

**BEFORE THE
SURFACE TRANSPORTATION BOARD
DOCKET NO. FD 36496**

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**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 SUPPLEMENTAL EVIDENCE**

The Highly Confidential workpapers related to CSX Transportation, Inc. and Norfolk Southern Railway Company's Supplemental Evidence, which was filed today, July 27, 2022, are being provided to counsel for Amtrak, the Port of Mobile, and the Surface Transportation Board via hearings@stb.gov. The workpapers will be provided by email through Sidley Austin LLP's ShareFile platform.

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Dated: July 27, 2022

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EXECUTIVE SUMMARY

Pursuant to the Board's decision of May 17, 2022, CSXT and NSR respectfully submit this Supplemental Evidence.¹ During the course of the evidentiary hearing, the Board members asked many thoughtful questions about the legal and factual framework for its decision in this proceeding. They asked detailed questions about the 2021 Gulf Coast RTC Model, and they expressed interest in modeling other potential solutions to the freight impairment caused by Amtrak trains. The Board members also asked about aspects of the statute not addressed in Amtrak's evidence, such as the requirement to consider whether the requested service would meet the congressional goal of 60 mph service, and whether § 24308(a) or (e) was the proper provision under which to judge Amtrak's request. They asked about the extent to which the Board needed to consider the effect of Amtrak's new trains on future rail service. And the Board members raised questions about the parties' respective burdens of proof in light of Amtrak's decision to present no evidence at all about whether its new passenger trains would impair freight service or what solutions would adequately address such impairment. This Supplemental Evidence is organized to provide additional evidence and analysis on these questions raised by the Board members.

Part I of this Supplemental Evidence explains that the statute requires consideration of *future* impairment to freight rail service, not just *immediate*

¹ All acronyms and short forms have the same meaning they had in CSXT's and NSR's Opening Evidence and Rebuttal Evidence.

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impairment. Agencies are required to consider the reasonably foreseeable future, and the Board does so in other contexts. A standard 20-year time horizon is used routinely by FRA and Amtrak in other contexts (including for the jointly undertaken 2020 RTC Study), and it should be used here.

Part II explains the results of certain additional RTC modeling and related evidence that the Board members requested.

First, the RTC Modelers ran a 2019 RTC case to test the efficacy of the FRA-recommended projects from the 2017 Gulf Coast Working Group Report to Congress. This 2019 FRA Case showed that the FRA's projects do not mitigate a significant portion of the harm to freight rail service caused by introduction of Amtrak trains. CSXT and NSR also asked Ted Niemeyer and V3 Companies to cost the FRA projects, using the same techniques that he used to model CSXT's and NSR's recommended projects. The FRA-identified projects on CSXT's line are estimated to cost between \$193 million and \$210 million in 2021 dollars. Importantly, neither the FRA nor the GCWG Report addressed any impacts on the NSR network in New Orleans, and thus failed to propose any projects that might mitigate against unreasonable impairment to NSR's operations.

Second, the RTC Modelers modeled certain operating changes to determine if they could mitigate the harm to freight service caused by the addition of Amtrak trains. They found no obvious freight scheduling changes that could reduce conflicts with passenger traffic, no benefit from reducing freight train lengths, and no meaningful mitigation from assuming changes in moveable bridge operations.

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Third, Charles Banks and Larry Guthrie show in their Supplemental Verified Statement that Amtrak's proposed passenger schedule would not come close to a network-wide average speed of 60 miles per hour.

Fourth, the RTC Modelers present more targeted data on the impairment to freight customer service shown in the 2021 Gulf Coast RTC Study, by focusing on the number of unplanned re crews per day to local and merchandise trains operating over CSXT's New Orleans to Mobile subdivision.

Finally, Part II and the enclosed Supplemental Verified Statement of Hannah Rosse and Holly Sinkkanen present evidence definitively refuting the claims made by Amtrak's experts that the 2021 Gulf Coast RTC Model contained more trains than can be seen in the data supporting the Model.

Part III addresses the parties' respective burdens of proof. While Amtrak initiated this proceeding, its consistent strategy is to claim that only the freight railroads had the burden of proving anything, and to criticize alleged imperfections in the railroads' RTC model and evidence rather than submitting any competing RTC analysis. But that is not how the statute works. Amtrak is the party seeking a Board order. As such, it has a burden of proof on all elements of the statute, including that the order being sought is for "additional" trains and that the order being sought furthers Congress's purpose of Amtrak speeds above 60 mph. While CSXT and NSR have a burden of producing evidence as to impairment, Amtrak has the burden of persuading the Board that the anticipated impairment to current and future freight service is reasonable.

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Amtrak has plainly not come close to meeting that burden. CSXT and NSR produced the best evidence of impairment to freight service today and in the future. The 2021 Gulf Coast RTC Model establishes that if the four passenger trains are added to the corridor today, in 20 years from now (2039) their presence will result in a systematic failure in CSXT and NSR's ability to provide freight service based on a modest anticipated growth rate. RTC is able to dispatch the 2039 case only if freight trains are permitted to block grade crossings in the model for up to two and a half hours.² Even with this increased block crossing threshold, the presence of passenger trains in 2039 without mitigating infrastructure "will increase freight delays by 20.4%, reduce freight train speeds by 4.5%, increase dispatching conflicts by 42.8%, increase re crews on CSX by 42.9%, and increase the variability of freight operations."³ Similarly, the RTC model indicates that the adverse impacts not only will happen in the future, but immediately, as the 2019 case demonstrates that introducing passenger service without any additional infrastructure "[immediately will increase] freight delays by 22.7%, reduce train speeds by 4.5%, increase dispatching conflicts by 38.1%, increase re crews by 37.7%, and increase the variability of service."⁴ The RTC Supplemental Report confirms that neither operational changes such as shorter freight trains or revised moveable bridge regulations, nor the FRA identified projects, will mitigate this harm.

² 2021 Gulf Coast RTC Report at 4, 32 (Exec. Summary, § 4.0).

³ *Id.* at 5 (Exec. Summary), *accord id.* at 33 (§ 4.1).

⁴ *Id.* at 47 (§ 6.0).

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Amtrak failed to rebut this evidence. And Amtrak produced no evidence at all as to the other statutory factors where it bears the burden of proof, such as whether the new service meets the statutory definition of “additional” trains or whether its proposed Gulf Coast service would serve the statutory goal of 60 mph passenger service network-wide.

Finally, Part IV responds to questions the Board raised about how it should define “unreasonable” in the context of § 24308(e). Reasonableness is a case-specific, fact-intensive inquiry that requires consideration of all facts and circumstances. Here, those key factors show that allowing Amtrak to begin service with no supporting infrastructure would cause immediate and future impairment to freight service that is unreasonable under any definition. The 2021 Gulf Coast RTC Model provides objective and definitive evidence of that unreasonable impairment. But so does the testimony at the public hearing from freight shippers and stakeholders about the potential impact of Amtrak service on their freight service. And so does the hearing testimony of Ricky Johnson explaining how Amtrak’s proposal would directly impact CSXT operations at locations like Sibert and Choctaw Yards in Mobile; or the testimony of Randy Hunt about the additional congestion that would be generated from having to add new Amtrak operating windows to the Back Belt; or the testimony of Robert Golden about the impacts on TASD operations between yards in downtown Mobile. The record is replete with evidence of the unreasonable impairment that Amtrak’s proposal would cause—most of which has gone virtually un rebutted by Amtrak.

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The Board bifurcated this hearing into two phases: a public hearing that occurred from February 15–16 and the parties’ presentation of the evidence during a hearing on the record, which began in April and recessed on May 12, 2022. During the public hearing, multiple rail-dependent shippers including Darling Ingredients, Inc., DAK Americas LLC, Holcim, Inc., and others expressed concerns about how the introduction of passenger rail service as proposed by Amtrak would result in severe localized impacts, including increased costs borne by industry and downstream consumers, freight delays shutting down manufacturing facilities for lack of material, increased ocean carrier demurrage charges, and deliveries arriving when facilities are not available to process receipt. In a letter dated June 29, 2022, the American Chemistry Council conveyed a message likely shared by all shippers dependent on rail operations over the Gulf Coast Corridor: “the STB must ensure that the introduction of Gulf Coast Line passenger service does not decrease the quality of freight service in the region.”⁵ While Amtrak has time and again urged the Board to take a “wait and see” approach by granting Amtrak immediate access without any supporting infrastructure, this the Board should not do. It is the rail shippers, not Amtrak, who will bear the consequences from additional delays and disruptions in rail service.

CSXT and NSR appreciate the Board’s June 10, 2022 order requiring Board-sponsored mediation and continue to believe that a negotiated solution is the best

⁵ American Chemistry Council Letter (filed June 30, 2022), at 1.

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way for Amtrak to achieve its goal of instituting Gulf Coast passenger service without harming the many stakeholders who rely on freight service. But in the event that mediation is unsuccessful, this Supplemental Evidence and the extensive written and testimonial evidence already in the record make it clear that Amtrak's demand that this Board mandate immediate passenger service with no supporting infrastructure must be denied.

I. THE BOARD MUST CONSIDER BOTH CURRENT AND FUTURE IMPAIRMENT OF FREIGHT SERVICE.

A statutory question that arose at the hearing was whether the Board's consideration of impairment to freight service was focused on only immediate impairment or also future impairment.⁶ Both the language of the statute and the weight of precedent show that the Board must not only consider whether Amtrak's proposal would immediately impair freight transportation, but also consider *future* unreasonable impairment.

A. The Statute Requires Consideration of Future Impairment.

Subsection (e)'s language necessarily contemplates a prospective inquiry: “whether an order *would* impair unreasonably freight transportation of the rail

⁶ See, e.g., Evidentiary Hearing Day 11, *Application of the Nat'l R.R. Passenger Corp. Under 49 U.S.C. § 24308(e)—CSX Transp., Inc. and Norfolk S. Ry.*, S.T.B. Docket No. FD 36496 (May 12, 2022), Tr. 4053:7–15 (Chairman Oberman expressed concern that “20 years out” might be “a little bit too long to commit public resources to”). Transcripts of the evidentiary hearing are hereinafter cited as “Evidentiary Hearing Day # (Date).” All eleven transcripts of the evidentiary hearing were obtained from Ace-Federal Reporters, Inc. and copies are included in CSXT and NSR's workpapers provided to the Board, Amtrak, and the Port of Mobile.

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carrier, with the carrier having the burden of demonstrating that the additional trains *will* impair the freight transportation.”⁷ And this forward-looking language tracks the established rule that agency decisions—especially regulatory approvals of this kind—must account for “the needs of tomorrow.”⁸ As the D.C. Circuit has explained:

Every new bus route, new airplane service, new radio station, new stock issue, new pipe line, new power project, and so on, seeks its permissive certificate upon the basis of future possibilities. So the function of the agencies to which Congress has delegated these responsibilities is to examine the relevant past and present and then to exercise a rational judgment upon that data to ascertain the public convenience and necessity *in the reasonably foreseeable future*.⁹

For example, the court held that the Federal Power Commission erred by “clos[ing] its eyes to the relative advantages or disadvantages of” converting a pipeline from natural gas to petroleum “in the light of future expansion” of the natural-gas network.¹⁰ “This is the sort of inquiry customarily made by regulatory agencies,” which may be abandoned only if the prospective analysis is “too speculative” to be reliable.¹¹ Thus, “where evidence of a future need is relevant” to an agency’s regulatory approval, “the agency must consider evidence on that point.”¹²

⁷ 49 U.S.C. § 24308(e)(2)(A) (emphasis added).

⁸ *E.g.*, *City of Pittsburgh v. Fed. Power Comm’n*, 237 F.2d 741, 752 (D.C. Cir. 1956).

⁹ *Id.* (cleaned up) (emphasis added).

¹⁰ *Id.* at 753.

¹¹ *See id.*

¹² *Nat’l Airlines, Inc. v. Civil Aeronautics Bd.*, 321 F.2d 380, 384 (D.C. Cir. 1963).

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This approach also tracks how the Board and the courts consider impairment of rail transportation in other contexts. ICCTA preemption cases supply a useful example. Courts hold that the preemption analysis must consider whether state law will “unreasonably interfere with rail operations as they are conducted today *or are likely to be conducted in the future*.”¹³ Courts have thus applied preemption if the claim would “prevent [the railroad] from using [its property] for railroad transportation in the future,”¹⁴ or would “affect rail transportation” by curtailing the railroad’s ability “to potentially accommodate future needs . . . due to increased traffic.”¹⁵ The Board has applied the same analysis, finding preemption if state law “would interfere with rail use, present or future.”¹⁶ Likewise here, the Board should “consider the railway’s future plans as well as its current uses,”¹⁷ and should thus take into account whether Amtrak’s proposed service would “reduce the capacity of the [rail line] to handle possible future traffic growth.”¹⁸

¹³ *City of Ozark v. Union Pac. R.R.*, 843 F.3d 1167, 1172 (8th Cir. 2016) (emphasis added).

¹⁴ *Union Pac. R.R. v. Chi. Transit Auth.*, 647 F.3d 675, 681 (7th Cir. 2011).

¹⁵ *14500 Ltd. v. CSX Transp., Inc.*, No. 1:12-cv-1810, 2013 WL 1088409, at *5 (N.D. Ohio Mar. 14, 2013); *see also, e.g., BNSF Ry. Co. v. City of Moore*, 536 F. Supp. 3d 1225, 1230 (W.D. Okla. 2021) (railroad stated a valid preemption claim by alleging that state condemnation would “have a significant impact on [Plaintiff’s] ability to expand future rail operations”).

¹⁶ *14500 Ltd. LLC—Petition for Declaratory Ord.*, FD 35788, S.T.B. Docket No. FD 35788 (served June 5, 2014), slip op. at 4; *accord Skidmore v. Norfolk S. Ry.*, 1 F.4th 206, 214 (4th Cir. 2021) (emphasis omitted).

¹⁷ *City of Lincoln v. Surface Transp. Bd.*, 414 F.3d 858, 862 (8th Cir. 2005) (affirming the Board’s consideration of future effects).

¹⁸ *Jie Ao & Xin Zhou—Petition for Declaratory Ord.*, S.T.B. Docket No. FD 35539

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B. FRA and Other Agencies Considering Infrastructure Needs Routinely Require 20-Year Forecasts.

As the agency responsible for “encourage[ing] the expansion and upgrade of passenger and freight rail infrastructure and services” through grant programs,¹⁹ the FRA’s guidance on rail corridor modeling is likewise instructive. The FRA explicitly calls for a forward-looking approach in authoritative guidance on rail corridor modeling.²⁰ Corridor studies should “take into full account the plans of intercity rail passenger service, local commuter rail services and the rail freight operators over a relatively long period of 20 years.”²¹ The guidance counsels this approach for several reasons. First, “projects planned by each party [operating in a shared-use rail corridor] over this 20-year period will collectively provide the infrastructure to permit the various services to coexist *without degrading* the

(served June 6, 2012), slip op. at 6.

¹⁹ Federal Railroad Administration, *Grants & Loans*, (last visited June 18, 2022), <https://railroads.dot.gov/grants-loans/grants-loans>.

²⁰ See also U.S. Dep’t of Transp., *Benefit-Cost Analysis Guidance for Discretionary Grant Programs* 7 (March 2022), tinyurl.com/USDOT-Benefit-Cost-Guidance (“As the status quo, the baseline should incorporate factors—including future changes in traffic volumes and ongoing routine maintenance—that are not brought on by the project itself and would occur even in its absence.”).

²¹ Federal Railroad Administration, *Rail Corridor Transportation Plans, A Guidance Manual* 1 (2005) (“FRA Guidance Manual”), <https://railroads.dot.gov/elibrary/railroad-corridortransportation-plans-guidance-manual>; see also FRA, *Station Area Planning for High-Speed and Intercity Passenger Rail* 4 (2011), https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/2358/FRA_Station_Area_Planning_June_2011_c.pdf. (“Local jurisdictions and transportation agencies are encouraged to define a vision . . . and set goals and objectives for near- and long-term that are compatible with future growth in passenger transport ridership over a 20-year period.”).

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various operations.”²² Second, long-range planning assures responsible investments of public funds to serve the public interest over the long term.²³ “[W]ithout a detailed long-range plan,” FRA counsels, “it is very difficult to know if the short-range plans and projects will address anything other than immediate problems. Sometimes, the apparent short-term solutions only make the long-term problems worse and will ultimately have to be removed and replaced—typically an expensive learning experience.”²⁴ It is for these reasons that a 20-year forecasting horizon is the universal standard for federally funded railroad infrastructure projects.²⁵

²² FRA Guidance Manual at 1 (emphasis added). FRA notes further that “[i]nevitably, a cursory analysis and operating plan for new or significantly upgraded corridor passenger service on an existing freight line . . . will result in undesirable or unacceptable reliability and/or performance levels for all corridor users.” *Id.*

²³ Indeed, even the GCWG couched its recommendations in terms of planning for the future when, in its closing statement, it cited future population growth over the next thirty (30) years, not current needs, as a driving force behind the proposed new passenger service. Joint Exhibit 1B, GCWG Report at 38.

²⁴ FRA Guidance Manual at 1

²⁵ See, e.g., D.C. DOT, *Long Bridge Study Final Report Ch. 5* (2014), at 71, 72, 74, <https://tinyurl.com/Long-Bridge-Study> (FRA-funded RTC study forecasts 2040 freight rail volumes using CSXT and FHWA Freight Analysis Framework growth data, just as in the 2021 Gulf Coast RTC Study here); FRA & Ill. DOT, *Chicago-St. Louis High-Speed Rail Tier 1 Final Env’t Impact Statement (EIS)* (2012), at 3-3, https://www.idothsr.org/pdf/feis_vol_1/section_03.pdf (2030 design year); FRA & N.Y. DOT, *High Speed Rail Empire Corridor Program Tier 1 Draft EIS* (2014), ES-24, 1-11, <https://tinyurl.com/Empire-Corridor-Program> (2035 design year); FHWA & Ill. DOT, *75th St. Corridor Improvement Project Final EIS* (2014), at 2-3, <https://tinyurl.com/75th-St-Corridor> (2029 design year); FRA, Minn. DOT, & Wis. DOT, *Northern Lights Express Passenger Rail Project from Minneapolis to Duluth, Minn. Tier 2 Project Level Env’t Assessment* (2017), at 2-29, <https://tinyurl.com/Northern-Lights-Express> (2040 horizon year); FRA, *NEC Future Tier 1 Final EIS* (2016), at 3-1, <https://www.fra.dot.gov/necfuture/pdfs/feis/c03.pdf> (2040 horizon year); FRA, FTA, & Conn. DOT, *New Haven-Hartford-Springfield Line High Speed*

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FRA is not an outlier in requiring 20-year forecasts. The Federal Highway Administration (“FHWA”) and Federal Transit Administration (“FTA”) also require transportation plans to have a “minimum 20-year forecast period” as a prerequisite for federal funding.²⁶ The U.S. Department of Transportation (“USDOT”) states that “[a]nalysis periods [for cost benefit analysis purposes] should typically be tied to the expected useful service life of the improvement, which would in turn reflect the number of years until the same type of action (e.g., reconstruction, capacity expansion, etc.) would be anticipated to be considered again in the future.”²⁷ To comply with NEPA, FHWA counsels that “[f]orecasters typically use a 20- to 30-year horizon for long-range transportation planning purposes.”²⁸ Horizons in excess of 20 years are common among projects the agencies have approved.²⁹

Intercity Passenger Rail Project Env. Assessment/Env. Impact Evaluation (2012), at 14 (§ 3.1), https://www.nhhsrail.com/info_center/ea/3_0.aspx (2030 future analysis year).

²⁶ The agencies’ transportation planning regulations, codified at 23 C.F.R. Part 450 (FHWA) and 49 C.F.R. Part 613 (FTA, adopting 23 C.F.R. Part 450), specify a “minimum 20-year forecast period” for projects proposed pursuant to long-range statewide transportation plans (§ 450.216) and metropolitan transportation plans (§ 450.324).

²⁷ See *Benefit-Cost Analysis Guidance for Discretionary Grant*, *supra* note 20 at 10.

²⁸ FHWA, *Interim Guidance on the Application of Travel and Land Use Forecasting in NEPA* 4 (2010), https://www.environment.fhwa.dot.gov/nepa/Travel_LandUse/travel_landUse_rpt.pdf.

²⁹ See, e.g., FHWA, *Intercounty Connector, Maryland, Case Study* (accessed June 18, 2022), <https://tinyurl.com/Intercounty-Connector> (“New facilities are usually justified not only based on existing travel patterns, but also based on future patterns The design year for a new facility is usually at least 20 to 30 years in the future.”); FHWA, *11th Street Bridges, Washington, DC, Case Study* (accessed June 18, 2022), <https://tinyurl.com/11th-Street-Bridges> (2006 Draft EIS, 2030 design year); FTA, *Dulles Corridor Rapid Transit Project Final EIS and Section 4(f)*

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To be sure, Congress does not, by statute, explicitly require FRA, FHWA, or FTA to consider a 20-year forecasting horizon before it awards a project federal funds, just like Congress does not, in § 24308(e), explicitly require the Board to consider a 20-year forecasting horizon in determining unreasonable impairment to freight. Nevertheless, the Board’s sister transportation agencies *do* require a 20-year (or longer) planning horizon and the Board should too.³⁰

Moreover, Congress has repeatedly endorsed 20-year transportation planning horizons. For example, in the Fixing America’s Surface Transportation Act (“FAST ACT”), Congress directed the USDOT to “develop a national freight strategic plan . . . [which] shall include . . . forecasts of freight volumes for the succeeding 5-, 10-, and 20-year periods[.]”³¹ The FAST Act also obligates the USDOT to “ensure that [any

Evaluation (2004), at 2-6, <https://tinyurl.com/Dulles-Corridor> (forecast horizon year 2025); *Benefit-Cost Analysis Guidance for Discretionary Grant*, *supra* note 20 at 11 (“Projects aimed primarily at capacity expansion or to address other operating deficiencies should use a service life of 20 years (even if the useful physical life of the underlying infrastructure is greater than this). This is intended to correspond to the typical ‘design year’ for such improvements.”).

³⁰ It is generally understood that much of the infrastructure to be constructed to support the Gulf Service will be funded pursuant to federal grants. The USDOT issued additional guidance concerning the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) discretionary grant program, which directed applicants to “consult the ‘Benefit-Cost Analysis Guidance for Discretionary Grant Programs’ when preparing a [benefit-cost analysis] for a RAISE Grant application” as that guide “contains key information on procedures for conducting benefit-cost analysis.” USDOT, RAISE Grants Additional Guidance, (last updated Apr. 13, 2021), <https://www.transportation.gov/RAISEgrants/additional-guidance>. And as noted above, the Benefit-Cost Analysis Guidance for Discretionary Grant Programs calls for a 20-year service life forecast.

³¹ PUB. L. NO. 114-94, 129 Stat. 1312, 1606 (2015) (codified at 49 U.S.C. § 70102).

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large capital] project” to support intercity passenger rail “is maintained to the level of utility that is necessary to support the benefits . . . for a period of 20 years[.]”³²

This is the same FAST Act that authorized funding to convene the Gulf Coast Working Group and directed that working group to “develop a prioritized inventory of capital projects and other actions to restore such service.”³³ And the FAST Act highlights Congress’s ongoing concern that the design and operation of passenger rail projects “accommodate and allow for future growth of existing and projected . . . freight rail service”³⁴ in ways that “protect the proprietary interests of all parties.”³⁵ The FAST Act is just one example of Congress’s recognition that long-range planning is the only prudent course in directing the investment of significant federal funds for long-lived assets.³⁶

³² *Id.* at 1669 (codified at 49 U.S.C. § 24402, transferred to 49 U.S.C. § 22902).

³³ *Id.* at 1622–23, 1655.

³⁴ *Id.* at 1666 (authorizing submission of proposals for high-speed passenger rail systems by Amtrak and other operators, including in the Gulf Coast Corridor specifically); *see also* Passenger Rail Investment and Improvement Act of 2008, Pub. L. No. 110-432, 122 Stat. 4848, 4964 (2008) (similar program).

³⁵ FAST Act, 129 Stat. at 1671 (USDOT “shall evaluate . . . approaches to operations, capacity, and cost estimation modeling” in shared-use corridors “that . . . protect the proprietary interests of all parties.”).

³⁶ *See also, e.g.*, 23 U.S.C. § 134(i)(2)(A)(ii) (“In formulating [a] transportation plan, [a] metropolitan planning organization shall consider factors . . . as [they] relate to a 20-year forecast period.”); 23 U.S.C. § 135(f)(1) (“Each State shall develop a long-range statewide transportation plan, with a minimum 20-year forecast period”); *cf.* FAST Act, 129 Stat. at 1428 (“[T]he Secretary [of Transportation] . . . shall develop . . . a national travel and tourism infrastructure strategic plan that includes . . . forecasts of long-haul passenger travel and tourism volumes for [a] 20-year period”).

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Indeed, Amtrak agreed to participate in a 20-year study with CSXT and NSR performed by HDR Engineering.³⁷ And FRA supported that study with funding.³⁸ In fact, the first 20-year study of Gulf Coast passenger service occurred in 2006 and was conducted by an engineering firm that published the New Orleans to Mobile Corridor Development Plan “under the auspices of the Federal Railroad Administration . . . and the Southern Rapid Rail Transit Commission,”³⁹ now known as the Southern Rail Commission (“SRC”).⁴⁰ That study was conducted “to achieve the best integration of intercity and freight rail services . . . based on operational constraints identified from analyses of the projected 2025 intercity, commuter, and freight volumes.”⁴¹

In this case, Amtrak’s own RTC expert has favorably cited an authoritative Transportation Research Board (“TRB”) report commissioned by USDOT that

³⁷ Evidentiary Hearing Day 9 (May 9, 2022), Tr. 3184:1–4 (Amtrak’s Jim Blair responded “Yes, we did.” in response to the question “[Y]ou did agree that a -- a no-build case 20 years in the future was part of this project?”).

³⁸ *Id.* at 3210:5–11 (Mr. Blair acknowledged that “[t]he FRA funded the project” in part).

³⁹ CSXNS Exhibit 346 – New Orleans to Mobile Corridor Development Plan, Vol. I. Summary Report, Prepared for The Southern Rapid Rail Transit Commission by Burk-Kleinpeter, Inc. (Oct. 2006), at 1.1, CSX_AmtrakGC_0005088 (attached).

⁴⁰ The Southern Rail Commission was then called the Southern Rapid Rail Transit Commission, and has gone by other names over the years. *See, e.g.*, PUB. L. NO. 97-213, 96 Stat. 150 (1982) (creating a joint agency called the “Mississippi–Louisiana Rapid Rail Transit Commission”); Ala. Code 1975 § 37-11-1 (1982) (referring to the compact as the Southern High-Speed Rail Commission); Ga. Code Ann. § 46-9-300 (1985) (referring to the compact as the Mississippi-Louisiana-Alabama-Georgia Rapid Rail Transit Commission).

⁴¹ CSXNS Exhibit 346 at 4.4.

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recommends a 20-year horizon for capacity planning projects.⁴² Mr. Dingler testified that modeling a 20-year time horizon is “standard practice” in evaluating freight and passenger train performance on a shared corridor,⁴³ and for good reason. “[T]he 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.”⁴⁴ “[T]hese are long-lived investments with very, very long economic lives.”⁴⁵ It is simply unwise to invest significant public funds into an asset that solves only short-term problems, which as explained above, may in fact “make the long-term problems worse” such that the asset “will ultimately have to be removed and replaced.”⁴⁶ Therefore, it is only appropriate for the Board—as a

⁴² Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2890:7–2891:3 (Amtrak expert Thomas Crowley acknowledged that he “reviewed that TRB study in -- in connection with preparing [his] Metra testimony” and that “the TRB study indicates that the ordinary planning timeline was -- for capacity projects was 20 years[.]”); *see also* Fox, Justin, et al., *Capacity Modeling Guidebook for Shared-Use Passenger and Freight Rail Operations* 16 (NCHRP Report 773, Transp. Research Bd., Editor 2014) (“It is . . . necessary to consider planned or likely changes in passenger and freight traffic over a term of up to 20 years.”).

⁴³ Evidentiary Hearing Day 6 (Apr. 14, 2022), Tr. 2117:10–22.

⁴⁴ CSXT/NSR Opening Evidence at 20.

⁴⁵ Evidentiary Hearing Day 1 (Apr. 4, 2022), Tr. 295:19–21.

⁴⁶ FRA Guidance Manual at 1; *see also* Rosse & Sinkkanen V.S. at 16 (“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.”).

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zealous guardian of the public interest—to evaluate infrastructure solutions that will mitigate unreasonable impairment to freight service both in the present and over the next two decades.

Indeed, the Board has already recognized that evidence of future unreasonable impairment is relevant here. The Board’s August 6 Decision noted “the importance of a 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.”⁴⁷ The Board likewise “expect[ed] the parties [to] 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.”⁴⁸ All of this information, the Board said, would “allow the Board to assess whether the proposed additional train service can proceed without impairing unreasonably freight transportation.”⁴⁹ The parties thus litigated the proceeding based on this instruction, including by addressing future unreasonable impairment.

In short, given the statutory language, the rules governing agency decision-making, the Board’s approach in analogous contexts, Congress’s steadfast concern with long-range planning, the prudent practices of other transportation-focused

⁴⁷ August 6 Decision at 7 (emphasis added).

⁴⁸ *Id.*

⁴⁹ *Id.*

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agencies, and the Board's prior decision in this proceeding, the Board must consider future unreasonable impairment.

C. Amtrak Utterly Failed to Rebut Evidence of Future Impairment.

CSXT and NSR presented evidence on opening that “the rail network will experience gridlock” with freight traffic “unable to reliably operate” when passenger trains are added to the 2039 Base Case with no supporting infrastructure.⁵⁰ Indeed, the only way for RTC to find a reliable dispatching solution in the 2039 Passenger Case was if the RTC Modelers allowed freight trains to block grade crossings for as long as needed to conduct operations, which resulted in blockages of up to two and a half hours.⁵¹ Once that unacceptable change was made, the proposed passenger service caused substantial harm to all freight traffic including a 20.4% increase in freight delays and a 4.5% reduction in freight train speeds.⁵² But most devastating is the 38.7% increase in local freight delays and the 7.2% reduction in local freight train speeds.⁵³

This evidence has gone essentially uncontested by Amtrak. The only critique leveled at the 2039 analysis by Amtrak's RTC experts—other than the baseless claim that the model overstated train counts (addressed below)—is that CSXT and NSR's projected growth rates of less than 1.5% are unrealistic. Yet the USDOT's

⁵⁰ 2021 Gulf Coast RTC Report at 32 (§ 4.0).

⁵¹ *Id.*

⁵² *Id.* at 34, Table 11 (§ 4.1).

⁵³ *Id.* at 35, Table 12 (§ 4.1).

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Freight Analysis Framework projects merchandise traffic to grow 1.9% annually over the next 20 years, and merchandise trains makes up most of the freight traffic between Mobile and New Orleans.⁵⁴ And Amtrak’s theoretical capacity expert failed to even consider the impact to 2039 modeled freight operations if passenger trains were added to the line.⁵⁵

Amtrak has also offered no solution to the freight service degradation that will occur if passenger service continues to operate over time as reflected in the 2039 Passenger Case. Amtrak tepidly supports the FRA proposed projects set forth in the GCWG’s 2017 Report, but has offered no timeline for the implementation of those projects or any firm commitment that they will be funded and constructed.⁵⁶ And as noted throughout this proceeding, the FRA explicitly reserved for other studies consideration of the impairment that will occur on the NSR network in New Orleans, and thus failed to identify any mitigation for that impairment in the GCWG Report.

⁵⁴ 2021 RTC Rebuttal Report at 20–21 (§ 3.1).

⁵⁵ See Evidentiary Hearing Day 11 (May 12, 2022), Tr. 3913:7–9, 3987:6–18 (Clayton Johanson admitted during cross examination that his analysis was based solely off of “historical 2019 data.”); *see generally* Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3741–3856 (direct testimony of Clayton Johanson).

⁵⁶ Even the FRA, in the GCWG Report, identified “securing the necessary funds for both capital improvements and sustained financial support to cover projected operating losses” as a “key challenge to implementing” the proposed Gulf Coast passenger service. Joint Exhibit 1B, GCWG Report at 32.

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As explained below, the adjusted FRA identified projects are insufficient to prevent gridlock on the network in the 2039 case.⁵⁷ Moreover, the RTC Modelers studied the impact in the 2039 case of automating all moveable bridges to remove hi-rails from the line and providing passenger trains preference over maritime traffic at the moveable bridges.⁵⁸ These adjusted bridge operation changes did not enable RTC to successfully dispatch the 2039 Passenger Case.⁵⁹ For all of these reasons, CSXT and NSR's 14 infrastructure projects remain the best solution set in evidence for mitigating the harm to freight service caused by the proposed Gulf Coast passenger service to accommodate reasonably foreseeable growth in the busy and nationally significant Mobile and New Orleans terminals.

II. CSXT AND NSR'S SUPPLEMENTAL MODELING HIGHLIGHTS AMTRAK'S FAILURE TO ESTABLISH THAT IT IS ENTITLED TO BOARD-ORDERED RELIEF.

While the record as of the close of the evidentiary hearing on May 12 amply demonstrates the harm that would result to freight service were the Board to grant Amtrak's demand for immediate access with no supporting infrastructure, CSXT and NSR accept the Board's invitation to submit certain additional RTC modeling evidence to respond to the Board's questions. CSXT's and NSR's RTC Modelers have produced a RTC Supplemental Report, which is attached as Appendix A to Exhibit

⁵⁷ See *infra* Part II.A.I; RTC Supplemental Report at 15 (§ 2.2). CSXT and NSR note that unreasonable impairment is not established only when gridlock is present in the RTC model.

⁵⁸ See *infra* Part II.B.3; RTC Supplemental Report at 28 (§ 4.0).

⁵⁹ RTC Supplemental Report at 30 (§ 4.2).

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1, the Supplemental Verified Statement of Charles H. Banks and Larry R. Guthrie.

It addresses three broad issues raised by the Board:

- First, the RTC Modelers analyzed the impact of implementing the FRA identified projects if applied to the 2019 Passenger Case and determined that this potential solution set is insufficient to protect freight customers.
- Second, the RTC Modelers also evaluated certain potential operational changes to mitigate harm to freight rail service identified at the public hearing, including running shorter freight trains between New Orleans and Mobile and implementing passenger train priority over maritime traffic and the removal of bridge tender hi-rails through by remote controlling the bridges. The RTC Modelers determined that such operational changes would not mitigate potential harm to freight service.
- Third, the RTC Modelers present more targeted data on the impairment to freight customer service shown in the 2021 Gulf Coast RTC Study, including information targeted to the New Orleans to Mobile subdivision and particular local and merchandise trains.

A. The FRA Identified Projects in the GCWG Report Do Not Solve the Impairment of Freight Rail Service Caused By the Introduction of the Gulf Coast Passenger Service.

The 2017 GCWG Report contained a list of 28 discrete projects proposed by the FRA to support Gulf Coast passenger service, and only with respect to the CSXT network.⁶⁰ At the evidentiary hearing on May 12, the Board requested to “see the numbers” regarding the impact of the FRA identified projects if modeled in the 2019 cases, as CSXT and NSR previously had done for the 2039 cases.⁶¹ In response to the Board’s request, CSXT and NSR completed two sets of cases to model the FRA

⁶⁰ See Joint Exhibit 1N, GCWG Report, App’x L at L-2–L-4.

⁶¹ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4056:4–17.

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identified projects as initially proposed as well as an adjusted set of FRA identified projects to account for certain engineering, safety, and legal limitations. The FRA recognized that “[d]eveloping this list [of projects] into an implementation plan that finalizes how the proposed improvements will be advanced will require additional operations analysis[.]”⁶² And the FRA acknowledged that the importance of “collaborative meetings to verify and detail the recommended improvements” and “a certain level of conceptual engineering w[ould] need to be completed to identify fatal flaws and gain confidence in the proposed projects.”⁶³ Thus, as part of this analysis, CSXT, NSR, and their experts considered the efficacy and feasibility of each FRA project.

In developing the FRA cases, the RTC Modelers learned that several of the FRA identified projects had already been completed prior to the commencement of this proceeding. Specifically, CSXT has already upgraded the miter rails at the six moveable bridges under its control between New Orleans and Mobile, closed the Old Gentilly Road at-grade crossing, upgraded the double track near Michoud Boulevard with No. 20 turnouts, modified the CSXT-KCS interlocking in Gulfport to give CSXT priority control, and modified and remote-controlled the CSXT-CN interlocking in Mobile to give CSXT priority control.⁶⁴ Because those improvements

⁶² Joint Exhibit 1B, GCWG Report at 23.

⁶³ *Id.* at 35.

⁶⁴ RTC Supplemental Report at 7–11 & Table 2-1 (§ 2.0); Johnson Supplemental V.S. at 5–7 (describing installation of the miter rails).

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were in place when 2019 train performance data was collected for the RTC study, the 2019 Base Case—and all cases built from it—already reflect any operational changes and benefits from those improvements. The 2019 FRA cases thus evaluate the full list of FRA proposed projects except for the projects already completed by CSXT as described above. The RTC Modelers also updated the 2039 FRA Cases presented in the 2021 Gulf Coast RTC Report to reflect these completed projects.

1. The FRA Identified Projects as Proposed in the GCWG Report Do Not Mitigate A Significant Portion of the Harm to Freight Trains, Especially Local Trains.

The suite of FRA identified projects do not mitigate a significant portion of the impact of introducing new passenger trains in the 2019 modeled case. In the 2019 FRA Case, freight trains experience an overall increase in delay of 9.9% and a decrease in speed of 1.9%.⁶⁵ In addition, the “number of conflicts, interchange delays and recrews are not meaningfully reduced” as compared to the 2019 Passenger Case numbers reflected in Table 19 of the 2021 Gulf Coast RTC Report reprinted below.⁶⁶

Table 1
2019 Impairment with Passenger Trains⁶⁷

% 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		% Change in Recrews	
22.7%	↑	-4.5%	↓	38.1%	↑	33.6%	↑	37.7%	↑

⁶⁵ RTC Supplemental Report at 11 & Table 2-2 (§ 2.1).

⁶⁶ *Id.*

⁶⁷ 2021 Gulf Coast RTC Report at 45, Table 19 (§ 6.0).

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Table 2

2019 Impairment with Passenger Trains and FRA Identified Projects⁶⁸

% 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		% Change in Recrews	
9.9%		-1.9%		30.5%		25.0%		30.0%	

And as the RTC Modelers explain, even with the FRA identified projects in place “CSXT local traffic is still highly impacted, with an overall increase in delay of nearly 18% though some individual trains experience delay increases of between 30% and 55%.”⁶⁹

⁶⁸ RTC Supplemental Report at 11, Table 2-2 (§ 2.1).

⁶⁹ *Id.*

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Table 3

2019 Freight Train Impairment with Passenger Trains⁷⁰

	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%	

⁷⁰ 2021 Gulf Coast RTC Report at 46, Table 20 (§ 6.0).

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Table 4

**2019 Freight Train Impairment with Passenger Trains and
FRA Identified Projects⁷¹**

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSX Local Trains	CSXT 1	25.1%	-2.0%	88.6%
	CSXT 2	53.0%	-7.4%	-3.1%
	CSXT 3	32.0%	-0.2%	12.5%
	CSXT 4	42.1%	-4.9%	46.8%
	CSXT 5	-10.3%	1.8%	-41.2%
	TASD	3.6%	-0.8%	0.0%
	CSXT LOCAL TOTAL	17.7%	-2.0%	
CSX Through Trains	CSXT A	-3.8%	0.5%	0.1%
	CSXT B	2.4%	-0.9%	7.8%
	CSXT C	13.0%	-2.5%	29.1%
	CSXT D	37.9%	-6.2%	24.1%
	CSXT E	6.8%	-1.4%	0.2%
	CSXT F	43.2%	-7.0%	31.5%
	CSXT G	13.3%	-2.6%	20.3%
	CSXT H	8.6%	-1.7%	-1.8%
	COAL	11.9%	-2.6%	1.8%
	CSXT THROUGH TOTAL	12.1%	-2.2%	
NS Trains	NSR A	-18.9%	0.0%	-7.9%
	NSR B	15.0%	-0.2%	7.7%
	NSR C	-12.1%	0.7%	-5.7%
	NSR D	11.1%	-4.7%	76.6%
	NSR E	20.2%	-3.8%	3.4%
	NSR F	-2.8%	-0.3%	5.2%
	NSR G	38.2%	-3.4%	17.7%
	NSR H	-11.3%	2.7%	10.5%
	INTERCHANGE	1.0%	-0.1%	-1.9%
	NSR TOTAL	3.4%	-0.9%	
OVERALL TOTAL		9.9%	-1.9%	

⁷¹ RTC Supplemental Report at 13, Table 2-4 (§ 2.1).

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When the RTC Modelers added passenger trains to the Gulf Coast line in the 2039 case, RTC could not find a dispatching solution for the 2039 Passenger Case due to the operational gridlock that resulted.⁷² When the FRA identified projects are added to the 2039 Passenger Case, RTC is able to dispatch the 2039 FRA Case.⁷³ However, the FRA identified projects do not mitigate a significant portion of the impact to freight trains from the introduction of passenger service as modeled in the 2039 case. CSXT and NSR through trains and CSXT local trains all continue to experience significant degradation.⁷⁴

Table 5

2039 Impairment with Passenger Trains and FRA Identified Projects⁷⁵

% 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		% Change in Recrews	
12.3%	↑	-2.7%	↓	43.1%	↑	28.2%	↑	23.2%	↑

⁷² See 2021 Gulf Coast RTC Report at 32 (§ 4.0).

⁷³ RTC Supplemental Report at 15 (§ 2.2).

⁷⁴ See *id.* at 15 & Table 2-6 and 17, Table 2-8 (§ 2.2).

⁷⁵ *Id.* at 15, Table 2-6 (§ 2.2).

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Table 6
2039 Freight Train Impairment with Passenger Trains
and FRA Identified Projects⁷⁶

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-22.2%	2.3%	19.6%
	CSXT 2	18.1%	-5.7%	-4.2%
	CSXT 3	-3.6%	5.9%	-5.6%
	CSXT 4	25.3%	-4.0%	12.1%
	CSXT 5	5.3%	-0.9%	8.0%
	TASD	24.7%	-8.1%	32.9%
	CSXT LOCAL TOTAL	13.9%	-2.4%	
CSXT Through Trains	CSXT A	10.3%	-2.2%	4.8%
	CSXT B	20.0%	-3.8%	43.0%
	CSXT C	5.4%	-1.4%	3.0%
	CSXT D	24.6%	-5.2%	6.9%
	CSXT E	14.4%	-3.7%	9.0%
	CSXT F	54.9%	-8.9%	29.1%
	CSXT G	12.7%	-2.2%	22.5%
	CSXT H	8.2%	-1.7%	-6.7%
	COAL	17.7%	-4.7%	38.1%
	CSXT THROUGH TOTAL	16.0%	-3.1%	
NSR Trains	NSR A	-10.4%	0.9%	-15.6%
	NSR B	-8.8%	1.8%	-24.6%
	NSR C	-19.7%	0.4%	-14.7%
	NSR D	-1.6%	0.6%	-12.4%
	NSR E	21.3%	-4.6%	-7.7%
	NSR F	16.5%	-1.3%	-1.1%
	NSR G	14.4%	-2.8%	-2.1%
	NSR H	-16.2%	2.3%	-3.0%
	INTERCHANGE	9.8%	-5.2%	4.4%
	NSR TOTAL	7.1%	-2.1%	
OVERALL TOTAL		12.3%	-2.7%	

⁷⁶ *Id.* at 17, Table 2-8 (§ 2.2).

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2. The FRA Identified Projects Required Adjustment to Remove Under-Utilized or Potentially Unachievable Projects.

There are two subcategories of FRA identified projects that the RTC Modelers excluded to create adjusted FRA cases for the modeled years 2019 and 2039. First, the RTC Modelers removed any grade crossing closure projects (other than Old Gentilly Road) because closing a crossing “require[s] cooperation and approval from state and local stakeholders beyond the control of Amtrak, CSXT, or NSR.”⁷⁷ While no one disputes the value of crossing closures projects, the RTC Modelers were instructed to test the FRA recommendation with these projects removed to avoid risks of underinvestment, over-impairment, or both in the event states or localities oppose these projects.⁷⁸

This approach to crossing closures is consistent with the approach taken by courts and the Board. “[T]he care of grade crossings is peculiarly within the police power of the states.”⁷⁹ In conformity with this principle, “[t]he STB has clearly

⁷⁷ *Id.* at 10 (§ 2.0); see Johnson Supplemental V.S. at 5 (explaining that grade crossing closures are “simply too speculative given the number of stakeholders who need to support or approve such projects”).

⁷⁸ Indeed, proposed project alternatives that are not within the Parties’ control to implement readily could be considered as the typical straw man proposals not otherwise welcomed by other Federal agencies. See *Benefit-Cost Analysis Guidance for Discretionary Grant*, *supra* note 20 at 8 (“Applicants should also be careful to avoid using ‘straw man’ baselines with unrealistic assumptions about how freight and passenger traffic would flow over the Nation’s transportation network in the absence of the project, particularly when alternate modes of travel are considered.”).

⁷⁹ *New Orleans & Gulf Coast Ry. v. Barrois*, 533 F.3d 321, 333 (5th Cir. 2008) (quoting *Lehigh Valley R.R. v. Bd. of Pub. Util. Comm’rs*, 278 U.S. 24, 35 (1928));

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identified where routine crossing disputes . . . fall in this scheme of ICCTA preemption”: “Routine crossing disputes are *not* typically preempted” and “crossing cases are typically resolved in state courts.”⁸⁰ Indeed, states, municipalities, and private landowners may pursue “nonconflicting, nonexclusive easements across railroad property” in response to a railroad’s attempt to unilaterally close a public or private at-grade crossing so long as those easements “do not hinder rail operations or pose safety risks.”⁸¹ Therefore, any attempt by CSXT or NSR to unilaterally close at-grade rail crossings along the Gulf Coast would be subject to state regulation and individual property rights under state law.

Second, a number of the FRA’s siding speed improvement projects are also under-utilized because of the nature and characteristics of the line. Specifically, FRA recommended upgrading siding turnouts to No. 20 turnouts with accompanying signal system upgrades to accommodate a “limited speed” or 45 mile

Adrian & Blissfield R.R. v. Vill. of Blissfield, 550 F.3d 533, 540 (6th Cir. 2008) (same).

⁸⁰ *Barrois*, 533 F.3d at 333 (quoting *Maumee & W. R.R. and RMW Ventures, LLC—Petition for Declaratory Ord.*, S.T.B. Finance Docket No. 34354 (served March 3, 2004), slip op. at 2); *Adrian & Blissfield R.R.*, 550 F.3d at 540 (same).

⁸¹ *City of Lincoln v. Surface Transp. Bd.*, 414 F.3d 858, 863 (8th Cir. 2005); *Franks Inv. Co. v. Union Pac. R.R.*, 593 F.3d 404, 406, 415 (5th Cir. 2010) (en banc) (holding that a private landowner’s suit for an injunction to prevent railroad from closing two private crossings and to compel the railroad to replace two removed private crossings was not preempted); *Norfolk S. Ry.—Petition for Declaratory Ord.*, S.T.B. Docket No. 35196 (served Mar. 1, 2010), slip op. at 5 (explaining that “non-conflicting and non-exclusive easements across railroad property for at-grade road crossings, wire crossings, sewer crossings, etc. are routinely accommodated so long as they would not interfere with rail operations or pose undue safety risks”).

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per hour speed while entering sidings.⁸² Many of the existing sidings are too short to accommodate a freight train entering at 45 miles per hour because there is insufficient braking distance.⁸³ Other sidings are in close proximity to other features of the line such as moveable bridges, passenger stations, or communities that require slower speeds near the siding.⁸⁴ Because trains will never be permitted to travel at 45 miles per hour within close proximity to a particular siding, upgrading the turnouts to that siding to No. 20 turnouts will yield little to no benefits worthy of the costs.⁸⁵

Removing these two categories of FRA identified projects has minimal impact on the freight performance metrics. Freight trains continue to experience a 9.9% increase in delay and a 1.9% decrease in speed in the 2019 FRA Adjusted Case.⁸⁶ And the dispatching conflicts, delay to interchange partners, and recrews remain static as well.⁸⁷

⁸² RTC Supplemental Report at 8–9 & Table 2-1 (§ 2.0).

⁸³ *Id.*; Johnson Supplemental V.S. at 9 (describing the Lake Catherine siding as having insufficient length to allow a freight train to enter at 45 mph).

⁸⁴ RTC Supplemental Report at 8–9 & Table 2-1 (§ 2.0); Johnson Supplemental V.S. at 9 (explaining that factors such as “the length of a siding, the curvature and grade of the track, and the proximity to other features that impact speed such as movable bridges, yards, and grade crossings” impact how fast a train can enter a siding).

⁸⁵ RTC Supplemental Report at 8–9 & Table 2-1 (§ 2.0); *see also* Johnson Supplemental V.S. at 9–10 (same).

⁸⁶ RTC Supplemental Report at 12 & Table 2-3 (§ 2.1).

⁸⁷ *See id.*

Table 7
2019 Impairment with Passenger Trains
and “Adjusted” FRA Identified Projects⁸⁸

% 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		% Change in Recrews	
9.9%		-1.9%		30.0%		30.3%		27.8%	

The adjusted FRA-identified projects do not mitigate the impact in the 2039 case. Once the grade crossing closures and siding speed improvement projects are removed from the suite of FRA-identified projects, “the model has a high failure.”⁸⁹ However, RTC found a dispatching solution in the 2039 FRA Adjusted Case more frequently than in the 2039 Passenger Case, but not frequently enough for the RTC Modelers to recommend” the 2039 FRA Adjusted Case as being “a valid case.”⁹⁰ The RTC Modelers simulated “a sufficient number of [completed] scenarios . . . to demonstrate that the projects are unable to mitigate the proposed passenger service” when applied in the 2039 modeled year.⁹¹

⁸⁸ *Id.* at 12, Table 2-3 (§ 2.1).

⁸⁹ *Id.* at 15 (§ 2.2).

⁹⁰ *Id.*

⁹¹ *Id.* These results differ from the 2039 FRA Adjusted Case presented in the 2021 Gulf Coast RTC Model because that modeling effort did not reflect the limitations on siding speeds along the corridor that render No. 20 turnout upgrades unhelpful.

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Table 8

**2039 Impairment with Passenger Trains
and “Adjusted” FRA Identified Projects⁹²**

% 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		% Change in Recrews	
13.6%		-2.8%		42.8%		37.6%		26.6%	

3. The FRA Identified Projects Mitigate Only Half the Harm Caused By Passenger Service For Approximately Half the Cost of CSXT and NSR’s 14 Proposed Projects.

In sum, neither the full set of FRA identified projects nor the FRA identified projects adjusted for feasibility or efficacy restrictions mitigates the harm to freight traffic caused by the proposed Gulf Coast passenger service in either the 2019 or the 2039 cases. In the 2019 cases, the FRA identified projects only address approximately half of the degradation attributed to the introduction of passenger trains. This is unsurprising given that (1) the GCWG Report studied a “state-supported train for one daily round trip” rather than two daily round trips as proposed in Amtrak’s Application⁹³; (2) neither the GCWG nor the FRA utilized RTC to measure the degradation to freight service or to test their proposed solutions⁹⁴; (3) the FRA identified projects were limited to “the CSX-owned line” and

⁹² *Id.* at 16, Table 2-7 (§ 2.2).

⁹³ Compare Joint Exhibit 1B, GCWG Report at ES-1 with Amtrak’s Application at 2 & App’x A.

⁹⁴ See Joint Exhibit 1B, GCWG Report at 23 (The GCWG Report acknowledged that “[d]eveloping [the FRA’s] list into an implementation plan that finalizes how the proposed improvements will be advanced will require additional operations analysis

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did not contemplate any adverse impacts or mitigating improvements to NSR's portion of the passenger service route⁹⁵; and (4) the FRA-identified projects do not address the fact that the sidings along the route are too far apart and often have insufficient clear distance to facilitate meets and passes with passenger trains.⁹⁶

The FRA identified projects were costed "in 2016 dollars and do not account for escalation to the time period when construction would occur."⁹⁷ The estimated costs for the FRA identified projects in 2021 dollars is between \$193 million and \$210 million, as explained fully in the Niemeyer Report.⁹⁸ As compared to the 14 infrastructure projects proposed in CSXT and NSR's opening evidence, which were tested using RTC, the FRA identified projects address only half the degradation to freight service for approximately half the cost.

B. Operational Changes Will Not Mitigate Harm to Freight Service.

Amtrak has offered no solutions to mitigate harm to freight customers and communities that will be impacted. Setting aside Amtrak's position that not a single

and discussions among CSX, Amtrak, and the SRC.").

⁹⁵ *See id.* at 29.

⁹⁶ *See* RTC Supplemental Report at 20–21 (§ 3.2) (describing the distance between sidings and the clear distance of sidings as the "biggest constraint" on the corridor). The GCWG Report indicates that the FRA did not even validate "the effectiveness of the improvements for on-time performance" and instead stated that doing so would be a "recommended . . . next step." Joint Exhibit 1B, GCWG Report at ES-1.

⁹⁷ Joint Exhibit 1B, GCWG Report at 29.

⁹⁸ *See* Banks & Guthrie Supplemental V.S., App'x B – Engineering Cost Assessments Report, New Orleans – Mobile Gulf Coast FRA Identified Infrastructure Projects by V3 Companies at 2.

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penny of additional infrastructure is needed before passenger service can commence, Amtrak did not even suggest operational changes to reduce impairment to freight transportation despite Mr. Fapp's acknowledgement that "one of the primary purposes of the RTC is to test operational changes."⁹⁹ The closest Amtrak came to offering anything constructive was its theoretical capacity expert's claim that freight trains—particularly local trains serving customers—departing "on time more reliably" would reduce conflicts with Amtrak trains.¹⁰⁰ Yet this claim was not supported by modeling or concrete statistics as to how much of the expected degradation to freight service would be mitigated by freight trains departing more reliably on schedule. And when Member Fuchs asked if Amtrak's expert was "aware that sometimes [] local train shippers have . . . windows that they're supposed to give a delivery" and whether the data he relied on included those windows, Amtrak's expert replied "I don't believe so."¹⁰¹

Chairman Oberman suggested that CSXT and NSR presented "only half a case" by not modeling "operational changes [that] could minimize the need for . . . infrastructure."¹⁰² But as explained in Part III, it is Amtrak that bears the burden under the statute of proposing solutions to mitigate the impact to freight service, whether operational or otherwise. In any event, CSXT and NSR considered three

⁹⁹ Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3715:9–3716:6 ("It may take a day; it may take a few weeks, but it's something that can be done.").

¹⁰⁰ *See id.* at 3837:3–3838:14, 3843:5–3844:19 (testimony of Clayton Johanson).

¹⁰¹ *Id.* at 3835:2–6.

¹⁰² Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4045:21–4047:2.

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possible operating changes to reduce the harm: (1) obvious and repeat scheduling conflicts; (2) operating shorter freight trains between New Orleans and Mobile; and (3) modifying moveable bridge operations to provide passenger trains priority over maritime traffic and eliminate bridge tender hi-rails.

1. The RTC Modelers Identified No Obvious Freight Schedule Modifications That Would Reduce Conflicts With Passenger Trains.

Mr. Dingler testified that he looked for situations where “there [is] one train that’s be[en] delayed the same time every single day due to the same thing” such as a train “pull[ing] out of the yard” every day and then “s[itting] there for . . . a period of time” consuming capacity on the mainline.¹⁰³ In that situation, it would be better for the freight railroad to hold that train in the yard until it could operate on the mainline, thereby reducing delay in the model.¹⁰⁴ Mr. Dingler explained that the only instance of this delay-causing event he identified ultimately “went away” after he fixed a time zone error in the model that was impacting train departure times.¹⁰⁵ And Ms. Rosse testified that “at some point during the modeling process,” she asked whether there were “any obvious freight trains that are departing at the same time as this Amtrak train that are going to impose significant conflicts,” thereby

¹⁰³ Evidentiary Hearing Day 5 (Apr. 12, 2022), Tr. 1663:3–1664:9.

¹⁰⁴ *Id.* at 1664:8–9.

¹⁰⁵ *Id.* at 1663:11–21.

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increasing the delay in the model.¹⁰⁶ Ms. Rosse clarified that “there weren’t any” such instances.¹⁰⁷

The RTC Modelers did not consider modifications to the passenger schedules.¹⁰⁸ As in any litigation, Amtrak (the plaintiff) is the master of its application (the complaint).¹⁰⁹ CSXT and NSR have no right to modify the relief Amtrak seeks, which in this case is an order from the Board directing CSXT and NSR to provide access to their lines for the commencement of the proposed schedule attached to the application. Any modification to that schedule must come from Amtrak, especially given that Amtrak bears the burden of convincing the Board of the merits of its application. Therefore, CSXT and NSR must take Amtrak’s proposed passenger schedule set forth in the application at face value in any modeling.

¹⁰⁶ Evidentiary Hearing Day 4 (Apr. 8, 2022), Tr. 1382:12–22.

¹⁰⁷ *Id.* at 1382:22.

¹⁰⁸ Amtrak chose to terminate the joint Amtrak-CSXT-NSR RTC modeling effort with HDR in 2020, and then prohibited CSXT and NSR from completing the study at no further cost to Amtrak. While Amtrak, NSR, and CSXT had an agreed-upon process to reintroduce passenger service over the Gulf Coast Corridor and NSR and CSXT were abiding by that process, Amtrak unilaterally determined no infrastructure was necessary and demanded immediate access to the Gulf Coast Corridor. Had Amtrak agreed to continue the study, it could have proposed and modeled passenger schedule changes as alternatives to any infrastructure projects recommended by HDR.

¹⁰⁹ *See Caterpillar Inc. v. Williams*, 482 U.S. 386, 398–99 (1987) (explaining that “the plaintiff is the master of the complaint” and gets to choose what claims are advanced).

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2. Reducing Train Lengths Between Mobile and New Orleans Will Not Reduce the Impact To Freight Traffic Cause By the Proposed Passenger Service.

At the pre-evidentiary hearing on February 16, Chairman Oberman inquired about “what kind of delays would we have” “if [CSXT] were willing to determine to run trains only to fit into the existing si[d]ings, until new si[d]ings are built[.]”¹¹⁰ CSXT and NSR offered to present that information to the Board during the direct examination of Mark Dingler on April 12, but Amtrak objected to that testimony as new expert analysis.¹¹¹ Submission of this analysis is now justified by the Board’s May 17 Order as well as Chairman Oberman’s statements.

The RTC Modelers evaluated several methods of modeling shorter freight trains in the model.¹¹² The RTC Modelers concluded that the best way to model shorter train lengths was by splitting southbound (westbound) trains from Montgomery and combining northbound (eastbound) trains from New Orleans in Mobile.¹¹³ Taking into consideration factors such as the clear length and number of grade crossings, the RTC Modelers determined that a maximum train length of

¹¹⁰ February 16, 2022 Pre-Evidentiary Hearing Conference, *Application of the Nat’l R.R. Passenger Corp. Under 49 U.S.C. § 24308(e)—CSX Transp., Inc. and Norfolk S. Ry.*, S.T.B. Docket No. FD 36496 (posted Mar. 23, 2022) (“February 16, 2022 Pre-Evidentiary Hearing Conference”), Tr. 87:18–89:3; *see id.* at 76:5–77:6 (counsel for the Port expressing interest in understanding how shorter trains would impact the Port’s operations and the Chairman concurring).

¹¹¹ *See* Evidentiary Hearing Day 5 (Apr. 12, 2022), Tr. 1852:17–1856:20; *see also id.* 1841:11–1844:22 (same for an analysis of changes to moveable bridge operations).

¹¹² *See* RTC Supplemental Report at 19–20 (§ 3.1).

¹¹³ *Id.*

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7,500 feet would ensure freight trains fit into nearly all the sidings between New Orleans and Mobile.¹¹⁴

Mr. Dinger testified that shortening freight train lengths can harm the fluidity of a line because that requires an “increase [in] the number of trains” given that the “number of cars does not change.”¹¹⁵ Therefore, any time a train was within 1,000 feet of the 7,500-foot benchmark, the RTC Modelers moved enough cars (up to 15) from one train to another to reduce that train to 7,500 feet or less.¹¹⁶ This shifting of railcars reduced the number of trains that needed to be split, which in turn avoided over-inflating any freight train delay by adding more trains than necessary to the line.

The RTC Modelers also had to determine when to schedule the second half of any split trains. The added trains were “scheduled in the model so as to not affect the existing schedules of trains to the east of Mobile toward Montgomery.”¹¹⁷ For northbound (eastbound) trains in excess of 7,500 feet traveling from New Orleans to Mobile, the first part of the split train would leave two hours earlier than originally scheduled while awaiting the arrival of the second part of the split train before

¹¹⁴ *Id.* at 20–21 (§ 3.2).

¹¹⁵ *See* Evidentiary Hearing Day 5 (Apr. 12, 2022), Tr. 1853:6–11.

¹¹⁶ *See* RTC Supplemental Report at 20; *id.* at 23 (§ 3.4) (reducing CSXT D by 300 feet in 2019 by shifting roughly 5 railcars to CSXT F); *id.* at 26 (§ 3.6) (reducing three trains in 2039 by shifting roughly 15 railcars (850 feet), 13 railcars (760 feet), and 5 railcars (300 feet) to other trains).

¹¹⁷ *Id.* at 24 (§ 3.4).

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combining for the trip to Montgomery.¹¹⁸ For southbound (westbound) trains in excess of 7,500 feet traveling from Mobile to New Orleans, the first part of the split train would leave at the original departure time with the second part of the split train departing two hours later than originally scheduled.¹¹⁹ Two hours was selected as the time between two parts of a split train to “provide sufficient spacing between the trains as to not overwhelm the corridor and terminals with a high volume of traffic.”¹²⁰

The results of this modeling exercise reveal that operating shorter freight trains to accommodate existing siding lengths does not reduce the impact of introducing passenger trains. In the 2019 Passenger Case With Adjusted Train Lengths, the harm to freight traffic is comparable with the harm observed in the 2019 Passenger Case with longer freight trains in the original model. Freight traffic experiences an overall delay increase of 23.0% and a reduction in speed of 4.3% when shorter trains operate on the line, and an increase in delay of 22.7% and a reduction in speed of 4.5% when longer freight trains operate on the line.¹²¹ And CSXT local trains experience more degradation when shorter CSXT through trains operate on the corridor.¹²²

¹¹⁸ *Id.*

¹¹⁹ *Id.*

¹²⁰ *Id.* at 20 (§ 3.1).

¹²¹ *Compare id.* at 25, Table 3-5 (§ 3.5) *with* 2021 Gulf Coast RTC Report at 45 (§ 6.0).

¹²² RTC Supplemental Report at 25–26, Tables 3-6, 3-7 (§ 3.5) (depicting CSXT local train delay further increasing by 3.8% and speed decreasing by an additional 0.7%

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While the two CSXT through trains that were split in the 2019 Passenger Case With Adjusted Train Lengths experienced reduced delay and increased speeds, that improvement “comes at the expense of nearly all the CSXT locals and remaining through trains.”¹²³ For example, CSXT local trains experience a 48.1% increase in delay and a 7.2% reduction in speed as compared to the 45.4% increase in delay and the 6.9% reduction in speed that CSXT local trains experienced when longer CSXT through trains operated on the line.¹²⁴

This experiment in running shorter merchandise trains fares no better in the 2039 Passenger Case With Adjusted Train Lengths. Based on the forecasted growth in freight traffic over the next 20 years, four CSXT through trains would need to be split by 2039 (and likely sooner).¹²⁵ In the 2039 Passenger Case With Adjusted Train Lengths, “the model was unable to dispatch the increased train volumes, which resulted in unresolvable gridlock.”¹²⁶ The train lengths adjustments did not enable RTC to avoid gridlock on the corridor once passenger service was introduced because “[t]he additional four passenger trains combined with the four new, shorter freight trains effectively doubled the amount of traffic on the corridor.”¹²⁷ Passenger

compared to the original 2021 Gulf Coast RTC Model).

¹²³ RTC Supplemental Report at 24 (§ 3.5).

¹²⁴ *Compare id.* at 25, Table 3-6 (§ 3.5) *with* 2021 Gulf Coast RTC Report at 46 (§ 6.0).

¹²⁵ RTC Supplemental Report at 26–27 (§ 3.6).

¹²⁶ *Id.* at 27 (§ 3.7).

¹²⁷ *Id.*

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train priority combined with the substantial increase in total trains caused operations to “exceed the available capacity on the corridor” in the 2039 Passenger Case With Adjusted Train Lengths.¹²⁸ In sum, operating shorter freight trains between New Orleans and Mobile does not mitigate any of the impact to freight traffic caused by the proposed passenger service in either the 2019 or the 2039 cases.

3. Modifying Moveable Bridge Operations Will Not Meaningfully Mitigate Impairment to Freight Service.

Chairman Oberman also expressed interest in “what the impact would be on freight and passenger trains” if (1) “the opening of bridges” could be scheduled “to minimize train interference” and (2) “all the bridges are automated, and we get these high railers off the line.”¹²⁹ Again, CSXT and NSR offered to present that information to the Board during the direct examination of Mark Dingler on April 12, and Amtrak objected to that testimony as new expert analysis.¹³⁰ And the Chairman again expressed his disappointment on the final day of testimony that modeling of the “future remote operation of additional bridges” was “left out,”¹³¹ though not for want of trying by CSXT and NSR.¹³²

¹²⁸ *Id.*

¹²⁹ February 16, 2022 Pre-Evidentiary Hearing Conference, Tr. 45:21–47:2.

¹³⁰ *See* Evidentiary Hearing Day 5 (Apr. 12, 2022), Tr. 1841:11–1844:22.

¹³¹ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4075:18–4076:11.

¹³² *See* Evidentiary Hearing Day 5 (Apr. 12, 2022), Tr. 1841:11–1844:22 (Amtrak objected to the introduction of analysis of changes to moveable bridge operations).

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The RTC Modelers considered both of these operational changes at the moveable bridges. To simulate the impact of the Coast Guard approving the remote control operation (colloquially, “automation”) of moveable bridges, the bridge tender hi-rails were simply removed from the model.¹³³ Due to certain restrictions in RTC, the only way to model providing passenger trains preference over maritime traffic while maintaining maritime traffic’s priority over freight trains is by adjusting permits to allow passenger trains to traverse over moveable bridges even when they are open while still restricting freight trains from traversing an open moveable bridge.¹³⁴ These operational changes provide only a negligible improvement to overall freight service when applied to the 2019 Passenger Case.

In the 2019 Passenger Case With Adjusted Bridge Operations, freight train delay is reduced from 22.7% in the original model to 20.4% with the bridge operations changes.¹³⁵ Freight train speed improves 0.4% to a total decrease in speed of 4.1%.¹³⁶ And local freight trains continue to experience significant degradation in the form of a 47.4% increase in delay and a 7.1% decrease in speed.¹³⁷ Of course, these operational changes do improve the OTP of passenger trains in the 2019 case, but only with respect to direct delays caused by moveable

¹³³ See RTC Supplemental Report at 28 (§ 4.0).

¹³⁴ *Id.*

¹³⁵ *Id.* at 29 & Table 4-1.

¹³⁶ *Id.*

¹³⁷ *Id.* at 30, Table 4-2.

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bridges.¹³⁸ This priority modification does not eliminate “any indirect delays, such as instances when a freight train is delayed by a bridge opening and that delay, in turn, causes delays to a following passenger train.”¹³⁹ In any event, when these changes to moveable bridge operations are implemented in the 2039 Passenger Case With Adjusted Bridge Operations, RTC is still unable to find a reliable dispatching solution and predicts gridlock on the corridor.¹⁴⁰

* * *

In short, the supplemental RTC modeling confirms the conclusions of the original 2021 Gulf Coast RTC Study. Without additional infrastructure, adding Amtrak’s twice-daily train service will unreasonably impair freight service today and cause catastrophic problems in the future. The solution set identified by the RTC Modelers continues to be the best solution to accommodating the service schedule that Amtrak has proposed without harming service to freight customers.

C. The Degradation in Freight Train Performance Projected in the RTC Model Will Increase Unplanned Recrews Per Day and Cause Substantial Harm to Customers.

The Board sought a better understanding as to how reductions in speed and increases in delay to freight trains in the 2021 Gulf Coast RTC Model will impact customers along the Gulf Coast Corridor.¹⁴¹ To answer this question, the RTC

¹³⁸ *Id.* at 28–29 (§ 4.1).

¹³⁹ *Id.* at 29.

¹⁴⁰ *Id.* at 30 (§ 4.2).

¹⁴¹ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4050:14–4052:6.

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Modelers conducted an analysis of how many unplanned re crews will result if the level of degradation in the Model caused by the introduction of passenger service is applied to line-of-road runtimes derived from historical OS Data on CSXT’s New Orleans – Mobile (“NO&M”) Subdivision. The RTC Modelers chose to isolate the NO&M Subdivision because that is the portion of the Model where passenger trains will operate and where the majority of the customers are located.¹⁴² And the RTC Modelers chose to focus on the re crew metric because unplanned re crews are a significant driver of missed switches and service quality for customers.¹⁴³

As the Board is well aware, federal law caps a train crew’s permitted hours of service at 12 hours.¹⁴⁴ Increases in delay minutes and decreases in speed may cause a train crew to exhaust their 12 hours of service prior to arriving at a planned re crew location, resulting in an unplanned re crew, often at an undesirable location on the line.¹⁴⁵ These unplanned re crews can take hours to implement because the replacement crew needs to be called, travel to the unplanned re crew site, access the

¹⁴² RTC Supplemental Report at 31 (§ 5.0) (explaining that including NSR traffic and CSXT traffic on the Mobile – Montgomery Subdivision obscures the bulk of the harm to customers that is experienced on the NO&M Subdivision); Evidentiary Hearing Day 2 (Apr. 5, 2022), Tr. 452:2–12 (Mr. Johnson testified that there were “50-plus customers that [CSXT] ha[s] across this line,” which provide jobs for “the 10,000-plus people that . . . depend on the jobs that these companies . . . produce.”).

¹⁴³ See Johnson Supplemental V.S. at 12.

¹⁴⁴ 49 U.S.C. § 21103(a)(2) (“[A] railroad carrier and its officers and agents may not require or allow a train employee to . . . remain or go on duty for a period in excess of 12 consecutive hours).

¹⁴⁵ Johnson Supplemental V.S. at 12.

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train, and perform any required safety checks before the train can proceed.¹⁴⁶ In the case of a local train, the multi-hour delay caused by an unplanned recrew (or from another train blocking the mainline for an unplanned recrew) will often result in a missed switch because the local train is no longer able to serve the complete slate of customers scheduled for that day.¹⁴⁷ And the more unplanned re crews, the faster the crew pool is depleted. When the crew pool is depleted, CSXT is forced to pull crews from local trains to operate higher priority through trains to ensure network fluidity and keep the mainline clear.¹⁴⁸

The 2021 Gulf Coast RTC Model predicts that merchandise and local trains will experience a greater than 15% increase in line-of-road runtime (referred to as Travel & Work for locals).¹⁴⁹ When applied to historical line-of-road runtimes calculated from the September 2019 to November 2019 OS Data, this 15% increase results in an additional two unplanned re crews *per day* (1.5 local train re crews and 0.5 merchandise train re crews).¹⁵⁰ An additional two unplanned re crews per day on

¹⁴⁶ Banks & Guthrie Supplemental V.S. at 15.

¹⁴⁷ Johnson Supplemental V.S. at 12–13; *see* Banks & Guthrie Supplemental V.S. at 15.

¹⁴⁸ Johnson Supplemental V.S. at 12–13.

¹⁴⁹ RTC Supplemental Report at 36, 40 (§§ 5.3.2, 5.4.3).

¹⁵⁰ *Id.* at 37 & Table 5-4, 41 & Table 5-9 (§§ 5.3.3, 5.4.3). It is appropriate to consider the merchandise and local recrew numbers together because of the interrelated nature of their respective operations. Banks & Guthrie Supplemental V.S. at 15 (describing how “[m]erchandise trains supply or feed railcars to (and from) local trains which directly serve customers” and how delays on merchandise trains mean “railcars fail to timely reach yards for transfer to local trains and ultimate delivery to customers”).

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one subdivision would “produce devastating results on service to freight customers.”¹⁵¹ Freight service under those conditions would become so variable and unpredictable that customers would struggle to adequately plan their businesses and serve their own customers.

Such a drain on personnel resources would be a challenge under the best of operating circumstances. Indeed, the additional two unplanned re crews caused by passenger trains in the study period occurred during pre-pandemic Fall 2019 when CSXT was operating at peak efficiency.¹⁵² A Board order granting Amtrak’s access to operate Gulf Coast passenger service without sufficient supporting infrastructure will make permanent those additional two re crews per day. And whenever challenging operating conditions arise like those experienced by freight railroads in 2021 and 2022, the number of unplanned re crews per day would increase above the two-re crew threshold. For example, the total number of unplanned re crews rose to 2.5 in 2021 (2 merchandise train re crews and 0.5 local train re crews).¹⁵³ And the RTC Modelers calculated that the number of unplanned re crews for merchandise trains alone would increase from 0.5 per day in the 2019 study period to 2.4 per day in the first quarter of 2022 had Gulf Coast passenger service been operating during

¹⁵¹ Banks & Guthrie Supplemental V.S. at 15.

¹⁵² February 16, 2022, Hearing on Amtrak Operations in Gulf Coast Day 2, *Application of the Nat’l R.R. Passenger Corp. Under 49 U.S.C. § 24308(e)—CSX Transp., Inc. and Norfolk S. Corp.*, S.T.B. Docket No. FD 36496 (posted Mar. 23, 2022), Tr. 511:11–13 (CSXT’s Chief Operating Officer, James Foote, described 2019 as a year when “the railroad was running at the best in its history.”).

¹⁵³ *Id.* at 37 & Table 5-5, 41 & Table 5-10 (§§ 5.3.3, 5.4.3).

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that time.¹⁵⁴ “This means over half of the merchandise trains will experience an unplanned recrew on a daily basis.”¹⁵⁵ Freight customers on the Gulf Coast will bear the brunt of this service degradation.

D. Amtrak’s Claims that Train Counts in the RTC Model Are Not Consistent With the Data Is Wrong.

In addition to supplemental RTC modeling, CSXT and NSR witnesses Mses. Rosse and Sinkkanen have also submitted a Supplemental Verified Statement responding to the continuing claims of Amtrak’s experts Crowley and Fapp that the 2021 Gulf Coast RTC Model contained trains and train movements that are not consistent with the data in the record. On May 12, Chairman Oberman questioned whether the Board could rely on the 2021 Gulf Coast RTC Model in light of Messrs. Crowley and Fapp’s train count claims.¹⁵⁶ Yet the cross examinations of Messrs. Crowley and Fapp revealed that they were provided extensive train movement and dispatching data, and that many of the trains that they claimed should not have been included in the 2021 Gulf Coast RTC Model (like CSXT yard trains) appear extensively in the data. The Supplemental Verified Statement of Mses. Rosse and Sinkkanen systematically reviews the data available to Amtrak and shows how the

¹⁵⁴ *Id.* at 37, Tables 5-4 and 5-5, 39 (§ 5.3.3); *see id.* at 33 (explaining that CSXT recently adjusted train profiles system-wide which prevented the RTC Modelers from analyzing unplanned recrews using 2022 OS Data after March 31, 2022).

¹⁵⁵ *Id.* at 37 (§ 5.3.3).

¹⁵⁶ Evidentiary Hearing Day 11 (May 12, 2022) Tr. 4047:5–4048:14.

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Amtrak witnesses' train count analysis ignores hundreds of trains that appear in the electronically collected data sources.

To start, Mr. Crowley admitted that he and Mr. Fapp used only “the data that [the RTC Modelers] used to do their randomization process” and that they “were under the impression that was the raw data.”¹⁵⁷ But as Ms. Rosse and Sinkkanen explained on rebuttal, Messrs. Crowley and Fapp used CSXT’s Train Profile Data to the exclusion of all other data sources provided in the workpapers.¹⁵⁸ Mr. Crowley told Chairman Oberman that he did not have any “dispatching records” that would show the activities of yard trains.¹⁵⁹ When pressed by Member Fuchs, Mr. Crowley acknowledged he could not “rule [] out” that there were other data sets available in the workpapers that would have led to a different result.¹⁶⁰ And in fact, there were other datasets. Mr. Crowley later testified that he had been provided with an index of the RTC model workpapers provided to all parties and the Board on November 3, 2021.¹⁶¹ That index included NSR’s “Descriptions of

¹⁵⁷ Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2939:19–2940:11.

¹⁵⁸ See Rosse & Sinkkanen Rebuttal V.S. at 10 (explaining that experts like Messrs. Crowley and Fapp should have known that Train Profile Data does not capture yard, local, and foreign trains as well as OS Data and Dispatch Data).

¹⁵⁹ Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2925:12–18, 2926:9–12.

¹⁶⁰ *Id.* at 2940:12–17.

¹⁶¹ *Id.* at 2951:6–2952:16; see Exhibit CSXNS 76, App’x A (November 19, 2021 Letter from M. Warren (counsel for CSXT) to K. Bracey (counsel for Amtrak) attaching a revised RTC Report Workpapers Index to denote confidentiality redesignations, which index is part of CSXT and NSR’s opening workpapers).

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Nonstandard Train Movements” as well as CSXT’s OS Data *and Dispatch Data*.¹⁶²

When confronted with the fact that CSXT’s Dispatch Data was listed on the index of opening workpapers, Mr. Crowley stated “I guess there were some.”¹⁶³ Likewise, Mr. Fapp testified that CSXT’s OS Data was “a document that we didn’t see, that Mr. Banks and Guthrie used to develop the RTC train[] list” and which he and Mr. Crowley did not use in preparing their train count critique.¹⁶⁴ Yet Amtrak’s other expert, Mr. Johanson, used CSXT’s OS Data to perform his theoretical capacity analysis.¹⁶⁵

Mses. Rosse and Sinkkanen conducted their own train count analysis using the data sources Amtrak’s experts ignored. In order to compare against the two-week RTC Model, Mses. Rosse and Sinkkanen each synthesized three months of train data by identifying each unique instance or trip for each Train Profile (CSXT) or Train Symbol (NSR), determining the average daily frequency of each Train Profile or Train Symbol in the electronically collected data, and then calculating the two-week frequency.¹⁶⁶ Applying this methodology, Ms. Sinkkanen determined that NSR’s Gulf Coast Simulation NS Train Data (workpaper) and the full 2019 train movement data provided in discovery established that Amtrak’s experts failed to

¹⁶² Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2954:1–2957:9.

¹⁶³ *Id.* at 2956:14–2957:2.

¹⁶⁴ Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3634:4–3635:10.

¹⁶⁵ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 3936:21–3937:8.

¹⁶⁶ Rosse & Sinkkanen Supplemental V.S. at 4–8 (CSXT), 14–16 (NSR).

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corroborate almost 50 trains operating over NSR's tracks in the RTC Model.¹⁶⁷

Likewise, Ms. Rosse determined that CSXT's Dispatch Data supported the existence of 590 trains that appear in the model, over 300 more than Amtrak's experts identified.¹⁶⁸

The unreliability of Amtrak's train count analysis is perhaps best illustrated by its experts' evidentiary hearing testimony concerning yard trains operating over the Gulf Coast Corridor. In their reply verified statement, Messrs. Crowley and Fapp claimed that the data supported just eight yard trains in the RTC Model.¹⁶⁹ Mr. Crowley testified that CSXT and NSR operated a combined four yards on the line—Oliver, Gentilly, Choctaw, and Sibert—and agreed that eight yard trains in the model worked out to be one yard train per yard per week.¹⁷⁰ Freight railroads operate all day, every day of the year, especially in major gateways like New Orleans. Yet when asked whether he believed that “one yard train per yard per week represents operations in the real world,” Mr. Crowley responded “Yes.”¹⁷¹

Mr. Fapp was shown CSXT's OS Data and Dispatch Data from the opening evidence workpapers during cross examination. Mr. Fapp observed that there were 1,753 entries related to CSXT yard trains {{Redacted}} in

¹⁶⁷ *Id.* at 20.

¹⁶⁸ *Id.* at 11–12.

¹⁶⁹ Crowley & Fapp Reply V.S. at 14, Table 1.

¹⁷⁰ Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2844:10–2846:2.

¹⁷¹ *Id.* at 2846:3–13.

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the OS Data.¹⁷² Mr. Fapp again observed numerous instances of these yard trains in the Dispatch Data, such as 879 instances of { ^{Redacted} } and 1,143 instances of { ^{Redacted} }.¹⁷³ After agreeing that these entries reflected instances where yard trains operated in the real world, Mr. Fapp nevertheless persisted in his unreasonable position that there should be *zero* CSXT yard trains in the 2021 Gulf Coast RTC Model based on his and Mr. Crowley's decision to use only one of datasets provided to them.¹⁷⁴ Ms. Rosse highlights how unreasonable Mr. Fapp's position is by showing in Appendix A that every single Train Profile for a CSXT yard train in the 2021 Gulf Coast RTC Model also appears in the Dispatch Data.¹⁷⁵

The inconsistent testimony of Messrs. Crowley and Fapp completely undermines Amtrak's position that the 2021 Gulf Coast RTC Model overinflated train counts to prove impairment. Amtrak's argument is founded on a series of analytical errors by its RTC experts and should be discredited for that reason as well. Mr. Crowley even testified that RTC successfully dispatched both the 2019 and 2039 Base Cases despite his and Mr. Fapp's allegation that the RTC Modelers

¹⁷² Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3629:7–3631:14; *see also* Exhibit CSXNS 83 (CSXT OS Data, which is part of CSXT and NSR's opening workpapers).

¹⁷³ Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3635:11–3639:15 (Fapp acknowledged that the remaining yard trains—{ **Redacted** }—would also appear in the Dispatch Data.); *see also* Exhibit CSXNS 81 (CSXT Dispatch Data, which is part of CSXT and NSR's opening workpapers). Mr. Crowley likewise testified that the dispatch records would show yard trains operating on the mainline to perform a switch. Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2925:12–18.

¹⁷⁴ Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3633:11–19, 3639:16–3640:7.

¹⁷⁵ Rosse & Sinkkanen Supplemental V.S. at 12 & App'x A at 7.

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nearly tripled the number of real-world trains in the model.¹⁷⁶ The Board should reject the analysis proffered by Messrs. Crowley and Fapp regarding supposed flaws in the 2021 Gulf Coast RTC Model as unreliable and baseless.

III. THE APA PLACES THE BURDEN OF PROOF ON AMTRAK UNDER SECTION 4308(e) EXCEPT FOR DEMONSTRATING IMPAIRMENT.

Throughout the evidentiary hearing, Amtrak consistently argued that the freight railroads had the burden of proof on almost all matters, and that Amtrak is entitled to immediate, automatic access if CSXT and NSR do not “meet their burden.” And Chairman Oberman commented that “the railroads hav[e] the burden of proof” and that Amtrak’s strategy has been to argue that CSXT and NSR have “failed in their burden of proof.”¹⁷⁷ Amtrak’s position simply is not supported by administrative law or Section 24308(e).

Parties seeking agency action in an adjudication have the burden of proof in that adjudication. “Hearings on the record”—like that required by Section 24308(e)¹⁷⁸—are governed by 5 U.S.C. § 554 of the APA, which applies to “every case of adjudication required by statute to be determined on the record after opportunity for an agency hearing” (absent certain inapt exceptions).¹⁷⁹ Section 554 requires that the agency’s hearing and decision be “in accordance with sections 556

¹⁷⁶ Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2839:11–2840:8.

¹⁷⁷ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4042:14–20, 4058:6–18, 4077:1–5.

¹⁷⁸ 49 U.S.C. § 24308(e)(1).

¹⁷⁹ 5 U.S.C. § 554(a).

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and 557.”¹⁸⁰ Section 556, in turn, places the burden of proof on “the proponent of a rule or order,” “[e]xcept as otherwise provided by statute.”¹⁸¹

In this proceeding, Section 24308(e)(2)(A) only assigns freight railroads “the burden of demonstrating that the additional trains *will impair* the freight transportation,”¹⁸² a burden that CSXT and NSR have met. But applications under Section 24308(e) also require consideration of three factors: (1) a showing that the trains Amtrak seeks to run would be “additional” within the meaning of the statute; (2) consideration of whether the impairment identified by the freight railroads is “unreasonable”; and (3) consideration of whether the “additional trains” would serve Amtrak’s statutory goal of sustainably reaching an average, system-wide speed of 60 miles an hour.¹⁸³ Amtrak’s application may also raise issues relating to proposed mitigation of the impairment demonstrated by the railroads, whether by operational changes, infrastructure, or both. Again, Section 24308(e) only places the burden of demonstrating the level of impairment on CSXT and NSR, not a burden of identifying mitigation measures for that impairment,¹⁸⁴ nor the burden of proof on the three factors Amtrak must satisfy to justify relief. In sum, under the APA, Amtrak has the burden on every element except demonstrating impairment.

¹⁸⁰ *Id.* § 554(c)(2).

¹⁸¹ *Id.* § 554(d).

¹⁸² 49 U.S.C. § 24308(e)(2)(A) (emphasis added).

¹⁸³ *Id.* § 24308(e)(1), (2)(B).

¹⁸⁴ *See id.* § 24308(e).

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A. CSXT and NSR Met Their Burden of Demonstrating Impairment to Freight Service.

CSXT and NSR have plainly met their burden of producing evidence that Amtrak’s proposed service would impair freight transportation. The railroads have come forward with a detailed RTC model with multiple cases, supporting data, and explanatory verified statements and testimony, all to substantiate their position on impairment. That model is the only systematic and particularized evidence specific to impairment—of current *and* future operations—in the case.¹⁸⁵

Amtrak, on the other hand, has failed to offer any feasible and supported competing evidence. The Board’s August 6 Decision put Amtrak on notice that the Board “expect[ed] that evidence on the [passenger] 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[.]”¹⁸⁶ Despite this directive, Amtrak failed to hire Messrs. Crowley and Fapp until mid-October 2021, months after the opening of discovery.¹⁸⁷ Mr. Crowley explained that he did not recommend to Amtrak that it should perform a RTC

¹⁸⁵ *Duke Energy Corp. v. CSX Transp., Inc.*, S.T.B. Docket No. NOR 42070 (served Feb. 4, 2004), slip op. at 13–14 (noting that “in assessing the weight to be given to competing evidence . . . [m]ore specific evidence is generally preferred over more general evidence”).

¹⁸⁶ August 6 Decision at 7.

¹⁸⁷ See Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2911:5–12 (Mr. Crowley acknowledged he was retained in October 2021, two months after the Board’s August 6 Decision.); Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3592:11–15, 3598:11–17 (Mr. Fapp stating that he only spent about two weeks reviewing RTC files produced in discovery because he was retained in mid-October 2021).

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modeling study to present a contrary view of passenger-caused delays supposedly because there was insufficient time to do so based on his hiring date.¹⁸⁸ And despite possessing the necessary modeling skills, Messrs. Crowley and Fapp chose not to modify the 2021 Gulf Coast RTC Model to either fix any input or modeling errors they perceived or to test solutions such as operating changes.¹⁸⁹ As a result, Amtrak has offered no competing freight performance metrics from a RTC model.

Amtrak did present expert testimony from DB Engineering's Clayton Johanson concerning a new methodology that purported to analyze theoretical capacity on the line. But this proceeding is not about theoretical capacity. It is about the *impact* on the *fluidity* of the operating freight rail system resulting from the addition of Amtrak's proposed new, high priority, passenger trains. DB

¹⁸⁸ Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2755:7–15 (responding to Chairman Oberman by stating “I did not [recommend creating a RTC model] because of the timing. We were -- we were middle October. We had two weeks to file and it just was not time to do that.” (sic)). In fact, Mr. Crowley misspoke because Amtrak's reply evidence was due December 3, 2021, approximately *six* weeks after his firm was engaged.

¹⁸⁹ See Evidentiary Hearing Day 10 (May 11, 2022), Tr. 3715:9–3720:10 (In response to Chairman Oberman, Mr. Fapp stated that changing the inputs into the RTC model such as reducing the number of hi-rail trips “would be an actually fairly simple thing to do” and acknowledged he had the skills necessary to modify the RTC model's inputs and model alternative operations.); Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2787:11–2790:18 (Mr. Crowley testified that he is capable of constructing and modifying RTC models and inputs, but chose not to modify the 2021 Gulf Coast RTC Model and report out corresponding performance metrics.).

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Engineering's theoretical capacity methodology is untested¹⁹⁰ and unverifiable¹⁹¹ methodology that is admittedly wholly incapable of answering the central question in this proceeding: Does the addition of passenger trains unreasonably impair present and future freight transportation on the Gulf Coast? Mr. Johanson conceded that his study did not “measure impairment.”¹⁹² Indeed, despite explaining that his methodology established that there is presently “insufficient capacity to handle the non-revenue movements of [passenger] trains to and from Choctaw Yard” without adding a dedicated Mobile station and layover track, Mr. Johanson was unable to “make an assessment” of whether adding those daily passenger train movements would impair operations in the Mobile terminal.¹⁹³

The theoretical capacity analysis also suffered from serious methodological issues. To start, Mr. Johanson calculated an average variability factor using 2019 historical data and applied that average variability to segments of the line without regard to the differences in characteristics such as the presence of moveable bridges and heavy local traffic versus unobstructed single-line track with sidings.¹⁹⁴ This

¹⁹⁰ Mr. Johanson admitted that his methodology has never before been tested or accepted by a regulatory agency and has never been peer reviewed or published. Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4000:18–4001:12.

¹⁹¹ Mr. Johanson also admitted that no one can purchase or use his capacity methodology without hiring DB Engineering. *Id.* at 4001:13–4003:3.

¹⁹² *Id.* at 3992:2–7.

¹⁹³ *Id.* at 3919:12–3922:12. The lack of theoretical capacity in Mobile identified by Mr. Johanson highlights how the introduction of passenger service will leave CSXT unable to respond to unforeseen surges in freight service demand.

¹⁹⁴ *Id.* at 3960:8–18.

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approach fails to consider what happens on days where the actual variability exceeds the average variability on bottleneck segments of the corridor between Orange Grove and Beauvoir where all available capacity is already consumed by existing freight demand and the proposed passenger trains.¹⁹⁵ Moreover, this theoretical capacity approach is incapable of determining how the average variability factor would change after the introduction of passenger trains because there is no historical data from the corridor that includes the operation of the proposed passenger service.¹⁹⁶ Mr. Johanson's apparent solution was to simply assume (without any justification in his report) that the variability factor would not change with the introduction of passenger trains,¹⁹⁷ thereby assuming away the very problem the parties are tasked with addressing—the level of impairment.

This limitation of the theoretical capacity analysis extends to other aspects of the case. For example, Mr. Johanson cannot use his model to inform the Board what would happen if CSXT operated shorter trains on the corridor or if moveable bridges were remote-controlled, eliminating the need for bridge tender hi-rails.¹⁹⁸ Mr.

¹⁹⁵ *Id.* at 3960:19–3964:2 (acknowledging that there will be days where Gulf Coast operating variability will exceed the average and that certain bottleneck segments of the corridor will exceed available capacity on those days); *see id.* at 3925:9–3928:14 (agreeing that variability can change with the amount of traffic operating on the line and identifying bottleneck segments).

¹⁹⁶ *Id.* at 3986:20–3987:12; *see also id.* at 3981:14–3982:11 (admitting that the staging factor was also held constant after the addition of four passenger trains per day because the theoretical capacity methodology cannot predict how much staging would go up or down after passenger service commenced).

¹⁹⁷ *Id.* at 3986:20–3987:5.

¹⁹⁸ *Id.* at 3987:13–18.

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Johanson’s analysis also outright omitted analysis of key aspects of the case. The report is devoid of any examination of the differences in variability between busy terminals such as Gentilly Yard and Mobile as compared to the rest of the line.¹⁹⁹ And no effort was made to calculate a variability factor, staging factor, or onramp factor for trains operating on NSR’s portion of the proposed passenger service route despite the unique operational challenges associated with major gateways and the Back Belt in particular.²⁰⁰ This theoretical capacity analysis is plainly not a “model” the Board can rely on. CSXT and NSR’s RTC study therefore represents “the best projection[] that [is] available on the record”²⁰¹—that is, the best evidence of record.²⁰² It follows that CSXT and NSR’s model must be the source of any inferences the Board draws as to the issue of impairment.

B. Amtrak Produced No Evidence that Its Service Would Further the Statutory Goal of 60 mph Service.

The statute provides that the Board “shall consider . . . the statutory goal of Amtrak,” set forth at 49 U.S.C. § 24101(c)(6), “to implement schedules that attain a system-wide average speed of at least 60 miles an hour that can be adhered to with

¹⁹⁹ *Id.* at 3957:18–3959:5.

²⁰⁰ *Id.* at 3977:12–18.

²⁰¹ *FMC Wyoming Corp. and FMC Corp. v. Union Pac. R.R.*, 4 S.T.B. 699, 731 (2000).

²⁰² *See E.I. DuPont de Nemours & Co. v. Norfolk S. Ry.*, STB Docket No. NOR 42125, slip op. at 46 (served Mar. 24, 2014) (noting that since complainant criticized railroad’s evidence but “fail[ed] to provide an adequate alternative to [that] evidence,” the railroad’s evidence was “the best evidence of record” for purposes of analysis).

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a high degree of reliability and passenger comfort.”²⁰³ Amtrak bears the burden of proof on this point.²⁰⁴ In context, Section 24308(e)(2)(B) means the Board *must* consider whether Amtrak’s proposed service furthers or hinders this goal. This matters because whether a particular Amtrak service meets the goal is not an abstract question of whether the service is as good as it can be; it goes to whether the service is worthwhile at all. While Congress did not spell out the consequences of a failure to meet the 60-mph goal, that does not mean the Board can give that factor no weight or reach a decision that conflicts with Congress’s obvious purpose in including these considerations. Congress does not (indeed, cannot) give agencies unbridled discretion.²⁰⁵

In first adopting Amtrak’s “tough, but realistic, performance goals,” Congress noted its belief “that Amtrak must be made to compete effectively with other modes of transportation.”²⁰⁶ The 60-mph goal is part of that effort. As Amtrak’s then-

²⁰³ 49 U.S.C. § 24308(e)(2)(B).

²⁰⁴ 5 U.S.C. 556(d) (“Except as otherwise provided by statute, the proponent of a rule or order has the burden of proof.”); *see also, e.g., Final Offer Rate Review—Expanding Access to Rate Relief*, S.T.B. Docket No. EP 755 (served Sept. 12, 2019), slip op. at 12 (applying this rule); *Meyer v. North Coast R.R. Auth.*, S.T.B. Docket No. FD 34337 (served Jan. 31, 2007), slip op. at 4 (“A complainant has the burden of showing that it is entitled to relief.” (citation omitted)).

²⁰⁵ *See Council for Urological Interests v. Burwell*, 790 F.3d 212, 232 (D.C. Cir. 2015) (Henderson, J., dissenting in part) (collecting cases showing that “Congress need not speak in obligatory terms to constrain an agency’s discretion”); *Jarkesy v. SEC*, 34 F.4th 446 (5th Cir. 2022) (Congress cannot delegate the power to “alter[] the legal rights, duties and relations of persons . . . outside the legislative branch” without providing “an intelligible principle to guide its use”).

²⁰⁶ H.R. REP. NO. 97-81, at 18 (1981).

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President Alan S. Boyd told the Senate Subcommittee on Surface Transportation in support of the original 55-mph goal, “a system-wide average speed goal in excess of that for interstate highways” is essential to “offering an attractive and reliable alternative to the automobile for intercity travel.”²⁰⁷ At the time, Amtrak’s “average systemwide speed [was] 45 miles an hour—10 miles an hour less than is permitted on the Interstate Highway System.”²⁰⁸ Indeed, Mr. Boyd emphasized that Amtrak’s “competition is the automobile,” arguing that “Congress should establish a systemwide average speed goal for Amtrak in excess of that on the interstate highways” because: “If we can’t get to a 55-mile-an-hour or better speed, I question the wisdom of having a rail passenger service.”²⁰⁹

At the February pre-evidentiary hearing conference, Member Hedlund asked Amtrak whether it was “contemplating running trains less than 60 miles per hour” given that Amtrak wants “access today” and claims it “will support the construction of additional infrastructure over time to improve service[.]”²¹⁰ Amtrak’s counsel

²⁰⁷ *National Railroad Passenger Corporation’s Fiscal Year 1980 Authorization and the Department of Transportation’s Final Route Recommendation: Hearing Before the Subcomm. on Surface Transp. of the S. Comm. On Com., Sci., and Transp.*, 96th Cong. 87 (Mar. 5 and 12, 1979) (“1979 Amtrak Hearing”) (statement of Alan S. Boyd, President, Amtrak).

²⁰⁸ *Id.* at 64, 80; *see id.* at 84.

²⁰⁹ *Id.* at 65. Just two years later, Congress increased Amtrak’s average network speed goal from 55 miles per hour to 60 miles per hour. Amtrak Improvement Act of 1981, 95 Stat. 687, 688 (Aug. 31, 1981) (codified as amended at 45 U.S.C. § 501a, now 49 U.S.C. § 24101).

²¹⁰ February 16, 2022 Pre-Evidentiary Hearing Conference, Tr. 73:6–15.

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pledged in response that “[its] witnesses can address that in full at the hearing.”²¹¹

Yet as Chairman Oberman noted, “there’s been virtually no testimony by anybody in this case so far [about] the 60-mile-an-hour part.”²¹²

In any event, Amtrak’s proposed Gulf Coast passenger schedule falls well short of Congress’s vision for competitive passenger service. Passenger service between New Orleans and Mobile in either direction is scheduled to take 203 minutes or 3.38 hours.²¹³ As Messrs. Banks and Guthrie explain in their supplemental verified statement, passenger trains will average 42.6 miles per hour over the 144.1 route miles based on that schedule.²¹⁴ While Mr. Blair may be satisfied that the proposed passenger service schedule of three hours and 23 minutes is “competitive vis-a-vis peak service driving time of about two hours and 45 minutes,” an average speed of less than 45 miles per hour under that schedule is more reminiscent of the average networkwide speed that Mr. Boyd testified was not competitive with automobiles.²¹⁵

²¹¹ *Id.* at 73:16–74:1.

²¹² *See* Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4042:4–13. All Amtrak offered was Mr. Blair’s testimony that the “maximum authorized speeds on the line are 79 miles an hour for passenger trains and so that gives us a good opportunity to - - to try and meet that standard.” Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 3004:18–3005:1. This is the full extent of Amtrak’s evidence on this issue and it is wrong. Passenger trains are only authorized “to operate at 79 miles per hour for approximately 74 out of the 132 miles on the New Orleans – Mobile Subdivision.” Johnson Supplemental V.S. at 4.

²¹³ Amtrak’s Application, Appendix A – Proposed Schedules; Banks & Guthrie Supplemental V.S. at 16–17.

²¹⁴ Banks & Guthrie Supplemental V.S. at 17.

²¹⁵ *Compare* Evidentiary Hearing Day 9 (May 9, 2022), Tr. 3342:4–8 *with* 1979

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To achieve an average speed of 60 miles per hour on the Gulf Coast corridor would require a schedule of 144 minutes of total trip time or 2.4 hours.²¹⁶ That in turn would require substantial infrastructure improvements including upgrading the entire Gulf Coast corridor to Class 5 track, an expensive and time consuming undertaking.²¹⁷ Indeed, the SRC has long understood (since 2006) that “if a trip time of less than two and a half hours can be achieved between New Orleans and Mobile, high-speed rail would be competitive with the automobile[.]”²¹⁸ And the 2006 report commissioned for the SRC concluded that significant infrastructure projects were the only way to “achieve reliable travel times of less than 2.4 hours between New Orleans and Mobile” in order to “provid[e] a competitive travel mode” along the Gulf Coast.²¹⁹ Yet Amtrak is not even willing to construct critical infrastructure prior to commencing this service like a Mobile station-layover track or a Gentilly bypass track. Instead, Amtrak is content to allow the projected 17 passengers per Gulf Coast passenger train to travel at speeds that are more than 15 miles per hour below Congress’s system-wide goal and uncompetitive with automobile travel.²²⁰ This § 24308(e) factor that the Board must consider does not

Amtrak Hearing, *supra* note 207, at 64–65, 80, 84, 87.

²¹⁶ Banks & Guthrie Supplemental V.S. at 17.

²¹⁷ *Id.* at 18.

²¹⁸ CSXNS Exhibit 346 at 3.2.

²¹⁹ *Id.* at ES.15, 9.5.

²²⁰ Exhibit CSXNS 167 at 1 (projecting 24,300 passengers in 2022 over the course of a year). This exhibit was admitted into evidence by the Board. *See* Evidentiary Hearing Day 9 (May 9, 2022), Tr. 3313:15–3316:5.

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support an order for the operation of additional trains as presented in Amtrak's application.

C. Amtrak Failed to Show that It Is Seeking “additional” Trains Within the Meaning of § 24308(e).

Subsection (e) applies only when Amtrak seeks “the operation of additional trains.”²²¹ And again, because Congress did not shift the burden to the railroads in subsection (e)(1), which states this requirement, Amtrak bears the burden of showing that this element is met.²²²

As a result, Amtrak must show that “the requested trains” are “additional trains over a rail line of the carrier”²²³—meaning it must show that it already runs trains on the same line. “Additional” ordinarily means “in addition to something else; added, extra, supplementary,”²²⁴ or “added, extra, or supplementary to what is already present or available.”²²⁵ This definition naturally suggests that there must be something “already present”—*i.e.*, existing “trains over a rail line of the carrier”—to which Amtrak seeks to add supplementary trains. And as the statute's singular phrasing suggests (“a rail line”), the existing trains must operate on the

²²¹ See 49 U.S.C. § 24308(e)(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*.” (emphasis added)).

²²² 5 U.S.C. 556(d).

²²³ 49 U.S.C. § 24308(e)(1).

²²⁴ *Swinomish Indian Tribal Cmty. v. Azar*, 406 F. Supp. 3d 18, 26 (D.D.C. 2019).

²²⁵ *Lexico, Definition of additional in English*, <https://www.lexico.com/en/definition/additional>.

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line in question, not elsewhere on the network. Indeed, the Board has described subsection (e) as applying “where Amtrak is already operating *on the line* and wishes to modify its service either by operating at higher speeds or by operating additional trains.”²²⁶

This description tracks the legislative history. Congress’s basic concern was that “in the past Amtrak’s efforts to add or modify services” had been stymied, and it “is important that Amtrak have available to it an expedited procedure for making necessary modifications or additions to its operations.”²²⁷ And Congress noted a specific example of the “lack of railroad cooperation” that inspired what is now subsection (e): “the refusal of the Santa Fe Railroad to permit Amtrak to operate an additional passenger train on Santa Fe tracks in the densely populated Los Angeles-San Diego corridor.”²²⁸ This example involved a specific line that already carried passenger traffic.²²⁹

All of this also reflects subsection (e)’s more focused inquiry and “expedited procedure.”²³⁰ This quicker process is naturally suited to the simpler question of whether to allow more trains on a route where Amtrak already operates. A broader

²²⁶ *Application of the Nat’l R.R. Passenger Corp. Under 49 U.S.C. 24309(a)—Springfield Terminal Ry. Co., Bos. & Maine Corp. & Portland Terminal Co.*, 3 S.T.B. 157, 170 (1998) (emphasis added).

²²⁷ H.R. Conf. Rep. No. 96-1041, at 42, 1980 U.S.C.C.A.N. at 1203.

²²⁸ H.R. Rep. No. 96-839, at 20–21 (Mar. 20, 1980).

²²⁹ *See id.*

²³⁰ H.R. Conf. Rep. No. 96-1041, at 42, 1980 U.S.C.C.A.N. at 1203.

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interpretation of “additional,” by contrast, would make little sense. It would be strange for Congress to adopt a streamlined, expedited process in subsection (e) that would apply anytime Amtrak already operated *somewhere* on a rail carrier’s network. Amtrak was therefore required to show, as the applicant, that it meets this requirement. Without that threshold showing, there is no basis to proceed under subsection (e).

IV. REASONABLENESS IS A FACT-INTENSIVE, CASE-BY-CASE INQUIRY AND EVERY KEY FACTOR IN THIS PROCEEDING WEIGHTS IN FAVOR OF DENYING AMTRAK’S APPLICATION.

Finally, the Board asked for “guidance as to how to measure reasonableness” under 49 U.S.C. § 24308(e).²³¹ Congress has long charged the Board and its predecessor, the Interstate Commerce Commission (“ICC”), with evaluating the actions of rail carriers under a standard of reasonableness.²³² The term “reasonable” is not self-defining and where Congress has not defined what would be “reasonable” under a given provision, courts have concluded that the Board has “broad discretion to conduct case-by-case fact-specific inquiries to give meaning to th[e] term[] . . . in the wide variety of factual circumstances encountered.”²³³

²³¹ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4054:20–22.

²³² *Pennsylvania R.R. v. Int’l Coal Mining Co.*, 230 U.S. 184, 196 (1913) (explaining that under the Interstate Commerce Act, there are “many acts of the carrier which are lawful or unlawful according as they are reasonable or unreasonable, just or unjust” that the “determination of such issues . . . calls for an exercise of the discretion of the administrative and rate-regulating body”).

²³³ *Granite State Concrete Co. v. Surface Transp. Bd.*, 417 F.3d 85, 92 (1st Cir. 2005) (collecting cases in the rate context); see *Riffin v. Surface Transp. Bd.*, 733 F.3d 340, 346 (D.C. Cir. 2013) (quoting *Union Pac. R.R.—Pet. for Declaratory Order*, STB

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The Supreme Court has cautioned that reasonableness is “a function of the facts of cases so various that no template is likely to produce sounder results than examining the totality of circumstances in a given case.”²³⁴ The use of frameworks, categories, or benchmarks in evaluating reasonableness often “giv[es] short shrift to details that turn out to be important in a given instance” while often “inflating marginal ones.”²³⁵ Both the ICC and the Board have recognized the risks associated with bright-line rules for evaluating reasonableness. The ICC “declined to make any general statements . . . regarding what practices may or may not be considered reasonable” because reasonableness is “best determined on the basis of a fully developed record in regular adjudicatory proceedings.”²³⁶ And the Board has reiterated that “[w]hat constitutes a reasonable request for service . . . depends on all the relevant facts and circumstances.”²³⁷

Applying these principles to this proceeding, all of the key factors weigh against granting Amtrak’s Application. To start, the only model to study impairment that was submitted into evidence unequivocally establishes that adding the proposed passenger trains will result in immediate and substantial harm by

Docket No. FD 35219 (served June 11, 2009), slip op. at 3–4).

²³⁴ *United States v. Banks*, 540 U.S. 31, 36 (2003).

²³⁵ *Id.* (collecting cases).

²³⁶ *Petitions for Issuance of Rate Reasonableness and Unreasonableness Practices Policy Statement*, 8 I.C.C.2d 61 (1991).

²³⁷ *Union Pac. R.R.—Pet. for Declaratory Order*, STB Docket No. FD 35219 (served June 11, 2009), slip op. at 3–4; accord *Riffin v. Surface Transp. Bd.*, 733 F.3d 340, 346 (D.C. Cir. 2013).

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“increase[ing] . . . freight delays by 22.7%, reduce train speeds by 4.5%, increase dispatching conflicts by 38.1%, increase re crews by 37.7%, and increase the variability of service.”²³⁸ CSXT local trains providing first mile/last mile service will experience the greatest degradation of a 45.4% increase in freight delays and a 6.9% reduction in speed with extreme variability.²³⁹ As discussed above, the degradation in speed and increase in delay will result in an additional two unplanned re crews per day in the 2019 case alone, with unplanned re crews being a significant driver of missed switches and service quality for customers.²⁴⁰ And the passenger service will cause complete gridlock and unreliable freight service on the corridor over time due to projected freight growth.²⁴¹

The impact of this freight service degradation is magnified by the importance of the Gulf Coast Corridor. The passenger service route is bookended by two major interchange points. The Port of New Orleans is one of the five largest rail gateways connecting the eastern and western rail carriers as they move freight traffic across the continent.²⁴² NSR’s Back Belt is the cornerstone of New Orleans and the fluidity (or lack thereof) of this stretch of track over which Amtrak will operate has ripple effects across the networks of connecting Class I and shortline carriers.²⁴³ Mr. Hunt

²³⁸ 2021 Gulf Coast RTC Report at 45 (§ 6.0).

²³⁹ *Id.* at 46, Table 20 (§ 6.0).

²⁴⁰ *See supra* Part II.C.

²⁴¹ 2021 Gulf Coast RTC Report at 32 (§ 4.0).

²⁴² *Johnson & Hunt V.S.* at 4.

²⁴³ *See id.* at 7–8.

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testified that passenger service in New Orleans necessitates the creation of a “window around the Amtrak scheduled arrivals and departures” in an effort “to mitigate the potential delays to Amtrak” from freight trains that “stop routinely” on the Back Belt while waiting to conduct interchange operations.²⁴⁴ Freight operations over the Back Belt are already reduced from 24 hours to 22 hours to accommodate the Amtrak Crescent Service.²⁴⁵ Operating windows for the twice-daily Gulf Coast passenger service would reduce freight operating hours down even further to approximately 18 hours without mitigating infrastructure.²⁴⁶ A daily reduction in Back Belt availability of that magnitude will “have a tremendous impact on all of the carriers in New Orleans.”²⁴⁷

On the other end of the Gulf Coast Corridor, the fast-growing Port of Mobile is the economic engine of Alabama and the region as well as a “vital conduit” in the global supply chain.²⁴⁸ The Port “supports nearly 161,000 jobs, moves more than 58 million tons of cargo annually, and generates close to 26.8 billion [dollars] in annual economic output.”²⁴⁹ And every indicator points to continued growth; indeed, the

²⁴⁴ Evidentiary Hearing Day 3 (Apr. 6, 2022), Tr. 782:12–783:4.

²⁴⁵ *Id.* at 783:5–784:9.

²⁴⁶ *Id.* at 784:10–785:3.

²⁴⁷ *Id.* at 785:4–7.

²⁴⁸ February 15, 2022, Hearing on Amtrak Operations in Gulf Coast, *Application of the Nat’l R.R. Passenger Corp. Under 49 U.S.C. § 24308(e)—CSX Transp., Inc. and Norfolk S. Corp.*, STB Docket No. FD 36496 (filed Mar. 23, 2022) (“February 15, 2022 Public Hearing”), Tr. 65:14–15, 65:19–66:1 (testimony of Sandy Stimpson, Mayor, City of Mobile).

²⁴⁹ *Id.* at 65:14–18.

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Port posted record container growth in 2021.²⁵⁰ For example, CSXT and the Port announced this year the construction of a “fully-funded inland intermodal container transfer facility to connect central Alabama’s manufacturing and retail distribution shippers with the Port.”²⁵¹

The Port of Mobile’s intermodal terminal operator described the magnitude of the threat to the Port at the February 2022 public hearing before the Board:

Amtrak's petition [is] a clear threat to our expansion and growth I understand rail movements in and out of the port, and I see our manageable heavy rail use deteriorating into congestion, delays, and increased cost to our customers if Amtrak is allowed on this system without mitigating investments in the corridor.²⁵²

Business organizations such as Business Council of Alabama explained how “[f]reight rail inefficiencies” caused by passenger trains without sufficient infrastructure “will ripple into the switchyard and upstream networks serving our port” with the “net results” being “inefficient cargo operations at the seaport, and

²⁵⁰ *Port of Mobile posts record container growth in 2021*, Alabama Political Reporter (Jan. 11, 2022), <https://www.alreporter.com/2022/01/11/port-of-mobile-posts-record-container-growth-in-2021/>; see Evidentiary Hearing Day 7 (Apr. 18, 2022), Tr. 2410:16–2411:5 (Director and CEO John Driscoll testified that the Port’s growth estimates are “very, very strong over the course of the next five years to where the volumes will be increasing significantly” and stating that the Port has “experienced since the fiscal year . . . [a] 138 percent increase in the intermodal container traffic to that facility”); see *id.* at 2378:8–12 (explaining that “[t]he Port has invested over \$1.3 billion in recent years in infrastructure development, . . . mostly in growth activities and moderniz[ation]”).

²⁵¹ *Id.* at 2441:12–17 (cross examination of Mr. Driscoll).

²⁵² February 15, 2022 Public Hearing, Tr. 200:15–18, 201:5–10 (testimony of Brian Harold, Managing Dir. of APM Terminals Mobile).

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inefficient service and delays within the upstream connecting networks.”²⁵³ Mr. Johnson testified that without a dedicated station and layover track, Amtrak’s station operations will tie up the mainline for hours each day in downtown Mobile, exacerbating congestion in the area by interfering with CSXT yard movements, through trains, and cross-corridor operations by the Port.²⁵⁴ And the Gulf Coast Corridor is CSXT’s only access route to the New Orleans gateway. The Port’s General Manager, Robert Golden, also testified that the Port will be unable to move cars on CSXT’s rail lines between Interchange and Riverfront Yards when Amtrak trains are on the southbound (westbound) mainline at the station in downtown Mobile.²⁵⁵ As a former dispatcher, Mr. Golden also explained that Amtrak has understated the length of time its trains will consume mainline capacity because a host railroad must “clear [its] route” well in advance of the arrival of a passenger train to avoid the risk of any conflicts.²⁵⁶

²⁵³ *Id.* at 221:4-13 (testimony of Kellie Hope, V. P., Community Engagement, Dir. of Regional Affairs – S. Region, Bus. Council of Ala.).

²⁵⁴ *See* Evidentiary Hearing Day 2 (Apr. 5, 2022), Tr. 489:11–489:19 (explaining how CSXT will have to “cram 24 hours of operations into 20 hours because [Amtrak is] not even building the simplest infrastructure of a station track at the terminus of . . . [the] passenger operation.”); *see also* Johnson & Hunt V.S. at 10–11.

²⁵⁵ Evidentiary Hearing Day 7 (Apr. 18, 2022), Tr. 2544:16–2546:2.

²⁵⁶ *Id.* at 2569:16–2572:21 (“If [Amtrak is] departing at 6:30 in the morning, CSX is going to start trying to find a way to get things in the hole probably by 5:00. . . . I would want to make sure that Amtrak came out of Mobile so I wouldn’t let anything to oppose it or follow it, leave ahead of it until Amtrak left. So I wouldn’t want even a 6,000-foot [freight] train to take off if I had an Amtrak 30 or 40 minutes in advance.”).

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The substantial stakeholder opposition to Gulf Coast passenger service as proposed also supports a finding that the impairment to freight transportation stemming from Amtrak’s application is unreasonable. The State of Alabama is uniformly opposed—across party lines and all levels of government—to new passenger service without any supporting infrastructure to protect the Port.²⁵⁷ In a letter dated April 1, 2021, Governor Kay Ivey made it clear that RTC modeling and a critical evaluation of infrastructure needs must be undertaken and that “[w]ithout

²⁵⁷ See, e.g., February 15, 2022 Public Hearing (Feb. 15, 2022), Tr. 38:16–20 (Alabama State Senator Chris Elliott testified that “with supply chain issues still looming over us due to the pandemic, bringing in new passenger rail service without making the needed infrastructure investments to support it, will most certainly create further disruption.”); *id.* at 69:6–10 (Mayor Stimpson explained that “The City would also like to see Amtrak invest in the rail infrastructure to ensure that our port and our rail cargos are not adversely affected.”); *id.* at 85:19–86:4 (Mobile Councilman Joel Daves described Gulf Coast passenger service as a “bad idea . . . if authorization to implement this service over these tracks is granted in the absence of a freight rail study, and infrastructure improvements necessary to mitigate any impact to port operations.”); *id.* at 168:6–9 (Secretary of the Alabama Department of Commerce Greg Canfield testified that the State of Alabama is “not really interested in proceeding [with Gulf Coast passenger service] unless federal funds are made available to build enough new infrastructure to protect Alabama businesses large and small.”); Alabama Congressional Delegation Letter (filed Feb. 14, 2022), at 2 (calling on the Board to “require Amtrak to pay for and make the necessary operational and infrastructure investments needed to ensure that there is sufficient capacity to accommodate passenger, freight, and intermodal rail service, as well as facilitate uninterrupted service into and out of the Port of Mobile”); Letter on Behalf of the Alabama Members of the Southern Rail Commission (filed Mar. 16, 2022), at 1 (“Before the Gulf Coast Service begins operating in Alabama, infrastructure improvements should be addressed to ensure that passenger services do not cause undue delays in freight operations in and around Mobile. . . . It is our position that these items, and any other infrastructure concerns identified by the represented parties, should be carefully considered by the STB *and completed before the Gulf Coast Service begins operating.*” (emphasis added)).

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a completed operational modeling study, Alabama will not commit to providing any financial support to new Gulf Coast passenger service.”²⁵⁸

And numerous business organizations and shippers are deeply concerned about how this passenger service will affect their freight service. They recognize that “[r]ecurring freight train delays, decreased train speeds, are certain to create additional costs and problems in the supply chain, and further hamper an already difficult situation.”²⁵⁹

Shippers previewed severe localized impacts for the Board. Unmitigated delays to freight service at a renewable diesel refinery “would result . . . in decreased turn times . . . [and] greater cost to consumers” and “threaten[] the viability of [the] plant.”²⁶⁰ A major plastics recycler explained that “increased traffic times” in the corridor due to unmitigated Amtrak impacts could delay raw materials shipments, which would be “very costly and disruptive” and cause their “24/7 operation . . . to [reduce] production rates or even shut down” for lack of material.²⁶¹ A commodities exporter cited the potential for increased ocean carrier demurrage charges from passenger-rail-created delays as a major source of concern.²⁶² Alabama

²⁵⁸ Alabama Governor Kay Ivey Letter (filed Apr. 1, 2021), at 1.

²⁵⁹ February 15, 2022 Public Hearing, Tr. 183:4–7 (testimony of Ellen McNair, Senior Vice President of Montgomery Area Chamber of Commerce).

²⁶⁰ *Id.* at Tr. 252:22, 253:1–6, 253:15–18 (testimony of Michael Rath, Sr. V. P. of Darling Ingredients, Inc.).

²⁶¹ *Id.* at Tr. 287:17–18, 286:18–21 (testimony of Alejandro Gutierrez, V. P., Procurement and Logistics, DAK Americas LLC).

²⁶² *Id.* at Tr. 260:17–21 (testimony of Steve DiCarlo, V. P. – Fuel Mgmt., Javelin Global Commodities) (“If there are delays [at the Mobile interchange due to Amtrak

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manufacturers noted that introducing Gulf Coast passenger service without infrastructure would diminish their global competitiveness.²⁶³ Shippers also implored the Board “to make sure that [shippers] don’t end up indirectly paying for the infrastructure[e] projects that may be needed to make this [Amtrak service] happen” by ordering passenger access without a full infrastructure set funded by Amtrak.²⁶⁴

CSXT customer Tom Giovinazzi of Holcim, Inc. described in detail the harm passenger trains will cause to local trains serving customers without sufficient infrastructure based on his experience as a former dispatcher.²⁶⁵ To provide Amtrak with priority on the mainline, local trains will have to be held off the mainline or moved to a siding in between serving customers well in advance of the passenger

service] whether it be a day, two days, three days, whatever the delays may be, there’s significant demurrage charges as you can imagine, ships are waiting to be loaded, and those costs can be quite expensive.”).

²⁶³ *Id.* at Tr. 292:17–293:4 (testimony of John Barginier, C. O. O. of Manufacture Alabama) (“The addition of passenger rail . . . without the infrastructure in place to handle those new passenger trains, will be highly disruptive. Almost certainly leading to much higher incidents of delay and other shipping related setbacks. This is something our members really can’t afford to absorb as they work to compete with manufacturers across the globe, especially at a time of international supply chain challenges.”).

²⁶⁴ *Id.* at Tr. 287:19–21 (testimony of Alejandro Gutierrez, V. P., Procurement and Logistics, DAK Americas LLC). Congress has clearly expressed in other contexts that there should be “no cross-subsidization of commuter rail passenger, intercity rail passenger, or freight rail transportation.” 49 U.S.C. § 24905(c)(1)(A)(i) (establishing the Northeast Corridor Commission).

²⁶⁵ February 15, 2022 Public Hearing, Tr. 276:19–279:17.

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train's arrival.²⁶⁶ Either course of action will cause customers slated to be served later to be "pass[ed] on . . . for that day" as crews reach their hours of service, which Mr. Giovinazzi explained "would never work for [Holcim's] circumstances."²⁶⁷ This reality will be exacerbated by the additional two unplanned recrews per day that will result from the introduction of passenger trains without sufficient supporting infrastructure.²⁶⁸ Most recently, the American Chemistry Council on behalf of their more than 190 member companies called for "[s]ignificant railroad infrastructure projects . . . to accommodate Gulf Coast passenger service."²⁶⁹

While freight demand is massive and growing, Amtrak is predicting extremely low ridership in the first year of service. In fiscal year 2022, Amtrak projects just 24,300 passengers will use the Gulf Coast service, which equates to approximately 17 passengers per train per day.²⁷⁰ And Amtrak expects to lose \$336 per passenger in the first year of service, which is almost five times more money than the second-worst performing state supported route from an operating loss

²⁶⁶ *Id.* at 277:7–279:13.

²⁶⁷ *Id.* at 278:4–14, 279:1–3 (noting that other customers on the line "have to be feeling the same way" as Mr. Giovinazzi does); *see also* Johnson Supplemental V.S. at 13 (describing how a local train will "return to the originating yard prematurely without completing service to all customers scheduled for that day" when the crew's hours of service are close to expiring).

²⁶⁸ *See supra* Part II.C.

²⁶⁹ American Chemistry Council Letter (filed June 30, 2022), at 2.

²⁷⁰ Exhibit CSXNS 167 at 1 (admitted into evidence by the Board). This estimate assumes the two daily roundtrips, or four trains, will operate 365 days per year.

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perspective.²⁷¹ And these 17 passengers per train will be traveling at an average speed of 42.6 miles per hour over the 144.1 route miles based on Amtrak’s proposed schedule, rendering Gulf Coast passenger service uncompetitive with automobile travel.²⁷² The societal benefits of this passenger service as proposed simply do not outweigh or justify the degradation of freight service quality.²⁷³

Finally, everyone but Amtrak has recognized that some infrastructure is needed to support the introduction and ongoing operation of Gulf Coast passenger service. In addition to the numerous stakeholders who called for a RTC study to determine what infrastructure would be necessary to protect freight interests, the FRA outlined in the GCWG Report “improvements . . . for enhancing the operations of passenger trains on the corridor *without unreasonably impairing freight operations*.”²⁷⁴ And there is broad, long-standing consensus between the Southern

²⁷¹ *Id.* (depicting the Heartland Flyer operating at a loss of \$68.20 per passenger).

²⁷² *See supra* Part III.B.

²⁷³ *See, e.g.*, February 15, 2022 Public Hearing, Tr. 39:4–40:16 (State Senator Elliott testified that “Increasing congestion in and around the port[,] which serves as a significant economic driver for our region[,] in the name of providing Amtrak service for a small number of passengers is a very clear example of the costs not aligning with the expected benefits [I]t is critical[,] rather, that we consider the notion that there are other areas where taxpayer dollars would be better spent, where communities would actually reap consistent and balanced benefits.”); *id.* at 82:21–84:19 (Councilman Daves explained that “[f]or every dollar the riders pay, the taxpayer would pay \$10.00” and traveling between New Orleans and Mobile by car or bus will be “more convenient, cheaper and takes less time.”).

²⁷⁴ Joint Exhibit 1B, GCWG Report at 23; *see also* FAST Act, 129 Stat. at 1655 (Congressional mandate calling for the GCWG to “develop a prioritized inventory of capital projects and other actions required to restore such service and cost estimates for such projects or actions”).

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Rail Commission, the FRA, and the freight railroads on the need for certain critical projects: a dedicated station and layover track at Mobile, a Gentilly Bypass, fluidity-improving projects in New Orleans, and new or lengthened sidings to protect service to local customers and facilitate run times.

From 2002 to 2006, FRA and the SRC commissioned a study of how to upgrade the Gulf Coast Corridor to “achieve . . . reliable on-time performance for all freight and passenger operations.”²⁷⁵ The study concluded that “run[ning] four additional passenger trains at 79 mph” between New Orleans and Mobile would require the relocation and lengthening of existing sidings or the construction of three new sidings, double track at Beauvoir and between Brookley siding and Choctaw Yard, and a separate mainline track (bypass) at Gentilly Yard.²⁷⁶

In the GCWG Report, the FRA continued to advance many of the 2006 projects. The FRA stated that a Mobile station track was part of the “minimum needed for passenger rail service” and called for the construction of a Gentilly Yard bypass to prevent conflicts between passenger trains and yard trains performing switching operations on the mainline.²⁷⁷ Indeed, after the GCWG Report was submitted to Congress, Amtrak was told that {“Redacted

²⁷⁵ See CSXNS Exhibit 346 at ES.1.

²⁷⁶ *Id.* at 5.7, 8.4–8.14.

²⁷⁷ Joint Exhibit 1B, GCWG Report at 25, 27, 29–30 & Table 5.

Redacted

}²⁷⁸ Even Amtrak’s own expert, Mr. Johanson, concluded that without a “station pocket track” in Mobile, there is “insufficient capacity to handle the non-revenue movements of [passenger] trains to and from Choctaw Yard (as is currently proposed by Amtrak).”²⁷⁹

It bears repeating that while the GCWG undertook some effort to address the impairment of freight rail service on the CSXT portion of the Gulf Coast Corridor caused by the introduction of Amtrak service, the same is not true for impairment to NSR’s operations. Neither the GCWG Report nor the FRA identified projects remedy the impairment to NSR’s operations or other freight carriers that operate over the NSR network in New Orleans, including the Back Belt. The GCWG’s failure to address this portion of the Gulf Coast Corridor is a significant omission, which dramatically undercuts the reliability of its proposed solution.

In sum, “all the relevant facts and circumstances” militate in favor of rejecting Amtrak’s Application because it causes unreasonable impairment.²⁸⁰

²⁷⁸ CSXT and NSR’s Response to Amtrak’s Renewed Request for an Interim Order, FD 36496 (filed Nov. 9, 2021), Ex. I, {Redacted

}.

²⁷⁹ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 3919:12–22 (quoting DB Report at 22).

²⁸⁰ See *Union Pac. R.R.*, FD 35219, slip op. at 3–4.

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Amtrak elected to ask the Board for an order granting access to CSXT and NSR's lines to commence passenger service without any commitment to fund supporting infrastructure despite Amtrak having known and been told for over 15 years that infrastructure was needed. Indeed, Amtrak has even walked back its initial commitment to at least complete the dedicated Mobile station and layover track prior to commencing service because Amtrak has failed for more than five years to do the hard work of persuading key stakeholders in Mobile to support this passenger service.²⁸¹ And Amtrak's dismal ridership projections combined with its failure to achieve competitive speeds show that the public interest in passenger rail service is far outweighed by the importance of a fluid supply chain and reliable freight service to shippers between these two critical freight terminals. On this fully developed factual record, Amtrak's request is unreasonable and should be denied.

V. CONCLUSION

In accordance with the Board's May 17 Decision, CSXT and NSR submit the included supplemental evidence to address certain legal or RTC modeling questions identified by the Chairman at the close of the evidentiary hearing. The totality of the record demonstrates that Amtrak has not met its burden of proving it is entitled

²⁸¹ *Compare* Amtrak's Application at 6 & n.12 (requesting "enough lead time to make the improvements recommended in the Gulf Coast Working Group's report") *with* Evidentiary Hearing Day 9 (May 9, 2022), Tr. 3301:12–3306:6 (stating that passenger service would commence without the dedicated layover track "in the event that we can't construct the layover facility in Mobile more quickly than we could construct a temporary layover facility in Choctaw").

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to an order to permit immediate Gulf Coast passenger service with no additional infrastructure.

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CERTIFICATE OF SERVICE

I hereby certify that on this 27th day of July, 2022, a copy of the foregoing Supplemental 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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**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 SUPPLEMENTAL EVIDENCE**

**SUPPLEMENTAL VERIFIED STATEMENT OF
CHARLES H. BANKS AND LARRY R. GUTHRIE**

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This Supplemental Verified Statement comments on responses to certain questions that members of the Surface Transportation Board (“Board”) raised at the evidentiary hearing in the above-referenced proceeding about the 2021 Gulf Coast RTC Model. In particular, this Supplemental Verified Statement provides additional evidence and RTC modeling related to the following questions:

- *First*, how well the Federal Railroad Administration’s (“FRA’s”) identified projects set forth in the Gulf Coast Working Group’s 2017 Report to Congress (“GCWG Report”) mitigate the many adverse impacts on freight operations of the proposed passenger service in 2019;
- *Second*, would operational changes to reduce freight train lengths between New Orleans and Mobile provide a short-term solution to mitigate the adverse impacts of hosting new passenger trains during the time any projects ordered by the Board were constructed;
- *Third*, what benefits would passenger and freight train operations realize if the U.S. Coast Guard was to take either of two actions:
(1) reverse currently effective regulations by providing passenger trains preference over maritime vessels,¹ and (2) permit remote-control

¹ Regulations concerning the operations (opening and closing) of drawbridges across the navigable waters of the United States are reserved to the Department of Homeland Security, and the U.S. Coast Guard in particular. 33 C.F.R. § 117.1(a). U.S. Coast Guard regulations provide that unless otherwise authorized, moveable bridges must open promptly and fully for the passage of vessels when requested or signaled. Specific requirements for moveable bridge operations can be approved by the Coast Guard. *See* 33 C.F.R. § 117.8. Upon a written request, the Coast Guard

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operation (automation) of the moveable bridges such that current bridge tender trips to and from the bridges via hi-rail vehicles were no longer necessary; and

- *Fourth*, how do the RTC performance metrics demonstrate impairment to railroad customers?
- *Fifth*, what evidence does the Board have about its obligation to consider the impact of the proposed passenger schedules on Amtrak's statutory goal of achieving a network-wide average speed of 60 miles per hour?

R.L. Banks & Associates ("RLBA") and HNTB Corporation ("RTC Modelers") answer these questions in the 2021 New Orleans – Mobile Gulf Coast Passenger Service RTC Modeling Supplemental Report ("RTC Supplemental Report") attached as Appendix A to this Supplemental Verified Statement. As the RTC Modelers testified at the evidentiary hearing, Mark Dingler served as the primary modeler while Charles Banks and Larry Guthrie engaged in a detailed review of the RTC Supplemental Report and corresponding Gulf Coast Corridor modeling. To the maximum extent possible, the RTC Modelers adhered to the same modeling assumptions and followed the same processes used in the previously submitted 2021

will evaluate the proposal and determine whether to implement the change through a rulemaking process. *Id.* Those specific exceptions are made on a bridge-by-bridge basis, and the exceptions that are provided for are found in 33 C.F.R. Part 117, Subpart B. In this Supplemental Verified Statement, we take no position on whether other public interests are implicated in the reversal of the current regulatory regime, but we do note that any change of this regulation likely involves a balancing of interests and the evidence presented herein likely would be relevant to the U.S. Coast Guard in its consideration of the proposed change.

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Gulf Coast RTC Model to achieve consistency and to enable the Board to compare readily performance metrics from the various reports to one another.

The supplemental modeling found that the FRA identified projects mitigate only half of the impairment experienced by freight trains when passenger trains are introduced to the corridor in the 2019 case. Unsurprisingly, these FRA projects also cost approximately half of what CSXT and NSR's 14 proposed projects cost as those 14 projects were designed to mitigate almost all impairment attributed to the passenger trains. The cost estimates of the FRA identified projects have been developed in the report of Ted Niemeyer of V3 Companies that is attached to this Supplemental Verified Statement as Appendix B. Those cost estimates are designed to provide the Board with an understanding of what the FRA identified projects, estimated to cost \$100 million in the Gulf Coast Working Group's 2017 Report to Congress, would cost in 2021 dollars.

The supplemental modeling also revealed that any benefits from running shorter freight trains between New Orleans and Mobile were largely nullified by the increase in degradation from having to run more trains to transport the same freight volumes.² And modifying U.S. Coast Guard regulations to grant priority to passenger trains over maritime traffic and to remove bridge tender hi-rails by remote-control operation of the bridges, collectively, yields only minor mitigation of the degradation in freight train performance.

Finally, using Amtrak's proposed passenger service runtimes, the RTC Modelers calculated the projected average speed on the Gulf Coast line and concluded that it falls well short of 60 miles per hour, meaning that Amtrak's

² The modeling effort did not attempt to quantify the additional equipment, fuel, and crews required to run these additional trains.

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proposed Gulf Coast passenger service will work to undermine Amtrak's statutory goal of achieving 60 mile per hour network-wide average.

I. The FRA identified projects are not sufficient to mitigate the impacts of new Amtrak trains on freight operations.

The GCWG Report sets forth 28 projects identified by FRA that it thought would “enhance[e] the operations of passenger trains on the corridor without unreasonably impairing freight operations” between Mobile and CSXT's interchange with NSR in New Orleans.³ Unfortunately, the suite of projects posited by the FRA fails to achieve either goal. As demonstrated in CSXT's and NSR's prior evidence, the FRA suite of projects clearly does not mitigate freight impairment in the 2039 case. It does not do so in the 2019 case either. As shown in the RTC Supplemental Report, some of the FRA identified projects do provide some limited mitigation against harm to freight operations but they fall far short of fully, or even substantially, mitigating that harm. And certain projects yield little in the way of benefits.

A. Many of the FRA projects have already been implemented and/or will not produce the benefits predicted in the GCWG Report.

The 28 projects FRA identified are set forth in Appendix L to the GCWG Report as “Item Nos.” and are best understood as spanning seven project categories:

- *Category 1: Miter Rails.* The FRA included upgrading or modifying the miter rails at the following six (6) moveable bridges between New Orleans and Mobile: Chef Menteur (Item No. 4); Rigolets (Item No. 6); Pear River (Item

³ Gulf Coast Working Group, Gulf Coast Working Group Report to Congress, Final Report, at 23 (July 2017).

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No. 7); Bay St. Louis (Item No. 11); Biloxi Bay (Item No. 16); and Pascagoula River (Item No. 18);

- *Category 2: Diamond Crossings.* The FRA suggested modifying two (2) diamond crossings (interlockings) of CSXT track by other railroads to expedite passenger service by preventing the foreign railroads from stopping traffic over CSXT's line by simply arriving first: Kansas City Southern Railway diamond crossing at Gulfport (Item No. 14) and Canadian National Railway diamond crossing near Mobile (Item No. 25);
- *Category 3: Aspirational Goals.* The FRA called for the installation of a new, passenger station in the Mobile suburbs (Item No. 23) and generally encouraged the authorization of greater maximum speeds on passenger trains (Item No. 28);
- *Category 4: Crossing Closures.* The FRA suggested closing at-grade, highway-rail crossings in or near six (6) locations: Gentilly Yard (Item No. 2); Michoud Boulevard (Item No. 3); Bay St. Louis (Item No. 10); Gulfport (Item No. 13); Beauvoir (Item No. 15); and Mobile (Item No. 26);
- *Category 5: Siding Speed Improvements.* The FRA identified seven (7) sidings as possible locations at which to install No. 20 turnouts to improve train entry speed: Lake Catherine (also called Magnolia Ridge) (Item No. 5); Claiborne (Item No. 8); Beauvoir (Item No. 15); Gautier (Item No. 17); Orange Grove (Item No. 20); Saint Elmo (Item No. 21); and Brookley (Item No. 24);
- *Category 6: Track Projects.* The FRA suggested the construction of the following five (5) track projects to facilitate meets and overtakes and enable passenger trains to bypass busy freight yards: Gentilly Yard Bypass (Item No. 1); Ansley Siding (Item No. 9); Harbin (also called White Harbor) Siding (Item No. 12); Bayou Cassotte Bypass near the Port of Pascagoula (Item No.

19); and a dedicated station and layover track at the Mobile passenger site (Item No. 27); and

- *Category 7: Remote Switches.* The FRA identified a need to replace two hand-thrown switches with remote-controlled interlockings or switches at the Theodore Industrial Complex (Item No. 22).

1. Projects that were not modeled in either the 2019 and 2039 FRA Cases or the 2019 and 2039 FRA Adjusted Cases.

Certain projects were not modeled, either because they have already been implemented—and, therefore, their benefits in mitigating any adverse impacts to freight operations caused by the introduction of passenger service, to the extent there are any, are already reflected in the RTC cases the freight railroads have advanced—or for other reasons explained in this section.

The six FRA proposed miter rail projects in *Category 1* were installed by CSXT on appropriate bridges prior to the commencement of both the 2020 HDR Study and this proceeding and, in some instances, even before the publication of the GCWG Report in 2017. Therefore, these projects were reflected in the original 2019 and 2039 Base Cases. And, as discussed in the Supplemental Verified Statement of Ricky Johnson, the installed miter rails have had no meaningful benefit on CSXT freight speeds.

Similarly, the two, FRA-identified, railroad crossing diamond re-engineering projects in *Category 2* were not modeled in RTC and were not costed because they have been completed by CSXT and thus, again, are already reflected in the 2019 and 2039 Base Cases.⁴

⁴ The RTC modeling measures the adverse impact of a proposed action (here, the introduction of passenger rail service) on the results of the 2019 Base Case (which in this case already includes both the installed miter rails and the crossing

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In *Category 3*, the FRA identified a new passenger station construction project in the suburbs of Mobile that was not modeled in RTC as it would not and was not intended to have a positive effect on reducing freight train impairment as compared to the status quo, and that station project was not costed by the engineering cost consultants. Similarly, the FRA suggested that passenger trains be authorized to operate at 79 miles per hour wherever possible and thus was not modeled or costed. Those recommendations were not so much projects as aspirational objectives with specificity sufficiently undefined as to defy RTC modeling and costing. And in any event, as more fully explained in Ricky Johnson's Supplemental Verified Statement, CSXT already authorizes passenger trains to travel at 79 miles per hour on approximately 74 of the 132 miles on CSXT's lines over which the Gulf Coast service will operate.

2. Projects that were modeled in the 2019 and 2039 FRA Cases but modified or not modeled in the 2019 and 2039 FRA Adjusted Cases.

Certain projects were not modeled in the 2019 and 2039 FRA Adjusted Cases either because their implementation was outside the ability of the parties or the Board to implement, or because the project scope was determined to result in little to no benefit as intended by FRA.

The FRA proposed "Crossing Closure" projects in *Category 4* were neither modeled in RTC nor costed as they all involve the closing of road crossings that are beyond the exclusive control of the prospective host railroads, Amtrak, and the Board and may not prove politically feasible. One grade crossing was already closed by CSXT at Old Gentilly Road and is reflected in the 2019 and 2039 Base Cases.

diamonds). Therefore, the adverse impact identified by the modeling is measured with these improvements as part of the base rail infrastructure. As such, these two categories of improvements cannot be proposed as mitigation measures.

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RLBA is regularly involved in attempts to close grade crossings and is aware of just how challenging it can be to close them. An excellent example of community resistance to grade crossing closures is Biloxi, Mississippi—a passenger stop along the proposed Gulf Coast passenger route—in which FRA envisions closing multiple crossings as part of Item 13 in spite of the fact that CSXT has been unsuccessful in closing those crossings in that very same city over many years. Railroads have every incentive to close as many crossings as possible because they not only are a continuous railroad maintenance headache but they expose railroads to significant liability risk due to safety issues.

The FRA proposed “Siding Speed Improvements” projects in *Category 5* would result in very little to no time savings owing to the fact that the freight trains that would use the sidings are sufficiently heavy that experienced engineers would slow trains down as they approached the sidings so that they would stop safely within siding limits without throwing the trains into “emergency” braking status. And some of the sidings are simply too short in length for even the shortest of freight trains to enter at higher speeds. This operating reality results in freight trains being unable to take advantage (if any) of the higher theoretical speeds manifest in the larger turnout sizes identified by FRA. However, for the Board’s information, CSXT and NSR have included these projects in the 2019 and 2039 FRA Cases. Only four of the siding speed improvements were included in the 2019 and 2039 FRA Adjusted Cases.

3. Projects that were modeled in both the 2019 and 2039 FRA Cases and the 2019 and 2039 FRA Adjusted Cases.

The five FRA identified projects in *Category 6* involving the construction of new track were modeled in RTC and costed by the engineering cost consultants. And the FRA proposed Theodore Industrial Complex project in *Category 7* involving

the “remoting” of switches was modeled in RTC and costed by the engineering cost consultants.

B. The FRA identified projects do not sufficiently address the harm experienced by freight traffic by the introduction of passenger trains.

The FRA identified projects were modeled in the 2019 and 2039 FRA Cases as proposed and in the 2019 and 2039 FRA Adjusted Cases with projects that were completed, are outside the control of the railroads to implement, or will result in little to no benefit removed. In short, the FRA identified projects mitigate approximately half of the degradation freight trains experienced as a result of the introduction of the proposed passenger service into the RTC Model. As seen in Table 2-2 in the RTC Supplemental Report, the percent change in freight train delay per 100 train miles metric is nearly 10% worse than the 2019 Base Case even assuming all of the FRA identified projects were installed. The percent change in modeled freight train speed metric is nearly 2% worse after installation of the FRA identified projects as compared to the 2019 Base Case.

The other three key metrics associated with the FRA identified projects were 25 percent or more worse than the those produced in the 2019 Base Case. But most importantly, CSXT local traffic, the trains directly serving customers along most of the route, remains highly impacted. CSXT local trains experience an overall increase in delay of nearly 18% though some individual CSXT local trains experience delay increases of between 30% and 55%. The modified set of projects identified by the FRA and modeled in the 2019 FRA Adjusted Case resulted in identical performance metric results in the first two categories (delay minutes per 100 train miles and train speed) as the unadjusted FRA project set with similar, unacceptable results in the remaining three performance metrics (dispatching conflicts, delays to foreign interchange traffic, and recrews). In other words, the

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adjusted set of FRA identified projects fared no better than the unadjusted FRA project set when they were modelled.

We do not find those results particularly surprising for three primary reasons. First, as stated above, the seven siding speed improvements proposed by FRA (25% of the total number of projects) do not yield much in the way of tangible benefits because the siding lengths generally are too short in comparison to the lengths of the freight trains that use them in the simulations to result in meaningful speed benefits being realized. This is why the removal of these projects did not adversely affect to a significant degree any of the performance metric results previously set forth in the 2021 Gulf Coast RTC Report. Second, the speed of the freight trains entering sidings being modeled is not as much of a barrier to the fluidity of the network as is the capacity of the infrastructure required to accommodate the freight trains “displaced” to make way for the high priority Amtrak trains. Additionally, we would note that the FRA identified projects failed to resolve passenger train impacts in 2019 on four (4) of the six (6) CSXT Local Trains across the performance metrics listed in Table 2-4 of Appendix A. Finally, the FRA identified projects were limited to addressing impacts on CSXT’s portion of the proposed passenger route between Mobile and Gentilly Yard in New Orleans. The Gulf Coast Working Group specifically stated that initiating additional passenger frequencies in the New Orleans terminal area “may have operational impacts beyond those already studied” and separate from those impacts identified on the remainder of the corridor, and there was no effort by the Gulf Coast Working Group to either identify or address those adverse impacts to operations over NSR’s Back Belt.⁵

⁵ Joint Exhibit 1B, GULF COAST WORKING GROUP REPORT TO CONGRESS, The Gulf Coast Working Group, at 10 (July 2017).

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Of note, and as more fully discussed in Appendix B to this Supplemental Verified Statement, the scope of the FRA identified projects were detailed in some respects but undefined in many other respects. To the extent the FRA projects were not defined, we instructed our subcontractor, V3 Companies, to use its project team's many decades of experience in the railroad industry to make design assumptions consistent with achieving FRA's goals as set forth in the GCWG Report without changing the scope of said projects or inflating costs.

II. Any benefits from operating shorter freight trains are negated by the fact that operating shorter trains means operating more trains.

Because one of the challenges to introducing passenger service on a shared operations corridor is how passenger trains interact with freight trains longer than the existing sidings, the Board asked the parties to consider the impact to freight operations and performance metrics that would result from shortening existing (2019) and projected (2039) freight trains to ensure that most freight trains could enter into existing sidings. The RTC Modelers decided to model shorter freight trains only on the New Orleans – Mobile portion of the RTC model. Doing so avoided creating unnecessary congestion in the model toward Montgomery and creating larger operational and service challenges throughout CSXT's network that are unquantifiable on the New Orleans – Montgomery model in this case. For those reasons, this modeling option was deemed the best one even though it would result in the need for more locomotives and more crews between New Orleans and Mobile as well as additional switching in Mobile to break up incoming trains from Montgomery or build outgoing trains to New Orleans, which will create some undetermined, unmodeled impacts elsewhere on the CSXT network).

The RTC Modelers chose 7,500-foot trains as the maximum to mirror the practical ability of freight trains to fit in all but the Sibert and Lake Catherine sidings, thereby allowing freight trains to hold for Amtrak trains in the majority of

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the existing sidings clear of grade crossings. The RTC Modelers also shifted a limited number of railcars and reassigned them to other existing trains to avoid creating absurdly short through trains of less than 4,000 feet. That said, train sizing and car shifting cannot be analyzed in a void. Consideration of siding length and functionality is at least as important. Equal consideration of the demand for and supply of siding capacity is paramount to the successful resolution of the train size challenge.

The adjustment in operations would only be considered if passenger trains are introduced to the corridor, so the 2019 Base Case remained the same comparative baseline and the change in freight train lengths only occurred in the 2019 Passenger Case. The change in train lengths is proposed as an alternative to the 2019 Build Case so that changes in freight impacts, similar to the 2019 Build Case and 2019 Passenger Case, were evaluated against the 2019 Base Case. This new case is referred to as the 2019 Passenger Case with Adjusted Train Lengths.

Ultimately, operating shorter freight train lengths results in slightly worse freight train performance metrics than in the 2019 Passenger Case. The reason for this is quite simple. Benefits achieved by the two freight trains that were split in the 2019 Passenger Case With Adjusted Train Lengths through reduced delay per conflict were completely neutralized by the overall increase in conflicts caused by presence of two new trains. Stated another way, the addition of four passenger trains and the two freight trains required to limit train lengths in the 2019 case increases the total number of through trains on the corridor by 75% compared to the 2019 Base Case. This additional traffic greatly impacted the existing freight operations quality through increased delays, slower speeds, and increased variability. A similar phenomenon is observed in the 2039 case, where four passenger trains are added and four freight trains must be split, resulting in dispatching gridlock. This added traffic, coupled with the high passenger train

priorities, resulted in operations that exceeded the available capacity on the corridor.

III. Giving Amtrak priority over maritime vessels improves passenger train performance but does not meaningfully help freight train performance.

The RTC Modelers considered two adjustments to the existing moveable bridge operations premised on hypothetical regulatory changes by the U.S. Coast Guard.⁶ First, the bridge tender hi-rail vehicle movements were removed from the model to simulate the remote-control operation (or automation) of all moveable bridges on the line. Second, passenger trains were given priority over maritime traffic at the moveable bridges while preserving maritime traffic priority over freight trains. The model reflected a modest improvement in passenger on-time performance resulting from these changes as well as a minor reduction in freight train degradation. However, a limitation of RTC required the RTC Modelers to model the proposed regulatory change in priority by permitting passenger trains to operate across bridges even when they were open to maritime traffic. Naturally, this is not how the bridges would operate in real life. The simultaneous operation of passenger rail and maritime traffic at the moveable bridges failed to capture the full length of time a freight train would remain delayed if both events occurred simultaneously. Therefore, even the modest improvement to freight degradation in 2019 must be taken with a grain of salt.

⁶ No attempt was made by the RTC Modelers to quantify the adverse impact to commercial maritime traffic of the proposed regulatory changes.

IV. Amtrak’s proposed new passenger service will cause a spike in daily, unplanned re crews between New Orleans and Mobile, resulting in numerous unserved customers along the line.

The 2021 Gulf Coast RTC Report presented indications of freight operations degradation across several, key performance metrics (*e.g.*, speed, minutes of delay per 100 train miles, re crews) experienced due to the introduction of the proposed passenger service on two CSXT subdivisions: New Orleans – Mobile (“NO&M”) and Mobile – Montgomery (“M&M”). Although the passenger trains will only travel on CSXT’s NO&M subdivision, the M&M subdivision was modeled because the Mobile terminal area encompasses parts of both subdivisions and, therefore, all of the impacts associated with the introduction of Amtrak trains should be fully mitigated on both subdivisions. However, there is an outsized impact to freight trains operating on the NO&M (the subdivision on which the passenger trains are proposed to operate). This is so for at least two reasons. First, the degradation experienced on the M&M resulting from the passenger service is significantly less than that on the NO&M. Second, the overall averages include not just mainline operations but dwells in terminals, yards, and sidings.

To provide the Board with a clearer picture of the harm to customers on the NO&M subdivision where Amtrak trains are proposed to actually operate, the RTC Modelers applied the increase in projected runtime in the RTC Model associated with merchandise and local trains in 2019 to the calculated line-of-road time (the time the train operates on the mainline between yards) from actual data. The RTC Modelers then used that projected increase in real-world runtime to evaluate the change in unplanned re crews that CSXT merchandise and local trains will experience according to the model. The results show a significant and acute impairment of freight operations on the NO&M Subdivision.

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Both merchandise and local trains operating on the NO&M subdivision in RTC experienced an increase in average line-of-road runtime of greater than 15% which, when applied to real-world metrics during the study period of September 2019 to November 2019, equates to an additional 2 unplanned recrews *per day*. We combined the per day number of unplanned merchandise recrews (0.5) and local recrews (1.5) because of the interrelated nature of merchandise and local trains. Merchandise trains supply or feed railcars to (and from) local trains which directly serve customers. So any delay experienced by merchandise trains from unplanned recrews will ultimately be passed on to customers as railcars fail to timely reach yards for transfer to local trains and ultimate delivery to customers. And as explained below, unplanned merchandise recrews inherently impact local trains because railroads will draw crews from local trains to staff unplanned recrews of merchandise trains when there is a lack of crews in the pool from which to draw.

An increase of two unplanned recrews per day caused by the introduction of passenger service on the NO&M subdivision would produce devastating results on service to freight customers. Train crews are limited by federal law to 12 hours of service before they can no longer legally operate a train. An unplanned recrew will frequently occur in less-than-ideal locations such as on a mainline, in a siding of inadequate length, or at grade crossings to facilitate crew replacement by road. A train experiencing a recrew may be delayed for hours while crews are called from the pool, travel to the train's location, and conduct necessary safety inspections and procedures before re-starting operations.

In situations where there is no crew pool availability, freight railroads will pull crews off of local and yard trains to operate the higher priority merchandise or through trains, as Ricky Johnson confirms in his Supplemental Verified Statement. This occurs all the more often in challenging hiring environments such as 2021 and 2022, or in periods of unforeseeable traffic surges. Indeed, the RTC Modelers

determined that unplanned recrews of merchandise trains would more than triple from 2019 to 2022 with the introduction of passenger trains and no infrastructure. In short, a local train that experiences a multi-hour delay due to an unplanned recrew of another, stalled train, or loses its crew altogether to a higher priority train, will inevitably fail to serve all of its customers on a given day.

V. Amtrak’s proposed Gulf Coast passenger service cannot attain an average speed of 60 miles per hour absent substantial and unwarranted expense.

Amtrak presented no evidence in its written submission or during the evidentiary hearing concerning the average speed of its passenger trains if the Board orders the implementation of Gulf Coast passenger service. In the context of a Section 24308(e) application, the Board is required to consider the impact of any proposed passenger schedule on Amtrak’s statutory goal of “attain[ing] 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.”⁷ Stated another way, the reliability, passenger comfort, and average speed of any passenger service are aspects of the public interest about which Congress is concerned. Amtrak has offered the Board no information on these topics to aid the Board as it endeavors to exercise its “strong duty to consider the public interest” and “to watch out and protect the public interest.”⁸

Amtrak proposes to operate two, daily roundtrip passenger trains between New Orleans and Mobile. According to Amtrak’s proposed schedule, each of these

⁷ 49 U.S.C. § 24308(e)(2)(B); *see also* 49 U.S.C. § 24101(c)(6) (same).

⁸ Evidentiary Hearing Day 11, *Application of the Nat’l R.R. Passenger Corp. Under 49 U.S.C. § 24308(e)—CSX Transp., Inc. and Norfolk S. Corp.*, STB Docket No. FD 36496 (May 12, 2022), Tr. 4041:11–18.

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four trips per day will take a total schedule time of 203 minutes.⁹ For the two westbound trains to New Orleans, that total scheduled time consists of 159 minutes of total pure runtime, 36 minutes of recovery, and 8 minutes of dwell time.¹⁰ For the two eastbound trains to Mobile, the total schedule time of 203 minutes consists of 160 minutes of total pure runtime, 35 minutes of recovery, and 8 minutes of dwell.¹¹ The dwell time takes into consideration the stops at the four intervening passenger stations between New Orleans and Mobile, while the recovery minutes are designed to mitigate the impact of potential delays such as moveable bridge openings that passenger trains may encounter during the trip.

The proposed passenger route traverses 144.1 miles of track owned by CSXT, NSR, and Amtrak.¹² Converting the total schedule time of 203 minutes to hours results in a trip time of approximately 3.38 hours. Dividing the 144.1 route miles by 3.38 hours results in an average speed of approximately 42.6 miles per hour. This speed falls well short of the statutory goal of averaging 60 miles per hour.

To achieve an average speed of 60 miles an hour over the 144.1 miles between New Orleans and Mobile, passenger trains would need to traverse the line in 2.4 hours or 144 minutes of total trip time. But Amtrak would still require dwell time at station stops and recovery time as a contingency against unforeseen circumstances. After removing 8 minutes of dwell time and 35 minutes of recovery time, the passenger trains are left with a pure runtime of 101 minutes. Converting a pure runtime of 101 minutes to hours results in a trip time of approximately 1.68 hours. Dividing the 144.1 route miles by 1.68 hours results in an average speed of

⁹ Amtrak's Application, Appendix A – Proposed Schedules.

¹⁰ *Id.*

¹¹ *Id.*

¹² 2021 Gulf Coast RTC Report at 13, Table 1 (§ 1.1).

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approximately 86 miles per hour. A pure runtime of 101 minutes is thus simply unattainable based on the current infrastructure as an average track speed of 86 miles per hour is only attainable on Class 5 track and above.¹³ All of the mainline track along the proposed Gulf Coast route is Class 3 or Class 4 track. Upgrading the entire route to Class 5 track would be very expensive. Amtrak proposed certain schedules for the Gulf Coast passenger service, but Amtrak itself has failed to and cannot show that those proposed Gulf Coast passenger service schedules will further the goal of attaining a system-wide average speed of 60 miles per hour.

Reasonable people may disagree as to whether the public interest benefits associated with the addition of four, daily passenger trains is more than offset by their adverse impacts on Amtrak's statutory goal of attaining a systemwide average of at least 60 miles per hour. Regardless of how that debate may be resolved, it should be clear even to non-experts that Amtrak trains averaging 42.6 miles per hour are not going to be competitive with the use of private motor vehicles, even if those speeds represent "door-to-door" travel times for passengers (which they do not), making projected Amtrak Gulf Coast train speeds even less competitive in the real-world transportation marketplace. Decades ago, RLBA was asked by a client to codify the most important factors in achieving success when establishing a new commuter rail service. RLBA determined that competitive overall trip time, reasonable fare, and reliability were the foremost factors from the passenger's point of view. We would have advanced the same criteria if a prospective sponsor of intercity passenger train service had requested a similar listing of success factors. Indeed, Congress's goals for Amtrak align with our analysis.¹⁴ In this case,

¹³ See 49 C.F.R. § 213.9(a).

¹⁴ See 49 U.S.C. § 24101(c)(1)(A), (c)(4), (c)(6) ("Amtrak shall use its best business judgment in . . . "offering competitive fares"; "operat[ing] Amtrak trains, to the

Amtrak's proposed schedule does not offer the key factor of a competitive overall trip time.

VI. Conclusions

This Supplemental Verified Statement, together with the corresponding reports by the RTC Modelers and V3 Companies, addressed several questions raised by the Board during the evidentiary hearing. *First*, the Gulf Coast Working Group and the FRA identified projects failed to provide a solution to address the unreasonable impairment that would result from the introduction of the proposed passenger service over the New Orleans terminal area, including NSR's Back Belt.

Second, we showed through RTC modeling how the FRA identified projects (as originally defined and as adjusted) fall well short of mitigating the harm freight trains will experience if Gulf Coast passenger service is introduced without further mitigation measures installed before service commencement. The engineering costing work of V3 Companies revealed that the GCWG Report's \$100 million estimate is outdated. And it is our opinion that dollars attributed to a number of FRA identified projects that would yield little to no benefit would be better spent if reallocated to some of the projects proposed to be accomplished in the 2019 Build Case. In short, the FRA identified projects provide half the mitigation for half the cost of the 14 projects proposed in CSXT and NSR's opening evidence.

Third, operational changes to reduce freight train lengths between New Orleans and Mobile would not provide a viable short-term solution to mitigate the impacts of hosting new passenger trains while constructing any projects ordered by

maximum extend feasible, to all station stops within 15 minutes of the time established in public timetables"; and "implement[ing] schedules based on a systemwide average speed of at least 60 miles an hour that can be achieved with a degree of reliability and passenger comfort[.]").

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the Board. While this concept certainly merited a closer look through RTC modeling, ultimately, any benefit realized from operating shorter trains that fit in existing sidings was nullified by the need to operate more freight trains to move the same number of railcars. The addition of more freight trains would also increase the need for CSXT crews at a time when they are in short supply, increase the number of active locomotives needed which, in turn, would require more labor to perform routine equipment maintenance, and increase fuel consumption as compared with a longer train strategy. And CSXT's through train operations would be impaired (slowed) to the extent CSXT crews would need to reformulate shorter trains at Mobile into longer ones to operate on the balance of the CSXT network.

Fourth, a modification of U.S. Coast Guard regulations to give passenger trains preference over maritime vessels and to permit remote-control operation (automation) of the moveable bridges to eliminate the need for bridge tender hi-rail movements resulted in marginal benefits to rail service.¹⁵ Predictably, passenger trains realized modest improvements as compared with otherwise comparable scenarios not reflecting the adjustments. Freight trains realized modest improvements despite remaining subordinate to maritime traffic in priority, but limitations in the way the RTC model captures and uses data relevant to this scenario means that the RTC model is likely understating the impact of these changed regulations on freight traffic. In any event, it would not be prudent to assume that Amtrak could rely on any benefits from this modeling exercise to meet its service objectives or protect freight service because none of the railroads involved

¹⁵ As discussed above, no effort was made by the RTC Modelers in this proceeding to determine the effect on commercial maritime traffic, or whether the marginal benefits to passenger and freight rail service would exceed the adverse impact to the commercial maritime traffic that would be directly affected by the proposed change in Coast Guard regulations.

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in this matter have any authority to institute these regulatory changes, and the one party that does have such authority—the U.S. Coast Guard—is likely to balance a number of interests in making its decision after a typical notice and comment rulemaking proceeding.

Finally, we have presented strong and incontrovertible evidence that passenger trains will traverse the Gulf Coast Corridor at an average 42.6 miles per hour based on Amtrak’s proposed schedule. Thus, Amtrak has failed to design a passenger schedule that advances its statutory goal of a network-wide average speed of 60 miles per hour or that is competitive with the use of private motor vehicles. Nor has Amtrak advanced or supported any infrastructure improvements to advance either of these goals.

Each of these supplemental analyses supports our ultimate conclusion that the 14 projects advanced by CSXT and NSR in their opening evidence remain the most comprehensive and well-planned solution set advanced by any litigant or non-party in this proceeding.

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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 27th day of July 2022.

A handwritten signature in black ink that reads "Charles H. Banks". The signature is written in a cursive style with a large initial 'C' and a stylized 'H'.

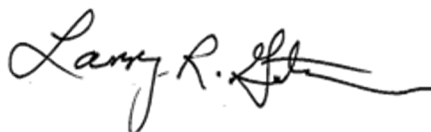
Charles H. Banks

PUBLIC VERSION

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 27th day of July 2022.

A handwritten signature in black ink, appearing to read "Larry R. Guthrie", with a stylized flourish extending to the right.

Larry R. Guthrie

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**2021 NEW ORLEANS -
MOBILE
GULF COAST PASSENGER
SERVICE
RTC MODELING
SUPPLEMENTAL REPORT**

PREPARED FOR

Sidley Austin LLP / Baker & Miller PLLC

PREPARED BY

HNTB Corporation

&

R.L. Banks & Associates, Inc.

July 27, 2022

PUBLIC VERSION

2021 NEW ORLEANS - MOBILE GULF COAST PASSENGER SERVICE RTC MODELING

SUPPLEMENTAL REPORT

**HNTB Corporation
R.L. Banks & Associates, Inc.**

Report Prepared By:

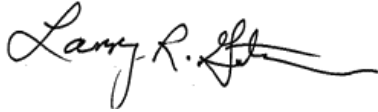
Mark H. Dinger
HNTB Corporation

Larry Guthrie
R.L. Banks & Associates, Inc.

PUBLIC VERSION

Verification

The authors believe that the analysis in this Supplemental Report follows industry best practices and that the RTC cases represented in the 2021 New Orleans - Mobile Gulf Coast Passenger Service RTC Supplemental Report dated July 13, 2022, as well as the underlying model, accurately depict current and future constraints on the Gulf Coast Corridor. The cases were developed using the best information available and accurately reflect the potential impact of a new proposed Amtrak passenger service on the New Orleans - Mobile Corridor.



Larry Guthrie

DATE 07/27/2022



Mark H. Dingler, PE

DATE 07/27/2022

Executive Summary

This 2021 New Orleans - Mobile Gulf Coast Passenger Service RTC Modeling Rebuttal Report ("Supplemental Report") has been jointly developed by HNTB Corporation and R.L. Banks & Associates, Inc. (the "RTC Modelers"). The RTC Modelers also developed the 2021 New Orleans - Mobile Gulf Coast Passenger Service RTC Modeling Report ("2021 Gulf Coast RTC Report") filed in this proceeding on November 3, 2021, as well as the 2021 New Orleans - Mobile Gulf Coast Passenger Service RTC Modeling Rebuttal Report ("2021 RTC Rebuttal Report") filed in this proceeding on December 23, 2021.

The Surface Transportation Board ("Board") requested additional information regarding several discreet topics during the pre-evidentiary hearing conference on February 16, 2022, and at various times throughout the 11-day evidentiary hearing in April and May 2022.

The Board inquired as to the effectiveness of the Federal Railroad Administration's ("FRA") identified projects set forth in the Gulf Coast Working Group's 2017 Report to Congress had those projects been implemented in 2019. In developing RTC cases to study these projects, it was discovered that some of the FRA-identified projects have already been implemented on the corridor. In the Gulf Coast Working Group's Report, the FRA identified six moveable bridges along the corridor where miter rails upgrades might increase train speeds. However, these miter rail upgrades have already been completed and no speed improvements are possible for five of the bridges.¹ Since the miter rail upgrades, one grade crossing closure, and two crossing diamond improvements have already been completed, they were removed from the simulated FRA projects.

The RTC simulation model of this reduced set of projects found that the FRA-identified projects mitigate only some of the passenger trains' impacts on freight operations in 2019. The FRA's set of projects include those that are either (i) not feasible (or compatible) with the CSXT Engineering Standards or (ii) are outside the control of CSX Transportation, Inc. ("CSXT"), Norfolk Southern Railway Company ("NSR"), and the National Passenger Railroad Corporation ("Amtrak") to unilaterally implement.² The full benefit of the proposed siding speed improvements cannot be realized due to existing features of the route, such as siding length. Moreover, the parties lack the authority to unilaterally close grade crossings on their respective portions of the route. After removing or modifying these projects, the adjusted set of FRA-identified projects are marginally less effective than the full set. Moreover, the FRA-identified projects do not remedy the impairment to CSXT and NSR's operations that would result from the introduction of Amtrak's proposed passenger service.

The Board and other interested parties suggest operating shorter CSXT trains between Mobile and New Orleans in this interim period while new sidings were built (or existing ones extended) to reduce delays to freight operations. The RTC Modelers reduced CSXT train lengths to 7,500 feet or less so freight trains could fit in most sidings clear of grade crossings. The modeling revealed running shorter trains reduced the average delay per conflict, however, running shorter trains required additional trains on the corridor which, in turn, increased the total number of conflicts. Because decreases in per-conflict delay were offset by an increase in total conflicts, there was no meaningful change in freight metrics when comparing the 2019 Passenger Case to the 2019 Passenger Case With Adjusted Train Lengths. In the 2039 case, the corridor remained gridlocked since adding passenger trains and shortening freight trains doubled the number of trains on the corridor.

¹ In this study, we included passenger speed increases for the moveable bridge over the Pascagoula River because that is the one bridge that may lend itself to increased speed as a result of a miter rail improvement.

² Because such projects are not within the power of one or more of the Parties to implement, the RTC Modelers were informed that the Board could not order their implementation as a condition of granting Amtrak access.

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The Board sought to understand the extent to which any impairment could be resolved should the U.S. Coast Guard decide to (1) permit remote-control operating (or automating) the moveable bridges, which would remove the need for bridge tender hi-rails, and (2) modify its regulations to permit passenger trains to have priority over maritime traffic while maintaining maritime traffic priority over freight trains. The changes to moveable bridge operations improved passenger train performance but did not meaningfully reduce the harm to freight trains arising from the otherwise unmitigated introduction of those same passenger trains.

The RTC Modelers reported performance metrics for operations between New Orleans and Montgomery (including Mobile) in the original study submitted on November 3, 2021, to demonstrate the overall impact of introducing passenger service to the Gulf Coast Corridor, as well as to confirm that degradation caused by the proposed passenger service was mitigated. However, the performance metrics measured in the New Orleans to Montgomery corridor actually end up obscuring the more localized impact to trains operating along the proposed passenger route from New Orleans to Mobile. When the train performance metrics are confined only to the passenger route, the modeling shows an increase of over 15% in runtimes for the merchandise and local traffic when passenger trains are added. To demonstrate the real-world impact of the service degradation, historical train runtimes were increased by 15% to determine the number of trains that would have crews requiring more than 12 hours on-duty to complete their scheduled daily work. Exceeding the 12-hour on-duty crew time limit before the train would reach its planned crew change location would result in disrupted operations, a recrew, or an inability to service all scheduled customers in the case of local trains. The analysis concluded that with a significant increase in 12-hour crews, the number of merchandise recreds would double, and there would be more than an additional two recreds per day.

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1.0 Introduction

At the request of the Board, the RTC Modelers have completed additional simulation studies to supplement the evidentiary record in STB Docket No. FD 36496. This Supplemental Report provides results of additional modeling to analyze the impact of the following questions:

1. How well do the FRA-identified projects set forth in the Gulf Coast Working Group's 2017 Report to Congress mitigate the impact of the proposed passenger service introduction in 2019?
2. Would the operational change to reduce train sizes between New Orleans and Mobile provide a short-term solution to mitigate the impacts of operating additional passenger trains during the construction of any projects ordered by the Board?
3. What benefit to the passenger and freight operations can be gained by modifying U.S. Coast Guard regulations to give passenger trains preference over maritime vessels at the moveable bridges and to authorize the automation (remote-control operation) of the moveable bridges?
4. How do the RTC metrics demonstrate impairment of service to railroad customers?

The impact of the cases identified in the questions above were considered independently from one another, and no reevaluation of the 14 projects proposed in the 2021 Gulf Coast RTC Model in light of these new cases was considered.

2.0 FRA Gulf Coast Working Group Project Evaluation

The 2017 Gulf Coast Working Group ("GCWG") Report to Congress contained a list of projects "identified" by the FRA to support the subject passenger service.³ The FRA identified 27 separate projects "to enhanc[e] the operations of passenger trains on the corridor without unreasonably impairing freight operations"⁴ between Mobile and CSXT's interchange with NSR. However, the FRA did not identify any projects (nor does the GCWG Report suggest they considered any) to prevent the proposed passenger service from impairing the multiple freight railroads operating on the NSR segment.⁵ And it is unclear if the FRA considered any projects in the GCWG Report to mitigate impairment to the Port of Mobile's operations.

³ Joint Exhibit 1B, Gulf Coast Working Group, Gulf Coast Working Group Report to Congress, Final Report, at 23-30 (July 2017) ("GCCWG Final Report").

⁴ *Id.* at 23; *see also* GCWG Final Report, Appendix L – Capital Cost Documentation for FRA-Identified Infrastructure Improvements.

⁵ New Orleans is the interchange point for six Class I railroads and two shortlines—all of which operate across the Back Belt. Indeed, the GCWG Final Report is clear that the New Orleans Rail Gateway was to be considered elsewhere. *See* GCWG Final Report at 10 ("A separate study is currently underway (although it is on hold) to address overall freight movement needs through the New Orleans area, including areas adjacent to the [New Orleans Union Passenger Terminal]").

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Table 2-1: FRA-Identified Projects Summary⁶

Item No.	Project	RTC FRA Case	RTC FRA Adjusted Case	Modeling Notes
1	Gentilly Bypass	10,500 foot new main		Modeled with existing control points for "approximately 2 miles."
2	Old Gentilly Rd. Closure	Not modeled		Already closed
3	Michoud Blvd. Closure	Removed Crossing	Not modeled	
4	Chef Menteur Moveable Bridge Miter Rails	Not modeled		
5	Lake Catherine Siding Speed Improvements	Modeled with speeds 45P/40F	Modeled with speeds 30P/30F	Siding is only 7,400 ft, insufficient distance to support higher speed
6	Rigolets Moveable Bridge Miter Rails	Not modeled		
7	Pearl River Moveable Bridge Miter Rails	Not modeled		
8	Claiborne Siding Speed Improvements	Modeled with speeds 45P/40F		While modeled, project not advisable as siding is adjacent to bridge with maximum authorized speed of 25 mph
9	Ansley Siding	Modeled as 10,000 foot new siding		Located between 762.1 and 764.1
10	Webb St. and Ballentine St. Closures	Removed Crossing	Not modeled	
11	Bay St. Louis Moveable Bridge Miter Rails	Not modeled		
12	Harbin Siding Extension	Siding and main flipped and siding extended 5,300 foot to south		Described as White Harbor in GCWG Final Report, but as Harbin in Appendix L.
13	Biloxi Crossing Closures	Not modeled		Unclear which crossings to be closed, no closures would provide sufficient clear distance for trains
14	KCS Crossing Diamond Improvements	Not modeled		Already completed per CSXT
15 a-c	Beauvoir Siding Speed Improvements	Modeled with speeds 45P/40F	Modeled with speeds 30P/30F	Siding is 7,930 foot long, insufficient distance to support higher speed
15 d	Iris Street Closure	Removed Crossing	Not modeled	
16	Biloxi Bay Moveable Bridge Miter Rails	Not modeled		
17	Gautier Siding Speed Improvements	Modeled with speeds 45P/40F	Modeled with speeds 30P/30F	Siding is 7,760 foot long, insufficient distance to support higher speed
18	Pascagoula River Moveable Bridge Miter Rails	Modeled with speeds 45P/25F		
19	Bayou Cassotte Bypass	21,100 foot new main		

⁶ Item numbers correspond to Appendix L to the GCWG Final Report.

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Item No.	Project	RTC FRA Case	RTC FRA Adjusted Case	Modeling Notes
20	Orange Grove Siding Speed Improvements	Modeled with speeds 45P/40F		
21	St. Elmo Siding Speed Improvements	Modeled with speeds 45P/40F		
22	Theodore Improvements	Modeled with two new control points		New control points and north and south end switches to mainline (MPs 679.2 & 679.5)
23	Suburban Passenger Station	Not modeled		
24	Brookley Siding Speed Improvements	Modeled with speeds 45P/40F		
25	Mobile Crossing Closures	Not modeled		Unclear which crossings to be closed, no closures would provide sufficient clear distance for trains
26	CN Crossing Diamond Improvements	Not modeled		Already completed per CSXT
27	Mobile Station Track	1,000 ft. station track		
28	Set passenger train speeds to 79 mph	Not modeled		

The RTC Modelers previously evaluated the FRA-identified projects in 2039 as set forth in Appendix F to the 2021 Gulf Coast Modeling Report. In the original report, the RTC modelers were asked to model FRA-identified projects in the 2039 case only (20 years into the future, as is the standard modeling practice) as they were the only other potential solution set that had been publicly advanced. The primary focus of the original report and modeling effort was developing a solution set that mitigated the full impact of the proposed passenger service on freight operations. Given the Board's interest in how the FRA-identified projects perform in the 2019 case and our commitment to consistency throughout our modeling, we needed to make several adjustments to the 2039 FRA cases modeled in the initial report and to update the results. We note those modeling updates below where relevant.

Four cases were run for the 2019 and 2039 cases to evaluate the operational impacts of the proposed GCWG FRA-identified projects. First, the **2019 FRA Case** and the **2039 FRA Case** evaluated the full list of FRA-identified projects without alteration, minus three categories of already completed projects. Those categories are the closure of the Old Gentilly Road crossing near Gentilly Yard, the KCS and CN crossing diamond improvements, and the bridge miter rails that have already been upgraded. These FRA-identified projects are already reflected in the 2019 and 2039 Base Cases. With the exception of these three categories of completed projects, all the FRA-identified projects were modeled as designed and without modification in the **2019 FRA Case** and the **2039 FRA Case**.

With respect to the miter rails, the FRA identified six moveable bridge locations where miter rail upgrades potentially could enable higher train speeds. In the initial modeling of the FRA-identified projects in the 2039 case, the RTC Modelers modeled the bridge miter rails as enabling both 45 mph freight and passenger speeds. However, since the completion of the 2021 Gulf Coast Modeling Report, the RTC Modelers learned that CSXT had already upgraded the miter rails at the six moveable bridge locations. Therefore, the **2039 FRA Case** needed to be rerun to account for these projects having already been completed. However, these upgrades, with the exception of Pascagoula River Bridge, do not provide any speed

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improvements. The FRA acknowledged in the GCWG Report that any speed improvements were dependent on the condition of the bridge and the results of a “structural analysis.”⁷ According to Ricky Johnson’s Supplemental Verified Statement, all the moveable bridges other than the Pascagoula River Bridge are swing spans and nearly 100 years old, making it unlikely that any future speed improvements will be implemented due to reliability concerns.⁸ However, since the Pascagoula River bridge is a newer bridge and a lift span, while the freight speeds will remain 25 mph, the passenger speeds over that particular bridge could be improved to 45 mph.⁹ While the higher speed is possible and included in the RTC cases, given the proximity of the bridge to the Pascagoula Station (less than 1,000 feet), the passenger trains likely will not be able to take advantage of any increase in maximum permissible authorized speed.

In the remaining two new cases, the **2019 FRA Adjusted Case** and the **2039 FRA Adjusted Case**, several projects were removed from the FRA proposal in the simulations because they fell into one of two categories: (1) projects that require third-party approval outside the control of both the freight railroads and Amtrak or (2) projects that are geographically or technically infeasible to build. In the first category, FRA recommends grade crossing closures that require cooperation and approval from state and local stakeholders beyond the control of Amtrak, CSXT, or NSR.¹⁰ While these projects might be beneficial to rail operations on the corridor, RTC modeling should not rely on benefits that railroads may not be able to implement because third-party actors may control the ability to implement a project, leading to the failure of construction of a mitigation measure that the Board determined was required and in the public interest. This approach is consistent with the modeling assumptions applied to all cases described in the 2021 Gulf Coast RTC Report, the 2021 Rebuttal RTC Report, and this Supplemental Report.

In the second category, the FRA proposed the installation of #20 turnouts on seven sidings to improve entry and exit speed to 45 miles per hour. In subsequent discussions with CSXT, however, it became apparent that while these siding speed improvements were technically feasible (constructable), these siding improvements were inadvisable because limited or no benefit to freight service would be realized from their installation. For most of these sidings, the freight trains would be only able to travel at the higher speed for a small portion of the siding length (approximately 1,300 feet or less) or not at all due to nearby mainline speed restrictions (*e.g.*, due to the proximity of a moveable bridge). Three of the identified sidings are too short to achieve any potential speed improvements—Lake Catherine, Beauvoir, and Gautier¹¹—and accordingly the sidings cannot be signaled for the higher speeds. The turnouts on these three sidings were assumed to have been upgraded but only to “medium speed” (30 mph).

Additionally, to avoid moving the existing turnout location, the replacement of the existing turnouts with #20 turnouts would reduce the length of the sidings by up to 200 feet. The ends of several of the sidings are located at bridges or grade crossings, which would inhibit CSXT’s ability to move the end of sidings. Alternatively, moving the end of sidings to avoid any lost length would result in additional cost due to installation of additional signal infrastructure.

⁷ GCWG Final Report at 26.

⁸ Johnson Supplemental V.S. at 7.

⁹ *Id.* at 7-8.

¹⁰ See GCWG Final Report at 24 (The FRA identified grade crossing improvements “will require proper coordination with the respective State Department of Transportation and local jurisdiction” to implement.).

¹¹ 2021 Gulf Coast RTC Report, App’x F at 85.

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These alterations and associated costs were not included in the FRA's list of improvements or the FRA's estimated costs for the improvements.

These changes to the cases as compared to the 2021 Gulf Coast RTC Report will have offsetting impact on freight performance. The marginal benefits from the siding speed improvements will be offset by the lack of benefit from the miter rails.

2.1 Results of Simulating the FRA-Identified Projects in 2019

The impact of the FRA-identified projects was measured by comparing each of the following cases against the 2019 Base Case. While the FRA-identified projects mitigate some of the impacts of the proposed passenger service, the proposed project set does not fully mitigate those impacts (**Table 2-2** and **Table 2-4**). For example, CSXT local traffic is still highly impacted, with an overall increase in delay of nearly 18%, though some individual trains experience increased delays of between 30% and 55%. The number of conflicts, interchange delays and recreds are not meaningfully reduced.

Table 2-2: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019 with FRA-Identified 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 ¹²		% Change in Recrews	
9.9%	↑	-1.9%	↓	30.5%	↑	25.0%	↑	30.0%	↑

As mentioned in the previous section, not all of the FRA-identified projects are feasible or within the control of the host railroads and Amtrak. Simulating the cases with these adjustments—the removal of projects that are infeasible or outside the railroads' control does not change the overall results (**Table 2-3**) but further degrades local train performance (**Table 2-5**). By excluding the grade crossing closures, the CSXT Through Trains have fewer locations they can perform meets. With there being fewer places through trains can dwell during a delay, the trains actually have fewer delays along the corridor. Unfortunately, the same is not true for the local traffic, the trains that directly interface with customers on the corridor during first mile/last mile operations. The adjusted set of projects result in greater delays to local trains. The reduced ability of the merchandise trains to stop in sidings along the corridor shifts those delays to the trains that can fit between crossings, which are the shorter local trains.

¹² This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

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Table 2-3: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019 with Adjusted FRA-Identified 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 ¹³		% Change in Recrews	
9.9%		-1.9%		30.0%		30.3%		27.8%	

The FRA did not consider the significant impact to the freight operations in the nationally important New Orleans terminal. The FRA did not identify any projects on NSR or otherwise to mitigate the impact of the introduction of the proposed passenger service to freight service operating on the NSR-owned segment of the route. Even if all the FRA-identified projects are constructed, the impairment to NSR operations persist.

The busy New Orleans terminal area has few locations for freight trains to sit clear of crossing. The introduction of the passenger service will require freight trains to hold trains elsewhere to keep the route clear for the passenger traffic. The freight trains will be held on the lines of foreign interchange partners, with the potential adverse effects being felt by those carriers. The traffic of these interchange partners and ability to hold this traffic without experiencing delays themselves are not fully represented in the simulation results. If the passenger service is implemented, either the foreign carriers will experience a greater than 30% increase in delays or, due to the inability of the interchange partner to hold the trains, those delays will move to the NSR Back Belt.

¹³ This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

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Table 2-4: Changes in Freight Train Operating Performance between 2019 Base Case and 2019 FRA Case

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSX Local Trains	CSXT 1	25.1%	-2.0%	88.6%
	CSXT 2	53.0%	-7.4%	-3.1%
	CSXT 3	32.0%	-0.2%	12.5%
	CSXT 4	42.1%	-4.9%	46.8%
	CSXT 5	-10.3%	1.8%	-41.2%
	TASD	3.6%	-0.8%	0.0%
	CSXT LOCAL TOTAL	17.7%	-2.0%	
CSX Through Trains	CSXT A	-3.8%	0.5%	0.1%
	CSXT B	2.4%	-0.9%	7.8%
	CSXT C	13.0%	-2.5%	29.1%
	CSXT D	37.9%	-6.2%	24.1%
	CSXT E	6.8%	-1.4%	0.2%
	CSXT F	43.2%	-7.0%	31.5%
	CSXT G	13.3%	-2.6%	20.3%
	CSXT H	8.6%	-1.7%	-1.8%
	COAL	11.9%	-2.6%	1.8%
	CSXT THROUGH TOTAL	12.1%	-2.2%	
NS Trains	NSR A	-18.9%	0.0%	-7.9%
	NSR B	15.0%	-0.2%	7.7%
	NSR C	-12.1%	0.7%	-5.7%
	NSR D	11.1%	-4.7%	76.6%
	NSR E	20.2%	-3.8%	3.4%
	NSR F	-2.8%	-0.3%	5.2%
	NSR G	38.2%	-3.4%	17.7%
	NSR H	-11.3%	2.7%	10.5%
	INTERCHANGE	1.0%	-0.1%	-1.9%
	NSR TOTAL	3.4%	-0.9%	
OVERALL TOTAL		9.9%	-1.9%	

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Table 2-5: Changes in Freight Train Operating Performance between 2019 Base Case and 2019 FRA Adjusted Case

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-1.9%	0.2%	57.0%
	CSXT 2	60.2%	-8.9%	1.7%
	CSXT 3	35.6%	-0.7%	13.1%
	CSXT 4	47.9%	-5.5%	49.7%
	CSXT 5	10.8%	-1.1%	-26.5%
	TASD	12.5%	-3.0%	16.9%
	CSXT LOCAL TOTAL	23.0%	-3.0%	
CSXT Through Trains	CSXT A	0.0%	-0.3%	-0.3%
	CSXT B	4.1%	-1.1%	12.1%
	CSXT C	3.4%	-0.8%	7.9%
	CSXT D	41.1%	-6.6%	37.2%
	CSXT E	11.6%	-2.5%	7.8%
	CSXT F	42.4%	-6.5%	29.7%
	CSXT G	4.8%	-0.7%	24.6%
	CSXT H	5.7%	-1.4%	-12.0%
	COAL	4.7%	-1.0%	2.4%
	CSXT THROUGH TOTAL	10.9%	-2.0%	
NSR Trains	NSR A	-22.0%	-0.1%	-9.6%
	NSR B	21.2%	-1.1%	22.9%
	NSR C	26.1%	0.4%	4.8%
	NSR D	12.9%	-5.4%	120.7%
	NSR E	7.2%	-1.3%	1.2%
	NSR F	-19.7%	2.4%	-3.6%
	NSR G	21.7%	-1.4%	9.9%
	NSR H	-12.1%	2.7%	8.4%
	INTERCHANGE	-0.3%	0.3%	0.2%
	NSR TOTAL	1.9%	-0.2%	
OVERALL TOTAL		9.9%	-1.9%	

2.2 Results of Simulating the FRA-Identified Projects in 2039

Both the **2039 FRA Case** and **2039 FRA Adjusted Case** projects were modeled and described in Appendix F of the 2021 Gulf Coast RTC Report. However, the RTC modelers were not aware at that time that CSXT had already installed miter rail improvements at most of the FRA-identified locations, so these two cases have been updated to better reflect the potential benefits of the proposed FRA-identified projects as described in this Supplemental Report.

As explained in the 2021 Gulf Coast RTC Report, RTC could not find a dispatching solution when passenger trains were added to the **2039 Base Case**.¹⁴ In other words, the **2039 Passenger Case** failed such that without any infrastructure improvements, either freight traffic would be unable to operate, passenger trains would not receive the requisite priority, or grade crossing blockages would increase exponentially. The full set of FRA-identified projects provides sufficient fluidity to enable the model, unlike in the **2039 Passenger Case**, to complete successfully. However, the full set of FRA-identified projects would not mitigate the full impact to freight service caused by the introduction of the proposed passenger traffic (**Table 2-6**) with degradations in performance metrics across the three train groups considered in this study (**Table 2-8**).

Table 2-6: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with FRA-Identified 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 ¹⁵	% Change in Recrews
12.3% 	-2.7% 	43.1% 	28.2% 	23.2% 

While the full set of FRA-identified projects enables the model to dispatch (i.e., a sufficient number of scenarios were completed), once the grade crossing closures that are out of the parties' control and the infeasible siding speed improvements are removed in the **2039 FRA Adjusted Case**, the model has a high failure rate. That said, the model found a dispatching solution in the **2039 FRA Adjusted Case** more frequently than in the **2039 Passenger Case**, but not frequently enough for the RTC Modelers to recommend as being a valid case. This also occurred with the failure rate for the **2039 FRA Adjusted Case** reported in the 2021 Gulf Coast RTC Report. However, in the interest of providing results, a sufficient number of scenarios were completed in order to provide 30 completed scenarios for this analysis. While results will be presented in **Table 2-7** and **Table 2-9** purely to demonstrate that the projects are unable to mitigate the impact of the proposed passenger service, the RTC Modelers caution that these

¹⁴ See 2021 Gulf Coast RTC Report at 32 (§ 4.0).

¹⁵ This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

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results are likely understating the impact and demonstrate a situation that has a high risk of significant delays and freight degradation.

The key takeaways are: (1) the adjusted set of FRA-identified projects do not provide sufficient capacity to prevent gridlock on the corridor in the 2039 case (2) removing grade crossing closures that are out of the control of the railroads and removing infeasible siding speed improvements have a greater impact in the 2039 cases than in the 2019 cases. Since train lengths are longer in 2039, fewer trains can hold clear of the grade crossings along the corridor.

Table 2-7: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2039 with Adjusted FRA-Identified 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 ¹⁶		% Change in Recrews	
13.6%	↑	-2.8%	↓	42.8%	↑	37.6%	↑	26.6%	↑

¹⁶ This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

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Table 2-8: Changes in Freight Train Operating Performance between 2039 Base Case and 2039 FRA Case

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-22.2%	2.3%	19.6%
	CSXT 2	18.1%	-5.7%	-4.2%
	CSXT 3	-3.6%	5.9%	-5.6%
	CSXT 4	25.3%	-4.0%	12.1%
	CSXT 5	5.3%	-0.9%	8.0%
	TASD	24.7%	-8.1%	32.9%
	CSXT LOCAL TOTAL	13.9%	-2.4%	
CSXT Through Trains	CSXT A	10.3%	-2.2%	4.8%
	CSXT B	20.0%	-3.8%	43.0%
	CSXT C	5.4%	-1.4%	3.0%
	CSXT D	24.6%	-5.2%	6.9%
	CSXT E	14.4%	-3.7%	9.0%
	CSXT F	54.9%	-8.9%	29.1%
	CSXT G	12.7%	-2.2%	22.5%
	CSXT H	8.2%	-1.7%	-6.7%
	COAL	17.7%	-4.7%	38.1%
	CSXT THROUGH TOTAL	16.0%	-3.1%	
NSR Trains	NSR A	-10.4%	0.9%	-15.6%
	NSR B	-8.8%	1.8%	-24.6%
	NSR C	-19.7%	0.4%	-14.7%
	NSR D	-1.6%	0.6%	-12.4%
	NSR E	21.3%	-4.6%	-7.7%
	NSR F	16.5%	-1.3%	-1.1%
	NSR G	14.4%	-2.8%	-2.1%
	NSR H	-16.2%	2.3%	-3.0%
	INTERCHANGE	9.8%	-5.2%	4.4%
	NSR TOTAL	7.1%	-2.1%	
OVERALL TOTAL		12.3%	-2.7%	

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Table 2-9: Changes in Freight Train Operating Performance between 2039 Base Case and 2039 FRA Adjusted Case

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-34.3%	3.2%	-4.5%
	CSXT 2	20.7%	-6.2%	-3.3%
	CSXT 3	1.2%	4.9%	0.1%
	CSXT 4	30.1%	-4.4%	8.6%
	CSXT 5	14.1%	-1.8%	17.9%
	TASD	15.8%	-5.2%	14.5%
	CSXT LOCAL TOTAL	16.3%	-2.6%	
CSXT Through Trains	CSXT A	6.0%	-1.0%	2.5%
	CSXT B	19.0%	-3.6%	22.6%
	CSXT C	9.6%	-2.3%	28.1%
	CSXT D	18.8%	-3.8%	9.9%
	CSXT E	17.6%	-4.3%	17.1%
	CSXT F	53.9%	-8.9%	32.3%
	CSXT G	7.5%	-1.5%	2.6%
	CSXT H	9.7%	-2.1%	-4.4%
	COAL	12.3%	-3.4%	22.9%
	CSXT THROUGH TOTAL	15.2%	-3.0%	
NSR Trains	NSR A	-7.9%	0.6%	-9.9%
	NSR B	-7.7%	2.8%	13.9%
	NSR C	-51.4%	1.9%	-36.2%
	NSR D	-1.9%	1.0%	-9.1%
	NSR E	41.4%	-8.0%	0.7%
	NSR F	25.9%	-2.8%	18.6%
	NSR G	17.7%	-2.8%	0.0%
	NSR H	-0.5%	0.3%	6.6%
	INTERCHANGE	15.4%	-7.5%	14.0%
	NSR TOTAL	10.1%	-3.0%	
OVERALL TOTAL		13.6%	-2.8%	

2.3 Conclusions

The modeling demonstrates that the FRA-identified projects mitigate only some of the impact of the passenger trains on freight operations and leaves the local CSXT traffic serving customers especially vulnerable. While all the FRA-identified projects can be modeled, some of the projects are either not feasible (or compatible) with the CSXT signal system or are outside the control of the parties in this case. After removing those projects, the adjusted set of FRA-identified projects remain unable to mitigate the impact of passenger trains and does not prevent gridlock in the 2039 case. Perhaps most importantly, the FRA-identified projects failed to consider operations over the New Orleans terminal and thus to NSR and foreign railroads operating over the NSR trackage in the New Orleans terminal. The significant degradation to freight operations in the New Orleans terminal must be addressed with additional projects beyond the scope of the FRA-identified projects, as discussed more fully in prior reports.

3.0 Operational Change to Shorten Train Lengths

One of the challenges to the introduction of passenger service on a shared operations corridor is the interaction of passenger trains with freight trains longer than the existing sidings. This study considers the impact to freight operations and performance metrics that result from shortening the existing (2019) and projected (2039) freight trains to ensure all freight trains can enter into the existing sidings.

3.1 Change in Train Operations

Any change in train size will require one of three operational changes:

- 1) Change the length of the train as that train operates from origin to destination;
- 2) Shift traffic between trains to distribute train length more evenly; or
- 3) Split or combine trains at Sibert Yard in Mobile and at Gentilly Yard in New Orleans to run the trains shorter between those terminals.

Changing the train lengths over the entire route (not just the subject corridor) will result in additional trains across the CSXT network.¹⁷ Merchandise trains on the corridor travel not only on the New Orleans - Montgomery corridor but to and from Nashville, TN and Waycross, GA. Any increase in the number of trains on those corridors would result in additional delays. If this operational change was implemented, the impact of the passenger service would not just be on CSXT's portion of the proposed New Orleans - Mobile passenger corridor but across thousands of miles of the CSXT network. Since the current RTC cases end in Montgomery, the impact to the greater CSXT network cannot be quantified without additional modeling.

Traffic may not be able to be shifted between trains for multiple reasons. First, a train's freight cars are grouped in blocks, with each block having a different destination. For instance, cars on a train traveling to Waycross, GA will have different destinations than on a train traveling to Nashville, TN. Shifting cars to create more but shorter trains will increase journey times experienced by customers and require additional car movements and processing at

¹⁷ The potential adverse impact of additional CSXT train traffic on the fluidity of other portions of the CSXT national network (whether or not they host current Amtrak operations) is not studied here.

CSXT yards. A train may also pickup and set out cars all along their route. Shorter trains on the New Orleans to Montgomery corridor may be limited due to the planned number of cars that the trains are scheduled to pick up later along their routes. For example, a train may be short between New Orleans and Mobile because that particular train typically picks up a large number of cars from other yards along the CSXT network. Adding cars to existing trains would have widespread adverse impacts and limit the ability of those trains to pick up or move cars at other locations on the network. However, strategic shifting of a limited number of cars is at least hypothetically possible, and limited shifting is used in the modeled cases.

The third option is to split or combine trains in Mobile. This limits the impact of this operational change to only the New Orleans to Mobile segment of the corridor. For any train traveling from New Orleans to Mobile that is too long to fit in existing sidings, that train would have to be split into two smaller trains and then combined in Mobile to travel towards Montgomery or any further point on CSXT's network. Trains arriving in Mobile from Montgomery would undergo this process in reverse and be split up during the remainder of their journey to New Orleans. Not changing the existing train schedules limits the impact of this operational change on the rest of the CSXT network, but also might result in more cars missing their connections since some of the cars have to depart New Orleans earlier or are arriving in New Orleans later. The splitting and combining activity will increase the congestion in the already busy Mobile terminal and will also require additional locomotives and crews between New Orleans and Mobile as well as additional switching to make up shorter, and break up longer, trains at both terminals. This third modeling alternative was selected and modeled given the importance of avoiding negative impacts to the broader CSXT network (and the inability to quantify those impacts in the time allowed). That said, increased congestion in terminal areas, especially during the types of service disruption that are not modeled, can have a cascading impact on adjoining segments of the rail network.

To model the operational impact of shorter trains, the RTC Modelers first conducted limited shifting of cars of less than 15 cars per train (~850 feet). Second, each train departing New Orleans that is still too long to fit in existing sidings was split into two trains. The first half departed while the second section followed two hours later. Two hours was selected in order provide sufficient spacing between the trains as to not overwhelm the corridor and terminals with a high volume of traffic, while not adding lengthy dwells in Mobile. Once the first half arrived in Mobile, it waited for the second half to arrive before combining both halves back into a single, longer train. This additional work in Mobile is assumed to result in dwells of the train increasing by 45 minutes.

In the opposite direction, trains departing Mobile that are too long to fit in existing sidings were split into two trains with the second section following two hours later. This increased the dwell time of trains setting out cars in Mobile by 15 minutes. Those trains will arrive at Gentilly Yard with no changes from current operations because Gentilly Yard is the end of CSXT's network where arriving trains are broken up for delivery to interchange partners.

3.2 Siding Fitting Train Length

When considering sidings necessary to support rail operations over a corridor, the physical length of the siding matters, but so do other factors including the siding's utility and ability to facilitate clearing the mainline while also avoiding blocking nearby grade crossings. As shown in the table below, many sidings have clear lengths less than their physical length due to

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grade crossings.¹⁸ While these sidings can be used, their functionality is reduced. At such sidings, train meets must be carefully planned to avoid extended blockages at grade crossings. This increases the frequency and duration of delays at the other sidings and makes overtakes difficult to perform as they often would take longer to complete than the allowable grade crossing blockage time.

The biggest constraint on freight train traffic along this corridor is the 55-mile segment between Gautier and Claiborne sidings. Although the longest siding on this 55-mile stretch of track is 8,880 feet (Harbin), all the sidings are constrained with grade crossings such that the maximum clear distance of these sidings is 6,300 feet or less. The additional challenge is that there is a high density of grade crossings between Gautier and Claiborne, preventing trains from holding on the single-track mainline for meets. The only location a train can pause clear of crossings at the single-track Bay St. Louis and Biloxi Bay bridges, which would require these bridges to remain in the closed position, blocking maritime traffic, for an extended period of time. The limited locations to hold trains clear of crossings makes any meet between trains difficult, impacting operations on the entire corridor. The segment being located near the middle of the distance between Mobile and the east end of Lake Pontchartrain only exacerbates the challenges of using the sidings effectively to pass trains.

To mirror the practical ability of freight trains to fit in the majority of sidings, a maximum length of 7,500 feet was modeled. This length enabled freight trains to fit into all the sidings except Sibert and Lake Catherine and allowed freight trains to hold in the majority of the existing sidings clear of grade crossings. This length assumption differs from the 8,500 feet that CSXT's Ricky Johnson testified is currently considered as a non-clearing train.¹⁹ When passenger service is added to the corridor, the operations that are feasible with freight-only traffic (e.g., sitting on mainlines to enable meets) are no longer possible. The assumed avoidance of parking freight trains on the mainline and requiring Amtrak trains to run around them requires shorter length trains that can fully sit in a siding without blocking grade crossings. The change in non-clearing length definition does not impact the number of new trains required on the corridor if lengths are shortened.

¹⁸ Many of these considerations also were identified by the FRA as problematic in the GCWG Final Report. *See, e.g.*, GCWG Final Report at 23 (identifying reasons for siding upgrades including that a siding is "too short to accommodate most freight trains," the location of a siding was chosen "based on current freight operations, not on additional passenger service," and/or "contains a highway grade crossing, which restricts the ability to stop long trains in the siding").

¹⁹ Evidentiary Hearing Day 2 (Apr. 5, 2022), Tr. 705:2-706:9 (Mr. Johnson described operations on the corridor today when no passenger trains presently run and noted that "a typical clearing train is limited to 8500 foot" and that "every train coming out of Mobile going to New Orleans [or vice versa on alternate days] will be an 8,500-foot or less train so that we can clear in every siding[.]").

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Table 3-1: Existing Siding Lengths

Name	Start MP	End MP	Full Length	Clear Length
Sibert	664.1	665.6	7,100	7,100
Brookley	669.8	671.8	10,395	10,395
Saint Elmo	685.6	687.4	8,800	8,400
Orange Grove	699.4	701.1	8,910	8,910
Gautier	709.9	711.4	7,760	7,500
Beauvoir	730.3	731.9	7,930	4,900
Harbin	745.1	746.8	8,880	6,300
Nicholson Ave	754.7	756.4	8,580	3,900
Claiborne	766.3	768.1	9,000	9,000
Lake Catherine	780.3	781.8	7,400	7,400

3.3 Train Lengths in 2019 Base Case and 2039 Base Case

The tables list the train lengths in the 2019 and 2039 RTC cases. In the 2019 case, all but three of the trains are 7,500 feet or shorter.

Table 3-2: Train Lengths in 2019 Base Case

Train	New Orleans - Mobile	Mobile - Montgomery	Route
{{Redacted}}	CSXT A	{{Redacted}}	New Orleans to Nashville
{{Redacted}}	CSXT B	{{Redacted}}	Nashville to New Orleans
{{Redacted}}	CSXT C	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT D	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT E	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT F	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT G	{{Redacted}}	New Orleans to Montgomery
{{Redacted}}	CSXT H	{{Redacted}}	Montgomery to New Orleans

In the 2039 case, instead of adding trains, CSXT expects to absorb the increase in carloads by increasing train lengths.²⁰ The projected lengths are below.

²⁰ See 2021 Gulf Coast RTC Report at 24 (§ 3.3).

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Table 3-3: Train Lengths in 2039 Base Case

Train		New Orleans - Mobile	Mobile - Montgomery	Route
{{Redacted}}	CSXT A	{{Redacted}}	{{Redacted}}	New Orleans to Nashville
{{Redacted}}	CSXT B	{{Redacted}}	{{Redacted}}	Nashville to New Orleans
{{Redacted}}	CSXT C	{{Redacted}}	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT D	{{Redacted}}	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT E	{{Redacted}}	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT F	{{Redacted}}	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT G	{{Redacted}}	{{Redacted}}	New Orleans to Montgomery
{{Redacted}}	CSXT H	{{Redacted}}	{{Redacted}}	Montgomery to New Orleans

3.4 2019 Reduced Train Lengths

Adjusting operations would only be considered if passenger trains are introduced to the corridor, so the **2019 Base Case** remained the same. The change in train lengths is proposed as an alternative to the **2019 Build Case** and any change in freight impact, similar to the **2019 Passenger Case**, will be evaluated against the **2019 Base Case**. This new case is referred to as the **2019 Passenger Case With Adjusted Train Lengths**.

To study the potential change to freight train performance by reducing freight train lengths, the following modeling changes were made to the **2019 Passenger Case**:

- 1) 300 feet, or roughly 5 cars, were shifted from CSXT D {{Redacted}} onto CSXT F {{Redacted}};
- 2) CSXT E {{Redacted}} is split between two trains of 4,900 feet and 3,800 feet. This ensures the shorter trains can fit into Nicholson Avenue Siding. CSXT E had three locomotives in the 2019 Base Case and so an additional locomotive was required to operate the second half of CSXT E to maintain track speed; and
- 3) CSXT F {{Redacted}} was cut in half, to two trains of 5,950 feet. The length includes the 300 feet from CSXT D {{Redacted}}. CSXT F {{Redacted}} has four locomotives in the 2019 Base Case and so no additional locomotives are required.

The above changes result in 2 additional freight trains on the corridor (**Table 3-4**).

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Table 3-4: Train Lengths in Alternative 2019 Passenger Case

Train	New Orleans - Mobile	Mobile - Montgomery	Route
{{Redacted}}	CSXT A	{{Redacted}}	New Orleans to Nashville
{{Redacted}}	CSXT B	{{Redacted}}	Nashville to New Orleans
{{Redacted}}	CSXT C	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT D	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT E	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT F	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT G	{{Redacted}}	New Orleans to Montgomery
{{Redacted}}	CSXT H	{{Redacted}}	Montgomery to New Orleans
{{Redacted}}	CSXT I	{{Redacted}}	Mobile to New Orleans
{{Redacted}}	CSXT J	{{Redacted}}	New Orleans to Mobile

Changes from original modeling in red

The added trains are scheduled in the model so as to not affect the existing schedules of trains to the east of Mobile toward Montgomery. The new northbound/eastbound train from New Orleans to Mobile departs 2 hours before the originally scheduled time. The remainder of the train departs at the originally scheduled time and then combines with the earlier train for the remainder of the trip on to Montgomery. The southbound/westbound train from Mobile to New Orleans arrives in Mobile as scheduled. Upon arrival, the train splits with the second train departing two hours later.

3.5 2019 Length Adjustment Modeling Results

Modeling was done to assess the change in performance metrics should the proposed operational changes discussed above be implemented. As was done with the original modeling in the 2021 Gulf Coast RTC Report, the modeling with the adjusted train length operations was compared to the **2019 Base Case** with no passenger traffic or operational changes. When analyzing the performance with this operational change, any delay or reduction in speed experienced by the new trains created from the splitting exercise (CSXT I and CSXT J) are not included in the performance metrics. This removal enables a one-to-one comparison against the performance metrics from the original 2021 Gulf Coast RTC Report.

The RTC modeling found in the **2019 Passenger Case With Adjusted Train Lengths** that the freight impact is comparable to the original modeling with longer trains (Table 3-5 and Table 3-6). The difference between the original **2019 Passenger Case** and the **2019 Passenger Case With Adjusted Train Lengths** is shown in Table 3-7, which depicts the train-by-train change in delay and speed between those two cases. The two trains longer than existing sidings, CSXT E {{Redacted}} and CSXT F {{Redacted}}, experienced a reduction in delay and increased speeds due to the proposed train length changes. However, this improvement comes at the expense of nearly all the CSXT locals and remaining through trains. As compared to the **2019 Passenger Case**, CSXT through trains would experience an increase in delay of 4.8% and a slight decrease in speed of 0.5% when shorter freight trains are operated on the corridor. Considering all traffic, including NSR, the overall degradation remains the same. Therefore,

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the benefits to CSXT E and CSXT F do not offset the degradation experienced by the other freight trains.

Ultimately, as compared to the 2019 Base Case, by adding four passenger trains and two freight trains to limit train lengths, the total number of through trains on the corridor increases by 75%. This additional traffic greatly impacts the existing freight service quality through increased delays, slower speeds, and greater variability.

Table 3-5: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019 with Adjustments to Train Length

% Change in Modeled Freight Train Delay / 100 Train Miles		% Change in Modeled Freight Train Speed		% Change in Dispatching Conflicts		% Change in Recrews	
23.0%		-4.3%		42.5%		43.2%	

Table 3-6: Changes in Freight Train Operating Performance between 2019 Base Case and 2019 Passenger Case With Adjusted Train Lengths

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSX Local Trains	CSXT 1	-9.8%	0.8%	-8.4%
	CSXT 2	115.7%	-19.8%	15.3%
	CSXT 3	67.5%	-8.3%	38.0%
	CSXT 4	140.6%	-14.3%	128.0%
	CSXT 5	46.9%	-5.8%	-7.5%
	TASD	53.1%	-11.8%	30.8%
	CSXT LOCAL TOTAL	48.1%	-7.2%	
CSX Through Trains	CSXT A	2.5%	-0.8%	5.3%
	CSXT B	28.2%	-5.5%	40.5%
	CSXT C	25.4%	-4.8%	28.5%
	CSXT D	84.5%	-11.8%	67.7%
	CSXT E	20.6%	0.8%	10.1%
	CSXT F	51.6%	-7.2%	22.0%
	CSXT G	28.0%	-4.5%	8.0%
	CSXT H	26.1%	-5.5%	1.8%
	COAL	39.9%	-7.9%	52.3%
	CSXT THROUGH TOTAL	28.9%	-4.3%	

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Table 3-7: Changes in Freight Train Operating Performance between 2019 Passenger Case and 2019 Passenger Case With Adjusted Train Lengths

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	3.8%	-0.1%	39.7%
	CSXT 2	-0.5%	0.2%	13.6%
	CSXT 3	0.0%	0.5%	8.9%
	CSXT 4	13.6%	-2.7%	29.7%
	CSXT 5	6.5%	-1.4%	2.0%
	TASD	26.2%	-7.3%	15.3%
	CSXT LOCAL TOTAL	3.8%	-0.7%	
CSXT Through Trains	CSXT A	-0.3%	-0.3%	3.6%
	CSXT B	12.9%	-3.1%	7.8%
	CSXT C	21.6%	-4.2%	43.8%
	CSXT D	16.1%	-2.9%	20.5%
	CSXT E	-9.4%	8.2%	12.0%
	CSXT F	-7.7%	2.3%	12.9%
	CSXT G	17.8%	-3.2%	21.0%
	CSXT H	-4.8%	1.1%	6.0%
	COAL	18.2%	-4.4%	35.1%
	CSXT THROUGH TOTAL	4.8%	-0.5%	

3.6 2039 Reduced Train Lengths

In the 2039 case, the majority of freight trains are greater than the 7,500-foot length limit. This requires significant assumed changes in operations to avoid having trains longer than the sidings. To study the potential changes to the freight traffic by reducing train lengths, the following changes were included in the **2039 Passenger Case**:

- 1) 850 feet, or roughly 15 cars, were shifted from CSXT C {{Redacted}} onto CSXT E {{Redacted}};
- 2) 760 feet, or roughly 13 cars, were shifted from CSXT H {{Redacted}} onto CSXT E {{Redacted}};
- 3) 300 feet, or roughly 5 cars, were shifted from CSXT D {{Redacted}} onto CSXT F {{Redacted}};
- 4) CSXT E {{Redacted}} was split between two trains of 5,140 feet and 5,140 feet. The length included the 850 feet from CSXT C {{Redacted}} and 750 feet from CSXT H {{Redacted}}. CSXT E had three locomotives in the 2039 Base Case, so an additional locomotive was required to power the second train to maintain track speed;
- 5) CSXT F {{Redacted}} is cut in half into two trains of 5,950 feet. The length includes the 100 feet from CSXT D {{Redacted}}; CSXT F {{Redacted}} has four locomotives in the 2039 Base Case, so no additional locomotives are required;

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- 6) CSXT B {{Redacted}} is cut in half into two trains of 5,200 feet. CSXT B has three locomotives in the 2039 Base Case, so an additional locomotive is required to power the second train to maintain track speed; and
- 7) CSXT G {{Redacted}} is cut in half into two trains of 5,150 feet. CSXT G {{Redacted}} has four locomotives in the 2039 Base Case, so no additional locomotives are required.

These changes result in four additional freight trains on the corridor (**Table 3-8.**) When the passenger trains are included, doubling the number of through trains on the corridor.

Table 3-8: Train Lengths in Alternative 2039 Passenger Case

Train		New Orleans - Mobile	Mobile - Montgomery	Route
{{Redacted}}	CSXT A	{{Redacted}}	{{Redacted}}	New Orleans to Nashville
{{Redacted}}	CSXT B	{{Redacted}}	{{Redacted}}	Nashville to New Orleans
{{Redacted}}	CSXT C	{{Redacted}}	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT D	{{Redacted}}	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT E	{{Redacted}}	{{Redacted}}	Waycross to New Orleans
{{Redacted}}	CSXT F	{{Redacted}}	{{Redacted}}	New Orleans to Waycross
{{Redacted}}	CSXT G	{{Redacted}}	{{Redacted}}	New Orleans to Montgomery
{{Redacted}}	CSXT H	{{Redacted}}	{{Redacted}}	Montgomery to New Orleans
{{Redacted}}	CSXT I	{{Redacted}}		Mobile to New Orleans
{{Redacted}}	CSXT J	{{Redacted}}		New Orleans to Mobile
{{Redacted}}	CSXT K	{{Redacted}}		Mobile to New Orleans
{{Redacted}}	CSXT L	{{Redacted}}		New Orleans to Mobile

Changes from original modeling in red

Trains CSXT I and J were scheduled to operate at the same as in the 2019 case. CSXT K was scheduled to depart 2 hours after CSXT B, and CSXT L was scheduled to depart 2 hours before CSXT G.

3.7 2039 Length Adjustment Modeling Results

When the changes in train lengths were added to the **2039 Passenger Case With Adjusted Train Lengths**, the RTC model was unable to dispatch the increased train volumes, which resulted in unresolvable gridlock. The additional four passenger trains combined with the four new, shorter, freight trains effectively doubled the amount of traffic on the corridor. This added traffic, coupled with the high passenger train priorities, results in operations that exceed the available capacity on the corridor.

3.8 Conclusions

The modeling indicates a reduction in train lengths does not meaningfully change the impact of the proposed passenger service. The fact that every freight train can fit in a siding clear of

grade crossings reduces the *average delay per conflict*. However, this benefit is offset because running shorter trains requires additional trains, thereby increasing the total number of conflicts. In the 2019 case, the change in freight metrics due to the introduction of passenger service did not meaningfully change. In the 2039 case, the corridor remains gridlocked with the introduction of passenger service. The operational change to increase train lengths requires additional crews and locomotives, with in greater fuel consumption and emissions, all without any operational benefit.

4.0 Bridge Opening Preference and Automation

The modelers considered two adjustments to the existing moveable bridge operations: (1) a change in Coast Guard regulations providing passenger rail traffic preference over maritime vessels while maintaining maritime vessel priority over freight traffic and (2) fully automating (operation by remote control) the four moveable bridges between New Orleans and Mobile, thereby eliminating on the hi-rails to transport bridge tenders.

The mechanism to give passenger traffic absolute preference over maritime traffic at the moveable bridges in the RTC model does not fully reflect the potential delays to the freight traffic. That RTC mechanism (permits) causes a bridge to open for maritime traffic but does not distinguish between situations where a bridge opening would impact a passenger train versus a freight train, as the permits representing the presence of maritime traffic occur at random times and durations. This means that when maritime traffic in the model triggers the activation of a bridge opening as an Amtrak train approaches, it is not possible for RTC to adjust the activation of the permit to wait until the passenger train travels over the bridge. Therefore, the only way to model giving passenger trains preference over maritime vessels while maintaining maritime vessels priority over freight traffic is to have passenger trains traverse open bridges in the model. In other words, the bridge opening activation events were adjusted to not stop any passenger trains even when a maritime vessel is traversing an open bridge, though all freight trains are stopped in the event of open bridges.

When this modeling technique is deployed, the impacts on freight trains from the opening of moveable bridges are not fully captured in RTC, as passenger train movements over bridges and some bridge openings occur simultaneously. In reality, passenger trains would traverse bridges *before* their opening to allow the passage of maritime traffic. After the passage of the passenger trains, the bridges would then open for the passage of marine traffic. Thus, freight trains would first be delayed to allow passenger trains to cross bridges, and then be delayed by the subsequent bridge openings to allow for the transit of maritime traffic halted by the passenger trains. By simulating the two events (both the passenger trains moving over the bridge and the bridge opening for the maritime traffic) to happen simultaneously, the RTC model understates the delay experienced by freight trains in these situations. Consequently, any positive results from the change to priority at moveable bridges presented in this report will be somewhat offset in reality.

4.1 2019 Results

The impact of the proposed bridge changes was considered by implementing these changes in the **2019 Passenger Case With Adjusted Bridge Operations**. By giving preference to Amtrak for bridge openings and removing the hi-rail trips over them, there is a minor improvement to the OTP of the passenger service. This, however, does not remove all bridge-related delays to

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passenger traffic. While the direct delays from bridge openings are removed, this does not eliminate indirect delays, such as instances when a freight train is delayed by a bridge opening and that delay, in turn, causes delays to a following passenger train. For instance, a dispatcher will plan meets and overtakes between freight and passenger trains on the corridor. Since the bridge openings can occur at any time, bridge openings will delay nearby freight trains. Those freight trains may be unable reach a dispatcher-planned siding ahead of a passenger train's arrival, thereby causing delays to the following passenger train. In another example, if a freight train is ahead of a passenger train, the dispatcher often will plan for an overtake at a siding ahead. A bridge opening will delay the freight train and the passenger train will be slowed down traveling behind the freight train that had to stop due to the bridge opening until both trains can reach the planned overtake location.

While bridge preference and automation are potential solutions to improving passenger OTP, this does not change the adverse impacts on freight service. The difference in the adverse impacts on freight traffic when Amtrak is given bridge preference and bridge tender hi-rails are removed is negligible. The results are only slightly improved from the original 2019 Passenger Case in the 2021 Gulf Coast RTC Modeling Report (22.7% increase in delay, 4.5% decrease in speed) (**Table 4-1** and **Table 4-2**). Therefore, these changes in bridge operations will not affect the amount of infrastructure, as proposed in the 2021 Gulf Coast RTC Report.

Table 4-1: Changes in Key Freight Train Metrics Due to the Addition of Passenger Trains in 2019 with Passenger Bridge Preference and Bridge Automation

% 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 ²¹		% Change in Recrews	
20.4%	↑	-4.1%	↓	32.3%	↑	24.8%	↑	36.3%	↑

²¹ This metric reflects change in delay for the subset of inbound freight trains (eastbound) to NSR and CSXT from other New Orleans railroads.

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Table 4-2: Changes in CSXT Freight Train Operating Performance between 2019 Base Case and 2019 Passenger Case with Passenger Bridge Preference and Bridge Automation

	TRAIN PROFILE	% CHANGE IN DELAY/100	% CHANGE IN SPEED	% CHANGE IN VARIABILITY
CSXT Local Trains	CSXT 1	-20.2%	1.8%	-2.6%
	CSXT 2	119.3%	-20.3%	7.5%
	CSXT 3	71.5%	-9.0%	35.4%
	CSXT 4	95.2%	-10.0%	74.7%
	CSXT 5	37.0%	-4.3%	-8.1%
	TASD	52.6%	-11.6%	44.8%
	CSXT LOCAL TOTAL	47.4%	-7.1%	
CSXT Through Trains	CSXT A	-1.1%	-0.2%	-1.5%
	CSXT B	12.1%	-2.3%	7.4%
	CSXT C	16.1%	-3.1%	74.0%
	CSXT D	54.6%	-8.6%	46.6%
	CSXT E	38.8%	-7.8%	33.2%
	CSXT F	67.1%	-10.2%	32.7%
	CSXT G	17.6%	-2.9%	1.3%
	CSXT H	29.3%	-5.6%	9.2%
	COAL	22.6%	-4.8%	18.6%
	CSXT THROUGH TOTAL	25.0%	-4.3%	

4.2 2039 Results

The same changes to the bridge preference and bridge automation were applied to the **2039 Passenger Case With Adjusted Bridge Operations**. As in the **2039 Passenger Case** presented in the 2021 Gulf Coast RTC Modeling Report, the **2039 Passenger Case With Adjusted Bridge Operations** was not able to find a dispatching solution, indicating that even with the proposed changes, the model will gridlock if passenger service is added to the corridor in the 2039 case without any infrastructure improvements.

4.3 Conclusions

The operational changes of giving bridge opening preference to passenger rail trains instead of maritime vessels and removing the bridge tender hi-rail trips improves the on-time performance of passenger trains, but does not meaningfully reduce the impact on freight trains. Additionally, the modeling does not fully capture the delay to freight trains caused by these changes due to the limitations of how RTC implements this regulatory change in bridge opening preference with permits. In reality, maritime vessels would have to wait for passenger

trains to traverse the moveable bridges and then the bridges would open to allow vessels to pass through. These openings will then occur after passenger trains have passed and only freight trains will wait to resume operations over the bridges. This sequence of events will offset at least some of the reductions in delay suggested by the modeling.

5.0 Predicted Freight Degradation on CSXT's NO&M Subdivision

In the 2021 Gulf Coast RTC Report, the RTC Modelers presented results of the degradation in freight train operations with the introduction of passenger traffic. The overall performance metrics included NSR and CSXT trains between New Orleans and Montgomery. Presenting the results in this manner shows that all impacts were considered and mitigated. It further accounted for the fact that the Mobile terminal area encompasses parts of two CSXT subdivisions. However, there were several limitations to this method of presenting the data. First, when considering the impact of the passenger service, it is critical that one type of traffic (or one railroad) is not mitigated while significant impairment remains for other types of traffic (or another railroad). The overall performance metrics for the entire study corridor include values from CSXT Local Trains, CSXT Through Trains, and NSR Trains. While a single overall number was provided for ease of the reader, each of the groups of traffic must be considered individually. If the impact to the CSXT Through Trains is mitigated but the CSXT Local and NSR Trains are not, even if the overall number only demonstrates a minor degradation, the proposed projects are insufficient to prevent more significant adverse impact to individual classes of freight traffic.

Second, since the impacts of the passenger service are not distributed equally throughout the corridor, these overall performance metrics obscure the full degradation to freight trains on the passenger route. To better demonstrate these impacts, the freight performance metrics on the CSXT New Orleans to Mobile subdivision (NO&M) were isolated and analyzed.²² Supplemental analysis was completed using CSXT operating data and outputs from the **2019 Base Case** and **2019 Passenger Case**. This work focuses on the eight CSXT merchandise trains (CSXT A-H) and the five CSXT local trains (CSXT 1-5) that operate between New Orleans and Mobile.

5.1 Train Hours of Service Requirement

A train may require multiple train crews to complete its journey. Train crews are subject to hours of service (HOS) regulations²³ that limit a train crew to 12 hours per shift. Once the 12-hour threshold is reached, a train crew cannot legally operate a train and a new crew must take over the train. This 12-hour block is not limited to the time the train moves, but instead the clock begins when a crew arrives at the originating yard and it encompasses all work events.

At preplanned locations, a new train crew will take over the operation of the train. Mobile and Montgomery are two such crew change locations for CSXT. When a northbound train reaches Mobile, a new crew will take control of the train and operate it until the next planned crew

²² The analysis, tables, and findings in Section 5 pertain exclusively to CSXT's operations.

²³ 49 U.S.C. § 21103(a)(2) ("[A] railroad carrier and its officers and agents may not require or allow a train employee to . . . remain or go on duty for a period in excess of 12 consecutive hours).

change location in Montgomery. Similarly, a southbound train arriving at Mobile will get a new crew to continue train service to New Orleans.

The time from when the crew arrives on-duty to when the train departs is referred to as on-duty to depart time (ODToD). ODToD encompasses the time required to obtain the necessary documents and wait for the train to be ready to depart. Once the train departs, work may be required along the journey. This can include building or breaking apart the train at the originating destination or terminating yard or picking up and setting out cars along the route. The ODToD, travel time, and work events all count towards the 12 hours of allowed on-duty time.

If a train is unable to reach its planned crew change location within the permitted 12 hours, a train must receive a new crew at an unplanned location. This can result in significant additional delays to the train since the train must stop along the corridor, often in a siding or near a grade crossing, to allow for the swapping of the crews. Unplanned recrews can be one of the largest sources of congestion on a corridor. Unplanned recrews can have a cascading impact on operations along the corridor as they increase the congestion, which can lead to more recrews and corresponding crew shortages, which further exacerbate the delays.²⁴

If the crew exceeds the 12-hour threshold near a terminal, it is possible for a yard crew to bring the train into the yard. This results in further delays and congestion in the yard as well. As the frequency of 12-hour crews increases, yard crews become less able to perform this work for all traffic while completing their assigned yard work. While a crew reaching its 12-hour limit (a “12-hour crew”) crew does not always result in a recrew, for this analysis, references to a “12-hour crew” and a “recrew” will be used synonymously.

To avoid reaching the 12-hour crew threshold, a dispatcher can prioritize the train to avoid delays to that train. However, this results in additional delays to other traffic that has had its priority reduced and further increases overall congestion on the corridor. For local trains, a train may be instructed to return to the originating yard prematurely and not serve all the customers on that day’s plan. If a train will be performing work at the train’s destination, as is the case with Mobile, a recrew for that train can be avoided by shifting work from an inbound train’s crew to an outbound train’s crew. While this avoids the recrew for that train, this type of mitigation measure can shift the impact of constraints on the NO&M to adjoining subdivisions.

In the RTC simulation model, when a train’s crew approaches its hours of service limit, the model will give that train a higher priority, matching actual dispatcher behavior. If the train is unable to reach the planned crew change location in time, the model will stop the train and wait for a set amount of time (10 minutes in these cases) before permitting the train to continue with a new crew. This model assumes that a crew is available immediately and able to reach the stopping location of the train when its crew times out.

5.2 Evaluation Methodology

The additional delays caused by the introduction of passenger service to the Gulf Coast Corridor will increase freight train runtimes. These delays could result in freight traffic experiencing additional recrews and local trains being unable to serve all their customers. To quantify this potential impact, the crew on-duty times of merchandise and local train crews between New Orleans and Mobile were evaluated between January 1, 2019 and March 31, 2022. Evaluation focused on the historical trains matching the train profiles of the eight daily

²⁴ Johnson Supplemental V.S. at 12.

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scheduled merchandise trains (CSXT A-H) and five local trains (CSXT 1-5) included in the RTC cases and highlighted in the RTC reports. Train plans change from time to time, and between 2019 and 2022, two of the merchandise were assigned different train profiles and one local train's operations was split into two trains. These new train profiles were also included in this analysis as they represent equivalent operations for the full duration of the studied time period. The analysis does not include any data past March 2022 because CSXT adjusted train profiles system-wide such that there is no longer a clean match between the simulated profiles and those in the actual data.

Using OS data,²⁵ crew data, and simulated results from the RTC .ROUTE file, each historical train crew time was increased based on the 2021 Gulf Coast RTC Model's projected increase in runtime resulting from the introduction of the new passenger service. These new runtimes were evaluated to determine the amount of freight traffic that would have crew on-duty times of more than 12 hours.

5.3 Merchandise Train Operations

Northbound and southbound merchandise trains operate on the corridor between New Orleans and Mobile. Northbound train crews traveling from Gentilly to Mobile will first build the train in Gentilly. This requires pulling cars from multiple tracks and connecting the distributed power before departing. Upon arriving in Mobile, the same crew will perform the work to pick up and set out cars in Sibert Yard. Since inbound crews perform the work, the southbound train crews traveling from Mobile to Gentilly are able to depart Mobile as soon as the route is clear. When arriving in New Orleans, the crew will leave the cars in multiple yard tracks, disconnect the distributed power, and park the locomotives.

5.3.1 Merchandise Historical Train Crew Times

To evaluate the crew on-duty durations, the crew time for each train was split into four groups: ODTOD, departure work, line-of-road (LOR) travel time, and arrival work. The calculation for each category is listed in **Table 5-1** below.

Table 5-1: Merchandise Train Crew Time Categories

Time Category	Description	Calculation Methodology
On-Duty to Depart	Time between when a crew comes on duty and the train departs.	Time between when a crew is clocked on-duty to the first OS event.
Departure Work	Duration of work events to prepare train to depart the yard and delays exiting the yard.	Time between first OS event to arrival at Paris Road (MP 796.0) for northbound trains or SE Brookey (MP 671.8) for southbound trains.
Line-of-Road	Train operating on the mainline between yards.	Time between Paris Road (MP 796.0 outside Gentilly) and SE Brookley (MP 671.8 outside Mobile) control points.
Arrival Work	Duration of work events at the destination and delays entering the yard.	Time between arrival at SE Brookley for northbound trains and Paris Road for southbound trains and last OS event for that crew. Does not capture any work time after last OS event.

²⁵ See Rosse & Sinkkanen Rebuttal V.S. at 10-12 (defining OS Data).

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Southbound crews will perform work to terminate a train into the yard. Some of this work is performed from the south end of Gentilly Yard, which as described in the 2021 Rebuttal RTC Report,²⁶ does not report OS or dispatch data. Due to the lack of data, 60 minutes is added to the Arrival Work time to properly account for the required duration of the work events for southbound trains. This is roughly equivalent to the 54 minutes to prepare a northbound the train for departure.

Between 2019 and 2021, merchandise train crews averaged over 10 hours to complete the work and travel between Mobile and New Orleans (**Table 5-2**). LOR time, the time most often referred to when considering train movements, only accounts for about half of the total crew time.

Table 5-2: 2019-2021 Actual Merchandise Train Average Crew Event Durations In Minutes

Train Direction	On-Duty to Depart	Departure Work	Line-of-Road	Arrival Work	Total Crew Time
Northbound	107	65	337	101	610
Southbound	83	54	337	158	632

5.3.2 Merchandise RTC Line-of-Road Times

LOR times are the most directly comparable time between RTC and actual data. Between the two terminals, train runtime is influenced only by other traffic. In the terminals, the model does not include variability in ODTOD times or the full variability in the timing of train work events. As described in the 2021 Gulf Coast RTC Report, the dwells at Mobile were represented by a triangular distribution, which will not incorporate large dwells that may result in actual operations. To avoid underrepresenting the times at the yards, only the LOR times were evaluated for comparison between historical values and RTC.

It is critical to note that the RTC performance metrics in the 2021 Gulf Coast RTC Report, 2021 RTC Rebuttal Report, and in earlier sections in this Supplemental Report, are averaged. These averages are calculated from 300 simulated days in the model (30 scenarios, 10 days each).²⁷

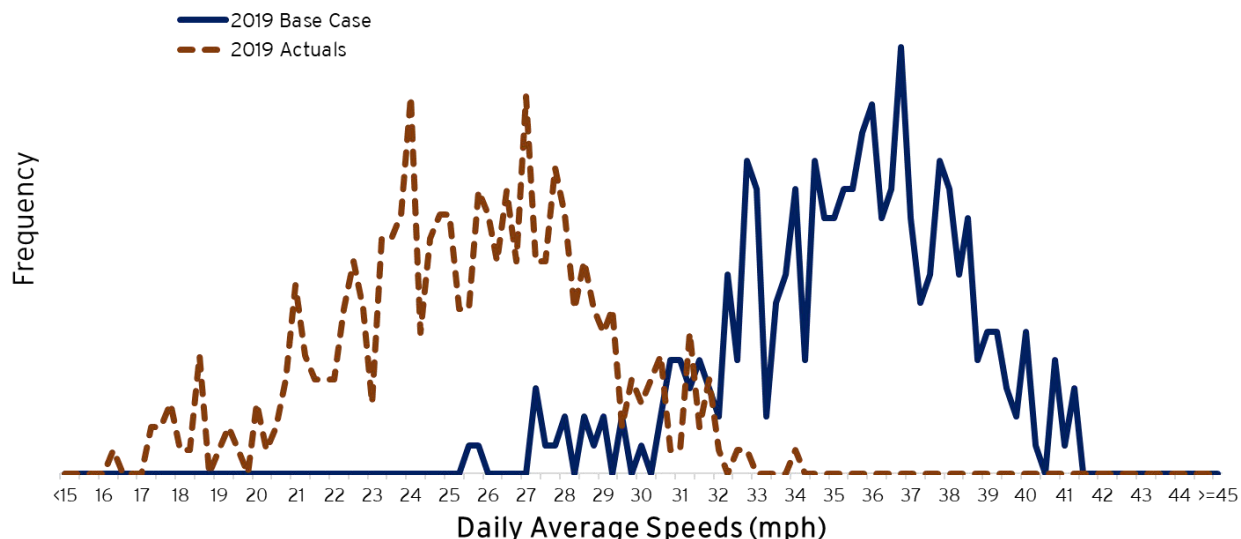
Figure 5-1 shows both the variability in daily average speeds between Paris Road and SE Brookley in the **2019 Base Case**, and the historical daily average speeds of the eight merchandise trains in the 2019 OS Data. Not every day in the model runs at the average. Much like the historical data, some days have smooth operations (higher speed days), and some days have more congestion (lower speed days). The RTC results have a similar distribution to the actual data, but it is clear that the RTC Model has higher average speeds than actually occur on the corridor. As described in the 2021 Gulf Coast RTC Report,²⁸ RTC does not fully represent all the events that may occur on a railroad (e.g., derailments, passenger disruptions). Additionally, as a computer model, RTC is able to simulate more optimal train movements than possible with a human dispatcher who cannot “predict the future.” Accordingly, RTC is an excellent tool to test potential operational changes and infrastructure alternatives, but the model tends to be more optimistic than what can be achieved in reality.

²⁶ 2021 RTC Rebuttal Report at 17-18 & Table 6 (§ 3.1.3).

²⁷ Although the 2021 Gulf Coast RTC Model is a 14-day simulation, the first two days and the last two days are not included in the performance metrics because those days represent the ramp up and ramp down of the model.

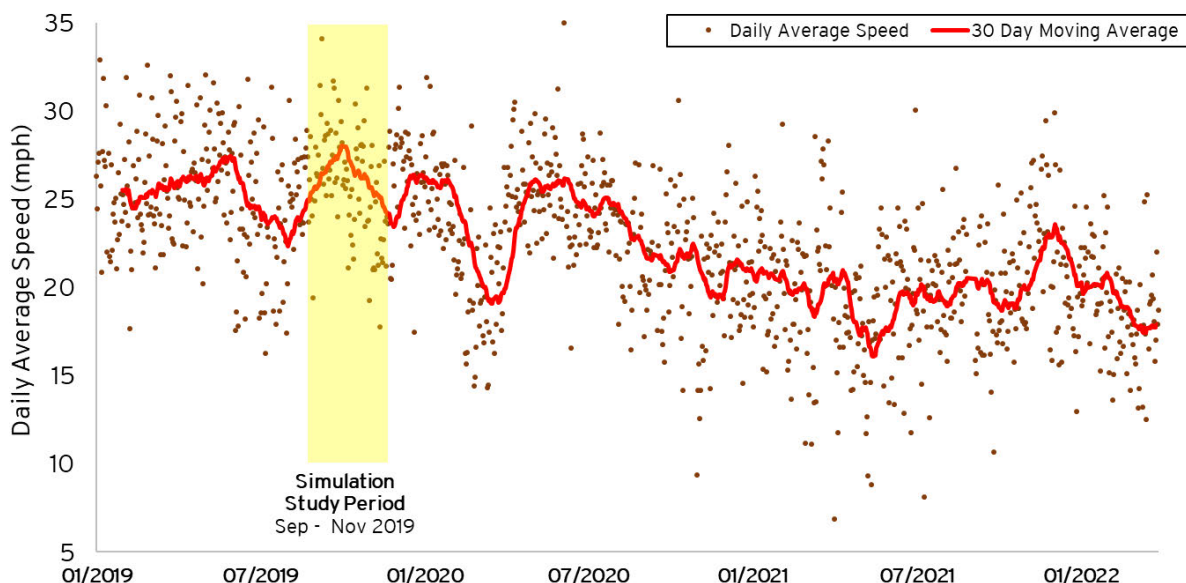
²⁸ See 2021 Gulf Coast RTC Model at 22-23 (§ 3.1).

Figure 5-1: 2019 Actual and 2019 Base Case Distributions of Daily Merchandise LOR Speeds between New Orleans and Mobile



The RTC cases for this study were built using data from September to November 2019, which represents one of the best periods of operations since the beginning of 2019 (**Figure 5-2**). Of course, operations have not remained static since 2019. Railroads will adjust train plans from time to time and in August 2021, a change was made to shift work performed on the Gulf Coast by a local train (CSXT 5) to one of the merchandise trains. This shift increased the merchandise train's LOR runtime because now the merchandise train takes time to serve the customers along the LOR. This shift decreased the daily average LOR speeds, not due to increased congestion or worse service, but due to planned dwell along the LOR. Of course, LOR runtime has also increased (and speeds have decreased) since 2019 due to service challenges attributed to the Covid-19 pandemic, worldwide supply chain disruptions, and crew shortages. While the service challenges are temporary, and CSXT anticipates that service will return to 2019 levels, the increased runtimes from the passenger traffic will be permanent. There will always be periods of increased congestion during which the degradation in operations from passenger traffic is magnified. The RTC cases are not only faster than actuals but are faster than the best periods of operations over the last three and a half years. If the model was developed against more recent operations, the degradation found from the simulation model would worsen.

Figure 5-2: Actual Daily Merchandise LOR Speeds between New Orleans and Mobile



When passenger traffic is added to the corridor, the LOR times between Paris Road and SE Brookley increase significantly (**Table 5-3**). Merchandise train runtimes increase by 33 minutes, or 15.5% and train speeds decrease by 4.7 mph. This decrease in speed is much greater than the -4.5% (0.7 mph) overall change in speed for all train types operating from New Orleans to Montgomery, or even the -4.4% (0.9 mph) change in speed to just CSXT Through trains in 2019 previously presented.²⁹ Since the RTC model has higher speeds than achieved in actual operations, using the absolute change in speed (4.7 mph) would be a higher percentage change in actual operations than in the model. This would over represent the impact and the LOR results for CSXT merchandise trains results again demonstrate why the use of percentages is the best demonstration of RTC outputs

Table 5-3: Merchandise Train RTC LOR Metrics on NO&M

Case	Average Speed (mph)	Average LOR Runtime (minutes)
2019 Base Case	35.1	212
2019 Passenger Case	30.4	245
Difference	-4.7	+33
	-13.5%	+15.5%

5.3.3 NO&M Merchandise Train Recrews

To determine the potential impact of passenger service, the number of trains that require crew times of more than 12 hours was calculated using historical data and the RTC simulation results. To determine the baseline with only freight operations, the total crew time (the total of the four categories described in **Section 5.3.1**) was calculated for each train. Each duration longer than 720 minutes (12 hours) was considered as a recrew. To then estimate the number

²⁹ *Id.* at 46, Table 20 (§ 6.0).

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of recrews that would result if the four daily passenger trains are added to the corridor, the 15.5% projected increase in LOR time was added to the actual LOR times in the historical data. The ODTOD, Departure Work, and Arrival Work times remained constant. The new number of trains that would have total crew times greater than 720 minutes was then calculated. It should be noted that only increasing LOR times does not account for the potential increase in dwells in Mobile and New Orleans. While providing the best direct comparison between RTC and actuals, limiting the analysis to LOR times underrepresents the potential impact of the proposed passenger service.

During the time period studied in the 2021 Gulf Coast RTC Report, September 2019 to November 2019, the introduction of passenger traffic would result in 67% more recrews for CSXT merchandise trains operating over the NO&M, requiring an additional recrew every other day (Table 5-4).

Table 5-4: Merchandise Train LOR Metrics on NO&M in Study Time Period

Actual Recrews %	Predicted Recrews %	% Change	Additional Recrews per Day
{{Redacted }}	15.7%	67.2%	0.5

However, the predicted number of recrews with the proposed passenger service is not consistent over time. The amount of additional recrews is dependent on the proximity of the existing traffic is to its maximum hours of service. In periods of higher congestion and lower train speeds, trains will have higher runtimes. Adding passenger trains during these higher congestion time periods will lead to a greater number of additional recrews as compared to periods of lower congestion.

As described previously, the study time period represents the best operations since the beginning of 2019. The impact of passenger trains in recent years is more significant (Table 5-5). If the full time period of 2019 to March 2022 is evaluated, the introduction of the passenger service will increase recrews between 98% to 135%. If the first three months of 2022 is analyzed, the introduction of passenger service adds on average, over 2.4 recrews per day. This means over half of the merchandise trains will experience an unplanned recrew on a daily basis. This frequency of crews requiring more than 12 hours to travel the 135 miles of CSXT track between New Orleans and Mobile is not sustainable. This will result in severe degradation to service, require additional crews, and cause cascading delays beyond the Gulf Coast.

Table 5-5: Merchandise Train LOR Metrics on NO&M by Year

Year	Actual Recrews %	Predicted Recrews %	% Change	Additional Recrews per Day
2019	{{Redacted }}	15.9%	98.1%	0.6
2020	{{Redacted }}	29.4%	122.0%	1.3
2021	{{Redacted }}	48.2%	103.0%	2.0
2022 ^a	{{Redacted }}	51.9%	134.9%	2.4

a) through March 31, 2022

5.4 Local Train Operations

Unlike merchandise trains, local trains do not travel the entire route between Mobile and New Orleans. In 2019, there are five daily local trains (CSXT 1–5) that originate in either New Orleans, Bayou Cassotte, or Mobile and travel to local customers. Similar to merchandise trains, locals may perform switching work at the yard. Since local trains tend to be smaller, the time it takes to perform yard work will often be less than required with the merchandise traffic.

5.4.1 Local Train Crew Times

Since local trains have multiple originating locations and different routes, it is not possible to cleanly remove work events from the data to independently evaluate LOR time. Since it is not as easy for local train crew times to be split between event types, the crew time was split into two groups: ODTOD, and Work & Travel. The calculation for each category is listed in **Table 5-6** below.

Table 5-6: Local Train Crew Time Categories

Time Category	Description	Calculation Methodology
On-Duty to Depart	Time between when a crew comes on duty and the train departs.	Time between when a crew is clocked on-duty to the first OS event.
Work & Travel	Duration of work events and travel time along the corridor.	Time between the first and last OS event. Does not capture any work time after last OS event.

Since each local train has a different work duration and travel distance, the total crew time is variable by train and by origination location (**Table 5-7**). Local trains tend to have higher ODTOD times than merchandise trains. Due to their smaller lengths, local trains perform more switching work in the originating yard that does not occupy the mainline before departing.

Table 5-7: 2019-2021 Actual Local Train Average Crew Event Durations in Minutes by Originating Yard

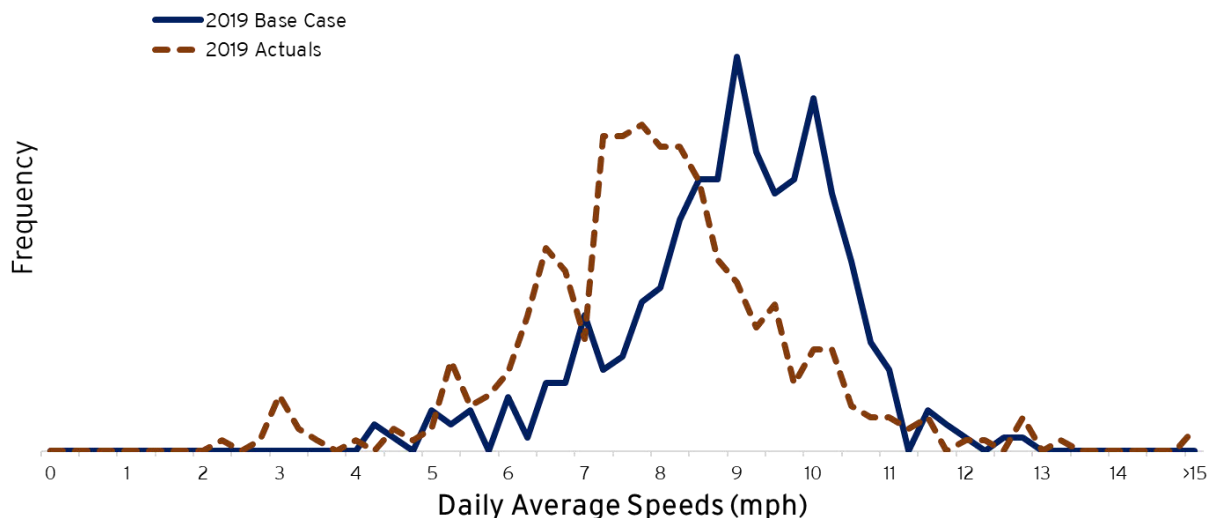
Train Origination Yard	On-Duty to Depart	Work & Travel	Total Crew Time
Gentilly	192	417	609
Bayou Cassotte	194	269	463
Mobile	226	298	524
	206	307	512

5.4.2 RTC Local Work & Travel Times

While not as significant a difference as seen in the Merchandise LOR times, the RTC model has higher Local Work & Travel speeds than reported in the historical data (**Figure 5-3**). Since the Work & Travel speeds include dwells from work events, the duration of which are not influenced by the RTC dispatching logic, the RTC times tend to be closer to actuals.

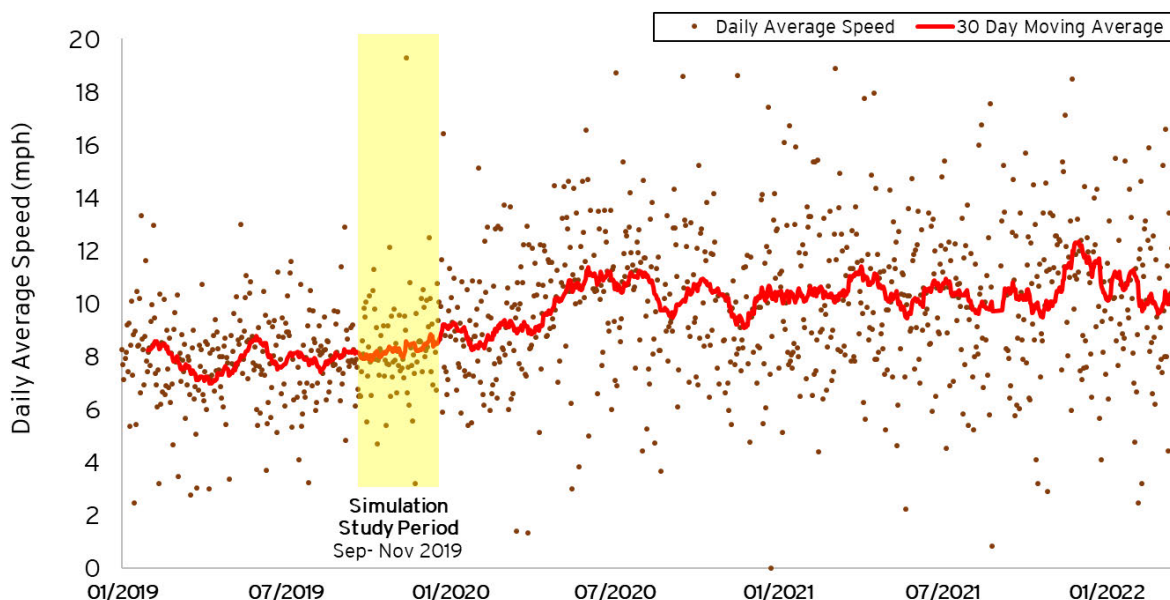
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Figure 5-3: 2019 Actual and 2019 Base Case Distributions of Daily Work & Travel Speeds between New Orleans and Mobile



Again, operations have not remained static since 2019 (**Figure 5-4**). In February 2020, the local train serving Theodore Industrial Park (CSXT 3) was split into two trains, one traveling from Mobile to Theodore and a second train traveling from Theodore to Mobile. This reduced the risk of a recrew but permanently requires an additional crew. This adjustment shifts the calculated daily Work & Travel speeds as shown in **Figure 5-4**. When CSXT 3 was a single train, the work that occurs in Theodore would be included in the calculated Work & Travel time since CSXT 3 passed OS points when returning to Mobile. Once the train was split, the duration of work performed by the first train at Theodore is no longer captured since the first train does not pass an OS point once in the facility. This plan change (train splitting) does not change the modeled operations and congestion on the corridor but reduces the calculated Work and Travel times and accounts for some of the increase in daily average speed seen since the first half of 2020.

Figure 5-4: Actual Daily Local Work & Travel Speeds between New Orleans and Mobile



When passenger traffic is added to the corridor, local trains on the NO&M have similar degradation to the merchandise trains (**Table 5-8**). Train speeds decrease 13.2%, and train runtimes increase by nearly one hour, or 15.2%.

Table 5-8: Local Train RTC Travel & Work Metrics on NO&M

Case	Average Speed (mph)	Average LOR Runtime (minutes)
2019 Base Case	9.3	393
2019 Passenger Case	8.0	452
Difference	-1.3 -13.2%	+59 +15.2%

5.4.3 NO&M Local Train Recrews

When a local train approaches its hours of service limitations, the railroad must decide to recrew the train or skip some of its planned work that day. If work is skipped to avoid a recrew, it will delay customer shipments until another local train can service the customer, often the next day.

To project the impact of proposed passenger service on local trains, the projected 15.2% increase in local runtimes was applied to the actual Travel & Work times, with the ODTOD remaining constant. The number of trains that would have total crew times greater than 720 minutes (12 hours) was recalculated to forecast freight operations with the proposed passenger traffic.

As mentioned above, railroads can adjust operations to avoid recrew local trains. Since there is no data detailing each occasion when a local does not complete its planned work early, the actual data likely understates the current number of 12-hour crews, or recrew

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events. Therefore, when projecting recrews, the absolute number of additional recrews is a better metric than percentage increase. In the study time period, September 2019 to November 2019, the introduction of passenger traffic will increase the recrew rate from {{Redacted}} to 39.5%, resulting in an average of an additional 1.5 recrews or trains unable to complete their planned work each day (Table 5-9).

Table 5-9: Local Train Travel & Work Metrics on NO&M in Study Time Period

Actual Recrews %	Predicted Recrews %	Additional Recrews per Day
{{Redacted}}	39.5%	1.5

Since 2019, this expected increase in recrews is less (Table 5-10). The proposed passenger traffic will result in an additional local train every other day needing to recrew or being unable to complete their planned work. As described above, local train CSXT 3 performing work at Theodore was split in early 2020, which reduced the original local train's runtime and the number of recrews but requires a new permanent crew to operate that second train. This plan change is one of the reasons why the number of actual and predicted local recrews per day drops after 2019.

Table 5-10: Local Train Travel & Work Metrics on NO&M by Year

Year	Actual Recrews %	Predicted Recrews %	Additional Recrews per Day
2019	{{Redacted}}	35.8%	1.3
2020	{{Redacted}}	18.1%	0.6
2021	{{Redacted}}	13.2%	0.5
2022 ^a	{{Redacted}}	9.0%	0.4

a) through March 31, 2022

5.5 Freight Degradation in 2039

As traffic grows on the corridor, that growth will be absorbed through either longer through trains or additional trains, and the available capacity will be reduced. When there is less capacity on the corridor, either because of the additional traffic or periods of higher congestion, the impact of the proposed new passenger service will be greater. As traffic is added to the corridor, train LOR runtimes will increase, making the risk of crews reaching their hours of service limits greater. While freight service was only modeled for calendar years 2019 and 2039, the conservatively projected growth will not suddenly appear in 2039. It instead will grow over time. The **2039 Passenger Case** was unable to reach a reliable dispatching solution without either adding infrastructure or greatly increasing the length of time trains blocked at-grade crossings. This gridlock will not suddenly occur in 2039, but likely well before, as volumes on the corridor grow. Even before gridlock is reached, the potential impact as described in this section will be even greater than demonstrated with the 2019 modeling results.

5.6 Conclusions

The RTC modeling found that in the 2019 cases, proposed passenger service would reduce CSXT and NSR train speeds across all types by 4.5% from New Orleans to Montgomery. This overall average obscures the significant impact on the CSXT NO&M Subdivision, where the passenger service will reduce merchandise and local train speeds by over 13%. Increased train runtimes will, in turn, increase the number of trains that require more than 12 hours to complete their planned work and traverse the subdivision, resulting in disrupted operations, a recrew, or in the case of local trains, an inability to service all scheduled customers. While the potential impact is dependent on the underlying congestion on the corridor, passenger traffic will result in merchandise and local trains experiencing, on average, between two and three additional reworks per day. Reworks have a significant impact on operations, causing significant delays and adding variability to scheduled operations, and creating the need to hire additional crews. This operational impact is not represented in RTC. The simulation has shorter runtimes than observed in the historical data, and when a train does recrew it does not account for the delay experienced to change crews. While the new passenger traffic will result in a permanent increase in freight train runtimes, freight railroad operations are not static. Freight operations, as observed since 2019, experience periods of higher and lower congestion. Additionally, railroads anticipate continued growth in the future. This growth, whether it is accommodated by adding trains or longer trains, will reduce the available capacity on the corridor. As runtimes increase due to normal freight operations, the longer runtimes from the passenger traffic will have an even greater impact than found in the 2019 analysis.

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Appendix B

Engineering Cost Assessment Report

New Orleans – Mobile

Gulf Coast

FRA-Identified Infrastructure Projects

Prepared For

Sidley Austin LLP / Baker & Miller PLLC

Prepared By

V3 Companies

Author

Ted Niemeyer

July 27, 2022

I. Qualifications and Experience

My name is Ted Niemeyer. I am a registered professional engineer with over 50 years of railroad engineering experience working on behalf of freight and passenger rail entities. My background and experience are described in my written report filed in this proceeding on November 3, 2021. An updated description of my qualifications and experience is attached to this report as Exhibit B-3.

II. Scope of Report

V3 was asked by CSX Transportation, Inc. (CSXT) and Norfolk Southern Railway Company (NSR), through their respective outside counsels, Sidley Austin LLP and Baker & Miller PLLC, respectfully, to review the infrastructure projects identified in the Gulf Coast Working Group Report to Congress, dated July 2017, Appendix L, *Capital Cost Documentation for FRA Identified Infrastructure Improvements* to accommodate the proposed Amtrak service between New Orleans, Louisiana and Mobile, Alabama. V3 also was asked to provide updated, engineering cost assessments of those projects, applying the same unit prices used in the November 3, 2021 *Engineering Cost Assessments Report New Orleans – Mobile Gulf Coast Proposed Infrastructure Projects* estimates, to the estimates provided by FRA in Appendix L to Gulf Coast Working Group’s report that originally were presented in 2016 dollars. Furthermore, V3 was also asked, to exercise its expert engineering opinion in making reasonable assumptions regarding the implementation of the 2017 FRA-identified projects to the extent the FRA’s descriptions of the projects were incomplete. V3 was able to rely on observations and analysis from the Fall 2021 site visit in costing the FRA-identified projects. Finally, V3 was asked to prepare this report regarding its findings for ultimate submission to the Surface Transportation Board. Please note that all the FRA-identified projects are on CSXT; none are on NSR for reasons explained in the GCWG Report.¹

III. Summary of Cost Estimates

V3 costed 13 of the FRA identified projects set forth in the Gulf Coast Working Group’s report. More detailed descriptions of the costing methodology, the specific projects, and how V3 chose which projects to cost follow in the sections below. V3 provides a

¹ The Gulf Coast Working Group recognized that “[i]nitiating additional passenger frequencies in this congested” New Orleans Rail Gateway, which includes NSR’s Back Belt, “may have operational impacts beyond those already studied,” including impacts to “terminal area track that is otherwise used by these freight carriers on through and connecting routes . . . to interchange traffic with each other,” but the Gulf Coast Working Group left evaluation of those impacts to be considered in a separate study (that was on hold at the time). Joint Exhibit 1B, GULF COAST WORKING GROUP REPORT TO CONGRESS, The Gulf Coast Working Group, at 10 (July 2017). V3 was only asked to model the FRA identified projects in the Gulf Coast Working Group Report and did not consider any projects set forth in a separate study of New Orleans or NSR’s Back Belt.

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summary table of the cost estimates in this section, which are set out in more detail in Exhibit B-2.

In 2017, the FRA Identified 28 Projects totaled \$96,774,000 in 2016 dollars. Today, V3 estimates that 13 of those projects would total between \$193,465,000 to \$210,285,000.00.

Summary of Material and Force Account Estimate For FRA Identified Projects

Project	Low Total @ 15%	High Total @25%
Gentilly Bypass	\$22,368,000	\$24,313,000
Lake Catherine Siding	\$4,777,000	\$5,192,000
Claiborne Siding	\$4,459,000	\$4,846,000
Ansley Siding	\$34,326,000	\$37,311,000
Harbin Siding Extension	\$17,871,000	\$19,425,000
Beauvoir Siding	\$10,015,000	\$10,885,000
Gautier Siding	\$8,872,000	\$9,643,000
Bayou Cassotte Bypass	\$51,577,000	\$56,062,000
Orange Grove	\$7,470,000	\$8,120,000
St Elmo Siding	\$8,379,000	\$9,107,000
Theodore Powered TO	\$6,608,000	\$7,182,000
Brookley Siding	\$7,633,000	\$8,297,000
Mobile Station Track	\$9,110,000	\$9,902,000
Total	\$193,465,000	\$210,285,000

IV. V3's Cost Estimating Methodology

V3's general approach to the project cost estimation was to use fall, 2021 pricing on all projects regardless of when they might be constructed to facilitate a fair and accurate comparison of the FRA-identified project costs with the costs of the 14 proposed projects costs presented in November 3, 2021 Engineering Cost Assessment Report. All material and construction efforts were priced as new work.

The Gulf Coast Working Group's 2017 Report to Congress and corresponding Appendix L set forth FRA's identified projects "for enhancing the operations of passenger trains on the corridor without unreasonably impairing freight operations."² This portion of the report articulates FRA's vision regarding each project and, while the FRA provided some

² *Id.* at 23.

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definition of each project's scope, the project descriptions often lacked important implementation details. The V3 team used its collective engineering judgment to develop any missing implementation details for the purpose of this costing exercise while adhering to FRA's vision for each identified project without unnecessarily inflating costs.

Therefore, in determining required work on the subject projects, V3 included in its estimates the costs of all reasonably potential work. In other words, since these projects have not yet been designed, our estimates reflect a conservative approach to evaluating the potential costs of work that could be required in our opinion. For example, on siding tracks that were projected to experience a class of track change, a speed increase, or a more robust switch connecting with a mainline, V3 applied a 10% tie renewal as well as a small amount of ballast and surfacing work in estimating the cost to upgrade the siding track, unless inspections, data analyzed, or CSXT indicated more or less work was required. Both low and high price range estimates were provided with a 15% contingency applied at 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 (as applicable) on work that will be done by railroad forces and the majority of such unit costs aligned well with V3's estimates. Where there were differences, V3 chose the higher unit cost. Civil construction costs were developed with input from and discussion with V3 Construction, a V3 company that does civil construction. Current grading costs were developed based on increments of 1,000 linear feet of a standard railroad section. Costs were adjusted to reflect sub-grade, access, any necessary construction of an embankment, and overall location of projects. Bridge cost estimates were based on a per linear foot of bridge methodology, varying by construction type. Existing non-moveable bridges were replaced in certain projects when V3 determined that adding a bridge for the second track (e.g., when extending or constructing a new siding) could trigger adverse environmental or maintenance effects. The costs of embankment widening at locations where there is a culvert reflected the assumptions that new culvert pipe would be installed the full length and the existing culvert would be sealed and filled. All culvert pipe replacements were assumed to be smooth metal pipe installed with the jack-and-bore method. Signal estimates were based on the assumptions that all work would use new material installed by railroad personnel and designed by consultants but reviewed by railroad staff, a standard operating procedure. The cost of temporary work was included to keep the signals system in full operation while new facilities were being constructed with all new material. Signal estimates included work that may be required to modify nearby facilities affected by the installation of the new facilities. No costs of station building, platform, fence, or other passenger amenity or safety work were included.

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As noted above, the same unit prices that were used in the November 3, 2021 V3 pricing calculations were also applied to the 2017 FRA-identified projects. Based on current cost escalation of railroad materials and construction, the November 2021 estimated costs used in this Report are approximately 20% understated as of July 2022.

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 taken during the field visits in the Fall of 2021. Cost estimate working files are included in the workpapers.

V. 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 as well as station sites at Mobile, Bay St. Louis, Gulfport, Biloxi and Pascagoula, all in Alabama and 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 tie gangs 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.

VI. 2017 FRA-Identified Projects

V3 does not offer train simulation services or have the in-house capabilities to perform train simulations. Therefore, V3 cannot comment on the efficacy of the FRA-identified projects proposed on the Gulf Coast Corridor. However, V3 reviewed the Gulf Coast Working Group's 2017 Report to Congress and corresponding Appendix L, which set forth the FRA infrastructure projects. V3 has accepted, without comment, the FRA-identified projects from Appendix L with project descriptions and justification of the projects, unless an exception is noted in V3's project comments below. A total of 13 of the 28 projects were costed and are listed from geographic west in New Orleans, Louisiana to Mobile, Alabama, which is railroad north on both CSXT and NSR.

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Cost estimate summaries and details by STB accounts regarding those 13 FRA-identified projects are included in Exhibit B-2. Exhibit B-2 also includes FRA 2016 cost estimates of the 13 projects to facilitate comparison with our November 2021 estimates.³ It should be noted that the FRA estimates include a larger high-end contingency (35%) than our November 2021 estimates (25%). Exhibit B-2 also includes the 15 FRA-identified projects not estimated (8 FRA-identified projects due to having been completed by CSXT, mostly as part of post-Hurricane Katrina repairs completed by February 2006, with the other FRA-identified projects either outside Amtrak, CSXT, or NSR's control or that were not well defined) with cost totals indicated to facilitate comparison with the 2017 Gulf Coast Working Group Report's Appendix L estimate totals. Descriptions, estimates, assumptions, and comments, if any, regarding the 13 FRA-identified projects follow below.

1. **Gentilly Bypass** – The project includes the construction of 10,500 track feet of main track west of Main Track 1 on the CSXT NO&M Subdivision between MP 801.3 and MP 799.2. Both ends of the bypass will be equipped with #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 will be installed to serve the transfer facility. Signal bungalows will be installed at the south bypass turnout and for the drawbridge as well as a two, 2-track cantilever signals. The hand throw crossover under the overhead bridge, north of the drawbridge at South Gentilly, will become electrically locked. The drawbridge will need new engineering and software to interface with the south bypass turnout. The Bids Plant turnout will need to be relocated to the bypass track and be electrically locked. Changes to the FRA-identified project include moving the south Gentilly turnout approximately 500 feet to the north to clear the overhead bridge. There will be signal bungalows installed at the north bypass turnout as well as 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. 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 799.2 south of Old Gentilly Road to avoid adding a grade crossing. The estimated construction cost of the entire project is between \$22,368,000 and \$24,313,000. After the addition of this FRA proposed project, only a slight benefit will be realized due to the bypass length being less than 12,000 feet, which is a common, maximum length of trains operated by CSXT and most U.S. Class I railroads.
2. **Lake Catherine Siding Speed Improvements** – The project includes the siding improvements at the CSXT NO&M Subdivision between MP 781.8 and MP 780.2. The project consists of replacing existing siding turnouts with new #20 turnouts with 136-pound rail and dual control switch machines. Those turnouts will be constructed on pads adjacent to the current switch and will be slid in during track outages. Siding upgrades between MP 781.8 and MP 780.3 were assumed to require 10% tie renewal and spot

³ *Id.* at 29 (noting that “[c]osts are in 2016 dollars and do not account for escalations to the time period when construction would occur”).

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surfacing. There will be signal bungalows and one, 2-track cantilever signal at the South and North Lake Catherine turnouts. The estimated construction cost is between \$4,777,000 and \$5,192,000. Due to its length of less than 8,500 feet, this siding will not be able to accommodate the longer trains commonly operated by CSXT and most other Class I railroads.

3. **Claiborne Siding Speed Improvements** – The project includes the siding improvements at the CSXT NO&M Subdivision between MP 768.0 and MP 766.3. The project consists of replacing existing siding turnouts with new #20 turnouts, 136-pound rail, and dual control switch machines. Those turnouts will be constructed on pads adjacent to the current switch and will be slid in during track outages. There will be signal bungalows and one 2-track cantilever signal at both the South Claiborne turnout and the North Claiborne turnout. The current siding will be rehabilitated with 10% crosstie renewal, spot ballast, and surfacing to bring track up to FRA Class 3 standards. The estimated construction cost is between \$4,459,000 and \$4,486,000. Due to its length of less than 9,000 feet, this siding will not be able to accommodate the longer trains commonly operated by CSXT and most other Class I railroads.
4. **Ansley Siding** – The project includes the new construction of 10,000 track feet of siding track west of the Main Track on the CSXT NO&M Subdivision between MP 764.2 and MP 762.2. The new siding's #20 turnouts with 136-pound rail and dual control switch machines will be constructed on pads adjacent to the existing track and slid into position during a track shut down. Signal bungalows and one, 2-track cantilever signal will be installed at both the South Ansley turnout and the North Ansley turnout. The intermediate signal location at MP 763.2 will need to be retired and a new intermediate signal location added at MP 760.4, approximately 850 feet south of Clermont Boulevard crossing. The new Port Bienville Railroad (PBVR) hand throw switch will be electrically locked and installed on the new siding track. Three grade crossings will require significant modifications. Three, new bridges with CSXT standard precast concrete spans on driven piles will be constructed at 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 Ansley Siding to avoid an increase in the total number of piers at that location and their potential debris accumulation. One culvert will be replaced. The estimated cost is between \$34,326,000 and \$37,311,000. Due to its length of 10,000 feet, this siding will not be able to accommodate the longer trains commonly operated by CSXT and most other Class I railroads.
5. **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 freight train is working. The siding will be extended west to MP 747.8 from MP 745.1 by constructing 5,300 track feet of main track south of the existing Main Track on the CSXT NO&M Subdivision. 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. Signal bungalows and one 2-track cantilever signal will be installed at both the South Harbin turnout and the North Harbin turnout. Six grade crossings will require significant modifications, assuming the North Harbin switch points remain south of White

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Harbor Road and the new, South Harbin switch points are installed south of Courtenay Avenue (increase of 5,300 feet of siding track south). Two intermediate signal locations will need replaced to accommodate the new signaled routes into the siding. It may be necessary to relocate the intermediate signal location at MP 750.2 to space out the track circuits evenly between the drawbridge and South Harbin control point. If during the design phase it is found to be necessary, an additional four crossings will need significant signal modifications at an additional estimated \$2.5 million (not included in the project estimated construction cost that follows). Eight culvert pipes will be replaced. The current siding will be rehabilitated with 10% crosstie renewal, spot ballast, surfacing, and continuous welded relay (CWR) rail to bring track up to FRA Class 4 standards. The estimated construction cost is between \$17,871,000 and \$19,425,000. Due to the location of one public grade crossing located in the existing siding and the proposed additional length, the usable length to park a train without breaking the train in two is about 6,000 feet in Harbin Siding, which will not accommodate the longer trains commonly operated by CSXT and most other Class I railroads.

6. **Beauvoir Siding Speed Improvements** – The project includes the siding improvements on the CSXT NO&M Subdivision between MP 731.9 and MP 730.3, consisting of replacing existing siding turnouts with new #20 turnouts, 136-pound rail, and dual control switch machines. Those turnouts will be constructed on pads adjacent to the current switch and will be slid in during track outages. Signal bungalows and one 2-track cantilever signal will be installed at both the South Beauvoir turnout and the North Beauvoir turnout. Five grade crossings will require significant modifications. One culvert will be replaced. The current siding will be rehabilitated with 10% crosstie renewal, spot ballast, surfacing work and CWR rail relay to bring the track up to FRA Class 3 standards. The estimated construction cost is between \$10,015,000 and \$10,885,000. Due to its length of less than 8,500 feet and the two road grade crossings, this siding will not be able to accommodate longer trains commonly operated by CSXT and most other Class I railroads.
7. **Gautier Siding Speed Improvements** – The project includes siding improvements on the CSXT NO&M Subdivision between MP 711.4 and MP 709.9, consisting of replacing existing siding turnouts with a new #20 turnout, 136-pound rail, and dual control switch machines. Those turnouts will be constructed on pads adjacent to the current switch and will be slid in during track outages. There will be a new, #10 hand throw turnout installed with 136-pound rail and electric lock, controlling access to the house track. New signal bungalows and one 2-track cantilever signal will be installed. The current siding will be rehabilitated with 25% crosstie renewal, spot ballast, and surfacing work to bring the track up to FRA class 3 standards. The estimated construction cost is between \$8,872,000 and \$9,643,000. Due to its length of less than 8,500 feet with road grade crossings, this siding will not be able to accommodate longer trains commonly operated by CSXT and most other Class I railroads.
8. **Bayou Cassotte Bypass** – The project includes new bypass track between MP 706.4 and 702.4, including the construction of 21,100 track feet of main track north of Main Track 1 on the CSXT NO&M Subdivision. Both ends of the bypass will be equipped with #20 turnouts, 136-pound rail, and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shutdown. Four, existing hand throw switches will be upgraded to electric locks, three of which will need new split point, 136-

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pound rail derails installed due to their proximity to yard tracks. Signal bungalows and one, 2-track cantilever signal at both the North Pascagoula turnout and the North Bayou Cassotte turnout will be installed. A temporary interface bungalow and software will be necessary to install at the South Orange Grove turnout to in-service the new, bypass track. The North Bayou Cassotte switch points should be installed south of the existing AEI reader at MP 701.9. Four existing hand throw switches will be upgraded to electric locks with three of them needing derails due to their proximity to yard tracks. Ten grade crossings will require significant modifications and temporary work to allow the new bypass track to be built. An antenna tower and bungalow will need to be replaced near the Bayou Cassotte Wye to accommodate the new, bypass track. Engineering and software work will be needed at the South Pascagoula turnout to get the correct aspect into the new bypass track. One, new bridge with CSXT standard precast concrete spans on driven piles will be constructed at MP 702.6. Nine culvert pipes will be replaced. A new yard office and crew facility will have to be constructed to facilitate the new bypass track. The current house track will be rehabilitated with 25% crosstie renewal, spot ballast, and surfacing work to bring the track up to FRA class 4 standards. The estimated construction cost is between \$51,577,000 and \$56,062,000.

9. **Orange Grove Siding Speed Improvements** – The project includes siding improvements on the CSXT NO&M Subdivision between MP 701.1 and MP 699.3, consisting of replacing existing siding turnouts with new #20 turnouts, 136-pound rail, and dual control switch machines. Those turnouts will be constructed on pads adjacent to the current switch and will be slid in during track outages. Signal bungalows and one, 2-track cantilever signal at both the South Orange Grove turnout and the North Orange Grove turnout will be installed. Two grade crossings will require significant modifications and one, intermediate signal location will need to be replaced to accommodate the new signaled route into the siding. The current siding will be rehabilitated with 25% crosstie renewal, spot ballast, surfacing work, and CWR rail to bring the track up to FRA Class 3 standards. The estimated construction cost is between \$7,470,000 and \$8,120,000. Due to its length of less than 9,500 feet, this siding will not be able to accommodate the longer trains commonly operated by CSXT and most other Class I railroads, although it could be extended to the north to accommodate longer trains.
10. **St. Elmo Siding Upgrade** – The project includes upgrading the St. Elmo siding between MP 687.3 and MP 685.5 on the CSXT NO&M Subdivision. The new south turnout to the siding is located at MP 687.3 and will be equipped with a new #20 turnout, 136-pound rail, and dual control switch machines constructed on pads adjacent to the main track and slid into position during a track shutdown. A new signal bungalow at the south end turnout and one, 2-track cantilever signal will be installed. The new north turnout will be located at MP 685.5 and 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 shutdown. A new signal bungalow at the north end turnout and one, 2-track cantilever signal will be installed. Two grade crossings will require significant modifications. The hand throw switch on the siding will need to be upgraded and electrically locked. Two, intermediate signal locations will need to be replaced to accommodate the new signaled routes into the siding. The current siding will be rehabilitated with 10% crosstie renewal, spot ballast, and surfacing to bring track up to FRA Class 3 standards. The rail will be changed out to new 136-pound CWR due to the

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existing rail's age and defect rate. The estimated construction cost is between \$8,379,000 and \$9,107,000. Due to its length of less than 9,500 feet, this siding will not be able to accommodate the longer trains commonly operated by CSXT and most other Class I railroads.

11. **Theodore Power Turnouts** – The project includes two, new, power turnouts on the main line to the Theodore Industrial Park wye. Two, #10 turnouts with 136-pound rail and dual control switch machines will be constructed on pads adjacent to the existing tracks and slid into position during a track shutdown. There will be a new signal bungalow installed at the two Main Track turnouts at MP 679.5 and MP 679.2 with two track signals. Three intermediate signal locations will be replaced with two new intermediate locations to accommodate the new powered turnouts. Three grade crossings will require significant upgrades. The estimated construction cost is between \$6,608,000 and \$7,182,000. Powering the two mainline turnouts will not facilitate a train clearing the mainline quicker since the third switch of the wye configuration will remain a hand operated turnout. This will result in every train crew having to stop to throw that switch, which entails a crew member disembarking the train, walking to and throwing or inspecting the switch, and then returning to the locomotive before proceeding.
12. **Brookley Siding Speed Improvements** – The project includes siding improvements at the CSXT NO&M Subdivision between MP 671.8 and MP 669.8. The south and north turnouts of the existing Brookley Siding at MP 671.8 and MP 669.8, respectively, will be removed and replaced with new #20 turnouts, 136-pound rail, and dual control switch machines, constructed on pads adjacent to the main track and slid into position during a track shutdown. Signal bungalows and one 2-track cantilever signal will be installed at the South Brookley turnout and the North Brookley turnout. The hand throw switches in between the two turnouts will need to be upgraded and electrically locked. Two grade crossings will require significant modifications. The current siding will be rehabilitated with 10% crosstie renewal, spot ballast, and surfacing to bring the track up to FRA Class 4 standards. The estimated construction cost is between \$7,633,000 and \$8,297,000. Due to its length of 10,500 feet, this siding will not be able to accommodate the longest trains commonly operated by CSXT and most other Class I railroads but will accommodate most other trains.
13. **Mobile Station Track** – The project includes construction of a new 1,000-foot station track west of existing Main Tracks on the CSXT NO&M Subdivision between MP 666.8, north of Monroe Street, and MP 666.5, south of the Mobile Convention Center. The station track will connect to Main Track 1 with a new #15 turnout, 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. The trackage will allow freight trains to pass passenger trains waiting at the station so as to minimize interference with freight operations. There will be a new signal bungalow installed at the turnout end as well as one, 2-track cantilever signal. Six grade crossings will require significant signal modifications. No station building, platform, fence, or other passenger amenity or safety work is included. The estimated construction cost is between \$9,110,000 and \$9,902,000.

Gulf Coast Reference 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. NOM Road Crossing Results 9/8/21 (Excel file)
9. Engineering Estimates – Revised 5/26/2020 (Excel file)
10. Signal Aspects (39 pages)
11. Gulf Coast Working Group Report to Congress, dated July, 2017
12. Appendix L Capital Cost Documentation for FRA Identified Infrastructure Improvements, to the Gulf Coast Working Group Report to Congress, dated July, 2017
13. New Orleans to Mobile Corridor Development Plan, Volume II. Technical Appendices, dated May 2006.

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Summary of Material and Force Account Estimate

Location: New Orleans Terminal Junction to Mobile, AL station

Description of Work: Track work per 2107 FRA Identified Projects

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

Buy America; PPTO means Pre-Plated Turnout

Project	Description	FRA Estimate**	Low Total @ 15%	High Total @ 25%
Gentilly Bypass	New 10,500' bypass track, #20 PPTO's	\$ 6,524,000	\$ 22,368,000	\$ 24,313,000
Lake Catherine Siding	Siding improvements, increased speed, new #20 PPTO's	\$ 3,757,000	\$ 4,777,000	\$ 5,192,000
Claiborne Siding	Siding improvements, increased speed, new #20 PPTO's	\$ 3,886,000	\$ 4,459,000	\$ 4,846,000
Ansley Siding	New 10'000' siding construction, #20 PPTO's	\$ 14,558,000	\$ 34,326,000	\$ 37,311,000
Harbin Siding Extension	Extend siding 5,300', increase speed thru siding, new #20	\$ 6,170,000	\$ 17,871,000	\$ 19,425,000
Beauvoir Siding	Siding improvements, increased speed, new #20 PPTO's	\$ 2,894,000	\$ 10,015,000	\$ 10,885,000
Gautier Siding	Siding improvements, increased speed, new #20 PPTO's	\$ 4,862,000	\$ 8,872,000	\$ 9,643,000
Bayou Cassotte Bypass	New 21,100' bypass track, #20 PPTO's	\$ 21,511,000	\$ 51,577,000	\$ 56,062,000
Orange Grove Siding	Siding improvements, increased speed, new #20 PPTO's	\$ 2,891,000	\$ 7,470,000	\$ 8,120,000
St Elmo Siding	Siding improvements, increased speed, new #20 PPTO's	\$ 2,925,000	\$ 8,379,000	\$ 9,107,000
Theodore Powered Turnout	New powered turnouts for industry track	\$ 2,355,000	\$ 6,608,000	\$ 7,182,000
Brookley Siding	Siding improvements, increased speed, new #20 PPTO's	\$ 3,937,000	\$ 7,633,000	\$ 8,297,000
Mobile Station Track	New 1,000' station track, #15 PPTO	\$ 1,897,000	\$ 9,110,000	\$ 9,902,000
FRA Projects Total		\$ 78,167,000	\$ 193,465,000	\$ 210,285,000
FRA Projects Not Included				
	Remove Old Gentilly Rd Grade Crossing MP 799.3	\$ 62,000		
	Remove Michoud Blud. Grade Crossing MP 795.2	\$ 106,000		
	Miter Rails, Chef Menteur Bridge, MP 787.3	\$ 1,091,000		
	Miter Rails, Rigolets Bridge, MP 775.3	\$ 1,091,000		
	Miter Rails, Pearl River Bridge, MP 768.8	\$ 1,969,000		
	Bay Saint Louis Siding Grade Crossings	\$ 29,000		
	Miter Rails, Bay Saint Louis Bridge, MP 753.0	\$ 1,091,000		
	Grade Crossing Closures Gulfport to Biloxi	\$ 2,155,000		
	KCS Diamond at Gulfport Station, CSX Completed	\$ 2,897,000		
	Miter Rails, Biloxi Bay Bridge, MP 724.4	\$ 1,091,000		
	Miter Rails, Pascagoula River Bridge, MP 706.8	\$ 942,000		
	Install Passenger Station at/under Route 193 Bridge	\$ 4,192,000		
	CN Diamond at MP 668.5, CSX Completed	\$ 1,639,000		
	Close Mobile Grade Crossings	\$ 252,000		
	Authorize Speed 70 MPH Wherever Possible	\$ -		
Total of Projects Not Included		\$ 18,607,000		
FRA Projects Subtotal		\$ 96,774,000		
	Existing Amtrak Station Upgrades	\$ 3,478,000		
FRA Projects total in July 2017 Appendix L GCWG Report to Congress ***		\$ 100,252,000		
** All FRA estimates include 15% for design and CM then a 35% contingency				All totals rounded to
*** The total is \$5,000 lower than Appendix L due to rounding				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: Gentilly Bypass MP 799.2 - 801.3

Description of Work: 10,500' new track construction with powered switches

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

Buy America

COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	7,134,200	7,134,200
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	72,000	72,000
CROSS/SWITCH TIES	8	Ties	1	LS	1,226,215	1,226,215
RAIL AND OTM	9	Rail and other track material	1	LS	2,913,605	2,913,605
BALLAST	11	Ballast	1	LS	552,640	552,640
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	6,807,924	6,807,924
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	744,000	744,000
PROPERTY ACCOUNTS SUB-TOTAL						19,450,584
		Low Total @ 15% Contingency	19,450,584	@ 15%	2,917,588	22,368,000
		High Total @ 25% Contingency	19,450,584	@ 25%	4,862,646	24,313,000

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: Lake Catherine siding improvements MP 781.8 - 780.2

Description of Work: Siding improvements to increase speed thru siding, new #20's PPTO, ties & surfacing

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	830,680	830,680
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	384,112	586,146
RAIL AND OTM	9	Rail and other track material	1	LS	912,688	710,654
BALLAST	11	Ballast	1	LS	68,280	68,280
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	1,957,898	1,957,898
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	0	0
PROPERTY ACCOUNTS SUB- TOTAL						4,153,658

		Low Total @ 15% Contingency	4,153,658	@ 15%	623,049	4,777,000
		High Total @ 25% Contingency	4,153,658	@ 25%	1,038,415	5,192,000

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Material And Force Account Estimate

Location: Claiborne siding improvements MP 768.1 - 766.2

Description of Work: Claiborne siding improvements, install #20's PPTO, ties and surfacing

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT DESCRIPTION	QTY	UOM	UCST	TOTAL	
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	412,640	412,640
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	95,200	95,200
CROSS/SWITCH TIES	8	Ties	1	LS	588,877	588,877
RAIL AND OTM	9	Rail and other track material	1	LS	556,923	556,923
BALLAST	11	Ballast	1	LS	61,600	61,600
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	1,957,898	1,957,898
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	204,000	204,000
PROPERTY ACCOUNTS SUB-TOTAL						3,877,138
		Low Total @ 15% Contingency	3,877,138	@ 15%	581,571	4,459,000
		High Total @ 25% Contingency	3,877,138	@ 25%	969,285	4,846,000

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Material And Force Account Estimate

Location: Ansley new siding MP 764.2 - 762.2

Description of Work: Construct new siding at Ansley, #20 PPTO's

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	9,344,840	9,344,840
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	11,495,200	11,495,200
CROSS/SWITCH TIES	8	Ties	1	LS	1,251,116	1,251,116
RAIL AND OTM	9	Rail and other track material	1	LS	2,717,784	2,717,784
BALLAST	11	Ballast	1	LS	533,840	533,840
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	4,505,829	4,505,829
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	0	0
PROPERTY ACCOUNTS SUB-TOTAL						29,848,609
		Low Total @ 15% Contingency	29,848,609	@ 15%	4,477,291	34,326,000
		High Total @ 25% Contingency	29,848,609	@ 25%	7,462,152	37,311,000

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 747.8 - 745.1

Description of Work: Extend Harbin siding, install new switches, turn siding into Main line

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	3,943,600	3,943,600
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	728,000	728,000
CROSS/SWITCH TIES	8	Ties	1	LS	1,367,267	1,367,267
RAIL AND OTM	9	Rail and other track material	1	LS	2,301,033	2,301,033
BALLAST	11	Ballast	1	LS	306,240	306,240
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	6,593,528	6,593,528
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	300,000	300,000
PROPERTY ACCOUNTS SUB-TOTAL						15,539,668
		Low Total @ 15%	15,539,668	@ 15%	2,330,950	17,871,000
		High Total @ 25%	15,539,668	@ 25%	3,884,917	19,425,000

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Material And Force Account Estimate

Location: Beauvoir Siding ImprovementsMP 731.9 - 730.3

Description of Work: Beauvoir Siding improvements, new #20 PPTO's, ties and surfacing

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	433,048	433,048
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	267,240	267,240
CROSS/SWITCH TIES	8	Ties	1	LS	794,708	794,708
RAIL AND OTM	9	Rail and other track material	1	LS	1,118,092	1,118,092
BALLAST	11	Ballast	1	LS	63,360	63,360
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	5,783,858	5,783,858
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	248,000	248,000
PROPERTY ACCOUNTS SUB-TOTAL						8,708,306
		Low Total @ 15% Contingency	8,708,306	@ 15%	1,306,246	10,015,000
		High Total @ 25% Contingency	8,708,306	@ 25%	2,177,077	10,885,000

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Material And Force Account Estimate

Location: Gautier Siding MP 711.4 - 709.9

Description of Work: Gautier siding improvements, install new #20 PPTO's, new #10 TO's, ties and surfacing

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	481,000	481,000
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	781,443	781,443
RAIL AND OTM	9	Rail and other track material	1	LS	938,957	938,957
BALLAST	11	Ballast	1	LS	55,600	55,600
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	5,395,667	5,395,667
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	62,000	62,000
PROPERTY ACCOUNTS SUB-TOTAL						7,714,667
		Low Total @ 15% Contingency	7,714,667	@ 15%	1,157,200	8,872,000
		High Total @ 25% Contingency	7,714,667	@ 25%	1,928,667	9,643,000

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Material And Force Account Estimate

Location: Bayou Cassotte Bypass MP 706.4 - 702.4

Description of Work: Construct new Bayou Cassotte yard by-pass track, #20 PPTO's

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	14,577,040	14,577,040
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	3,239,200	3,239,200
CROSS/SWITCH TIES	8	Ties	1	LS	2,310,369	2,310,369
RAIL AND OTM	9	Rail and other track material	1	LS	4,921,031	4,921,031
BALLAST	11	Ballast	1	LS	997,040	997,040
ROADWAY BUILDINGS	17	New yard office and crew facility	1	LS	3,500,000	3,500,000
COMMUNICATIONS	26	Communications tower replacement	1	LS	750,000	750,000
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	14,339,112	14,339,112
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	216,000	216,000
PROPERTY ACCOUNTS SUB-TOTAL						44,849,792
		Low Total @ 15% Contingency	44,849,792	@ 15%	6,727,469	51,577,000
		High Total @ 25% Contingency	44,849,792	@ 25%	11,212,448	56,062,000

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Material And Force Account Estimate

Location: Orange Grove Siding MP 701.1 - 699.3

Description of Work: Orange Grove siding improvements, new #20 PPTO's, ties and surfacing

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	373,600	373,600
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	1,001,116	1,001,116
RAIL AND OTM	9	Rail and other track material	1	LS	1,303,734	1,303,734
BALLAST	11	Ballast	1	LS	59,840	59,840
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	3,695,743	3,695,743
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	62,000	62,000
PROPERTY ACCOUNTS SUB-TOTAL						6,496,033
		Low Total @ 15% Contingency	6,496,033	@ 15%	974,405	7,470,000
		High Total @ 25% Contingency	6,496,033	@ 25%	1,624,008	8,120,000

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Material And Force Account Estimate

Location: St. Elmo Siding MP 687.3 - 685.5

Description of Work: St. Elmo siding improvements, new #20 PPTO's, ties and surfacing

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	388,800	388,800
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	980,669	980,669
RAIL AND OTM	9	Rail and other track material	1	LS	1,461,231	1,461,231
BALLAST	11	Ballast	1	LS	66,880	66,880
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	4,316,113	4,316,113
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	72,000	72,000
PROPERTY ACCOUNTS SUB-TOTAL						7,285,693
		Low Total @ 15% Contingency	7,285,693	@ 15%	1,092,854	8,379,000
		High Total @ 25% Contingency	7,285,693	@ 25%	1,821,423	9,107,000

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.

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Material And Force Account Estimate

Location: Theodore powered turnouts MP 679.2 - 672.5

Description of Work: Two New powered TO's for Ind Lead

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	292,400	292,400
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	197,041	197,041
RAIL AND OTM	9	Rail and other track material	1	LS	408,479	408,479
BALLAST	11	Ballast	1	LS	38,040	38,040
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	4,747,738	4,747,738
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	62,000	62,000
PROPERTY ACCOUNTS SUB-TOTAL						5,745,698
		Low Total @ 15% Contingency	5,745,698	@ 15%	861,855	6,608,000
		High Total @ 25% Contingency	5,745,698	@ 25%	1,436,425	7,182,000

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Material And Force Account Estimate

Location: Brookley Siding MP 671.8 - 669.8

Description of Work: Brookley Siding improvements, new #20 PPTO's, surfacing and ballast

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	534,000	534,000
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	777,974	777,974
RAIL AND OTM	9	Rail and other track material	1	LS	899,651	899,651
BALLAST	11	Ballast	1	LS	64,800	64,800
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	4,361,281	4,361,281
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	0	0
PROPERTY ACCOUNTS SUB-TOTAL						6,637,706
		Low Total @ 15% Contingency	6,637,706	@ 15%	995,656	7,633,000
		High Total @ 25% Contingency	6,637,706	@ 25%	1,659,427	8,297,000

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Material And Force Account Estimate

Location: Mobile Station Track MP 666.7 - 666.5

Description of Work: Mobile station track, new switch, & station improvements

*Estimates based off CSXT provided track charts, crossing, signal records and bridge logs

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COMMENTS	PROP ACCT	DESCRIPTION	QTY	UOM	UCST	TOTAL
PROPERTY ACCOUNTS						
GRADING, ENGINEERING	3	Grading	1	LS	938,400	938,400
BRIDGES, CULVERTS	6	Bridges, trestles, and culverts	1	LS	0	0
CROSS/SWITCH TIES	8	Ties	1	LS	223,851	223,851
RAIL AND OTM	9	Rail and other track material	1	LS	486,269	486,269
BALLAST	11	Ballast	1	LS	56,400	56,400
SIGNAL - COMPANY	27	Signal and Interlockers	1	LS	6,130,511	6,130,511
ROAD CROSSINGS	39	Public Improvements; Construction	1	LS	86,000	86,000
PROPERTY ACCOUNTS SUB-TOTAL						7,921,431
		Low Total @ 15% Contingency	7,921,431	@ 15%	1,188,215	9,110,000
		High Total @ 25% Contingency	7,921,431	@ 25%	1,980,358	9,902,000

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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), 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 supporting C&NW's branch line rationalization program, during which time 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 line project consisting of constructing over 125 miles of new 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. V3 has done work on behalf of both passenger rail agencies such as Amtrak, Chicago's Regional Transit Authority, Chicago Transit Authority, Metra and the Northern Indiana Commuter Transportation District (NICTD), New York Metropolitan Transit Authority, and the City of Bakersfield as well as short line and Class I freight railroads.

PUBLIC VERSION

**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 SUPPLEMENTAL EVIDENCE**

**SUPPLEMENTAL VERIFIED STATEMENT OF
RICKY JOHNSON**

PUBLIC VERSION

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I. INTRODUCTION AND BACKGROUND

My name is Ricky Johnson, and I am the Senior Vice President of Operations for CSX Transportation, Inc. (“CSXT”). My background and experience are described in my prior written testimony in this proceeding.

Following the conclusion of the evidentiary hearing on May 12, 2022, the Surface Transportation Board (“Board”) expressed an interest in seeing the results of a Rail Traffic Controller (“RTC”) model that evaluated whether the projects identified by the Federal Railroad Administration (“FRA”) in the Gulf Coast Working Group’s 2017 Report to Congress (“GCWG 2017 Report”) would be effective in mitigating adverse impacts to freight traffic in the 2019 case.¹ CSXT and NSR’s Opening Evidence included as one of the 2021 Gulf Coast RTC Model’s 10 cases an analysis of whether the FRA identified projects would alleviate freight impairment in the 2039 case.² The GCWG Report outlined what improvements the FRA believed would be necessary to “enhance[e] the operations of passenger trains on the corridor without unreasonably impairing freight operations.”³ For the state-supported route between Mobile and CSXT’s Gentilly Yard in New Orleans, the FRA’s recommendation consisted of 27 distinct projects—described as “Item Nos.” in Appendix L to the GCWG’s 2017 Report—as well as a general call for the proposed

¹ See Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4056:4–17.

² CSXT-NSR Opening Evidence, 2021 Gulf Coast RTC Report at 83–85 (explaining that “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”).

³ Joint Exhibit 1B, GULF COAST WORKING GROUP REPORT TO CONGRESS, The Gulf Coast Working Group, at 23 (July 2017); *see also* Joint Exhibit 1N, GCWG Report, App’x L at L-2–L-4.

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passenger service to be authorized to operate at the highest speed possible under FRA regulations (referred to as Item No. 28).⁴

The FRA recognized that “[d]eveloping this list [of projects] into an implementation plan that finalizes how the proposed improvements will be advanced will require additional operations analysis[.]”⁵ And the FRA acknowledged the importance of “collaborative meetings to verify and detail the recommended improvements” and “a certain level of conceptual engineering w[ould] need to be completed to identify fatal flaws and gain confidence in the proposed projects.”⁶ Section II of this supplemental verified statement explains why three types of improvements identified by the FRA should not be considered for RTC modeling to mitigate the freight impact of Amtrak service. First, the proposal to close certain grade crossings is outside of CSXT’s control, and while CSXT fully supports the closure of crossings, it cannot be done without consulting with the communities affected and jurisdictions that approve such closures. Second, the recommendation to install miter rails on certain movable bridges is largely moot. By 2019, CSXT had upgraded all miter rails on the six bridges identified by the FRA. In fact, all but one of the bridges had upgraded miter rails prior to the publication of the GCWG Report. The RTC Base and Passenger Cases already reflect these improvements and the limited utility that can be derived from them. It is perhaps possible for an increase in the maximum authorized speed for passenger rail on the Pascagoula River Bridge, but is likely unattainable for the reasons described below. Third, the recommendation to install No. 20 turnouts in certain

⁴ Joint Exhibit 1N, GCWG 2017 Report, App’x L at L-2–L-4; *see also* Joint Exhibit 1B, GCWG 2017 Report at 23–27 (providing narrative descriptions of the projects).

⁵ Joint Exhibit 1B, GCWG 2017 Report at 23.

⁶ *Id.* at 35.

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locations would not meaningfully increase track speed, because of other features of the line and sidings that would prohibit increased speeds even assuming that such turnouts and sidings are upgraded.

This supplemental verified statement concludes by providing additional clarity on two key issues in this proceeding. Section III provides additional clarity on Gentilly Yard operations and why passenger train priorities create a unique need for additional infrastructure which would not be required to improve fluidity at that terminus and interchange point in a freight-only operating environment. Section IV describes how the performance metrics in the 2021 Gulf Coast RTC Model, specifically unplanned re crews, can directly impact customers.

II. THREE CATEGORIES OF FRA-IDENTIFIED PROJECTS ARE INFEASIBLE DUE TO ENGINEERING AND OPERATIONAL RESTRICTIONS OR CIRCUMSTANCES OUTSIDE CSXT'S CONTROL.

The FRA identified three types of improvements that either pose implementation challenges or for which there are impediments to realizing that specific improvement's full benefits. Those three types of improvements are at-grade crossing closures, the installation of miter rails on movable bridges, and certain siding speed improvements. To clarify, CSXT shares the operational and safety goals that FRA seeks to advance with these improvements. CSXT would prefer fewer at-grade crossings, which would improve overall safety by deconflicting rail and surface traffic. CSXT recognizes that rail operations over at-grade crossings can impair the movement of the public through communities and that grade separations reduce that impairment. And CSXT is in favor of operating freight and passenger trains faster wherever it is possible to do so safely, efficiently, and while maximizing the reliability of these critical assets. But while these three categories of projects are capable of being modeled in RTC, CSXT cannot reasonably guarantee

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their successful implementation or the proposed benefits for the reasons discussed below.

Before discussing in depth these three categories of projects, I would like to comment on the FRA's general call for proposed passenger service to be authorized to operate at 79 miles per hour "wherever possible" on "fully signaled FRA Class 4 track" over the Gulf Coast Corridor (Item No. 28).⁷ CSXT constantly strives to improve train speeds on its network. The maximum authorized speed of a particular track segment is impacted not just by the class of track but also by the presence of moveable bridges, passenger stations, track curvature, and the unique features of local communities. Balancing all of these considerations, CSXT previously maximized the passenger trains to operate at 79 miles per hour for approximately 74 out of the 132 miles on the New Orleans – Mobile Subdivision.⁸

A. Grade Crossing Closures.

The FRA identified closing a number of at-grade crossings between New Orleans and Mobile. Those crossings include Old Gentilly Road in New Orleans at milepost 799.3 (Item No. 2a); Michoud Boulevard in New Orleans at milepost 795.2 (Item No. 3a); two of five grade crossings on a second track west of Bay St. Louis (Item No. 10); three of 14 grade crossings over a 20-mile stretch of track west of Gulfport through Biloxi (Item No. 13); Iris Street in the middle of the Beauvoir passing track at mileposts 730.3 through 731.9 (Item No. 15d); and "several lightly used highway grade crossings in Mobile" such as Short Texas Street, Elmore Street, Palmetto Street, Canal Street, or Madison Street (Item No. 26).⁹ The GCWG and

⁷ Joint Exhibit 1N, GCWG 2017 Report, App'x L at L-4.

⁸ See CSXT-NSR Opening Evidence Workpapers, NO_AND_M Timetable.pdf, at 7–12 (identifying passenger speeds in the far left-hand column).

⁹ Joint Exhibit 1N, GCWG 2017 Report, App'x L at L-2–L-4; see also Joint Exhibit 1B, GCWG 2017 Report at 24–25 (providing additional information about the

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the FRA's stated goals for these grade crossing closures include reducing crashes between motor vehicles and trains, reducing grade crossing blockages, and improving speed limits through communities.¹⁰

CSXT shares these worthy goals. My team and I work hard to identify grade crossings for consolidation (closure or separation) wherever possible and CSXT engages state and community partners in that process. CSXT is not authorized to unilaterally close a public grade crossing. Therefore, CSXT only incorporates crossing closures into its general infrastructure planning or internal RTC modeling when we know a grade closure or *separation* is possible. Grade crossing *closures* are simply too speculative given the number of stakeholders who need to support or approve such projects. On the Gulf Coast, grade crossing closures and separations are especially challenging to implement because of how developed the communities are around the rail line.

B. Miter Rail Bridge Upgrades.

Miter rails are specialized rail joints that overlap with both the rails on the movable portion of a bridge span and the rails on the fixed part of a bridge span when the bridge is in the closed position. The purpose of a miter rail is to provide a smooth transition or ride for the wheels of the locomotive and railcars as a train transitions from the fixed span to the movable span and vice versa. The FRA identified the use of "special miter rails" to "ensure proper alignment is maintained" between the rails on the movable bridge span and rails on the fixed bridge span.¹¹ According to the FRA, the type of miter rail used by CSXT in 2017 "restricts train

crossings and noting that certain crossing closures are "subject to further study by CSX").

¹⁰ Joint Exhibit 1B, GCWG 2017 Report, at 24.

¹¹ *Id.* at 26.

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speeds.”¹² Specifically, the FRA called for the replacement or retrofitting of miter rails at the following movable bridges: Chef Menteur at milepost 787.3 (Item No. 4); Rigolets at milepost 775.3 (Item No. 6); Pearl River at milepost 768.8 (Item No. 7); Bay St. Louis at milepost 753.0 (Item No. 11); Biloxi Bay at milepost 724.4 (Item No. 16); and Pascagoula River at milepost 706.8 (Item No. 18).¹³ The miter rails on the seventh movable bridge between New Orleans and Mobile, referred to as the Industrial Canal or the Almonaster bridge were upgraded in 2019 and that bridge is under the control of the Port of New Orleans, which may be why it is omitted from the FRA’s miter rail project list.

Since the completion of the GCWG 2017 Report, CSXT has upgraded the miter rails on all six of the movable bridges in its control between Mobile and New Orleans. The FRA’s stated goal of these miter rail improvements is to “allow at least a 45 mph movement for passenger trains” over each movable bridge.¹⁴ However, the FRA recognized that following any miter rail upgrades, CSXT would have to “perform a structural analysis to *potentially* permit faster speeds.”¹⁵ CSXT’s engineering team has reviewed the movable bridges and determined that five of the six bridges are not candidates for increased passenger speeds even with the miter rail improvements due to the type and age of the bridges.

There are two bridge types present on the Gulf Coast between New Orleans and Mobile: swing span and bascule. A swing span bridge has a movable span that rotates around a fixed point at the center of the bridge, allowing maritime traffic to pass on either side of the movable span when perpendicular to the rest of the rail

¹² *Id.*

¹³ Joint Exhibit 1N, GCWG 2017 Report, App’x L at L-2–L-4.

¹⁴ *Id.* (stated goal for Item Nos. 4, 6, 7, 11, 16, and 18).

¹⁵ Joint Exhibit 1B, GCWG 2017 Report at 26 (emphasis added).

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line. A bascule bridge is a type of drawbridge that operates on a hinge with the movable span on one side and a counterweight on the other side that facilitates the raising and lowering of the movable span. The Pascagoula River bridge is a bascule bridge; the other five bridges are swing spans. Four of the five swing span bridges were built in the 1920s and the Biloxi Bay swing span bridge was built in the 1980s. The Pascagoula River bascule bridge was constructed in 1995.

There are more moving parts on a swing span bridge, which are more finely tuned and susceptible to impacts than a bascule bridge. Conversely, a bascule bridge has a more reliable and robust locking mechanism because there are higher downward forces exerted on the movable span when in the closed position. The forces imposed by higher train speeds can impact the sensitive machinery and locking mechanisms on all movable bridges, especially older swing span bridges. In addition, faster speeds reduce the quality and lifespan of the bridges' component parts, which is again particularly true for older swing span bridges. CSXT places a high degree of importance on the reliability of the movable bridges and maintaining slower speeds over these bridges significantly decreases the chances that a bridge will become inoperable in a particular state (*i.e.*, closed or open to only one form of traffic, maritime or rail) and require emergency maintenance. Although the CSXT signal system would of course prevent trains from proceeding over a movable bridge that failed to align properly, there would still be significant delays associated with any emergency maintenance needed to restore the movable bridge to working order. For these reasons, the miter rail upgrades would potentially only facilitate passenger trains operating at 45 miles per hour over the Pascagoula River bascule bridge. However, the Pascagoula River bridge is located a quarter mile from the Pascagoula Amtrak Station and therefore, increasing speeds over that bridge may ultimately prove impractical because passenger trains will need to slow down approaching the station to pick up and drop off passengers.

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C. Siding Speed Improvements.

The FRA observed that many passing sidings “require upgrading” because they have “[s]mall turnouts,” which “significantly reduce[s] operating speeds.”¹⁶ Specifically, the FRA identified the replacement of No. 15 turnouts with No. 20 turnouts at the following sidings and double track: Michoud Double Track (Item No. 3b); Lake Catherine in Louisiana at mileposts 780.4 to 781.9 (Item No. 5a); Magnolia Ridge (Claiborne in Appendix L) in Mississippi at mileposts 766.3 to 768.1 (Item No. 8a); White Harbor (Harbin in Appendix L) in Mississippi at mileposts 745.1 to 746.9 (Item No. 12a–b); Beauvoir in Mississippi at mileposts 730.3 to 731.9 (Item No. 15a); Gautier in Mississippi at mileposts 709.9 to 711.4 (Item No. 17a); Orange Grove in Mississippi at mileposts 699.4 to 701.2 (Item No. 20a); St. Elmo in Alabama at mileposts 685.6 to 687.4 (Item No. 21a); and Mobile (Brookley in Appendix L) in Alabama at mileposts 669.7 to 671.8 (Item No. 24a).¹⁷ The FRA identified corresponding modifications to the signal system to allow for “limited speed” or 45 miles per hour for trains traveling in both directions through the sidings.¹⁸ The FRA projects also include a number of new or extended sidings or yard bypasses with number 20 turnouts and upgraded signals: Gentilly Bypass in Louisiana (Item No. 1a, 1c); Michoud Double Track (Item No. 3b); Ansley siding at milepost 764.2 (Item No. 9a–b); Bayou Cassotte Bypass in Pascagoula, Mississippi (Item No. 19a–b). CSXT has already equipped the Michoud Double Track with number 20 turnouts.

¹⁶ *Id.* at 23.

¹⁷ *Id.* at 24; Joint Exhibit 1N, GCWG 2017 Report, App’x L at L-2–L-4.

¹⁸ Joint Exhibit 1N, GCWG 2017 Report, App’x L at L-2–L-4 (Item Nos. 5b, 8b, 12c, 15b, 17b, 20b, 21b, and 24b).

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The size of a turnout on a siding or other type of track typically determines the maximum possible speed a train may enter or leave that track. A No. 15 turnout allows a train to travel at or below “medium speed” or 30 miles per hour into a siding. A No. 20 turnout allows a train to travel at or below “limited speed” or 45 miles per hour into a siding. However, several other factors operate as additional constraints on the speed at which a train can enter a siding. These factors include the length of a siding, the curvature and grade of the track, and the proximity to other features that impact speed such as movable bridges, yards, and grade crossings. CSXT analyzes these various factors and designs its signal system to maximize train speeds while ensuring sufficient braking distance and safe operations.

Freight and passenger trains are unlikely to be able to take advantage of the installation of No. 20 turnouts at many of the above described sidings because the length or other features do not support increased speeds. For example, the Lake Catherine siding is currently 7,400 feet in length¹⁹ and a freight train traveling at 45 miles per hour on perfectly level ground requires over 7,500 feet to safely stop. Therefore, increasing the speed at which a train can enter the Lake Catherine siding to 45 miles per hour through the installation of No. 20 turnouts is costly and infeasible unless the siding is first lengthened. As another example, the Claiborne siding is 9,000 feet in length.²⁰ A siding this length might support a 45 mile per hour entry speed for certain freight trains, but the siding is a half of a mile from the Pearl River bridge. As discussed above, train speeds are limited to 25 miles per hour for freight trains and 30 miles per hour for passenger trains over the Pearl River bridge because it is an older, swing span bridge. Therefore, trains crossing over or

¹⁹ CSXT-NSR Opening Evidence Workpapers, NO_AND_M Timetable.pdf, at 11.

²⁰ *Id.* at 10.

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approaching Pearl River bridge from either direction are already operating at speeds less than 45 miles per hour, rendering the benefits from No. 20 turnouts inapplicable to the Claiborne siding.

Taking these types of limitations into account, the increased speed benefits from installation of No. 20 turnouts is only practical on new or lengthened sidings. While CSXT does not oppose the installation of No. 20 turnouts on sidings identified by the FRA, those projects would carry little to no value and therefore be a waste of taxpayer dollars. The only speed improvement projects capable of attaining the full benefits envisioned by the FRA are the Gentilly Bypass (Item No. 1a, 1c); the new Ansley siding (Item No. 9a–b); and the Bayou Cassotte Bypass (Item No. 19a–b).

III. GENTILLY YARD IS A BUSY BUT FLUID TERMINUS AND INTERCHANGE POINT ON CSXT’S NETWORK.

I described CSXT’s operations in and around Gentilly Yard in extensive detail during my testimony on April 5, 2022, including through the use of drone footage.²¹ Chairman Oberman inquired about a description of Gentilly Yard in the 2021 Gulf Coast RTC Report, which states in relevant part that “Activity from these yard trains, Industrial Canal Bridge, and other mainline interchange activities can result in delays to the interchange traffic from NSR.”²² This section endeavors to provide additional clarity as to why additional infrastructure for freight operations is not required in Gentilly Yard.

As I testified on April 5, every train traveling to or from New Orleans on CSXT’s network stops in Gentilly Yard because that is the “end of the line.”²³ Because Gentilly is a terminus yard and an interchange location, arriving trains

²¹ See, e.g., Evidentiary Hearing Day 2 (Apr. 5, 2022), Tr. 637:17–649:14.

²² 2021 Gulf Coast RTC Report at 19 (§ 2.3).

²³ Evidentiary Hearing Day 2 (Apr. 5, 2022), Tr. 630:7–20.

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necessarily must come to a stop and customarily undergo crew changes and switching/classification as outbound trains are built.²⁴ This switching and classification work is done on the two (2) primary tracks that run the length of the yard.²⁵ Geographically, the south (west) end is limited by the two-track Industrial Canal moveable bridge, which serves as an interchange point.²⁶

Variability and volume surges can cause general congestion for all carriers operating in the New Orleans gateway on the New Orleans Public Belt Railroad, at the Huey P. Long Bridge, and over NSR's Back Belt, but the FRA did not propose any mitigation for this segment. CSXT coordinates and balances these volume surges with the other Class I railroads to the best of its ability. The need to maintain a clear track for Amtrak is markedly different from the natural freight queuing process where all traffic has similar priorities. For all of these reasons, additional yard infrastructure for freight train operations is not necessary. While the 2021 Gulf Coast RTC Report correctly shows that the primary tracks Amtrak would have to use to traverse Gentilly Yard are fully utilized today, from a freight perspective, CSXT considers Gentilly Yard to be busy but generally fluid and CSXT is presently able to effectively manage freight traffic within and through the yard. CSXT continues to support the construction of a Gentilly Bypass track to mitigate harm to freight from future Gulf Coast passenger service.

²⁴ *See id.* at 631:4–12.

²⁵ *See id.* at 6:38:16–639:10, 647:2–649:10.

²⁶ *See id.* at 641:11–16.

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IV. UNSCHEDULED CREW CHANGES IMPACT NETWORK FLUIDITY AND SUBSTANTIALLY INCREASE THE LIKELIHOOD THAT CUSTOMERS EXPERIENCE MISSED SWITCHES.

Chairman Oberman explained to the parties that the Board is unclear as to what the performance metrics set forth in the 2021 Gulf Coast RTC Report “really mean[] to a customer.”²⁷ Decreases in train speed and increases in delay can cause obvious impacts such as missed, interim connections for railcars. But these metrics also impact how many unscheduled crew changes are required for trains to complete their work, which in turn can fundamentally impact customers.

As the Board is well aware, train crews may only be on duty for a period of time not to exceed 12 hours.²⁸ CSXT schedules crew changes at specific locations, typically in or near yards whenever possible. New Orleans, Mobile, and Montgomery are three such locations on the Gulf Coast. A decrease in speed or an increase in delay may cause a train crew to complete their 12 hours of service before reaching a planned recrew location. When this happens, the freight train is often forced to stop at an unplanned, less-than-ideal location that can facilitate a recrew such as on a siding or at a road crossing in a municipality where a vehicle transporting the new crew can access the train. When a train is longer than the closest siding, an unplanned recrew will also block the mainline.

If no additional crews are available in the pool during an unplanned recrew event, CSXT will prioritize through trains by pulling crews off of local trains and occasionally industry yard jobs to keep through trains moving across the network and maintain mainline fluidity. In these circumstances, the local train would be unable to complete service to customers that day so that its crew could attend to the through train, resulting in a missed switch. When a local train crew’s hours of

²⁷ Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4051:3–11.

²⁸ 49 U.S.C. § 21103(a)(2).

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service are close to expiring due to decreased speed or increased delay, that local will often return to the originating yard prematurely without completing service to all customers scheduled for that day. And as unplanned re crews increase, these events have a ripple effect throughout the CSXT network because they reduce network fluidity, increase yard congestion, delay the efficient and timely delivery of railcars to yards and customers, and themselves cause more unplanned re crews. In today's challenging hiring environment, CSXT does not have an abundance of train crews in reserve to handle these unscheduled re crews, so any impact to customers would be outsized compared to what is typical.

V. CONCLUSION

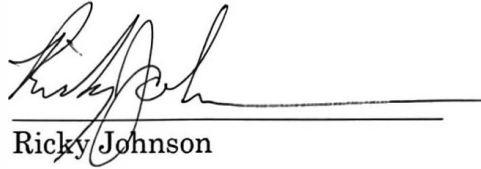
CSXT works hard to improve its operations wherever feasible while working within engineering, safety, and regulatory limitations. The benefits of FRA's identified at-grade crossing closures and speed improvements driven by upgraded miter rails and turnouts are diminished or eliminated completely by these limitations. CSXT submits this information for the Board's consideration as it reviews various infrastructure solutions in this proceeding.

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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 27th day of July, 2022.



Ricky Johnson

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**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 SUPPLEMENTAL EVIDENCE**

**SUPPLEMENTAL 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”). Our backgrounds are described in our prior testimony in this proceeding.

On November 3, 2021, we submitted a Verified Statement to explain the data and information provided to R.L. Banks & Associates, Inc. and HNTB Corporation (“RTC Modelers”) for inclusion in the 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”). On December 23, 2021, we submitted a Rebuttal Verified Statement responding to various criticisms of the data used to construct the 2021 Gulf Coast RTC Model leveled by the National Railroad Passenger Corporation’s (“Amtrak’s”) experts, Thomas D. Crowley and Daniel L. Fapp of L.E. Peabody & Associates, Inc. As part of that response, we explained how each railroad first used electronically collected data from multiple sources to develop a .TRAIN file and then communicated with field personnel to verify the accuracy of train movements and to identify any missing movements not captured in the electronically collected data sources.

Mr. Crowley testified that if L.E. Peabody had been provided dispatch data from CSXT and NSR (or the functional equivalent), it would have been able to verify more of the yard and foreign trains in the model.¹ At the conclusion of the evidentiary hearing on May 12, 2022, Chairman Martin Oberman of the Surface Transportation Board (“Board”) stated that the apparent lack of documentation for

¹ Evidentiary Hearing Day 8 (Apr. 19, 2022), Tr. 2925:12–2926:12, 2944:14–2945:16.

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1,265 trains in the 2021 Gulf Coast RTC Model “undermines [the Board’s] ability to rely on the study” because no one could examine the “field interviews.”² And on May 17, 2022, the Board issued an order inviting the parties to “submit additional evidence” on the evidentiary issues discussed by the Chairman.³ We submit this Supplemental Verified Statement and corresponding workpapers to clarify two key points for the Board regarding the train counts reflected in the 2021 Gulf Coast RTC Model.

First, Messrs. Crowley and Fapp either ignored or failed to properly use the data sets provided to Amtrak in discovery and in the opening evidence workpapers on November 3, 2021. Consequently, they missed hundreds of trains operating over CSXT and NSR’s tracks in the real-world data that also appeared in the Model. *Second*, nearly all of the 1,258 trains operating on CSXT’s portion of the corridor appear in the electronically collected data sources. Appendix A shows that all but a handful of Train Profiles used in the 2021 Gulf Coast RTC Model can be seen in the Dispatch Data, including every single yard train, despite the fact that Messrs. Crowley and Fapp testified that they found not a single yard train in CSXT’s data. Likewise, Messrs. Crowley and Fapp failed to credit NSR with more than 40 trains that appear in the electronically collected data sources available to them. Therefore, the electronically collected data sources from CSXT and NSR unequivocally confirm the existence of the vast majority of trains operating over the route, confirming the testimony at the hearing that interviews with field personnel were used largely to

² See Evidentiary Hearing Day 11 (May 12, 2022), Tr. 4047:5–4048:14.

³ Order at 1, *Application of Nat’l Passenger R.R. Corp. Under 49 U.S.C. § 24309(e)—CSX Transp., Inc., & Norfolk S. Ry. Co.*, S.T.B. Docket No. FD 36496 (served May 17, 2022).

confirm train movements that we first observed in the data and account for any movements by those trains not captured in the data.

II. MESSRS. CROWLEY AND FAPP INCORRECTLY COUNTED REAL-WORLD TRAINS BECAUSE THEY IGNORED KEY DATA PROVIDED IN THE OPENING EVIDENCE WORKPAPERS.

Messrs. Crowley and Fapp observed 1,758 trains or train movements in the 14-day 2021 Gulf Coast RTC Model.⁴ They then selected a 14-day peak period in the “Data” tab of workpaper “CSX and NS Combined Train Analysis.xlsx” and workpaper “NS Train Analysis for Peak Period.xlsx” and counted just 493 trains, claiming 1,265 trains were absent from the electronically collected data.⁵ But as explained in our Rebuttal Verified Statement, Messrs. Crowley and Fapp only used a subset of CSXT Train Profile Data to develop that peak period train count of 493 trains.⁶ We explained that this analysis was inherently flawed for two reasons. First, Messrs. Crowley and Fapp tabulated this train count based on a filtered workpaper depicting Train Profile Data, thereby excluding trains that operate in the model from Mobile to Montgomery.⁷ Second, Messrs. Crowley and Fapp only used (incorrectly) one of the three main electronically collected CSXT data sources (Train Profile Data) provided to them in the RTC Modelers’ opening evidence

⁴ Crowley & Fapp V.S. at 14; Amtrak Reply Evidence Workpapers, RTC Train Counts – 2019 P.xlsx, Tab “Analysis.”

⁵ Crowley & Fapp V.S. at 14–15 & Table 1; Amtrak Reply Evidence Workpapers, RTC Train Counts – 2019 P.xlsx, Tab “Analysis.”

⁶ See Rebuttal Verified Statement of H. Rosse and H. Sinkkanen at 12–13 & n.11; 2021 RTC Rebuttal Report at 16; *see also* Amtrak Reply Evidence Workpapers, RTC Train Counts – 2019 P.xlsx, Tabs “Analysis,” “Train Counts by Type,” and “Train Counts by Profile.”

⁷ Rebuttal Verified Statement of H. Rosse and H. Sinkkanen at 12–13 & n.11; *see also* 2021 RTC Rebuttal Report at 16.

workpapers, while neglecting to use the Dispatch Data or OS Data that were also provided.⁸

For this Supplemental Verified Statement, we independently reviewed and analyzed our respective data sets for all 1,758 trains that appear in the 2021 Gulf Coast RTC Model.

A. Evaluation of Trains Reflected in CSXT's Data Sources.

I (Hannah Rosse) began my train count analysis by creating a list of all CSXT Train Profiles⁹ and Train Types¹⁰ that exist in the CSXT Dispatch Data.¹¹ Although most of these trains are present in the OS Data, I elected to analyze the Dispatch Data because it is granular and better captures yard and foreign moves.¹² I describe the process and the key fields used in the Dispatch Data in the subsections that follow.

⁸ Rebuttal Verified Statement of H. Rosse and H. Sinkkanen at 12–13 & n.11.

⁹ For CSXT, a “Train Profile” is an alphanumeric identification found in the various forms of train movement data and is often contained in a field called “TRAIN4.” A Train Profile indicates the set route, time, and purpose of a particular train. For NSR, the closest analogue to CSXT’s “Train Profile” is the “Train Symbol / Date” field, which contains a three-digit number to identify the particular train and a date signifying the scheduled origin date. For purposes of this joint analysis, the “Train Symbol” on NSR is the functional equivalent of the “Train Profile” on CSXT and the “Train ID” in the 2021 Gulf Coast RTC Model.

¹⁰ The letter in each Train Profile typically represents a “Train Type,” which is a category comprised of multiple trains represented by either the commodity transported (*e.g.*, “Coal” or “Grain”) or function performed (*e.g.*, “Yard” or “Local”).

¹¹ See CSXT-NSR Opening Evidence Workpapers, Folder 1.1 CSX, “Dispatch Data.xlsx,” Tab “TM6.”

¹² The same analysis was performed on the OS Data as well but is not described in this Supplemental Verified Statement because, as the more granular data source, the Dispatch Data contains even more trains than the OS Data. See CSX-NSR Supplemental Workpapers, “Train Count Analysis.xlsx,” Tabs “TM6” and “OS Profiles.”

1. Counting Trains in the Dispatch Data.

CSXT's Dispatch Data (unlike OS Data) does not contain a TRAIN ORG field that shows the particular date a train departed. Therefore, to compare three months of Dispatch Data to the RTC Modelers' 2-week representative RTC model, I had to create a "TRAIN ORG" field for each entry. Where the last two digits in the "Train6" field¹³ (representing the day of the month the train originated) match the date in the "CALLED_TIME_TS" field, then the "CALLED_TIME_TS" field is the date used to represent a train's departure date.¹⁴ Where those values do not match, the year is 2019, the month is derived from the "ENTRY_TS" field, and the day is the last two characters of the "Train6" field.¹⁵ Next, a TRAIN ORIG value must be developed for each train since Dispatch Data does not provide an original milepost field. The three origin points ("ORIGIN_STATION") for trains in this proceeding are Montgomery ("MONTGL"), Mobile ("MOBILE"), and New Orleans ("NEWORL").¹⁶ Each TRAIN ORIG field was populated with a milepost of the ORIGIN_STATION: Montgomery ("000489"), Mobile ("000665"), and New Orleans ("000801").¹⁷

¹³ This field appears in CSXT's Dispatch and OS Data and is comprised of the Train Profile (defined above in footnotes 9 and 10) plus two digits to indicate the day of the month it originated. The two digits will recycle every month, so to determine a unique run of a road, local, or foreign train, one must evaluate the "Train6" and train origination date ("TRAIN ORG").

¹⁴ *Id.*, Tab "Dispatch Data," Columns A, G, and K.

¹⁵ *Id.*, Tab "Dispatch Data," Columns A, G, and X. "CALLED_TIME_TS" is the time several hours prior to a shift when a crew is notified or "called" to report to work. The "ENTRY_TS" field reflects the time when the train operated by the called crew actually traverses the track at a particular location.

¹⁶ *Id.*, Tab "Dispatch Data," Column J.

¹⁷ *Id.*, Tab "Dispatch Data," Column D.

a. Development of Adjusted Profile and Unique Instance or Trip of Each CSXT Train Profile in the Dispatch Data.

As mentioned above, to compare the Train Profiles that appear in the electronically collected data against the train counts asserted by Messrs. Crowley and Fapp and in the RTC model, I (Hannah Rosse) created a unique instance or trip for each train at an aggregate level. To begin, I copied the “DATA” Tab from the Dispatch Data and created four new columns: “TRAIN ORG,” “Unique Train,” “Adjusted Profile,” and “TRAIN ORIG.”¹⁸

The “Adjusted Profile” field for any non-yard train was populated primarily with the values in the “TRAIN4” column of the Dispatch Data.¹⁹ The “TRAIN4” column values are the alphanumeric identification known as a “Train Profile,” which as discussed above, is used to indicate the set route, time, and purpose of a particular train. The Dispatch Data will sometimes represent yard trains operating at the same time in different yards on CSXT’s network with the same Train Profile. For example, two yard trains operating on October 1 in Gentilly Yard, New Orleans and Sibert Yard, Mobile, respectively, may be represented by the same (fictional) R777 Train Profile in the data. Therefore, for yard trains, the “Adjusted Profile” field was populated by performing the concatenation of fields “TRAIN4” (Train Profile) and “TRAIN ORIG” (origination point by milepost) to distinguish between two yard trains operating under the same symbol but in different yards.²⁰

¹⁸ Compare CSXT-NSR Opening Evidence Workpapers, Folder 1.1 CSX, “Dispatch Data.xlsx,” Tab “Data” with CSXT-NSR Supplemental Evidence Workpapers, “Train Count Analysis,” Tab “Dispatch Data,” Columns A, B, C and D.

¹⁹ *Id.*, Tab “Dispatch Data,” Columns C and H.

²⁰ *Id.*, Tab “Dispatch Data,” Columns C, D, and H.

The “Unique Train” field for any non-yard train was populated with the concatenation of “TRAIN6” and “TRAIN ORG” fields in the Dispatch Data.²¹ This reflects the Train Profile (TRAIN6) and the particular date the train departed (TRAIN ORG). For any yard train, the “Unique Train” field was populated with the chain of the values in the “TRAIN6,” “TRAIN ORG,” and “TRAIN ORIG” fields.²² As with the Adjusted Profile explained above, the Unique Train field for yard trains must be developed using the origination point by milepost (TRAIN ORIG) so as to differentiate between yard trains operating in different yards but with the same Train Profile.

In sum, the Unique Train field captures each unique instance of a Train Profile entering the network. The Adjusted Profile field enables the appropriate aggregation of the Unique Train at the profile level.

b. Counting Unique CSXT Train Profiles in the Dispatch Data.

Then, I created a pivot table in Tab “Dispatch Profiles” from the “Dispatch Data” tab.²³ The pivot table first takes all instances of an Adjusted Profile that appear in the 90 days of Dispatch Data and then consolidates those entries by the Unique Train field in Tab “Dispatch Data.”²⁴ Taking Adjusted Profile {^{Redacted}} as an example, we see that there are three Unique Trains that appear in the data under that Adjusted Profile: {{Redacted}}.²⁵ While each of these three trains hits multiple signal blocks in the Dispatch Data—two

²¹ *Id.*, Tab “Dispatch Data,” Columns B, D, and G.

²² *Id.*, Tab “Dispatch Data,” Columns A, B, D, and G. In Microsoft Excel, the operation of populating a cell with a chain of values is known as “concatenation.”

²³ *Id.*, Tab “Dispatch Profiles,” Columns A and B.

²⁴ *Id.*

²⁵ *Id.*

times for {Redacted }, eight times for {Redacted }, and 18 times for {Redacted }²⁶—the Unique Train field consolidates those signal block hits by specific train to avoid overcounting. Turning back to the Dispatch Profiles tab, I then created a second pivot table that begins in Column G using Adjusted Profiles (pasted from Column A to Column G) and “Count of Unique Train” (tallying the number of Unique Train values pasted from Column B to Column H).

This second pivot table depicts in Column H the total number of times each Adjusted Profile (Column G) operated in the Dispatch Data.²⁷ To determine the average daily frequency of each Adjusted Profile (train), I then divided the Count of Unique Train value by 90, the number of unique days in the dataset.²⁸ The average daily frequency for each Adjusted Profile was next multiplied by 14 days to reflect the two-week frequency so that this two-week count could be compared against the counts in the two-week 2021 Gulf Coast RTC Model.²⁹ Finally, I tracked the source that proved the existence of Train Profile (D) as well as the origination milepost of all yard trains.³⁰

²⁶ *Id.*, Tab “Dispatch Data,” Columns A and B, Rows 725–752.

²⁷ *Id.*, Tab “Dispatch Profiles,” Columns G and H.

²⁸ *Id.*, Tab “Dispatch Profiles,” Column I.

²⁹ *Id.*, Tab “Dispatch Profiles,” Column J. It should be noted that when building a RTC model, it is not uncommon for a modeler to group multiple, infrequent Train Profiles that generally perform the same route, time, and purpose, into a single composite Train Profile to simplify the construction of a .TRAIN file. For example, where multiple empty coal trains operate over the same route and serve the same customers, these trains will be grouped and reduced down to one or just a few Train Profiles in the RTC model. For example, {Redacted } present in rows 3,023 to 4,094 and 5,599 to 7,812 on tab “Dispatch Data” of workpaper “Train Count Analysis.xlsx” were rolled into the other empty coal profiles in the RTC model. This modeling choice does not result in any difference between modeled operations and real operations reflected in the electronically collected data.

³⁰ *Id.*, Tab “Dispatch Profiles,” Columns K and L.

2. Train Counts Established By Non-CSXT Train Movement Data Sources.

After analyzing the train counts by Train Profile in the OS Data and the Dispatch Data, there were still several Train Profiles that appear in the 2021 Gulf Coast RTC Model but were not observable in the electronically collected data sources. Those trains fell into five Train Types: Foreign, Blocks of Cars, Light Engine, Bridge Tender, and Yard.

Foreign Trains. There are two groups of foreign trains that operate in the model but do not appear in the Dispatch Data (or in the TM6 or OS Data). The first are Canadian National Railway Company trains operating across the diamond crossing or interlocking at milepost 668.5. These trains do not hit control points on CSXT's network, which is why they do not appear in the electronically collected data.³¹ However, the existence of these trains is conclusively established by publicly available data maintained by the FRA. Railroads report train activities at road crossings, which is publicly available on the FRA's website at <https://fragis.fra.dot.gov/GISFRASafety/>. By zooming in near Mobile, users will start to see individual road crossing appear. Select a road crossing near the railroad diamond in question such as 304181Y. In the pop-up window, scroll down to the INV_LINK field and click "View." This will prompt the download of a U.S. DOT Crossing Inventory Form. Scroll down to Part II: Railroad Information and observe the information in boxes 1.A and 1.B. These two boxes indicate that a total of two trains per day are reported at this crossing, one between 6 am and 6 pm and one between 6 pm and 6 am. The next road crossing just west is 304182F and the crossing inventory form reports a total of three trains per day, two trains between 6 am and 6 pm and one train between 6 pm and 6 am. These publicly available records substantiate the

³¹ Evidentiary Hearing Day 4 (Apr. 8, 2022), Tr. 1250:6–1251:5.

inclusion of 17 foreign CN trains crossing over CSXT's track in Mobile and, in fact, shows that the Model likely understates the foreign cross traffic at this location.

There are also eight New Orleans Public Belt Railroad ("NOPB") trains that each operate all 14 days in the RTC model. As explained in the 2021 Rebuttal RTC Report, these trains "only occupy the mainline for 0.1 miles at the south end of Gentilly and only use yard-controlled switches."³² Therefore, these trains do not appear in the electronically collected data because they do not pass over a control point or signal block. To confirm the existence of these trains, I spoke with Derek Harter, CSXT's Superintendent of the Southwest Region, to verify the exact operations of these NOPB trains.

Blocks of Cars. During the Base Case validation, I spoke with Tom Lobello, former CSXT Superintendent of the Southwest Region. Mr. Lobello provided information pertaining to the blocks of cars left by the {Redacted} each time it operates, which is six days per week. Moreover, the 12 blocks of cars in the model are a one-to-one match with the number of {Redacted} trains seen in the Dispatch Data.³³

Light Engine. Similarly, during the Base Case validation, I spoke with Tom Lobello and he detailed the engine swaps for the {Redacted}, all of which happen daily at Montgomery. Just as with the blocks of cars, each of these light engine moves has a corresponding merchandise train in the Dispatch Data.³⁴

Bridge Tenders. CSXT's Chief Engineer, Ricky Johnson, testified that in 2019, four of the moveable bridges between New Orleans and Mobile are served by

³² 2021 Rebuttal RTC Report at 17, Table 6.

³³ See CSXT-NSR Supplemental Workpaper "Train Count Analysis.xlsx," Tab "Combined List of Profiles," Cells G60–M60 and G61–M61.

³⁴ See *id.*, Tab "Combined List of Profiles," Cells G101–M101 and G102–M102, Cells G104–M104 and G105–M105, and Cells G107–M107 and G108–M108.

three bridge tender hi-rail vehicles that consume capacity on the mainline. He explained that one hi-rail serves both the Pearl River and Rigolets River bridges,³⁵ and thus counts as one movement. Mr. Johnson testified that a second hi-rail serves Bay St. Louis, and a third hi-rail serves Biloxi Bay.³⁶ As Mr. Johnson and I both testified, there are three bridge tender shifts per day on these bridges.³⁷ Three hi-rail vehicles operating for three shifts per day over a 14-day period results in 126 hi-rail movements.³⁸

Yard. As previously mentioned, the headroom movements by yard trains often do not appear in the electronically collected data sources. While validating the Base Case, I spoke with Derek Harter who provided movement counts for yard jobs at Mobile and New Orleans. While evidence of all of these yard jobs does appear in the Dispatch Data and OS Data, neither source provided complete counts.

3. Total CSXT Train Counts.

The train count analysis performed by comparing the electronically collected data sources provided to Amtrak in the RTC Modelers' workpapers on November 3, 2021, reveals that 590 trains that appear in the 2021 Gulf Coast RTC Model are directly supported by the Dispatch Data.³⁹ Stated another way, Messrs. Crowley

³⁵ Evidentiary Hearing Day 2 (Apr. 5, 2022), Tr. 597:5–599:6.

³⁶ *Id.* at 595:12–597:4. Both Bay St. Louis and Biloxi Bay required bridge tenders to reach the bridge by hi-rail vehicle in 2019. *Id.* at 596:16–17, 597:3–4. Although CSXT received communication from the U.S. Coast Guard in February 2022, indicating it is permissible to operate Bay St. Louis and Biloxi Bay by remote control, the U.S. Coast Guard has not formally issued regulatory authority for this change.

³⁷ *Id.* at 408:19–410:2 (Johnson testimony); Evidentiary Hearing Day 4 (Apr. 8, 2022), Tr. 1240:17–1241:10 (Rosse testimony).

³⁸ Evidentiary Hearing Day 4, (Apr. 8, 2022), Tr. 1241:8–10 (Rosse testimony).

³⁹ CSXT-NSR Supplemental Evidence Workpapers, “Train Count Analysis,” Tab “Summary,” Cell I19.

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and Fapp failed to credit CSXT with 304 trains that appear directly in Dispatch Data they received but failed to review.⁴⁰ On that basis alone, Messrs. Crowley and Fapp's claim that only 286 of the 1,258 trains that traverse CSXT's portion of the RTC corridor are supported by electronically collected data is demonstrably false.⁴¹

A subtotal of 471 trains remain after accounting for the 590 referenced above, the 12 blocks of cars and 42 light engine movements that are directly correlated to merchandise and local Train Profiles present in the Dispatch Data, the 126 bridge tender hi-rails, and the 17 foreign CN trains supported by FRA data. These 471 trains are predominantly yard and foreign trains and their movements. Messrs. Crowley and Fapp claimed they could not find evidence of any CSXT yard trains or any foreign trains operating over CSXT in the data sources provided to them.⁴²

To show how unreasonable this position is, I (Hannah Rosse) compiled a list of each Train Profile that appears in the 2021 Gulf Coast RTC Model and compared it against the Train Profiles that appear in the Dispatch Data. Appendix A shows that had Messrs. Crowley and Fapp reviewed the Dispatch Data, they would have found evidence of nearly every single Train Profile that appears in the Model. Specifically, I was able to find in the Dispatch Data examples of all eight CSXT yard Train Profiles that appear in the Model.⁴³ And with the exception of the CN trains supported by the FRA data and the NOPB trains that operate on 0.1 miles of CSXT track, I was able to find examples of all of the foreign Train Profiles operating over

⁴⁰ Compare *id.*, Tab "Summary," Cell D19 with *id.*, Cell I19.

⁴¹ See *id.*, Tab "Analysis," Column J and K, Row 22.

⁴² See *id.*, Tab "Analysis," Cells J11 and J19; *id.*, Tab "Summary," Cells D8 and D16.

⁴³ See App'x A at 7 (identifying row examples of the following yard trains in the Dispatch and OS Data: {{Redacted

}}

CSXT track in the Model.⁴⁴ So while input from field personnel may have been used to verify or fully understand each yard and foreign train's movements, the existence of these trains is well supported by electronically collected data sources available to Amtrak and its experts.

B. Evaluation of Trains Reflected in NSR's Data Sources.

I (Holly Sinkkanen) began my train count analysis by comparing the Train ID and counts in the NSR portion of the 2021 Gulf Coast RTC Model against three months of train movement data contained in the workpaper "Gulf Coast Simulation NS Train Data.xlsx." This spreadsheet was provided to the RTC Modelers as the source of NS train inputs into the 2021 Gulf Coast RTC Model. Amtrak's experts received this file as part of the opening evidence workpapers served on November 3, 2021. As explained in my Rebuttal Verified Statement, NSR has a proprietary tool that utilizes three databases—OPD Data, Teradata Data, UTCS Data—to produce an Excel workbook that contains a preliminary list of train symbols, schedules, routings, dwell times, and consists.⁴⁵ The Gulf Coast Simulation NS Train Data spreadsheet was created primarily using the data from the proprietary tool.

After receiving a list of all trains that operated on NSR's portion of the 2021 Gulf Coast RTC Model from the RTC Modelers and Ms. Rosse,⁴⁶ I determined how many instances of each "Train ID" appear in the 2021 Gulf Coast RTC Model. I separated out each Train ID along with the "Train Type" and "Total Modeled

⁴⁴ See *id.* at 7 (identifying row examples of the following foreign trains in the Dispatch and OS Data: {{Redacted}})

⁴⁵ See Rosse & Sinkkanen Rebuttal V.S. at 17–18.

⁴⁶ CSXT-NSR Supplemental Workpaper "NS Train Counts – Cross Reference.xlsx," Tab "Unique Trains P."

Trains” fields.⁴⁷ Then I totaled the train count for all instances of that Train ID that appeared in the Model and divided by 14 to also obtain an average trains per day in RTC.⁴⁸ The sections that follow describe my process for comparing the train counts in the RTC model against NSR’s data.

1. Counting Trains in the Gulf Coast Simulation NS Train Data.

To obtain the count of each Train Profile in the real-world data, I copied over the electronically collected data for each Train Profile (or “Train Symbol / Date”) into a unique tab per Train Profile in supplemental workpaper “NS Train Counts – Cross Reference.xlsx” from the corresponding tab in opening workpaper “Gulf Coast Simulation NS Train Data.xlsx.”⁴⁹ Next, I used a count formula to identify the number of unique trains for that Train Profile and divided by three months (91 days) to obtain an average daily count of that unique Train Profile.⁵⁰ Then I multiplied the average daily count of each unique Train Profile by 14 days to determine the total count in a 2-week period.⁵¹ Finally, I compared the count of each Train Profile in a 2-week period from the NSR train data against the count for that same Train Profile in the 2-week 2021 Gulf Coast RTC Model.⁵² So for Train Profile {^{Redacted}} as an example, there were 91 counts of that train in the three months of

⁴⁷ See, e.g., *id.*, Tab {{Redacted}} Columns A–C.

⁴⁸ See, e.g., *id.*, Tab {{Redacted}} Rows 17–18. Tabs reflecting this RTC analysis are color coded in blue and begin with “RTC.”

⁴⁹ E.g., compare CSXT-NSR Supplemental Workpaper “NS Train Counts – Cross Reference.xlsx,” Tab {{Redacted}} with CSXT-NSR Opening Evidence Workpaper “Gulf Coast Simulation NS Train Data.xlsx,” Tab {^{Redacted}} Tabs reflecting this analysis are color coded in green and contain the word “Data.”

⁵⁰ See, e.g., CSXT-NSR Supplemental Workpaper “NS Train Counts – Cross Reference.xlsx,” Tab {{Redacted}} Rows 95–96.

⁵¹ See, e.g., *id.*, Tab {{Redacted}} Row 97.

⁵² See, e.g., *id.*, Tab {{Redacted}} Rows 98–99.

NSR train data resulting in an average of one {Redacted} train per day and 14 {Redacted} trains over a 2-week period.⁵³ And there were 14 {Redacted} trains in the 2021 Gulf Coast RTC Model, which equals a net difference of zero {Redacted} trains overstated in the model.⁵⁴ This approach was used on all NSR Merchandise trains, Auto trains, and the majority of the foreign interchange trains as described below and more fully in workpaper “NS Train Counts – Cross Reference.xlsx.”

2. Full Year of 2019 Train Movement Data (UTCS).

On October 4, 2021, as part of discovery, NSR produced train movement data (UTCS Data) to Amtrak for 2019 and 2020 (NSR-00032321 and NSR-00032322). The September to November period of the 2019 train movement data substantiates the counts of two Train Types in the NSR portion of the 2021 Gulf Coast RTC Model: Auto and Local.

Auto. The data contained in opening workpaper “Gulf Coast Simulation NS Train Data.xlsx” underrepresented the number of Auto trains (Train Symbol {Redacted}) operating on the line. A careful review of the 2019 train movement data reveals that several Auto trains were run as different Train Symbols {Redacted}. When these additional Auto Train Symbols are counted along with the Auto Train Symbol {Redacted}, the full movement data supports modeling two Auto trains, one per week.⁵⁵

Locals. Local train movements are not captured in the opening workpaper “Gulf Coast Simulation NS Train Data.xlsx.” However, the full 2019 movement data contained evidence of unique movements for local Train Symbols {Redacted}

⁵³ See *id.*, Tab {Redacted} Rows 95–97.

⁵⁴ See *id.*, Tab {Redacted} Rows 98–99.

⁵⁵ See *id.*, Tab {Redacted}

^{Redacted} }⁵⁶ Analysis of these unique movements supported 36.2 trains in a 2-week period, less than two trains short of the 38 local trains included in the 2021 Gulf Coast RTC Model.⁵⁷

* * *

The year of 2019 train movement data produced to Amtrak on October 4, 2021, also contains over 1,300 “pseudo symbols” in the study period of September to November 2019. A “pseudo symbol” automatically populates in NSR’s systems when a Train Symbol is not associated with a train movement in a prescribed period of time (10 minutes). These “pseudo symbols” can automatically populate for a variety of terminal movements including block of cars, light engines, interchange (foreign), and yard movements. It is often difficult to accurately connect a movement notated by a “pseudo symbol” with a movement associated with a Train ID. Therefore, NSR does not generally use data associated with “pseudo symbols” in constructing RTC models, and instead obtains information from the field.

3. Train Counts Established By Non-NSR Train Movement Data Sources.

Although the 1,300 pseudo symbols discussed above likely account for the remaining NSR Train IDs that appear in the 2021 Gulf Coast RTC Model, it is not possible to tie the pseudo symbols to specific Train IDs with sufficient confidence. Therefore, NSR relies on field personnel to substantiate these trains and movements. I relied on field personnel to support the modeling of five Train Types: Foreign, Light Engine and Blocks of Cars, Working the Yard and Blocks of Cars,

⁵⁶ See *id.*, Tab “NS Local Trains.”

⁵⁷ *Id.*

and Yard Trains. Narrative descriptions of their movements were provided in the opening workpapers.⁵⁸

Foreign Trains to NSR. One group of interchange trains that operates over NSR's portion of the Gulf Coast corridor are two trains from Union Pacific Railroad Company ("UP") and one train from BNSF Railway ("BNSF") that interchange with NSR at Oliver Yard.⁵⁹ One of the two UP trains becomes NSR Train Profile {{^{Redacted}}} at Oliver Yard before continuing north and the RTC Modelers coded that foreign train's entire movement under Train Profile {{^{Redacted}}}. As to the remaining UP and BNSF trains that operate every day, the Gulf Coast Simulation NS Train Data provided in the opening workpapers accounts for half of those train movements over a two-week period.⁶⁰ The remaining 14 foreign UP and BNSF trains were verified through conversations with field personnel, Terminal Manager Nick Delamarter (and his team), and reviewing the dispatch playback.⁶¹

Foreign UP Blocks of Cars. As explained above, there are three foreign trains per day that interchange with NSR at Oliver Yard. The BNSF train terminates at Oliver Yard. One UP train becomes NSR Train Profile {{^{Redacted}}} and proceeds north. The second UP train comes up to Terminal Junction where it leaves a block of cars while the train works in Oliver Yard.⁶² Then that UP train returns for the block of cars and brings those into Oliver Yard as well.⁶³ These cars are left at Terminal Junction either because the foreign UP train is too long or because the train is

⁵⁸ See CSXT-NSR Opening Evidence Workpaper "Gulf Coast Simulation NS Train Data.pdf."

⁵⁹ See *id.*, Tab "RTC NS Interchange Trains."

⁶⁰ See *id.*, Tab "NS Interchange Train Data," Rows 165–69.

⁶¹ See *id.*, Tab "NS Interchange Train Movement," Rows 24–35.

⁶² See *id.*, Tabs "RTC Train NS_UP Cars" and "Train NS_UP Cars Movement."

⁶³ *Id.*

carrying two distinct blocks of cars with two different ultimate destinations. I verified these foreign UP blocks of cars by reviewing dispatch playback and consulting with field personnel, Terminal Manager Nick Delamarter (and his team).⁶⁴

Foreign Trains to and from CSXT. Foreign trains from UP, BN, and Canadian National Railway Company (“CN”) use the Back Belt to interchange with CSXT in both directions. A total of 140 foreign trains interchanging with CSXT (five in each direction per day) are present in the 2021 Gulf Coast RTC Model. A total of 112 of those trains are present in the Gulf Coast Simulation NS Train Data provided in the opening evidence workpapers. The remaining 28 trains in the 2021 Gulf Coast RTC Model are grain trains that operate primarily during peak season and were substantiated by CSXT’s .TRAIN file and communications between Hannah Rosse and CSXT field personnel, specifically, Derek Harter, Superintendent of the Southwest Region. However, these trains appear in the NSR section because they operate over NSR’s portion of the Gulf Coast corridor.

Light Engine and Blocks of Cars. These light engine movements occur when the locomotives of one railroad detach from the remainder of the train, move to nearby yard, and then are replaced by locomotives of a different carrier before departing again. There are two ways to model a light engine movement. A modeler can either maintain the train symbol in RTC with the locomotive during its light engine switch and model the remaining train as a block of cars or the modeler can retain the Train Symbol with the remaining cars and assign the light engine movement a modified version of the Train Symbol (e.g., {^{Redacted}}).⁶⁵ And sometimes a modeler will assign a slightly modified Train Symbol to train formed

⁶⁴ *Id.*, Tab “Train NS_UP Cars Movement,” Rows 30–40.

⁶⁵ *See, e.g., id.*, Tab {{“Redacted”}}

when the returning light engine picks up a portion of the block of cars. One example is Train Symbol {^{Redacted}}, which is a combination of the returning light engines {^{Redacted}} and the block of cars {{^{Redacted}}} making up the rear portion of former train {{^{Redacted}}}.⁶⁶ Under any of these scenarios, some of the train movements may not appear in the data (or be captured by unusable pseudo symbols): the block of cars, the light engine movement, or the light engine and block of cars combination. To confirm the existence of the light engine movements and blocks of cars, I reviewed train movements in dispatch playback and spoke with Terminal Manager Nick Delamarter (and his team) to verify their exact operations.

Working the Yard and Blocks of Cars. Inbound trains working in NSR's Oliver Yard will often leave a block of cars on the mainline during that work. Just as with light engine movements, the remaining block of cars may not appear in the electronically collected data (or be captured by unusable pseudo symbols).⁶⁷ Therefore, to confirm the existence of these blocks of cars, I reviewed train movements in dispatch playback and spoke with Terminal Manager Nick Delamarter (and his team) to verify their exact operations.

Yard Trains. Yard trains can be coded in RTC in one of two ways. Yard trains can retain the same Train Symbol throughout each independent movement performed during a day. In the alternative, each movement of the yard train may be coded with its own Train Symbol. In Oliver Yard, yard train activity was broken down into three distinct activities and each assigned a Train Symbol: headroom movements at Oliver Junction toward NE Tower (e.g., {{^{Redacted}}}); headroom movements at Terminal Junction (e.g., {{^{Redacted}}}); and power spins (e.g.,

⁶⁶ See, e.g., *id.*, Tab {{^{Redacted}}}

⁶⁷ See, e.g., *id.*, Tab {{^{Redacted}}}

{{Redacted}}).⁶⁸ A “power spin” is the equivalent of a three-point turn for a locomotive. Each of these three movements received a different Train Symbol in the 2021 Gulf Coast RTC Model. Because these yard movements may not appear in the electronically collected data (or be captured by unusable pseudo symbols), I reviewed train movements in dispatch playback and spoke with Terminal Manager Nick Delamarter (and his team) to verify exact operations.

4. Total NSR Train Counts.

Of the 500 trains operating over NSR’s portion of the Gulf Coast Corridor in 2021 Gulf Coast RTC Model, a total of 211 trains appear in the “Gulf Coast Simulation NS Train Data.xlsx” spreadsheet provided in the RTC Modelers’ workpapers. The trains present in this NS train data fall into the following Train Types: Local, Merchandise, Auto, and Foreign. Of the remaining 289 trains that do not appear in the Gulf Coast Simulation NS Train Data, 39 of those trains appear in the full train movement data provided to Amtrak in discovery on October 4, 2021. The trains that appear only in the full train movement data include Local, Merchandise, and Auto Train Types. There are thus 250 trains that are directly supported by the Gulf Coast Simulation NS Train Data or the full train movement data, both of which Amtrak possessed before filings its reply evidence. Yet, Messrs. Crowley and Fapp only credited NSR with 207 trains based on the electronically collected data sources.⁶⁹

Of the 250 remaining trains, 82 of them directly correlate with Train Symbols that appear in NSR’s electronically collected data sources that were provided to Amtrak. Specifically, there are 38 blocks of cars, 30 light engine movements, and 14

⁶⁸ See, e.g., *id.*, Tab “NS Yard Trains.”

⁶⁹ CSXT-NSR Supplemental Workpaper “NS Train Counts – Cross Reference.xlsx,” Tab “Summary,” Cell D19.

merchandise trains that simply reflect a sub-movement of a train that appears in the data as explained above. The remaining 168 trains and movements fall into one of two categories: foreign interchange traffic and yard trains. While these foreign interchange trains and movements are likely captured in the pseudo symbols, the complexity of terminal operations renders information from field personnel more reliable for modeling purposes.

III. CONCLUSION

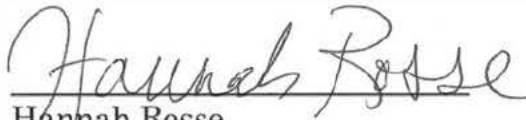
The analysis in this supplemental verified statement reveals that Messrs. Crowley and Fapp's claim that the 2021 Gulf Coast RTC Model contains 257% more trains than appear in the electronically collected data sources is simply false and should not be relied upon. Messrs. Crowley and Fapp completely failed to use the data sources provided to them during discovery and in the opening workpapers, which led to a failure to count CSXT and NSR with hundreds of real-world trains, including the entire categories of foreign and yard trains on CSXT's portion of the route. We submit that the Board can rely on the 2021 Gulf Coast RTC Study based on our written and oral testimony and the analytical failures present in Messrs. Crowley and Fapp's train count analysis.

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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 27th day of July 2022.


Hannah Rosse

PUBLIC VERSION

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 27th day of July 2022.


Holly Sinkkanen

PUBLIC VERSION

Supplemental Verified Statement of Hannah Rosse and Holly Sinkkanen
Appendix A – Train Profile Examples

HIGHLY CONFIDENTIAL MATERIAL REDACTED

Volume I. Summary Report

New Orleans to Mobile Corridor Development Plan



Prepared for
**The Southern Rapid Rail
Transit Commission**

By
BURK-KLEINPETER, INC.

In Association with
Parsons Transportation Group
AECOM Consult
CSX Transportation

October 2006

Gulf Coast High-Speed Rail Corridor

New Orleans to Mobile Corridor Development Plan

Volume II. Technical Appendices

Prepared for

The Southern Rapid Rail Transit Commission

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May 2006

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Executive Summary

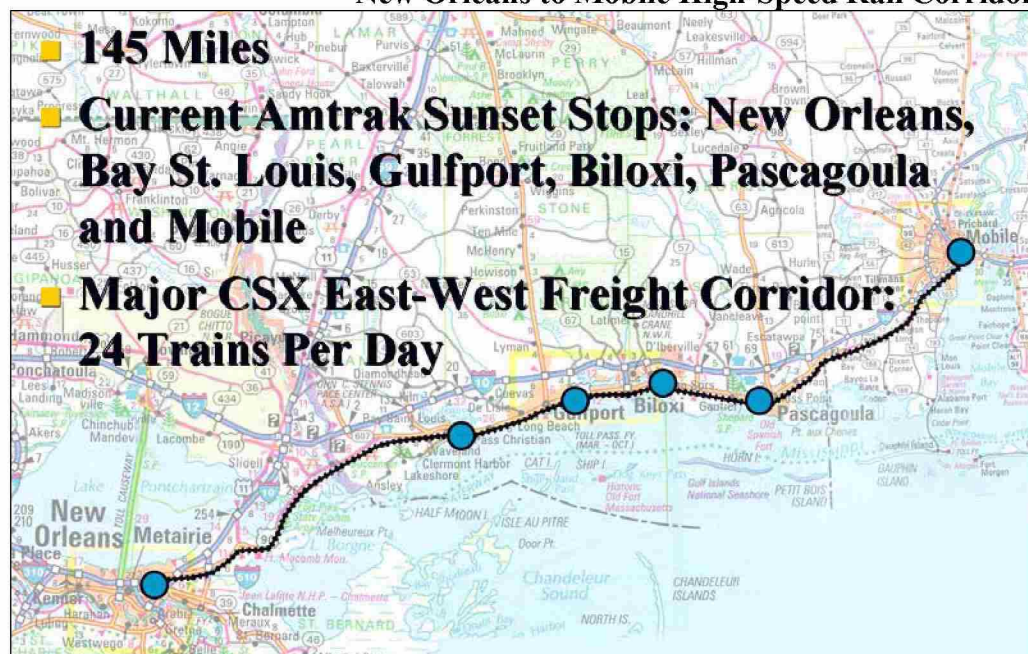
This corridor transportation plan investigates whether, and how, the states of Alabama, Mississippi and Louisiana could upgrade the railroad corridor between New Orleans, LA and Mobile, AL to achieve those states' passenger train travel time goals, with reliable on-time performance for all freight and passenger operations.

The Corridor Today (Chapter 2)¹

The rail corridor between Mobile and New Orleans is a critical link in a longer rail route that connects Florida with Texas and the West Coast. The corridor consists of three distinct components, as shown in Figure ES-1, below:

- The NO&M Subdivision of the CSXT Corporation between Mobile and New Orleans,
- The NS Back Belt between NE Tower/Elysian Fields and East City Junction, and
- The New Orleans Union Passenger Terminal (NOUPT) track between East City Junction and NOUPT.

Figure ES-1
New Orleans to Mobile High-Speed Rail Corridor



Source: Burk-Kleinpeter, Inc., 2006.

¹ Chapter references are to Volume I, the Main Report.

Of the 145 miles between Mobile Station and New Orleans Union Pubic Terminal (NOUPT) approximately 137 miles belong to the CSXT, 3.6 miles to Norfolk Southern, and 2.9 miles to the NOUPT. Table ES-1 presents a summary of current track ownership and operating control.

Table ES-1.
Track Ownership and Operating Control

Milepost	Route-Miles	Locations	Owner and Operator	Dispatched From
0.0 – 3.9	3.9	NOUPT – East City Jct	Amtrak	Chicago
3.9 – 7.5	3.6	East City Jct - NOT Jct	NS	Birmingham, AL
803.7 – 666.4	137.3	NOT Jct – Mobile Station	CSX	Jacksonville, FL
Total	144.8			

Source: Parsons Transportation Group, 2005.

At the time this investigation took place, the study team considered all three segments of the corridor to be in a “state of good repair,” that is, that the track was of a quality that met or exceeded the requirements of the Federal Railroad Administration’s (FRA’s) railroad safety regulations for the speeds and traffic types that it supported.

It should be noted that most of the analysis of the corridor was conducted and completed prior to August 29, 2005, the day that Hurricane Katrina devastated the central Gulf Coast between Mobile and New Orleans. The CSXT Railroad was particularly hard hit, with all seven of its bridges severely damaged and many miles of track destroyed. CSX’s Gentilly Yard was under several feet of water for two weeks. Despite this catastrophe, CSX made a commitment to rebuild the railroad as quickly as possible. By February of 2006, rail traffic was rolling again between Mobile and New Orleans. Spot inspections in the field by the study team indicate that the railroad has once again been brought to a “state of good repair” and, in fact is probably better than it was before, given the installation of newer, more modern hardware (mitre joints on the bridges, for example).

Service Goals for the Corridor (Chapter 3)

The service goals of this project are to introduce intercity passenger service to the corridor as soon as possible on a limited basis and to grow that service over the next twenty years, while maintaining the current excess capacity in the corridor to support increased freight traffic. All operators and sponsors—intercity passenger and freight—intend the services on the New Orleans-Mobile Corridor in the planning year, 2025, to be more reliable than those operating on the Corridor at present. The envisioned mix of services is presented in Table ES-2.

Table ES-2
Railroad Services Envisioned for 2025 in the New Orleans-Mobile Corridor

		Number of Daily Train Movements (RoundTrips)
Service	Route	New Orleans to Mobile
Amtrak		
Corridor-type services	New Orleans to Mobile	6
Total Corridor-type services		6
Long-distance services	Sunset Limited	0.43
	Crescent	2
	City of New Orleans	2
Total, Long-distance service		
Total Amtrak		
Freight²	CSXT	23
	NS	n/a
	NOPB	n/a
Total, Freight Service		
Grand Total New Orleans to Mobile Corridor (Amtrak and CSXT inclusive)		

Source: Burk-Kleinpeter, Inc., 2005.

It should be noted that the *Sunset Limited* long distance service between Orlando and Los Angeles has been suspended by Amtrak east of New Orleans. When, or whether, this service will be reinstated is not known at this time.

Methodologies and Operations Analysis (Chapters 4 and 5)

The analysis was undertaken by the Operations and Planning Division of CSXT. In an iterative process, the study team combined its knowledge of existing conditions on the lines in question, with conceptual plans for a number of fixed facility improvements that would raise train speeds, improve capacity, and meet safety, operational, and marketing prerequisites. Simulations of train performance in the project planning year of 2025 were conducted over various hypothetical fixed facility configurations, and with various performance specifications assumed. These simulations were of two types:

² Because of the variability and directional imbalance of freight traffic, the numbers shown here (expressed as daily round trips for comparability with the other services) are rough approximations.

- Calculations of pure train performance in the absence of interference from other trains, and
- Seven-day simulations of the performance of, and interference among, all the freight and intercity passenger train movements envisioned in Table ES-2, above. (Commuter trains are not envisioned in the future.) For this purpose, hypothetical schedules for all these movements were developed; the simulation technique modeled the effects of randomness, for example in the arrival of long-distance trains at entry points to the corridor.

The results of these analyses were as follows:

- The service objectives, under current conditions, are not achievable. The high-speed trains were only able to operate at 61% on-time reliability in the second iteration of the full service simulation. The primary reason for this is CSXT's seven drawbridges in the corridor, which are required to open on signal for marine traffic. The study team has provided suggestions to mitigate delays at the drawbridges as a means to increase the reliability of freight train operations, as well as those of the HSR trains.
- Train equipment exists that could reliably travel between New Orleans and Mobile in two hours and twenty-two minutes with five intermediate stops, subject to the completion of the improvements contemplated in this study.
- The system configuration that would allow the trip time goals to be met would include:
 - Maximum authorized speeds of 90 mph;
 - Non-electric trainsets, with one locomotive and one or two cars, or possibly DMUs;
 - Unbalanced alignment of up to seven inches;
 - The recommended alignment, as described in Chapters 7 and 8; and
 - Changes to the "open on demand" requirements of the CSXT bridges.
- To the extent that the states were to substitute other system configurations and improvements for those contemplated in this report, the alterations would need to have the same net effect on speed, capacity, safety, and marketability as those described in this report, for the goals to be reliably met.

Environmental/Historic Factors (Chapter 6)

The central Gulf Coast is one of the oldest inhabited parts of the United States, with a rich history dating back to before the arrival of Europeans. The rail corridor itself was developed in the 1860's, after the Civil War. The contemplated plant improvements are located within the existing corridor and, consequently, should not impact any significant cultural or

archaeological resources.

On the other hand, coastal Alabama, Mississippi and Louisiana are characterized by numerous streams, creeks and bayous, which meander through swamps and marshes. These wetlands support a wide variety of plants and wildlife and are protected by the Clean Water Act and other federal and state regulations. The study team mapped the corridor on USGS quad sheets for the purpose of detecting the likely presence of wetlands subject to regulatory protection. In preparing the conceptual plant improvements, especially new or lengthened sidings, care was taken to avoid areas with obvious wetland issues. The result was the “Dry Land Plan,” which concentrated plant improvements in more upland areas.

The Contemplated Improvements (Chapters 7 and 8)

This Section describes the improvements identified as part of the Mobile to New Orleans Gulf Coast High-Speed (GCHSR) Rail Corridor Study. The study team classifies corridor improvements according to two main categories: (1) Systemic upgrades of corridor-wide railroad components (i.e., the signaling system), discussed in Chapter 7, and (2) Site-specific projects (i.e., track reconfigurations), which are discussed in Chapter 8.

The network of improvements necessary to provide adequate track structure and sufficient capacity reliably to operate freight and high-speed passenger service between Mobile and New Orleans has been defined. Ultimately, the types of improvements that would be included are projects to:

- Upgrade the track structure
- Upgrade signal systems
- Realign selected curves to permit higher operating speeds and reduce trip time
- Reconfigure, relocate, eliminate, or install interlockings to improve operating flexibility
- Install additional trackage to reliably accommodate increased freight and passenger traffic levels
- Upgrade movable bridges
- Improve safety at the highway-rail grade crossings
- Install right-of-way fencing
- Improve stations

The following sections summarize the major elements of the contemplated improvement program, for both systemic and site specific projects. It should be noted that the improvements identified, thus far, to implement the Mobile - New Orleans High-Speed Rail Service assume that:

- Improvements to minimize train delays through Mobile resulting from operations at Sibert Yard are implemented; and

- Improvements to minimize train delays resulting from operations at Gentilly Yard, in New Orleans, are implemented.

The following additional improvements would be required to upgrade the existing railroad infrastructures to support high-speed rail service between Mobile and New Orleans. The initial improvements Mobile to New Orleans to support the initial limited level of passenger service are described by category below, followed by the final Mobile to New Orleans improvements to support the recommended full intercity service is described.

1) Track geometry (curves, spirals, superelevation)

The recommended alignment improvements would allow higher train speeds to be sustained over longer distances. Despite challenges, and regardless of the equipment type used, the Train Performance Calculator (TPC) trip time simulations revealed that increasing speeds above the present speeds on the corridor would necessitate a number of different types of modifications to curves, their approaches, and their operating characteristics. These modifications can be applied individually or in combination:

- Increase superelevation to the maximum allowable for a particular track alignment;
- Increase the amount of unbalanced superelevation used to calculate speeds through curves to minimize track shifts; and
- Modify spirals (the length of track that provides a smooth transition from tangent track to curved track) to provide a smoother ride.

Criteria for Realignments

To maximize performance while fully adhering to safety requirements and the dictates of passenger comfort, all the altered curves would have geometric characteristics meeting the following criteria:

- Maximum actual superelevation should not exceed five inches.
- Actual superelevation was chosen in increments commensurate with the speed assumed to be authorized for each curve, and with the runoff rates specified by CSXT.
- Maximum unbalanced superelevation should not exceed seven inches, which assumes use of tilting equipment. The study found that the use of tilting equipment at higher levels of unbalanced superelevation would be essential to optimizing the trip time goals.³

³ Of course, actual use of the tilting equipment at the higher unbalanced levels of superelevation would be subject to review and approval by FRA's Office of Safety.

- Maximum lateral acceleration parallel to the floorboards should not exceed 0.15 g.
- For conventional coach equipment at a theoretical six inches of unbalanced superelevation, the roll angle should be 2.87 degrees.
- All actual superelevation should be introduced and removed over the entire length of the spiral—not within the curve itself or on the tangents adjacent to the spirals.
- Maximum jerk rate through the spiral should be 0.04 g per sec.
- Track twist rates for alignments at proposed speeds are as specified by CSX and NS in their internal engineering standards.

2) Track structure (ordinary track components and special trackwork)

3) Bridges, culverts, and other structures

Seven movable railroad bridges - Pascagoula River, Biloxi Bay, Bay St. Louis, Pearl River, Rigolets, Chef Menteur, and the New Orleans Industrial Canal – are located between Mobile and New Orleans. The MAS for passenger trains is 30 mph (25 for freight trains) over the first six bridges, the MAS over the Industrial Canal varies by track – 40 mph for track 1 and 20 mph for track 2.

The movable bridges consist of approach spans and a movable section, that either pivots on its center, or lifts from one end. The speed limit is over the movable segments is the restricted speeds listed above. The time lost varies according to the speed limits at each end of the bridges, but, for example, at Bay St Louis the time lost is approximately 30 seconds. Furthermore, frequent problems associated with the bridge structure and the signal system result in the failure of the signal system to return to a go signal (green) from a stop signal after the bridge has been closed. The result can be a significant level of delay to trains in both directions. The amount of delay can be exacerbated by the isolated nature of the bridges, which delays access by maintainers that may be required to assist in solving the problem.

Thus, the movable bridges result not only in lost travel time but in a level of uncertainty, which is not conducive to reliability of either intercity passenger or freight train operations.

4) Highway-railroad crossings (general treatments; specific major projects go in Chapter 8)

North Carolina's Sealed Corridor Project, an effort to systematically improve safety at the highway-rail grade crossings on the North Carolina Railroad, has established the principle that improved rail passenger service can and should be accompanied by reduced risk of motor vehicle/train collisions. Accordingly, this study has developed

a preliminary program to deal with the approximately 183 public and private crossings on the active and abandoned rail lines.

Contemplated Grade Crossing Program

Based on all the considerations described above, the study team developed a potential list of grade crossing actions that would support the trip-time goals and safety prerequisites of high-speed rail development in the Corridor. These grade crossing actions are summarized in Table _ for 79 mph and 90 mph. In this table, the possible enhancements could have included:

- Elimination, which can be effected by:
 - Closing the crossing to vehicular traffic
 - Providing a grade separation
 - Relocating the railroad
- Upgrading of protection devices, for example from crossbucks to gates and flashing lights, or from gates that cover only half the road in each direction, to four-quadrant gates that cover the entire road, thereby blocking drivers from “running around” the crossing
- Keeping the crossing as-is, where the level of protection is already appropriate for the contemplated train speeds and road traffic levels
- Expanding or moving a crossing to comply with the engineering improvements described in other sections of this document. For example, new sidings or changes to curves; or adding well-protected crossings where they do not exist today

Fencing

Installation of right-of-way fencing at selected security-related locations, parklands, schools, service facilities, stations, and other locations would be evaluated as part of the final design, project implementation phase. For this document, it was assumed that fencing of both sides of the right-of-way to improve the safety and minimize the potential for trespassing was not required for the 90 mph full service initiative.

5) Electrification (if applicable)

Electrification of the corridor is not anticipated.

6) Signals and train control

Signal system upgrades should be implemented incrementally to handle increased train traffic efficiently on the route and to permit improved intercity passenger service with greater safety, as passenger train service and maximum authorized speeds are increased. These improvements also would enable freight service safely and efficiently to operate on the same tracks.

FRA regulations require that, where any train operates at a speed of 80 or more miles per hour, there must be in place an automatic cab signal, automatic train stop or continuous automatic train control system. The current ABS system on the CSXT Main Line has none of these additional systems, and therefore it is limited to a top speed of only 79 miles per hour. The installation of an automatic cab signal, an automatic train stop, or automatic train control system would be necessary in order to allow the higher speeds contemplated for the Mobile to New Orleans high-speed service.

The signal system would be upgraded to support the higher speeds. A cab signal system (necessary to operate passenger trains at speeds greater than 79 mph), a new block layout⁴, and new signal aspects, would be installed incrementally, to accommodate speeds up to 90 miles per hour. Block spacing would anticipate increased train speeds. Reverse signaling would be installed on double track segments throughout the route.

Ultimately, a new signal system would improve the reliability of train operations for all services, contribute to reducing maintenance-related operating costs, and would be a component critical to enabling higher speed train operations.

7) Support facilities

Sufficient yard storage capacity should be provided to handle layovers, and to store equipment-awaiting maintenance in Mobile. Yard lighting, water and power hookups, a fueling facility, crew quarter facilities, employee locker room, and supervisory office space would be included. Commissary facilities to service train sets presently exist in New Orleans.

As of this time, a location to service trains that would be stored in Mobile between runs has not been identified. An efficient storage yard and maintenance facility near the station would be necessary to properly clean and inspect trains. Initially Choctaw Yard was considered, however, further evaluation of train operations through the area, and potential locations, would be required to finalize the location. Minimizing conflicts between passenger train yard moves and freight train moves between Sibert Yard and Brookley would be a primary concern

8) Stations and parking

Significant enhancements to the existing stations located between Mobile and New Orleans were not developed. The existing station buildings, platforms, and parking

⁴ The block layout would define the spacing between signals that represents the best compromise maximizing capacity (more signals, closer together, creating shorter blocks) and economy (fewer signals, further apart, creating longer blocks).

areas were considered adequate for the initial service level and improvements for the full service would depend upon the ultimate ridership and demand for parking at each station – Pascagoula, Biloxi, Gulfport, and Bay St. Louis. Budgets for potential enhancements were established.

Mobile Station

An additional platform, to provide operational flexibility in this congested segment of the railroad, most likely will be required to support the full service operation. Parking in the vicinity of the station appears to be adequate.

Mobile Beltway Station

In many major rail transportation markets, Amtrak serves “beltway” or “suburban” stations, with good access to and from the highway system, as well as downtown stations. The benefit to both modes successfully has been demonstrated at the New Carrollton, MD station, located north of Washington, DC, and Metropark in northern New Jersey, both located on the Northeast Corridor. A beltway station should be in a location that has both space for parking and other facilities, and good highway access, to attract riders from the widest possible area, particularly those who would rather not “backtrack” to access a center-city station to travel to a destination in the opposite direction of the station from their residence.

The team’s analysis indicated that an ideal Mobile location would be at the location where the Dauphin Island Parkway passed over the railroad at MP 671.6 between North and South Brookley. The station would be located northeast of the intersection of I-10 and I-65. The location has the further advantage of being located adjacent to the Mobile Regional Airport.

Site-Specific Investments

Site-specific projects are discussed in detail in Chapter 8. The planning and design of the GCHSR Corridor high-speed service, Mobile to New Orleans, will provide, when implemented, cost-effective improvements necessary to increase capacity on the existing rail line to support six HSR intercity passenger train round trips a day, while minimizing conflicts with freight operations. The increased levels of 2025 freight and passenger service resulted in a larger number of passenger trains overtaking freight trains, resulting in delays to lower priority merchandise trains delayed by intermodal freight trains.

High-Speed passenger trains would be overtaking, or conflicting with, slower freight trains and passenger trains in the opposite direction on the line between Mobile and New Orleans. Improvements that would increase rail capacity at strategic locations, and thus serve to make high-speed train operations be transparent to freight train operations have been evaluated. Reduced trip times and improved capacity would enable the high-speed service to operate reliably without adversely affecting, or being delayed by the large number of long freight trains.

Five strategies were pursued in designing the physical plant and rail operations plans to minimize the probability of schedule conflicts in this critical segment of the corridor:

- Provide tracks to support the operation of trains serving local industries, modify interlockings, and make additional operational improvements that would result in segments of track where freight and passenger train conflicts would be minimized;
- Provide additional passing sidings, or sections of double track, of sufficient length in the most effective locations where passenger and freight trains could overtake, meet, and/or pass trains on the single-track rail line⁵;
- Re-spacing of the existing sidings to provide for more uniform siding-to-siding running time;
- Lengthening of existing sidings and upgrading them from controlled to signaled to increase the speed into and through the sidings to 30 mph;
- Design passenger schedules so that trains traveling in opposite directions “meet” in stations or “pass” at locations where freight operations would be minimally disrupted.

Program Summary and Conclusions (Chapter 9)

Tables ES-3 (Cost Estimates for the Initial Service) and ES-4 (cost Estimates for the Full Service) list the corridor-wide and site-specific improvements identified in Chapters 7 and 8 as addressing the Year 2025 requirements underlying the study. The tables identify the objectives and estimated cost of each line item. The projected total cost of all the identified potential improvements (exclusive of rolling stock requirements and items not estimated in the study) currently stands at approximately \$730 million (2004 dollars).

Tables ES-3 and ES-4 include cost estimates only for those infrastructure items covered in the study scope. Items omitted from the study scope are “to be determined (tbd)” – such as improvements to Sibert and Gentilly Yards - and are excluded from the totals shown. Some of the items may be essential prerequisites to upgraded service on the line and would need to undergo further studies or implementation plans. This engineering report does not address the financing or institutional options which may enter into project implementation.

Detailed engineering construction plans need to be prepared for the various improvements; the plans would necessarily support a detailed segmentation, prioritization, and sequencing of these projects. As an example of segmentation, a major effort like the extension of double track from Choctaw to Fowl River Siding, including the construction of Choctaw Siding, which this report describes in broad outlines, would lend itself to subdivision into a number of interrelated projects. The engineers would then evaluate these separate projects in terms of their cost-effectiveness in fulfilling capacity, re-capitalization and trip-time needs. Experience on the Phase I, Meridian to New Orleans study, and other recent HSR studies has shown the benefit of prioritizing capacity improvements based on an evaluation of their urgency and return on investment.

⁵ While minimizing the time that trains would be required to stop on the passing sidings.

The addition of increased levels of intercity passenger service in a primarily single track railroad, operating at speeds in excess of freight train operations, must be accompanied by an investment in siding improvements that would optimize spacing and provide sidings sufficiently long to accommodate train meets by easily having room for freight trains. The increase in capacity improves the reliability of passenger train operations while not denigrating freight train operations. These capacity enhancements accompanied by signal system improvements and continuous upgrading of track speeds also provide a large share of the trip time benefits. Rehabilitation projects that upgrade drawbridges also will contribute to increases in passenger and freight train speeds in the New Orleans-Mobile Corridor. Finally, the study's 20-year planning horizon allows for a phased implementation of the contemplated program to match the rail operators' staged introduction of service improvements and the availability of an ongoing infusion of capital funding to the states and transportation agencies. Thus, closer scrutiny would assist high-speed rail partners in fashioning a detailed program that is affordable, timely, and efficacious.

Southern Rapid Rail Transit Commission
Gulf Coast High-Speed Rail Corridor
New Orleans to Mobile Corridor Transportation Plan

Table ES-3
Cost Estimate of Contemplated Improvements to Support the Initial Service

Improvements Sibert Yard to Elysian Fields	(In Millions)
Signal Upgrades Sibert to Mobile Station	\$3.9
Double Track Mobile Station to Brookley	\$27.2
Track and Signal Upgrades Brookley to Fowl River	\$1.5
Fowl River Siding	\$11.2
Track and Signal Upgrades Fowl River to Little Franklin	\$1.7
Little Franklin Siding	\$12.5
Track and Signal Upgrades Little Franklin to Orange Grove	\$2.1
Orange Grove Siding	\$6.6
Track and Signal Upgrades Orange Grove to Gautier	\$1.4
Gautier Siding	\$8.5
Track and Signal Upgrades Gautier to Ocean Springs	\$1.0
Ocean Springs Siding	\$13.2
Track and Signal Upgrades Ocean Springs To Beauvoir	\$4.5
Double Track Beauvoir to Harbin	\$63.4
Track and Signal Upgrades Beauvoir to Nicholson	\$4.5
Nicholson Siding	\$8.1
Track and Signal Upgrades Nicholson to Claiborne	\$5.3
Claiborne Siding	\$4.5
Track and Signal Upgrades Claiborne to Lake Catherine	\$4.6
Lake Catherine Siding	\$9.2
Track and Signal Upgrades Lake Catherine to Gentilly Yard	\$9.2
Track and Signal Upgrades Gentilly Yard to NS Railroad Back Belt	\$7.6
Subtotal	\$211.7
Movable Bridge Improvement Program	\$34.3
Station Improvement Program	\$6.0
Subtotal	\$252.0
Common Improvements NO&NE Tower to New Orleans UPT	\$7.6
TOTAL	\$259.6

Source: Parsons Transportation Group, 2006.

Southern Rapid Rail Transit Commission
Gulf Coast High-Speed Rail Corridor
New Orleans to Mobile Corridor Transportation Plan

Table ES-4
Cost Estimate of Contemplated Improvements to Support the Full Service

Improvements Sibert Yard to NO&NE Tower	(In Millions)
Signal Upgrades Sibert to Mobile Station	\$4.0
Double Track Mobile Station to Fowl River	\$80.2
Track and Signal Upgrades Fowl River to Little Franklin	\$4.7
Little Franklin Siding	\$26.2
Track and Signal Upgrades Little Franklin to Orange Grove	\$1.4
Orange Grove Siding	\$19.9
Track and Signal Upgrades Orange Grove to Pascagoula	\$0.8
Pascagoula Siding	\$14.9
Track and Signal Upgrades Pascagoula to Gautier	\$0.2
Gautier Siding	\$10.8
Track and Signal Upgrades Gautier to Ocean Springs	\$1.1
Ocean Springs Siding	\$25.4
Track and Signal Upgrades Ocean Springs To Beauvoir	\$4.7
Double Track Beauvoir to Harbin	\$65.1
Track and Signal Upgrades Beauvoir to Nicholson	\$4.5
Nicholson Siding	\$14.9
Track and Signal Upgrades Nicholson to Claiborne	\$2.0
Claiborne Siding	\$21.0
Track and Signal Upgrades Claiborne to Pearl River	\$0.1
Pearl River Siding	\$26.3
Track and Signal Upgrades Pearl River to Lake Catherine	\$0.3
Lake Catherine Siding	\$31.9
Track and Signal Upgrades Lake Catherine to Gentilly Yard	\$12.3
Track and Signal Upgrades Gentilly Yard to NS NO&NE Tower	\$4.0
Subtotal	\$376.6
Movable Bridge Improvement Program	\$27.4
Station Improvement Program	\$2.5
Subtotal	\$406.5
Common Improvements NO&NE Tower to New Orleans UPT	
Elysian Fields Connection	\$12.7
Third Track Elysian Fields to Marconi Drive	\$20.9
Track and Signal Upgrades Marconi Drive to East City Jct	\$0.3
Track and Signal Upgrades East City Jct to New Orleans UPT	\$30.6
Subtotal	\$64.5
TOTAL	\$471.0

Source: Parsons Transportation Group, 2006.

Major Study Conclusions

Protection of all freight and passenger services

Numerous computerized simulations of the operations of all users of this Corridor (freight and intercity passenger) have identified a number of specific infrastructure changes that would provide the capacity to handle all existing and projected services without deteriorating freight train performance. Even with these changes, close scheduling and dispatching coordination among CSXT and the intercity passenger service operator extending to other contiguous routes would be necessary to optimize the use of the improved facility and preserve the dependability and marketability of all passenger and freight operations.

This study of the 145-mile New Orleans-Mobile Corridor represents a significant application of the transportation planning concepts that evolved in the Northeast Corridor Improvement Project - America's premier high-speed rail development effort to date - to a primarily single-track railroad with heavy through and local freight traffic.

Capacity Requirements

The importance of freight traffic, coupled with the bottlenecks inherent in single-track operation, makes protecting the reliability of all services a paramount concern in planning - secondary only to safety. As a result, for this corridor to fulfill its potential:

- Significant additional capacity must be provided.
- This capacity may take the obvious form of additional tracks, mainly passing sidings but in some instances midpoint interlockings in longer sidings, new interlockings, and improved connections between rail lines.
- More subtle - but of equal importance - are the detailed improvements that would allow freight trains to enter and exit the main line more quickly, and that would lessen the delays occasioned by interference among all rail services. These include upgrading turnouts for higher operating speeds and providing improved paths for all types of trains through complex yard areas.
- Combined with the need for careful attention to engineering detail is the requirement for collegial operations planning, over the long-term, among all the operators and service sponsors in the corridor.

With the betterments identified in this study, it would be feasible to upgrade intercity passenger service to achieve reliable travel times of less than 2.4 hours between New Orleans and Mobile. This scheduled running time, while not approaching the average speed of high-speed trains in the Northeast Corridor (NEC), would significantly exceed present rail passenger travel times in the corridor. More importantly, the reliability would approximate that achieved in the NEC, thereby providing a competitive travel mode in this segment of the GCHSR Corridor.

These intercity passenger rail service improvements could occur without adverse impacts to freight operations in this very busy territory. Indeed, all freight services would benefit from the improved traffic flows made possible by the initiatives described in this report.

Chapter 1 – Introduction

The New Orleans to Mobile Corridor Development Plan has been produced under the auspices of the Federal Railroad Administration (FRA) and the Southern Rapid Rail Transit Commission (SRRTC) in furtherance of the implementation of the Gulf Coast High-Speed Rail Corridor. The study was conducted between 2002 and 2006 by Burk-Kleinpeter, Inc. (BKI), in association with AECOM Consult, Inc., the Parsons Transportation Group (PTG), and CSX Transportation. Copies of this Executive Summary can be obtained from the SRRTC by contacting the New Orleans Regional Planning Commission at (504) 568-6611.

Rationale for the study

The central gulf coast has experienced dynamic economic and population growth in the past decade, fueled by a new gaming industry that has flourished in Louisiana and the Mississippi Gulf Coast.¹ It is felt that the development of intercity high-speed rail passenger service would help accommodate this growth by providing additional transportation choices, relieving congestion on crowded highways, and providing connections to airports with limited room for expansion of parking, all while providing an environmentally acceptable and relaxing way to travel.

Population increase in the Gulf Coast has been concentrated in the suburban areas of metropolitan regions, particularly along the Interstate-10 corridor. Increasing urban and suburban congestion is being experienced along I-10 throughout the project corridor. A recent study for the National I-10 Freight Corridor indicated that parts of the I-10 corridor in Louisiana, Mississippi, and Alabama are currently experiencing congestion (defined as Level of Service E or F) and that most of the I-10 corridor in those states will be experiencing severe congestion by 2025.²

Purpose and Approach

The purpose of this study was to identify the engineering and financial requirements to introduce high-speed intercity passenger rail service between New Orleans and Mobile by incrementally upgrading the existing freight rail corridor. This information will be used by the FRA, SRRTC, Amtrak, and the states of Louisiana, Mississippi, and Alabama, as well as other stakeholders, to make an initial assessment of the feasibility of implementing the proposed service.

¹ Southern Rapid Rail Transit Commission, Gulf Coast High Speed Rail Corridor Feasibility Study, Phase II. Morrison Knudsen Corporation, June 1999.

² The National I-10 Freight Corridor Study, Executive Summary. Wilbur Smith Associates, 2004.

The approach to this study was in accordance with the FRA's "Railroad Corridor Transportation Plans A Guidance Manual," revised December 16, 2002. This study did not include an Alternate Route Selection because there are no existing available alternate routes between New Orleans and Mobile that could reasonably be expected to provide competitive service to the automobile; however, there was an independent study, conducted by the state of Mississippi, to evaluate the potential to relocate the CSXT to the north of the coastal cities. The study did feature an independent ridership and revenue forecast for the corridor prepared by AECOM Consult.

In accordance with established policies, the study evaluated the requirements for incrementally improving an existing freight rail corridor to accommodate an increasing number of passenger trains operating at higher speeds. This evaluation included an inventory of the existing fixed plant and current users and services; the development of service goals for future passenger and freight services; travel time analyses; capacity analysis for the existing and future (2025) condition; development of a program of improvements for start-up and build-out scenarios; and cost estimates for those scenarios.

CSXT Relocation Study

As mentioned above, the state of Mississippi conducted an independent evaluation of the potential to relocate the CSXT north of the coastal cities (Pass Christian, Waveland, Bay St. Louis, Long Beach, Gulfport, Biloxi Ocean Springs and Pascagoula). The reasons for this study were two-fold: (1) to improve safety by reducing the number of highway-rail grade crossings in the corridor and (2) improving highway transportation by replacing the railroad corridor with a highway corridor. The SRRTC received regular updates on this project until it was put on hold in 2004, reportedly due to the high projected costs of the relocation. The study was resumed in 2005 with a reduced scope.

CSXT Relocation Post-Katrina

In the months after Hurricane Katrina ravished the central Gulf Coast on August 29, 2006, there was considerable discussion of the proposed relocation of CSXT away from the coast. The railroad, after all, had been virtually destroyed between Mobile and New Orleans. CSXT, however, did not hesitate and immediately began rebuilding the railroad at a cost of \$250 million, with service between Mobile and New Orleans being restored in February of 2006. (The corridor was restored to its pre-existing condition, with the exception that much of the hardware – miter joints at the movable bridges, for example – was replaced by newer and better equipment.)

Reconstruction of the railroad did not end speculation that the railroad would be moved, as the Governor, Haley Barbour, and Senators Lott and Cochran, supported by recommendations by urban planners brought in by FEMA to plan for the state's recovery,

pushed for federal funding to relocate the railroad away from the hurricane damage zone. CSXT seemed willing to consider the proposition.

Amtrak, initially forced to suspend the *Sunset Limited* service between Orlando and New Orleans because of the damage to the corridor, eventually suspended the service indefinitely after freight service was restored.

As of the writing of this report, there has been no definitive resolution of the issue regarding the proposed relocation of the CSXT. Opposition to the relocation seems to be getting better organized, while few details of the proposed relocation have been made public.

In light of this uncertainty, this report can only continue in its original mission: to discuss the origin and purposes of the underlying studies; the corridor's current condition and usage; its intended role in the 21st Century; the methodology for analyzing the corridor's investment requirements; and a set of improvements – both corridor-wide and site-specific – that would allow the New Orleans to Mobile Corridor to provide enhanced intercity passenger and freight train services.

In expressing no opinion whatsoever on the desirability, prudence, or merit of the projects it describes, this report is not a policy document and simply imparts, to the member states of the SRRTC and to the public, the results of the engineering and operational analysis undertaken at public expense. Should the states choose to affect their rail travel time goals for this corridor, they will need to undertake a set of projects having similar effects on train performance as those enumerated herein.

The Environmental Process

All projects that use public funds must first examine potential environmental impacts as part of the public decision-making process. “The Federal Railroad Administration has found that railroad corridor programs or projects lend themselves to tiered environmental documentation. Since funding design and construction improvements to railroad corridors generally extends over decades, a tiered first level Environmental Impact Statement (EIS) of Programmed Environmental Impact Statement (PEIS) is usually the appropriate form of documentation. This allows for identification of the full scope of projected improvements or modifications and either full analysis of identified elements or deferral of site-specific clearance of elements to later documentation.”³

“Typically, a long-range transportation plan is necessary to identify all project elements and for preparation of the initial environmental document. It is possible that the PEIS or first Tier EIS may categorically exclude work that does not impact environmentally or historically

³ Railroad Corridor Transportation Plans, A Guidance Manual. Office of Railroad development, Federal Railroad Administration, revised July 8, 2005.

sensitive resources (for example: installing welded rail, replacing ties, installing a new signal system, or reinstalling track on an old roadbed) and may also identify other elements for separate environmental documentation (such as new stations, curve eliminations, new maintenance shops, and so forth). This type of documentation can incorporate by reference many elements of a corridor transportation plan and thus simplify the clearance process.”⁴

This study proceeded independently of the preparation of the PEIS for several reasons:

- In order to describe the infrastructure improvements necessary to provide high-speed intercity passenger rail service in one segment of the Gulf Coast HSR Corridor, the New Orleans and Mobile segment,
- Because of the length of the Gulf Coast HSR Corridor – 1,025 miles – it may take years to complete the transportation plan in the remaining segments, and
- Since the PEIS process will require matching funds from the states, completion of the transportation plan will provide the states with the information they need to make a decision to proceed forward with the PEIS, or not.

Completion of the transportation plan for the entire Gulf Coast HSR Corridor is prerequisite to development of the PEIS.

Organization of the Report

This report is organized into nine chapters, as shown below:

1. Introduction
2. The Corridor Today
3. Service Goals for the Corridor
4. Methodologies
5. Operations Analysis
6. Environmental/Historic Factors
7. Corridor-wide Improvements
8. Site-specific Improvements
9. Program Summary and Conclusions

⁴ Ibid.

Chapter 2 - The Corridor Today

The conditions described herein are based on data collected and observations made before August 29, 2005, when Hurricane Katrina hit the central gulf coast, essentially destroying the entire CSX Transportation (CSXT) Railroad between Pascagoula, MS and New Orleans, LA. CSXT has repaired the damage and rebuilt the railroad as it existed before Katrina and service between Mobile and New Orleans was resumed in February of 2006.

1) Fixed Plant

The focus of this study is the CSXT line segment between the Mobile, AL Amtrak station and the New Orleans Union Passenger Terminal (NOUPT), depicted in Figure 2-1.

a) Location (include map)

The New Orleans-Mobile Corridor is a segment of the Gulf Coast Corridor, which the Secretary of Transportation formally designated as an emerging high-speed rail line under the Intermodal Surface Transportation Efficiency Act of 1991. Depicted in Figure 2-2, the Gulf Coast Corridor reaches from New Orleans to Mobile; New Orleans to Houston; and New Orleans to Atlanta. For convenience, the present report refers to the Gulf Coast Corridor segment between New Orleans and Mobile as the New Orleans-Mobile Corridor.

The corridor can be described as a coastal route, lying just inland from the Gulf of Mexico, the Mississippi Sound, and Lake Borgne. Refer to Figure 1 on the following page. Not surprisingly, the railroad runs through large areas of coastal wetlands and crosses numerous streams, bayous, and rivers, including several navigable waterways such as the Pascagoula and Pearl Rivers, and the two tidal passes, the Rigolets and Chef Menteur Pass. Through large segments of Mississippi, the railroad crosses through the heart of several coastal cities, including Pascagoula, Ocean Springs, Biloxi, Gulfport, Long Beach, Bay St. Louis, Waveland, and Pass Christian.

b) Background

The New Orleans Mobile & Texas Railroad Company (NM&T) was chartered on November 24, 1866 with the intent to build a line of road between Mobile and New Orleans. The construction was a challenge from an engineering standpoint - the line included nine miles of bridges and trestles - but was eventually completed in 1870.

Figure 2-1
The New Orleans to Mobile Corridor

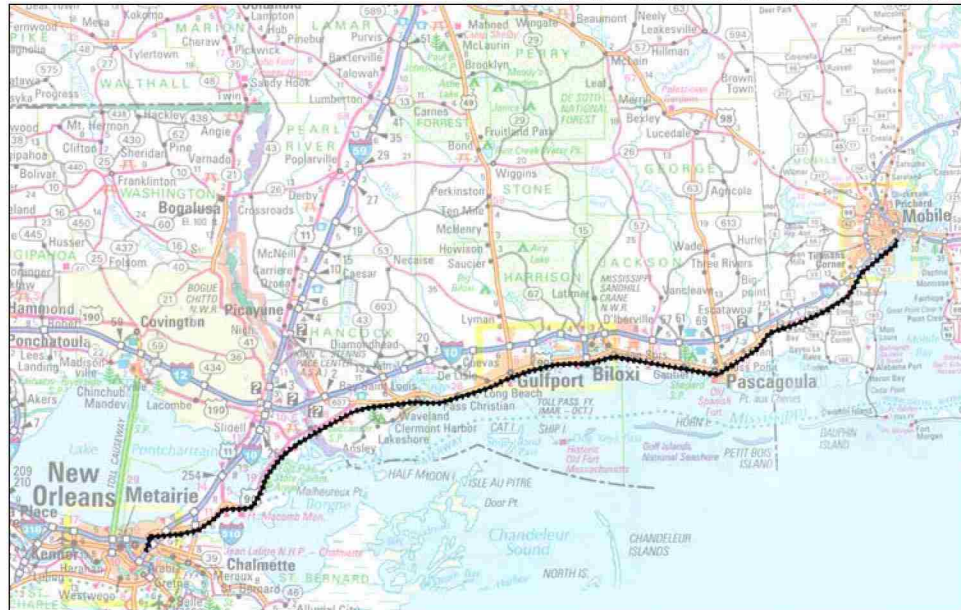


Figure 2-2
The Gulf Coast High-Speed Rail Corridor



Source: Burk-Kleinpeter, Inc., 2006

According to the L&N Museum's "A Brief History of the L&N Railroad," the NM&T was acquired in 1880 by the Louisville & Nashville Railroad (L&N) in order to extend its sphere of influence internationally through the ports of Mobile and New Orleans for agricultural and manufacturing products produced along its line. At the same time, the L&N also acquired the oldest railroad west of the Alleghenies, known locally as "Smoky Mary." This line was five miles long and extended in a straight line from the Mississippi River along Elysian Fields to Lake Pontchartrain. The L&N operated the line until 1982 when it was purchased by the Seaboard Coast Line, which quickly merged with the Chessie System to become CSX Transportation Company (CSXT).

c) Length and Ownership

Of the 145 miles between Mobile Station and New Orleans Union Pubic Terminal (NOUPT) approximately 137 miles belong to the CSXT, 3.6 miles to Norfolk Southern, and 2.9 miles to the NOUPT Table 2-1 presents a summary of current track ownership.

Table 2-1
Track Ownership and Operating Control

Milepost	Route-Miles	Locations	Owner and Operator	Dispatched From
0.0 – 3.9	3.9	NOUPT – East City Jct	Amtrak	Chicago, IL
3.9 – 7.5	3.6	East City Jct - NOT Jct	NS	Birmingham, AL
803.7 – 666.4	137.3	NOT Jct – Mobile Station	CSX	Jacksonville, FL
Total	144.8			

Source: Parsons Transportation Group, 2005.

d) Operating Control

Also presented in is the operating control of the various segments of the New Orleans-Mobile Corridor. Operating control currently matches ownership.

e) Data sources for the condition descriptions that follow

Data collected from CSXT, including: track charts, timetables, personal interviews, a high-rail inspection, FRA Office of Safety (grade crossing data), USGS quad sheets, aerial photography, and photographs taken by team members.

f) Trackage and Track Conditions

The main line of road between Mobile and New Orleans, with the exception of 2 double track sections around Sibert Yard in Mobile and Gentilly Yard in New Orleans, is mainly single track with passing sidings. At Gentilly Yard, there is a 14.1-mile section of double track, while at Sibert there is a short 1.8-mile section of double track. The rest of the road is single track.

There are ten passing sidings between Mobile and New Orleans. Table 2-2, below, provides a summary of the sidings, indicating the name of the siding, length in feet, indication of whether the siding is signaled or controlled¹, milepost of the center of the siding, siding-to-siding spacing (including and excluding a short siding at Ocean Springs). Generally, trains are built in a way so that they do not exceed 7,400 feet. This way they can fit into receiving/departure (RD) tracks at the Gentilly yard and the shortest siding (with the exception of Ocean Springs) at Lake Catherine, which is 7,480 feet long. It is generally accepted that a well-designed single line, should have siding spacing of 12 to 15 miles. If the short siding at Ocean Spring (3000 ft.) is taken out of the equation, then the siding-to-siding spacing exceeds this threshold between Brookley-to-Elmo and Gautier-to-Beauvoir.

CSXT and NS, the owner/operators of approximately 97 percent of the Corridor, have maintained the Corridor in a condition satisfactory for the current designated operating speed class.

The authorized speed over most of the corridor is 79 mph for passenger and 60 mph for freight trains. On all drawbridges, the speed is limited to 30 mph

¹ The following definitions of terminology are contained in the Railroad Dictionary contained on the CSX Corporate Web Site, CSX.com:

- A **Siding** is “an auxiliary track for meeting or passing trains. It is designated in special instructions.”
- A **Controlled siding** is “a siding equipped with controlled signals that are used to authorize trains to enter or leave the siding. Such signals do not govern movements on the siding.” And
- A **Signaled Siding** is a “siding equipped with block signals that govern train movements on the siding.”

Accordingly, in compliance with FRA regulations speed on **controlled sidings** cannot exceed restricted speed: “A speed that will permit stopping within one-half the range of vision, but not exceeding 20 miles per hour.” However, speeds on a signaled siding are controlled by the block signal indications, which could enable trains to exceed 20 mph entering and operating over the siding.

The requirement that a long heavy freight stop within one half the range of vision in territory with visibility limiting curves frequently results in train speeds in the vicinity of 5 mph, which results in a mile long train taking 10-15 minutes to clear the main line.

Table 2-2
Sidings in the Mobile to New Orleans Corridor

<u>Siding</u>	<u>Length (ft)</u>	<u>Type</u>	<u>Center Of Siding Milepost</u>	<u>Siding-to-Siding Spacing</u>	
				<u>with Ocean Springs</u>	<u>without Ocean Springs</u>
Brookley	10,395	Controlled	670.8		
Elmo	8,855	Controlled	686.5	15.7	15.7
Orange Grove	8,910	Controlled	700.3	13.8	13.8
Gautier	7,865	Controlled	710.6	10.3	10.3
Ocean Springs	3,000	Controlled	722.7	12.2	
Beauvoir	8,085	Controlled	731.1	8.3	20.5
Harbin	8,910	Controlled	746.0	14.9	14.9
Nicholson	8,615	Controlled	755.5	9.5	9.5
Claiborne	10,020	Controlled	767.5	12.0	12.0
Lake Catherine	7,480	Controlled	781.1	13.6	13.6
Average				12.3	13.8

Source: CSXT, 2005.

for passenger and 25 mph for freight trains. On the Norfolk Southern portion of the corridor the authorized speed is 40 mph for the passenger and 30 mph for the freight trains. On the Amtrak territory, the authorized speed is limited to 20 mph.

Slow orders, requiring trains to operate at slower than the specified maximum speeds, if and when they are necessary, are efficiently removed to facilitate train operations.

While the mainline is maintained to FRA class 4 track (79 MPH maximum), the sidings are maintained at a lower level. This is because the signal system at the sidings and turnout sizes in use do not allow a higher speed. The standard turnout size in use is a #15 which allows a speed of 25 mph for diverging moves. As the corridor is upgraded and improvements are made to the signal system, the sidings should be upgraded to be equivalent to the mainline to allow passenger trains to utilize the sidings for full speed meets.

Limited field investigations performed early at various times in 2003 and 2004, confirm that the Corridor has been maintained to a reasonable level of good repair. There is no evidence to indicate that CSX, as the majority owner of the Corridor, intends to reduce annual maintenance programs. CSX has for

several years shut down the line for several weeks to perform programmed maintenance of the track, bridge structures, and grade crossings.

Typical Standard sections of the roadbed and ballasts are included in the appendix. The entire line consists of timber ties on ballast except for the bridges. The drawbridges often have the timber ties directly on the steel girder. On roadbed, typically 8" of ballast is required under the tie and 6" of compacted subballast is required below the ballast.

Large portions of the corridor were recently reconstructed because of damage from Hurricane Katrina. The following describes track conditions prior to the hurricane damage. Revised track charts should be consulted upon the completion of repairs.

Mobile Al, (Sibert) Yard to Pascagoula, MS

The track consists mostly of 132lb to 141lb welded rail. Predominately, the rail is 132lb dating mostly from 1959 and 1979. Ties date from 1995 from Sibert to the Alabama/Mississippi state lane and mostly 2001 from the state line to Pascagoula, Mississippi. The track from MP 671.5 to the East Pascagoula River MP 706.8 is exclusively 79 MPH indicating a Class 4 track.

Pascagoula, MS to Gulfport, MS

The track from Pascagoula to Gulfport consists of 132lb welded rail dating mostly prior to 1980. Two large tie replacements appear to have occurred in 1998 and 2002 encompassing the entire segment.

Gulfport, MS to Mississippi/Louisiana State line

This track consists of 132lb welded rail from mostly dating from 1978 and 1981. Ties date from 1998 and 1997.

Mississippi/Louisiana State Line to Gentilly Yard

Most of the rail from the state line to Michoud consists of rail dating from 1981. Along the double track from Michoud to Gentilly yard, the rail dates from 1961 and 1998. From MP 772 (near Northside Siding) to MP 794 (near Michoud), crossties date from 2002 except for the Rigolets Pass Bridge which date from 1998. This section from Northside to Michoud is one of the segments which travel through a marsh and the Bayou Sauvage Refuge. From Michoud to Gentilly Yard, ties date from 1998.

Surfacing

Previous track surfacing dates are also shown on the track charts, but much of this is expected to be outdated information. The track surface in many locations is difficult to maintain due to the location of the corridor just inland from the Gulf of Mexico, the Mississippi Sound, and Lake Borgne. The roadbed in these areas has sections where both settlement and erosion can be expected. Erosion occurs because of the soft soils through the marshes and erosion can occur because some segments can be subject to wave action. In these locations, the roadbed maybe subject to wave action. Riprap and timber sheeting is used for wave breaks in some of these locations.

The segments of track through coastal wetlands affect both vertical and horizontal alignment and the track would require more frequent surfacing to support HSR passenger service. Additionally, construction of sidings in these areas can be affected by differential settlement between the exiting established roadbed and the roadbed constructed for a new siding.

g) Alignment

Train speed is fundamentally not limited by the horizontal curvature present in the alignment; the exceptions are about 25 percent of the more than 55 curves between New Orleans and Mobile. These curves are located on the approaches to New Orleans and Mobile. The line includes more than 183 grade crossings; however, numerous crossings are located in towns and cities, such as Biloxi, Mississippi City, Gulfport, and Bay St. Louis. While the track condition may be suitable for higher speeds, locations of high densities of grade crossings generally have 45 mph speed restrictions for freight and passenger trains. Also the drawbridges located along the line are restricted to 30 mph for passenger trains and 25 mph for freight trains. The clusters of grade crossings and condition of the drawbridges are two conditions that severely constrain intercity train trip times.

A track geometry report was included in the Physical Inventory: Interim Report, July 2003. This geometry report presented in charts was generated by a rail geometry car which measures superelevation, degree of curvature, spiral length and curve length. Superelevation, measured in inches, is the vertical distance in which the outside rail on a curve is raised above the inner rail. Spirals are used to transition from a tangent section to a curve and are also used to increase the superelevation from zero in a tangent section to the required value for the curve so that there is no vertical transition in the curve itself. The measured values of curve, superelevation, and spiral length can then be used to calculate allowable

speed in the curves and recommend changes to superelevation or curvature can be recommended to increase speed through the curves. The geometry report also includes a column of maximum calculated speed using several assumed values of superelevation. Several of the curves in the report can have their speeds raised by increasing superelevation and still be within the CSX allowable maximum superelevation. Increasing the superelevation may require the spiral lengths to be increased in some curves. Because this alignment was constructed prior to the introduction of spirals, the spirals may have been retrofitted to the curves and may not meet current recommended lengths. As planning for the corridor progresses, the geometry should be reviewed for both passenger comfort and performance.

h) Bridges, culverts, and other structures

There are numerous bridges and culverts along the corridor, including seven drawbridges between Mobile and NOUPT. (Refer to the New Orleans to Mobile Physical Inventory, July 2003.) The draw bridges are located at Pascagoula, Biloxi Bay, Bay St. Louis, Pearl River, Rigolets Pass, Chef Menteur Pass, and the Industrial Canal just southwest of the Gentilly Yard. Currently, water traffic has an absolute priority over trains. Further, the bridge openings appear to be random, with the exception that boats seem to operate mostly in daytime.

i) Highway/railroad grade crossings

There are 183 public and private grade crossings in the corridor. A complete listing is provided in the New Orleans to Mobile Physical Inventory, published in July of 2003. Of these crossings, some 177 (97%) are for public use and 6 (3%) allow access to private property. Crossings are protected by a combination of crossbucks, stop signs, flashing lights, gates, and ringing bells.

The SRRTC has received previous federal appropriations which have been and are currently being utilized to implement safety improvements at grade-crossings along the Gulf Coast High Speed Rail Corridor in Alabama, Louisiana and Mississippi. Each member-State has its own grade crossing program, administered through their respective Departments of Transportation, which has received the benefit of these funds. Extensive improvements to key grade-crossings have been made in all three States.

j) Electrification

The rail corridor is not electrified.

k) Train Control, Signals, Communications

(1) Train Control

Centralized Train Control (CTC) is the train operation and control system for the corridor; designated segments of Yard Limits in Mobile and Gentilly Yard are the exception.

(2) Signals

Signal aspect charts showing what aspects are displayed and indicate the signal location and length of blocks were reviewed as part of the analysis. These charts can be made available with prior approval from CSX.

These charts indicate that track circuits to the approach of the interlocking are approximately 2 miles in length. The circuits for blocks further removed from interlocking are longer and can be as long as 5 miles in length. These longer blocks may need to be shortened for future demand based upon the results of the simulations to increase capacity between sidings. Decreasing the block length would not benefit meets, but may benefit overtakes. These block lengths shown on the charts would have been verified using braking curves and grades for the freights to verify that the block lengths are sufficient for the aspects that are shown in each signal location.

A hindrance to higher speed use of the sidings is the existence of dwarf signals at the end of sidings. The low level dwarf signals cannot be seen in advance as can the mast mounted signals used elsewhere in the corridor. Because a train must be prepared to stop at the end of the siding if a stop signal is given, the engineer must assume that the signal is red and be able to stop the train before reaching the switch and may not be able to travel at the rated speed of the siding until a clear signal is seen. The signals should be upgraded to give more aspects allowing passenger trains to approach the ends of sidings at full speed if the next block is clear.

(3) Communications

While pole lines and cable are still present north of Mobile in the M&M subdivision and appear to have been only recently abandoned, the M&M subdivision and the NO&M subdivision currently use a wayside communication system of base stations along the track which transmit and receive radio signals to remote stations. This system allows both voice communication and signal information to be transmitted back to the dispatcher. These base stations are tied into the CSX dispatch system and voice communication system using telephone land lines. No pole lines or buried conduit are used for communications.

l) Support facilities

Support Facilities include both CSX owned terminals and yards and an Amtrak operated maintenance facility in New Orleans on NOUPT property.

CSX operates terminals at their Sibert and Gentilly Yards. Sketches of these yards are included in the appendix. There is a 5 track yard at Bayou Cassotte from MP 702 to MP 705 and a small yard (Watts Yard) at MP 707 which is adjacent to Ingalls Ship Yard. Storage tracks or house tracks are located near St. Elmo (MP 685), Pascagoula (MP 706), Ocean Springs (MP 722), Bay St. Louis (MP 754), Rigolets (MP 776), Lake Catherine (MP 780), Chef Menteur (MP 787), and Michoud (MP 794). These may be used by CSX for either car set-offs or to store maintenance of way equipment.

The Amtrak operated maintenance facility on the NOUPT property provides servicing for the two long distance intercity trains (City of New Orleans and Crescent) which terminate in New Orleans and the Sunset Limited which stops in New Orleans for light servicing. The facility also includes a car shop and engine shop for maintenance.

m) Stations and parking

Passenger stations are located in Mobile, Pascagoula, Biloxi, Gulfport, Bay St. Louis, and New Orleans. Adequate parking for present intercity rail operations is available at each station. An inventory of station ownership appears in Table 2-3.

n) Right of Way (Fencing, Utility Leases, Aerial Rights of Way)

(1) Right of Way Fencing

There is no significant fencing of any portion of the right of way.

Table 2-3
Station Ownership and Use²

Milepost	Location	User	Owner		
			Land	Station	Parking
NOUPT 0	New Orleans Union Passenger Terminal	Amtrak	City	City	City
754	Bay St. Louis	Amtrak	City	City	City
739	Gulfport	Amtrak	City	City	City
727	Biloxi	Amtrak	City	City	City
707	Pascagoula	Amtrak	City	City	City
666	Mobile	Amtrak	CSXT	CSXT	CSXT

Source: Parsons Transportation Group, 2005.

(2) Utility Leases

The major utility leases for the corridor are fiber optic conduits which run the entire corridor from Mobile to New Orleans. These lines consist of four conduits. Three of the conduits are leased to three different communication companies and the fourth remains currently unused. Lease agreements vary from the communication company paying for relocation to the government paying for the relocation for government funded projects. These lease agreements would require review should improvements require relocations of the fiber optic lines.

(3) Aerial rights of Way.

The only known aerial easement excluding overpasses and grade separation structures is the Mobile Convention Center which straddles the tracks south of Sibert Yard.

2) Users and Services

a) Entities

There are three operating entities in this corridor, CSXT, NS, and Amtrak. All

² As of December 2005.

passenger trains are operated by Amtrak. The relationships of Amtrak to the track owners are established in operating agreements.

b) Services

(1) Intercity passenger

The *Sunset Limited*, operating between Orlando, FL and Los Angeles, CA, is the only passenger train that runs on the corridor between New Orleans and Mobile. This train departs Orlando on Sunday, Tuesday, and Thursday, and from Los Angeles on Wednesday, Saturday, and Monday.

The *Crescent* operates between New Orleans and New York City; the service departs the corridor at NOT Jct.

The *City of New Orleans* operates into NOUPT from the north and departs the Corridor at Carrollton Jct.

(2) Corridor

There are no corridor passenger rail services in this corridor.

(3) Other

There no intra-corridor intercity passenger rail operations in the corridor.

c) Commuter (there may be more than one type)

There are no commuter rail services in this corridor.

d) Freight (Through and local; there may be multiple types)

There is a daily average of 19.1 trains between Mobile and Gentilly Yard, consisting of 0.9 passenger trains, 5.4 intermodal trains, 12.1 manifest trains and 0.7 bulk trains³. There are no unit trains running in this territory and only a limited number of bulk trains (less than 1 per day on average). Thus, the majority of trains running in this corridor are intermodal and manifest. Almost all trains terminate at Gentilly Yard, although some traffic is for western destinations and is interchanged with other railroads, mainly the Union Pacific.

³ Based on average train operations in a two-week period in May 2004.

The principal intermediate freight origin/destination in this corridor are the ports of Mobile, Pascagoula, Gulfport, Bienville, and New Orleans and several industries located along the line of road.

Freight operations are much more variable than passenger services in terms of arrival and departure times, train size, train performance, and frequency in a given period of time. Freight trains vary significantly in their performance capabilities and compatibility with passenger operations: for example, unit trains of coal and grain generally have a lower horsepower-to-tonnage ratio and poorer performance than more time-sensitive operations. Thus, a general merchandise or intermodal train ordinarily takes less time to clear a given route segment than a unit coal train.

The nineteen trains per day described above do not include local industrial switchers, which usually run short distances and frequently reverse directions. The following is a list of switchers operating in the territory in question.

M728 –Train is on duty from Theodore into Mobile, works Sea-Pak (mp 675.7 NO&M Sub) , then goes back to Theodore.

Y321 – Switches at Brookley (mp 670.0) off the siding.

M724 - Switches at Brookley (mp 670.0) off the siding and Theodore (mp 680.0) off the mainline.

M733 – Switches at Pascagoula (mp 706.3) off the siding.

K970 – Works at Gautier (mp 710.65), Ocean Springs (mp 722.7), and Harbin (mp 746.0) off the siding.

M732 – Works at Bienville (mp 764.1) off the main.

M725 – Works off main between Orange Grove and Pascagoula. Works off main between Ocean Spring Beauvoir.

M723 Works at South Pascagoula off the main.

The need to efficiently manage peak traffic will become even more critical in the future: not only will rail passenger travel increase between Gentilly Yard and Mobile, but CSXT has also projected higher levels of freight traffic as a result of

the growth of traffic through the New Orleans Gateway. Current service levels appear in Table 2-4, on the following page.

(1) NS Freight Service

Oliver Yard, the primary NS freight yard in New Orleans is located to the south of NOT Jct. NS freight trains operate to Meridian, Birmingham, and other northern destinations. The NS freight trains cross the Corridor at NO&NE Tower, which is controlled by NS. Almost all trains terminate at Oliver Yard, although some traffic is for western destinations and is interchanged with other railroads.

(2) New Orleans Public Belt

New Orleans Public Belt (NOPB) operates between NOPB Interlocking and Gentilly Yard. NOPB trains also cross the corridor to access a yard north of the CSXT main line.

e) Summary description of existing service quality

Heretofore, CSXT has not run its freight operations on a scheduled basis (though this might be changing), so factors like average speed, unscheduled delay, and dwell time have not been a major concern.

The service quality for the *Sunset Limited*, on the other hand, has been less than impressive. In a typical week, the train heading for Orlando could be 9 to 11 hours late at Mobile. This poses an operational problem for CSXT. Since 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, the policy is that if this Amtrak train is on time, an open slot is kept. If it is late, then it may be routed through the yard tracks, which results in additional delays. Keeping an open slot for these trains, even if they are on time, poses a challenge for the dispatchers and the yard personnel.

Table 2-4
Existing Railroad Services on the New Orleans-Mobile Corridor

		Number of Daily Train Movements (Round-Trips)
Service	Route	New Orleans to Mobile
Amtrak		
Corridor-type services	New Orleans to Mobile	0
<i>Total Corridor-type services</i>		0
Long-distance services	Sunset Limited	0.43
	Crescent	2
	City of New Orleans	2
<i>Total, Long-distance service</i>		4.43
<i>Total Amtrak</i>		
Freight	CSXT	19
	NS	n/a
	NOPB	n/a
<i>Total, Freight Service</i>		19
<i>Grand Total New Orleans to Mobile Corridor (Amtrak and CSXT inclusive)</i>		23.43

Source: Parsons Transportation Group, 2005.

Chapter 3 - Service Goals

The service goals of this project are to introduce intercity passenger service to the corridor as soon as possible on a limited basis and to grow that service over the next twenty years, while maintaining the current excess capacity in the corridor to support increased freight traffic. All operators and sponsors—intercity passenger and freight—intend the services on the New Orleans-Mobile Corridor in the planning year, 2025, to be more reliable than those operating on the Corridor at present. The envisioned mix of services is presented in Table 3-1 and described below.

Table 3-1
Railroad Services Envisioned for 2025 in the New Orleans-Mobile Corridor

		Number of Daily Train Movements (RoundTrips)
Service	Route	New Orleans to Mobile
Amtrak		
Corridor-type services	New Orleans to Mobile	6
Total Corridor-type services		6
Long-distance services	Sunset Limited	0.43
	Crescent	2
	City of New Orleans	2
Total, Long-distance service		4.43
Total Amtrak		
Freight¹	CSXT	19
	NS	n/a
	NOPB	n/a
Total, Freight Service		19
Grand Total New Orleans to Mobile Corridor (Amtrak and CSXT inclusive)		29.43

Source: Burk-Kleinpeter, Inc., 2006.

Covering a typical 24-hour period, the numbers of daily trains envisioned in Table 3-1 do not adequately depict the congestion potential on the Corridor because intercity passenger trains are concentrated into an 18-hour – rather than a 24-hour – day, since operations between 11:00 PM and 5:00 AM are minimal. To assess that potential requires contemplation of the movements in each direction through the Corridor during the hours that HSR intercity

¹ Because of the variability and directional imbalance of freight traffic, the numbers shown here (expressed as daily round trips for comparability with the other services) are rough approximations.

passenger trains will operate. In view of the varying performance profiles and station stop requirements of the passenger and freight services, as well as the needs for diverging, combining, and conflicting moves at numerous locations, the need for such capacity additions as this report suggests is underscored.

1) Intercity passenger

A demand would exist for corridor-type high-speed intercity train service between New Orleans and Mobile if such service were to be provided. This is the message of a ridership study prepared for this plan by AECOM Consult, Inc., which projected significant demand for intercity rail travel on the New Orleans-Mobile Corridor by the year 2025 if high-speed rail service is implemented. To satisfy this latent demand, most of which would relieve overburdened highways of intercity travelers, the 2025 service would include six daily trains serving the following stops, as follows:

- New Orleans, LA
- Bay St. Louis, MS
- Gulfport, MS
- Biloxi, MS
- Pascagoula, MS
- Mobile-West, AL (a new station near I-65 west of Mobile), and
- Mobile, AL.

If a trip time of less than two and a half hours can be achieved between New Orleans and Mobile, high-speed rail would be competitive with the automobile in a corridor experiencing increasing congestion.

2) Commuter-type Services

There are no commuter rail services anticipated.

3) Long Distance Trains

The Sunset Limited, normally operating between Orlando, FL and Los Angeles, CA is the only passenger train that runs on this corridor. This train departs Orlando on Sunday, Tuesday, and Thursday, and from Los Angeles on Wednesday, Saturday, and Monday. Service east of New Orleans has been indefinitely suspended by Amtrak.

4) Freight

This study used existing levels of freight service, augmented by changes projected by CSX. The average daily train count between new Orleans and Mobile is 19 trains, made up of one passenger train, five intermodal trains, twelve manifest trains, and one bulk train. Thus, the majority of trains running in this corridor are intermodal and manifest.

Chapter 4 - Methodologies

Sources for this study included reports prepared for the Louisiana Department of Transportation and Development (DOTD), the Regional Planning Commission (RPC), the SRRTC, track diagrams, maps, equipment specifications, and other engineering and ownership documentation. Limited field investigations took place to verify existing conditions. Also, the study team consulted with appropriate RPC, local, CSX, NS, NOPB, and Amtrak officials to assess the status of their respective plans, and to assemble a consensus list of possible projects that would assist all operators to meet their service goals. Extensive inputs, review, and comments were solicited from these agencies and railroads, and numerous meetings were held, jointly and separately, to discuss the effort and resolve differences. The work process is described in subsequent subsections.

1) Work Performed by the SRRTC

In the 1990s two reports on the Gulf Coast Corridor were published:

- Deep South High Speed Rail Corridor Feasibility Study, and
- Gulf Coast High Speed Rail Corridor Feasibility Study, Phase II

The reports described key elements that determine the feasible approaches to creating a high-speed rail corridor on the Gulf Coast. The studies defined the rail corridor through the States of Louisiana, Mississippi, and Alabama, with connections to Pensacola, Florida and Houston, Texas. The Phase II report provided an action plan - the “incremental approach” - that would lead towards implementation of HSR passenger rail service in the Corridor.

2) Work Performed By the DOTD/RPC

In September 2002, a report entitled *New Orleans Rail Gateway Regional Rail Operational Analysis* was released. The report presented the results of a detailed evaluation of current rail operations within the New Orleans Gateway. The study supporting the report identified specific deficiencies/problems that resulted in congestion and inefficiency in the rail system. A plan of action to address the issues was recommended.

The implementable Rail Gateway Action Plan had the goal of improving the region’s competitive position in the transportation marketplace so that it will support existing and future economic activity and associated goods movement needs while minimizing community impacts and improving the overall intermodal transportation system operations in the region and nation.

3) Data collection and Organization

Development of this New Orleans-Mobile study included a limited review of the current (2005) condition of the rail Corridor and its ability to safely and efficiently handle the existing levels of rail services operated by Amtrak and CSX/NS. The review included, but was not limited to, track conditions and configurations, roadbed and under-grade bridge conditions, signal and traffic control systems, passenger stations, and maintenance facilities.

In the interest of efficiency, and to reduce the number of requests for data from concerned government agencies and organizations, the data collection processes for the state of the rail Corridor analysis, and this report, were combined whenever possible. Consultations were held with the appropriate staffs of Amtrak and CSXT who were involved with rail operations in the Corridor. The objective was to obtain data on existing and projected 2025 train operations and to obtain information on presently planned improvements to the Corridor.

CSXT and Amtrak supplied the latest track charts and track maintenance program information. The data served as an input to the subsequent analyses. Information developed for the Phase I Meridian to New Orleans study was evaluated and used as needed.

Available maps and documents were collected and reviewed, and on-site inspections were made. Current information on existing usage and any current plans for upgrading the Corridor were obtained and reviewed. The results of investigations of current conditions in the Corridor were reviewed with, and comments were obtained from, Amtrak and state and local transportation agencies so that their concerns and needs were known and resolved prior to the preparation of this report.

A summary level description of the condition of the existing New Orleans-Mobile Corridor rail plant was developed (see Chapter 2). The description was based on the results of reviews of documentation previously prepared, augmented, as needed, by the results of field inspections. Summary descriptions of current and 2025 service levels for commuter, intercity, and freight operations also were prepared and are presented in Chapters 2 and 3.

Data on track and station ownership, lease, operating and occupancy rights to the land, equipment and fixtures that was readily available was reviewed and summarized.

4) Initial Development of Improvements

Draft documentation detailing the program of improvements in the New Orleans-Mobile Corridor was prepared and submitted to participating railroads and agencies for review and comment. The documentation included recommendations for enhancements and modifications thought to be necessary for upgrading the New Orleans-Mobile facilities so they could handle the projected levels of intercity and freight service safely and efficiently in 2025.

A list of planned, proposed and desired Corridor improvement projects was compiled to establish a "control list" of projects as well as the elements to be included in the preliminary program of projects to be recommended. The list was developed by reviewing prior reports, documents, and improvement programs; consultation with the owners and operators of the railroads; Federal, state, and local government agencies; and field investigations to verify existing conditions. The projected operating schedules of all Corridor users over the next 20 years also were obtained and a determination was made as to whether the planned improvements were adequate to handle the projected traffic levels.

Specific projects that needed further analysis or conceptual development were identified, and additional information was gathered to enable recommendations to be developed. Projects that were reviewed included proposals to:

- Upgrade the track structure;
- Install new signaling and traffic control systems;
- Realign selected curves to increase operating speeds and reduce trip time;
- Reconfigure, eliminate, or install interlockings to improve operating flexibility;
- Install trackage to accommodate increased traffic levels; and
- Initiate station improvements.

Reports, plans, drawings, schematics, schedules, results of operational analyses, and budgets were reviewed to identify areas requiring follow-on investigations. Photographs and aerial photographs also were used in the analytical process.

As each planned, proposed, or potential project that might affect rail operations was identified, a project description was initiated. The information included, wherever possible: a description, location on the Corridor, and the rationale for the improvement.

After the proposed projects were identified, evaluated and documented, summary geographical presentations illustrating existing and proposed spatial interrelationships were developed.

The preparation of the preliminary list of projects to meet program goals was a limited iterative process. The process resulted in a list of projects that would:

- meet intercity rail service goals based on reduced running times and higher frequency of service;
- enable other services to coexist at their present levels without degradation; and
- Accommodate projected or future growth or changing conditions, such as increased commuter rail operations in the Corridor.

Scenarios to achieve the best integration of intercity and freight rail services were prepared, based on operational constraints identified from analyses of the projected 2025 intercity, commuter, and freight volumes.

As necessary, alternative projects, beyond those initially proposed, that would enable attainment of the stated goals were developed, analyzed, and included.

5) Analysis of Operations

This section summarizes the essential lines of the analysis, and then provides selected details.

a) Overview of the Analysis

The analysis compared the services as presently envisioned by the operators for 2025, with the fixed plant as configured today and as upgraded with various carefully-ordered combinations of improvements. The analysis focused on two questions:

- Can individual trains meet their trip-time goals, irrespective of other traffic? and
- Can all the services operate in combination at intended speeds and schedules over the Corridor, while still meeting their reliability imperatives?

To answer the first question, the study team used a computer model known as a train performance calculator (TPC) to model the operation of a single train, with defined performance characteristics, over a traffic-free railroad with profile, alignment, and maximum speeds as specified for each segment. The

TPC was applied to prototypical freight and intercity passenger trains, to assess their optimal performance over the Corridor under different sets of conditions. However, it must be remembered that the mere physical possibility of operating a given train over a given right-of-way at a given trip time offers no assurance that a combination of services can reliably operate on the Corridor.

To answer the second question, the study team applied detailed simulations - modeling sophisticated, random variations in operating conditions and performance - to the full spectrum of freight, intercity passenger, and commuter services on the New Orleans-Mobile Corridor. These simulations assessed the impacts of changes in both schedules and fixed plant capabilities on all services operating simultaneously over a hypothetical seven-day test period.

Taken together, the TPC runs and the detailed operating simulations permitted the analysts to compare intended schedules, optimal running times, and expected performance for all services. The effects of alternative schedules and fixed plant capabilities were evaluated through numerous model runs. By these means the study team developed a preliminary list of potential projects and priorities that would meet the trip time and reliability goals of the study. This report synthesizes the results of investigations to date and defines a plan that can serve as a basis for further design, environmental work, and partnership and financial development for the New Orleans-Mobile Corridor.

b) Simulation Techniques

Manual and computerized operational simulation techniques were used to analyze the reliability of the projected intercity, commuter, and freight services operating on the same trackage between New Orleans and Mobile. The sophisticated computerized simulations were performed using CANAC's Railway Analysis and Interactive Line Simulator (RAILS2000). Details of the simulations performed are contained as an Appendix in Volume II of this report.

The purpose of the line capacity study is to quantify the impact of increasing existing Amtrak trains speed and running of additional passenger trains between New Orleans, LA, (Union Passenger Terminal) and Mobile, AL. The study is to determine, test and evaluate alternative plant enhancements, to accommodate an increase in existing Amtrak trains speed and to allow running of additional passenger trains with minimal

adverse effect on CSXT freight train performance. Two levels of additional passenger trains are under consideration:

- Limited Service - 4 trains per day running at 79 mile per hour
- Full service – 12 trains per day running at 90 miles per hour

c) Cost Estimates

Conceptual, order-of-magnitude estimates for each project identified as necessary were developed in 2004 dollars. Appropriate levels of contingency, reflecting the level of project development, were included.

d) Project Categories

Each proposed improvement was assigned to one of two major categories defining the basic purpose of the work: Trip Time-Related Projects and Capacity-Related Projects. While this categorization is useful analytically, the categories can overlap: some trip time-related projects would help to improve capacity, and some capacity-related projects would help to reduce trip times.

e) Trip Time-Related Projects

Projects generally contributing directly to lower trip times or permitting higher operating speeds were included in this category:

- curve and spiral modifications,
- signal modifications for higher speeds, and
- Use of high performance trains.

f) Capacity-Related Projects

Projects providing additional railroad capacity to preserve attainment of the trip time, while accommodating higher train frequencies were included in this category:

- interlocking reconfigurations,
- installation of passing tracks, and
- Higher speed turnouts and crossovers.

6) Preliminary Project Phasing

A detailed project schedule for constructing these projects was not developed. Instead, a preliminary phasing analysis was performed to identify project priorities and the relative interface of projects based on an analysis of improvements required to support the start-up level of service. The second level of improvements included those required to support the full build-out level of service. These analyses established an agreed priority for projects and individual construction work items. This approach included a preliminary analysis of constraints associated with projects that would depend on track availability for construction. Ultimately, as preliminary engineering proceeds the phasing analysis would consider logistics and procurement of materials and equipment, availability of resources, environmental approvals, real estate acquisitions, track availability, and funding availability.

7) Assessment of Projects

The benefits associated with individual projects were not identified. Detailed environmental analysis was not performed; however, experience gained from prior projects was reviewed to ensure that recommended projects could reasonably be assumed to be implemented with a minimum of environmental disruption. Further, work to identify the potential changes in intercity ridership, revenues, and costs as the result of implementing the program of projects, and the proposed 2025 intercity rail service schedules, was not performed.

8) Key Assumption: Condition of the Underlying Railroad

As previously noted, the Corridor, as a principal east-west freight route, has been maintained to facilitate safe and expeditious freight movements. Therefore, this study assumes that the freight railroads, as owners of the fixed plant, will continue to maintain it in the state of good repair that characterizes the main line portions today. Therefore, the investment requirements contained in this report do not include replacement in kind of key existing track components (ties, rail, and the like)—in railroad parlance, “program maintenance.”

On the other hand, this report provides for a significant upgrade in capacity to assure safe, expeditious passenger and freight service.

Chapter 5 - Analytical Results

This study contained three distinct analyses; (1) Travel Time Analysis, (2) Ridership and Revenue Forecasts, and (3) Capacity Analysis. The results of these three analyses are summarized in this chapter. Volume II of this report contains detailed technical memoranda discussing the ridership and revenue forecast and the capacity analysis.

Travel Time Analyses

The Project Team performed a series of TPC (train performance calculator) analyses to determine unimpeded running times over the route's current configuration. Changes in the route's basic engineering—track connections, curve realignments to obtain goal speeds (particularly lengthened spirals to ensure passenger comfort at the increased levels of *maximum authorized speed* [MAS]), elimination of speed restrictions due to track condition or municipal speed restrictions—were evaluated using the TPC to determine the actual transit time improvements that would be achieved in the New Orleans to Mobile corridor. Improved train speeds will be essential if the railroad is to establish a competitive position in the intercity passenger market.

The TPC running times included two-minute stations stops at Biloxi and the Mobile Beltway Station, and one-minute station stops at Bay St. Louis, Gulfport, and Pascagoula. The initial TPC runs were made with a maximum passenger train speed of 110 mph. Additional runs were made to evaluate the running times for 90 mph and 79 mph train services. A schedule "pad" of 13 percent was used to provide for schedule reliability to produce the passenger schedules used in the *Ridership and Revenue Analyses*. The passenger train running times were slightly faster westward than eastward. The results are shown in Table 5-1, below.

Table 5-1
TPC Running Times, New Orleans to Mobile

Speed	East	West
79 mph MAS	2:25	2:25
90 mph MAS	2:17	2:16
110 mph MAS	2:03	2:02

Source: Parsons Transportation Group, 2006.

The running times for various types of CSXT freight trains also were evaluated using the TPC. The freight trains were run in both directions to determine probable running times.

Passenger train schedules for Gulf Coast High-Speed rail services other than the New Orleans to Mobile corridor have yet to be developed. The schedules for the Gulf Coast High-Speed Rail corridors would be integrated, utilizing New Orleans as a hub. Of course, the schedules would assume the continued operation of existing long-distance passenger trains, which would share the routes and station stops.

Ridership and Revenue Forecasts

Ridership and revenue forecasts were prepared for each of the alternatives. Table 5-2 on the following page summarizes the forecasts results for year 2025, with revenue expressed in 2003 dollars. These forecasts include riders and revenue on both the proposed corridor trains and the *Sunset Limited*, which is assumed to operate as it does today. In all of the above scenarios, the new train frequencies serve the following stops:

- New Orleans, LA
- Bay St. Louis, MS
- Gulfport, MS
- Biloxi, MS
- Pascagoula, MS
- Mobile-West, AL (a new station near I-65 west of Mobile)
- Mobile, AL

The forecast results show the impact of changes in frequency and speed as service is improved from 1 round trip at a 79 mph maximum speed to 12 round trips at a 110 mph maximum speed. In general, the results show that:

- Increases in maximum operating speeds result in
 - 12 to 17 percent increase in ridership/revenue from 79 to 90mph
 - 13 to 15 percent increase in ridership/revenue from 90 to 110mph
- Increases in frequency result in
 - more than twice as much ridership/revenue from 1 to 2 daily round trips
 - about twice as much ridership/revenue from 2 to 4 daily round trips

Southern Rapid Rail Transit Commission
Gulf coast High-Speed Rail Corridor
New Orleans to Mobile Corridor Transportation Plan

Table 5-2

Summary of 2025 Forecast Results

		Annual Ridership	Annual Revenue	Annual Pas-Miles	Annual Train-Miles	Revenue/ Passenger	Revenue/ Pas-Mile	Revenue/ Train-Mile	Pas-Mile/ Train-Mile
Base	Sunset Only	1,000	\$10,000	70,000	50,000	\$10.00	\$0.14	\$0.200	1.400
Alternative 1a	1 Train - 79 mph	46,000	\$650,000	4,700,000	150,000	\$14.13	\$0.14	\$4.333	31.333
Alternative 1b	1 Train - 90 mph	51,600	\$730,000	5,280,000	150,000	\$14.15	\$0.14	\$4.867	35.200
Alternative 2a	2 Trains - 79 mph	104,700	\$1,460,000	10,520,000	260,000	\$13.64	\$0.14	\$5.615	40.462
Alternative 2b	2 Trains - 90 mph	122,500	\$1,710,000	12,400,000	260,000	\$13.96	\$0.14	\$6.577	47.692
Alternative 3a	4 Trains - 79 mph	210,400	\$2,900,000	20,920,000	470,000	\$13.78	\$0.14	\$6.170	44.511
Alternative 3b	4 Trains - 90 mph	240,700	\$3,310,000	23,900,000	470,000	\$13.75	\$0.14	\$7.043	50.851
Alternative 3c	4 Trains - 110 mph	272,900	\$3,750,000	27,050,000	470,000	\$13.74	\$0.14	\$7.979	57.553
Alternative 4a	6 Trains - 79 mph	282,800	\$3,850,000	27,710,000	680,000	\$13.61	\$0.14	\$5.662	40.760
Alternative 4b	6 Trains - 90 mph	327,400	\$4,450,000	32,010,000	680,000	\$13.59	\$0.14	\$6.544	47.074
Alternative 4c	6 Trains - 110 mph	375,300	\$5,100,000	36,620,000	680,000	\$13.59	\$0.14	\$7.500	53.853
Alternative 5a	8 Trains - 79 mph	327,800	\$4,450,000	31,930,000	890,000	\$13.58	\$0.14	\$5.000	35.876
Alternative 5b	8 Trains - 90 mph	380,500	\$5,150,000	36,950,000	890,000	\$13.53	\$0.14	\$5.787	41.517
Alternative 5c	8 Trains - 110 mph	437,200	\$5,910,000	42,360,000	890,000	\$13.52	\$0.14	\$6.640	47.596
Alternative 6a	12 Trains - 79 mph	399,800	\$5,380,000	38,540,000	1,320,000	\$13.46	\$0.14	\$4.076	29.197
Alternative 6b	12 Trains - 90 mph	464,500	\$6,240,000	44,660,000	1,320,000	\$13.43	\$0.14	\$4.727	33.833
Alternative 6c	12 Trains - 110 mph	533,500	\$7,160,000	51,200,000	1,320,000	\$13.42	\$0.14	\$5.424	38.788

Source: AECOM Consult, Inc., 2006.

Note: All revenue is expressed in 2003 dollars

- about 33 to 37 percent more ridership/revenue from 4 to 6 daily round trips
- about 15 to 16 percent more ridership/revenue from 6 to 8 daily round trips
- about 21 to 22 percent more ridership/revenue from 8 to 12 daily round trips

Note that the results show a diminishing impact of frequency increases, particularly at the higher 8- and 12- train level. This diminishing impact is caused largely by the expansion of service into less productive late evening time slots. The performance of the 8- and 12- train scenarios may be increased by re-positioning these trains into other time slots.

Ridership and revenue forecasts were also prepared for years 2005, 2010, 2015, and 2020. Table 5-3 on the following page summarizes these forecasts results along with the year 2025 results. Once again, all revenue forecasts are expressed in 2003 dollars. As these results show, the ridership and revenue forecasts increase over time, although at a diminishing rate. The average annual growth rate between 2005 and 2010 is about 1.1 percent and the average annual growth rate between 2020 and 2025 is about 0.9 percent. These trends track similar diminishing growth rates in the population and employment forecasts over these years.

Capacity Analyses

This section discusses results of the model simulations as outlined in the Terms of Reference for the “Capacity Study of CSX Corridor Between New Orleans and Brewton” and summarizes the capacity improvements needed for the introduction of a Limited Intercity Service (four trains per day) and Full Intercity Service (twelve trains per day) between New Orleans, LA and Mobile, AL.

The purpose of the line capacity study was to quantify the impact of increasing existing Amtrak trains speed and running of additional passenger trains between New Orleans, LA, (Union Passenger Terminal) and Mobile, AL. The study was to determine, test and evaluate alternative plant enhancements, to accommodate an increase in existing Amtrak train speeds and to allow running of additional passenger trains with minimal adverse effect on CSXT freight train performance. Two levels of additional passenger trains are under consideration:

- Limited Service - 4 trains per day running at 79 mile per hour
- Full service – 12 trains per day running at 90 miles per hour

Calibrating the Model: the Base Case

Running commuter and passenger trains in a predominantly freight corridor presents a number of challenges under the best of circumstances. A mix of trains that run at different speeds consumes more capacity than the same number of trains running at similar speeds. Moreover, passenger trains are expected to operate with reasonable on-time performance,

Southern Rapid Rail Transit Commission
Gulf coast High-Speed Rail Corridor
New Orleans to Mobile Corridor Transportation Plan

Table 5-3

Summary of Forecast Results by Year

		Annual Ridership					Annual Revenue (millions)				
		2005	2010	2015	2020	2025	2005	2010	2015	2020	2025
Alternative 1a	1 Train - 79 mph	37,700	39,800	41,900	44,000	46,000	\$0.55	\$0.57	\$0.59	\$0.62	\$0.65
Alternative 1b	1 Train - 90 mph	42,300	44,600	47,000	49,400	51,600	\$0.60	\$0.64	\$0.67	\$0.70	\$0.73
Alternative 2a	2 Trains - 79 mph	85,400	90,200	95,100	100,100	104,700	\$1.19	\$1.26	\$1.33	\$1.40	\$1.46
Alternative 2b	2 Trains - 90 mph	99,900	105,500	111,300	117,100	122,500	\$1.41	\$1.49	\$1.56	\$1.63	\$1.71
Alternative 3a	4 Trains - 79 mph	171,100	180,900	190,900	201,000	210,400	\$2.37	\$2.51	\$2.64	\$2.77	\$2.90
Alternative 3b	4 Trains - 90 mph	195,600	206,900	218,400	230,000	240,700	\$2.71	\$2.87	\$3.02	\$3.17	\$3.31
Alternative 3c	4 Trains - 110 mph	221,800	234,600	247,600	260,700	272,900	\$3.09	\$3.25	\$3.42	\$3.59	\$3.75
Alternative 4a	6 Trains - 79 mph	229,400	242,800	256,400	270,100	282,800	\$3.16	\$3.33	\$3.51	\$3.69	\$3.85
Alternative 4b	6 Trains - 90 mph	265,500	281,000	296,800	312,700	327,400	\$3.66	\$3.85	\$4.05	\$4.26	\$4.45
Alternative 4c	6 Trains - 110 mph	304,400	322,300	340,300	358,400	375,300	\$4.17	\$4.40	\$4.64	\$4.88	\$5.10
Alternative 5a	8 Trains - 79 mph	265,700	281,400	297,200	313,100	327,800	\$3.64	\$3.85	\$4.05	\$4.25	\$4.45
Alternative 5b	8 Trains - 90 mph	308,400	326,600	345,000	363,400	380,500	\$4.21	\$4.45	\$4.69	\$4.93	\$5.15
Alternative 5c	8 Trains - 110 mph	354,200	375,100	396,300	417,600	437,200	\$4.83	\$5.10	\$5.38	\$5.66	\$5.91
Alternative 6a	12 Trains - 79 mph	323,600	342,900	362,300	381,700	399,800	\$4.41	\$4.65	\$4.90	\$5.15	\$5.38
Alternative 6b	12 Trains - 90 mph	376,100	398,400	420,900	443,500	464,500	\$5.10	\$5.39	\$5.68	\$5.97	\$6.24
Alternative 6c	12 Trains - 110 mph	431,900	457,600	483,500	509,400	533,500	\$5.86	\$6.19	\$6.52	\$6.85	\$7.16

Source: AECOM Consult, Inc., 2006.

which puts additional demand on the host railroad, which is primarily in the business of running freight trains.

The CSXT corridor from New Orleans to Mobile presents considerably more challenges to running additional passenger trains than might be expected elsewhere. This corridor, in its present configuration, is difficult to operate even with the present levels of traffic and solutions to the existing bottlenecks and limitations are difficult and potentially expensive.

One impediment to running reliable passenger service is the existence of seven drawbridges between Mobile and New Orleans UPT. Water traffic (boats) has an absolute priority over trains, and the bridge openings appear to be a random process, with the exception that boats seem to operate mostly in daytime.

While drawbridge openings constitute an irritant to the operation of the freight trains, they hamper on-time performance of the passenger trains. As the bridge opening process is random, a passenger train may run sometimes without a single hit, while other times get delayed at more than one drawbridge, making its transit time unpredictable. Possible solutions to this problem include:

- Imposing a curfew on boats for the duration of time sensitive service
- Provide for buffer in the schedules of the passenger trains (but this negates the benefit of having high-speed passenger service).
- Live with irregularities of the service (might not be practical for passenger trains)

In the current operation, Gentilly and Sibert yards are bottlenecks. These yards have long outgrown their original purpose and currently operate substantially over capacity. These yards are in the center of the urban areas and cannot be substantially modified due to the lack of available space. Due to yard physical and operating constraints, the yard operations spill over on to the main line, and use up mainline infrastructure that is meant to facilitate passage of trains, meets and overtakes for trains running on the mainline. Solving the Gentilly and Sibert yard problems are prerequisite to the introduction of additional passenger trains.

The study addressed the yard operations at a macro level. Nevertheless, we were successful in determining that the scope of the yard problems goes beyond any initiative that might contemplate modifications to both yards at the present locations. Possible solutions include relocation of both yards, or, at least, building staging facilities on approaches to the yards. The area on approach to the Gentilly yard is located in wetlands and it may be difficult to find an appropriate location for a staging facility. The area on approach to the Sibert yard contains numerous road crossings that would constitute an impediment to building a staging facility in direct proximity to the yard.

Results of the Simulations for the Initial Limited Service

This study subsequently focused on the plant improvements that would have to be made to the mainline in order to accommodate the additional passenger trains. Possible modifications were carefully chosen with the consideration of natural impediments, such as wetlands and road crossings.

This study concludes that in order to run four additional passenger trains at 79 mph, the mainline modifications would need to include:

- Re-spacing of the existing sidings to provide for more uniform siding-to-siding running time. This would include relocating two existing sidings and building one new siding. However, it may be more practical to leave the two sidings, which need to be relocated, in place and build three new sidings, keeping in view that they would probably be needed in the future for the full service. Additionally, the remaining sidings would be extended for approximately 8.9 miles in total. All sidings would be upgraded from controlled to signaled, allowing increasing the speed through the sidings to 30 mph.
- Constructing an 11.3-mile section of double track between Beauvoir and Harbin sidings and both sidings to be reconfigured to form pocket tracks at the end of the double track section.
- The double track at Sibert would be extended from milepost 667.0 to 671.8. This would be achieved by extending the Brookley siding north by 1.3 miles (already included in the previous bullet item) and by upgrading one Choctaw yard track to the mainline standard.
- The main track at Gentilly yard would be separated from the yard operations and upgraded to allow the speed of 60 mph.

Results of the Simulations for the Full Service

Simulations of the Full Service scenario (12 intercity trains a day) showed that the previously described problem with drawbridges only gets exacerbated as traffic levels increase even after sufficient plant has been added in order to keep the operation of the host railroad whole. On-time performance for the intercity trains dropped from 93% in the Limited Service scenario to 61% in the Full Service scenario.

This very low and unacceptable level of on-time passenger train performance is as a result of three main factors. The move to increase passenger train speed to 90 mph and increase in

speed differential between the passenger and freight trains requires more overtakes. Second, the inflexibility in the physical plant to allow overtakes to occur as and when they are needed. And, lastly, the observations of traffic patterns in the simulations lead to a conclusion that drawbridges are responsible for not only primary, but also for secondary delays to the Intercity trains, with secondary delays becoming more pronounced with increased traffic levels. A primary delay occurs when a drawbridge opens in the face of an incoming intercity train and forces it to stop. An example of a secondary delay is a case where a freight train gets stopped by a drawbridge and sends a ripple wave of delays that affects trains behind him, including high priority intercity trains.

Possible solutions to the drawbridge problem include:

- Imposing a curfew on boats for the duration of time sensitive service
- Provide for buffer in the schedules of the passenger trains but this negates the benefit of having high-speed passenger service.
- Live with irregularities of the service (might not be practical for passenger trains)

This study subsequently focused on the plant improvements that would have to be made to the mainline in order to accommodate the additional passenger trains. Possible modifications were carefully chosen with the consideration of natural impediments, such as wetland and road crossings. The extent of the necessary plant improvement was such, that all remaining land outside the wetland was used. Thus, the plant simulated in this scenario might be referred to as a “Dry Land Plant”. The significance of this is that additional plant improvements (for example modifications in order to improve on-time performance) would have to be done on the wetland, making them very costly.

Due to the significant difference in speeds between passenger and freight trains, the driving force behind the designs principles was to provide a maximum overtake capacity. To this end, a number of “super sidings” were provided. For the purpose of this study, a Super Siding is a short section of double track with a crossover in the middle. Such Super Siding is capable of handling a multiple complex traffic situations such as simultaneous meet between two freights and a passenger overtake, two on two meets between 4 freight trains, or limited running meets between two opposing trains. A different concept, whereby a continuous double track between Sibert and Gentilly is constructed was also evaluated (although not simulated). This solution would be very costly, as parts of the double track sections would have to be built on the wetlands. Moreover, with the traffic density in question, it might be expected that bi-directional running patterns would be enforced that would sandwich passenger trains between freights, without any possibility of overtakes, thus making the on-time performance of the intercity trains unacceptable.

Chapter 6-Environmental/Historic Factors

All projects that use public funds must first examine potential environmental impacts as part of the public decision-making process. “The Federal Railroad Administration has found that railroad corridor programs or projects lend themselves to tiered environmental documentation. Since funding design and construction improvements to railroad corridors generally extends over decades, a tiered first level Environmental Impact Statement (EIS) of Programmed Environmental Impact Statement (PEIS) is usually the appropriate form of documentation. This allows for identification of the full scope of projected improvements or modifications and either full analysis of identified elements or deferral of site-specific clearance of elements to later documentation.”¹

“Typically, a long-range transportation plan is necessary to identify all project elements and for preparation of the initial environmental document. It is possible that the PEIS or first Tier EIS may categorically exclude work that does not impact environmentally or historically sensitive resources (for example: installing welded rail, replacing ties, installing a new signal system, or reinstalling track on an old roadbed) and may also identify other elements for separate environmental documentation (such as new stations, curve eliminations, new maintenance shops, and so forth). This type of documentation can incorporate by reference many elements of a corridor transportation plan and thus simplify the clearance process.”²

This study proceeded independently of the preparation of the PEIS for several reasons:

- In order to describe the infrastructure improvements necessary to provide high-speed intercity passenger rail service in one segment of the Gulf Coast HSR Corridor, the New Orleans and Mobile segment,
- Because of the length of the Gulf Coast HSR Corridor – 1,025 miles – it may take years to complete the transportation plan in the remaining segments, and
- Since the PEIS process will require matching funds from the states, completion of the transportation plan will provide the states with the information they need to make a decision to proceed forward with the PEIS, or not.

Completion of the transportation plan for the entire Gulf Coast HSR Corridor is prerequisite to development of the PEIS.

This corridor transportation plan is not intended to be an environmental or historic assessment of any of the proposed actions. It does provide a general awareness of sensitive environmental areas or historic properties that could possibly be affected by proposed

¹ Railroad Corridor Transportation Plans, a Guidance Manual. Office of Railroad development, Federal Railroad Administration, revised July 8, 2005.

² Ibid.

changes. According to the National Environmental Policy Act (NEPA), “effects” include:

- Direct effects, which are caused by the action and occur at the same time and place.
- Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as defined by NEPA are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Environmental and historic concerns in the New Orleans to Mobile Corridor generally fall into two categories:

- Dredge and fill projects in wetlands and waterways;
- Section 106 or 4F issues in urban areas;

Wetlands and Waterways

The central Gulf Coast can be characterized as a low-lying coastal plain containing numerous streams, bayous and rivers, interspersed with fresh and brackish marshes and intertributary swamps. Between Mobile and New Orleans, the CSXT traverses some forty-seven small creeks and streams, seven navigable waterways, two bays and a lake. Each of these water features is associated to some extent with wetlands of some type ranging from the forested wetlands of south Alabama to the prairie marshes of eastern New Orleans.

Potential Impacts

All proposed improvements, from straightening curves to lengthening or creating new sidings, have the potential to impact wetlands. Throughout this study, the study team has been careful to review USGS topographic maps and available aerial photography in order to avoid, to the greatest extent possible, impacting wetlands. This was done for two reasons, to keep project costs down and to minimize environmental impacts. The result is what the study team refers to as the “Dry Land Plan,” which attempts to keep all physical improvements on uplands or non-wetlands. Nonetheless, more detailed investigations into wetland impacts will have to be made during the Tier 1 and Tier 2 processes.

Section 106 and 4F issues

The subject corridor connects two of the oldest and most historic cities on the central Gulf Coast, New Orleans (1718) and Mobile (1702). Naturally, both of these cities, as well as the smaller towns in between, contain numerous cultural resources of a historic nature. Since the railroad, itself, dates back to the late 1860's, it can be anticipated that there will be a significant number of historic sites within eyesight and earshot of the railroad. This is not surprising, as the construction of the railroad was a spur to development all along the gulf coast.

Potential Impacts

Because of the closely-spaced streets within the coastal cities, resulting in numerous grade crossings, emphasis was placed by the study team in trying to identify sites for new or expanded sidings that would not create new grade crossings. This has tended to push the proposed improvements out of the towns and into the countryside, away from most of the historic sites.

Within the towns, implementation of the Full Service would result in a significant increase in the number of passenger trains (six round trips per day). The significance of the increased traffic will be addressed in the PEIS.

Chapter 7 - Corridor-wide Investments

This Section describes the improvements identified as part of the Mobile to New Orleans Gulf Coast High-Speed (GCHSR) Rail Corridor Study. It outlines an initial broad range of improvements considered necessary to support the introduction of high-speed rail service, while providing the same level of service and operational capacity for freight operations that presently exists in the corridor. Finally, the report describes the additional improvements deemed necessary to support the recommended full service plan. This chapter describes the contemplated system-wide improvements, while site-specific improvements are described in detail in Chapter 8.

CSXT Fundamental Requirements to Be Fulfilled Before New Passenger Service Begins

The stated position of the railroad is that prior to initiation of new passenger service on their tracks, the proposed operation must:

- Improve safety of all rail operations in the area;
- Be transparent to freight operations, i.e., sufficient infrastructure must be provided to enable freight trains and passenger trains to operate without delay to either, and to allow for the growth of both; and
- Furnish sufficient indemnity for liability.

In addition, CSXT states that they will retain control of dispatching of trains on all tracks over which their freight trains will operate after inauguration of the high-speed passenger service.

Identification of Corridor-wide Improvements

The networks of improvements necessary to provide adequate track structure and sufficient capacity reliably to operate freight and high-speed passenger service between Mobile and New Orleans have been defined. Ultimately, the types of improvements that would be included are projects to:

- Upgrade the track structure
- Upgrade signal systems
- Realign selected curves to permit higher operating speeds and reduce trip time
- Reconfigure, relocate, eliminate, or install interlockings to improve operating flexibility
- Install additional trackage to reliably accommodate increased freight and passenger traffic levels
- Upgrade movable bridges
- Improve safety at the highway-rail grade crossings

- Install right-of-way fencing
- Improve stations

As previously described, a series of alternative alignments and operational scenarios were evaluated to achieve the maximum integration of intercity and freight rail services. A series of train operations simulations, which included anticipated future freight and passenger volumes, to quantify the impact of increasing existing Amtrak trains speed and running of additional passenger trains between New Orleans and Mobile were performed. The list of improvements is intended to be an additive list of improvements that will:

- Enable the specified running times for the Mobile - New Orleans intercity passenger service to be achieved
- Provide capacity required to accommodate future long-term growth in freight service volumes
- Provide safety-related improvements

The list of improvements reflects the results of the operations and facility planning analysis, and operations simulations. Chapter 8 will include:

- A description of the project
- Location on the route
- Project cost
- The rationale for the improvement

The improvements identified, thus far, to implement the Mobile - New Orleans High-Speed Rail Service assume that:

- Improvements to minimize train delays through Mobile resulting from operations at Sibert Yard are implemented; and
- Improvements to minimize train delays resulting from operations at Gentilly Yard, in New Orleans, are implemented.

The following additional improvements would be required to upgrade the existing railroad infrastructures to support high-speed rail service between Mobile and New Orleans. The initial improvements Mobile to New Orleans to support the initial limited level of passenger service are described by category below, followed by the final Mobile to New Orleans improvements to support the recommended full intercity service is described.

1) Track geometry (curves, spirals, superelevation)

The recommended alignment improvements would allow higher train speeds to be sustained over longer distances.

Background

The rail lines comprising the corridor were built between the mid-19th century and early 20th century. Although a few line relocations have been constructed, the corridor still has a significant number of curves. At many locations, adjacent communities have developed in a manner that precludes reducing the track curvature through relocation and other modifications. In addition, environmental concerns may make other potential track alignment improvements challenging.

Despite these challenges, and regardless of the equipment type used, the Train Performance Calculator (TPC) trip time simulations revealed that increasing speeds above the present speeds on the corridor would necessitate a number of different types of modifications to curves, their approaches, and their operating characteristics. These modifications can be applied individually or in combination:

- Increase superelevation to the maximum allowable for a particular track alignment;
- Increase the amount of unbalanced superelevation used to calculate speeds through curves to minimize track shifts; and
- Modify spirals (the length of track that provides a smooth transition from tangent track to curved track) to provide a smoother ride.

The following modifications were not recommended for implementation on the corridors:

- Reducing the degree of curvature either within the existing right-of-way or by acquiring a limited amount of land outside the right-of-way, to ease speed restrictions that adversely affect trip time; and
- Relocating limited sections of the rail line in a cost-effective and environmentally sensitive manner to eliminate sharp curves. Sometimes, multiple curves can be ameliorated or eliminated in a single relocation project.

The work required to modify the curves can be categorized into three levels of shift:

- Less than six inches: These shifts can normally occur during planned surfacing and line maintenance activities.

- Between six and 36 inches: Shifts greater than six inches are assumed to require specific scheduled work outside of the normal maintenance requirements. Shifts less than 36 inches can usually be accommodated within the existing rail alignment; and
- Between 36 inches and ten feet. Shifts in this category could fall somewhat outside the existing rail alignment, which could require construction of significant new roadbed.

A fourth level of shift would not be required:

- Over ten feet: Shifts in this category could have required the curves to be relocated in excess of 10 feet to obtain the desired spiral or superelevation modifications.

Criteria for Realignments

To maximize performance while fully adhering to safety requirements and the dictates of passenger comfort, all the altered curves would have geometric characteristics meeting the following criteria:

- Maximum actual superelevation should not exceed five inches.
- Actual superelevation was chosen in increments commensurate with the speed assumed to be authorized for each curve, and with the runoff rates specified by CSXT.
- Maximum unbalanced superelevation should not exceed seven inches, which assumes use of tilting equipment. The study found that the use of tilting equipment at higher levels of unbalanced superelevation would be essential to optimizing the trip time goals.¹
- Maximum lateral acceleration parallel to the floorboards should not exceed 0.15 g.
- For conventional coach equipment at a theoretical six inches of unbalanced superelevation, the roll angle should be 2.87 degrees.
- All actual superelevation should be introduced and removed over the entire length of the spiral—not within the curve itself or on the tangents adjacent to the spirals.
- Maximum jerk rate through the spiral should be 0.04 g per sec.
- Track twist rates for alignments at proposed speeds are as specified by CSX and NS in their internal engineering standards.

¹ Of course, actual use of the tilting equipment at the higher unbalanced levels of superelevation would be subject to review and approval by FRA's Office of Safety.

- 2) Track structure (ordinary track components and special trackwork)
- 3) Bridges, culverts, and other structures

Seven movable bridges - Pascagoula River (Figure 7-1), Biloxi Bay, Bay St. Louis, Pearl River, Rigolets, Chef Menteur, and the New Orleans Industrial Canal – are located between Mobile and New Orleans. The MAS for passenger trains is 30 mph (25 for freight trains) over the first six bridges, the MAS over the Industrial Canal varies by track – 40 mph for track 1 and 20 mph for track 2. The movable bridges consist of approach spans and a movable section, that either pivots on its center, or lifts from one end. The speed limit over the movable segments is the restricted speeds listed above. The time lost varies according to the speed limits at each end of the bridges, but, for example, at Bay St Louis the time lost is approximately 30 seconds. Furthermore, frequently problems associated with the bridge structure and the signal system result in the failure of the signal system to return to a go signal (green) from a stop signal after the bridge has been closed. The result can be a significant level of delay to trains in both directions. The amount of delay can be exacerbated by the isolated nature of the bridges, which delays access by maintainers that may be required to assist in solving the problem.

Figure 7-1
Pascagoula Bridge MP 706.8



Source: Parsons Transportation Group, 2005.

Thus, the movable bridges result not only in lost travel time but in a level of uncertainty, which is not conducive to reliability of either intercity passenger or freight train operations.

Recent CSXT Experience with Maintenance and Operating Problems

Over the last several years CSXT has invested heavily in the movable bridges on the line to improve the reliability of the service. This has included the standardization of miter rails; the installation of a solid 'packed' bridge tie design under the miters to improve the structural soundness of the supports, numerous other structural upgrades, and upgrades to the signal system. The increased traffic volume on the line - from 35 mgt in the 90s to almost 55 mgt today – was the primary reason for the investments.

In the late 1990s, CSXT experimented with raising the speed over the bridges to 45 mph, but found that signal system reliability degraded, and returned the speed to 25 mph for freight trains. CSXT found that this reduced speed, in combination with the bridges' structural and signal systems upgrades, provided a reasonably reliable train performance.

The operating problems that CSXT has had with the bridges has to do with the movement of the rails and ties under the trains, which at times results in the 'proximity' switches in the signal system measuring an unacceptable amount of horizontal or lateral movement of the rails, which causes the signal system to 'drop' behind the train, i.e., the signals to turn to red. This results in the following trains or the next train in the opposite direction being stopped at the approach to the bridge. The problem is alleviated by a combination of activities that require support from train control and signal maintenance personnel not located on site. The bridge has to be reset (raised and lowered to restore proper rail alignment as measured by the signal system (almost same as rebooted) to clear the signals.

The correction process is made more difficult by the lack of accessibility of the bridges. This makes it difficult at times, particular in inclement weather, for the signal maintainer to reach the bridge.

The Movable Bridges

The rail line and its structures were built by the Louisville and Nashville (L&N) railroad. The movable bridge design is different from the design used by other railroads. The stringers are on 9-foot centers, rather than the more common 6-foot 6-inch centers.

The stringers are the longitudinal structural members that directly support the ties and track from underneath. The stringers, in the typical floor system, are supported by transverse floor beams that carry the train load to the main trusses. Wide stringer spacing means that the ties must span a greater distance than typical and either must be very thick or are more flexible than with many bridges that use narrower stringer spacing. This greater flexibility may be a contributing factor with the excessive deflection problem. One solution sometimes used is to add additional stringers inside of the two at 9-foot spacing at the end panels under the miter rail joints (joints shown in Figure 7-2). This could give 4 stringers at 3-foot spacing, for example, to bracket each side of the miter rails. This would give a much more rigid support of the miter rails, particularly if accompanied by the addition of steel ties.

Thus although the bridges are considered basically structurally sound, additional enhancements would be required to reliably support increased levels of freight and passenger train speeds.

Reportedly, an additional problem with the structures is that some truss ends are not founded on rigid concrete piers, but on much more flexible timber or exposed steel pile piers. This is presumably due to the soft deep soil conditions in the area at and east of New Orleans. This design may cause a lot of movement of bridge ends, let alone the miter rail joints.

Figure 7-2
Rigolets Bridge MP 775.4 (miter rails and bridge truss looking southward)



Source: Parsons Transportation Group, 2005.

Recommended Improvements

The study team did not make site-specific, detailed evaluations of bridge conditions and potential enhancements. This would have required access to detailed plans of the substructure and superstructure to evaluate further and to come up with practical recommendations for reinforcement. These further evaluations were outside the scope of the study; therefore, instead, the team established budgets that would be subject to further refinement. The budgets anticipate structural enhancements to reduce the level of deflections and the installation of an improved miter rail design, which is described in the following paragraph.

Miter Rail Improvements

Miter rails are joints that allow bridges to open for water traffic while supporting trains when the bridge is closed. The joints are located on the ends of the bridge spans. Recently, an improved miter rail design has been developed and tested at the Pueblo Test Center. The miter rails are based on a design developed by Amtrak; Amtrak's goal was to develop a miter rail that would enable them to reliably upgrade speeds over Portal Bridge, on the approach to Penn Station in New York, and other locations. The tests at the Pueblo facility have been encouraging, however, the proximity switches continue to be a problem. Additional switch designs will be tested.

- 4) Highway-railroad crossings (general treatments; specific major projects go in Chapter 8)

North Carolina's Sealed Corridor Project, an effort to systematically improve safety at the highway-rail grade crossings on the North Carolina Railroad, has established the principle that improved rail passenger service can and should be accompanied by reduced risk of motor vehicle/train collisions. Accordingly, this study has developed a preliminary program to deal with the approximately 183 public and private crossings on the active and abandoned rail lines.

Crossing Safety Improvements

The improvement program can address safety issues at highway-rail grade crossings by either:

- Eliminating crossings through closure;
- Separating crossings through construction of a bridge or underpass; or
- Improving the level of protection through the installation of more extensive and more highly visible protection devices.

Creative solutions, including four-quadrant gates, longer gate arms, inexpensive median barriers, and video enforcement, have been implemented by numerous states to treat the different types of crossings across a specific route. Video surveillance at specific unimproved and improved crossings has demonstrated that advanced highway-rail crossing protection systems, such as four quadrant gates and median barriers, reduce driver "run-around" violations by as much as 98 percent and thus significantly reduce the risk of train/auto collisions.

Potential Grade Crossing Improvements

Basic information on highway-railroad grade crossings in the Mobile–New Orleans Corridors was presented in a previous section. With respect to future grade crossing safety activities, this section presents some engineering considerations and describes a set of actions that would complement the other corridor betterments contemplated in the report.

Implementation of high-speed rail on the Mobile–New Orleans Corridor would result in higher train speeds and frequencies over existing rail lines. Therefore, highway-rail crossing safety would require concerted attention as the planning and design process continues. In particular, each crossing would require study, both individually and in combination with neighboring crossings, to assess the degree of risk that it poses, the opportunities for mitigating that risk, and the cost-effectiveness of the various treatment options. "Risk" depends on a host of factors, including the geometry of the crossing, the type, speed, and volume of motor vehicle and rail traffic, and the protective devices in place or available. Community needs, such as access to nearby properties, obviously demand careful attention.

Any comprehensive grade crossing plan needs to address the full range of improvement options. These include consolidating groups of crossings; grade-separating heavily used crossings; closing selected crossings; and applying known techniques for reducing hazards at the remaining crossings. In addition, proper treatments must be applied to private crossings, where fatalities can and do occur despite the infrequency of use by motor vehicles.

Specific Considerations²

Many engineering and operational considerations would affect the details of a comprehensive grade crossing plan. The considerations are discussed in the following sections.

² The information in the following sections is based on material initially developed for the 2004 *Transportation Planning for the Mobile-New Orleans Corridor* Report published by the FRA.

Train Speeds

All other things being equal, as a minimum, gates and flashers would be provided at those remaining crossings through which passenger trains would operate. Improved protection and elimination of selected crossings would be considered for crossings through which passenger trains would operate at speeds in excess of 79 mph.

Constant Warning Times

Higher train speeds would require the timing in the track circuits (which actuate grade crossing gates and flashing lights) to be lengthened to initiate warnings sufficiently in advance of the arrival of the faster trains. Faster trains take less time to traverse the length of the circuit, and reach the crossing sooner than slower trains. At crossings with fixed circuits, warning time must be set for the fastest possible train. This creates a potential problem: when a slow train approaches the crossing, the gates are held down for an inordinate amount of time. Some motorists lose patience with the situation, and drive around the gate at the risk of a collision. Constant Warning Time circuits can offset this problem by automatically adjusting the length of the warning to a time appropriate to the speed of each individual oncoming train. The system has the ability to determine the speed of an approaching train, and initiate the crossing warning cycle so that a predetermined period of warning will have transpired when the train reaches the crossing, regardless of the train speed.

Four-Quadrant Gates; Median Barriers

Another innovation with application to many crossings is a system of four-quadrant gates, wherein four gates, instead of two, are lowered across the traffic lanes, blocking both directions on both sides, and median barriers are placed down the center of the roadway.

North Carolina's Sealed Corridor Initiative has shown that four-quadrant gates and median barriers effectively prevent motor vehicle operators from driving around the gates after they are lowered.

Effect on Train Speed of Crossings Located on Curves

Raising the MAS on a curve containing a grade crossing creates serious concerns. In numerous instances, an increase in superelevation would be necessary to attain the projected increase in train speed planned over the crossings and to reduce the lateral acceleration forces felt by rail passengers.

With superelevation, the outside rail on each track on the curve is raised as much as five inches above the level of the inside rail. With a multiple-track crossing, which

many crossings are and would be after the improvements, a series of inclines would need to be crossed, one between the rails of each track, and a dip from the slope of one track to the next. There is also likely to be a slope upward to the tracks on each side, the one on the outside of the curve being significantly greater than the one on the inside of the curve. This is not practical on a heavily traveled street or highway, and may require that these crossings be closed, or grade-separated. Analysis will be required to develop a recommendation for each crossing.

Sidings and Crossings

Sidings to be constructed new or extended should be placed to minimize the number of grade crossings that would be blocked by freight or passenger trains stopped waiting to meet or be overtaken by another train. Conversely, planning for crossing improvements needs to take the location of sidings into consideration. This is more than a matter of convenience to motor vehicle flow, community needs for access by emergency motor vehicles demand careful attention in the locating, treatment, or elimination of highway-rail grade crossings.

Contemplated Grade Crossing Program

Based on all the considerations described above, the study team developed a potential list of grade crossing actions that would support the trip-time goals and safety prerequisites of high-speed rail development in the Corridor. These grade crossing actions are summarized in Table _ for 79 mph and 90 mph. In this table, the possible enhancements could have included:

- Elimination, which can be effected by:
 - Closing the crossing to vehicular traffic
 - Providing a grade separation
 - Relocating the railroad
- Upgrading of protection devices, for example from crossbucks to gates and flashing lights, or from gates that cover only half the road in each direction, to four-quadrant gates that cover the entire road, thereby blocking drivers from “running around” the crossing
- Keeping the crossing as-is, where the level of protection is already appropriate for the contemplated train speeds and road traffic levels
- Expanding or moving a crossing to comply with the engineering improvements described in other sections of this document. For example, new sidings or changes to curves; or adding well-protected crossings where they do not exist today

Fencing

Installation of right-of-way fencing at selected security-related locations, parklands, schools, service facilities, stations, and other locations would be evaluated as part of the final design, project implementation phase. For this document, it was assumed that fencing of both sides of the right-of-way to improve the safety and minimize the potential for trespassing was not required for the 90 mph full service initiative.

5) Electrification (if applicable)

Electrification of the corridor is not anticipated.

6) Signals and train control

Signal system upgrades should be implemented incrementally to handle increased train traffic efficiently on the route and to permit improved intercity passenger service with greater safety, as passenger train service and maximum authorized speeds are increased. These improvements also would enable freight service safely and efficiently to operate on the same tracks.

FRA regulations require that, where any train operates at a speed of 80 or more miles per hour, there must be in place an automatic cab signal, automatic train stop or continuous automatic train control system. The current ABS system on the CSXT Main Line has none of these additional systems, and therefore it is limited to a top speed of only 79 miles per hour. The installation of an automatic cab signal, an automatic train stop, or automatic train control system would be necessary in order to allow the higher speeds contemplated for the Mobile to New Orleans high-speed service.

The signal system would be upgraded to support the higher speeds. A cab signal system (necessary to operate passenger trains at speeds greater than 79 mph), a new block layout³, and new signal aspects, would be installed incrementally, to accommodate speeds up to 90 miles per hour. Block spacing would anticipate increased train speeds. Reverse signaling would be installed on double track segments throughout the route.

Ultimately, a new signal system would improve the reliability of train operations for all services, contribute to reducing maintenance-related operating costs, and would be a component critical to enabling higher speed train operations.

³ The block layout would define the spacing between signals that represents the best compromise maximizing capacity (more signals, closer together, creating shorter blocks) and economy (fewer signals, further apart, creating longer blocks).

7) Support facilities

Sufficient yard storage capacity should be provided to handle layovers, and to store equipment-awaiting maintenance in Mobile. Yard lighting, water and power hookups, a fueling facility, crew quarter facilities, employee locker room, and supervisory office space would be included. Commissary facilities to service train sets presently exist in New Orleans.

As of this time, a location to service trains that would be stored in Mobile between runs has not been identified. An efficient storage yard and maintenance facility near the station would be necessary to properly clean and inspect trains. Initially Choctaw Yard was considered, however, further evaluation of train operations through the area, and potential locations, would be required to finalize the location. Minimizing conflicts between passenger train yard moves and freight train moves between Sibert Yard and Brookley would be a primary concern

8) Stations and parking

Significant enhancements to the existing stations located between Mobile and New Orleans were not developed. The existing station buildings, platforms, and parking areas were considered adequate for the initial service level, and improvements for the full service would depend upon the ultimate ridership and demand for parking at each station – Pascagoula, Biloxi, Gulfport, and Bay St. Louis. Budgets for potential enhancements were established. Refer to Figure 7-3.

Mobile Station

An additional platform, to provide operational flexibility in this congested segment of the railroad, most likely will be required to support the full service operation. Parking in the vicinity of the station appears to be adequate.

Mobile Beltway Station

In many major rail transportation markets, Amtrak serves “beltway” or “suburban” stations, with good access to and from the highway system, as well as downtown stations. The benefit to both modes successfully has been demonstrated at the New Carrollton, MD station, located north of Washington, DC, and Metropark in northern New Jersey, both located on the Northeast Corridor. A beltway station should be in a location that has both space for parking and other facilities, and good highway access, to attract riders from the widest possible area, particularly those who would rather not “backtrack” to access a center-city station to travel to a destination in the opposite direction of the station from their residence.

Figure 7-3
Corridor Passenger Stations

	
Mobile	Pascagoula
	
Biloxi	Gulfport
	
Bay St Louis	Approach to New Orleans Station Tracks

Source: Parsons Transportation Group, 2005.

The team's analysis indicated that an ideal Mobile location would be at the location where the Dauphin Island Parkway passed over the railroad at MP 671.6 between North and South Brookley. The station would be located northeast of the intersection of I-10 and I-65. The location has the further advantage of being located adjacent to the Mobile Regional Airport (Figure 7-4). The map shows the intersection of I-10 and the Dauphin Island Parkway. The red dot indicates a possible location for the beltway station.

Figure 7-4
Proposed Mobile Beltway Station MP 671.6



Map courtesy of Google

New Orleans Union Passenger Terminal

The proposed GCHSR intercity passenger operations will require a significant modification to the rail approaches to the station but further enhancements to the station facilities were not deemed necessary.

New Orleans Beltway Station

The study team evaluated several locations for a beltway station east of New Orleans but concluded that no adequate location that would not conflict with freight rail operations near Gentilly Yard existed.

Chapter 8 - Site-specific Investments

The planning and design of the GCHSR Corridor high-speed service, Mobile to New Orleans, will provide, when implemented, cost-effective improvements necessary to increase capacity on the existing rail line to support six HSR intercity passenger train round trips a day, while minimizing conflicts with freight operations. The simulation model showed that increased levels of 2025 freight and passenger service resulted in a larger number of passenger trains overtaking freight trains, resulting in delays to lower priority merchandise trains delayed by intermodal freight trains.

The resultant overall delays would be mitigated by the addition of additional double track segments, the modification of initial build sidings to double their length and enable them to accommodate multi-train meets, and finally by the installation of numerous industrial lead tracks to enable local freight trains to serve local industries without tying up the main track.

Route Capacity

On a single-track main line, such as CSXT's Mobile to New Orleans route, a number of factors, including the location, size, and types of switches associated with the passing sidings, as well as speed limits within a specific segment significantly impact the capacity of any segment. The availability of sidings is important because - since the freights generally make way for the passenger service - a key objective of the proposed high-speed rail program is to ensure that the freight service is upgraded as well or, at least, that the passenger service is "transparent" to the freight operations. Appropriately positioned passing sidings of the right size can improve both the passenger service and the freight service. Table 2-1 shows the name and location of all existing controlled sidings between Mobile and New Orleans.

The average length of these sidings is about 1.7 miles. The effective length of the sidings, the distance over which a train conveniently can be parked on a siding is less than 8,300 feet. CSXT data evaluated from May 2004 indicated that the average length of train operated between Mobile and New Orleans was less than 5,500 feet. Thus, only a limited number of small trains can use Ocean Springs; which is only 3,030 feet long. This increases the distance between Gautier and Beauvoir to 20.4 miles and increases the average siding spacing to almost 14 miles. CSXT's present optimum design for new sidings is four miles; quite often, CSXT installs a center pair of crossovers between the ends of the siding to enable two trains in opposing directions to occupy the siding. Obviously, the existing sidings are substandard and require modification to enable even a limited passenger service to be operated.

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Table 8-1
Existing Passing Sidings, Mobile to New Orleans

Siding Name	Existing North End	Existing South End	Mp Length (South (-) North)	Length (ft.)	Mid Point	Distance Between Mid Points
Choctaw (End Double Track)	665.40					
Brookley	669.70	671.80	2.10	10395	670.75	
Saint Elmo	685.60	687.30	1.70	8855	686.45	15.70
Grove	699.30	701.20	1.90	8910	700.25	13.80
Gautier	709.80	711.50	1.70	7865	710.65	10.40
Ocean Springs	722.30	723.10	0.80	3080	722.70	12.05
Beauvoir	730.20	731.90	1.70	8085	731.05	8.35
Harbin	745.00	746.90	1.90	8910	745.95	14.90
Nicholson Avenue	754.60	756.40	1.80	8635	755.50	9.55
Claiborne	766.20	768.10	1.90	10020	767.15	11.65
Lake Catherine	780.20	781.90	1.70	7480	781.05	13.90
Michoud (Start Double Track)	793.20					
Average			1.72	8224		12.26

Source: Parsons from CSXT Atlanta Division Timetable No. 2, April 2003.

Siding Spacing and Capacity

The capacity of a single-tracked line depends mostly on how long trains occupy the segments of single track between the sidings. Most discussions of capacity revolve around the spacing between sidings in miles; however that criterion alone is insufficient. Time between sidings is a more critical consideration. The time between sidings includes the time to traverse the distance between the ends of the adjacent sidings and the time to enter the next siding and have the main line signals cleared to allow a train in the opposite direction to proceed.

By upgrading the track between the same two points to increase allowable train speed and/or increasing the turnout size at the ends of the sidings, capacity can be increased without adding new sidings.¹ Long freight trains may consume as much as six minutes clearing or entering the main line when 15 mph turnouts are used, so if the siding is long enough, installing 30 mph turnouts can reduce that time to 3.0 minutes. Reducing the degree of restricting curves to enable trains to operate faster through them and adding locomotives to a train to increase the speed they can attain on long ascending grades also can reduce the time between sidings. Therefore, capacity can be increased by reducing the time between sidings by increasing speed or reducing the distance by adding more sidings.

Increasing speed is not always possible; so in that case the only way to increase capacity is to increase the number of sidings, thereby reducing the distance, and hence the time, between sidings.

Frequently, the ultimate capacity of a single-tracked line is considered achieved when a meet occurs at every siding, but the ultimate capacity is not a practical operating capacity that can be operated satisfactorily day in and day out. A catastrophic locomotive failure may cause a siding to be occupied or a terminal problem may make it necessary to store some trains on sidings. In those cases, certain sidings may be out of service or unavailable for a prolonged period. Yet, the line must still have capacity to continue operating reasonably well. For this reason, capacity should not be based on using every siding but every other siding, so that the real capacity is about one-half of the theoretical capacity.

¹ The following definitions of terminology are contained in the Railroad Dictionary contained on the CSX Corporate Web Site, CSX.com:

- A **Siding** is “an auxiliary track for meeting or passing trains. It is designated in special instructions.”
- A **Controlled siding** is “a siding equipped with controlled signals that are used to authorize trains to enter or leave the siding. Such signals do not govern movements on the siding.” And
- A **Signaled Siding** is a “siding equipped with block signals that govern train movements on the siding.”

Accordingly, in compliance with FRA regulations speed on **controlled sidings** cannot exceed restricted speed: “A speed that will permit stopping within one-half the range of vision, but not exceeding 20 miles per hour.” However, speeds on a signaled siding are controlled by the block signal indications, which could enable trains to exceed 20 mph entering and operating over the siding.

The requirement that a long heavy freight stop within one half the range of vision in territory with visibility limiting curves frequently results in train speeds in the vicinity of 5 mph, which results in a mile long train taking 10-15 minutes to clear the main line.

Practical capacity is mostly subjective; it depends upon how much delay a railroad is willing to accept. Data on acceptable delay develop by CSXT has been used by this study to analyze the effectiveness of alternative siding configurations and spacings.

Recommended Improvements for the Initial Limited Intercity Service

The planning and design of the GCHSR Corridor high-speed service, Mobile to New Orleans, will provide, when implemented, cost-effective improvements necessary to increase capacity on the existing rail line, and minimize conflicts with freight operations.

High-Speed passenger trains would be overtaking, or conflicting with, slower freight trains and passenger trains in the opposite direction on the between Mobile and New Orleans. Improvements that would increase rail capacity at strategic locations, and thus serve to make high-speed train operations be transparent to freight train operations have been evaluated. Reduced trip times and improved capacity would enable the high-speed service to operate reliably without adversely affecting, or being delayed by the large number of long freight trains.

Five strategies were pursued in designing the plant and operations to minimize the probability of schedule conflicts in this critical segment of the corridor:

- Provide tracks to support the operation of trains serving local industries, modify interlockings, and make additional operational improvements that would result in segments of track where freight and passenger train conflicts would be minimized;
- Provide additional passing sidings, or sections of double track, of sufficient length in the most effective locations where passenger and freight trains could overtake, meet, and/or pass trains on the single-track rail line²;
- Re-spacing of the existing sidings to provide for more uniform siding-to-siding running time;
- Lengthening of existing sidings and upgrading them from controlled to signaled to increase the speed into and through the sidings to 30 mph;
- Design passenger schedules so that trains traveling in opposite directions “meet” in stations or “pass” at locations where freight operations would be minimally disrupted.

Given their higher speeds, passenger trains would occupy the shared main line segment between Mobile Station and Gentilly Yard for a shorter period of time than a long freight train. The higher rate of passenger train speed also would mean that any delay to freight trains held up from entering the main track would be reduced.

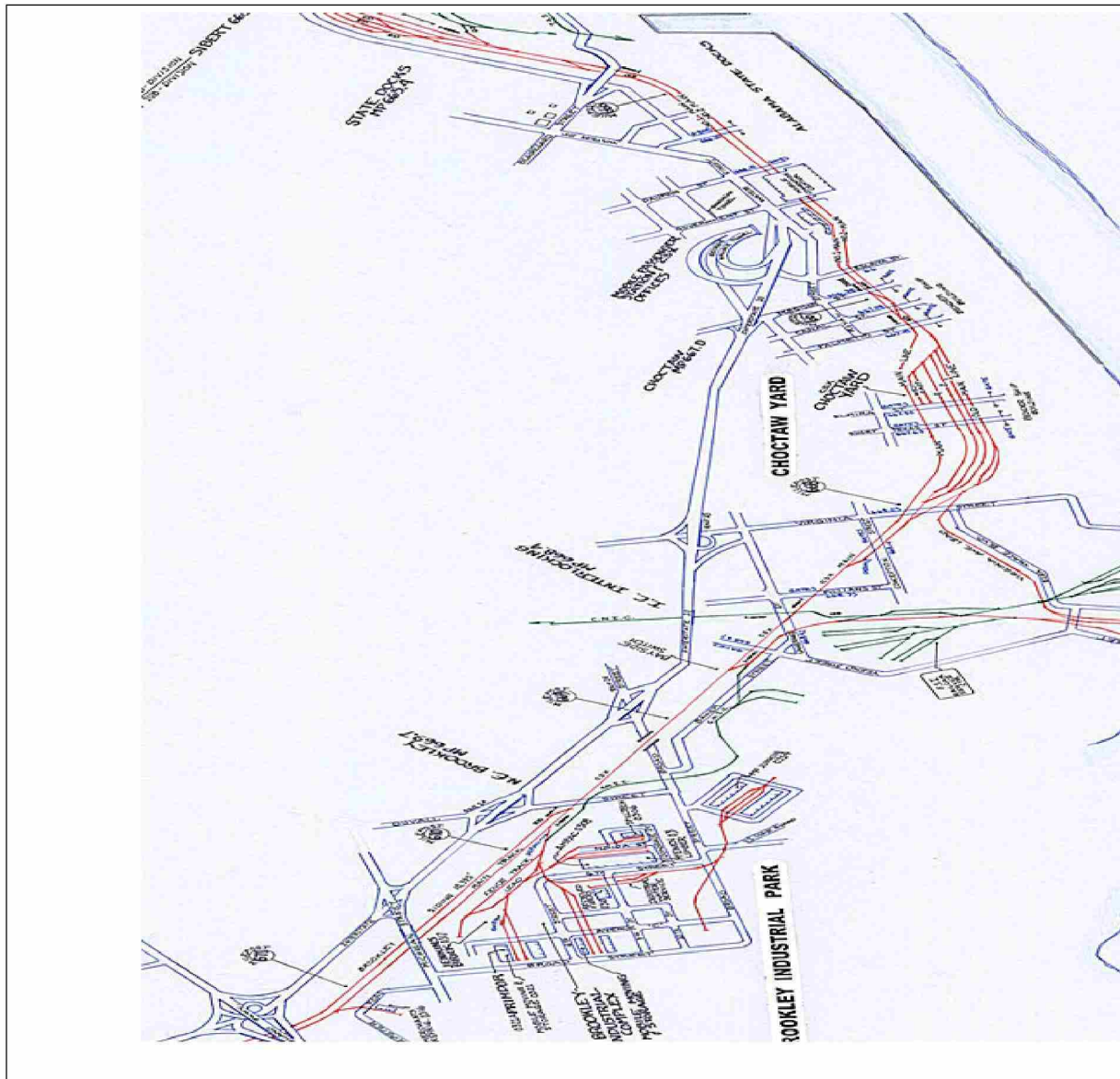
The recommended improvements are described in sequence from Mobile to New Orleans. The CSXT Employees Timetable defines the direction from Mobile to New Orleans as north to south and this report follows that standard.

² While minimizing the time that trains would be required to stop on the passing sidings.

Choctaw Yard – South of Mobile Passenger Station

Choctaw Yard (shown in Figure 8-1 on the following page) is located south of the Mobile Passenger Station. Access to the McDuffie Island Coal Terminal is provided by the Old Main Line Track, which is an extension of No. 2 Main.

Figure 8-1
Choctaw Yard



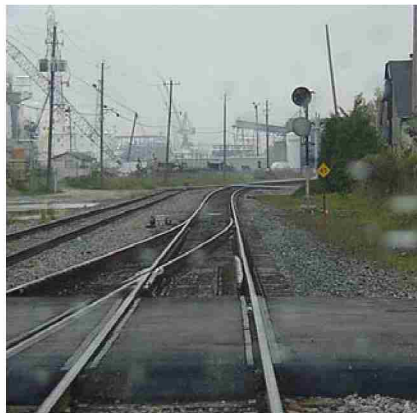
Source: Parsons Transportation Group, 2006.

Choctaw Interlocking (667.0) is the end of the short double track segment that starts at State Docks (665.4). Refer to the photograph in Figure 8-2(A).

The main line track curves to the north around the track that remains at Choctaw Yard, as shown in Figure 8-2(B). The yard is relatively short, approximately 5,000 feet long. A recent aerial photo indicates that three yard tracks, in addition to the Old Main Line, remain in the yard. Two grade crossings traverse the main body of the yard to provide access to businesses on the geographic south side of the yard. Two grade crossings are located at the south end of the yard, the second of which is located immediately north of the access switch from the main track to the south end of the yard, as shown in Figure 8-2(C). The yard lead track leading to the switch appears to be rusty in a recent photo, which indicates that the track is relatively little used. .

Figure 8-2
Choctaw Yard

(A) Interlocking



(B) Main Line



(C) Grade Crossings



Source: Parsons Transportation Group, 2006.

CN/IC At-Grade Railroad Crossing

The CN/IC Railroad At-Grade crossing is located at 668.4 (Figure 8-3 on the following page). The switch leading to the interchange tracks (Bayside switch) is located south of the crossing. The IC apparently does not use the branch leading to McDuffie Island and the crossing is little used, if at all. It would appear that it could be abandoned.

IC Crossing to Brookley

The single track main line extends 1.3 miles to Brookley from the IC Crossing. The track passes over Washington Avenue, nearly half-way between the two locations. Duval Street crossing is located immediately north of the North End of Brookley Siding (Figure 8-3).

Reduce Spacing between Brookley and St Elmo Sidings (Figure 8-4)

The study assumed that Fowl River siding (2.3 miles long between MP 679.9 and MP 682.2) would be constructed to eliminate the 1.7 mile-long St. Elmo siding. The distance between South Brookley Interlocking (which would become the new end of double south of Mobile Station) and the north end of Fowl River, would be 8.1 miles, or 5.7 miles closer than the north end of St Elmo. At an average freight train speed of 30 mph, this would change would bring the sidings about 11 minutes closer together.

Construct Little Franklin Siding to Optimize spacing between the new Fowl River Siding and the existing Orange Grove Siding (Figure 8-5)

The study assumed that Little Franklin siding (2.4 miles long between MP 688.9 and MP 691.3) would be constructed. The north end of Little Franklin would be located 1.6 miles south of the south end of St. Elmo. The distance between South Fowl River Interlocking (the south end of Fowl River) and the north end of Little Franklin, would be 6.7 miles. Little Franklin was placed between Fernland Road and Potter Tract Road (north to south) to minimize the impact on local highway traffic as the result of trains blocking the crossing as they are parked on the siding.

Lengthen Orange Grove Siding from 1.9 to 2.6 miles in length (Figure 8-5)

The study assumed that Orange Grove siding would be extended southward 0.7 miles to MP 701.9, just north of the Kreole Road grade crossing. The north end of Orange Grove would be located 8.0 miles south of the south end of Little Franklin.

The alterations between SE Brookley and SE Orange Grove would result in three sidings (Fowl River, Little Franklin, and Orange Grove) spaced 9.6 miles apart, rather than two sidings (St Elmo and Orange Grove) spaced 14.75 miles apart.

Figures 8-4 and 8-5 are shown on the following page.

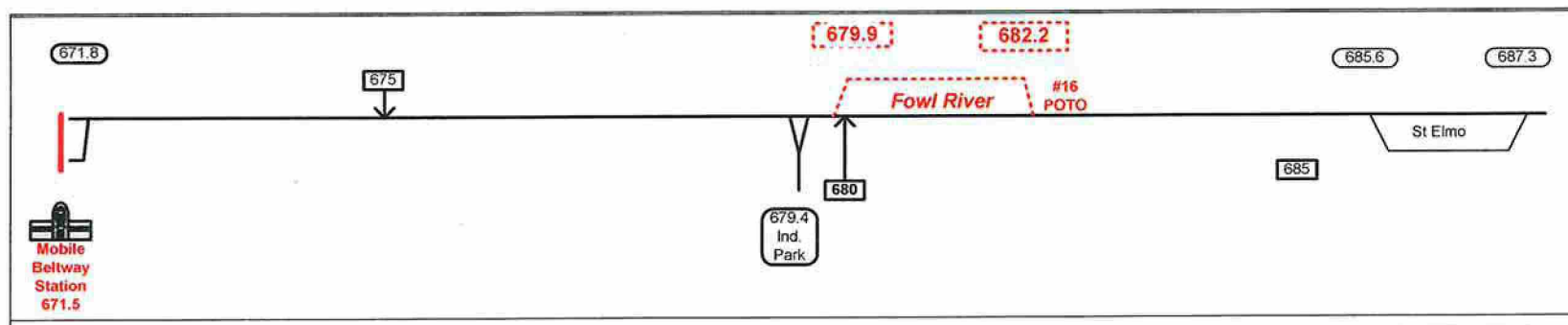


Figure 8-4. Limited Service Initial Improvements Reduce Spacing between Brookley and St Elmo Sidings

Source: Parsons Transportation Group, 2006.

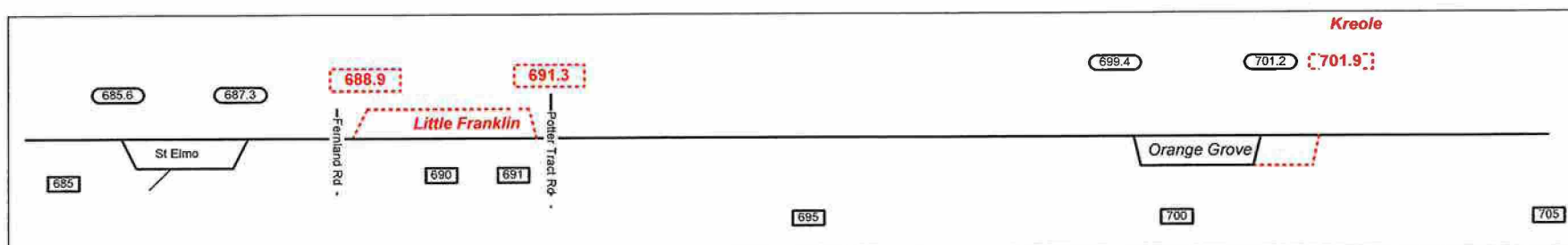


Figure 8-5. Limited Service Initial Improvements Construct Little Franklin Siding to Optimize spacing between the New Fowl River Siding and the lengthened Orange Grove Siding

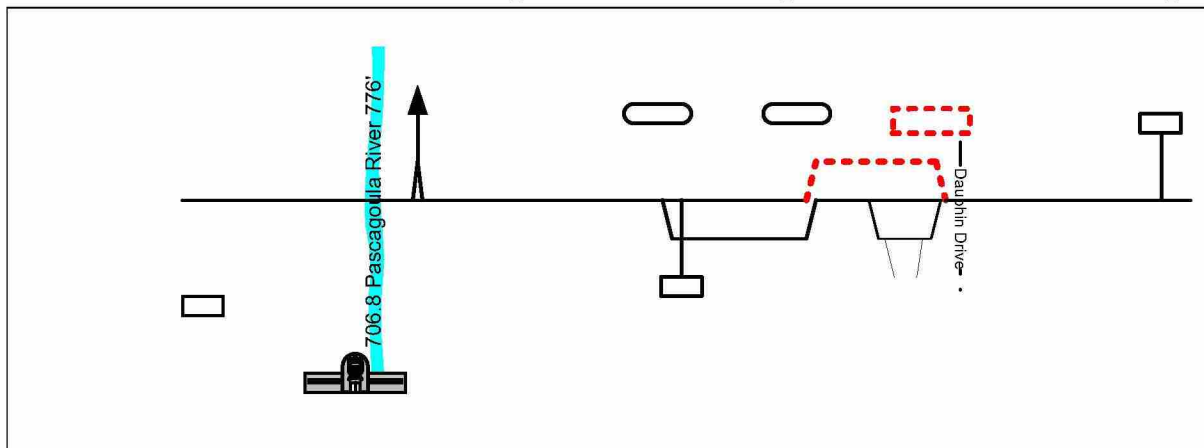
Source: Parsons Transportation Group, 2006.

Lengthen Gautier Siding from 1.7 to 2.8 miles in length

The study assumed that Gautier siding would be extended southward 1.1 miles to MP 712.6, just north of the Dauphin Drive grade crossing. The north end of Gautier would be located 7.9 miles south of the south end of Orange Grove. The Gautier Siding extension would be constructed to retain the industrial siding at Quinn that serves the Mallett Brothers plant.

Pascagoula Station and the Pascagoula River Movable Bridge are located on the single track segment between Orange Grove and Gautier. The initial build passenger train schedules were constructed to avoid having two passenger trains attempting to stop at the station at about the same time.

**Figure 8-6. Limited Service Initial Improvements
Lengthen Gautier Siding from 1.7 to 2.8 miles in length**



Source: Parsons Transportation Group, 2006.

Construct a relocated Ocean Springs siding to Optimize spacing between the Gautier Siding and the Beauvoir Siding (Figure 8-7)

The study assumed that the existing 0.8 mile Ocean Springs siding would be retained as an industrial lead track and that a new Ocean Springs siding (2.3 miles long between MP 718.6 and MP 720.9) would be constructed. The north end of Ocean Springs would be located 6.0 miles south of the south end of Gautier. The distance between South Ocean Springs Interlocking (the south end of Ocean Springs) and the north end of Beauvoir, would be 9.3 miles.

The new Ocean Springs siding was placed between Henshaw Road and Hanley Road (north to south) to minimize the impact on local highway traffic as the result of trains blocking the crossing as they are parked on the siding. The alterations between SE Orange Grove and SE Beauvoir (the configuration of the siding is described in the following subsection) would result in three sidings longer than two miles (Gautier, Ocean Springs, and Beauvoir) spaced 10.0 miles apart center to center, rather than two sidings (Gautier and Beauvoir) spaced 15.4 miles apart.

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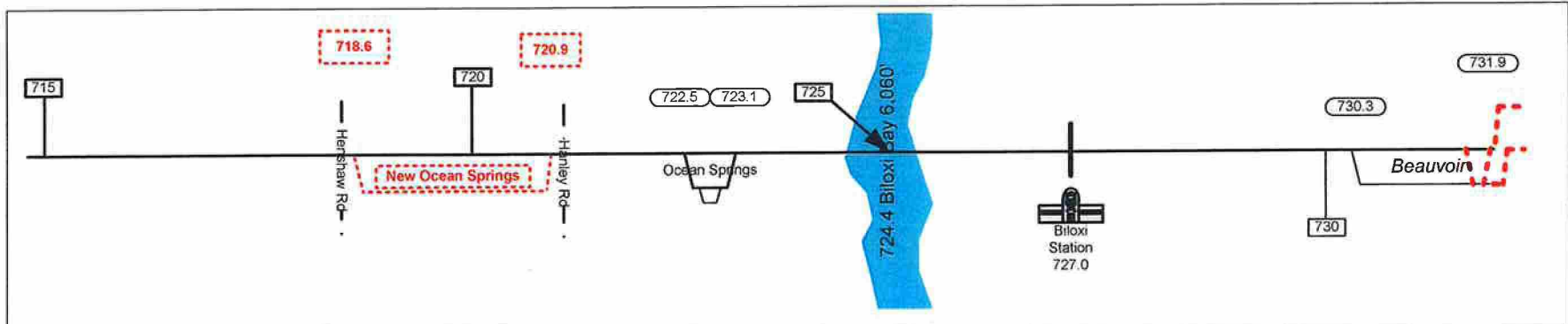


Figure 8-7. Limited Service Initial Improvements - Construct a relocated Ocean Springs siding to Optimize spacing between the Gautier Siding and the Beauvoir Siding

Source: Parsons Transportation Group, 2006.

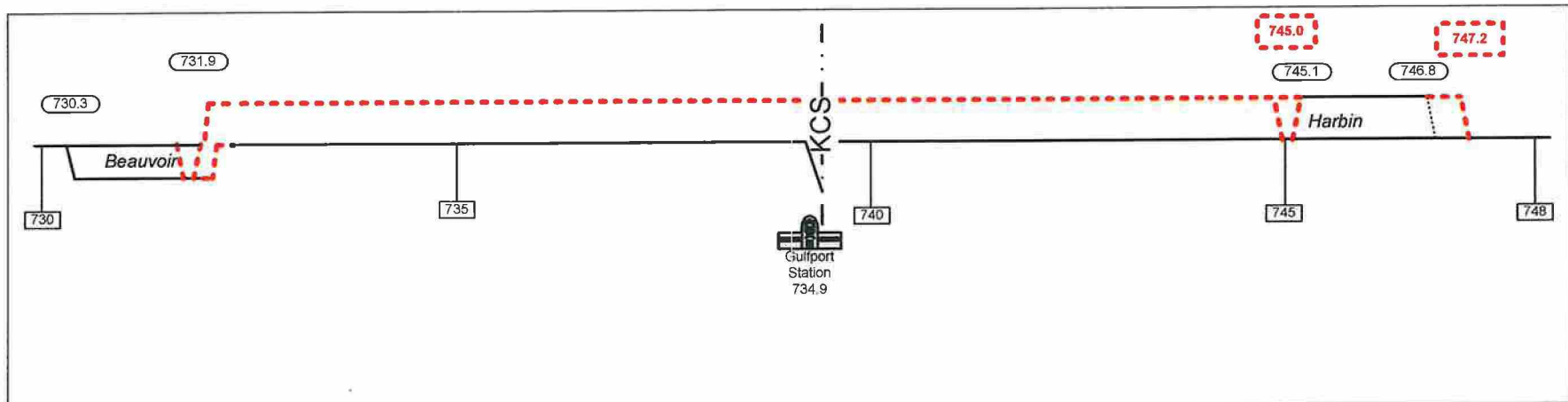


Figure 8-8. Limited Service Initial Improvements - Construct a 17.0-mile segment of double track between NE Beauvoir and SE Harbin

Source: Parsons Transportation Group, 2006.

Construct a 17.0-mile segment of double track between NE Beauvoir and SE Harbin (Figure 8-8)

The study assumed that the existing 1.7-mile Beauvoir siding and the 1.9-mile Harbin Siding would be connected by a 13.1 mile section of double track. (Refer to Figure 8-8 on the preceeding page.) The resultant configuration would retain a modified Beauvoir siding and Harbin siding as pocket tracks at each end. The SE of Beauvoir would be relocated 0.6 miles south to increase the length of the pocket siding to 2.3 miles. SE Beauvoir would be configured as a pair of 30 mph crossovers that would enable trains in both directions to runaround a train stored on the pocket track. The SE of Harbin would be relocated 0.3 miles south to increase the length of the pocket to 2.2 miles. The NE of Harbin would be configured the same as the SE of Beauvoir with two 30 mph crossovers.

Gulfport station is located north of the at-grade rail crossing with the KCS at about 739.4. The presently proposed HSR schedules have a pair of opposing trains passing without conflict on this segment of double track. The double track segment would pass through Mississippi City and Gulfport and requires that some fifty-seven crossings either be eliminated or upgraded by extending the crossing to include the second track and upgrading or relocating the grade crossing protection at each crossing.

Lengthen Nicholson Avenue Siding from 1.8 to 3.1 miles in length (Figure 8-9)

The study assumed that Nicholson Avenue siding would be extended northward 0.4 miles to 754.2 (and be located south of the Bay St Louis bridge and north of the one-degree curve located south of the bridge) and southward 0.9 miles to 757.3, just north of the Coleman Avenue grade crossing. The northward extension includes the upgrading of the House Track to include it within the limits of the siding. A determination would have to be made as to whether the House Track would be required in the future. The north end of Nicholson would be located 7.0 miles south of the south end of Harbin.

Bay St Louis Station is located at the eastern end of the siding. The initial build passenger train schedules were constructed to avoid having two passenger trains attempting to stop at the station at about the same time.

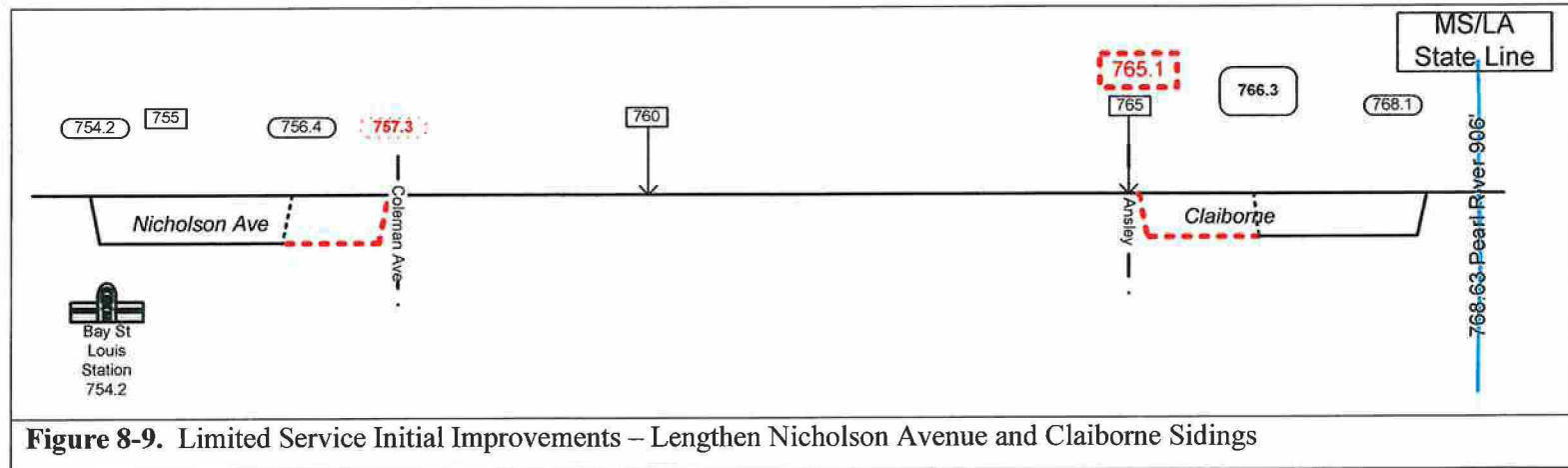
Lengthen Claiborne Siding from 1.9 to 3.0 miles in length (Figure 8-9)

The study assumed that Claiborne siding would be extended northward 1.1 miles to 765.1 (moved to a location just south of the Ansley grade crossing. NE Claiborne would be located 7.8 miles south of the SE of Nicholson Avenue, two miles closer than it is today.

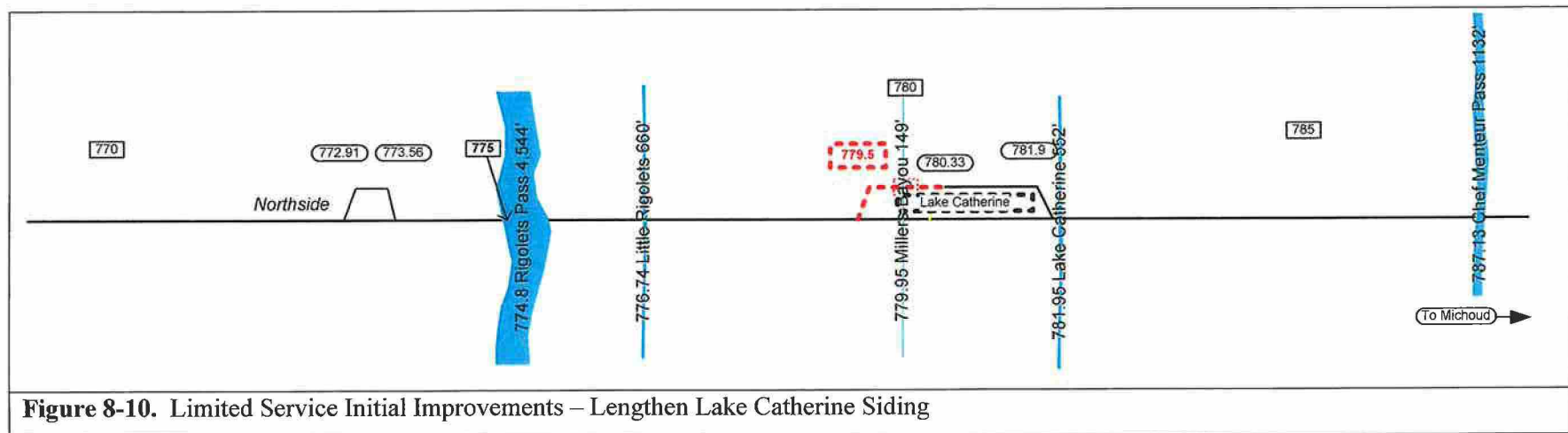
Lengthen Lake Catherine Siding from 1.7 to 2.5 miles in length (Figure 8-10)

The study assumed that Lake Catherine Siding would be extended northward 0.8 miles to 779.4. Extending the siding southward is restricted by the 554-foot long Lake Catherine bridge. NE Lake Catherine would be located 11.3 miles from SE Claiborne, 0.8 miles closer than today. This spacing end-to-end, Claiborne to Lake Catherine, would be the longest

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Source: Parsons Transportation Group, 2006.



Source: Parsons Transportation Group, 2006.

single track stretch between Mobile and New Orleans once the initial build improvements were constructed.

Lake Catherine to Michoud – No Proposed Improvements

Further improvements south of Lake Catherine were not necessary to achieve a reasonable level of reliability for freight and passenger operations. The segment between the SE Lake Catherine and Michoud also would be 11.3 miles.

Recommended Improvements for the Full Intercity Service

The planning and design of the GCHSR Corridor high-speed service, Mobile to New Orleans, will provide, when implemented, cost-effective improvements necessary to increase capacity on the existing rail line to support six round trips a day, and minimize conflicts with freight operations. The increased levels of 2025 freight and passenger service resulted in a larger number of passenger trains overtaking freight trains and resultant delays to lower priority merchandise trains delayed by intermodal freight trains.

The resultant overall delays would be mitigated by the addition of additional double track segment(s), the modification of initial build sidings to double their length and enable them to accommodate multi-train meets, and finally by the installation of numerous industrial lead tracks to enable local freight trains to serve local industries without tying up the main track.

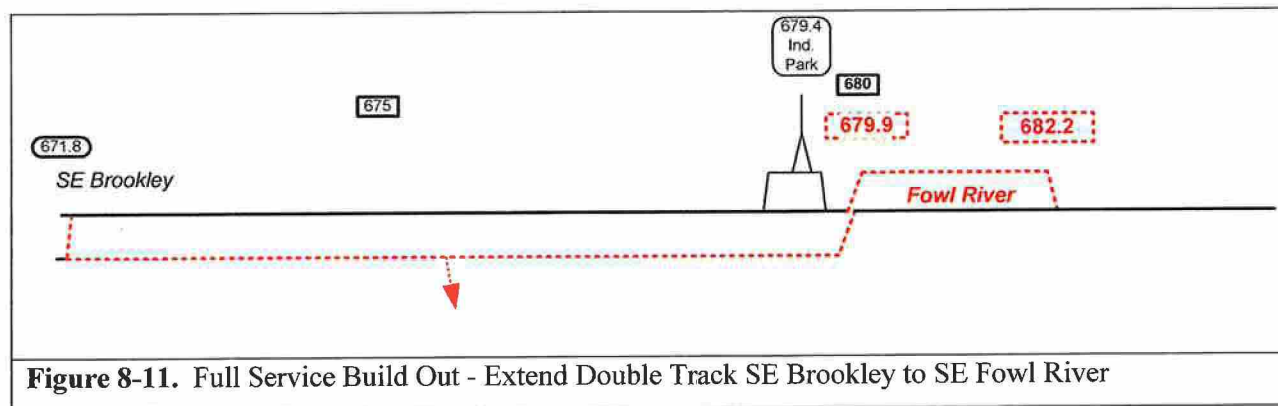
Ultimately, the alignment of the rail line adjacent to the Gulf of Mexico through various bayous and wetlands presents a constructibility challenge that the lack of adequate mapping prevented the team from addressing. The team was not able to determine whether additional sidings or segments of double track could be constructed in various locations between Bay St Louis and Chef Menteur.

Extend Double Track Brookley to Fowl River

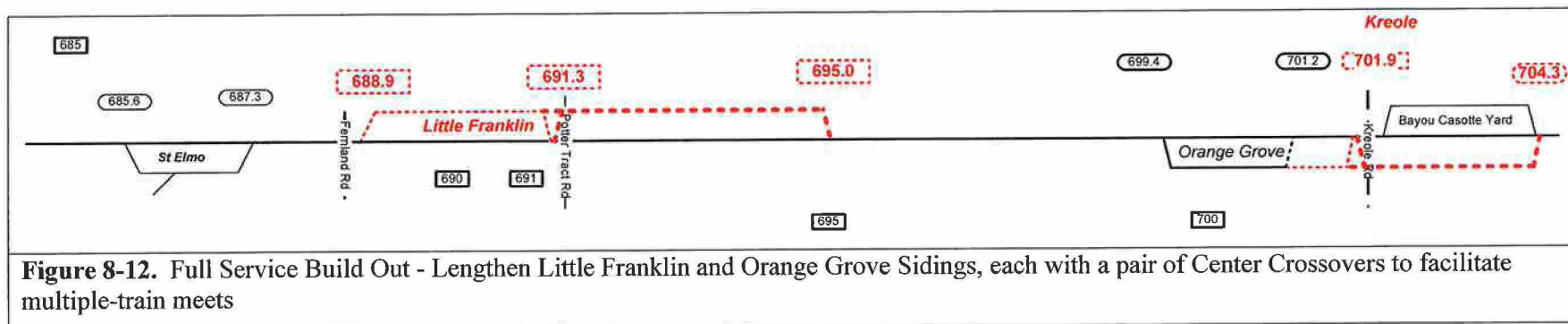
The full intercity service scenario assumed that the double track segment between State Docks (665.4) and SE Brookley (671.8) would be extended to SE Fowl River siding (682.2). The double track segment would extend the north end of Fowl River siding 8.1 miles northward to SE Brookley, thereby creating a 16.8-mile segment of double track south of Sibert Yard. The configuration would include the Choctaw Siding and convert Fowl River to a pocket track (similar to Beauvoir and Harbin in the initial build). Industrial sidings to serve the Brookley and Theodore Industrial Parks would be provided.

Convert Little Franklin Siding to a 5.7-mile Siding with a pair of Center Crossovers to facilitate multiple-train meets

The full intercity service scenario assumed that Little Franklin siding (2.4 miles long between MP 688.9 and MP 691.3) would be extended 3.3 miles northward to the location of the present NE St. Elmo. The pair of mid-point crossovers would replace the turnout at the NE of



Source: Parsons Transportation Group, 2006.



Source: Parsons Transportation Group, 2006.

the initial service Little Franklin Siding. The distance between NE St Elmo and SE Little Franklin would be 3.4 miles.

Lengthen Orange Grove Siding from 2.6 to 4.9 miles in length with a pair of Center Crossovers to facilitate multiple-train meets (Figure 8-12)

The full intercity service scenario assumed that the initial service Orange Grove Siding would be extended southward 2.3 miles to MP 704.3. The relocated SE Orange Grove would be located the south end of Bayou Casotte Yard. The pair of mid-point crossovers would replace the turnout at the NE of the initial service Orange Grove Siding. The north end of Orange Grove would remain 8.0 miles south of the south end of Little Franklin.

The alterations between SE Brookley and SE Orange Grove would result in two sidings (Little Franklin, and Orange Grove) spaced about 9.8 miles apart.

Construct 2.2-Mile Pascagoula Siding Between East and Middle Pascagoula Rivers (Figure 8-13)

The full intercity service scenario assumed that the 2.2-mile Pascagoula Siding would be constructed between 707.0 and 709.2. An industrial siding to serve the Ingalls Ship Yard and other rail facilities would be constructed at the north end of the siding.

The siding would enable provide a double track alignment up to the south end of the Pascagoula Movable Bridge, thereby reducing the delay resulting from northbound and southbound trains meeting during a bridge opening. The NE Pascagoula would be 2.7 miles south of SE Orange Grove.

Lengthen Gautier Siding from 2.8 to 4.0 miles in length (Figure 8-13)

The full intercity service scenario assumed that initial build Gautier siding would be extended further southward 1.2 miles to MP 713.8. The north end of Gautier would be located 0.6 miles south of the south end of Pascagoula Siding. The Gautier Siding extension would be constructed to retain the industrial siding at Quinn that serves the Mallett Brothers plant.

Lengthen the relocated Ocean Springs from 2.3 to 4.5 miles in length with a pair of Center Crossovers to facilitate multiple-train meets (Figure 8-14)

The full intercity service scenario assumed that the new Ocean Springs siding (4.5 miles long between MP 718.6 and MP 723.1) would be constructed and that the existing 0.8 mile Ocean Springs siding would be retained as an industrial lead track that ended just north of SE Ocean Springs. The pair of mid-point crossovers would replace the turnout at the SE of the initial service Ocean Springs Siding. The north end of Ocean Springs would be located 4.8 miles

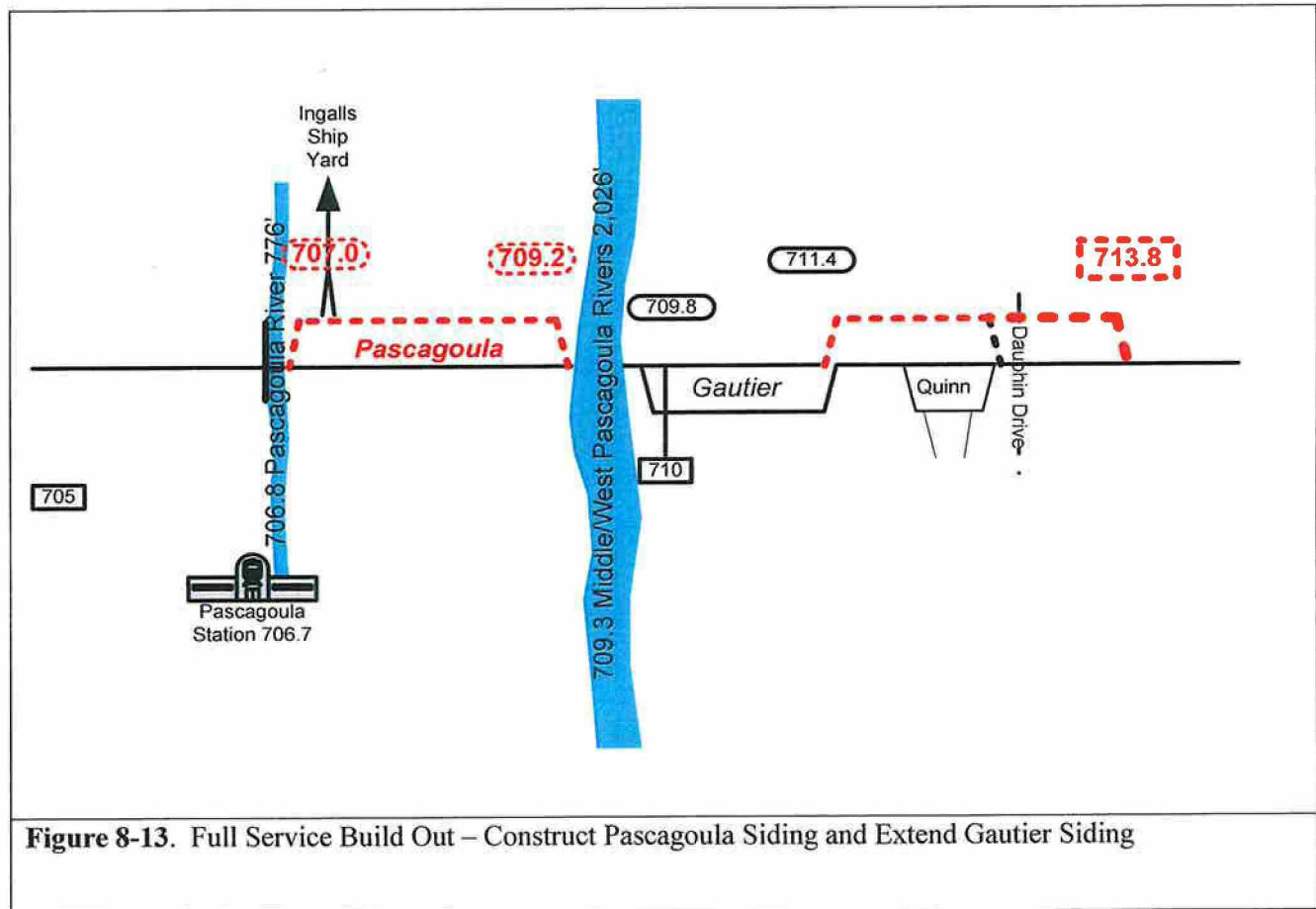


Figure 8-13. Full Service Build Out – Construct Pascagoula Siding and Extend Gautier Siding

Source: Parsons Transportation Group, 2005.

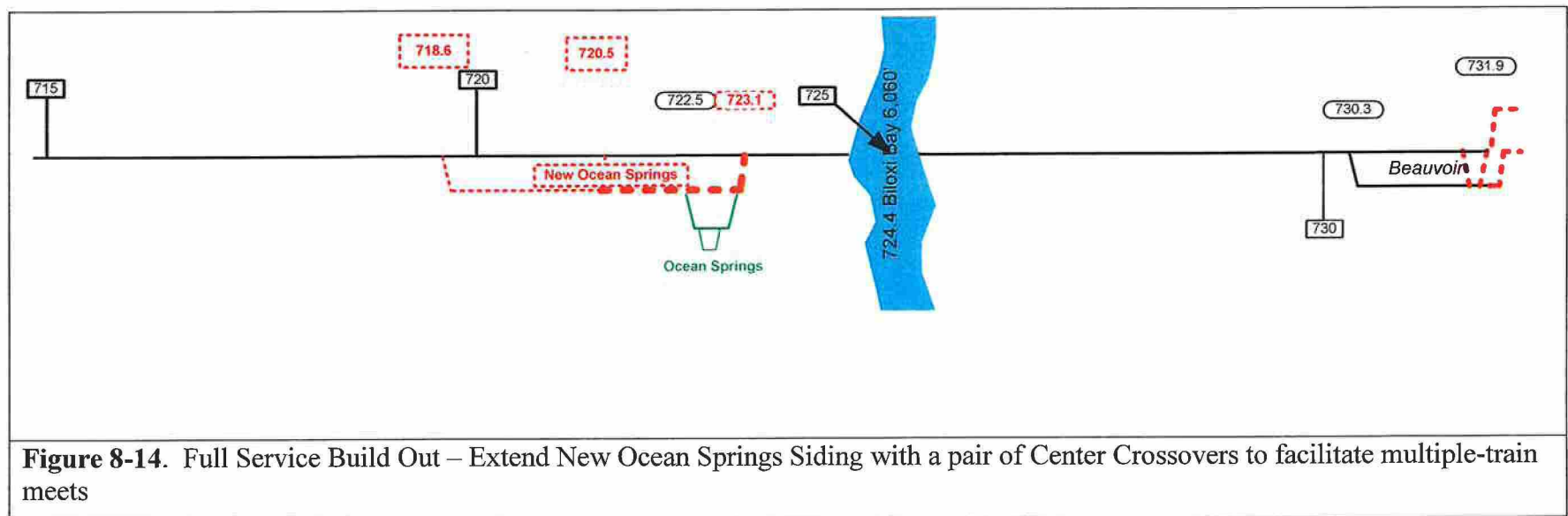


Figure 8-14. Full Service Build Out – Extend New Ocean Springs Siding with a pair of Center Crossovers to facilitate multiple-train meets

Source: Parsons Transportation Group, 2006.

south of the south end of lengthened Gautier. The distance between the lengthened South Ocean Springs Interlocking and the north end of Beauvoir, would be 7.1 miles.

The alterations between SE Orange Grove and SE Beauvoir (the configuration of the siding is described in the following subsection) would result in four sidings longer than two miles (Pascagoula, Gautier, Ocean Springs, and Beauvoir) spaced 7.4 miles apart center to center, rather than two sidings (Gautier and Beauvoir) spaced 15.4 miles apart.

Construct a 17.0-mile segment of double track between NE Beauvoir and SE Harbin (Figure 8-8)

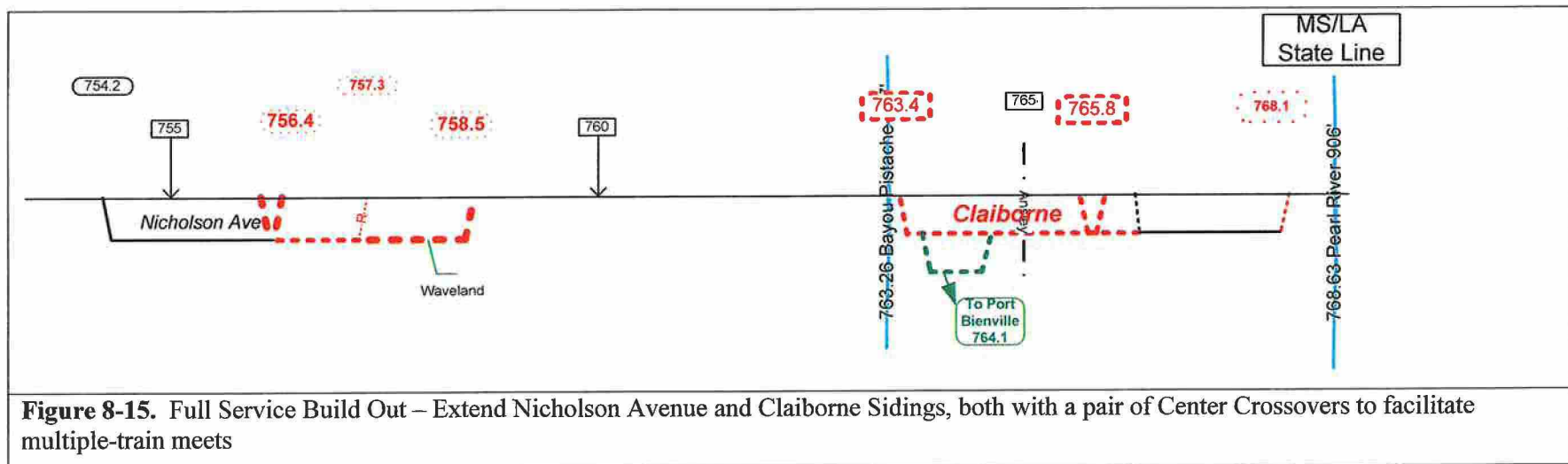
The full intercity service scenario assumed that the full intercity service scenario was the same as the limited service scenario. (Refer to Figure 8-8.) The existing 1.7-mile Beauvoir siding and the 1.9-mile Harbin Siding would be connected by a 13.1 mile section of double track. The resultant configuration would retain a modified Beauvoir siding and Harbin siding as pocket tracks at each end. The SE of Beauvoir would be relocated 0.6 miles south to increase the length of the pocket siding to 2.3 miles. SE Beauvoir would be configured as a pair of 30 mph crossovers that would enable trains in both directions to runaround a train stored on the pocket track. The SE of Harbin would be relocated 0.3 miles south to increase the length of the pocket to 2.2 miles. The NE of Harbin would be configured the same as the SE of Beauvoir with two 30 mph crossovers.

Gulfport station is located north of the at-grade rail crossing with the KCS at about 739.4. The presently proposed HSR schedules have a pair of opposing trains passing without conflict on this segment of double track.

Lengthen Nicholson Avenue Siding from 1.8 to 3.1 to 4.3 miles in length (Figure 8-15)

The full intercity service scenario assumed that Nicholson Avenue siding would be extended northward 0.4 miles to 754.2 (and be located south of the Bay St Louis bridge and north of the one-degree curve located south of the bridge) and southward 2.1 miles to 758.5, in Waveland. The Waveland House Track would be retained by being relocated geographically north of the siding.

The northward extension includes the upgrading of the House Track to include it within the limits of the siding. A determination would have to be made as to whether the House Track would be required in the future. The north end of Nicholson would be located 7.0 miles south of the south end of Harbin.



Source: Parsons Transportation Group, 2006.

Lengthen Claiborne Siding from 1.9 to 3.0 to 4.7 miles in length with a pair of Center Crossovers to facilitate multiple-train meets (Figure 8-15)

The full intercity service scenario assumed that Claiborne siding would be extended northward 2.8 miles to 763.4 (moved to a location just south of the Bayou Pistache Bridge). NE Claiborne would be located 4.9 miles south of the SE of Nicholson Avenue, 4.9 miles closer than it is today.

Lengthen Lake Catherine Siding from 1.7 to 2.5 to 4.8 miles in length with a pair of Center Crossovers to facilitate multiple-train meets (Figure 8-16)

The full intercity service scenario assumed that Lake Catherine Siding would be further extended northward 3.1 miles to 777.1, just south of the Little Rigolets bridge. Extending the siding southward is restricted by the 554-foot long Lake Catherine bridge. NE Lake Catherine would be located 9.0 miles from SE Claiborne, 3.1 miles closer than today. This spacing end-to-end, Claiborne to Lake Catherine, would be the second longest single track stretch between Mobile and New Orleans once the full intercity scenario improvements were constructed.

Shorten the distance between SE Lake Catherine and Michoud by one-mile (Figure 8-16)

Extend Michoud one-mile northward to 792.1. The segment between the SE Lake Catherine and Michoud would be 10.2 miles, the longest segment of single track between Mobile and New Orleans.

Recommended Common Improvements – NE Tower to New Orleans – The Full Intercity Service Alternative

NE Tower is the location where the proposed Atlanta to New Orleans and Mobile to New Orleans intercity passenger services merge/diverge. The recommended improvements between NE Tower and New Orleans Union Passenger Terminal are thus common and required to provide reliable passenger and freight operations between NE Tower and East City Jct., the location where passenger trains diverge from the NS Back Belt line. The improvements include a third track between Elysian Fields and Marconi Drive, north of East City Jct. that initially were proposed by the freight railroads as part of their recently completed New Orleans Gateway Analysis.



Elysian Fields Improvements – NE Tower to NOT Jct\Elysian Fields

The Phase I study determined that an Amtrak Meridian-bound train consumes four minutes 5 seconds to travel the 1.27 miles from the CSX switch in Track 1 Elysian Fields to the CSX at-grade crossing with the NS at NE Tower – the average speed is 18.6 miles per hour. Mobile-bound Amtrak trains use the 0.92 mile length of CSX track that currently extends between Elysian Fields and NE Tower then northward to Gentilly Yard (Figure 8-17). A connection between the New Orleans to Meridian segment and the CSXT New Orleans to Mobile line does not exist and therefore the Meridian-bound trains must use the longer, slower route. Construction of a connection between the CSX and NS alignments at NE Tower potentially could save over two minutes, if an average speed of 30 mph could be achieved.

Freight trains using the route would save four minutes or more depending whether the trains were stopped at the junctions. The improved track configuration at NOT Jct also would improve the speeds of Mobile-New Orleans passenger trains and freight trains transferring to and from Gentilly Yard.

Changes Phase I to Phase II

The initial concept has been modified to extend the Marconi Drive third track (see below) northward to NE Tower, resulting in a three-track configuration between NE Tower and NOT Junction/Elysian Fields. An open track space, north of and adjacent to the CSX tracks, exists for the entire distance between NE Tower and NOT Junction \Elysian Fields, including a track span in the bridge over Franklin Ave. The revised configuration maintains NS access to Oliver Junction and Oliver Yard.

Marconi Drive Third Track Improvements – Elysian Fields to Marconi Drive

Recent studies have identified the approximately 3.5-mile section on the NS Back Belt between NOT Jct. (7.08) and East City Jct. (3.5). This section poses capacity problems as it is used to stage westbound trains for interchange with UP. CSXT and NS train crews bring the westbound interchange trains to Marconi Drive, located just east of the East City Jct. These trains are left on the main and wait for the UP crew to pick them up. The average waiting time is around 5 hours, effectively blocking one of the double main tracks in this area. The eastward interchange traffic is more fluid as trains are delivered directly to CSX's Gentilly yard and NS's Oliver yard.

The freight railroads have proposed the addition of a third track in this section and this study has incorporated that recommendation. The track would be constructed on the rail berm that parallels I-10. The line is adjacent to the London Avenue Canal for the first 0.7-mile south of NOT Jct. The rail line passes over and under several roads and requires the construction

of new bridges over Broad Avenue, the London Avenue Canal, Gentilly Boulevard, Paris Avenue, St. Bernard Avenue, Bayou St John, a pedestrian access roadway, and Hospital Street.

The Marconi Drive interlocking (NT4.3) would facilitate parallel moves at the location where the three tracks merge into two tracks. The 0.6-mile segment between Marconi Drive and East City Junction would remain double tracked.

East City Jct to Carrollton Jct Improvements

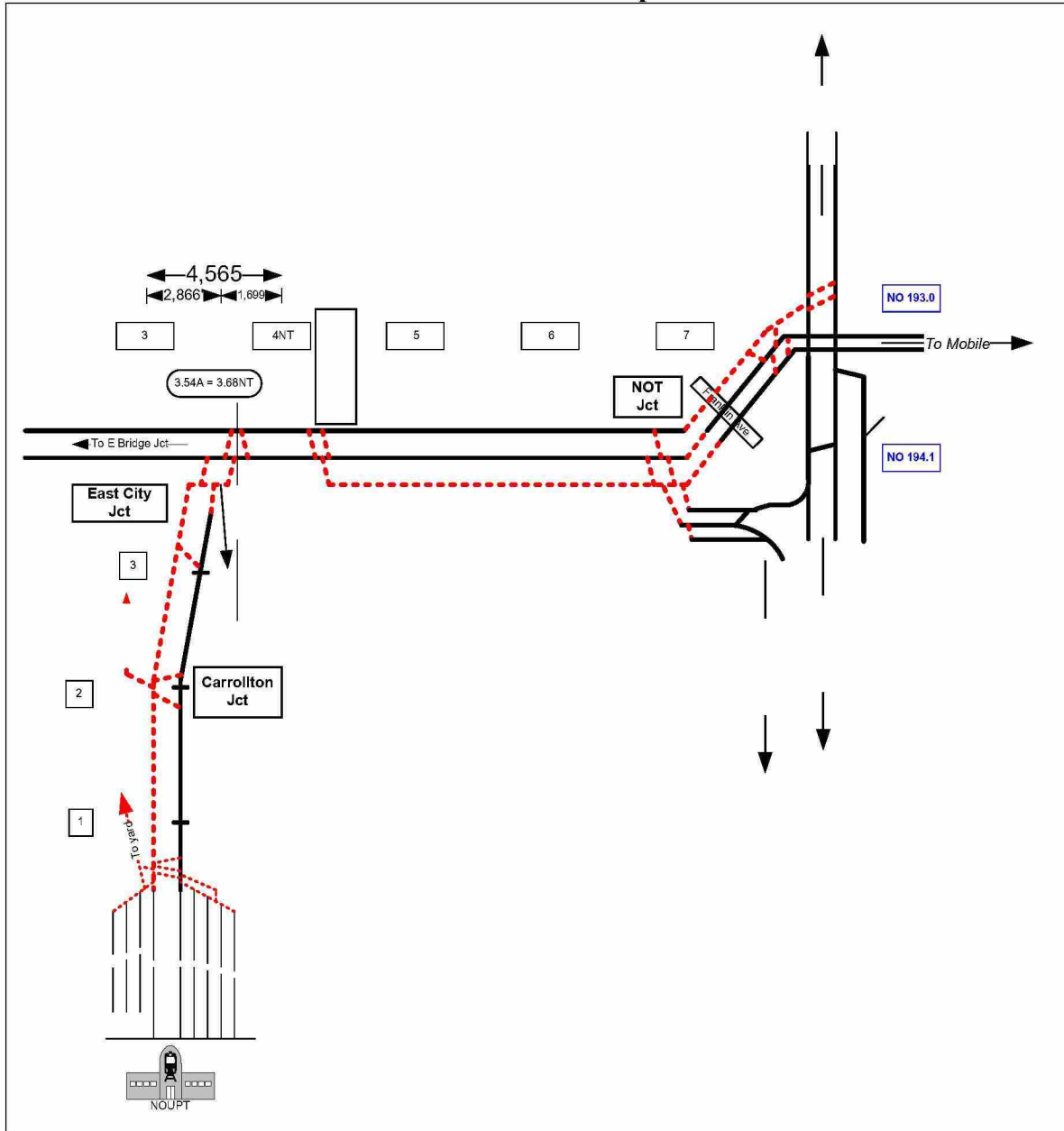
Passenger train service diverges from the Back Belt at East City Jct. Presently the line is single tracked to Carrollton Jct, the location where passenger trains to Chicago and Houston diverge, and then to the start of the station tracks. The proposed increased level of passenger service requires that the line be double tracked to avoid conflicts and delays.

East City Jct would be configured to enable passenger trains to meet and pass each other without delay. The revised junction also would provide flexibility to minimize conflicts with freight trains on the Back Belt. The reconfigured Jct would provide access to the NS local industrial track.

Carrollton Jct to New Orleans Union Passenger Terminal Improvements

The single track lead to the nine-track station does not provide flexibility to make moves to and from the yard as well as operate the proposed Gulf Coast HSR passenger service and the existing Amtrak intercity trains. The double track lead and the upgraded interlocking at Clara Tower, the interlocking at the north end of the station, would provide this flexibility.

**Figure 8-17. Full Service Build Out
Shared Improvements NE Tower to NOUPT**



Source: Parsons Transportation Group, 2006.

Areas of Special Concern

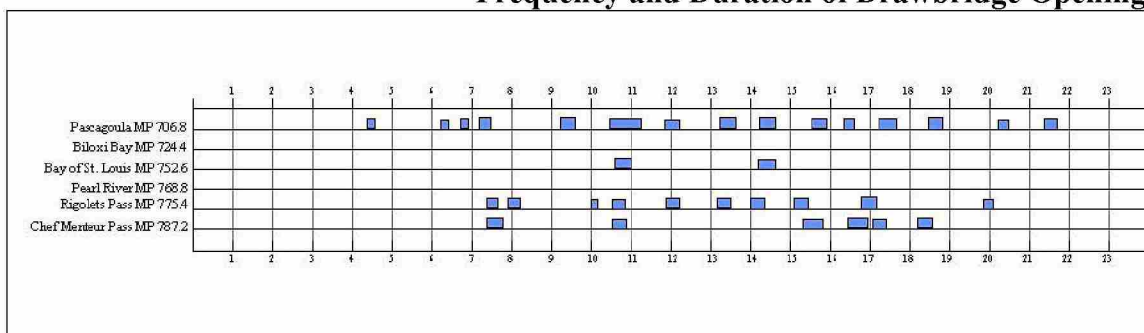
The mix of facilities, services, and surrounding land uses poses special challenges in the following locations. In addition the seven drawbridges have a unique effect on trip time and reliability of freight and passenger train operations.

Drawbridges

There are 7 drawbridges between Mobile and NOUPT. They are located at MP 706.8 (Pascagoula), MP 724.4 (Biloxi Bay), MP 752.6 (Bay of St. Louis), MP 768.8 (Pearl River), MP 775.4 (Rigolets Pass), MP 787.2 (Chef Menteur Pass) and MP 801.5 (Industrial Canal - just south/west of Gentilly yard).

The study team conducted an analysis of frequency and duration of openings for all drawbridges between New Orleans and Mobile⁴ for an 8-day period for the purpose of inclusion of bridge openings in the simulation of the corridor. Figure 8-18 illustrates a one-day sample of bridge openings. (Further data for the other days is included in an Appendix taken from the CANAC Tech Memo 1 & 2; Appendix 3. It contains the data for the full period of 8 days.)

Figure 8-18
Frequency and Duration of Drawbridge Openings



Source: CANAC, 2006.

On this bar chart, the horizontal axis represents a 24-hour period and the blue bars represent durations of bridge opening. Each drawbridge is shown on the vertical axis. In most cases a single boat requires a 10-minute opening, although the 8-day period indicated that 20-minute openings are not unusual. There are frequent occurrences however, where more than one boat uses one opening. In these cases, the duration of bridge openings can approach one-hour.

⁴ Four drawbridges east of Mobile were included in the analysis. The simulations performed for this analysis extended east of Mobile to a location known as Brewton.

The obvious problem comes when boaters want the bridges up when a train is coming. The letter of the law says no bridge has to open until requested to do so by the skipper. Once the opening has been requested water traffic has an absolute priority over trains. The study team's analysis indicated that the bridge openings in the New Orleans to Mobile Corridor appear to be a random process with the exception that boats seem to operate mostly in daytime.

While drawbridge openings constitute an irritant to the operation of the freight trains, it can be foreseen that they will turn out to be a major hurdle in the operation of time-sensitive passenger service. As the bridge opening process is random, a passenger train may be able to run over the corridor without encountering a single opening or conversely the train could encounter many openings. The possibility of numerous openings would have a deleterious effect on transit time, thus the on-time performance and reliability of the scheduled service.

Possible solutions to this problem exist. As described below actions on Amtrak's Northeast Corridor north of New Haven have resulted in an agreed solution relative to the coordination of bridge openings to mitigate delays to trains and boats the issue.

Amtrak and boating agencies, including the Coast Guard, marina operators, commercial boaters, fishermen, and others acted proactively to accommodate Amtrak's Acela service between New York and Boston, which must pass over five drawbridges between New Haven and Boston, all in Connecticut. As an initial step a Movable Bridge Advisory Board that meets quarterly was established. After numerous false starts and differences of opinion the group has worked together and institutionalized the process of addressing bridge issues. The agreements ultimately reached also managed to mollify pleasure and commercial boaters.

The plan that was developed has been geared in such a way as to help the boaters accommodate the train traffic, not the other way around. The agreement has the blessing of the coast Guard, the Federal Railroad Administration (FRA), and the Connecticut Department of Environmental Protection; the three agencies that have oversight of the plan.

The Plan: On each movable bridge, Amtrak has installed a countdown clock indicating to boaters the approximate number of minutes until the bridge will be open. The agreement has resulted in the trains having priority over boat traffic. This may not occur every time, but experience has shown that every effort is made to make sure that boats rarely delay trains.

Another implication of the random delays to trains from bridge openings is that any future plant enhancements cannot be designed on an assumption that two opposing passenger trains will always meet at the same location, and hence additional plant will be needed to overcome the variability in performance of trains and the meet locations.

Gentilly and Sibert Yards

Gentilly and Sibert yards are two major choke points on the corridor. Gentilly Yard is located about ten miles east of NOUPT; while Sibert Yard is located east of the Mobile Station; technically the yard is not located in the New Orleans-Mobile Corridor, however, freight operations into, out of, and by the yard potentially would affect the proposed HSR intercity passenger service.

The two yards have a major impact on the fluidity and capacity of the mainline; congestion in the two yards results in freight trains having to be held on the main. These trains tie up mainline and sidings. The study team's analysis of train operations in May 2004 included identification of situations in which three consecutive sidings adjacent to either of the yards were occupied by trains waiting to enter the yard. For example, due to congestion at Gentilly yard, sidings at Lake Catherine, Claiborne, and Nicholson were occupied. Consequently, these sidings became non-operational for the purpose of meets and overtake. As a result, the distance from the middle of the first available siding (Harbin) to the beginning of the double track at Michoud turned into 47.1 miles stretch. This spacing is three to four times greater than the desired spacing for reliable train operations. The net effect is that these situations significantly reduce the capacity of the mainline.

Both Gentilly and Sibert Yards have physical limitations and the yard processes/processing time of trains is a major problem. Based on the average siding-to-siding spacing and the volume of trains, the New Orleans-Mobile Corridor has the capacity to handle more trains than presently, however, Gentilly and Mobile yards act as choke points to limit the volume of traffic that can be handled on the corridor.

A variety of reasons, including funding limitations, led the study team to focus on the capacity of the mainline. Consequently, it was decided to isolate the impact of yards on the line of road and treat the issues of mainline and the yard capacity independent of each other. The study quantified the capacity shortfall in the yards, but did not develop any recommended solutions to the complex yard operation issues. Instead, the study concentrated on analyzing the capacity of the main line to handle the projected growth in freight traffic and the proposed intercity passenger service.

Gentilly Yard

Gentilly yard presently has six receiving and departure tracks. The number of receiving and departure tracks is insufficient, and the mainline tracks within the yard limits also are used to supplement receiving and departure track capacity, specifically, quite frequently both tracks are used to assemble many trains before their departure. The usage of the mainline track for receiving and departure activities is facilitated by the fact that most freight trains terminate or must be handled in some manner at Gentilly; the exception being some interchange traffic.

The Sunset Limited passenger train, which runs with frequency one train per day, 6 days a week (three eastbound and three westbound) is the only other through train that operates in the New Orleans to Mobile Corridor. This one per day passenger train is often delayed as the result of the functioning of the yard; quite frequently the train has to operate through the yard as the main tracks have not been freed in advance to allow this train to run by the yard. The CSXT policy is that the mainline be kept open for this train, but only if it runs on time; which occurs infrequently, particularly eastbound trains. Operating the train through the yard is slow and time-consuming and quite often is disruptive to the yard operation.

Prior to developing the model and performing the simulations the study team conducted detailed analysis of receiving and departure tracks occupancies at Gentilly yard. These occupancies were then related to particular arriving and departing trains. Special attention was given to occupancies that resulted in arriving trains being held in sidings on the approach to the yard, because there was no room in the yard to accommodate them.

Figure 8-19 illustrates a sample of receiving and departure track occupancies at Gentilly yard⁵. The top of the chart illustrates time of arrival. If a train was held on the mainline in one of the sidings, or in the double track section between Michoud and the yard, a horizontal thick line shows duration of the wait. After a train was placed in one of the receiving tracks, a horizontal bar shows how long cars from this train occupied the track in question. In some instances, trains arrived directly to one of the classification tracks. In those cases, a vertical line was drawn from the arrival time to the middle of the chart, and no occupancy is shown (sink approach).

The bottom of the chart shows time of departure. A vertical line was drawn upwards to the track on which the train was assembled, and a horizontal bar indicates the duration of making up of the train. It should be noted that 3 trains on that day were assembled on the mainline within yard limits.

The study team calculated that the average track occupancy in the Gentilly Yard for the 7 days that was subsequently modeled amounted to 85%. A general guideline in smooth operation of a yard is that the yard track occupancy should be around 50%. At 85% yard occupancy excessive queue and waiting time can be expected.

Sibert Yard

By contrast, Sibert yard is mostly a through yard, with only a few trains terminating or originating there. All trains, with the exception of passenger trains and unit trains destined for Choctaw, have crews changed there. Trains that do not set off and/or pickup cars can be handled at the Sibert siding. The whole operation of changing crews is scheduled to take 20 minutes, but often takes longer.

⁵ Appendix 6 contains a full set of track occupancies for the modeled period. The horizontal axis pertains to time, a 24 hours period in this case.

19 May 04



The trains that pick up and/or set off cars are handled on the mainline within the yard limits. The remaining tracks in the yard are too short for this operation. The problem with the Sunset Limited passenger train mirrors that at the Gentilly yard. Both the main track within the yard limits and the Sibert siding has a potential to be occupied at the time of the arrival of a passenger train. In this case, one of these tracks needs to be freed up in advance, or the passenger train will incur a delay.

Figure 8-20 illustrates a sample of track occupancies at Sibert yard. As it was the case with the Gentilly yard, the graph illustrates that the excessive occupancy of tracks where the through trains are handled results in backlogs.

Effect of removing yards from simulation

To properly understand line capacity issues in the New Orleans to Mobile corridor, it was first necessary to separate yard capacity from line capacity. To this end, the results of two simulations were compared:

- The Base Case with Present Traffic on Present Plant; and
- The Base Case with the constraints at Gentilly and Sibert yards removed by providing ample receiving/departure capacity.

Unscheduled Delay per 100 train miles is a measure used by CSXT and other railroads to analyze existing operations and evaluate the effect of proposed operational or facility changes. The results of the two simulations are compared in Table 8-2.

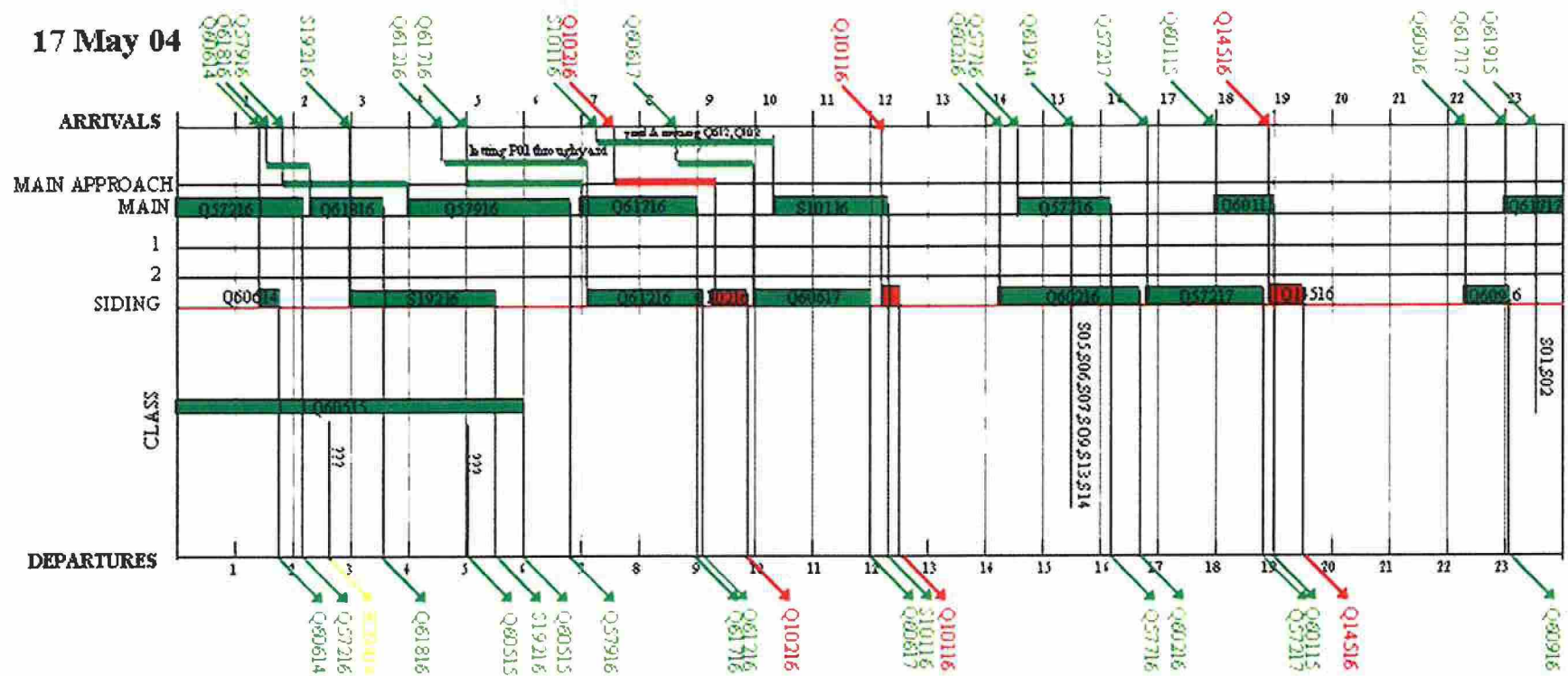
The total unscheduled delay, in minutes, was reduced 67 percent, 31,078 minutes, by eliminating the constraints at Gentilly and Sibert yards. This clearly illustrates the need for detailed analyses of the improvements to the facilities and operations at the two yards. Analysis of the Receiving and Departure track occupancies at both facilities led to the conclusion show that in to prevent spilling of the yard operations into the mainline, and to free the mainline within the yard limits at Gentilly and Sibert yards, 5 additional Receiving and Departure tracks would have to be added at Gentilly and 4 tracks at Sibert.

Total Capacity of the Line between New Orleans and Mobile

Once yard constraints were removed from the Mobile to New Orleans corridor, CSXT considered that the mainline was capable of accommodating more trains. CSXT expects that this excess of mainline capacity would be preserved for growth freight traffic. **The total capacity of the line is understood herein not so much as the maximum number of trains that can be run on the line, but rather the maximum number of trains that can be run on the line to meet expected performance.** Since freight trains do not have schedules in a

Figure 8-20

Sample of Track Occupancies at Sibert Yard



Source: CSXT, 2006.

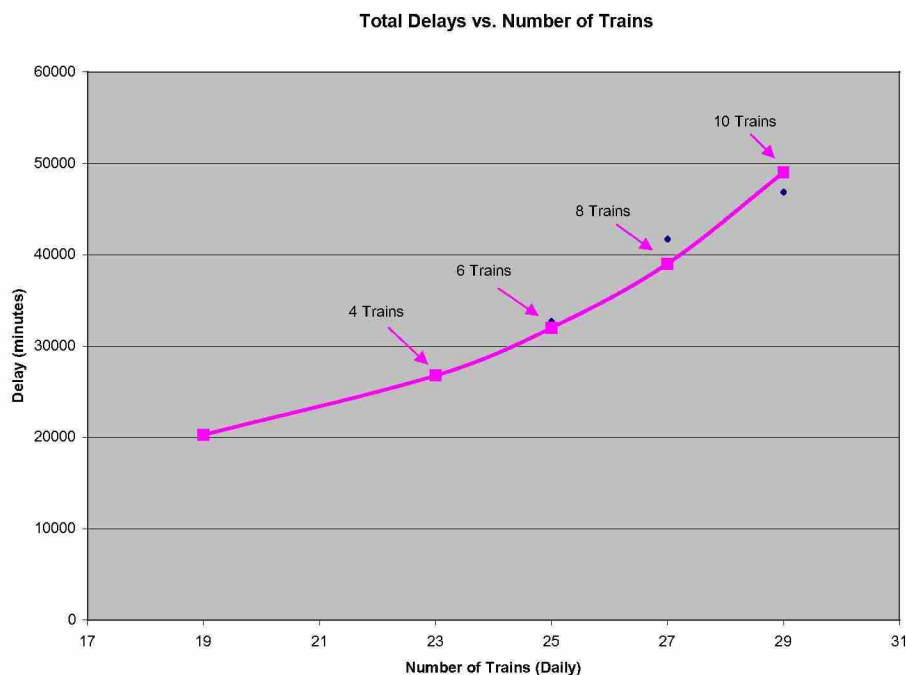
Table 8-2 Effect of Excluding Gentilly and Sibert Yards from Base Case Simulation

	Base Case Simulation Including Gentilly and Sibert Yards			Base Case Simulation Excluding Gentilly and Sibert Yards			
Type	Train Miles	Total Unscheduled Delay	Unscheduled Delay/100 miles	Train Miles	Total Unscheduled Delay	Unscheduled Delay/100 miles	Unscheduled Delay/100 miles Difference
		(Minutes)	(Minutes)		(Minutes)	(Minutes)	
Passenger	1,205	223	19	1,295	146	11.27	-64%
Intermodal	8,694	10,964	126	8,475	1,906	22.49	-461%
Manifest	19,275	31,724	165	19,053	10,860	57.00	-189%
Unit	1,789	2,149	120	1,796	1,559	86.80	-38%
Bulk	1,583	1,733	109	1,584	1,281	80.87	-35%
Grain	26	37	141	26	-	-	0%
Total	32,572	46,830	144	32,229	15,752	48.88	-194%
Note: Does not include local trains and interchange operations west of Gentilly Yard							

Source: Parsons Transportation Group, 2006.

way passenger trains do, delays per 100 miles are usually used as a measure of the performance. One indication that the traffic level approaches the limit of capacity is an exponential growth of delays as additional trains are added to the traffic. Thus, to find the total capacity of the line, a series of iterations/simulations with increasing the numbers of trains, 4, 6, 8 and 10 trains over the current volume, were run by the study team. Delays per hundred miles were then analyzed as well as the delay curve versus the number of trains. The characteristics of the growth trains were provided by CSXT, while departure times were established using random generator. Half of the additional trains were intermodal and the other half manifest. The result of the simulations is shown in Figure8-21.

Figure 8-21
Comparison of Delays as the Number of Trains Increased



Source: CANAC, 2006.

The analysis of the study team indicated that 8 and 10 additional trains exceeded the total capacity of the line. This left the choice of 4 and 6 additional trains. A further analysis of the delay suggests that after 4 trains, the delay curve becomes exponential, and that 4 additional trains might be considered as the limit of capacity on this corridor.

Thus, the conclusion of this scenario is that the total capacity of the mainline between New Orleans and Mobile is 23 trains (19 trains currently in operation plus 4 additional/growth

freight trains.). The four additional trains resulted in an increase of over 6,000 unscheduled delay minutes and an increase of nine minutes per 100 miles (15 percent). (Refer to Table 8-3.)

New Orleans Terminal Issues

NOUPT is the study limit on the west, New Orleans, side of the corridor. The approximately 9.7 miles section of the corridor to the west of the Gentilly yard (CSXT MP 800.4 to NOUPT MP 2.8) is part of the New Orleans Terminal. This corridor is shared by the various railroads operating in the New Orleans Terminal (CSXT, NS, UP, Amtrak, Kansas City Southern, New Orleans Public Belt [NOPB]) and by the CSXT and NS to interchange traffic with UP. The approximately 3.5-mile Norfolk Southern Back Belt Line (BBL) section between NOT Jct. (BBL MP 7.08) and East City Jct. (BBL MP 3.5) or the "Back Belt Section" is of particular concern.

NS and CSXT use the Back Belt section to stage westbound trains for interchange with the UP and the interchange process creates potential capacity constraints. The respective train crews bring the westbound interchange CSXT and NS trains to Marconi Drive located just east of East City Jct. The crews leave the trains on the main to wait for UP crews to pick them up. Five hours is the average waiting time on the BBL, which effectively blocks one of the two main tracks, there are no sidings in this section of the BBL. At times two or more trains may be stored waiting for UP Crews. The eastward interchange traffic is more fluid as UP delivers an average of eight trains per day directly to CSXT's Gentilly yard and NS's Oliver yard. One KCS (Kansas City Southern) also operates in the Easterly direction. The Passenger traffic on this section is an average of 1.4 trains per day, in each direction. The Passenger traffic consists of Sunset Limited trains, and the Southern Crescent, which operates a round trip a day to Birmingham and ultimately New York City on the NS's line to Birmingham. The train presently departs the corridor at Oliver Jct.

The New Orleans Terminal has been the subject of a few recent studies. The complexity of the operation and the interest on the part of the freight railroads, Amtrak, and state and local agencies to increase train fluidity in the Gateway Corridor, and eliminate the effect of slow and stopped train movements on the local citizenry, were the primary factors that lead to the studies. The many railroads having to share the corridor while attempting to meet their individual service requirements complicates train operations in the New Orleans Gateway. The current traffic and the interchange trains occupying the main would interfere with the running of additional intercity passenger trains. It is desirable to have a measure of the impact and interference that can be expected on the proposed passenger service in the Back Belt Section; however, for modeling, details of traffic and other aspects of the operation of each of the railroads are needed, which were not available to this study.

Southern Rapid Rail Transit Commission
Gulf coast High-Speed Rail Corridor
New Orleans to Mobile Corridor Transportation Plan

Table 8-3. Effect of Adding Four Trains to Base Case Simulation

	Base Case Simulation Excluding Gentilly and Sibert Yards			Base Case Simulation Excluding Gentilly and Sibert Yards with Four Additional Trains			
Type	Train Miles	Total Unscheduled Delay	Unscheduled Delay/100 miles	Train Miles	Total Unscheduled Delay	Unscheduled Delay/100 miles	Unscheduled Delay/100 miles Difference
		(Minutes)	(Minutes)		(Minutes)	(Minutes)	
Passenger	1,295	146	11	1,295	230	18	37%
Intermodal	8,475	1,906	22	10,920	4,023	37	39%
Manifest	19,053	10,860	57	22,178	14,372	65	12%
Unit	1,796	1,559	87	1,807	1,763	98	11%
Bulk	1,584	1,281	81	1,584	1,349	85	5%
Grain	26	-	-	26	30	115	100%
Total	32,229	15,752	49	37,810	21,767	58	15%
Note: Does not include local trains and interchange operations west of Gentilly Yard							

Source: Parsons Transportation Group, 2006.

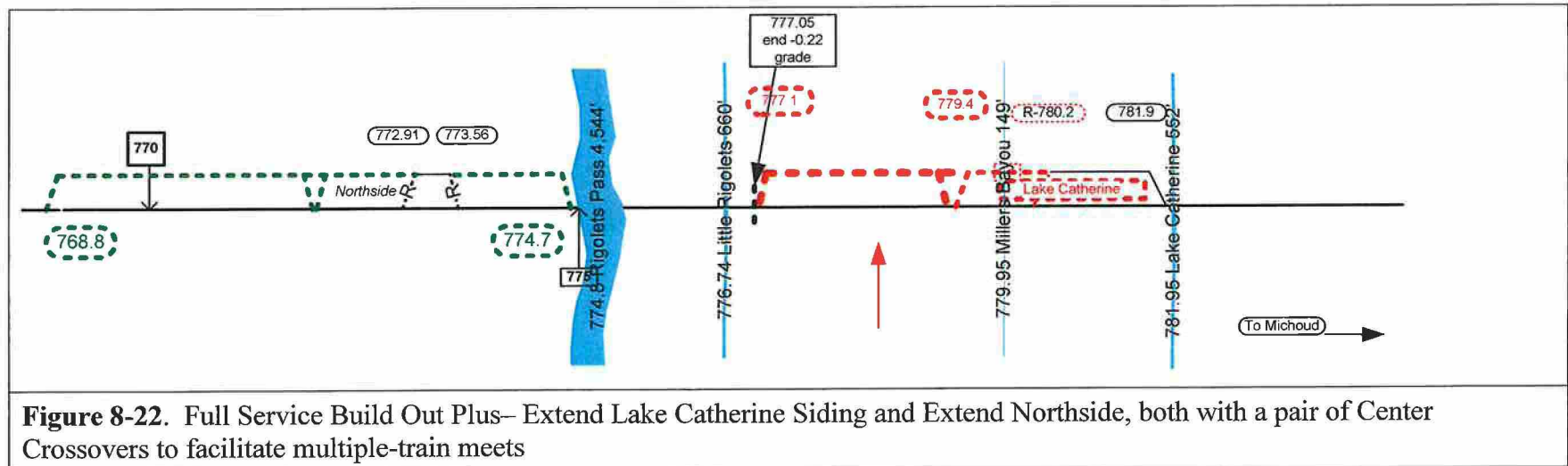
Study team member CANAC conducted a study of the New Orleans Terminal, including the NS Back Belt, a few years ago. The study resulted in the development of a number of operational and physical plant change recommendations and summarized its findings in a report entitled *New Orleans Rail Gateway Regional Rail Operational Analysis*. By necessity the information that was included in the report had to be generalized in order to respect and protect the privacy and confidentiality requirement of the participating railroads.

CSXT confirmed that there have been no substantial changes in the traffic or interchange policy in this corridor. Analysis of CSXT's recent experience (December 2004 data) of the dwell of westbound trains, as measured by the two AEI scanners indicated an average dwell of 4.87 hours, which was comparable to the level observed in the earlier study. The study effort used the information that was included in the CANAC report and developed a general guideline of the improvements that may be needed on the Black Belt to accommodate the increase in passenger traffic.

Lake Catherine to Michoud

Analysis of delays by location indicated some elevation of delays in the southern portion of the route with Lake Catherine being the highest. This is explainable by a relatively long grid between Michoud and Lake Catherine (11 miles) and two drawbridges between Claiborne and Lake Catherine. Plant improvements in this area are difficult to realize as this portion of the corridor is on wetlands.

Figure 8-22 on the following page shows the extension south of Pearl River Draw, to Rigolets Pass. If the initial full-service implementation experiences delays in this area, this is, for all practical purposes, the only addition that could be made between Bay St. Louis and Michoud. The 5.9-mile siding would keep some trains moving and allow for more passing meets.



Source: Parsons Transportation Group, 2006.

Chapter 9 – Program Summary and Conclusions

This chapter recapitulates the nature and cost of the potential improvements to the New Orleans-Mobile Corridor, and summarizes major conclusions of the study.

Recapitulation of Potential Improvements

Tables 9-1 and 9-2 list the corridor-wide and site-specific improvements identified in Chapters 7 and 8 as addressing the Initial Service and Full Service requirements underlying the study. The tables identify the objectives and estimated cost of each line item. The projected total cost of all the identified potential improvements (exclusive of rolling stock requirements and items not estimated in the study) currently stands at approximately \$730 million (2004 dollars).

Tables 9-1 and 9-2 include cost estimates only for those infrastructure items covered in the study scope. Items omitted from the study scope are labeled “to be determined (tbd)” and are excluded from the totals shown. Some of the items “to be determined” may be essential prerequisites to upgraded service on the line (e.g., improvements to Sibert and Gentilly Yards) and would need to enter into further studies or implementation plans. This engineering report does not address the financing or institutional options which may enter into project implementation.

Detailed engineering construction plans need to be prepared for the various improvements; the plans would necessarily support a detailed segmentation, prioritization, and sequencing of these projects. As an example of segmentation, a major effort like the extension of double track from Choctaw to Fowl River Siding, including the construction of Choctaw Siding, which this report describes in broad outlines, would lend itself to subdivision into a number of interrelated projects. The engineers would then evaluate these separate projects in terms of their cost-effectiveness in fulfilling capacity, re-capitalization and trip-time needs. Experience on the Phase I, Meridian to New Orleans study, and other recent HSR studies have shown the benefit of prioritizing capacity improvements based on an evaluation of their urgency and return on investment.

The addition of increased levels of intercity passenger service in a primarily single track railroad, operating at speeds in excess of freight train operations, must be accompanied by an investment in siding improvements that would optimize spacing and provide sidings sufficiently long to accommodate train meets by easily having room for freight trains. The increase in capacity improves the reliability of passenger train operations while not denigrating freight train operations. These capacity enhancements accompanied by signal

Table 9-1
Cost Estimate of Contemplated Improvements to Support the Initial Service

Improvements Sibert Yard to Elysian Fields	(In Millions)
Signal Upgrades Sibert to Mobile Station	\$3.9
Double Track Mobile Station to Brookley	\$27.2
Track and Signal Upgrades Brookley to Fowl River	\$1.5
Fowl River Siding	\$11.2
Track and Signal Upgrades Fowl River to Little Franklin	\$1.7
Little Franklin Siding	\$12.5
Track and Signal Upgrades Little Franklin to Orange Grove	\$2.1
Orange Grove Siding	\$6.6
Track and Signal Upgrades Orange Grove to Gautier	\$1.4
Gautier Siding	\$8.5
Track and Signal Upgrades Gautier to Ocean Springs	\$1.0
Ocean Springs Siding	\$13.2
Track and Signal Upgrades Ocean Springs To Beauvoir	\$4.5
Double Track Beauvoir to Harbin	\$63.4
Track and Signal Upgrades Beauvoir to Nicholson	\$4.5
Nicholson Siding	\$8.1
Track and Signal Upgrades Nicholson to Claiborne	\$5.3
Claiborne Siding	\$4.5
Track and Signal Upgrades Claiborne to Lake Catherine	\$4.6
Lake Catherine Siding	\$9.2
Track and Signal Upgrades Lake Catherine to Gentilly Yard	\$9.2
Track and Signal Upgrades Gentilly Yard to NS Railroad Back Belt	\$7.6
Subtotal	\$211.7
Movable Bridge Improvement Program	\$34.3
Station Improvement Program	\$6.0
Subtotal	\$252.0
Common Improvments NO&NE Tower to New Orleans UPT	\$7.6
TOTAL	\$259.6

Source: Parsons Transportation Group, 2006.

Table 9-2
Cost Estimate of Contemplated Improvements to Support the Full Service

Improvements Sibert Yard to NO&NE Tower	(In Millions)
Signal Upgrades Sibert to Mobile Station	\$4.0
Double Track Mobile Station to Fowl River	\$80.2
Track and Signal Upgrades Fowl River to Little Franklin	\$4.7
Little Franklin Siding	\$26.2
Track and Signal Upgrades Little Franklin to Orange Grove	\$1.4
Orange Grove Siding	\$19.9
Track and Signal Upgrades Orange Grove to Pascagoula	\$0.8
Pascagoula Siding	\$14.9
Track and Signal Upgrades Pascagoula to Gautier	\$0.2
Gautier Siding	\$10.8
Track and Signal Upgrades Gautier to Ocean Springs	\$1.1
Ocean Springs Siding	\$25.4
Track and Signal Upgrades Ocean Springs To Beauvoir	\$4.7
Double Track Beauvoir to Harbin	\$65.1
Track and Signal Upgrades Beauvoir to Nicholson	\$4.5
Nicholson Siding	\$14.9
Track and Signal Upgrades Nicholson to Claiborne	\$2.0
Claiborne Siding	\$21.0
Track and Signal Upgrades Claiborne to Pearl River	\$0.1
Pearl River Siding	\$26.3
Track and Signal Upgrades Pearl River to Lake Catherine	\$0.3
Lake Catherine Siding	\$31.9
Track and Signal Upgrades Lake Catherine to Gentilly Yard	\$12.3
Track and Signal Upgrades Gentilly Yard to NS NO&NE Tower	\$4.0
Subtotal	\$376.6
Movable Bridge Improvement Program	\$27.4
Station Improvement Program	\$2.5
Subtotal	\$406.5
Common Improvements NO&NE Tower to New Orleans UPT	
Elysian Fields Connection	\$12.7
Third Track Elysian Fields to Marconi Drive	\$20.9
Track and Signal Upgrades Marconi Drive to East City Jct	\$0.3
Track and Signal Upgrades East City Jct to New Orleans UPT	\$30.6
Subtotal	\$64.5
TOTAL	\$471.0

Source: Parsons Transportation Group, 2006.

system improvements and continuous upgrading of track speeds also provide a large share of the trip time benefits. Rehabilitation projects that upgrade drawbridges also will contribute to increases in passenger and freight train speeds in the New Orleans-Mobile Corridor. Finally, the study's 20-year planning horizon allows for a phased implementation of the contemplated program to match the rail operators' staged introduction of service improvements and the availability of an ongoing infusion of capital funding to the states and transportation agencies. Thus, closer scrutiny would assist high-speed rail partners in fashioning a detailed program that is affordable, timely, and efficacious.

Major Study Conclusions

Protection of all freight and passenger services

Numerous computerized simulations of the operations of all users of this Corridor (freight and intercity passenger) have identified a number of specific infrastructure changes that would provide the capacity to handle all existing and projected services without deteriorating freight train performance. Even with these changes, close scheduling and dispatching coordination among CSXT and the intercity passenger service operator extending to other contiguous routes would be necessary to optimize the use of the improved facility and preserve the dependability and marketability of all passenger and freight operations.

This study of the 145-mile New Orleans-Mobile Corridor represents a significant application of the transportation planning concepts that evolved in the Northeast Corridor Improvement Project - America's premier high-speed rail development effort to date - to a primarily single-track railroad with heavy through and local freight traffic.

Capacity Requirements

The importance of freight traffic, coupled with the bottlenecks inherent in single-track operation, makes protecting the reliability of all services a paramount concern in planning - secondary only to safety. As a result, for this corridor to fulfill its potential:

- Significant additional capacity must be provided.
- This capacity may take the obvious form of additional tracks, mainly passing sidings but in some instances midpoint interlockings in longer sidings, new interlockings, and improved connections between rail lines.
- More subtle - but of equal importance - are the detailed improvements that would allow freight trains to enter and exit the main line more quickly, and that would lessen the delays occasioned by interference among all rail services. These include upgrading turnouts for higher operating speeds and providing improved paths for all types of trains through complex yard areas.

- Combined with the need for careful attention to engineering detail is the requirement for collegial operations planning, over the long-term, among all the operators and service sponsors in the corridor.

With the betterments identified in this study, it would be feasible to upgrade intercity passenger service to achieve reliable travel times of less than 2.4 hours between New Orleans and Mobile. This scheduled running time, while not approaching the average speed of high-speed trains in the Northeast Corridor (NEC), would significantly exceed present rail passenger travel times in the corridor. More importantly, the reliability would approximate that achieved in the NEC, thereby providing a competitive travel mode in this segment of the GCHSR Corridor.

These intercity passenger rail service improvements could occur without adverse impacts to freight operations in this very busy territory. Indeed, all freight services would benefit from the improved traffic flows made possible by the initiatives described in this report.

Implications for subsequent GCHSR and other Corridor Studies

Because the New Orleans-Mobile Corridor consists of a primarily single track freight main line that requires not only the construction of numerous capacity improvements to accommodate higher speed passenger trains and increased levels of freight train operations as well as a rethinking of rail dispatching policies and procedures, the present study contains information that will be useful to the study team as it evaluates the remaining segments of the GCHSR Corridor in subsequent phases of this study. The study also will provide useful information to intercity and commuter rail corridor planners in many other regions of the country where analogous situations prevail. Heavy freight routes with limited capacity exist in other designated corridors, and the techniques employed to overcome the varied challenges in the New Orleans-Mobile route will apply elsewhere as well. In particular, planners and decision-makers need to keep in mind the special characteristics of single-track routes - and of high-density freight lines - and the careful attention to operational planning and engineering detail that is prerequisite to their successful adaptation for high-speed rail service.