiborne second track at MP 761.8 will be a new #20 turnout with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut-down. There will be a new signal bungalow at the north end turnout and a 2 track cantilever signal. The existing intermediate signal will be removed, and modifications will be made to the signal system to compensate the new installations. At MP764.1, a new #10 turnout with 136 pound rail and dual control switch machines and an electric lock will be constructed in the new second main to serve the PBVR railroad. At MP 765.1, Ansley, the 34th Street grade crossing will be replaced as a result of the double-track construction with a new crossing surface and flashing lights and gates. The construction will be challenging because Claiborne is in a bayou outside the New Orleans flood wall and is subject to storm surges, therefore the entire

embankment is armored with rip rap on both sides. Five new bridges with CSXT standard precast concrete spans on driven piles will be constructed at MP 766.1, MP 764.8, MP 763.6, MP 763.1 and MP 762.4 on the second main and the existing main track pile bridges will be replaced after the construction of Claiborne double-track to avoid the additional piers and their potential debris accumulation. One culvert pipe will be replaced. Existing siding track will be rehabilitated with 25% tie renewal, ballast and surfacing to bring track up to FRA Class 3 standards. The estimated construction cost is between $58,268,000 and $63,334,000.

5. **Nicholson Double Track** – The project includes the construction of 9,200 track feet of second main track west of Main Track on the CSXT NO&M Subdivision extending the siding south from MP 758.2 to MP 756.4. The new south turnout to the second track will be a new #20 turnout with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut-down. There will be a new signal bungalow at the north end turnout and a 2 track cantilever signal. The existing south turnout at MP 756.4 will be removed. The project includes the construction of 3,400 track feet of second main track west of Main Track on CSXT NO&M Subdivision to the north extending between MP 754.7 and MP 754.1. The new north turnout at the second track will be a new #20 turnout with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut-down. There will be a new signal bungalow at the north end turnout and a 2 track cantilever signal. The existing north turnout at MP 754.7 will be removed. A #10 turnout hand throw with 136 pound rail and an electric lock will be installed in the new track at MP 754.5 serving a Maintenance-of-Way storage area (not included in RTC Report). Seven culvert pipes will be replaced. The Bay Saint Louis station is MP 754.5 on the east side of the Main Track will not have a station track because if a train needs to pass a passenger train at the station, it can use the Nicholson siding as a runaround. There are 13 grade crossings that may require signal work and seven that have complete surface replacement. The Nicholson double track does not provide a location to store a train of length due to the number and spacing of grade crossings. Existing siding track will be rehabilitated with 25% tie renewal, ballast, and surfacing to bring track up to FRA Class 3 standards. No station building, platform, fence, or other passenger amenity or safety work is included. The estimated construction cost is between $33,334,000 and $36,233,000.

6. **Harbin Siding Extension and Main Track Relocation** – The project includes upgrading and extending the existing Harbin siding and having it become the new Main Track to facilitate switching by the local train servicing Harbin, allowing freight and passenger trains to pass while the local train is working. The siding will be extended south to MP 747.2 from MP 746.8 by constructing 2,000 track feet of main track east of the existing Main Track on the CSXT NO&M Subdivision ending 200 feet north of the Menge Avenue grade crossing. The new turnouts for the Harbin track will be #20 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut down. There will be a new signal bungalow

built at each end of the turnout and, a 2 track cantilever signal. Four grade crossings will require new surface and signal work. Although the existing turnout serving the Harrison County Spur at MP 746.3 will remain, a new electric lock will be installed to speed up operations. Three culvert pipes will be replaced. The current siding will be rehabilitated with 25% crosstie renewal, spot ballast, and surfacing to bring track up to FRA Class 4 standards. The estimated construction cost is between $13,345,000 and $14,505,000.

7. **Beauvoir Double Track** – The project includes the construction of 28,600 track feet of second main track extending existing siding west of Main Track 1 on the CSXT NO&M Subdivision between MP737.4 and MP 731.9. The new turnout at MP 737.4 will be a #20 with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut-down. There will be a new signal bungalow installed to control the turnout and a 2 track cantilever signal. The existing siding turnout at MP 730.3 will be replaced with a new #20 turnout with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut-down. There will be a new signal bungalow and, a 2 track cantilever signal. One new bridge of CSXT standard precast spans on driven piles will be constructed at MP 736.9 over Coffee Creek, similar to the existing Main Track bridge. Nine culvert pipes will be replaced. There are 11 grade crossings that may require new surface and signal work. The current siding will be rehabilitated with 25% crosstie renewal, spot ballast and surfacing to bring track up to FRA Class 4 standards. The Beauvoir double-track does not provide a location on which to store trains due to the number and spacing of grade crossings, but can be used to pass trains. The estimated construction cost is between $51,189,000 and $55,640,000.

8. **Fountainbleau Siding** – The project includes constructing a new 13,200 foot siding west of Main Track 1 on the CSXT NO&M Subdivision between MP716.4, north of Fountainbleau highway, and MP 713.9, south of the Shell Landing Boulevard overhead bridge. New #20 turnouts will be installed at Fountainbleau with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut-down. There will be a new signal bungalow at each turnout end and a 2 track cantilever signal. Three bridges will need to be built. The bridge at MP715.7 will be CSXT standard precast concrete spans on driven piles and the existing main track pile bridge will be replaced after construction of the siding track to avoid the additional piers and their potential debris accumulation. At MP 714.4, the existing structure over Old Spanish Road is a skewed concrete bridge square to the road. The new bridge will be built over that existing structure, because the existing structure beams support the Main Track, resulting in the siding being 2.5 feet higher in elevation than the existing Main Track. The Old Spanish Road bridge imposes restricted clearance on the road, which is evident by the number of marks left by oversized vehicle strikes. After the siding is in service, the Main Track will be raised and a new Main Track bridge built over the Road. The new bridge will have increased clearance on Old Spanish Road. The stream bridge at MP 714.45 that is near the Old Spanish Road bridge also will have to be at a higher

elevation, at least 2 feet, so a new bridge of CSXT standard precast spans on driven piles will be constructed at the siding, and, after the siding is in service, the Main Track bridge also will be replaced when the Main Track is raised. There are three grade crossings that may require signal work. The estimated construction cost is between $41,198,000 and $44,780,000.

9. **Bayou Cassotte Power Turnouts** – The project includes new Bayou Cassotte power turnouts at MP 704.3 and MP 702.3, both #15 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut-down. There will be a new signal bungalow installed at each turnout end and, a 2 track cantilever signal. Signal adjustments will be required at two nearby grade crossings and one grade crossing will be rebuilt as part of the adjacent turnout replacement. The estimated construction cost is between $5,586,000 and 6,072,000.
10. **St. Elmo Siding Extension** – The project includes extending the St. Elmo siding 4,500 track feet south, with a new turnout installed at MP 688.1 south of the current turnout located at MP 687.4 of the Main Track on the CSXT NO&M Subdivision. The new south turnout to the siding will be a new #20 turnout with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut-down. There will be a new signal bungalow at the north end turnout and a 2 track cantilever signal. The north St. Elmo siding turnout at MP 685.6 will be replaced with a new #20 turnout with 136 pound rail and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shut-down. There will be a new signal bungalow installed at the north end turnout and a 2 track cantilever signal. The Fernland Road crossing surface and signals will be replaced and two other grade crossings require signal adjustments. The new south turnout for the siding was located south of Fernland Road to maximize length of train that can be held in the siding, but trains close to 12,000 feet in length will block the Fernland grade crossing. There is potential to relocate this grade crossing south in the future. Current siding will be rehabilitated with 25% crosstie renewal, spot ballast and surfacing to bring track up to FRA Class 3 standards. The estimated construction cost is between $12,842,000 and 13,959,000.
11. **Theodore Power Turnouts** – The project includes new power turnouts for the Theodore Industrial Park wye. Three #10 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing tracks and slid into position during a track shut-down. There will be a new signal bungalow installed at the 2 Main Track turnouts at MP 679.5 and MP 679.2 with two track signals. Signal adjustments will be required at 3, nearby grade crossings and the Hamilton Boulevard grade crossing will be rebuilt as part of the adjacent turnout replacement. The estimated construction cost is between $6,133,000 and $6,666,000.
12. **Brookley Siding Extension** – The project includes extending Brookley siding south with a new turnout installed at MP 672.6 from the current south turnout located at MP 671.8 by constructing 3,900 track feet of siding track west of the

Main Track on the CSXT NO&M Subdivision. The new south turnout at the siding will be a new #20 turnout with 136 pound rail and dual control switch machine constructed on pads adjacent to the main track and slid into position during a track shut-down. A new signal bungalow will be installed at the north end turnout and a 2 track cantilever signal. There is one bridge at MP 672.0 over the little Dog River An adjacent, second track CSXT standard precast concrete 11 span CSXT standard precast concrete on a driven pile bridge, 270 feet long, will be constructed. The south turnout to the Brookley siding extension was moved closer to the Navco Road crossing to better access CSXT. Current siding will be rehabilitated with 25% crosstie renewal, spot ballast and surfacing to bring track up to FRA Class 3 standards. The estimated construction cost is between $19,829,000 and $21,553,000.

13. **Mobile Double Track** – Double main track will be added between the north Brookley siding turnout MP 669.8 and MP 667.1 the south end of proposed Mobile Station Track totaling 14,000 track feet west of existing Main Track on CSXT NO&M Subdivision. There will be double crossovers at the south and north end of the double track. The south end double crossover will be north of the Duval Street grade crossing between MP 669.7 and MP 669. The north double crossovers will be between the Elmira Street and Palmetto Street grade crossings. The crossover will use four #20 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut-down. There will be a new signal bungalow at each turnout and two 2 track cantilever signals. There are two locations where new second track bridges will be built, MP 669.3 Washington Avenue a 225 foot through plate girder bridge and MP 668.5 a 40 foot new CSXT standard precast concrete span bridge on driven piles over a drainage, the existing main track pile bridge at this location will be replaced after construction of the double track to avoid the additional piers and their potential debris accumulation. There will be seven grade crossings that will require new surface and signal work. Current siding tracks will be rehabilitated with 25% crosstie renewal, spot ballast and surfacing to bring track up to FRA Class 4 standards. The estimated construction cost is between $66,073,000 and $71,819,000.
14. **Mobile Station Track** – The project includes construction of a new 3,200-foot station track west of existing Main Tracks on CSXT NO&M Subdivision between MP667.1, north of Palmetto Street, and MP 666.5, south of the Mobile Convention Center. The station track will connect to Main Track 1 with a new #15turnout with 136 pound rail and dual control switch machine constructed on pads adjacent to the existing track and slid into position during a track shut down. There will be a new signal bungalow installed at turnout end as well as a 2 track cantilever signal. There are five grade crossings that will require new surface and signal work. No station building, platform, fence, or other passenger amenity or safety work is included. The estimated construction cost is between $10,578,000 and $11,498,000.

Other Beneficial Projects for Consideration

Estimate and details by STB accounts for the following additional Projects are included in Exhibit B-3.

Station tracks

I believe that it is important to have a track at each station to allow trains to go around a stopped passenger train. If there is an emergency on a train (e.g., medical, disorderly passenger, etc.) the interaction with medical or civil assistance is at a train station. At New Orleans there is Union Passenger Terminal, Bay St. Louis Depot has the Nicholson siding as an emergency runaround and Mobile will be provided with a station track as part of the RTC Report projects discussed above. The following are three proposed projects to provide station tracks or runaround track at the remaining stations:

- **Gulfport Station Runaround** – The Gulfport Depot is located immediately adjacent to the KCS crossing diamond MP 739.4 with CSXT. Relocating the depot building is assumed not to be an option, so it is proposed to build a 1,200 foot runaround track west of the Main Line to allow trains to go around a stopped passenger train. A left-hand #15turnout with 136 pound rail will be installed south of the KCS and a new crossing diamond installed in the KCS track with 15 foot track centers. The runaround track will connect into the KCS interchange track with a right hand #15 turnout with 136 pound rail. Turnouts will have dual control switch machines and be constructed on pads adjacent to the existing track and slid into position during a track shut down. There will be new signal bungalow for each end turnout and the diamond and color light signals will be installed. There are eight grade crossings that will require new surface and signal work. No station building, platform, fence or other passenger amenity or safety work is included. The estimated construction cost is between $14,019,000 and $15,238,000.

- **Biloxi Station Track** – The Biloxi station may be the destination or origin for many passengers using the proposed Amtrak service, because of attractions in the immediate vicinity. Two new #15 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut down. There will be new signal bungalow for each end turnout and two 2 track cantilever signals. The turnouts will be installed 200 feet north of Caillavet Street MP 727.0 and 200 feet south of Main Street MP 762.6 allowing station track to be built east of the CSXT NO&M Subdivision Main Track, removing the existing station platform that is in poor condition clearing the way to construct a new station and platform (by Amtrak) just north of the current location. Renoir MP 726.9, Delauney and Lameuse, MP 726.7, Street crossings would be closed so that a ground transportation center could be formed by others (Greyhound Bus Station is accosted Esters Boulevard from CSXT tracks). There are five grade crossings that will require new surface and signal work and two other crossings will require signal work. This track will be 1,000

feet long. No station building, platform, fence or other passenger amenity or safety work is included. The estimated construction cost is between $9,119,000 and $9,912,000.

- **Pascagoula Station Track** – The Main Line will be shifted west to achieve a straighter alignment between Pascagoula River Bridge and the Mississippi Export Railroad (MER) connection (that is replaced by a new connection located elsewhere) adding turnouts, one north of the River Bridge at MP 706.7and the other 200 feet south of Pascagoula Street MP 706.4. This will allow the present main track to be used as the Pascagoula station track. The turnouts will be new #20 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut down. There will be new signal bungalow for each end turnout and colored light signals. There are two grade crossings that will require new surface and signal work and two other crossings will require signal work. Two culvert pipes will be replaced. No station building, platform, fence or other passenger amenity or safety work is included. The estimated construction cost is between $9,069,000 and $9,858,000.

Siding Capacity

Some railroads are now operating 12,000 foot trains and, in the future most railroads will operate these 12,000 foot long trains. Due to this NSR should have a siding to hold 12,000 foot long trains while waiting for Amtrak trains to pass.

- **Freight Lead extension on NSR** – This project includes extending the Freight Lead Track at NSR New Orleans Terminal MP 6.9 to north of Bayou Saint John bridge MP 5.2 a distance of 9,000 feet. This extension of the existing Freight Lead Track would create space to hold 12,000 foot freight trains to enable Amtrak trains to pass. Turnout north of Bayou St. John will be one #15 turnout with 136 pound rail and dual control switch machine constructed on pads adjacent to the existing track and slid into position during a track shut down. There will be new signal bungalow for the turnout, a 2 track cantilever signal bridge will be built, and backup generator with bungalow. North of Frenchmen Street at MP 6.9 there will be a crossover north from the Freight Lead to Main Track 2 just south of the Elysian Fields crossovers. The crossover will be two #15 turnouts with 136 pound rail and dual control switch machines constructed on pads adjacent to the existing track and slid into position during a track shut down. There will be new signal bungalow for each end turnout, a 2 track cantilever signal bridge will be built, and backup generator with bungalow. Five bridges will be required, 6.4 over Broad Street 163 feet long; 6.3 over London Avenue Canal 156 feet long; 6.1 Gentilly Boulevard 207 feet long; 6.0 over Paris Avenue 168 feet long; and 5.8 over St. Bernard Avenue 278 feet long. The estimated construction cost is between $77,672,000 and $84,426,000.

Crossing Closures and Grade Separations

Another avenue that is worthy of future study but that is not included in the estimates is the feasibility of grade crossing closures and/or grade separation structures of at-grade crossings, which could provide additional siding areas. If key crossings could be closed or grade separated, some of the above projects could be reevaluated and potentially reduced. An additional major advantage would be the resultant elimination of the at-grade crossing safety hazard. However, the cost of these crossing closures or grade separations is not included because the railroads lack the authority to unilateral close or grade separate crossings, which creates uncertainty as to the feasibility of such crossing projects.

Exhibit B-1

Gulf Coast Documents

CSX Provided Info:

1. CSX Val Maps (118 total)
2. Atlanta Division Timetable No. 6.1 (173 pages)
3. Atlanta Division Timetable No. 1 (177 pages)
4. Atlanta Terminal Subdivision Time Table No. 1 (27 pages)
5. Engineering Department Maintenance of Way Field Manual (192 pages)
6. Bridge Search Results (Excel file)
7. CSX Roadmaster Track Chart (41 pages)
8. CSX Roadmaster Track Chart (41 pages, this looks like it could possibly be a duplicate of #7)
9. NOM Road Crossing Results 9/8/21 (Excel file)
10. Engineering Unit Prices – Revised 5/26/2020 (Excel file)
11. Signal Aspects (39 pages)
12. Email correspondence from Will Roseborough, received 9/30/21 at 1213 hrs. Answers to CSXT projects on the RTC modeling.

NS Provided Info:

1. Alabama Division Southern Region Time Table No. 1 (267 pages)
2. NS Operating Rules (309 pages)
3. NSCE – 4 Specifications for Wireline Occupancy of Norfolk Southern Corporation Property (30 pages)
4. NSCE – 8 Specifications for Pipeline Occupancy of Norfolk Southern Corporation Property (40 pages)
5. NSR Electrical Specifications November 2017 (182 pages)
6. NSR Infrastructure Standard Plans (DGN file)
7. NSR Shoring Requirements (2 pages)
8. NSR Standard Specifications for Design and Construction – January 2019 Updates (3 pages)
9. NSR Standard Specifications for Materials and Construction – January 2019 (462 pages)
10. Premium – Intermediate Rail Usage
11. Signal Equipment Cell Library (.cel file)
12. Switch Heater Responsibilities (1 page)
13. NSR Infrastructure Project Standard Plans (32 pages)
14. Track Bar (1 page)
15. NT Val Maps (5 total)
16. NS Gulf Division Track Chart – V3 Consultant Copy (5 pages)
17. NS Alabama Division Southern Region Time Table No. 1 3/15/2018 (14 pages)
18. NS Operating Rules – V3 Consultant Copy (309 pages)
19. Yard Air Calculator (Excel file)

20. Yard Air Cell Library (.cel file)
21. Email correspondence from Randall Hunt, received 10/18/2021 at 1118 hrs, answers to NSR projects on RTC modeling

Summary of Material and Force Account Estimate

Location: New Orleans Terminal Junction to Mobile, AL station
Description of Work: Track work per 2039 modeling
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

Project	Description	Low Total @ 15%	High Total @ 25%
St Johns Interlocking	2 - #15 crossovers	$ 4,619,000	$ 5,021,000
Elysian Fields crossover	Remove exisiting crossover and replace with a #10 crossover, install powered #10	$ 8,291,000	$ 9,011,000
Terminal Junction	Install new #10 universal crossovers	$ 7,602,000	$ 8,263,000
Gentilly Bypass	New Track construction , new crossovers, and new turnouts	$ 32,051,000	$ 34,838,000
Michoud Double Track	Extend double track added crossovers and new switches	$ 34,650,000	$ 37,663,000
Claiborne Double Track	Extend double track added crossovers and new switches	$ 58,268,000	$ 63,334,000
Nicholson Siding Extension	Extend siding, new switches, new MOW track	$ 33,334,000	$ 36,233,000
Harbin Siding Extension	Extend with siding new powered switches	$ 13,345,000	$ 14,505,000
Beauvoir Double Track	Extend double track and install new switches	$ 51,189,000	$ 55,640,000
Fountainbleau Siding	Extend siding, new switches	$ 41,198,000	$ 44,780,000
Bayou Cassotle turnouts	New powered turnouts for Bayou Cassotle yard	$ 5,586,000	$ 6,072,000
St Elmo Siding Ext	Extend siding, new switches	$ 12,842,000	$ 13,959,000
Theodore powered TO	New powered turnouts for industry track	$ 6,133,000	$ 6,666,000
Brookley siding extension	Extend siding, new switches	$ 19,829,000	$ 21,553,000
Mobile Double Track	Extend double track, new crossovers, new switches	$ 66,073,000	$ 71,819,000
Mobile Staion	New station track	$ 10,578,000	$ 11,498,000
CSX Total		$ 385,076,000	$ 418,560,000
NS Total		$ 20,512,000	$ 22,295,000
Total		$ 405,588,000	$ 440,855,000

Rounded totals to nearest thousand

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: St. Johns Interlocker NSR, MP 5.2
Description of Work: New St Johns X-Overs and new track construction
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	393,800	393,800
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	536,980	536,980
RAIL AND OTM	9	Rail and other track material	1	LS	1,276,220	1,276,220
BALLAST	11	Ballast	1	LS	115,640	115,640
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	1,694,111	1,694,111
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	0	0
PROPERTY ACCOUNTS SUB-TOTAL						4,016,751
		Low Total @ 15% Contigency	4,016,751	@ 15%	602,513	4,619,000
		High Total @ 25% Contigency	4,016,751	@ 25%	1,004,188	5,021,000

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Material And Force Account Estimate

Location: Elysian Fields NSR, MP 7.0
Description of Work: New Elysian Fields X-Over, and new switch
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	462,800	462,800
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	1,536,800	1,536,800
RAIL AND OTM	9	Rail and other track material	1	LS	1,643,300	1,643,300
BALLAST	11	Ballast	1	LS	190,240	190,240
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	3,376,018	3,376,018
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	0	0
PROPERTY ACCOUNTS SUB- TOTAL						7,209,158

		Low Total @ 15% Contigency	7,209,158	@ 15%	1,081,374	8,291,000
		High Total @ 25% Contigency	7,209,158	@ 25%	1,802,290	9,011,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: Terminal Junction NSR, MP 7.6
Description of Work: New Terminal Junction X-overs
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	444,200	444,200
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	1,089,770	1,089,770
RAIL AND OTM	9	Rail and other track material	1	LS	926,500	926,500
BALLAST	11	Ballast	1	LS	130,960	130,960
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	4,018,794	4,018,794
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	0	0
PROPERTY ACCOUNTS SUB-TOTAL						6,610,224
		Low Total @ 15% Contigency	6,610,224	@ 15%	991,534	7,602,000
		High Total @ 25% Contigency	6,610,224	@ 25%	1,652,556	8,263,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: Gentilly Bypass MP 798.5 - 801.3
Description of Work: 13,300' new track construction with powered switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	8,828,000	8,828,000
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	72,000	72,000
CROSS/SWITCH TIES	8	Ties	1	LS	2,270,280	2,270,280
RAIL AND OTM	9	Rail and other track material	1	LS	5,418,120	5,418,120
BALLAST	11	Ballast	1	LS	861,040	861,040
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	9,676,840	9,676,840
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	744,000	744,000
PROPERTY ACCOUNTS SUB-TOTAL						27,870,280
		Low Total @ 15% Contigency	27,870,280	@ 15%	4,180,542	32,051,000
		High Total @ 25% Contigency	27,870,280	@ 25%	6,967,570	34,838,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: Michoud MP 790.8 - 793.2
Description of Work: Extend double track add 2 - #20 crossovers, and #20 powered switch
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	9,851,600	9,851,600
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	7,800,000	7,800,000
CROSS/SWITCH TIES	8	Ties	1	LS	1,703,050	1,703,050
RAIL AND OTM	9	Rail and other track material	1	LS	4,040,250	4,040,250
BALLAST	11	Ballast	1	LS	705,440	705,440
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	5,782,172	5,782,172
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	248,000	248,000
PROPERTY ACCOUNTS SUB-TOTAL						30,130,512
		Low Total @ 15%	30,130,512	@ 15%	4,519,577	34,650,000
		High Total @ 25%	30,130,512	@ 25%	7,532,628	37,663,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: Claiborne MP 766.3 - 761.8
Description of Work: Extend Claiborne add 2 - #20 crossovers, install new switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	15,738,240	15,738,240
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	19,295,200	19,295,200
CROSS/SWITCH TIES	8	Ties	1	LS	2,665,020	2,665,020
RAIL AND OTM	9	Rail and other track material	1	LS	5,321,060	5,321,060
BALLAST	11	Ballast	1	LS	932,600	932,600
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	6,511,313	6,511,313
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	204,000	204,000
PROPERTY ACCOUNTS SUB-TOTAL						50,667,433
		Low Total @ 15% Contigency	50,667,433	@ 15%	7,600,115	58,268,000
		High Total @ 25% Contigency	50,667,433	@ 25%	12,666,858	63,334,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: Nicholson MP 758.2 - 754.1
Description of Work: Extend Nicholson double track, install new switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION		QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS							
GRADING, ENGINEERING	3	Grading		1	LS	8,218,280	8,218,280
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts		1	LS	1,340,400	1,340,400
CROSS/SWITCH TIES	8	Ties		1	LS	2,043,370	2,043,370
RAIL AND OTM	9	Rail and other track material		1	LS	3,711,530	3,711,530
BALLAST	11	Ballast		1	LS	773,880	773,880
SIGNAL - COMPANY	27	Signal and Interlockers		1	LS	11,458,824	11,458,824
ROAD CROSSINGS	39	Public Improvements; Construction		1	LS	1,440,000	1,440,000
PROPERTY ACCOUNTS SUB-TOTAL							28,986,284
		Low Total @ 15% Contigency	28,986,284	@ 15%		4,347,943	33,334,000
		High Total @ 25% Contigency	28,986,284	@ 25%		7,246,571	36,233,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: Harbin Siding Ext MP 747.2 - 745.0
Description of Work: Extend Harbin siding, install new switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	3,189,960	3,189,960
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	244,800	244,800
CROSS/SWITCH TIES	8	Ties	1	LS	1,057,970	1,057,970
RAIL AND OTM	9	Rail and other track material	1	LS	1,544,430	1,544,430
BALLAST	11	Ballast	1	LS	269,960	269,960
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	5,111,098	5,111,098
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	186,000	186,000
PROPERTY ACCOUNTS SUB-TOTAL						11,604,218
		Low Total @ 15% Contigency	11,604,218	@ 15%	1,740,633	13,345,000
		High Total @ 25% Contigency	11,604,218	@ 25%	2,901,055	14,505,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: Beauvoir Double Track MP 737.4 - 730.3
Description of Work: Beauvoir double track, install new switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	19,028,080	19,028,080
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	2,738,400	2,738,400
CROSS/SWITCH TIES	8	Ties	1	LS	3,064,600	3,064,600
RAIL AND OTM	9	Rail and other track material	1	LS	6,304,500	6,304,500
BALLAST	11	Ballast	1	LS	1,392,320	1,392,320
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	11,302,438	11,302,438
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	682,000	682,000
PROPERTY ACCOUNTS SUB-TOTAL						44,512,338
		Low Total @ 15% Contigency	44,512,338	@ 15%	6,676,851	51,189,000
		High Total @ 25% Contigency	44,512,338	@ 25%	11,128,085	55,640,000

This is a "Shotgun" estimate, intended to provide a ballpark cost to determine whether a proposed project warrants further study. This estimate is not to be used for budget authority. This estimate is based on a conceptual design, without detailed engineering or site investigation. Quantities and costs are estimated using readily available information and experience with similar projects. Site conditions and changes in project scope and design may result in significant cost variance.

Material And Force Account Estimate

Location: New Fountainbleau Siding MP 716.4 - 713.9
Description of Work: New siding at Fountainbleau, install new switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION		QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS							
GRADING, ENGINEERING	3	Grading		1	LS	12,346,800	12,346,800
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts		1	LS	12,480,000	12,480,000
CROSS/SWITCH TIES	8	Ties		1	LS	1,710,000	1,710,000
RAIL AND OTM	9	Rail and other track material		1	LS	3,491,800	3,491,800
BALLAST	11	Ballast		1	LS	1,058,320	1,058,320
SIGNAL - COMPANY	27	Signal and Interlockers		1	LS	4,682,251	4,682,251
ROAD CROSSINGS	39	Public Improvements; Construction		1	LS	55,000	55,000
PROPERTY ACCOUNTS SUB-TOTAL							35,824,171
		Low Total @ 15% Contigency	35,824,171	@ 15%		5,373,626	41,198,000
		High Total @ 25% Contigency	35,824,171	@ 25%		8,956,043	44,780,000

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Material And Force Account Estimate

Location: Bayou Cassotte MP 704.3 - 702.7
Description of Work: New powered yard turnouts
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	296,600	296,600
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	237,020	237,020
RAIL AND OTM	9	Rail and other track material	1	LS	526,880	526,880
BALLAST	11	Ballast	1	LS	32,400	32,400
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	3,612,479	3,612,479
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	152,000	152,000
PROPERTY ACCOUNTS SUB-TOTAL						4,857,379
		Low Total @ 15% Contigency	4,857,379	@ 15%	728,607	5,586,000
		High Total @ 25% Contigency	4,857,379	@ 25%	1,214,345	6,072,000

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Material And Force Account Estimate

Location: St. Elmo Siding MP 688.1 - 687.4

Description of Work: Siding extension, new switches

*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs

Buy America

COMMENTS	PROP ACCT	DESCRIPTION		QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS							
GRADING, ENGINEERING	3	Grading		1	LS	3,220,000	3,220,000
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts		1	LS	0	0
CROSS/SWITCH TIES	8	Ties		1	LS	1,121,370	1,121,370
RAIL AND OTM	9	Rail and other track material		1	LS	1,594,330	1,594,330
BALLAST	11	Ballast		1	LS	313,840	313,840
SIGNAL - COMPANY	27	Signal and Interlockers		1	LS	4,855,511	4,855,511
ROAD CROSSINGS	39	Public Improvements; Construction		1	LS	62,000	62,000
PROPERTY ACCOUNTS SUB-TOTAL							11,167,051
		Low Total @ 15% Contigency	11,167,051		@ 15%	1,675,058	12,842,000
		High Total @ 25% Contigency	11,167,051		@ 25%	2,791,763	13,959,000

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Material And Force Account Estimate

Location: Theodore powered turnouts MP 679.2 - 672.5
Description of Work: New powered TO's for Ind Lead
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	303,200	303,200
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	266,460	266,460
RAIL AND OTM	9	Rail and other track material	1	LS	586,820	586,820
BALLAST	11	Ballast	1	LS	38,040	38,040
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	4,076,101	4,076,101
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	62,000	62,000
PROPERTY ACCOUNTS SUB-TOTAL						5,332,621
		Low Total @ 15% Contigency	5,332,621	@ 15%	799,893	6,133,000
		High Total @ 25% Contigency	5,332,621	@ 25%	1,333,155	6,666,000

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Material And Force Account Estimate

Location: Brookley Siding MP 672.6 - 671.8

Description of Work: Siding extension, new switches

*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs

Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	4,040,080	4,040,080
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	6,160,400	6,160,400
CROSS/SWITCH TIES	8	Ties	1	LS	1,049,550	1,049,550
RAIL AND OTM	9	Rail and other track material	1	LS	1,426,750	1,426,750
BALLAST	11	Ballast	1	LS	274,320	274,320
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	4,291,218	4,291,218
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	0	0
PROPERTY ACCOUNTS SUB-TOTAL						17,242,318
		Low Total @ 15% Contigency	17,242,318	@ 15%	2,586,348	19,829,000
		High Total @ 25% Contigency	17,242,318	@ 25%	4,310,580	21,553,000

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Material And Force Account Estimate

Location: Mobile MP 669.8 - 667.1
Description of Work: Mobile double track, new switches, new crossovers
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	13,216,200	13,216,200
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	14,200,000	14,200,000
CROSS/SWITCH TIES	8	Ties	1	LS	2,580,560	2,580,560
RAIL AND OTM	9	Rail and other track material	1	LS	5,681,340	5,681,340
BALLAST	11	Ballast	1	LS	854,400	854,400
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	20,702,484	20,702,484
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	220,000	220,000
PROPERTY ACCOUNTS SUB-TOTAL						57,454,984
		Low Total @ 15% Contigency	57,454,984	@ 15%	8,618,248	66,073,000
		High Total @ 25% Contigency	57,454,984	@ 25%	14,363,746	71,819,000

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Material And Force Account Estimate

Location: Mobile Station Track MP 667.1 - 666.5
Description of Work: Mobile station track, new switch, & station improvements
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	1,876,000	1,876,000
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	384,060	384,060
RAIL AND OTM	9	Rail and other track material	1	LS	918,860	918,860
BALLAST	11	Ballast	1	LS	164,840	164,840
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	5,586,788	5,586,788
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	268,000	268,000
PROPERTY ACCOUNTS SUB-TOTAL						9,198,548
		Low Total @ 15% Contigency	9,198,548	@ 15%	1,379,782	10,578,000
		High Total @ 25% Contigency	9,198,548	@ 25%	2,299,637	11,498,000

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Material And Force Account Estimate

Location: New Orleans MP 6.9 - 5.2
Description of Work: Terminal Junction Freight Lead extension, new switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	16,259,200	16,259,200
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	42,768,000	42,768,000
CROSS/SWITCH TIES	8	Ties	1	LS	1,278,800	1,278,800
RAIL AND OTM	9	Rail and other track material	1	LS	3,273,900	3,273,900
BALLAST	11	Ballast	1	LS	500,920	500,920
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	3,220,268	3,220,268
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	240,000	240,000
PROPERTY ACCOUNTS SUB-TOTAL						67,541,088

		Low Total @ 15% Contigency	67,541,088	@ 15%	10,131,163	77,672,000
		High Total @ 25% Contigency	67,541,088	@ 25%	16,885,272	84,426,000

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Material And Force Account Estimate

Location: Gulfport MP 739.5
Description of Work: Gulfport run around track, new switches
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	930,400	930,400
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	501,800	501,800
RAIL AND OTM	9	Rail and other track material	1	LS	1,193,400	1,193,400
BALLAST	11	Ballast	1	LS	77,560	77,560
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	9,247,286	9,247,286
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	240,000	240,000
PROPERTY ACCOUNTS SUB-TOTAL						12,190,446

		Low Total @ 15% Contigency	12,190,446	@ 15%	1,828,567	14,019,000
		High Total @ 25% Contigency	12,190,446	@ 25%	3,047,612	15,238,000

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Material And Force Account Estimate (Put in separate workbook)

Location: Biloxi Station MP 726
Description of Work: Biloxi station set out track
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	FACILITY	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	764,200	764,200
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	288,000	288,000
RAIL AND OTM	9	Rail and other track material	1	LS	672,440	672,440
BALLAST	11	Ballast	1	LS	73,800	73,800
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	5,900,844	5,900,844
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	230,000	230,000
PROPERTY ACCOUNTS SUB-TOTAL						7,929,284

		Low Total @ 15% Contigency	7,929,284	@ 15%	1,189,393	9,119,000
		High Total @ 25% Contigency	7,929,284	@ 25%	1,982,321	9,912,000

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Material And Force Account Estimate

Location: Pascaoula Station MP 705.7 - 705.4
Description of Work: Station track and switch
*Estimates based off RTC modeling info and CSXT/NSR provided track charts, crossing, and bridge logs
Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	923,800	923,800
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	144,000	144,000
CROSS/SWITCH TIES	8	Ties	1	LS	409,440	409,440
RAIL AND OTM	9	Rail and other track material	1	LS	728,300	728,300
BALLAST	11	Ballast	1	LS	94,000	94,000
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	5,214,528	5,214,528
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	372,000	372,000
PROPERTY ACCOUNTS SUB-TOTAL						7,886,068

		Low Total @ 15% Contigency	7,886,068	@ 15%	1,182,910	9,069,000
		High Total @ 25% Contigency	7,886,068	@ 25%	1,971,517	9,858,000

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APPENDIX C

Charles H. Banks

President

Since joining RLBA in 1985, Mr. Banks has focused on freight and passenger issues including railroad negotiations, strategic planning and evaluating the economics of financing the acquisition, expansion and rehabilitation of numerous short line and regional railroads, often assessing their potential viability as part of due diligence studies. He has examined the competitive economics of proposed unit train movements to industrial customers on many projects. He has provided strategic rail line evaluation and acquisition counsel to more than two dozen agency public sector, passenger rail clients in: 1) evaluating alternative rail line shared use access arrangements; 2) devising rail line acquisition and negotiation strategies; 3) coordinating, managing or conducting rail line real property, rail asset and/or going concern valuations and title research and 4) drafting/negotiating Letters of Intent, Interim Use/Construction, Operating Rights, Purchase/Sale and Sidetrack Agreements in connection with new-start commuter and light rail projects.

Education
MBA, University of Pennsylvania, Wharton School of Business, 1977

BA Economics, Haverford College, 1974

Professional Affiliations
Transportation Research Forum

Transportation Experience
46 Years

Expertise
Service Planning
Shared Use Planning
Railroad Economics
Feasibility
Railroad Negotiations
Strategic Planning
Railroad Acquisitions

Relevant Project Experience

- ***Cross Bay Transit Partners (A Joint Venture between Facebook Inc. and Plenary Group)*** Served as Principal-In-Charge regarding helping Facebook select a favored mode of transportation to be employed on the Dumbarton Rail Corridor – a new crossing of the South San Francisco Bay between Redwood City, CA and Newark, CA. Throughout the project, oversaw RLBA's contributions including: 1) simulations of multiple, potential commuter rail scenarios to test the ability of various equipment and services plans to meet desired service levels; 2) guidance regarding vehicle selection supporting potential commuter and light rail services on the Corridor and 3) strategic negotiation counsel to secure access and enter into operating agreements to introduce commuter rail service either on or in existing, operational rail rights-of-way hosting freight rail operations.
- ***Ramsey County Regional Rail Authority (RCRRA)*** Presided over RLBA's involvement as a subcontractor to Mortenson Construction of the renovation and rehabilitation of the former Saint Paul Union Depot, now the Minnesota Union Depot, and the relocation of the Amtrak station and Empire Builder service from its current location in the Midway. Was responsible for maintaining clear and continuous coordination among the station designers, Amtrak and affected Class I (BNSF Railway, Canadian Pacific and Union Pacific), regional and short-line railroad operators. Oversaw RLBA's contribution in the following areas: 1) determination of how to connect the proposed Amtrak platform tracks to the adjacent Union Pacific mainline track; 2) determination of how the Amtrak Empire Builder service would be routed into and out of the station; 3) identification of any operational issues that need to be addressed to allow Amtrak to provide service to Minnesota's Union Depot; 4) identification of any engineering, signaling, and communication issues that need to be addressed to allow Amtrak to provide service; 5) determination of what services and functions Amtrak will transfer from the existing Amtrak facility at Midway station to Minnesota's Union Depot and 6) reporting to RCRRA and the rest of the Mortenson team any concerns or issues raised by the railroads as the project proceeded.
- ***Amtrak*** Assisted in developing a proposal responding to a Request for Proposal (RFP) to select a contractor to operate Caltrain commuter service between San Francisco and Gilroy, California. Worked as an extension of Amtrak staff, on location at Amtrak's Philadelphia headquarters, embedded into its Policy and Development Department.

- ***Amtrak*** Helped a prime consultant respond to Section 11206 of the December 2015 FAST (Fixing America's Surface Transportation) Act, by assisting the Stakeholder Outreach portion of a project to develop and recommend independent and objective methodologies for Amtrak to use in determining what intercity passenger routes and services in will provide in the future, including the establishment of new routes and stations, the elimination of existing routes and the contraction or expansion of services or frequencies over such routes and reviewing and commenting on the project's draft report.
- ***Virginia Railway Express (VRE)*** Managed RLBA's provision of on-call Economic and Operations Consulting Services. Led several railroad right-of-way Alternative Access Arrangement Seminars examining the economics of acquiring the Norfolk Southern rail line over which some VRE trains operate and analyzed the economics of various types of coaches deployed in U.S. commuter rail services, which analysis supported the exercising of an option to acquire VRE's first bi-level coaches. Sponsored Verified and Rebuttal Verified Statements to inform the STB as to the adverse impacts on VRE service of granting the absorption of Conrail by CSXT and NS.
- ***Central Florida Commuter Rail Authority*** Inventoried existing and planned CSX through freight and Amtrak intercity trains and interviewed local CSX customers to ascertain the likely density of freight train operations in the vicinity of Orlando. Worked with others to examine and communicate alternative construction, routing and other operational means to limit disruption to freight operations while securing enough access to operate passenger services within the same right-of-way or on the same tracks.
- ***Florida Department of Transportation*** Assisted the state in its negotiation with CSX to institute a commuter rail service in central Florida (Orlando). Oversaw: 1) a valuation of a perpetual easement underlying prospective operation of the regional passenger rail service; 2) a maintenance of way and dispatching primer; 3) a review of the freight railroad's operating plan to facilitate initiation of new passenger rail service; 4) a review of the precedents and recommendations with regard to track use, maintenance of way and dispatching fees, in negotiated access agreements between commuter rail and freight rail carriers; 5) a narrative summary of commuter and freight rail operations and 6) a valuation of the freight railroad's main line infrastructure. This effort included contacting numerous commuter rail operations to obtain copies of their agreements with freight railroads and to generate other necessary data, as well as preparation of a spreadsheet model which incorporated access fees negotiated by other commuter rail properties and discounting them to a net present value.
- ***Pennsylvania Department of Transportation*** In connection with the potential acquisition the entire Keystone Corridor between Philadelphia and Harrisburg, profiled all the major functions of a regional rail system and classified them as activities which would be the responsibility of a system's owner, operator or manager. Analyzed the types of organizations which own, operate and manage such systems throughout the U.S. and examined the appropriateness of those institutional arrangements to Keystone Service trains.
- ***The New York State Senate Task Force on High Speed Rail*** Project managed a team of six firms across multiple activities related to the potential acquisition of CSX right-of-way between Poughkeepsie and the Capital District including: real estate appraisals of CSX corridor property; inventory and valuation of the subject track and facilities; a Phase I environmental assessment; quantification of the business impacts associated with a prospective transaction; a review of legal and institutional alternatives associated with a potential purchase and analysis of all delays to Empire service trains. The corridor is 85 miles in length, hosts thirteen daily roundtrip Amtrak Empire service trains between New York City and Rensselaer, New York and operates over Metro North Railroad and CSX tracks.
- ***North Carolina Department of Transportation*** Directed efforts of the firm in developing negotiation options and drafting agreement text re to improve intercity rail passenger service. Areas addressed included increasing speed, track improvements and maintenance cost allocation.
- ***Riverside County Transportation Commission*** Project Manager of the Western Riverside County Commuter Rail Feasibility Study, which contemplated Southern California Regional Rail Authority (Metrolink) extensions in five major freight corridors over which both Union Pacific Railroad and BNSF Railway operate. Oversaw all aspects of this major commuter rail study examining ridership, operations and costs to determine the feasibility of service implementation.

APPENDIX D

Larry R. Guthrie
Director – Operations and Service Planning

Prior to working with RLBA, Mr. Guthrie held various operational, engineering, and managerial positions in the Operations, Strategic Planning and Finance Departments spanning four decades with Norfolk Southern Corporation and its predecessor, Norfolk & Western Railway. After a successful career at NS, Mr. Guthrie joined TÜV Rheinland Mobility as a full-time consultant to provide analytical, assessment, certification, and planning services to the rail industry. He joined RLBA in 2019 to provide capacity, planning, financial analysis, industrial engineering, efficiency, safety, and technical certification services, specializing in resolving rail operations and accident prevention issues.

Education
BAS, Management of Technology, Southern Polytechnic State University, Marietta, GA, 2001 (Graduated summa cum laude)

AAS Electrical/Electronic Engineering Technology, Virginia Western Community College, Roanoke, VA, 1976

Professional Registrations and Affiliations
International Association of Railway Operating Officers

FRA Designated Supervisor of Locomotive Engineers – NS

Institute of Industrial Engineers (IIE)

Six Sigma Green Belt – Six Sigma Canada

Supply Chain Management – University of Tennessee

Lean - IIE

Transportation Experience
52 Years

Expertise
Service Planning
Capacity Planning

Relevant Project Experience

- ***NCRR RTC Capacity Analysis*** – Modeled proposed operations on the NCRR, using Rail Traffic Controller (RTC) software, to identify and recommend track infrastructure necessary to facilitate passenger train service between Charlotte and Selma, North Carolina without degrading existing freight service.
- ***BNSF Metra Kendall Extension Project 14th Street Yard Capacity Study*** – (On-going) Constructed a proprietary model to analyze yard capacity to determine and recommend additional track infrastructure requirements in Chicago necessary to handle increased Metra commuter train volumes from a proposed western terminus west of Aurora IL into Chicago Union Station.
- ***Energy Transfer Partners Dakota Access Pipeline Shutdown –*** Provided an expert opinion on the North American Rail systems' ability to handle a quick, significant spike in crude by rail (CBR) volumes should the Dakota Access Pipeline be shut down due to a court order by failing to comply with an environmental review. Analysis included a review of available rolling stock capable of handling crude oil, current congestion on rail infrastructure and the likely outcome of the pipeline's volumes being displaced on the national rail network.
- ***Burlington Northern Santa Fe v. CN Arbitration -*** (On-going) Provided expert witness support in the form of a report submitted to a national arbitration panel on behalf of a BNSF Railway that was seeking changes in the operating practices of Canadian National railroad because of the discriminatory results the latter's practices had on the former's commercial business. The report included a history of rail operations and regulatory influences, an analysis of rail operations before and after new practices were established and impacts of the practices on BNSF business.
- ***MARTA Clifton Corridor and Clayton County Rail Projects -*** Recommended commuter rail planning, coordination and negotiating strategies to MARTA senior management to facilitate acquisition or operating rights on railroad rights of way.
- ***Winamac Southern Railroad Company v. Irving Materials, Inc.*** – Provided expert witness support, deposition, and testimony on behalf of defendant Irvin Materials in a civil case involving damages by defendant to a railroad overhead bridge on plaintiff's right of way.

- ***New York City Economic Development Corporation (NYCEDC)*** - Built a capacity analysis model and determined the annual throughput capacity of the 65th Street Yard in Brooklyn, NY, a NYCEDC-owned facility.
- **Murex LLC v. Bridger Rail Shipping LLC Mediation** – Provided expert witness support, deposition, and hearing testimony on behalf of plaintiff Murex LLC for dispute over nonpayment for alleged defective tank cars leased by Murex to Bridger Rail.
- ***Port of Vancouver Energy Facility Site Evaluation Council (EFSEC) Review*** - Provided analytical risk assessment report and hearing testimony to EFSEC members recommending track improvements to reduce the safety risks during proposed unit coal, crude oil, and grain unit train deliveries.
- ***Dawn Wilson, Estate of James A. Hawkins v. Donald D. Hawkins*** – Provided accident analysis, expert witness support, and deposition testimony on behalf of defendant Donald D. Hawkins in civil case involving a fatality while switching railcars in an industry.

Prior Work Experience

TÜV Rheinland Mobility ***2011-2018***

- ***Director Operations Analysis***
  Managed five, in-house engineers and three, external consultants providing analytical, assessment, certification and planning services to the rail industry utilizing computer simulation, process improvement techniques and applied engineering methods to improve safe and efficient train operations, capacity planning, derailments, and accident investigations in compliance with standards, regulations and directives issued by DOT, TC, PHMSA, FRA, AAR, CENELEC, GCOR, NORAC, and other regulatory entities. Evaluated designs, certified processes, recommended solutions, published reports, and provided expert witness services to various clients.

Norfolk Southern Corporation ***1994-2010***

- ***Manager Industrial Engineering - Planning & Technology Department, 2000-2010***
  Supervised seven engineers and logistics specialists in the Industrial Engineering/Operations Research group providing internal/external consulting services to the Transportation, Engineering, Mechanical, Finance, Strategic Planning, and other Departments. Services included process improvement and cost reduction at both NS and its customers, using MS Project used to manage group performance, costs, schedules, and deadlines.

- Simulated future train operations on the Heartland and Crescent Corridors, NCRR, Amtrak, and potential P3-funded projects to support strategic planning utilizing Berkeley Simulation's Rail Traffic Controller (RTC) modeling software to determine most cost effective equipment and infrastructure combinations to handle traffic forecasts. Simulated current train operations using TPS/TOS/TOES to determine stopping distances, signal locations, trailing tonnage restrictions, train handling procedures, train make-up, fuel consumption, and facts relevant to train derailment/accident investigations.

Norfolk & Western/Norfolk Southern Corporation ***1969-1994***

- ***Road Foreman, Regional Road Foreman, General Road Foreman – System, 1983-1994***

Norfolk & Western Railway

- ***Production Scheduler/Systems Engineer – Mechanical Department, 1976-1983***

- ***Electrician –Roanoke Shops – Mechanical Department, 1969-1976***

EXHIBIT 3

BEFORE THE
SURFACE TRANSPORTATION BOARD
DOCKET NO. FD 36496

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORPORATION UNDER 49 U.S.C. § 24308(e) – CSX TRANSPORTATION, INC. AND NORFOLK SOUTHERN CORPORATION

CSX TRANSPORTATION, INC. AND NORFOLK SOUTHERN RAILWAY COMPANY'S JOINT OPENING EVIDENCE

JOINT VERIFIED STATEMENT OF
HANNAH ROSSE AND HOLLY SINKKANEN

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I. INTRODUCTION

Our names are Hannah Rosse and Holly Sinkkanen. We are, respectively, the former Director of Service Measurements and Network Modeling for CSX Transportation, Inc. ("CSXT"), and the Manager Strategic Capacity for Norfolk Southern Railway Company ("NSR"). Together, we were responsible for providing R.L. Banks & Associates and HNTB Corporation ("RTC Modelers") the freight service data and other inputs needed to conduct a Rail Traffic Controller ("RTC") modeling study of the proposed passenger service between New Orleans, Louisiana and Mobile, Alabama ("2021 Gulf Coast RTC Model" or the "Model"). We also validated the 2021 Gulf Coast RTC Model's construction and outputs throughout the modeling process. This verified statement explains the information that we provided to the RTC Modelers for their study of the proposed passenger service, describes the specific data inputs and assumptions that went into the Model, and details the different cases that the Model examines to measure the impact of Amtrak's proposed new Gulf Coast passenger service. As discussed below, the approach taken by the RTC Modelers is consistent with general practice for RTC modeling and with how both CSXT and NSR conduct RTC modeling in the ordinary course of business.

II. BACKGROUND AND QUALIFICATIONS

A. Hannah Rosse

My name is Hannah Rosse. Until recently, I was the Director of Service Measurements and Network Modeling for CSX Transportation, Inc. I held that position from July 2017 until September 17, 2021, when I resigned after the birth of my son. My tenure at CSXT spanned more than eight years and I served in a variety of modeling and analytical positions in the Network Modeling and Service Measurements department. At present, I am serving in an expert consulting

capacity for CSXT. I hold a Bachelor of Science in Statistics and a Masters of Science in Management from the University of North Florida.

My network modeling experiences include a variety of projects. I regularly performed RTC modeling to support internal CSXT projects, including projects to evaluate the effectiveness of infrastructure options for constrained corridors and projects to examine the effects of operational changes like alternative crew change locations and directional running. I also supported multiple operations modeling studies evaluating passenger service, in coordination with passenger and commuter agencies including DC2RVA, MARC, and Tri Rail. In addition, I contributed to RTC modeling efforts in two proceedings before the Surface Transportation Board: *Total Petrochemicals & Refining USA, Inc. v. CSX Transportation, Inc.*, Docket No. NOR 42121 and *Consumers Energy Company v. CSX Transportation, Inc.*, Docket No. NOR 42142.

B. Holly Sinkkanen

My name is Holly Sinkkanen. I began my career with Norfolk Southern Railway Company in 2004 as a train dispatcher and assistant chief dispatcher in Harrisburg, Pennsylvania. I was promoted in 2015 into the Industrial Engineering group as a Capacity Planning Specialist/Analyst, and I am currently the Manager Strategic Capacity based out of Atlanta, Georgia. I hold a Bachelor of Arts in Social Sciences with an Education Concentration from Ashford University.

Since joining the Industrial Engineering group, I have used RTC simulation models to complete a variety of projects. I perform RTC modeling to identify and recommend infrastructure and process solutions for NSR network capacity constraints. I also use RTC to evaluate the impacts of operational changes, such as speed increases, fueling location changes, running longer trains, and track removal.

I have conducted multiple RTC passenger service studies evaluating new and alternative station locations, and new or increased passenger train frequency.

III. DATA AND OTHER INPUTS PROVIDED BY CSXT AND NSR

Prior to the commencement of this proceeding, CSXT, NSR, and Amtrak entered into an RTC Study Agreement and engaged HDR Engineering, Inc. ("HDR") to conduct an RTC study beginning in early 2020. HDR was tasked with analyzing the freight operations between New Orleans and Mobile, determining whether existing capacity could accommodate freight service over a 20-year horizon, and assessing the impact of Amtrak's proposed Gulf Coast service on the quality and provision of freight service. The purpose of this study was to determine whether any additional infrastructure was needed to reasonably accommodate the requested passenger service without degrading freight service. The RTC Study Agreement's one-year term expired in January 2021 before the study's completion. Amtrak terminated the study and declined to allow CSXT and NSR to pay for and complete the study as originally intended by all parties.

CSXT and NSR engaged HNTB and R.L. Banks to perform the RTC study that Amtrak refused to let HDR complete. The Data Sharing Agreement between CSXT, NSR, and Amtrak prevented the RTC Modelers from using any of HDR's work product. However, CSXT and NSR provided the RTC Modelers with all the original data and inputs needed to develop a comprehensive RTC study of the impact of Amtrak's proposed service. In this section, we describe the respective data provided to the RTC Modelers by the freight railroads.

A. Physical Network and Train File

NSR provided the RTC Modelers a current RTC network file for New Orleans Terminal Junction ("NOT Jct.") (sometimes referred to as Elysian Fields) to New Orleans Union Passenger Terminal ("NOUPT") as well as track charts and

timetables that reflected the network as it existed in 2019. More specifically, NSR defined the study area to include New Orleans Terminal from East Bridge Junction to Oliver Yard and Meridian to New Orleans (or NO/NE) from Oliver Yard to X-Tower. Likewise, CSXT provided the RTC Modelers with RTC infrastructure files as well as current timetables for the New Orleans to Mobile ("NO&M") and Mobile to Montgomery ("M&M") subdivisions that reflected the network and operations in 2019. CSXT defined the study area to include Gentilly Yard east of NOT Jct. and its facilities past Mobile to Montgomery. It is important to include portions of a railroad's network beyond the precise area of focus to capture trains entering and exiting the studied corridor and to evaluate whether there are any unique challenges or features of the line just beyond that studied corridor that may be impacting results.

NSR provided the RTC Modelers with traffic data for the period from September 2019 to November 2019. CSXT provided the RTC Modelers with traffic data for the period from October 2019 to November 2019. This was the same timeframe and the same data that was utilized for the 2020 HDR study. At the start of that study, Amtrak had recommended using traffic data for October 2019 through December 2019. CSXT and NSR agreed to provide up to three months of data, even though that was a longer timeframe than would ordinarily be used in an RTC study. However, the freight railroads shifted the window back one month because December is a "peak season" due to the holidays and is therefore not representative of normal freight operations. We would note that the Model does not replicate the traffic data for an exact set of dates. Rather, the RTC Modelers used the traffic data to develop a two-week data set that reflects typical operations during that period.

CSXT's traffic data for the October 2019 to November 2019 timeframe consisted of train schedules, actual train performance against those schedules, control point data, and dispatcher data. CSXT identified the locomotive types used

on the New Orleans to Mobile corridor and instructed the RTC Modelers to use a one (1) horsepower per ton ratio for CSXT freight trains. This methodology is consistent with how CSX conducts internal studies. CSXT also provided descriptions of non-standard train movements on the line. On the CSXT network, there was a maintenance-of-way ("MOW") "megablock"[1] for a portion of the selected timeframe. The train schedules impacted by this MOW work were excluded, because those were temporarily adjusted schedules that did not reflect normal operations. Similarly, NSR provided train movement data including historical on-network times, train schedules, historic engine and train consists, crew on-duty times, and a narrative description of how trains should be routed in the network and how they work. NSR also provided a file that documented one week of observed foreign train movements on the line, including on-network times, routing, and dwell. The categories of 2019 data provided by CSXT and NSR are consistent with the data that would be used internally to develop a physical network and train file.[2]

B. Movable Drawbridges

The RTC Modelers were provided with bridge tender logs from September 2019 to November 2019. Movable drawbridges are typically left in the last position (open or closed) to minimize wear and tear. Therefore, vessel counts derived from the bridge tender logs were used as the basis for determining the number of openings for each bridge in the model. Certain drawbridges require bridge tenders to hi-rail to and from the drawbridge operation point. The routes and timing of

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[1] A megablock is a period of time when normal train operations are temporarily suspended to allow for concentrated resources (*i.e.*, multiple tie/rail replacement teams) to maintain track and signal infrastructure. Megablocks can last for a limited period of time (*i.e.*, 6–12 hours per day), or for a few days to several weeks.

[2] All the data provided to the RTC Modelers is included in the workpapers supporting the 2021 Gulf Coast RTC Model.

these hi-rail movements were provided verbally to the RTC Modelers by CSXT field personnel and incorporated into the model. This methodology is consistent with how CSXT conducts internal RTC studies.

C. Maintenance-of-Way Windows

CSXT and NSR reached a consensus that routine maintenance should be included in the RTC model to more accurately depict the congestion on the line, particularly in Mobile and New Orleans. CSXT and NSR provided guidance to the RTC Modelers for routine maintenance parameters. The inclusion of regularly scheduled maintenance-of-way windows in the 2021 Gulf Coast RTC Model is consistent with CSXT's internal modeling practices.

D. Yard Train Switching Operations on the Mainline

Yard work such as switching is often not incorporated into an RTC model because those operations do not consume mainline capacity. However, NSR switching operations at Oliver Yard and CSXT switching operations at Sibert and Gentilly Yards require the use of mainline track. NSR provided narrative data and CSXT provided dispatch data concerning these respective switching operations so that the RTC Modelers could model their impact on traffic in the corridor. For the CSXT operations, the RTC Modelers identified the yard moves on the mainline from the dispatch data and confirmed with CSXT that the identified data reflected actual operations.

E. Passenger Service and Operations

CSXT and NSR provided the RTC Modelers with the proposed passenger schedule attached as Appendix A to Amtrak's Application in this proceeding. The RTC Modelers were instructed to use the station locations between New Orleans and Mobile that were set forth in the Gulf Coast Working Group's 2017 Report to

Congress and the passenger train consist details provided by Amtrak in discovery. Amtrak also provided during discovery details concerning its plan to occupy the CSXT mainline at the Mobile station for approximately 15 minutes both before its scheduled departure time and after its scheduled arrival time, and to operate 15-minute deadhead moves between the Mobile station and Choctaw Yard before each departure and after each arrival. These Mobile operations were incorporated into the 2019 Passenger Case and 2039 Passenger Case.

For existing Passenger trains operating in the New Orleans area, the 2019 schedules were used for the 2019 Base Case, and updated schedules were used for the 2039 Base Case. Across all cases, passenger trains were assumed to always depart their origin stations on time, and station dwell times were assumed to be two minutes with no randomization. Passenger trains were given priority in the Model and sidings were coded to limit the Model from assigning passenger trains into a siding to allow freight trains to pass. These assumptions are consistent with the level of priority that Amtrak has indicated that it expects host railroads to provide and with how CSXT and NSR conduct internal studies.

IV. DEVELOPMENT OF THE 2021 GULF COAST RTC MODEL

The RTC Modelers developed several cases to model the impact of the proposed Gulf Coast service requested by Amtrak. The model includes four standard cases that CSXT and NSR would use in the ordinary course of business to measure the impact of additional passenger service and potential infrastructure to accommodate such service. First, the RTC Modelers developed a 2019 Base Case to validate model inputs, network operations, and infrastructure in the control year. Second, the RTC Modelers developed a 2039 Base Case that modeled operations 20 years into the future from the control year and which took into consideration anticipated freight growth for the two freight railroads. Third, passenger trains

were added to the 2039 Base Case based on the proposed schedules attached to Amtrak's Application in this proceeding. This case is known as the 2039 Passenger Case. Fourth, infrastructure projects were added to the 2039 Passenger Case to mitigate the degradation of freight service caused by the introduction of passenger trains and meet Customer on-time performance ("OTP") requirements. This is known as the 2039 Build Case.

These four cases would be the sum total of a modeling exercise under normal circumstances. However, Amtrak's position that passenger service should begin in January 2022 without any additional infrastructure prompted the creation of two additional cases. The RTC Modelers developed a 2019 Passenger Case, in which Amtrak trains were added to the 2019 Base Case according to the proposed schedule provided by Amtrak to determine whether any freight degradation would be experienced if the Gulf Coast service began immediately.[3] Then the RTC Modelers developed a 2019 Build Case where a subset of the 2039 Build Case infrastructure projects was applied to the 2019 Passenger Case to mitigate the degradation of freight service caused by the introduction of the new passenger service.[4]

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[3] Limiting a modeling effort to only evaluating the introduction of passenger service in the present is unreasonable. If there is any infrastructure that would have to be constructed in order to mitigate against adverse impact to the freight rail system, that infrastructure would have to go through the normal process of engineering, environmental review, funding, and construction. This process takes time and does not lend itself to a hurried commencement of service. Further, introduction of passenger service assumes the continuation of that service for a period of years or decades, and the introduction of that service in, for example, calendar year 2022 may have an adverse impact on freight rail service ten, fifteen, or twenty years down the line. Failing to evaluate and account for that adverse impact is tantamount to ignoring it.

[4] The RTC Modelers also performed several additional illustrative cases: (1) a 2039 FRA Case measuring 2039 freight and passenger train performance assuming construction of the projects recommended by the FRA in the 2017 Gulf Coast

In order to assess the impact of the proposed passenger service on freight service, several RTC output metrics were used to evaluate the various cases in the 2021 Gulf Coast RTC Model: delay minutes per 100 train miles, train speed, variability, recrews, and dispatcher conflicts. With the exception of variability, these metrics are consistent with modeling practices at CSXT and NSR. All-station OTP—used as a proxy for Customer OTP since customer data was not provided by Amtrak for use in the 2021 Gulf Coast RTC Model—and end-point OTP were used to assess passenger performance in the study. The target for Customer OTP was set at 95% because an RTC model does not consider all variables in train operations such as weather events, unexpected maintenance, and derailments. All the metrics listed above were used to compare the following cases against one another:

- 2039 Base Case vs. 2039 Passenger Case
- 2039 Base Case vs. 2039 Build Case
- 2019 Base Case vs. 2019 Passenger Case
- 2019 Base Case vs. 2019 Build Case

In the subsections that follow, we discuss the development of the various cases within the 2021 Gulf Coast RTC Model and certain important assumptions for those cases.

Working Group Report to Congress; (2) a 2039 FRA Adjusted Case measuring 2039 freight and passenger train performance assuming construction of the projects recommended by the FRA in the 2017 Gulf Coast Working Group Report to Congress except for those FRA-proposed projects that were infeasible or required approval outside the control of CSXT and NSR; (3) a 2039 Build Case With No Bridge Openings illustrating that on-time performance improves to almost 99% when the unpredictability of drawbridge openings are eliminated; and (4) a 2039 Passenger Only Case determining the performance of passenger service alone without freight service but with 2039 bridge openings.

A. 2019 Base Case

CSXT and NSR advised the RTC Modelers to use 2019 as the Base Case year for two reasons. First, HDR relied on data from September 2019 to November 2019 to develop its base case during the 2020 joint study. Second, 2020 traffic data would not present a realistic picture of typical freight operations given the unique economic and operational circumstances that accompanied the COVID-19 pandemic and related restrictions.

The RTC Modelers modeled a series of other variables associated with freight traffic in addition to the physical network and traffic data. The following variables were all randomized based upon their respective, fitted distribution lines[5]: entry times, scheduled dwell times, scheduled origin departure times, train length, train-on-duty times (NSR only), and train tonnage. Uniform and/or triangle distributions were selected for each variable, each train, and each location.

Drawbridge openings and regularly scheduled maintenance-of-way (but not programmed maintenance-of-way) windows were incorporated into the 2019 Base Case as described in Part IV. All at-grade road crossings were permitted a maximum blockage time of 20 minutes. The 20-minute cap was selected for several reasons. First, CSXT and NSR strive to restrict blocked crossing events to less than 20 minutes in the ordinary course of business. Second, the Federal Railroad Administration has focused on the need to limit extended blocked crossings, and specifically asked the public to report to the FRA instances when crossings are blocked for more than 20 minutes. CSXT and NSR agreed that this methodology is appropriate, and it represents a consensus approach that is consonant with how both railroads conduct internal studies.

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[5] A fitted distribution line is a theoretical distribution line that is derived using parameter estimates from a sample.

CSXT and NSR both validated the RTC Modelers' 2019 Base Case as to their respective portions of the New Orleans to Mobile corridor. Both railroads observed simulations of the 2019 Base Case and collected information from personnel in the field, which led to adjustments in the model inputs or the coding of train movements to better reflect 2019 operations. These adjustments were made to various aspects of the model including train routing, randomization, dwell, bridge openings, and re-crews. CSXT and NSR agree that the 2019 Base Case accurately reflects "present day" operations for both railroads in 2019.

B. 2039 Base Case

The 2039 Base Case reflects anticipated freight operations 20 years after the control year of 2019. To create the 2039 Base Case, the RTC Modelers started with the 2019 Base Case and incorporated any funded infrastructure improvements planned by CSXT and NSR to support freight service. CSXT disclosed to the RTC Modelers four planned siding improvements east of Mobile in the direction of Montgomery. Although these improvements are not on the New Orleans to Mobile corridor that Amtrak proposes to operate over, these four projects are in close enough proximity to Mobile that their presence will impact congestion and capacity on the Gulf Coast service route. NSR advised the RTC Modelers that the southeast connection at NE Tower would be reinstated upon completion of the Florida Avenue canal project.

To forecast economic growth over the 20-year period, CSXT consulted with its internal commercial department and with customers along the proposed route. CSXT used the data collected and applied it at the train profile level for merchandise and local traffic and submitted this information to the RTC Modelers. The RTC Modelers then evaluated the projected volumes data provided by CSXT for the Gulf Coast corridor and calculated an annual growth rate in merchandise traffic

that best reflected CSXT's projected freight growth. Both CSXT's (and NSR's) anticipated growth for the Gulf Coast corridor was less than 1.5%, which we were told by the RTC Modelers is conservative compared to the 2% annual growth mentioned in the FRA's 2005 Rail Corridor Transportation Plans, A Guidance Manual, and is used in other passenger train studies.

Consistent with CSXT's expected approach to manage that volume growth, CSXT instructed the RTC Modelers to model that additional traffic by increasing train lengths rather than adding additional freight trains to the corridor. Forecasted growth for yard train switching that utilizes mainline capacity was also incorporated with (a) additional "doubling over" movements, and (b) using the same growth forecast applied to merchandise trains. In other words, the impact of forecasted growth on yard train switching operations was modeled by increasing the frequency of switching trains coming out onto the mainline because the size of the yard tracks is static such that the train cuts cannot be increased. This is consistent with standard CSXT methodology.

To forecast economic growth over 20 years, NSR consulted with its internal Commercial Planning and Network Planning groups to determine projected carload volumes for 2040. NSR converted these projected carload volumes to train start growth and provided anticipated train start data to the RTC Modelers. The RTC Modelers then evaluated the train start growth data provided by NSR and calculated an annual growth for the Gulf Coast corridor for merchandise traffic that best reflected NSR's internal projections. Consistent with NSR's expected approach to manage that volume growth on this line, NSR instructed the RTC Modelers to model that additional traffic by scheduling new trains while holding train lengths constant. RTC Modelers also modeled the impact of forecasted growth on yard train switching operations out of NSR's Oliver Yard by increasing the frequency of

switching trains coming out onto the mainline. As explained above, both CSXT and NSR's anticipated growth was conservatively estimated at less than 1.5% annually.

In addition to the forecasting of freight growth, the RTC Modelers and NSR determined that it was pertinent to update the Crescent schedules to align with schedule changes that had occurred since 2019. These Crescent schedule changes prompted a need for adjustments to NSR trains in New Orleans to eliminate freight-passenger conflicts. Accordingly, NSR provided the RTC Modelers with guidance on which freight train schedules to modify in the model. The 2039 Base Case is an accurate representation of anticipated NSR operations in 2039 with internal growth projections layered on the 2019 Base Case volumes and adjustments made to accommodate the updated Crescent service.

The RTC Modelers also modeled projected growth of vessel traffic over the 20-year forecast period because changes in vessel traffic impact the frequency and duration of movable drawbridge openings. Specifically, the RTC Modelers used publicly available data from the United States Department of Transportation's Freight Analysis Framework to forecast growth in the modeled area. This methodology is consistent with how CSXT conducts internal studies.

C. 2039 Passenger Case

Passenger trains were added to the 2039 Base Case in accordance with Amtrak's proposed schedule and the other parameters outlined earlier in this verified statement. The purpose of the 2039 Passenger Case is to determine the impact of the proposed Amtrak service on the forecasted freight operations. The added passenger service created significant congestion to the line, causing the 2039 Passenger Case to consistently fail.

The RTC Modelers' analysis of the 2039 Passenger Case's failure indicated that the inability to stop trains on public crossings was limiting hold locations for

freight traffic. To test this theory, the RTC Modelers increased the hold-time limits on crossings to allow freight trains to block crossings for an extended period far beyond what CSXT and NSR would consider reasonable. With blocked crossing restrictions loosened in this matter, the 2039 Passenger Case was able to dispatch but still caused significant freight service delays. The blocked crossing variation of the 2039 Passenger Case highlights that the added passenger service is detrimental to future freight operations and would have a significant impact on the public.

D. 2039 Build Case

To develop the 2039 Build Case, the RTC Modelers identified in the 2039 Passenger Case the locations of train conflict and other sources of delay, such as drawbridges, and developed projects to mitigate those conflicts. To aid the RTC Modelers in this effort, NSR provided Geographic Information Systems ("GIS") file polylines,[6] design standards, and permitting and constructability issues for use in determining projects. CSXT provided design standards, permitting, and constructability issues to the RTC Modelers for use in determining projects. Grade crossing closures or separations were not considered for the study since they require acquisitions and buy-in from external stakeholders. And as noted above, the 2039 Build Case factored in (1) the extensions of four sidings between Mobile and Montgomery that will be constructed by and at the expense of CSXT and (2) the extension of a fifth siding near Montgomery for the purpose of resolving modeling constraints in Montgomery. Further study of Montgomery may reveal that this fifth siding extension is not necessary given that Montgomery was on the periphery of the study corridor and therefore not comprehensively modeled.

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[6] GIS polylines were provided for track centerlines and points for crossings, switches, bridges, joints, mileposts, signals, signs, stations, derails, and diamonds.

In order to identify for removal infrastructure projects that would be too expensive, difficult, or infeasible to construct, CSXT and NSR provided a high-level feasibility analysis and identified changes in operations that would occur based on and as a result of the various projects identified by the RTC Modelers. In some instances, the freight railroads recommended that the RTC Modelers consider specific projects that were thought to have a substantial impact on reducing freight delays while contributing to strong OTP metrics. However, the RTC Modelers did not incorporate all recommended projects provided by CSXT and NSR into the 2021 Gulf Coast RTC Model. The RTC Modelers developed a set of infrastructure projects that represents one possible solution to the freight service degradation seen in the 2039 Passenger Case. The 2039 Build Case is an accurate representation of anticipated CSXT and NSR operations in 2039.

E. 2019 Passenger Case

In the ordinary course of business, CSXT and NSR model the impact of potential infrastructure projects 20 years into the future. However, CSXT and NSR both agreed that additional modeling was necessary in this proceeding given Amtrak's stance that Gulf Coast passenger service could begin in January 2022 without any mitigating infrastructure beyond station refurbishment. Therefore, the RTC Modelers were directed to model the impact to freight service if passenger service was added to the 2019 Base Case. The 2019 Passenger Case revealed that the proposed passenger service would degrade freight service in the present, not just in 2039.

F. 2019 Build Case

The RTC Modelers then worked to identify what subset of the infrastructure projects tested in the 2039 Build Case would mitigate the immediate harm to freight service from the commencement of the Gulf Coast passenger service in the

2019 Base Case. CSXT and NSR determined this methodology was reasonable because developing an infrastructure solution set for the 2019 Build Case that was independent of the 2039 Build Case solution set would likely result in redundancies and unnecessary expense to Amtrak. Developing an independent infrastructure solution set for the 2019 Build Case might also result in the construction of infrastructure necessary to address the immediate impact of introducing passenger service to the corridor today, but that would then conflict with or complicate construction of infrastructure necessary to address the adverse effect of the passenger service on the operating environment that will exist in a few years.

V. CONCLUSION

CSXT and NSR worked with the RTC Modelers to develop an RTC model that accurately reflected 2019 freight operations along the Gulf Coast between New Orleans and Mobile and conservatively projected freight service growth 20 years into the future. The inputs, assumptions, and methodologies used to construct the various cases accord with both best practices for RTC modeling and each railroad's internal approaches to network modeling.

VERIFICATION

I, Hannah Rosse, declare under penalty of perjury that the foregoing information regarding CSXT is true and correct. Further, I certify that I am qualified and authorized to file this statement with regard to CSXT operations.

Executed on this 3rd day of November 2021.

Hannah Rosse

Hannah Rosse

VERIFICATION

I, Holly Sinkkanen, declare under penalty of perjury that the foregoing information regarding NSR is true and correct. Further, I certify that I am qualified and authorized to file this statement with regard to NSR operations.

Executed on this 3rd day of November 2021.

Holly Sinkkanen

Holly Sinkkanen

EXHIBIT 4

BEFORE THE
SURFACE TRANSPORTATION BOARD
DOCKET NO. FD 36496

APPLICATION OF THE NATIONAL RAILROAD PASSENGER CORP.
UNDER 49 U.S.C. § 24308(e) – CSX TRANSPORTATION, INC. AND
NORFOLK SOUTHERN CORPORATION

AMTRAK'S ANSWERS AND OBJECTIONS TO CSX'S SECOND SET OF INTERROGATORIES

Pursuant to 49 C.F.R. § 1114.21 *et seq.*, National Passenger Railroad Corporation ("Amtrak") hereby responds to the Second Set of Interrogatories served upon Amtrak on September 3, 2021 by CSX Transportation, Inc. ("CSX"). These answers and objections are part of ongoing discovery, and Amtrak reserves the right to supplement or amend them as appropriate, including in connection with expert discovery.

GENERAL OBJECTIONS

Amtrak incorporates by reference the General Objections made in its August 30, 2021 answers and objections to CSXT's August 13, 2021 interrogatories directed to Amtrak.

ANSWERS AND OBJECTIONS

Interrogatory No. 19

Describe in detail what work is required at the proposed Mobile, Alabama station in order to initiate service.

Amtrak objects to this Interrogatory to the extent that it calls for information irrelevant to whether resuming Amtrak passenger service on the Gulf Coast line would impair unreasonably CSX's transportation of freight and thus is overbroad and unduly burdensome. Without waiving any objection, Amtrak answers that it anticipates that the primary work required to initiate service at the proposed Mobile, Alabama location would be installing new signage, retrofitting existing lighting and adding new lights, building a boarding pad to provide for approximately 8" above top of rail boarding and alighting, and installing one or more ADA lifts. Amtrak anticipates that secondary required work will include striping the boarding platform and painting the crosswalk; some patching of the connecting path between the public sidewalk and boarding platform may also be required. Amtrak further directs CSX to documents and communications produced in response to CSX's First Request for Production of Documents to Amtrak or in response to individual interrogatories.

Interrogatory No. 20

Describe in detail what efforts Amtrak is taking to advance the construction of a "combination station and layover track at Mobile, Alabama" as set forth in Amtrak's response to CSXT's Interrogatory No. 5, including:

A. What property rights, regulatory approvals, or other pre-conditions are required in order for Amtrak to successfully construct the combination station and layover track;

B. What Persons Amtrak is communicating with to acquire the necessary property rights, regulatory approvals, or other pre-conditions to successfully construct the combination station and layover track; and

C. What "circumstances beyond Amtrak's control" referenced in Amtrak's August 31, 2021 letter to CSXT have caused the combined station and layover track project to "not advance[] sufficiently to allow the planned layover track to be used for the restart of intercity passenger service in early 2022."

Amtrak objects to this Interrogatory to the extent that it calls for information irrelevant to whether resuming Amtrak passenger service on the Gulf Coast line would impair unreasonably CSX's

transportation of freight and thus is overbroad and unduly burdensome. Amtrak further objects to this Interrogatory to the extent that it calls for information or analysis that is privileged or protected against discovery by the attorney work product doctrine or otherwise. Without waiving any objection, Amtrak answers this Interrogatory as follows:

A. It is Amtrak's understanding that it would require permission from CSX to cut in a switch from its mainline to the proposed layover track and that it would further require approval from the City of Mobile to build the station and layover track on city property.

B. Amtrak is not presently communicating with any Person to acquire any rights, approvals, etc. in connection with the proposed station and layover track.

C. The "circumstances beyond Amtrak's control" include the fact that the City of Mobile's project for the proposed station and layover track has not advanced past the preliminary design stage and that CSX has long opposed restoring passenger service on the Gulf Coast line.

Amtrak further directs CSX to documents and communications produced in response to CSX's First Request for Production of Documents to Amtrak or in response to individual interrogatories.

Interrogatory No. 21

Describe in detail the precise location of the proposed "combination station and layover track at Mobile, Alabama."

Amtrak objects to this Interrogatory to the extent that it calls for information irrelevant to whether resuming Amtrak passenger service on the Gulf Coast line would impair unreasonably CSX's transportation of freight and thus is overbroad and unduly burdensome. Without waiving any objection, Amtrak answers that the precise location of the proposed station and layover track is 11 Government St., Mobile, AL 36602. Amtrak further directs CSX to documents and

communications produced in response to CSX's First Request for Production of Documents to Amtrak or in response to individual interrogatories.

Interrogatory No. 22

Describe in detail Amtrak's use of former Track #10 (known as the "West Stub Track" or "Amtrak Track") in CSXT's Choctaw Yard, including:

A. When the track was first used by Amtrak;

B. When the track was last used by Amtrak; and

C. The schedule of how often and for what duration Amtrak used the track including in connection with the *Gulf Coast Limited* service.

Amtrak objects to this Interrogatory because the information it calls for is entirely irrelevant to whether resuming Amtrak passenger service on the Gulf Coast line would impair unreasonably CSX's transportation of freight and thus is overbroad and unduly burdensome. Without waiving any objection, Amtrak answers this Interrogatory as follows:

A. Amtrak first used the track in or about April 1984.

B. Amtrak last used the track in or about March 1997.

C. Amtrak used the track for the storage of trains in connection with daily service that used two train consists on the line: one eastbound and one westbound. Amtrak used the track for the *Gulf Coast Limited* service from approximately April 1984 to January 1985 and again from approximately June 1996 to March 1997. Amtrak also used the track for the *Gulf Breeze* service from approximately October 1989 to April 1995.

Amtrak further directs CSX to documents and communications produced in response to CSX's First Request for Production of Documents to Amtrak or in response to individual interrogatories.

Interrogatory No. 23

Describe in detail all activities Amtrak proposes to conduct at the Choctaw Yard to support and in connection with passenger service, including:

A. Any routine maintenance activities;

B. Any service preparation activities;

C. What Amtrak personnel will need to access Choctaw Yard on a regular basis;

D. How long Amtrak requests access to the proposed Choctaw Yard layover facility; and

E. The precise physical limits of the proposed leased layover facility and where proposed activities will occur within those limits, including locations of personnel and vehicle access.

Amtrak objects to this Interrogatory to the extent that it calls for information irrelevant to whether resuming Amtrak passenger service on the Gulf Coast line would impair unreasonably CSX's transportation of freight and thus is overbroad and unduly burdensome. Without waiving any objection, Amtrak answers this Interrogatory as follows:

A. Amtrak anticipates conducting minimal maintenance activities at Choctaw Yard, including minor locomotive maintenance.

B. Amtrak anticipates performing basic train cleaning services (emptying trash) at Choctaw Yard. Amtrak further anticipates that its crews would receive routine briefings at the site.

C. Amtrak anticipates that the following people would need to access the site on a daily basis: a conductor, an assistant conductor, an engineer, other train crew, and mechanical personnel. Amtrak anticipates that other Amtrak personnel such as managers or others conducting site visits would visit the site less frequently and perhaps less regularly.

D. Amtrak requests access to the Choctaw Yard facility until such time as the layover track at the proposed station and layover track is operational.

E. Amtrak anticipates needing a length of track sufficient to accommodate the planned consist of two locomotives (approximately 69 feet each) and three cars (85 feet each). Allowing adequate clearance, Amtrak estimates this length of track would be no more than 500 feet. Amtrak further anticipates needing enough space for a crew sign-up location and likely also a mechanical trailer and shed for mechanical and cleaning supplies. The precise locations of such spaces and structures as well as locations of personnel access and any vehicle access would depend upon which section of track CSX makes available to Amtrak.

Amtrak further directs CSX to documents and communications produced in response to CSX's First Request for Production of Documents to Amtrak or in response to individual interrogatories.

Interrogatory No. 24

Describe in detail Amtrak's proposed operations in Mobile, Alabama until such time that a combination station and layover track is constructed, including:

A. How long will passenger trains occupy CSXT's mainline at the Mobile station prior to its scheduled departure time and after its schedule arrival time;

B. The timing of any deadhead moves between the Mobile station and Choctaw Yard; and

C. All activities that will be performed in Choctaw Yard.

Amtrak objects to this Interrogatory to the extent that it calls for information irrelevant to whether resuming Amtrak passenger service on the Gulf Coast line would impair unreasonably CSX's transportation of freight and thus is overbroad and unduly burdensome. Amtrak objects to

paragraph C of this Interrogatory because it is wholly duplicative of Interrogatory No. 23. Without waiving any objection, Amtrak answers this Interrogatory as follows:

A. Amtrak anticipates that each passenger train will occupy the CSX mainline at the Mobile station approximately 15 minutes before its scheduled departure time and approximately 15 minutes after its scheduled arrival time.

B. Amtrak anticipates that deadhead moves between the Mobile Station and the layover track in Choctaw Yard will take approximately 15 minutes per arrival or departure. This estimated length of time includes all time spent, including getting into and out of Choctaw Yard.

C. Amtrak states that its answers to this paragraph C are set forth in its answers to paragraphs A and B of Interrogatory No. 23 above.

Amtrak further directs CSX to documents and communications produced in response to CSX's First Request for Production of Documents to Amtrak or in response to individual interrogatories.

SUPPLEMENTAL ANSWER

Interrogatory No. 1

Although CSX's August 13, 2021 Interrogatory No. 1 applied only to CSX's First Set of Interrogatories and Amtrak therefore has no obligation to supplement its answer to Interrogatory No. 1 in the context of its answers and objections to CSX's Second Set of Interrogatories, in the interests of cooperative discovery, Amtrak nonetheless hereby supplements its answer to Interrogatory No. 1. First, Amtrak incorporates herein its August 30, 2021 answers and objections to that Interrogatory No. 1. Second, Amtrak states that in addition to certain individuals named in its answers to that Interrogatory No. 1, the following individuals contributed to Amtrak's preparation of its objections and answers to CSX's Second Set of Interrogatories:

- Jarrett Alston, AVP Transportation – Southeast Division, Amtrak
- John Bender, Senior Manager Facilities Development, Amtrak
- Lonnie Murray, Senior Director Portfolio Management, Amtrak

The individuals above may be contacted through Jenner & Block, LLP, counsel for Amtrak.

September 20, 2021

Respectfully submitted:

/s/ Kali N. Bracey

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CERTIFICATE OF SERVICE

I, Kali N. Bracey, certify that I have this day caused a copy of this document to be served upon CSX by email to counsel for CSX at the following email addresses:

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September 20, 2021

/s/ Kali N. Bracey
Kali N. Bracey