Mississippi State Rail Plan Update

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September 2022

MDOT
MISSISSIPPI DEPARTMENT OF TRANSPORTATION

2045
MULTIPLAN
THE FUTURE IN MOTION

Mississippi State Rail Plan Update

prepared for

Mississippi Department of Transportation

prepared by

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1.0 The Role of Rail in Statewide Transportation

The Mississippi State Rail Plan (MSRP) update sets a vision for the State's freight and passenger rail system that is grounded on what the users of the rail system – including rail shippers, passengers, railroads, and communities served – want and need in terms of rail service. This document articulates the State's vision for Mississippi's rail system, describes the process that developed that vision, and presents a program of improvements and investments that help address Mississippi's freight and passenger rail transportation needs. As an update to the 2016 MSRP, the new plan will reflect economic, institutional, and infrastructural changes impacting Mississippi's rail transportation system.

The MSRP update was developed within a framework for state rail plans established by federal legislation and supporting guidance. The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) reauthorized the National Railroad Passenger Corporation (Amtrak) and strengthened the intercity passenger rail network in the U.S. by directing Amtrak, the Federal Railroad Administration (FRA), states, and other stakeholders to improve service, operations, and facilities for passenger rail. Section 303 of PRIIA also requires states to develop FRA-accepted State Rail Plans in order to be eligible for the capital grants authorized in PRIIA. FRA developed the State Rail Plan Guidance (September 2013) to assist states in fulfilling that requirement.

The MSRP was developed by the Mississippi Department of Transportation (MDOT) in consultation with the state Rail Advisory Committee (RAC). The RAC consisted of representatives of Mississippi's business community, state agencies, FRA, Amtrak, and the Southern Rail Commission (SRC), and the railroads operating in the state.

This chapter describes Mississippi's goals for multimodal transportation, the role of rail in Mississippi's transportation system, and how the State is organized to provide political, legal, and financial support to rail investment and development.

1.1 Mississippi's Goals for its Multimodal Transportation System

The 2020 MSRP has been prepared to reflect the broad planning framework for Mississippi that is defined by the State's most recent statewide long range transportation plan, MULTIPLAN 2045, as well as the findings and conclusions of the Mississippi Statewide Freight Plan (MSFP).

In developing MULTIPLAN 2045, which is expected to be adopted in 2020, MDOT established the following goals for the State's multimodal transportation system:

- **Environmental Stewardship:** The expansion and modernization of the transportation network should be mindful of its effect on the environment and attempt to mitigate the impacts.
- **Maintenance and Preservation:** Preserve and maintain existing transportation infrastructure.

- **Awareness, Education and Cooperative Processes:** Establish effective transportation partnerships and collaborations while increasing awareness of the benefits and needs of an intermodal system.
- **Accessibility and Mobility:** Improve connectivity and travel of residents, commerce, and industry.
- **Funding and Finance:** Provide reliable funding and finance options for the transportation system and allocate funds efficiently.
- **Safety:** Ensure a safe transportation network for all users.
- **Economic Development:** Invest in strategic transportation improvements to support the State's economy and competitiveness.

The goals established for MULTIPLAN 2045 will serve as the basis for evaluating Mississippi's passenger rail services. The freight-centric goals and objectives defined in the MSFP will serve as the basis for evaluating Mississippi's freight rail needs, as shown in Table 1.

Table 1. Mississippi State Freight Plan Goals and Objectives

MSFP Freight Goals	Freight Objectives
Economic Development: Improve economic benefits of the statewide freight network.	Increase public investment to facilitate freight system improvements that generate jobs and enhance Mississippi's competitive position.
Accessibility and Mobility: Improve reliability and reduce congestion on the priority freight corridors.	Provide reliable and predictable travel times along identified freight corridors by reducing time delays.
Safety: Protect the safety and security of freight infrastructure.	Reduce the number and rate of freight-movements related fatalities and injuries.
Maintenance and Preservation: Maintain the Mississippi freight network infrastructure in a state of good repair.	Continuously improve infrastructure conditions that affect freight bottlenecks and reliability issues.
Environmental Stewardship: Protect and enhance the environment while enhancing the freight network performance.	Implement freight-specific environmental stewardship programs to reduce impact of freight movement on the State's communities.

Source: Mississippi Statewide Freight Plan, February 2015, Amended October 2017.

The MSRP has been prepared to reflect and support each of these multimodal and freight-specific transportation goals. These goals will serve as the baseline for defining the State's rail objectives, assessing the performance of the rail system, and considering public investment and policy initiatives to support the State's economy and quality of life.

1.2 The Role of Rail in Mississippi's Transportation System

Passenger and freight rail play an important role including the provision of transportation choices, enhanced economic competitiveness, community support, and improved access for communities. Passenger rail services strengthen the multimodal transportation system, creating new options for users as they combine different transportation modes to complete a trip. Attractive multimodal trip options require solid and convenient connections between the different modes of travel. In addition, freight rail supports efficient movement of freight and goods along Mississippi's freight network, and is critical to the State's economy and the well-being of citizens for national and international competitiveness. Mississippi freight shippers, receivers, carriers, and other stakeholders, rely on a safe, efficient, reliable, and cost-effective freight transportation system. The efficient and effective functioning of highways, railways, ports, airports, and pipelines allows them to move the products needed to carry on the state's business activities and everyday life and is an important consideration in business attraction and retention decisions.

Railroads have played a key role throughout Mississippi's history. Along with the state's inland waterways system, railroads have moved commodities and manufactured goods produced in the state to domestic and international markets, and brought raw materials and goods into the state for consumption and production. Railroads were also the primary mode for long-distance travel between major cities and from smaller towns. This all changed with the advent of the Interstate highway system in the 1950's, which revolutionized surface transport to an unprecedented degree. Nevertheless, railroads continue to play an important role in Mississippi, particularly with the state's freight intensive industries. In 2017, railroads terminated 151,500 carloads totaling 13.5 million tons, and originated 115,700 carloads totaling 8.6 million tons. These are substantial volumes that would be costly to handle by highway, and the availability of rail service helps to ensure Mississippi's competitiveness in national and global markets. Whereas the commodities handled by rail were once predominantly agricultural and forest products, Mississippi's growth in manufacturing has caused the mix of goods being shipped to become rather diverse. Principal commodities that are railed now include chemicals, primary metal products, nonmetallic minerals, as well as grain/food products.[1]

Currently, passenger and freight rail transportation face headwinds when competing with highway and air, though less so with water. This is often due to rail being less reliable and less connected as other travel modes. However, increasing demand and the primary reliance on automobile and air travel for passenger travel and truck transportation for freight movements lead to significant negative collateral impacts, including the worsening of quality of life, roadway congestion, safety and security, and environmental concerns. Furthermore, for a state with consistent and substantial funding shortfalls for highway maintenance and expansion, privately funded freight railroads can benefit the state and its economy by absorbing some of the growth pressures that otherwise would have to be met through public investment in highways. And, where

[1] Association of American Railroads. Mississippi State Fact Sheet, 2019. Available at: https://www.aar.org/wp-content/uploads/2019/01/AAR-Mississippi-State-Fact-Sheet.pdf

public investment is made in rail in a strategic manner, it can result in outsize benefits, as has been shown by the many successful federal grants for freight rail projects over the past decade.

Mississippi is fortunate to be served by two Amtrak long-distance services, the *Crescent* and *City of New Orleans*, which provide a meaningful option for those traveling to destinations throughout the U.S. By providing more reliable and convenient connections between different modes of travel, users of the system are encouraged to take more multimodal trips, which can lead to fewer trips taken solely via personal automobile. However, while the *City of New Orleans* Amtrak route had a marginally better on-time performance (OTP) than the system average in fiscal year (FY) 2018, the *Crescent* route had the lowest OTP on the whole Amtrak system. Improving the performance of these lines would allow the state to reap the benefits of intercity rail, which offers an environmentally-friendly transportation alternative to automobiles, providing opportunities to connect to the State's major economic centers and improving access to jobs, services, and labor markets.

The volume of freight shipped by rail is projected to increase in the coming decades as the economy continues to grow. However, this growth is not assured, and depends on the railroad industry adapting to a continually changing environment. The success of the railway industry over the past 40 years has primarily been the result of restructuring its business model around the increased productivity and profitability of high-volume bulk traffic – particularly coal - and development of an intermodal network largely focused on the handling of imported goods from the largest container ports to inland markets. With bulk traffic and international container traffic being largely mature, opportunities for growth will have to be sought elsewhere. These include improving and expanding the intermodal network to serve a North American clientele that has come to rely on the services available through over the road trucking to handle most shipments. While there is general agreement of the substantial potential, railroads have been hesitant to pursue these markets due to their up-front capital investment requirements and potential for lower margins. Another area that is expected to experience growth is in certain commodities and industries where the greatly higher vehicle capacity offers economies superior to truck, even though not moved in unit-train quantities. These include chemicals, some construction materials, metallic and non-metallic minerals, and agricultural products. To achieve success in these markets, the industry will need to adapt and respond by providing competitive offerings.

Freight rail network capacity is critical in keeping Mississippi economically competitive. While the state's freight rail system, particularly the Class I railroads, has largely kept up with capacity demands, it is evident that certain infrastructure deficiencies, most notably substandard weight limits and vertical clearances on its short lines, as well as additional main line track, expanded terminals, and improved traffic management systems will be necessary to sustain growth and maintain market share. These restrictions will limit the system's capability to accommodate higher volumes and a broader range of commodity types that would appeal to a more diverse range of existing and potential rail customers. Furthermore, a lack of growth in bulk markets, shifting traffic patterns, and increased volatility in their markets directly affect the strategies railroads are taking towards developing traffic in the future, establishing service levels, and making capital investments.

1.3 Institutional Structure of Mississippi's Rail Program

This section describes the institutional structure for application and implementation of state and federal passenger and freight rail programs in Mississippi. Under the terms PRIIA, states must prepare state rail plans in order to be eligible for certain rail program funding, and are expected to assume primary responsibility in four functional areas.[2] Each of these is listed below, with brief explanation of Mississippi's compliance with these requirements:

- *Establish a State authority to develop the State rail plan and designate officials with approval authority of the plan* – MDOT has been designated by the Governor as the State Rail Transportation Authority, the state agency authorized to prepare the State's rail plan, maintain (i.e., update), coordinate, and administer the state rail plan; further, the Transportation Commission has been designated as the State Rail Plan Approval Authority, authorized to approve the rail plan and to approve investment of public funds for rail projects.

- *Coordinate with other planning activities being carried out in the statewide/nonmetropolitan and metropolitan transportation planning processes funded by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA)* – as established in the MSRP update, MDOT is preparing this plan within the framework of its MULTIPLAN, links its state rail plan findings and recommendations to its Statewide Freight Plan, and has reached out through the MULTIPLAN public involvement process other statewide and regional planning agencies in the state.

- *Involve the public and key stakeholders in the planning process* – the rail plan has been prepared in consultation with its statewide RAC, comprised of representatives of other state agencies, the rail industry, Amtrak and the SRC, and various industry groups.

- *Coordinate with, and secure program implementation commitments as needed, from neighboring states, especially where multi-state corridors and transportation systems are involved* – MDOT has coordinated with adjacent state departments of transportation, examining their plans to identify opportunities for coordination and cooperation.

Beyond these PRIIA-responsive requirements, public railroad and rail service, planning, preservation and improvement of passenger and freight railroads in Mississippi involve a number of public agencies at the state and local levels. The respective roles of these agencies are listed below and discussed in the following sections:

[2] State Rail Plan Guidance, FRA, 2013.

- **MDOT** – lead agency for rail planning and rail safety;
- **The Mississippi Development Authority (MDA)** – lead agency for state economic development activities, including grant funding for rail service projects in support of industrial development efforts;
- **Southern Rail Commission (SRC)** – multi-state commission with lead responsibility for promoting improved passenger rail service within, to, and from Mississippi, Alabama, and Louisiana; and
- **Multiple local and regional rail authorities** – Mississippi public authorities with ownership or operating authority over regional or local switching railroads.

Mississippi Department of Transportation

MDOT is Mississippi's lead agency for rail planning and for administering rail safety and rail improvement programs. MDOT's Highway and Rail Safety Division administers preparation of the MSRP. The MSRP is developed in coordination with MDOT's Planning Division, which is responsible for the statewide multimodal and freight transportation plans and the Statewide Transportation Improvement Program (STIP).

The Highway and Rail Safety Division also administers the State's railway-highway crossing program. Using funding from FHWA through the Section 130 Highway-Rail Grade Crossing Program, the Division evaluates the traffic control devices relating to the railway-highway grade crossing and installs flashing lights and gates as appropriate. The Division also makes signage and pavement marking recommendations to local municipalities who are the local roadway authority in order to comply with the latest edition of the Manual on Uniform Traffic Control Devices.

Additionally, the Highway and Rail Safety Division oversees the Multimodal Transportation Improvement Program and the Railroad Revitalization Fund. Railroad signal and track inspections are handled by MDOT's Office of Enforcement in conjunction with the FRA.

Mississippi Development Authority

The MDA is the lead agency in the State's economic and community development effort. Its mission is "to foster a strong state economy and vibrant communities through innovation, use of talent and resources to improve our citizen's lives."[3] In recognition of the role played by rail in fulfilling its mission, the MDA has adopted several means of assisting in retaining and improving rail infrastructure and service. These include the Freight Rail Service Revolving Loan Program (RAIL) which makes loans available to municipalities and counties to finance freight rail service projects in Mississippi.

[3] Mississippi Development Authority, https://www.mississippi.org/home-page/about-mda/.

More information on RAIL and other MDA funding programs is discussed in Section 1.5 and in Chapter 2 of this Plan.

Southern Rail Commission

The SRC has been the primary impetus for improved passenger rail service in Mississippi in recent years. Established by an act of Congress in 1982, the SRC engages and informs public and private rail interests to support and influence passenger rail initiatives across its member states of Alabama, Louisiana and Mississippi. Its vision is to "promote the safe, reliable and efficient movement of people and goods to enhance economic development along rail corridors; provide transportation choices; and facilitate emergency evacuation routes."[4] The SRC is comprised of 18 members, appointed by the Governors of their respective states. In addition, it has the following goals and objectives:

- Provide transportation choices for the people we serve;
- Promote the safe, reliable, and efficient movement of people and goods to enhance economic development along rail corridors;
- Engage local decision makers;
- Facilitate emergency evacuation routes;
- Pursue funding for planning and implementation; and
- Support state departments of transportation.

Public Authorities

There are a number of local and regional public authorities in Mississippi that also have roles in preserving, constructing, and operating railroads. These include county and regional rail authorities, port commissions, and county industrial development authorities, as detailed in the following sections.

County and Regional Rail Authorities

Any county or municipality in Mississippi in which there are railroad properties, or in which such properties existed but were abandoned after Feb. 5, 1976, may create a railroad authority (Section 19-29-7), and two or more counties can together create a regional railroad authority. Among other powers, those authorities have the power "To plan, establish, acquire, construct, enlarge, reconstruct, improve, operate, maintain, replace, repair, extend, improve, regulate and

[4] Southern Rail Commission, https://www.southernrailcommission.org/mission.

protect railroad properties and facilities within its boundaries" (Section 19-27-17). The authorities also, under the same Section, have the power to lease rail properties under their control to others.

The county and regional rail authorities in the state are:

- **Rail Authority of East Mississippi (RAEM)** – authorized by the Mississippi Legislature and established in 2009. Its members include Clarke, George, Greene, Lauderdale, and Wayne Counties. Since 2009, contributions from member counties and economic development organizations have totaled over $875,000. In addition, the RAEM has applied for and received grants from USDA-Rural Development, USDC-Economic Development Administration, and the Pat Harrison Waterway District (a public body of the State of Mississippi), totaling $125,000. Together, these local contributions and grant funds have enabled the RAEM to carry on its annual operations, conduct initial evaluations to test the market and financial feasibility of the East Mississippi Intermodal Railroad (EMIR), and perform initial, concept-level planning. Since 2013, the State of Mississippi has appropriated $2.5 million to the RAEM, which has enabled them to complete strategic planning work to confirm and support the economic and technical feasibility of the project. Re-establishing this 56-mile short line service would connect two existing Class III railroads, the Meridian Southern Railroad (from Meridian to Waynesboro) and the Mississippi Export Railroad (from Lucedale to Pascagoula), and thereby create continuous rail service from the KCS/Meridian Speedway in Meridian to the Gulf Coast ports.

- **North Central Mississippi Regional Railroad Authority (NCMRRA)** – bought the Grenada Railroad to prevent the rail line from Grenada to Canton from being scrapped. NCMRRA owns the Grenada Railroad, and RailUSA, LLC leases the railroad under a lease purchase agreement from NCMRRA. RailUSA is the operating company responsible for the daily operations of the railroad.

- **Mississippi-Alabama Railroad Authority (MARA)** - is an interstate compact between Alabama and Mississippi. This compact established a commission to oversee the acquisition of closed railroad facilities and the construction and management of new facilities to promote interstate trade and employment opportunities for both of the member states.[5] MARA leases the rail line between Corinth, Mississippi and Red Bay, Alabama, known as the Redmont Division, to the Mississippi Central Railroad.

- **Itawamba County Rail Authority (ICRA)** – in 2016 acquired from the Itawamba County Port Commission (ICPC) the Mississippian Railway Cooperative line between Amory, Mississippi, and Fulton, Mississippi. Returning the rail line's management to the rail authority will create opportunities for loans and grants for improvements that would not be available to the cooperative.

[5] National Center for Interstate Compacts, "Mississippi-Alabama Railroad Authority Compact," available at: https://ballotpedia.org/Mississippi-Alabama_Railroad_Authority_Compact

Port Commissions

Counties bordering on the Mississippi River are not eligible for county railroad authorities if they have a port commission that has the power to acquire railroads or railway facilities deemed necessary for development of its port (Section 59-7-453).

County Industrial Development Authorities

Local Industrial Development Authorities are empowered to engage in work of internal improvement, including the construction of railroads necessary or required for industrial or commercial use and development within the county (Section 19-5-99 (3(a)).

Currently, there is one county development authority that owns a rail line:

- **Harrison County Development Commission (HCDC)** – was created in 1958 to promote the economic and industrial development of Harrison County, Mississippi. HCDC manages four industrial parks and one commercial park. In 2020, HCDC acquired from KCS the 6-mile branch line known as the Seaway Lead located in Gulfport. The track has been out of service since 2016. HCDC intends to restore rail freight service after receipt of BP Restore Act funding and construction is planned for late 2020 - early 2021. Mississippi Export Railroad was selected as the operating railroad.

Section 22102 Compliance

In light of the institutional structure and authorizations defined in this section, and as specified in FRA guidance, MDOT asserts that it is the designated rail authority to distribute federal funding for rail projects in the State of Mississippi, that it is in compliance with Title 49 US Code Section 22102, and is eligible to receive financial assistance under this chapter, complying with regulations the Secretary of Transportation. With completion of this update of the MSRP:

- Mississippi has an adequate plan for rail transportation in the State and a suitable process for updating, revising, and modifying the plan.
- The MSRP is administered or coordinated by MDOT, the designated State authority, and does provide for a fair distribution of resources.
- The State's designated rail authority, MDOT:
  - Is authorized to develop, promote, supervise, and support safe, adequate, and efficient rail transportation;
  - Employs sufficient qualified and trained personnel;
  - Maintains adequate programs of investigation, research, promotion, and development with opportunity for public participation; and

  - Is designated and directed to take all practical steps (by itself or with other State authorities) to improve rail transportation safety and reduce energy use and pollution related to transportation.

- MDOT ensures that it maintains or will maintain adequate procedures for financial control, accounting, and performance evaluation for the proper use of assistance provided by the United States Government.

1.4 State Rail Funding Authority

In Mississippi, public rail funding authority has been granted through state legislation is available through multiple programs administered by MDOT, MDA, and regional authorities. Current programs are listed below. Detail on each existing funding programs can be found in Chapter 2.

- **Highway-Rail Grade Crossing Program**: MDOT administers this program to improve grade crossing safety on public roads and highway using FHWA Section 130 Highway-Rail Grade Crossing Program funds. Additionally, MDOT has the state funded Mississippi Highway-Railroad Grade Crossing Safety Account (Section 57-43-15) to provide supplemental funding as applicable.

- **Railroad Revitalization Fund**: MDOT administers this program providing no-interest loans for up to 75 percent of the costs for the rehabilitation or improvement of existing freight and passenger rail lines, construction, improvement or rehabilitation of railroad facilities, and for highway-railroad crossing safety.

- **MDOT Multimodal Transportation Improvement Program**: Created in 2001 by the Mississippi Legislature, this program funds improvements of all modes of publicly owned (State, county, or municipality) transportation, including rail, airport, public transit, and port improvement projects.

- **MDOT Capital Assistance Stimulus for Rail Projects Fund**: The fund matches federal funding available for conventional or high-speed intercity passenger services.

- **MDA Freight Rail Service Revolving Loan Program**: MDA provides loans to municipalities and counties to finance freight rail service projects in Mississippi. The program aims to increase rail usage and productivity in the state.

- **Local Government Rail Assistance**: Local and regional governments or governmental authorities secure grant funding or provide local matching funds to advance facility-specific construction or improvement projects.

1.5 Mississippi Rail Today

Passenger Services

Passenger rail service today is provided over two Amtrak long-distance routes. *The City of New Orleans* provides daily north-south service as it traverses Mississippi from Chicago to New Orleans. The *Crescent* provides daily service as it traverses the southern part of the state along its route from Washington, DC to New Orleans.

The services had a combined ridership of 96,100 passengers in 2018, a decrease from 110,000 passengers in 2014. Of Mississippi's 11 rail stations, Jackson was the most utilized rail station, handling 43,000 boardings and alightings. Greater detail on these services and Amtrak stations appear in Chapter 2. Two major initiatives to expand passenger rail service are being led by the SRC, including resuming service along the Gulf Coast that terminated following Hurricane Katrina and initiating service from Meridian to Dallas/Ft. Worth, Texas, in the corridor parallel to I-20 through Jackson. Both initiatives have been studied in recent years:

- The SRC commissioned Amtrak to release a report entitled, "Potential Gulf Coast Service Restoration Options" (2015) to evaluate resuming service along the Gulf Coast. The report included multiple alternatives, each of which would include passenger rail service to four locations in Mississippi: Bay St. Louis, Biloxi, Gulfport, and Pascagoula. In 2017, the Gulf Coast Working Group (GCWG) submitted its final report to congress[6] on the preferred option to restoring service between New Orleans, Louisiana and Orlando, Florida via long-distance train for one daily round trip; and, New Orleans and Mobile, Alabama via state-supported train for one daily round trip. FRA identified a program of capital improvements and developed preliminary costs at each investment level for each corridor. In July 2019, the SRC secured a $33 million Consolidated Rail Infrastructure and Safety Improvements (CRISI) Grant to commence development of corridor service between New Orleans and Mobile. A further grant of $4.4 million was received in September 2019 from the FRA under the Restoration and Enhancement (R&E) program that is part of the FAST Act to support operating expenses for a portion of the rail line's first year. In May 2020, SRC received another $5.45 million grant through the federal R&E Program, to fund operating expenses for the first and second years of service along the restored line between New Orleans and Mobile. As of early 2020, critical remaining milestones include completion of negotiations with CSX, the host railroad, finalization of operating agreements with Amtrak, funding agreements for operations among the service sponsors, and construction of the capital improvements.

- Texas DOT undertook a feasibility study in 2017 to examine rail service for the entire Meridian—Fort Worth corridor. The study estimated total construction costs for the entire corridor to be

[6] Gulf Coast Working Group Report to Congress, July 2017. Available from: https://static1.squarespace.com/static/5302778ee4b07a6f640874ef/t/596e10e1d2b8575f4b4dcc26/1500385510146/2017-07-17_Gulf+Coast+Working+Group+Report+to+Congress+%28Main+Section%29-+Final.pdf

approximately $80 million. As of 2019, this proposal appears to still be in the preliminary planning phase.

Freight Services

Today, Mississippi has 2,500 miles of rail serving all regions of the State and spread amongst five Class I railroads that are responsible for most of the rail-borne freight moving into and out of the state, and 22 regional or local (short line) rail carriers that serve many of the smaller markets in the state. Canadian National (CN) is the largest single system in the state, operating on 780 miles of track, 598 owned and 182 via trackage rights. In 2017, over 115 million tons of freight moved by rail into, out of, though, or within the State in about 2.1 million rail cars.

Mainlines of the Class I carriers are key elements of the Strategic Freight Network that was established in the MSFP in 2015. The following lines comprise parts of six Tier I freight corridors:

- Canadian National (CN) mainline from Memphis to New Orleans through Jackson;
- BNSF Railway (BNSF) mainline parallel to US 78 from Memphis to Birmingham;
- Norfolk Southern (NS) mainline through Meridian to New Orleans;
- Kansas City Southern (KCS) mainline parallel to I-20;
- CN mainline from Jackson to Hattiesburg and KCS mainline from Hattiesburg to Gulfport; and
- CSX Transportation (CSXT) mainline parallel to I-10 along the Gulf Coast.

The key multimodal freight corridors, anchored by rail mainlines and Interstate highways, facilitate Mississippi's trade relationship with the national and international markets and provide access to jobs and labor. These and the rest of the 2,500 mile freight rail system play important roles in Mississippi by providing freight movement choices, economic competitiveness, and access for markets. Freight rail can deliver cost advantages to shippers and can play a significant role in relieving truck traffic on the state's highways. Mississippi's numerous short line railroads provide important access to the national rail system for shippers located along their lines. The availability of rail connections greatly improves the economic competitiveness of potential development sites.

1.6 Organization of the Rail Plan

In keeping with the FRA Guidance, this plan includes an inventory of Mississippi's existing passenger and freight rail system, establishes a vision for freight and passenger rail in Mississippi, and provides a short and long-range investment program for existing and proposed freight and passenger rail infrastructure and services in the State. The state's railroads, rail users, railroad associations, and regional stakeholders were involved in the development of this plan.

The 2020 MSRP update is organized as follows:

- **Chapter 1 – The Role of Rail in Mississippi** defines Mississippi's goals for multimodal transportation, the role of rail in Mississippi's transportation system, and how the state is organized to provide political, legal, and financial support to rail development.
- **Chapter 2 – Mississippi's Existing Rail System** provides an overview of the Mississippi's existing rail system, describes trends that will impact the need for rail transportation throughout the State, and identifies the needs and opportunities for passenger and freight rail service in the State.
- **Chapter 3 – Proposed Passenger Rail Improvements and Investments** describes improvements and investments that could address Mississippi's passenger rail transportation needs.
- **Chapter 4 – Proposed Freight Rail Improvements and Investments** describes improvements and investments that could address Mississippi's freight rail transportation needs.
- **Chapter 5 – Mississippi's Rail Service and Investment Program** defines Mississippi's long-term vision for rail service and its role in the State's multimodal transportation system, and proposes priorities for specific projects, programs, policies, and funding necessary to achieve that vision, and describes the project impacts and funding sources of proposed actions.
- **Chapter 6 – Coordination and Review** describes how stakeholders were involved in the development and coordination of the rail service and investment program component of the MSRP.

2.0 Mississippi's Existing Rail System: Description and Inventory

The 2,500-mile Mississippi rail system is operated by a network of railroad operators, including:

- Five Class I (major) railroads, are defined as having minimum carrier operating revenues of $489.9 million or more in 2018;
- One Class II (regional) railroad, which is defined as having annual carrier operating revenues of less than $489.9 million, but more than $39.2 million in 2018; and
- 21 Class III (local) railroads, which are defined as having annual carrier operating revenues of $39.2 million or less, and all switching and terminal railroads regardless of operating income.[7]

Class II and Class III railroads are referred to as "short line" railroads in this report. Each Class I railroad has one or two principal routes through the state fed by its own branch lines and connecting carriers. Many of the short line railroads own and/or operate lines abandoned or spun off by Class I carriers.

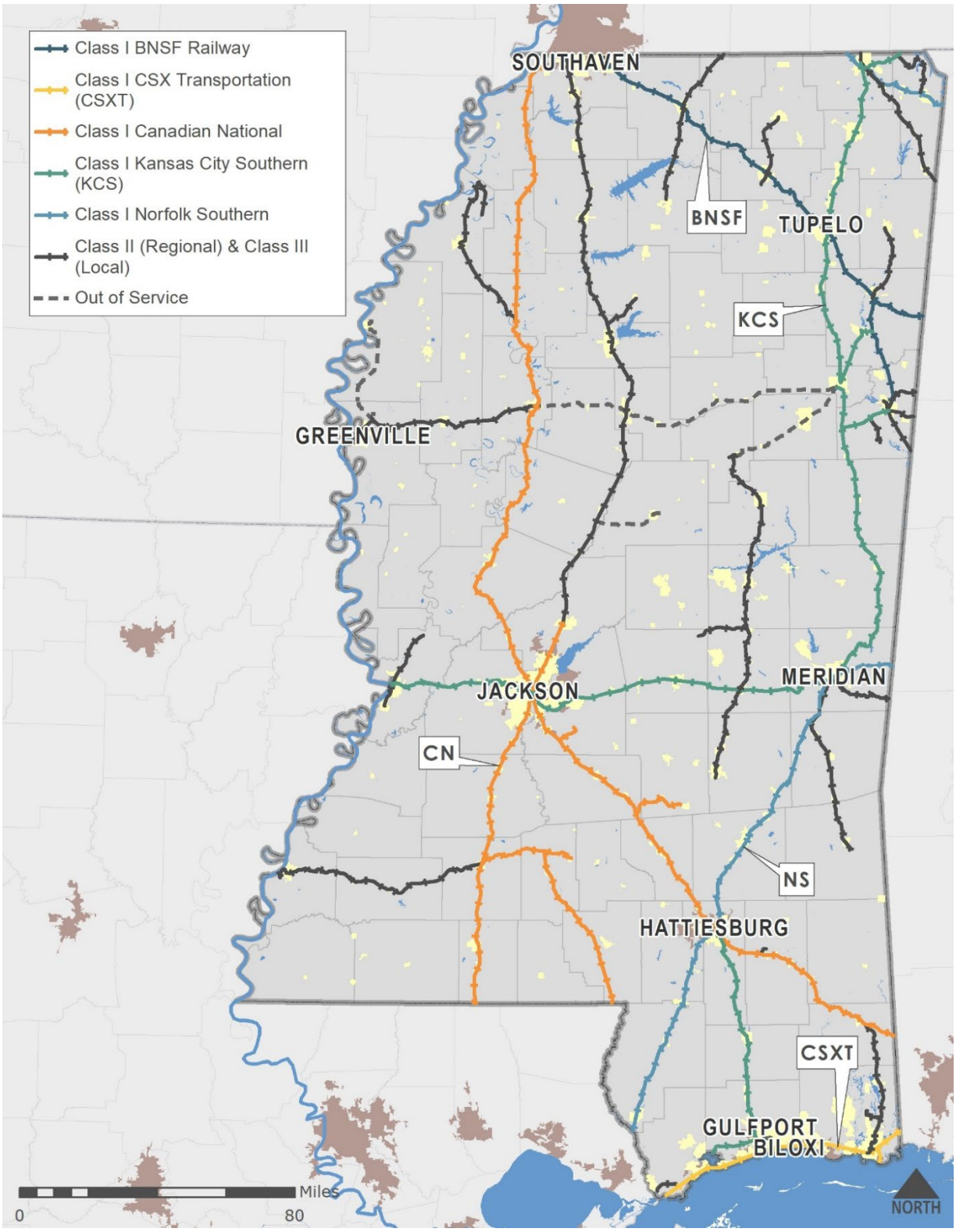
The information presented in the discussion of each railroad below was obtained from carrier surveys, websites of carriers and carrier organizations, reports submitted to various governmental agencies such as the Surface Transportation Board (STB), and studies and reports prepared for Mississippi Department of Transportation (MDOT), including the Mississippi State Rail Plan (2016), the Mississippi Freight Plan (2015) amended October 2017, and MULTIPLAN 2045, the State's long range transportation plan.

2.1 Existing Freight Network

Mississippi is a vital state in the national freight rail transportation systems. Ranking 11th in the U.S. in number of operating freight railroads and 28th in the U.S. in active track mileage. Approximately 1,700 miles, or two-thirds of the state's rail system mileage, is operated by five Class I railroads, which are displayed in Figure 1. In addition, one Class II and 21 Class III railroads operate in the state, as shown in Figure 2, All railroads, their parent (if there is one), along with statewide mileages, including both miles owned and miles operated, are listed in Table 2. A brief summary of the railroads operating in the state is provided in the following sections.

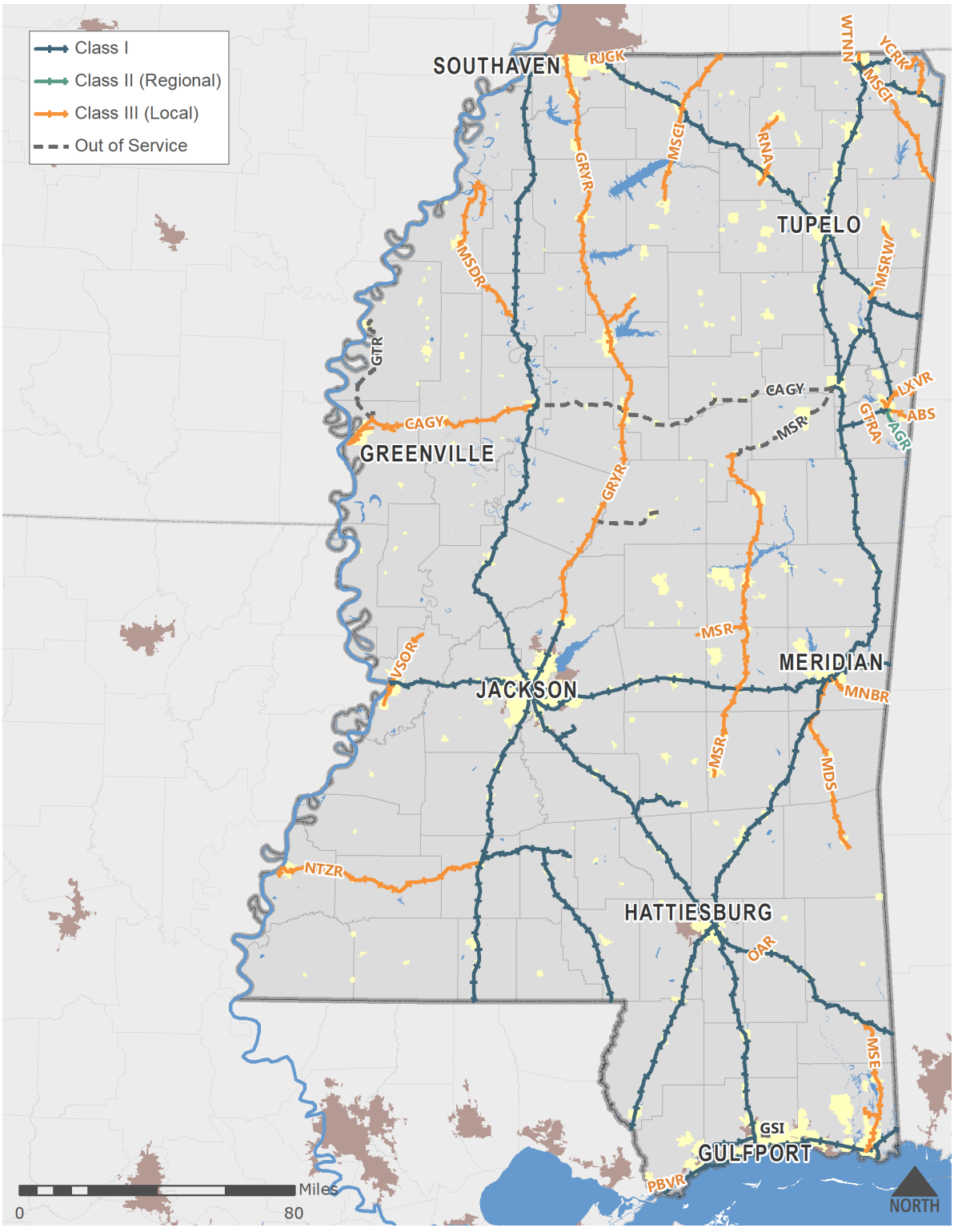
[7] Railroad classifications defined by the Surface Transportation Board (STB). See https://www.federalregister.gov/documents/2019/06/14/2019-12562/indexing-the-annual-operating-revenues-of-railroads.

Figure 1. Mississippi Rail System—Class I Railroads



Source: Mississippi Department of Transportation; correspondence or surveys of Class I and Class II/III railroads conducted in April 2020.

Figure 2. Mississippi Rail System—Class II and Class III Railroads



Source: Mississippi Department of Transportation, correspondence or surveys of Class I and Class II/III railroads conducted in April 2020.

Table 2. Mississippi Railroads and Route Miles

Railroad	Reporting Mark	Parent Company / Ownership	Mississippi Route Miles			
			Operated	Owned	Trackage Rights[1]	Leased[2]
Class I Railroads			**1,817**	**1,666**	**329**	**1**
BNSF Railway Company	BNSF	Berkshire Hathaway	179	166	13	
CSXT Transportation	CSXT		94	74	20	
Canadian National Railway	CN		757	575	182	
Kansas City Southern Railway Co.	KCS		576	642	112	1
Norfolk Southern Railway Company	NS		211	209	2	
Class II (Regional) Railroads			**52**	**15**	**37**	
Alabama and Gulf Coast Railway	AGR	G&W	52	15	37	
Class III (Local) Railroads			**903**	**723**	**59**	**300**
Alabama Southern Railroad	ABS	Watco	23		17	6
Columbus and Greenville Railway[4]	CAGY	G&W	85	150	27	
Golden Triangle Railroad	GTRA	Patriot Rail	25	10	15	
Great River Railroad[4]	GTR	Rosedale-Bolivar County Port Commission		32		
Grenada Railroad, LLC[4]	GRYR	NCMRRA	180	206		
Gulf and Ship Island Railroad[5]	GSI	Harrison County Development Commission	6			
Luxapalila Valley Railroad	LXVR	G&W	12	12		
Meridian and Bigbee Railroad	MNBR	G&W	23	23		
Meridian Southern Railway	MDS		55	55		
Mississippi Central Railroad Company[1]	MSCI	BRX Transportation, MARA, and Tishomingo County	108	56		52
Mississippi Delta Railroad	MSDR	Coahoma County	60			60
Mississippi Export Railroad	MSE		42	42		
Mississippi Southern Railroad[6]	MSR	Watco	122			157
Mississippian Railway Cooperative, Inc.[1]	MSRW	Itawamba County Rail Authority	23	23		
Natchez Railway, LLC	NTZR	Affiliated Railroads	65	65		
Old Augusta Railroad	OAR	Georgia Pacific	3	3		

Railroad	Reporting Mark	Parent Company / Ownership	Mississippi Route Miles			
			Operated	Owned	Trackage Rights[1]	Leased[2]
Port Bienville Railroad	PBVR	Hancock County Port and Harbor Commission	7	7		
R.J. Corman-Tennessee Terminal	RJCK	RJ Corman Railroad Group	4			4
Ripley & New Albany Railroad Company	RNA	BRX Transportation	27	27		
Vicksburg Southern Railroad	VSOR	Watco	21			21
West Tennessee Railroad	WTNN	West Tennessee Rail Group	2	2		
Yellow Creek Port Railroad[3]	YCRK		10	10		
Grand Total			**2,772**	**2,404**	**425**	**301**

Source: Association of American Railroads, "Freight Railroads in Mississippi". Available from: https://www.aar.org/wp-content/uploads/2019/01/AAR-Mississippi-State-Fact-Sheet.pdf; correspondence or surveys of Class I and Class II/III railroads conducted in April 2020; online research of railroad websites; and Mississippi State Rail Plan, 2016.

[1] Trackage rights are arrangements where the company that owns the line retains all rights, but allows another company to operate over certain sections of its track. These deals can be long- or short-term, can include the right to serve customers or not, and can be exclusive or not.

[2] A railroad may lease a connecting line from another company. A typical lease results in the lessee paying the owner of the line a certain annual rate in order to have full control of the line, including operation.

[3] Not listed in AAR data; information from 2011 MSRP.

[4] These railroads own lines (or portions of lines) that are currently embargoed or out of service.

[5] The Harrison County Development Commission (HCDC) is purchasing 5.9 miles of the KCS branch line known as the Seaway Lead, located within Gulfport, Harrison County, MS. HCDC contracted with GSI to be the operating railroad. The track has been out of service since 2016 and track repairs are expected to start 2020-2021. These rail route miles have been included under GSI's miles operated.

[6] Includes 131 miles (including 35 out of service miles) MSR is in the process of leasing from KCS in the summer of 2020.

Class I Railroads

BNSF Railway

BNSF Railway (BNSF) was created on September 22, 1995, from the merger of Burlington Northern Inc., parent company of Burlington Northern Railroad, and Santa Fe Pacific Corporation, parent company of the Atchison, Topeka and Santa Fe Railway. The railroad was later renamed the BNSF Railway, and in February of 2010 became a wholly-owned subsidiary of Berkshire Hathaway, Inc. The railroad operates 32,500 route miles in 28 states and three Canadian provinces, and as such, covers the western two-thirds of the United States, stretching from major Pacific Northwest and Northern and Southern California ports to the Midwest, Southeast and Southwest, and from the

Gulf of Mexico to Canada. BNSF employs over 44,000 people[8] system wide, and in 2018 spent $3.4 billion in capital investment and earned $23.8 billion in total revenue[9].

In Mississippi, BNSF operates over 179 route miles cutting through the northeast corner of the state from Memphis to Birmingham via Tupelo with a branch from Amory to Columbus and trackage rights beyond Columbus. The single main track is capable of handling 286,000-pound gross car weights, but there are weight restrictions along a portion of the Amory subdivision, from Amory to Columbus. Operations are governed by a Centralized Traffic Control system (CTC), whereby a dispatcher in a remote location controls trains through wayside signals. The route is included in the BNSF intermodal network and serves as a conduit for Powder River Basin coal to utilities in the Southeast along with building materials and intermodal traffic. The railroad has yards at Tupelo and Amory and interchanges traffic with five other carriers in Columbus, although its principal regional facility is located in Memphis.

CSX Transportation

Based in Jacksonville, Florida, CSX Transportation (CSXT) operates the nation's third-largest rail network serving all major metropolitan areas east of the Mississippi River with extensions into the Canadian provinces of Ontario and Quebec. CSXT operates 21,000 route miles across 23 states, including the District of Columbia. Geographic coverage is roughly comparable to that of the Norfolk Southern, reflecting the rough geographic symmetry of the "Big Four" in today's North American railroad scene (BNSF and UP in the West; CSXT and NS in the East). CSXT provides rail, intermodal and rail-to-truck transload services to customers across a broad array of markets, including energy, industrial, construction, agricultural, and consumer products. In 2018, CSXT generated $12.3 billion in revenue system-wide and employed over 22,000 full-time employees, with 32 employees based in Mississippi.[10]

CSXT has access to more than 70 ocean, river and lake port terminals along the Atlantic and Gulf Coasts, the Mississippi River, the Great Lakes, and the St. Lawrence Seaway. CSXT also serves thousands of production and distribution facilities through track connections to 230 short line railroads.

CSXT's network in Mississippi includes only 74 miles of owned track with another 20 miles operated via trackage rights. The railroad serves the busy Gulfport-Biloxi-Pascagoula region and Mississippi's Gulf Coast ports enroute to New Orleans and connections with western railroads. CSXT's single-tracked main line is governed by a CTC system.

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[8] BNSF Railway June 2019 Fact Sheet. Available from: https://www.bnsf.com/about-bnsf/pdf/fact_sheet.pdf

[9] "BNSF's Fourth Quarter 2018 Financial Performance: Volumes, Revenues, and Expenses". Available from: http://www.bnsf.com/about-bnsf/financial-information/pdf/4q-2018.pdf

[10] "CSX 2018 Corporate Social Responsibility Data Supplement". Available from: https://www.csx.com/share/wwwcsx15/assets/File/Responsibility/CSX%202018%20CSR%20Data%20Supplement.pdf

Canadian National Railway Company

Canadian National Railway Company (CN) is Canada's largest carrier, traversing Canada from the Atlantic Ocean to the Pacific Ocean, and is a major player in the United States as well. In the US, CN added to its longstanding Grand Trunk holdings by acquiring a number of U.S. carriers including the Illinois Central Railroad (IC), Wisconsin Central Railroad, Great Lakes Transportation, and the Elgin, Joliet and Eastern Railway, all of which operate under the CN U.S. subsidiary Grand Trunk Corporation. Acquisition of the IC extending south to the Gulf of Mexico resulted in a "Y" shaped network of 20,421 route miles connecting with Atlantic, Pacific and Gulf Coast ports. In 2018, CN reported $14.3 billion in total revenue, $3.5 billion in capital investment, and approximately 25,700 employees.[11]

In the United States, CN only does business via its wholly owned subsidiary companies. In Mississippi, that subsidiary is Illinois Central Railroad Company. CN (doing business as Illinois Central) has the largest network presence in Mississippi, operating 757 track miles, 575 owned and 182 via trackage rights. The railroad's principal route extends southward from Memphis to Jackson, with the main track route continuing almost due south to New Orleans. The line is principally single track although there are short double track sections located at Jackson, Wanilla and McComb. 92 percent of CN's main line is capable of handling car weights of 286,000 pounds, and operations are governed by a CTC system. Amtrak's City of New Orleans uses CN track between Memphis and New Orleans. A secondary main extends from Jackson through Hattiesburg to Mobile.

The majority of the CN Memphis-Jackson route is single-tracked, with short double-track sections at Jackson, Wanilla, and McComb. The CN main line operations are governed by CTC. About eight percent of CN's main lines are not capable of handling car weights of 286,000 pounds.

CN's 2019 capital plan for Mississippi totaled $45 million and included replacement of approximately 8 miles of rail, installation of 75,000 new railroad ties, rebuilds of 20 road crossing surfaces, and maintenance work on bridges, culverts, signal systems, and other track infrastructure.[12]

Kansas City Southern Railway

Kansas City Southern Railway (KCS) is the nation's smallest Class I carrier, operating over 3,726 miles in 10 states. KCS is one unit of a transportation holding company, Kansas City Southern, which also owns Kansas City Southern de Mexico, operator of the premier rail route from Laredo, Texas to Mexico City, and the Texas Mexican Railway Company, owner of KCS's link to the border at

[11] "Annual Report Summary 2018". Canadian National Railway Company. Available from: https://www.cn.ca/en/investors/reports-and-archives?Category=Annual%20Report

[12] "2019 Capital Plan". Canadian National Railway Company. Available from: https://www.cn.ca/en/about-cn/capital-investments-plan/

Laredo. Combined, the three rail systems comprise approximately 6,700 route miles and generated over $2.7 billion in revenue in 2018.[13]

KCS was founded in 1887 to provide the Midwest with direct access to the Gulf of Mexico, and this north-south trade emphasis continues today. The limited access to northern markets has been addressed with a series of formal marketing agreements. In Mississippi, KCS has haulage agreements and limited trackage rights between Jackson and Mobile, and operates via trackage rights over CN between Palmer and Hattiesburg, thus enabling KCS access to its north-south Palmer-Gulfport line.

KCS operates about 576 route miles in Mississippi, including the Meridian Speedway LLC (MSLLC), a joint venture between KCS and Norfolk Southern that provides a direct link between the U.S. southeast and southwest. The 320 mile route begins at Meridian in the east, traversing the state through Jackson and Vicksburg, and ending in Shreveport, Louisiana. Of the miles operated, 112 are comprised of trackage rights and 1 is leased. In addition, the railroad owns 66 miles it does not operate, but which are operated by short line carriers. In all, the railroad owns 27 percent of the Mississippi rail network and thus is the largest railroad in the state based on ownership. The railroad's principal Mississippi line, the Meridian Speedway, is single-tracked, equipped with CTC, and capable of handling 286,000-pound car weights.

KCS routes in Mississippi include:

- The east-west MSLLC;
- The north-south Jackson-Gulfport line with the Jackson-Palmer's Crossing portion of the route consisting of a haulage agreement with the CN; and
- A north-south Corinth-Meridian route extending into Tennessee and passing through West Point. About one-half of this route is weight-restricted to 264,000-pound maximum weight railcars.

Mississippi's only large-scale, carrier-owned, bulk-transload facility and intermodal facility are owned by KCS. Both are located in Richland on the outskirts of Jackson. Yards are located in Vicksburg, Jackson, and Meridian.

Norfolk Southern Railway

Norfolk Southern (NS), owned and operated by Norfolk Southern Corporation, operates 21,000 route miles in 22 eastern states, the District of Columbia and the Province of Ontario. Its service network, which generated over $11.3 billion in railroad operating revenue in 2019, blankets the

[13] "Kansas City Southern 2018 Annual Report". Available from: https://investors.kcsouthern.com/~/media/Files/K/KC-Southern-IR-V2/annual-reports/annual-report-2018-bookmarked.pdf

eastern United States, with principal western gateways at Chicago, St. Louis, Kansas City, Memphis, and New Orleans.[14]

NS has two principal routes in Mississippi with one cutting diagonally across the northeast corner of the state via Corinth (part of an NS main line running from Chattanooga to Memphis). The other route stretches from Meridian to Hattiesburg and Picayune enroute to New Orleans from Birmingham and points north and east. NS operates a total of 211 route miles in Mississippi, including 209 owned miles and 2 miles of trackage rights. Yards are located at Hattiesburg, Laurel, and Meridian. All of the NS main line route miles can accommodate 286,000-pound railcars. NS's corridors are all single-track with the exception of some double-track through Meridian. NS Meridian-Picayune corridor which is shared with Amtrak's Crescent passenger train, is not equipped with CTC. A segment of the line is equipped with Automatic Block Signals (ABS)[15] and siding switches that do not have dispatcher controlled switches. As a result access to sidings must be performed manually whenever a train has to enter a siding. This adds a significant amount of time, especially when a freight train has to take the siding for a passenger train.

NS routes in Mississippi are included in the development of freight and passenger corridor initiatives. Both lines are components of the Crescent Corridor, and the line through Corinth is the southern connection for the joint NS-CN MidAmerica Corridor. The Meridian-Hattiesburg-Picayune alignment is also designated as part of the Gulf Coast High-Speed Rail Corridor, and currently hosts the daily Amtrak Crescent that operates between New York and New Orleans.

Class II Railroads

The Alabama and Gulf Coast Railway (AGR) is the only Class II (regional) railroad currently serving Mississippi. AGR was acquired by Genesee & Wyoming Inc. (G&W) in 2012, making it one of 119 locally managed freight railroads worldwide that G&W owns or leases.[16] The AGR is one of the larger local and regional railroads located in the Southeast, with 339 route miles owned or leased and with trackage rights extending from Amory to Mobile and Pensacola.

The railroad operates in Mississippi over 52 miles of track, 15 miles of which it owns, between the Alabama - Mississippi state line and Columbus, and 37 miles of trackage rights over BNSF running from Columbus and Amory, the latter point being its principal BNSF interchange point. The AGR line is shown on Figure 2. It interchanges with three other carriers at Columbus: KCS, CAGY, and

[14] Norfolk Southern reports fourth-quarter and full-year 2019 results. Available from: http://nscorp.com/content/nscorp/en/news/norfolk-southern-reports-fourth-quarter-and-full-year-2019-resul.html

[15] ABS systems also rely on dispatching using paper- and/or radio-based techniques, but provide a layer of safety by automatically indicating the presence of trains in "blocks" located between signals, thus ensuring the safe separation of multiple trains operating over a line segment.

[16] "Freight Rail Service". Genesee & Wyoming Inc. Available from: https://www.gwrr.com/customers/freight-rail-service

LXVR. AGR can accommodate 286,000-pound railcars from Walnut Hill, FL to Amory, MS, and from Mobile, AL to Kimbrough, AL; the rest of its track can only accommodate a maximum weight of 268,000 pounds.[17]

Class III Railroads

Mississippi has an extensive network of local railroads. The State's 21 Class III railroads provide connecting service to the Class I railroads and comprise 30 percent of the state system in terms of rail route miles ownership. The location of these smaller railroads is shown on Figure 2, and lengths are contained in Table 2.

The 22 Class II (regional) and Class III (local) railroads operate on a combined 990 miles of track. Of Mississippi's 22 Class II/III railroads, 14 are held in portfolios of railroad holding companies. Table 3 shows the eight railroad holding companies, which operate on 53 percent of the Class II and III rail lines in the State.

Table 3. Class II and Class III Railroad Ownership by Holding Company

Holding Company	Total Operating Miles in Mississippi	Railroad(s)
Affiliated Railroads	65 miles	• Natchez Railway
Genesee and Wyoming, Inc.[18]	266 miles	• Alabama and Gulf Coast Railway • Columbus and Greenville Railway • Luxapalila Valley Railroad • Meridian & Bigbee Railroad
Georgia-Pacific, LLC	3 miles	• Old Augusta Railroad
Patriot Rail Corporation	25 miles	• Golden Triangle Railroad
BRX Transportation[19]	135 miles	• Mississippi Central Railroad Company • Ripley & New Albany Railroad Company
R.J. Corman Rail Group	4 miles	• R.J. Corman – Tennessee Terminal

[17] "Alabama & Gulf Coast Railway (AGR)". Genesee & Wyoming Inc. Available from: https://www.gwrr.com/railroads/north_america/alabama_gulf_coast_railway

[18] Genesee & Wyoming Inc. (G&W) is a holding company of railroad properties located in North America, Australia, and Europe. In late 2019, G&W was acquired and taken private for $8.4 billion by Brookfield Infrastructure and GIC, the sovereign fund of Singapore. A limited partnership, Brookfield Infrastructure is controlled by Brookfield Asset Management Company, a publicly held portfolio asset manager domiciled in Canada with a market capitalization of approximately $76 billion as of December 2019.

[19] Pioneer RailCorp was acquired in 2019 by BRX Transportation Holdings LLC, a partnership between Related Infrastructure, Brookhaven Rail Partners, and Stephens Capital Partners, LLC. https://www.railway-technology.com/news/brx-transportation-holdings-pioneer-railcorp-acquisition/

Holding Company	Total Operating Miles in Mississippi	Railroad(s)
Watco Companies, Inc.	201 miles	• Alabama Southern Railroad • Mississippi Southern Railroad • Vicksburg Southern Railroad
West Tennessee Rail Group	2 miles	• West Tennessee Railroad

Source: Association of American Railroads, "Freight Railroads in Mississippi". Available from: https://www.aar.org/wp-content/uploads/2019/01/AAR-Mississippi-State-Fact-Sheet.pdf; correspondence or surveys of Class I and Class II/III railroads conducted in April 2020; online research of railroad websites; and Mississippi State Rail Plan, 2016.

The following sections feature a brief description of each short line.

Alabama Southern Railroad

Alabama Southern Railroad (ABS) operates over 103 route miles from Artesia, Mississippi, to Brookwood, Alabama. The ABS interchanges with KCS at Artesia, with CSXT at Brookwood, and NS at Tuscaloosa, Alabama. The ABS ships approximately 35,000 carloads of product annually for the energy, steel, paper, roofing, grain, and chemical industries.[20] The line from Columbus to Tuscaloosa was leased from KCS in 2005 and is operated as one of the holding company (Watco Companies, Inc.) rail carriers. In Mississippi, the railroad operates two to three trains per day on 23 miles of track, 6 miles of which it leases from KCS between the Alabama state line and Columbus, and it operates via trackage rights on nearly 17 miles of track between Columbus and Artesia. The line is capable of handling 286,000-pound car weights.

Columbus and Greenville Railway

Columbus and Greenville Railway (CAGY) began operation in October 1975, between Columbus and Greenville on 162 miles of track formerly owned by the Illinois Central Gulf Railroad. Genesee and Wyoming, Inc. purchased the line from CAGY Industries in 2008. CAGY owns and leases a total of 150 miles of track, of which it currently operates 85 route miles. Operations are conducted on two separate segments: one from the port of Greenville to Greenwood (5-10 trains per week) and the other from West Point to Columbus (5-10 cars per month). The remaining 92 miles between Greenwood and West Point are currently out of service. Although there are no immediate plans to revive this portion of the line, it is expected to be active at some point in the future. CN is CAGY's largest interchange connection, with all such traffic handled via Greenwood. CAGY can handle 286,000-pound cars on its line except between Greenville, MS and Greenwood, MS, which can

[20] "Alabama Southern Railroad". Watco Companies. Available from: https://www.watcocompanies.com/services/rail/alabama-southern-railroad-abs/

only handle 263,000-pound cars. Commodities transported include agricultural products, chemicals, food products, metals, and scrap.[21]

Golden Triangle Railroad

Golden Triangle Railroad (GTRA) operates over 10 miles of track in Mississippi and is capable of handling 286,000-pound railcars. The GTRA serves an International Paper modified fiber mill in Columbus. The GTRA interchanges with KCS at Columbus, MS, and with BNSF and NS (via the Alabama and Gulf Coast Railroad) via trackage rights over the KCS. GTRA is owned by short line railroad holding company Patriot Rail Corporation. Primary commodities handled include wood pulp, corn starch, and chemicals.[22]

Great River Railroad

Great River Railroad (GTR) is a 32 mile long railroad that has right of way from Rosedale, MS to Metcalfe, MS, where it connects to the CAGY. The line is currently out of service. The Rosedale-Bolivar County Port Commission is in negotiations with an operator to begin the rehabilitation and reactivation process. Beginning with car storage, the intent is to regain full functionality of the line with service to and from the Port of Rosedale and the Rosedale Industrial Park. Cost is still being assessed. Potential sources of funding being considered are Federal discretionary grants such as the Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grant program.

Grenada Railroad, LLC

Grenada Railroad, LLC (GRYR) leases and operates 180 miles of track along the I-55 corridor from Southaven (just below the Tennessee-Mississippi state line at Memphis) to Canton (northeast of Jackson). The North Central Mississippi Regional Railroad Authority (NCMRRA) is owner of the "Granada Railway" and Grenada Railroad, LLC leases the railroad under a lease purchase agreement from them and is the operating company responsible for the daily operations of the railroad. As of August 2018, RailUSA is the management company that owns the Grenada Railroad, LLC.

Presently, the entire line is undergoing a rehabilitation project with the goal of upgrading the entire track to Class 3 (40 MPH) operating standards and the industry standard 286,000 lbs. bridge capacity. The $15.05 million project is being supported with a $7.54 million Infrastructure for Rebuilding America (INFRA) Grant, a $4 million loan from the State of Mississippi along with RailUSA

[21] "Columbus and Greenville Railway (CAGY)". Genesee & Wyoming Inc. Available from: https://www.gwrr.com/railroads/north_america/columbus__greenville_railway

[22] "Golden Triangle Railroad". Patriot Rail Company. 2019. Available from: https://patriotrailandports.com/rail/golden-triangle-railroad-gtra/

investing the required matching funds.[23] RailUSA is also restoring the line's southern portion, about 81 miles between Grenada and Canton, which has been closed since 2011.[24] The railroad interchanges with CN in Canton and in Memphis, and through an intermediate switch arrangement with CN, also interchanges with CSXT, BN, UP, and NS. Typical commodities transported include chemicals, flour, lumber, paper, petroleum, plastics, and railroad crossties.[25]

GRYR also acquired the Kosciusko and Southwestern Railway (KSRY), a former IC branch line, that had previously been owned by the State of Mississippi since 1997. The only state-owned rail line was donated to GRYR in June 2015. The line runs approximately 21 miles between Aberdeen Junction and Kosciusko. GRYR expects to reopen the line for storage of surplus railcars.

Gulf and Ship Island Railroad

Harrison County Development Commission (HCDC) is in the process of taking ownership from KCS of the 5.9 mile branch line known as the Seaway Lead, located within Gulfport, Harrison County. In 2019, HCDC selected GSI to be the contracted operating partner. The rail line interchanges with KCS just west of the Creosote Road/Factory Shop Blvd intersection with US Hwy 49 in Gulfport. The track has been out of service since 2016. HCDC intends to restore rail freight service after receipt of BP RESTORE Act funding and construction is planned for late 2020 / early 2021. An estimated $6 million in BP RESTORE Act money and other sources will be needed to rebuild the rail line and the Bayou Bernard bridge.

Luxapalila Valley Railroad

A railroad owned by Genesee & Wyoming since 2008, the Luxapalila Valley Railroad (LXVR) operates 38 miles of track from Columbus, MS to Belk, AL. The majority of LXVR revenue is derived from Georgia-Pacific and Weyerhaeuser facilities that are located 24 miles beyond the state line in Belk, Alabama. Commodities transported include chemicals, forest products, and waste. Twelve miles are owned and operated in Mississippi. Traffic is brought into Columbus for interchange with CAGY, KCS, and NS. LXVR has a maximum track capacity of 268,000 pounds.[26]

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[23] "Grenada Railroad". RailUSA. Available from: https://www.railusa.net/grenada-railroad/

[24] "RailUSA sets out to start up, turn around short lines, regionals." Progressive Railroading. November 2019. Available from: https://www.progressiverailroading.com/short_lines_regionals/article/RailUSA-sets-out-to-start-up-turn-around-short-lines-regionals--59026

[25] "Grenada Railroad". RailUSA. Available from: https://www.railusa.net/grenada-railroad/

[26] "Luxapalila Valley Railroad (LXVR)". Genesee & Wyoming Inc. Available from: https://www.gwrr.com/railroads/north_america/luxapalila_valley_railroad

Meridian & Bigbee Railroad

Meridian & Bigbee Railroad (MNBR) is a 168-mile short line that bridges the Alabama-Mississippi state line and provides direct connections with all major carriers serving the Southeast: KCS, NS, CSXT, and BNSF, as well as AGR. Owned by Genesee & Wyoming since 2005, the railroad runs from Meridian, MS to Burkville, AL and has trackage rights over CSXT from Burkville to Montgomery, AL. MNBR owns and operates over 23 miles in Mississippi. The line-depends primarily on on-line traffic, but also serves as an east-west bridge carrier for traffic routed between the KCS and CSXT systems. The line has a 263,000-pound weight restriction, and typically handles aggregates, agricultural products, chemicals, forest products, public and paper, metallic ores, and minerals.[27]

Meridian Southern Railway

Meridian Southern Railway (MDS) acquired and commenced operating over 55 miles of a former KCS branch line between Meridian and Waynesboro in 2000. The carload weight limit for the railroad is 263,000 pounds, resulting in large part from the condition of 72 wooden bridges on the line. MDS connects with KCS and NS in Meridian. The railroad is one component of the East Mississippi Intermodal Rail Corridor project being considered by the Rail Authority of East Mississippi.[28] MDS serves several major customers including the Marshall Durbin Poultry complex at Waynesboro, Mississippi, the Hood Lumber Company, also at Waynesboro, Georgia Pacific at Meridian, and Atlas Roofing at Meridian. MDS also serves a number of smaller customers including Bazor Lumber Company in Quitman, Scotch Plywood in Waynesboro, Culbreth Timber Company in Quitman, Southwood Door Company in Quitman.[29]

Mississippi Central Railroad Company

Mississippi Central Railroad Company (MSCI), which is owned by BRX Transportation, operates three segments totaling approximately 108 total miles of track. MSCI serves far north central Mississippi along 56 miles it owns from Oxford, connecting with BNSF at Holly Springs and with NS at Grand Junction, Tennessee, just a few miles north of the state line. The railroad also leases from Tishomingo County 11 miles in Iuka in the northeast corner of Mississippi, and leases from Mississippi-Alabama Railroad Authority 41 miles between a NS connection in Corinth and Sunshine Mills (an animal feed production company) in Red Bay, Alabama. The railroad's main commodities are aggregates and food products. The railroad can accommodate 286,000-pound railcars.[30]

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[27] "Meridian & Bigbee Railroad (MNBR)". Genesee & Wyoming Inc. Available from: https://www.gwrr.com/railroads/north_america/meridian_bigbee_railroad

[28] Rail Authority of East Mississippi. Available from: https://raem.ms/rail-project/

[29] Meridian Southern Railway, LLC. Available from: http://www.meridiansouthern.com/

[30] "Mississippi Central Railroad (MSCI)". Pioneer Railcorp. Available from: https://pioneer-railcorp.com/mississippi-central-railroad-msci/

Mississippi Delta Railroad

Mississippi Delta Railroad (MSDR) operates 60 route miles in Northwest Mississippi with a connection to CN at Swan Lake, MS. The MSDR is operated for Coahoma County by Rock Island Rail. ToTal Refining is the anchor shipper for the railroad, with locations in Sumner for loaded cars and Clarksdale for empty ones. In February 2019, an agreement was reached between the County of Coahoma, MSDR, and Chicago, Rock Island & Pacific Railroad (Rock) to allow Rock to assume operations over the line.[31] The railroad track is limited to maximum gross carload weights of 263,000 pounds for about 21 miles of track, with the rest being able to accommodate 286,000 pounds. The railroad's principal commodities include scrap, paper, polystyrene, fertilizer, cotton, grains, and other agricultural products.[32]

Mississippi Export Railroad

Mississippi Export Railroad (MSE) owns and operates the 42-mile short line just west of the Alabama state line in southeast Mississippi between a connection with CN at Evanston south to Pascagoula where it connects and interchanges with CSXT and serves the Port of Pascagoula. It is the north-south corridor connecting the CN and the east-west line of CSXT. It interchanges with NS at Mobile and Hattiesburg and with KCS in Jackson via haulage agreements. [33] MSE works closely with the Port of Pascagoula to develop new import and export opportunities. Access to the port is via a switching arrangement with CSXT. The entire railroad is capable of handling up to 315,000-pound railcars.[34]

Mississippi Southern Railroad

Mississippi Southern Railroad (MSR) was acquired by Watco Companies through a lease agreement with KCS, and consists of 26 miles of mainline track, beginning at Newton, MS and running south to Bay Springs, MS. There is an interchange with KCS located at Newton.[35] Carload weight limits are 263,000 pounds, although some of the line is capable of handling 286,000-pound carloads. In 2020, additional track miles were leased from KCS from Newton to West Point – the

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[31] Surface Transportation Board Docket Number FD_36273_0 dated March 20, 2019. Available from: https://www.stb.gov/decisions/ReadingRoom.nsf/UNID/FD0DDC0DE71FEDA0852583C3004F0D86/$file/46884.pdf

[32] "Mississippi Delta Railroad". Chicago Rock Island & Pacific Railroad LLC. Available from: https://rockislandrail.com/msdr-railroad

[33] "Mississippi Export Railroad". Available from: http://mserr.com/

[34] "MSE: Mississippi Export Railroad". Kansas City Southern. Available from: https://kcsouthern.com/pdf/short-line/mse-mississippi-export-railroad.pdf

[35] "Mississippi Southern Railroad". Watco Companies. Available from: https://www.watcocompanies.com/services/rail/mississippi-southern-railroad-msr/

Louisville Subdivision – a total of 131 track miles including 35 out of service miles between Ackerman and West Point.

Mississippi Railway Cooperative

Mississippian Railway Cooperative (MSRW), or "Mississippian", owns and operates a single 23-mile alignment northeastward from a BNSF connection in Amory to Fulton. It was purchased by the Itawamba Development Authority in 1986 to preserve service to local rail-served industries. Rail customers and the Mississippi Development Authority (MDA) banded together to raise public and private funds for the line's purchase and then turned day-to-day governance over to a shipper-appointed board. In August 2016, the assets were transferred to the Itawamba County Rail Authority.[36] As of August 2017, the entire corridor can accommodate 286,000-pound carloads.[37] MSRW serves the Port of Itawamba and two main shippers. The current commodities being carried are lumber, cooper and wood chips.

Natchez Railway

Natchez Railway (NTZR) was created in 2009 following the acquisition of a former IC branch line between Brookhaven and Natchez. The original Natchez railroad line was established more than one hundred years ago. Historically, the 65-mile railroad has been a main artery for transporting goods to Southwest Mississippi. All traffic is interchanged with the CN at Brookhaven. The main commodities hauled by the railroad include forest products, petroleum products and empty cars for a railroad car repair facility at Bude, MS.[38] The line also serves the Natchez-Adams County Port and Industrial Park in Natchez.

Improvements to increase weight-bearing capabilities and safety of the Natchez Railway between Natchez and Brookhaven are underway. In 2016, the County of Natchez received a U.S. Department of Transportation (DOT) Transportation Investment Generating Economic Recovery (TIGER) grant of $10 million and Natchez Railway Inc. provided $3.3 million match for a total project cost of $13.3 million to rehabilitate and upgrade five rail bridges to increase operating speeds and support 286,000-pound railcars, among other safety and structural improvements.[39] The project scope

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[36] "Itawamba County Rail Authority takes control of Mississippi short line." Progressive Railroading. August 16, 2016. Available from: https://www.progressiverailroading.com/short_lines_regionals/news/Itawamba-County-Rail-Authority-takes-control-of-Mississippi-short-line--49162

[37] "Mississippi Railway can now carry maximum loads". Daily Journal. August 2, 2017. Available from: https://www.djournal.com/news/business/mississippian-railway-can-now-carry-maximum-loads/article_578049b2-1830-5156-bac1-81b4d3660df8.html

[38] "Natchez Railway, Inc." Affiliated Railroads. Available from: http://www.vsrailway.com/affiliated-railroads/natchez-railway-inc

[39] "TIGER 2016 Awards". U.S. Department of Transportation. Available from: https://www.transportation.gov/sites/dot.gov/files/docs/TIGER%20Fact%20Sheets%20-%207-28.pdf

includes rehabilitating and upgrading five of the railroad truss bridges and all 25 wooden bridges, replacing two failing culverts and adding safety improvements to 28 public road crossings. Since the City of Natchez had been approved for funding in July 2016, the railway finished rebuilding all of the wooden bridges and began work on each of the five steel railroad truss bridges. The new railroad crossing improvements — including state-required signage improvements on all of them and flashing lights and sirens on six of them — will increase the safety of rail line operations as well as traffic safety where the railway crosses public roads. The crossing upgrades are scheduled to be completed in December 2020. The TIGER grant is funded through the year 2021.[40]

Old Augusta Railroad

Old Augusta Railroad (OAR) is a wholly owned subsidiary of Georgia-Pacific, LLC (GP), which is a pulp and paper company based in Atlanta, GA and owned by Koch Industries, Inc. In 2009, KM Railways, LLC (a Class III rail carrier commonly owned with OAR by Koch Industries.) was authorized to acquire the 2.5-mile rail line from OAR, and OAR was authorized to lease and operate it.[41] OAR serves a GP wood mill and wood pulp manufacturing facility. The line was constructed in 1983 and runs one train per day from the CN interchange in New Augusta, MS to the manufacturing facilities in Augusta, MS. The line is capable of handling 286,000-pound carloads. Commodities carried include pulp, crude sulfate tall oil, crude sulfate turpentine, sodium hydro sulfide, sodium chlorate, sodium hydroxide, sulfuric acid, and hydrochloric acid.

Port Bienville Railroad

Port Bienville Railroad (PBVR) owns and operates over seven miles in Hancock County to serve the Port Bienville Industrial Park. PBVR is owned and operated by the Hancock County Port and Harbor Commission (HCPHC). The line interchanges with CSXT in Ansley, MS, and the track is capable of handling 286,000-pound carload weights. Car cleaning, repair, maintenance and storage services are also offered to rail customers. Two trains per day, 6 days per week, operate on the line. Commodities carried include plastic resin, chemicals, steel, steel pipe, and railcars for cleaning and repair. The HCPHC is working with the FRA and MDOT to extend the PBVR by about 24 miles. This would provide access to NS near Nicholson in Pearl River County, providing Port Bienville with access to two Class I service providers. MDOT completed a Feasibility Report in 2013, and the FRA signed the Draft Environmental Impact Statement (EIS) in September 2018.[42] PBVR is

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[40] "Natchez Railway improvements underway". Natchez the Democrat on July 10, 2019. Available from: https://www.natchezdemocrat.com/2019/07/10/natchez-railway-improvements-underway/

[41] "Old Augusta Railroad, LLC-Acquisition and Operation Exemption-KM Railways, LLC". A Notice by the Surface Transportation Board on 12/06/2017. Available from: https://www.federalregister.gov/documents/2017/12/06/2017-26267/old-augusta-railroad-llc-acquisition-and-operation-exemption-km-railways-llc

[42] "Port Bienville Rail-Line Extension Project Publishes Environmental Impact Statement." Hancock County, MS. September 27, 2018. Available from: http://portairspace.com/news/article/port-bienville-rail-line-extension-project-publishes-environmental-impact-s

also finalizing plans for an intermodal shuttle terminal to connect Port Bienville with the Port of New Orleans to start in Q3 2020.[43]

R.J. Corman – Tennessee Terminal

R.J. Corman – Tennessee Terminal (RJCK) is a four-mile line running east from a junction and interchange with BNSF at Olive Branch, MS. The railroad is owned by R.J. Corman Railroad Group, a short line railroad holding company, and the line is leased from BNSF. The railroad also operates another line segment in Memphis, TN providing industrial switching operations over 30 miles of track and interchanging with BNSF in Memphis.[44]

Ripley & New Albany Railroad Company

Ripley & New Albany Railroad Company (RNA), which is owned and operated by BRX Transportation, consists of 26.5 miles of track from New Albany to Ripley, MS. The railroad interchanges with both BNSF and KCS (through trackage rights) in New Albany. The line can accommodate 286,000-pound railcars, and typically handles clay products, lumber, bio diesel, and plastics.[45]

Vicksburg Southern Railroad

Vicksburg Southern Railroad (VSOR) began operations January 8, 2006. Once known as the Redwood Branch, the line was built in 1884, and was previously owned by Illinois Central Gulf Railroad and Mid-South Rail Corp. Watco Companies acquired the railroad from KCS through a lease agreement. The VSOR consists of 21 miles of track and interchanges with the KCS at Vicksburg, Mississippi. The line can accommodate 286,000-pound railcars.[46] It operates 12 trains per week carrying lube oil and steel coils.

West Tennessee Railroad

West Tennessee Railroad (WTNN) operates a collection of former IC and NS branch lines across 230 miles of track. Extending southward from Fulton, Kentucky through the Jackson, Tennessee area and into the far northeastern corner of Mississippi, the railroad connects and interchanges

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[43] PBVR response to the Class II/III Railroad Survey for the MS State Rail Plan Update, conducted in April 2020.

[44] "Tennessee Terminal (RJCK). RJ Corman Railroad Group. Available from: https://www.rjcorman.com/companies/railroad-company/our-short-lines/tennessee-terminal-rjck

[45] "Ripley and New Albany Railroad (RNA). Pioneer Railcorp. Available from: https://pioneer-railcorp.com/ripley-and-new-albany-railroad-rna/

[46] "VSOR: Vicksburg Southern Railroad". Kansas City Southern. Available from: https://www.kcsouthern.com/en-us/pdf/short-line/vsor-vicksburg-southern-railroad.pdf

with KCS and NS at Corinth. The carrier owns and operates two miles in Mississippi. The railroad is a component of the NS/CN Mid-America Corridor, and has a track capacity of 286,000 pounds.[47]

Yellow Creek Port Railroad

Yellow Creek Port Railroad (YCRK) is controlled by the Yellow Creek Inland Port Authority over which service is provided by KCS. The railroad runs over 10 miles from Sharp, Mississippi, on the KCS line from Corinth, to Counce, Tennessee, to Yellow Creek Port where it terminates.

Rail Corridors

Freight rail lines in Mississippi mainly serve to move freight to origins and destinations outside of the State. About 80 percent of the rail freight moving in Mississippi is through traffic. Memphis, Atlanta, Houston, Birmingham, Mobile, and New Orleans are major destinations outside the State linked by Mississippi's rail corridors, though ultimate origins and destinations span the U.S. Memphis and New Orleans are especially important rail hubs, as they serve as "gateways" between the Class I eastern railroads (NS and CSXT) and the western Class I railroads (BNSF and UP).

Mississippi's State Freight Plan[48] identified seven multimodal Tier I primary/interstate freight corridors and eight Tier II regional/rural freight corridors that are part of the Mississippi Freight Network (MFN). These are illustrated in Figure 3 and include key highway, rail and maritime corridors.

Table 4 describes the relevant Tier I and Tier II corridors for rail freight transportation in the State, including the corridor limits, primary facilities and operators, and the key corridors features and rail connections. Tier I corridors carry most of the rail freight volumes in the State and are key connectors to Mississippi's ports and interstate commerce. Of the Tier I rail corridors two are operated by CN and KCS, and CSXT, NS and BNSF operate one each. The Mississippi River though not a rail corridor is being included as a relevant Tier I corridor for rail because of the rail connections serving the ports along the river, including CAGY, VSOR, NTZR and CN, respectively providing rail access to Port of Greenville, Port of Vicksburg, Port of Natchez, and Port of Yazoo.

Tier II corridors are key rural and regional freight corridors and also play a vital role in Mississippi's rail network, providing connecting routes for Class I operations, as well as serving major freight-intensive industries and providing links to ports and intermodal facilities. Of the Tier II corridors KCS, NS, and CN each operate one corridor. Additionally, the Tennessee-Tombigbee Waterway is being included as a relevant Tier II rail corridor because of the rail connections serving the ports along the river, including YCRK to Yellow Creek Port, KCS and CAGY to Lowndes County Port, MSRW to Port of Itawamba, and BNSF to vicinity of the Port of Amory.

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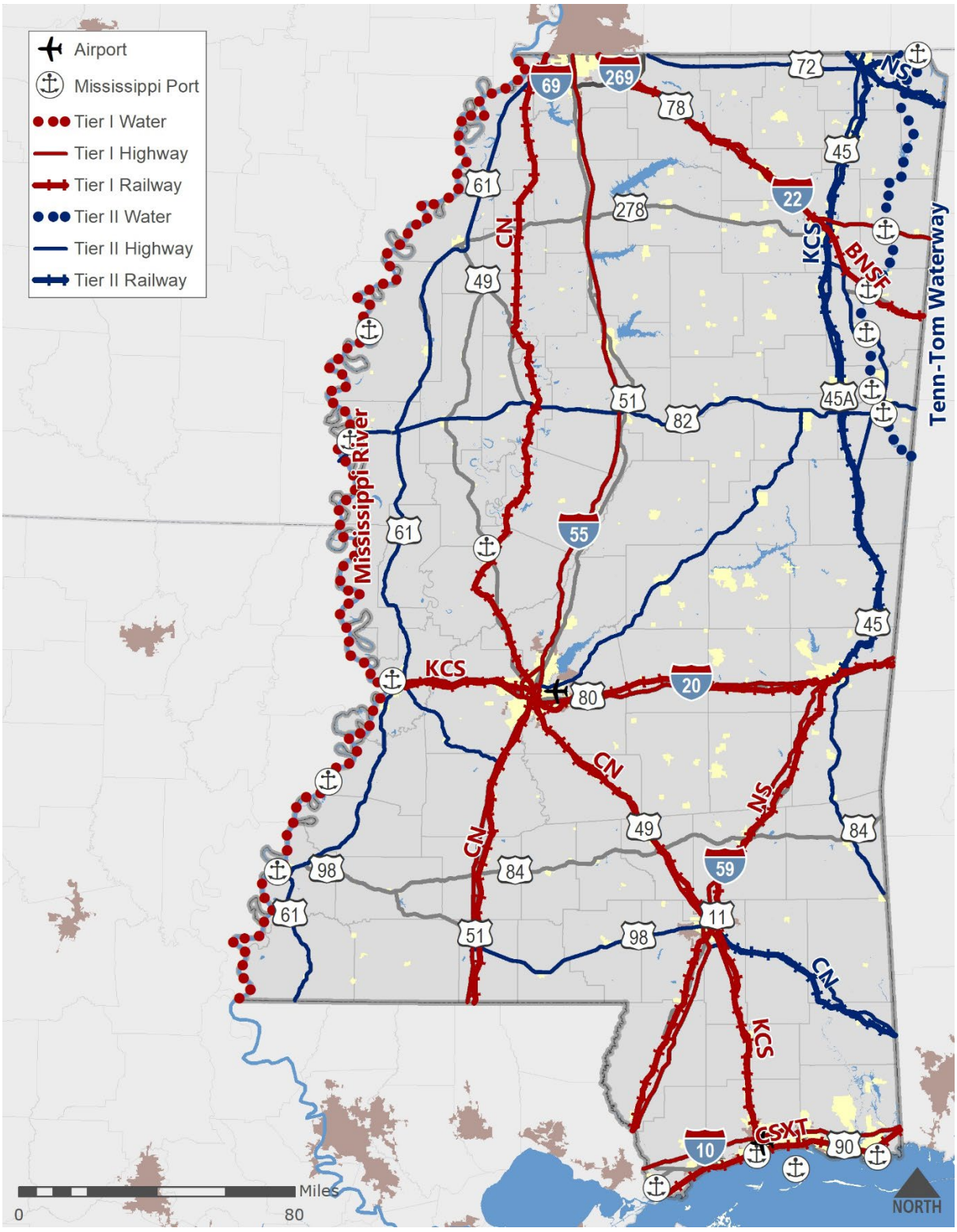
[47] "WTNN: West Tennessee Railroad". Kansas City Southern. Available from: https://www.kcsouthern.com/pdf/short-line/wtnn-west-tennessee-railroad.pdf

[48] Mississippi Department of Transportation Statewide Freight Plan, February 2015, amended October 2017.

Figure 3. Mississippi Rail System—Rail Freight Corridors



Source: Mississippi Department of Transportation Statewide Freight Plan, February 2015, amended October 2017.

Table 4. Mississippi Freight Network Tier I and II Corridors with Rail Connections

Corridor	Limits	Primary Facilities/Operations	Key Corridor Features	Rail Connections
Tier I Corridors				
I-10/CSXT (Gulf Coast)	LA State Line in Hancock County to AL State Line in Jackson County	• I-10 • CSXT M&M Subdivision mainline • Port of Gulfport • Port of Pascagoula • Port of Bienville • Gulfport-Biloxi International Airport	Corridor provides freight mobility and access to critical state industries along the Gulf Coast. Freight flows along this corridor reflect those industry segments, especially chemicals petroleum, coal, and crude oil. The corridor serves two deep water Gulf Coast ports, Pascagoula and Gulfport.	• CSXT connection to Chevron Pascagoula Refinery and Mississippi Phosphates • KCS branch to DuPont and Bayou Concrete Plant • Mississippi Export Railroad (MSE) • Port Bienville Railroad (PBVR)
I-20/KCS (Vicksburg-Jackson-Meridian)	LA State Line in Warren County to AL State Line in Lauderdale County	• I-20 • KCS mainline (Meridian Speedway) • Port of Vicksburg • Jackson International Airport	Corridor is a significant national and regional freight link for both through and regional freight, with freight destined for Jackson area and Meridian, and through freight to northeast U.S. and to Texas, New Orleans, and beyond.	• Mississippi Southern Railroad (MSR) • Meridian and Bigbee Railroad (MNBR) • Vicksburg Southern Railroad (VSOR)
I-55/CN (Southaven-Jackson-McComb)	LA State Line in Pike County to TN State Line in DeSoto County	• I-55 • CN mainline • Port of Yazoo • Jackson International Airport • Amtrak City of New Orleans	Corridor's extensive connectivity makes it a significant national link for through freight, with connections between Memphis, Jackson, to New Orleans. It is the most heavily traveled freight corridor in Mississippi.	• NHS Intermodal Connectors CN Railroad to Amtrak Station in Jackson • The Grenada Railroad, LLC (GRYR) • CN Class I line from Jackson to Canton
I-59/NS (Picayune-Hattiesburg-Meridian)	LA State Line in Pearl River County to AL State Line in Lauderdale County	• I-59 • NS Crescent Corridor mainline • Amtrak Crescent	Corridor is a significant national freight link for through freight, with freight destined for New Orleans and states northeast of Mississippi.	• Meridian Southern Railway (MDS)

Corridor	Limits	Primary Facilities/Operations	Key Corridor Features	Rail Connections
US 49/CN/KCS (Jackson- Hattiesburg-Gulfport)	Gulfport in Harrison County to Jackson area in Rankin County	• US 49 • CN Beaumont Subdivision between Jackson and Hattiesburg • KCS Gulfport Subdivision between Hattiesburg and Gulfport • Port of Gulfport • Gulfport-Biloxi International Airport • Jackson International Airport	Corridor is a significant statewide freight link with freight destined for Jackson area from the Gulf Coast and vice-versa. Freight flows along this corridor reflect outputs by major freight generators in the region, including chemicals/petroleum, coal, and crude oil.	• KCS branch to DuPont and Bayou Concrete Plant
US 78 (I-22)/ BNSF (Olive Branch-Tupelo-Fulton)	TN State Line in DeSoto County to AL State Line in Itawamba/ Monroe County	• US 78 (I-22) • BNSF mainline • Port of Amory • Port of Itawamba	Corridor is an important regional freight link from Memphis, a major national freight hub, to northeastern MS, including Tupelo, and to Alabama.	• Mississippi Central Railroad Company (MSCI) • R.J. Corman-Tennessee Terminal (RJCK)
Mississippi River (Port of Rosedale-Port of Natchez)	LA State Line in Wilkinson County to TN State Line in DeSoto County	• Mississippi River • Port of Greenville • Port of Natchez • Port of Rosedale • Port of Vicksburg • Port of Yazoo • Port of Claiborne County • US 61	Waterborne freight movement along Mississippi River and six ports located within state provide Mississippi with access to one of the most affordable, safe, and high volume form of freight transportation. Beyond Mississippi they provide feeder service for international and domestic shipments. Top commodities include agriculture, chemical petroleum products, coal minerals.	• Last mile rail access to Port of Greenville-Columbus and Greenville Railway (CAGY) • Port of Vicksburg-Vicksburg Southern Railroad (VSOR) • Port of Natchez - Natchez Railway, LLC (NTZR) • CN mainline to Port of Yazoo

Corridor	Limits	Primary Facilities/Operations	Key Corridor Features	Rail Connections
Tier II Corridors				
US 45/KCS (Corinth-Meridian-Waynesboro)	AL State Line in Wayne County to TN State Line in Alcorn County	• US 45 • KCS/Artesia subdivision mainline • Port of Aberdeen • Clay County Port • Lowndes County Port • Port of Amory	The corridor is a significant regional freight link providing access to major freight generators and emerging manufacturing activity centers in the area. US 45 provides access to I-20, I-22/US 78, US 82, and US 72, while Class I railroads (KCS and BNSF) serve several of the Tenn-Tom Waterway System ports.	• KCS and Columbus and Greenville Railway (CAGY) to Lowndes County Port
US 72/NS (Mt. Pleasant-Corinth-Iuka)	TN State Line in Marshall County to AL State Line in Tishomingo County	• US 72 • NS Crescent Corridor mainline • Yellow Creek Port	Corridor functions well as a significant regional freight link providing access to Memphis and points in northeast Mississippi and a relief/alternate route to the US 78/I-22 corridor.	• Yellow Creek Port Railroad (YCRK) providing access to Yellow Creek Port
US 98/CN (McComb-Hattiesburg-Lucedale)	McComb in Pike County to AL State Line in George County	• US 98 • CN mainline	The corridor provides regional connections to freight activity centers between I-55, Hattiesburg, and points along US 98 to Alabama and further south to Mobile, Alabama. The CN mainline runs parallel to US 98 from Hattiesburg to Alabama state line (the same CN mainline extends northwest of Hattiesburg and is part of the US 49/CN Tier I Corridor). Primary commodities shipped through the corridor are chemical petroleum products, coal minerals, crude oil	• Mississippi Export Railroad (MSE) Railroad which links the Port of Pascagoula to CN track in Evanston, Mississippi. It also provides direct access for coal unit trains to Mississippi Power Plant Daniel

Corridor	Limits	Primary Facilities/Operations	Key Corridor Features	Rail Connections
Tennessee-Tombigbee Waterway (Yellow Creek Port-Lowndes County Port)	AL State Line in Noxubee County to TN State Line in Tishomingo County	• Tennessee-Tombigbee Waterway • Port of Aberdeen • Port of Itawamba • Lowndes County Port • Port of Amory • Yellow Creek Port • Clay County Port • US 45	Tennessee-Tombigbee Waterway, a designated national marine highway, runs north-south through eastern portion of Mississippi and connects Tombigbee River with Tennessee River, creating a water transportation route that serves 23 states from Gulf of Mexico (Port of Mobile) northward. Six Mississippi ports on the Tenn-Tom carried 2 million tons of goods with lumber as the primary commodity, followed by coal and crude oil.	• Mississippian Railway Cooperative (MSRW) to Port of Itawamba • KCS and Columbus and Greenville Railway (CAGY) to Lowndes County Port • Yellow Creek Port Railroad (YCRK) to Yellow Creek Port • BNSF to vicinity of the Port of Amory

Source: Mississippi Department of Transportation Statewide Freight Plan, February 2015, amended October 2017.

Major Freight Terminals

Multimodal freight facilities are defined as facilities where any transfer of freight between transportation modes occurs, including but not limited to the movement of containers and trailers, bulk transloads, and automobile distribution. These facilities are critical components in Mississippi's freight system. Two major categories of multimodal freight terminals exist in the State where freight moves between port-rail and rail-truck.

With three commercial waterways in the state, there are numerous ports handling both barges and deep-draft vessels. Of the State's 16 water ports, 11 have rail access and 2 have plans to add rail access. Pascagoula and Gulfport are the two largest ports in the State measured by cargo handled. Deep-draft ocean vessels carrying containers have direct access to Gulfport, and a number of the river ports handle container-on-barge service. Active ports and associated serving rail carriers are shown in Table 5 and Figure 4.

The ports are multimodal in nature, but they are also involved in the development of industrial properties that in most cases, especially relative to the river ports, generate much greater transportation demand than the port terminals themselves. Thus, while each port plays a role in the State's intermodal system facilitating water and land cargo transfers, many are more industrial development tools than multimodal facilities per se, and carload freight is the rule rather than containers that are more commonly associated with intermodal transport.

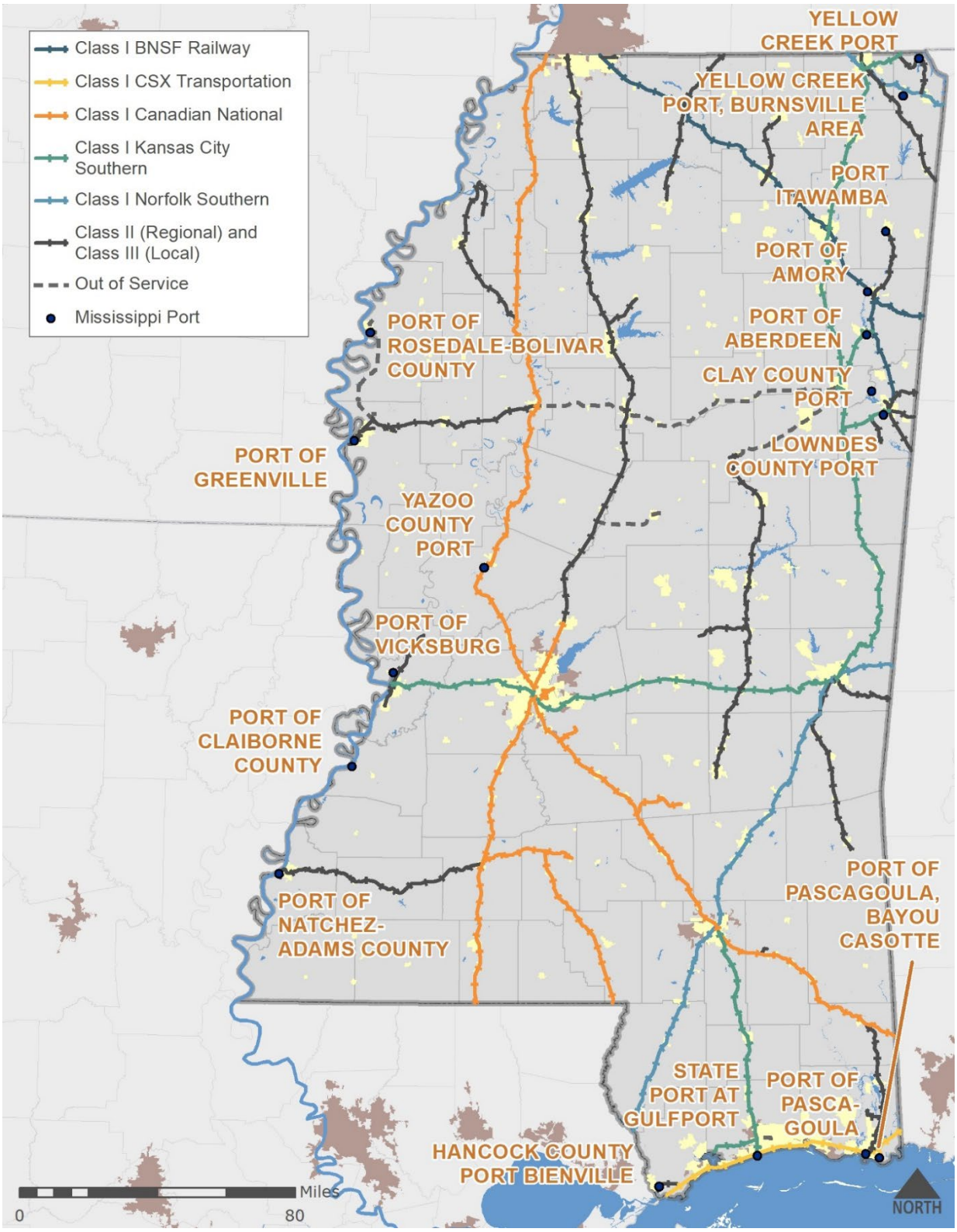
Table 5. Mississippi Rail-Served Water Ports

Port	Waterway	Serving Rail Carrier
Bienville	Gulf of Mexico	PBVR
Gulfport	Gulf of Mexico	KCS, CSXT
Pascagoula	Gulf of Mexico	MSE, CSXT
Greenville	Mississippi	CAGY
Natchez	Mississippi	NTRZ
Rosedale[1]	Mississippi	Formerly GTR, renovation of branch line planned
Vicksburg	Mississippi	VSOR
Yazoo County	Mississippi	CN
Aberdeen[1]	Tennessee-Tombigbee	Plans to construct a spur to Class 1 KCS
Amory	Tennessee-Tombigbee	BNSF
Itawamba	Tennessee-Tombigbee	MSRW
Lowndes County	Tennessee-Tombigbee	KCS, CAGY
Yellow Creek	Tennessee-Tombigbee	YCRK

Source: Mississippi Department of Transportation.

[1] *Planned rail service; no existing rail service.*

Figure 4. Marine, River, and Waterway Ports in Mississippi



Source: Mississippi Department of Transportation.

The only rail-highway trailer/container intermodal facility in the State, is operated jointly by CN and KCS in Richland, near Jackson, Mississippi. The facility is adjacent with and connected to KCS' High Oak Yard. On-site storage exists for 300 containers, with capacity for 90,000 lifts per year. Containers are placed onto or taken off trains by the facility's single crane or one of its three side lifts. The lack of trailer/container transfer facilities in Mississippi does not mean that the State's businesses do not have access to them. There are several located in neighboring states, that are accessible from many locations within the State, including major terminals in Memphis, Tennessee, and New Orleans, Louisiana, as well as smaller facilities in Birmingham, Alabama, Huntsville, Alabama, and Mobile, Alabama.

There is also a single bulk transfer facility in the State, which allows shippers and receivers to take advantage of efficiencies in moving large quantities of products such as grain, chemicals, and plastics by rail, with final pickup or delivery by truck. The bulk transfer facility is operated by KCS and is located in Richland, Mississippi, as well. It has track capacity for 65 railcars, and handles both dry and liquid transfers. Thirdly, there is a single automobile distribution facility that transfers finished automobiles off railcars and to trucks for final distribution, usually to local dealerships. NS runs the facility, located in Meridian, Mississippi.

Abandoned and Rail-Banked Lines

Since the last state rail plan was published in 2016, one section of track has been proposed for abandonment. In April 2018, CN (doing business as Illinois Central Railroad) proposed to abandon 1.8 miles of track in Jackson (Hinds County).[49]

The process by which inactive rail corridors are preserved for possible future rail use is called rail banking. A typical means of rail banking lines is converting them for use as trails. According to the Rails to Trails Conservancy, Mississippi has 13 rail-trails totaling 110 miles. Two rail-trails of note include:

- The Tanglefoot Trail is Mississippi's longest Rails to Trails conversion, measuring 43.6 miles through the foothills of the Appalachian Mountains between New Albany and Houston on an old Mississippi Tennessee Railroad line. Construction was completed in the summer of 2013. The trail has a 10-foot paved path.[50]

- The Longleaf Trace is a 40.25-mile trail between Prentiss and Hattiesburg that opened in 2010. The trail, which occupies a former rail line of the Mississippi Central Railroad, is 10 feet wide and

[49] Surface Transportation Board Proceedings & Actions. Available from: https://dcms-external.s3.amazonaws.com/MPD/62491/CB13FDD910B5FE258525826700476432/46328.pdf

[50] "Mississippi". Rails to Trails Conservancy. Available from: https://www.railstotrails.org/our-work/united-states/mississippi/#state

paved with asphalt. Mississippi's trail system also includes several smaller trails, ranging from 0.2 to 10 miles, on abandoned rail lines.[51]

Out-of-Service and Weight-Limited Rail Lines

Rail lines that have not been abandoned but are either out of service (i.e., embargoed) or of such condition that they cannot handle standard 286,000-pound railcars can have an adverse impact on shippers and the local economies that rely on the shippers for jobs and revenues. As traffic on rail lines diminishes, or as funds are not available for needed maintenance, lines are sometimes taken out of service or are abandoned. In some cases, abandoned lines are rail-banked, meaning they are converted to other uses, as a way to retain the underlying right of way for future rail use. As shown in Figure 1 and Figure 2, several extended sections of rail line are out of service. As described in previous sections, 92 miles of the Columbus and Greenville Railway (CAGY) line between Greenwood and West Point are currently out of service; the 32-mile Great River Railroad (GTR) is inactive; and the 21-mile Grenada Railroad (GRYR) between Aberdeen Junction and Munsons Crossing is currently out of service. The 81-mile portion of the GRYR line between Grenada and Canton which had been without service since it was embargoed in 2011 is no longer out of service and is currently being used for storage of surplus railcars. Table 6 lists the railroads and their mileage of out of service and weight-limited track. Figure 5 shows Mississippi's rail car capacity by rail line.

Table 6. Embargoed and Weight-Limited Rail Mileage in 2020

Railroad	Reporting Marks	Mississippi Route Miles		
		Operated[1]	Embargoed Track	Weight-Limited Track[2]
Class I Railroads		**1,817**	**<10**	**162**
Canadian National Railway	CN	757	<10	62
Kansas City Southern Railway Co.	KCS	576	0	100
Class III (Local) Railroads		**903**	**187**	**321**
Columbus and Greenville Railway	CAGY	85	92	25
Grenada Railroad LLC	GRYR	180	21	0
Great River Railroad	GTR	0	32	0
Gulf and Ship Island Railroad	GSI	0	6	
Luxapalila Valley Railroad	LXVR	12	0	11
Meridian and Bigbee Railroad	MNBR	23	0	19
Meridian Southern Railway	MDS	55	0	60
Mississippi Central Railroad Company	MSCI	108	0	56
Mississippi Delta Railroad	MSDR	60	0	21

[51] "Mississippi's Longleaf Trace". Rails to Trails Conservancy. August 1, 2010. Available from: https://www.railstotrails.org/trailblog/2010/august/01/mississippis-longleaf-trace/

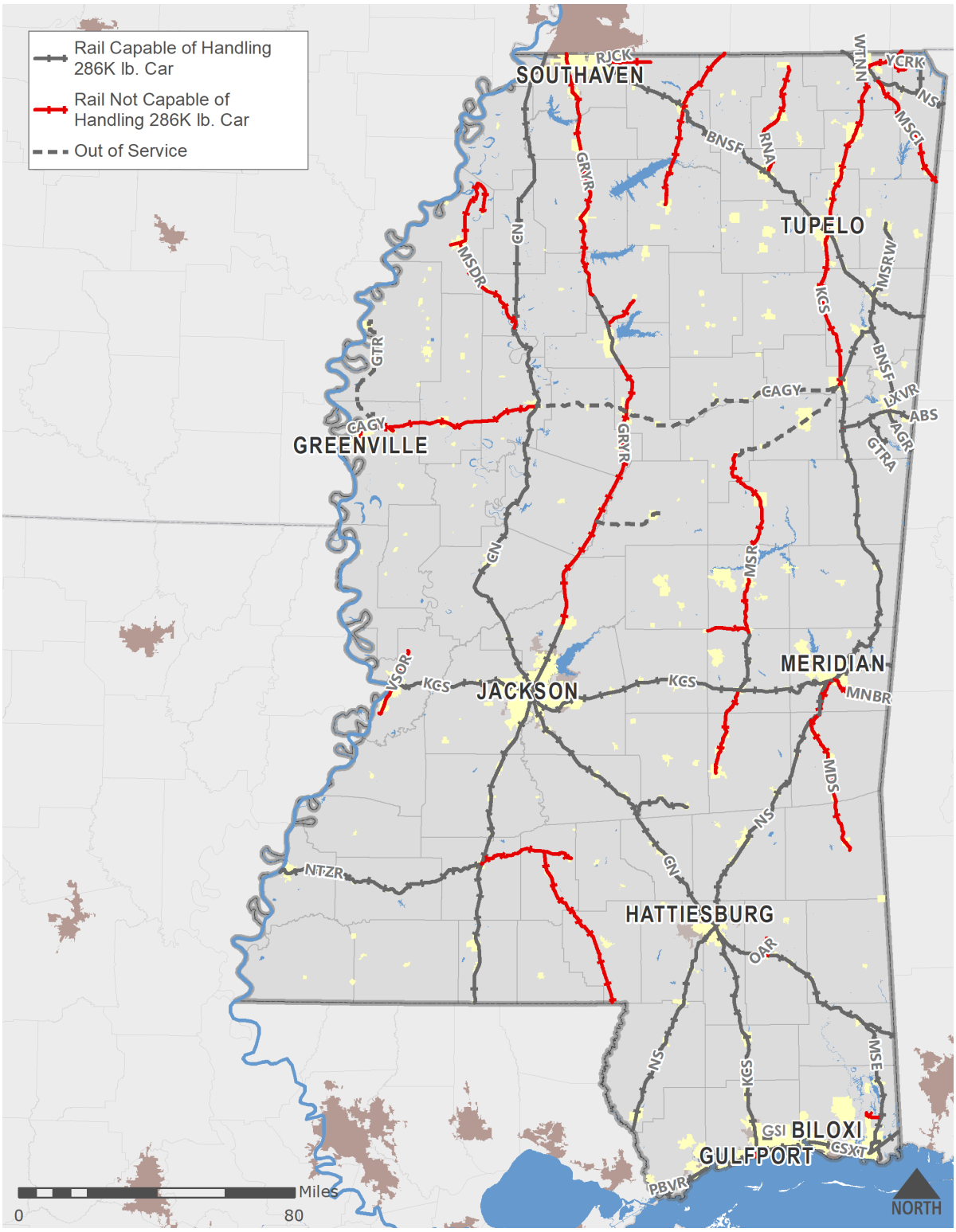
Railroad	Reporting Marks	Mississippi Route Miles		
		Operated[1]	Embargoed Track	Weight-Limited Track[2]
Mississippi Export Railroad	MSE	42	0	5
Mississippi Southern Railroad	MSR	122	35	103
Vicksburg Southern Railroad	VSOR	21	1	21
Grand Total		**2,772**	**197**	**483**

Source: 2016 State Rail Plan; correspondence or surveys of Class I and Class II/III railroads conducted in April 2020.

[1] *To allow for comparison, the total operated mileage for each railroad class includes all railroads in Mississippi, even though the table only includes railroads that reported embargoed or weight-limited mileage.*

[2] *Track that is not able to accommodate 286,000-pound carloads.*

Figure 5. Rail Car Weight Capacity



Source: 2016 Mississippi State Rail Plan updated by Cambridge Systematics with 2020 State Rail Plan Railroad Survey responses.

2.2 Existing Passenger Services

Existing Routes

Passenger rail service in Mississippi is provided by two long-distance trains operated by Amtrak. Amtrak assumed operations of most of the nation's passenger rail trains in 1971 due to financial losses sustained by the freight railroads on their passenger operations. The National Railroad Passenger Corporation is a congressionally chartered corporation principally owned by the U.S. Department of Transportation and operated as a quasi-nonprofit corporation.

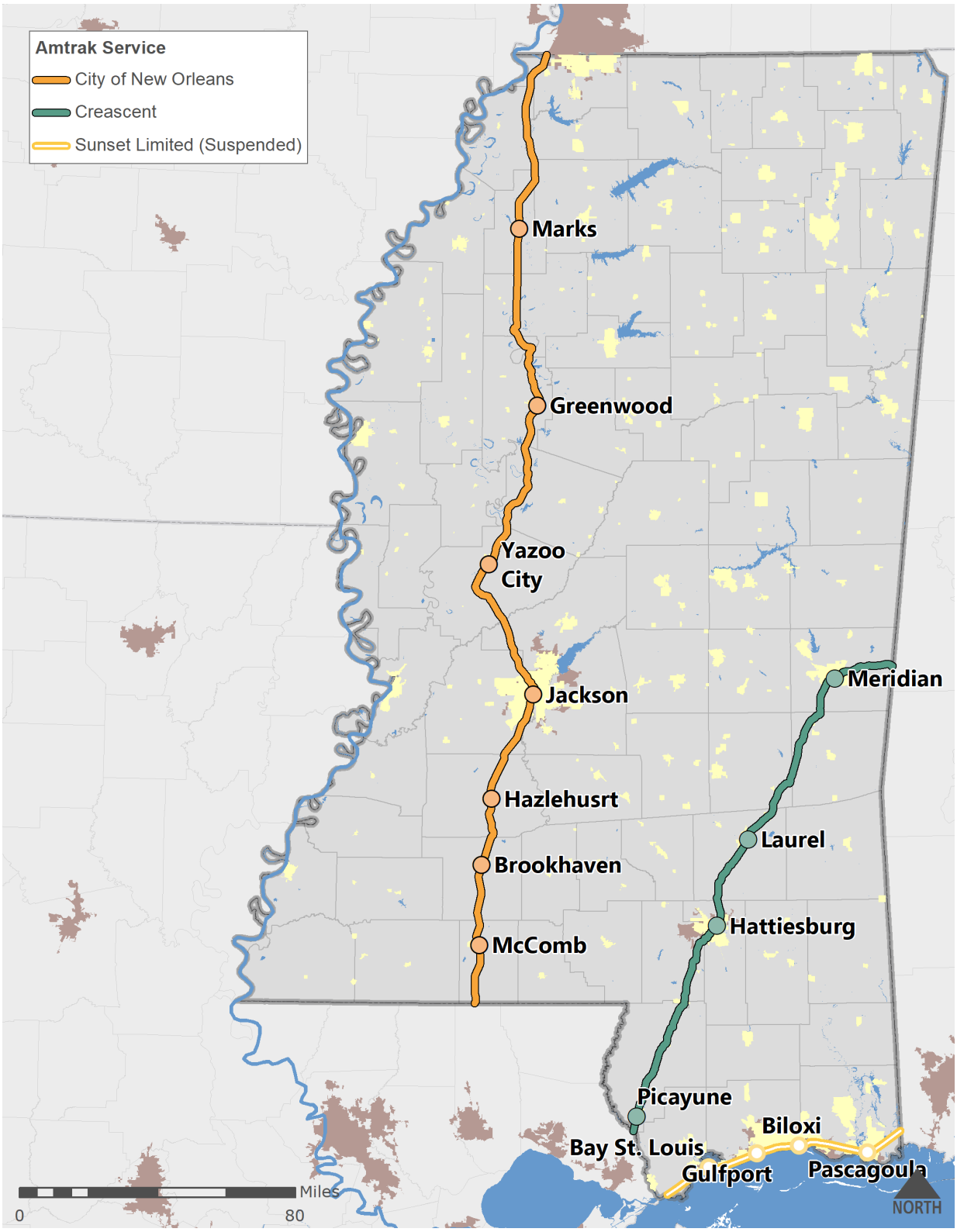
Existing Amtrak service to Mississippi includes two long distance trains: the *Crescent* and the *City of New Orleans*. A third train, the *Sunset Limited*, also served Mississippi along the Gulf Coast route on a tri-weekly basis until 2005, after which service was discontinued following the severe damage to the track caused by Hurricane Katrina. A map of these three passenger routes is shown in Figure 6.

Based on a summary of 2018 Amtrak data developed by the National Association of Railroad Passengers, the average length of trips beginning or ending at Mississippi stations is 430 miles and the average fare is $78, yielding an average return of 18.1 cents per mile.[52] The top five city pairs by ridership in 2018 include:

- Jackson to New Orleans, LA;
- Jackson to Chicago, IL;
- Greenwood to Chicago, IL;
- Jackson to Homewood, IL; and
- Greenwood to New Orleans, LA.

[52] "Fact Sheet: Amtrak in Mississippi". Rail Passengers Association. Available from: https://www.railpassengers.org/site/assets/files/1197/ms.pdf

Figure 6. Passenger Rail Corridors in Mississippi

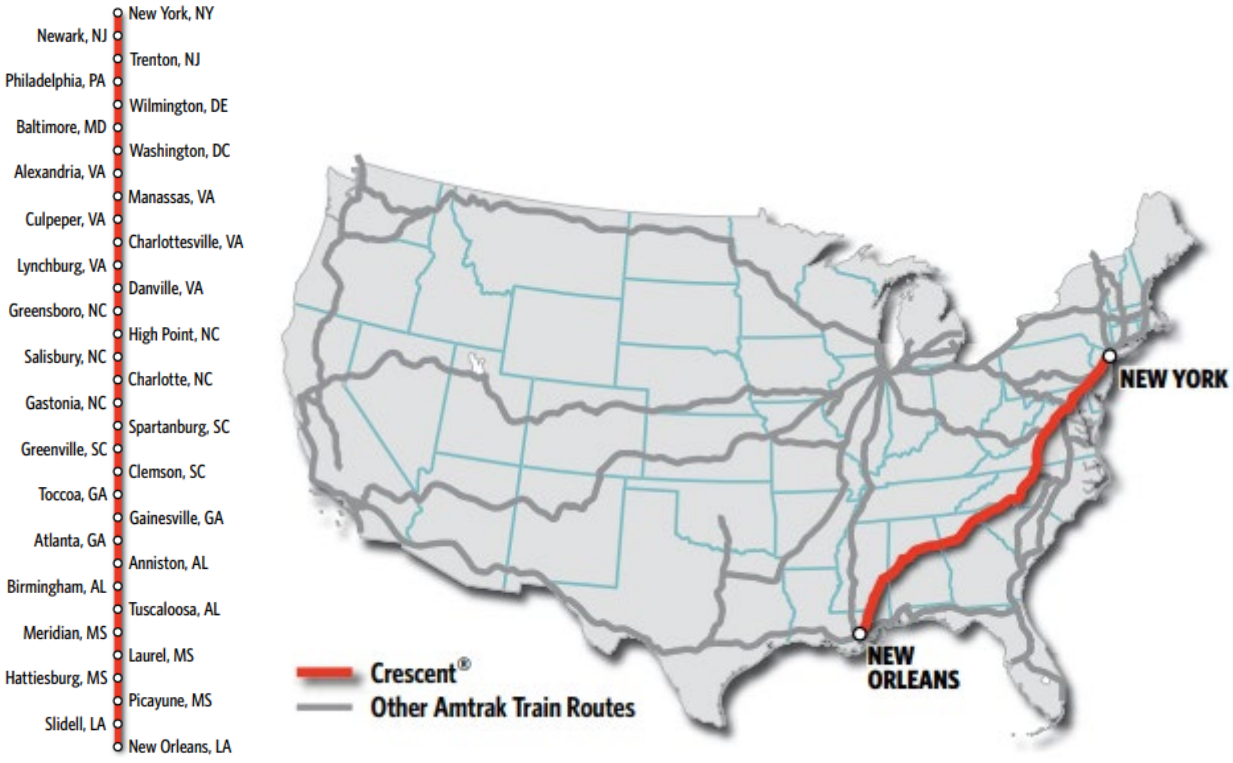


Source: Amtrak; Mississippi Department of Transportation.

Crescent Service

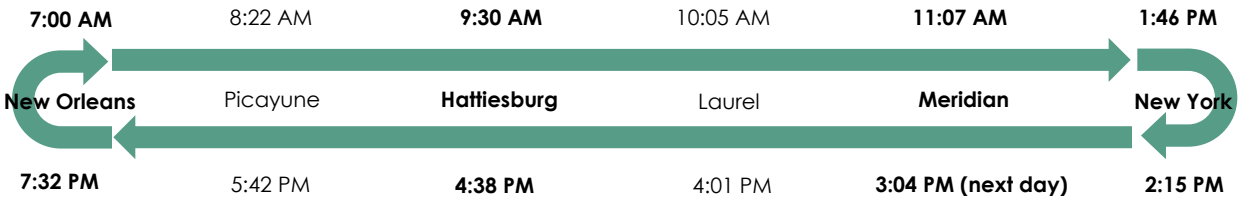
The *Crescent* operates a daily frequency between New York and New Orleans, a distance of 1,377 miles and a total trip length of 19 hours. The service consists of one daily roundtrip, stopping at Picayune, Hattiesburg, Laurel, and Meridian within Mississippi. Intermediate stops outside Mississippi include Birmingham, AL, Atlanta, GA, Charlotte, NC, Washington, DC, Baltimore, MD, Philadelphia, PA, and Newark, NJ. Southbound the train leaves New York 2:15 PM and arrives in New Orleans 7:32 PM the following day. Northbound the train leaves New Orleans at 7:00 AM and reaches New York at 1:46 PM the following day. The *Crescent's* schedule offers daytime service through Mississippi in both directions with stops in the afternoon (southbound) at 3:04 PM (Meridian), 4:01 PM (Laurel – flag stop), 4:38 PM (Hattiesburg), and 5:42 PM (Picayune – flag stop). The Crescent travels northbound in the morning with stops at 8:22 AM (Picayune – flag stop), 9:30 AM (Hattiesburg), 10:05 AM (Laurel), and 11:02 AM (Meridian). Through Mississippi, the Crescent runs over 162 miles on track owned by NS. The complete *Crescent* route map is shown in Figure 7, the schedule of departure times is shown in Figure 8, and the length of each of its Mississippi segments is shown in Table 7.

Figure 7. Crescent Route Map



Source:
https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/timetables/Crescent-Schedule-100119.pdf.

Figure 8. Schedule of Departure Times for the Crescent in Mississippi



Source: Amtrak.

Table 7. Crescent Segments in Mississippi

Segment	Length	Length in Mississippi	Total Length
Alabama Border to Meridian	18 miles	171 miles	1,377 miles
Meridian to Laurel	56 miles		
Laurel to Hattiesburg	29 miles		
Hattiesburg to Picayune	64 miles		
Picayune to Louisiana Border	4 miles		

Source: Amtrak.

Based on 2018 Amtrak fact sheets, ridership (combined boardings and alightings) at Mississippi stations along the Crescent route ranged from 2,119 in Picayune to 9,090 in Meridian. Trips originating or terminating at Mississippi stations did not make the top ten city pairs by ridership or revenue in 2018. Birmingham, AL to New Orleans, LA, which passes through Mississippi, was the top city pair by ridership over the Mississippi segments of the route.[53]

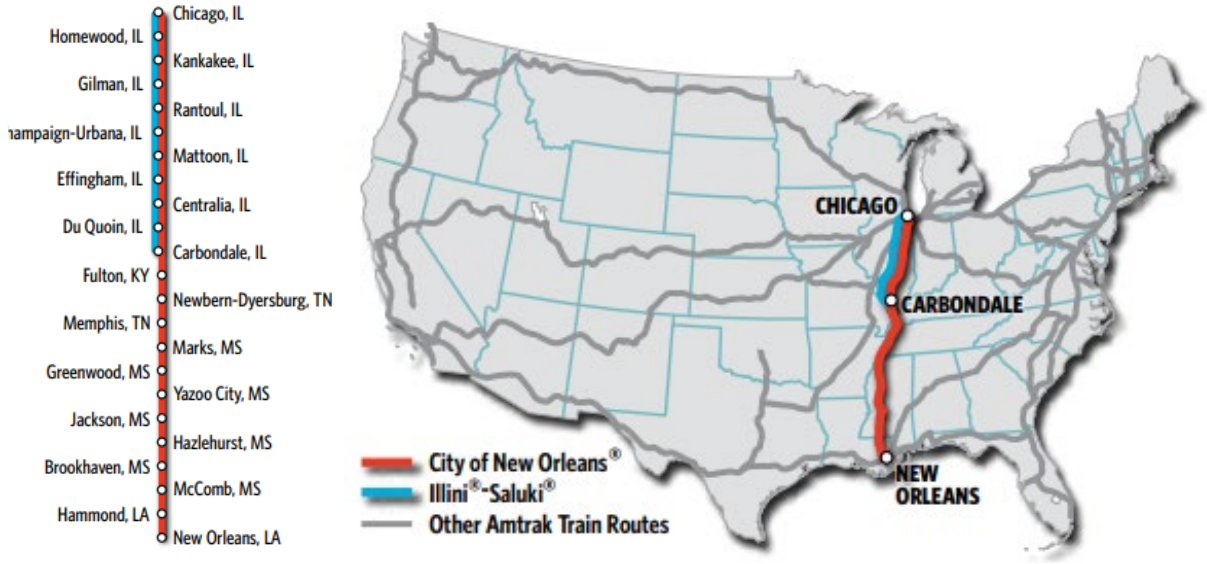
City of New Orleans Service

The *City of New Orleans* operates daily between Chicago and New Orleans, a distance of 962 miles and a total trip length of 30 hours. The service consists of one daily round-trip, stopping at Greenwood, Yazoo City, Jackson, Hazlehurst, Brookhaven, and McComb within Mississippi. Intermediate stops outside Mississippi include Champaign-Urbana, IL, Carbondale, IL, (with connecting Thruway bus service to St. Louis), Fulton, KY, and Memphis, TN. Southbound the train leaves Chicago 8:05 PM and arrives in New Orleans 3:47 PM the following day. Northbound the train leaves New Orleans at 1:45 PM and reaches Chicago at 9:20 AM the following day. The *City* schedule offers daytime service in both directions through Mississippi with stops in the late morning and early afternoon (southbound) from 9:00 AM (Greenwood) to 11:20 AM (Jackson) to 12:40 PM (McComb). Northbound, the City of New Orleans travels through Mississippi in the late afternoon and early evening with stops from 3:32 PM (McComb) to 5:44 PM (Jackson) to 7:37 PM

[53] "Ridership Statistics". Rail Passengers Association. Available from: https://www.railpassengers.org/all-aboard/tools-info/ridership-statistics/

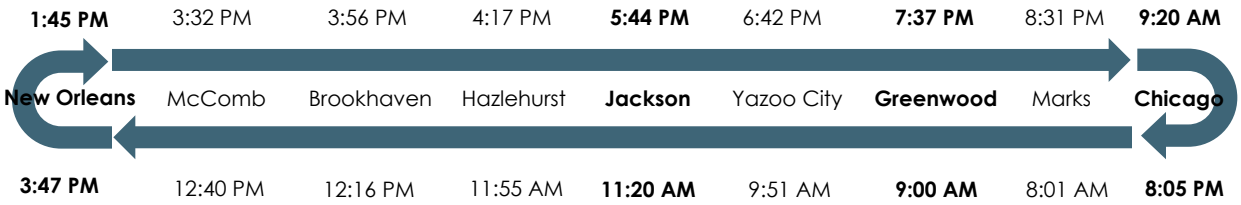
(Greenwood). The complete *City of New Orleans* route map is shown in Figure 9, the schedule of departure times is shown in Figure 10, and the length of each of its Mississippi segments is shown in Table 8. Through Mississippi, the *City of New Orleans* runs on CN trackage for approximately 300 miles. As of May 2018, Marks is a new station on this line, located between Memphis and Greenwood.

Figure 9. City of New Orleans Map



Source:
https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/timetables/City-of-New-Orleans-Schedule-100119.pdf.

Figure 10. Schedule of Departure Times for the City of New Orleans in Mississippi



Source: Amtrak.

Table 8. City of New Orleans Segments in Mississippi

Segment	Length	Length in Mississippi	Total Length
Tennessee Border to Marks	54 miles	302 miles	934 miles
Marks to Greenwood	57 miles		
Greenwood to Yazoo City	52 miles		
Yazoo City to Jackson	45 miles		
Jackson to Hazlehurst	33 miles		
Hazlehurst to Brookhaven	21 miles		
Brookhaven to McComb	23 miles		
McComb to Louisiana Border	17 miles		

Source: Amtrak.

According to the 2018 Amtrak fact sheets, the Jackson, MS station is the fourth busiest station along this route after Chicago, New Orleans, and Memphis. The Jackson to New Orleans leg of the *City of New Orleans* route was third city pair by ridership in 2018. In addition, the Chicago, IL to Jackson, MS segment was ranked sixth, and the Chicago to Greenwood, MS segment was ranked eight. In terms of revenue, the Chicago to Jackson segment was ranked fourth overall, the Chicago to Greenwood segment was ranked fifth, the Jackson to New Orleans segment was ranked seventh, and the Homewood, IL to Jackson segment was ranked tenth in 2018.[54]

[54] Ibid.

Sunset Limited

Until Hurricane Katrina hit the Gulf coast in August 2005, Amtrak's *Sunset Limited* provided intercity passenger rail service on a tri-weekly basis along the Gulf Coast of Mississippi, as part of a transcontinental route from Miami, Florida to Los Angeles, California. The destruction to the CSXT line caused by the hurricane along the Gulf Coast forced Amtrak to suspend the service east of New Orleans. The service remains suspended today. A map of the suspended *Sunset Limited* route in Mississippi appears in Figure 6 and its complete route in the U.S. (current service) is shown in Figure 11. The route is on Union Pacific Railroad track.

Figure 11. Sunset Limited Route Map

Source: *https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/timetables/Sunset-Limited-Schedule-031118.pdf*.

In 2015, Amtrak conducted a ridership and revenue study for the Southern Rail Commission (SRC) that outlined three potential options for restoring service between New Orleans the Gulf Coast and Florida. Subsequently, the FAST Act of 2015 required Amtrak and the FRA to perform an analysis that was developed from the option the SRC chose to pursue from the previous study: a daily, long-distance service between New Orleans and Orlando (with through service from Chicago) and a daily corridor service between New Orleans and Mobile. In February 2016, Amtrak, in partnership with the SRC, operated a two-day inspection train from New Orleans to Jacksonville. The train made stops at all the previously served stops with significant fanfare and political support at each location. The Gulf Coast Working Group, led by the FRA, concluded their work in May 2017 and submitted their findings to Congress, which included $118 million in capital improvements.

While discussions continue between the parties to restore service between New Orleans and Florida, a nearer term objective is the development of a multiple frequency corridor service between New Orleans and Mobile, AL. In July 2019, the SRC secured a $33 million Consolidated Rail Infrastructure and Safety Improvements (CRISI) Grant to commence development of corridor service along this segment, which is expected to cost around $65.9 million for capital, and $7.7 million annually for operations of a twice-daily service. A further grant of $4.4 million was received in September 2019 from the FRA under the Restoration and Enhancement (R&E) program that is part of the FAST Act to support operating expenses for a portion of the rail line's first year. In May 2020, SRC received another $5.45 million grant through the federal R&E Program, to fund operating expenses for the first and second years of service along the restored line between New Orleans and Mobile, Alabama. The grant also leverages commitments from the states of Louisiana and Mississippi, as well as from the

city of Mobile.[55] Other capital funding commitments have come from Louisiana at $10 million, Mississippi at $15 million, Amtrak, and line-side communities, including Mobile.

A study is currently underway to detail the service approach for two daily roundtrips between New Orleans and Mobile, along with the corresponding capital and operating costs required to ensure that freight and passenger services can successfully coexist. Anticipated for completion in early 2021, the study is being led by Amtrak with CSX and Norfolk Southern providing input.[56] With the freight operating environment having changed substantially since the previous study, the capital needs and operating costs will likely be different. Once the study has been completed and the results accepted by the involved parties, agreements must be finalized with the host railroads, along with funding agreements for operations among the service sponsors, and capital improvements completed.

Thruway Bus Service

Amtrak provides connecting bus service between rail stations and nearby communities that are not served by passenger rail service. In Mississippi, Thruway bus service is provided to complement the City of New Orleans route between Jackson, MS and Mobile, AL, and between Jackson and Dallas, TX, both operated by Greyhound Lines. To complement the Crescent route, Thruway bus service is provided between Meridian and Dallas (operated by Greyhound Lines). The Thruway service is marketed as an extension of the rail service with through-tickets and fares.

Passenger Stations

Rail stations not only provide access to train service, but they also can serve as a hub for community activities, fostering economic development, commercial endeavors, tourism, cultural activities, civic pride, and historic preservation.

As detailed in Table 9, there are 11 active Amtrak Stations in Mississippi, with the latest addition being the Marks station which opened in May 2018 and is served by Amtrak's City of New Orleans. Three of the state's stations – Jackson, Meridian and Hattiesburg – have been cited as prime examples of how investment in rail stations can foster a revised outlook for downtowns and generate additional private investment. For example, Meridian's Union Station leveraged more than $135 million in public-private investment in the city's surrounding Depot District, including office space, retail, residential apartments, and a data processing/computer training center.[57]

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[55] Southern Rail Commission wins grant for Gulf Coast passenger-rail line, May 4, 2020. Available from: https://www.progressiverailroading.com/passenger_rail/news/Southern-Rail-Commission-wins-grant-for-Gulf-Coast-passenger-rail-line--60354

[56] https://mynbc15.com/news/local/reality-check-questioning-the-existence-of-amtrak

[57] "Meridian, MS (MEI)". The Great American Stations. Available from: https://www.greatamericanstations.com/stations/meridian-ms-mei/

Of the 11 Mississippi stations, seven are served by the *City of New Orleans* and four are served by the *Crescent*. All stations see two trains a day, one in each direction. Four of the stations (Meridian on the *Crescent* and Greenwood, Jackson, and Brookhaven on the *City of New Orleans*) are regular, scheduled train stops. Seven (Yazoo City, Hazlehurst, Marks, and McComb on the *City* and Laurel, Hattiesburg, Picayune on the *Crescent*) are flag stops; that is, trains only stop to load or unload ticketed passengers; otherwise the train will pass the station at speed.

Only Jackson station is staffed and has baggage handling services, and just two have Amtrak's QuikTrak automatic ticket vending machines (Jackson and Hattiesburg). Station facilities are either platforms with shelters or structures with enclosed waiting rooms. There are few transit connections at the stations, including to Hub City Transit in Hattiesburg and JATRAN City Transit in Jackson, and limited parking is generally available at and/or near the stations.

Train Station Compliance with Americans with Disabilities Act

The Americans with Disabilities Act of 1990 (ADA) required that intercity passenger rail stations be made fully accessible by persons with disabilities. There are four in-service Mississippi stations having scheduled stops that are required to be ADA-compliant. These are Greenwood, Hattiesburg, Jackson, and Meridian. The other stations are either flag stop stations or have been closed since Hurricane Katrina in 2005.

One significant challenge in making Amtrak trains accessible to individuals with disabilities is that boarding platforms are typically not at the same height as the seating areas of the trains, and that Amtrak passenger cars do not have standardized seating area heights. Another challenge is that most station platforms used by Amtrak are owned by freight railroads, which generally do not permit platforms higher than eight inches above the top of the rail, to avoid physical conflicts with freight rail rolling stock.[58]

As shown in Table 9, seven Amtrak stations in Mississippi are fully wheelchair accessible: Brookhaven, Greenwood, Hattiesburg, Jackson, Laurel, Marks, and Meridien. One station, Yazoo City, has an accessible platform but other station features that are not accessible, and three stations (Picayune, McComb, and Hazlehurst) have platforms that are not wheelchair accessible. Station ADA compliance responsibility is shared between the station City and Amtrak depending on the ownership of the station structure, platform and parking. Table 10 shows the current and planned Amtrak projects to improve ADA compliance at the stations.

There are also four suspended service stations in Mississippi. These are stations along the *Sunset Limited* Route from Orlando to New Orleans. The *Sunset* has not operated along this route since Hurricane Katrina, and these stations will have to be brought up to a state of good repair and made ADA compliant as part of the planned corridor service between Mobile and New Orleans.

[58] David Randall Peterman. "Amtrak: Overview". Congressional Research Service. September 28, 2017. Available from: https://fas.org/sgp/crs/misc/R44973.pdf

Table 9. Amtrak Stations in Mississippi

	Brookhaven	Greenwood	Hattiesburg	Hazlehurst
Owner	City of Brookhaven	Canadian National	City of Hattiesburg (structure and parking), Norfolk Southern (platform)	Canadian National (platform), Amtrak (structure), City of Hazlehurst (parking)
Address	440 N. Railroad Ave., Brookhaven, MS 39601	Carrolton Ave and E. Gibson St, Greenwood, MS 38930	308 Newman Street, Hattiesburg, MS 39401	N Ragsdale Ave and E Conway St, Hazlehurst, MS 39083
Flag Stop	Yes	No	No	Yes
Served by	*City of New Orleans*	*City of New Orleans*	*Crescent*	*City of New Orleans*
Platform Type	Single	Single	Single	Single
Length	400 feet	675 feet	950 feet	360 feet
Construction	Brick pavers	Brick pavers	Concrete	Concrete
Shelter	Enclosed shelter serves as main passenger waiting area	Partial awning	Fully covered	Enclosed shelter serves as main passenger waiting area
Lighting	None	Fully lit	Fully lit	Fully lit
Platform Amenities	None	None	Benches	None
Passenger Safety	Yellow safety line	Yellow safety line	Tactile paver strip; fully fenced along length of platform	Tactile pavers
ADA Accessibility	Fully accessible	Fully accessible	Fully accessible	No accessible platform
Waiting Room Hours	11:30 AM – 12:30 PM; 3:30 PM – 4:30 PM	8:30 AM – 9:30 AM; 7:00 PM – 8:00 PM	9:15 AM – 10:15 AM; 3:45 PM – 4:45 PM	No hours
Seating Capacity	~8	12	~24	~10
Restrooms	Yes	No	Yes	No
Vending	No	No	Yes	No
Ticketing	No	No	QuikTrak kiosk	No
Shared Uses	None	CN Office	Public meeting spaces	None
Parking	~26 spaces	~16 spaces	~5 spaces adjacent to depot	Adjacent on-street parking
ADA Parking	1 space	1 space	2 spaces	1 space
Intermodal	None	None	Transfer center for Hub City Transit	None

	Jackson	Laurel	Marks	McComb
Owner	City of Jackson (structure), Canadian National (platform)	City of Laurel (structure and parking), Norfolk Southern (platform)	City of Marks (structure and parking), Canadian National (platform)	City of McComb (structure and parking), Canadian National (platform)
Address	300 West Capitol Street Jackson, MS 39201	230 North Maple Street Laurel, MS 39440	285 Cherry St, Marks, MS 38646	114 North Railroad Avenue McComb, MS 39648
Flag Stop?	No	Yes	Yes	Yes
Served by	*City of New Orleans*	*Crescent*	*City of New Orleans*	*City of New Orleans*
Platform Type	Double (only single in service)	Single	Single	Double (only single in service)
Length	700 feet	675 feet	400 feet	315 feet
Construction	Concrete	Asphalt	Concrete	Asphalt
Shelter	Partial awning	Partial awning adjacent to depot	Partial awning	Covered platform, awning adjacent to depot
Lighting	Fully lit	None	Fully lit	Fully lit
Platform Amenities	Benches	Benches	None	None
Passenger Safety	Yellow tactile strip	Yellow safety line	Yellow tactile strip	Yellow safety line
ADA Accessibility	Fully accessible	Fully accessible	Fully accessible	No accessible platform
Waiting Room Hours	10:15 AM - 5:45 PM	No hours	No hours	12:00 PM - 4:30 PM
Seating Capacity	~160	~20	N/A	~42
Restrooms	Yes	Yes	No	No
Vending	Yes	No	No	No
Ticketing	Staffed counter, baggage service, QuickTrak kiosks	No	No	No
Shared Uses	Union Station restaurant, entertainment areas, Greyhound lobby	Meeting rooms	None	Chamber of Commerce meeting rooms, museum
Parking	~75 spaces in pay-lot	~21 adjacent spaces to depot	Unknown	~8 spaces
ADA Parking	2 spaces	3 spaces	Unknown	2 spaces
Intermodal	Greyhound, JATRAN City Transit	None	None	None

	Meridian	Picayune	Yazoo City
Owner	City of Meridian (structure and parking), Norfolk Southern (platform)	City of Picayune (structure and parking), Norfolk Southern (platform)	Amtrak (structure), Canadian National (platform and parking)
Address	1901 Front Street, Meridian, MS 39301	200 Highway 11 South at Tate Street, Picayune, MS 39466	West Broadway (SR149) & North Water Street, Yazoo City, MS 39194
Flag Stop?	No	Yes	Yes
Served by	*Crescent*	*Crescent*	*City of New Orleans*
Platform Type	Double	Single	Single
Length	300 feet	90 feet	300 feet
Construction	Concrete	Asphalt	Concrete
Shelter	Covered platform, awning adjacent to depot	Partial awning adjacent to depot	Covered shelter adjacent to platform
Lighting	Partial lighting on platform	None	Fully lit
Platform Amenities	Benches	None	Benches
Passenger Safety	Yellow safety line	Yellow safety line	Yellow safety line, tactile edging
ADA Accessibility	Fully accessible	Not accessible	Accessible platform
Waiting Room Hours	10:00 AM - 4:00 PM	No hours	No hours
Seating Capacity	~60	~24	~12
Restrooms	Yes	No	No
Vending	Yes	No	No
Ticketing	No	No	No
Shared Uses	Greyhound station and ticket counter, package express counter, Meridian Transit System offices, freight rail offices	Offices, museum	None
Parking	~24 in lot, additional on-street	~15 spaces	~18 spaces
ADA Parking	2 spaces	2 spaces	2 spaces
Intermodal	Transfer to Meridian Transit and Greyhound	None	None

Source: Amtrak.

Table 10. Amtrak ADA Improvement Projects at Mississippi Stations

Station	Project Scope	Design	Construction
Projects Recently Completed			
Hazlehurst	Two accessible brick paths connect to a 350-foot long concrete platform with lighting, unconditioned passenger shelter, signage, guardrail, and drainage system. A custom wheelchair lift enclosure is located on the south end and emulates the historical train station owned by the City.	Complete	Complete
Picayune	Two accessible concrete paths connect to a 400-foot long concrete platform with lighting, signage, drainage system, and emergency egress ramp. A standard wheelchair lift enclosure is centrally located on the platform. The waiting area is a covered porch attached to the City owned intermodal transportation center. The porch and ramp will be renovated to provide a compliant path and waiting area. A concrete curb ramp and plaza connect to the accessible parking spaces located in the City owned lot.	Complete	Complete
Projects Under Construction			
Greenwood	An accessible concrete ramp connects two accessible parking spaces to the platform and waiting room. The existing platform will be replaced with a 750-foot long concrete platform 8-inches above top of rail with lighting, signage, guardrail, and drainage system. The existing waiting room will be fully renovated with an accessible single occupant restroom and accessible entrance door. This historical canopy covering a portion of the platform will be repaired.	Complete	Underway, 30% complete
Projects In Design			
Laurel	An accessible concrete walk, directly in front of the Amtrak waiting room located in the City owned Historic Train station, connects passengers to a 650-foot long concrete platform 8-inches above top of rail with lighting, signage, guardrail, and drainage system. A custom steel canopy on the north end of the platform provides an enclosure for the wheelchair lift. The platform is also accessible from Central Avenue by concrete walk. Wayfinding signage will be installed in the city owned parking lot to assist passengers in finding the waiting room and platform.	Complete	Projected start early Spring 2021
McComb	Provide access from public right-of-way to platform. Provide wheelchair lift enclosure at platform. Provide 8" above top of rail (ATR), 750' long, 12' wide platform with lighting along the entire platform. Provide new concrete walkway connecting (6) grade crossings for access to Main 2 Track. Provide city identification signs at platform and other exterior signs as required. Relocate A11 sign. Provide guardrail at rear of platform.	Drawings and specs at 90%	Projected start late Spring 2021

Station	Project Scope	Design	Construction
Yazoo City	Provide two new (2) accessible parking stalls. Restripe parking lot with new wheel stops and bollards. Provide compliant walkway from parking area to shelter and platform. Provide passenger drop off area. Provide open shelter with seating. Locate wheelchair lift at platform. Provide new 8" ATR, 300' long x 12' width platform. Provide two egress paths at ends of platforms.	Drawings and specs at 100%	Projected start late Spring 2021
Future Projects			
Hattiesburg	Provide compliant 8" ATR platform	Planned to start Fall 2022	Planned to start Fall 2023
Jackson	Provide compliant 8" ATR platform	Planned to start Fall 2022	Planned to start Fall 2023
Meridian	Provide compliant 8" ATR platform	Planned to start Fall 2022	Planned to start Fall 2023

Source: Amtrak.

Performance Evaluation of Intercity Passenger Services

This section includes demand and performance data pertaining to the *City of New Orleans* and *Crescent* services, including ridership, market shares, and service quality.

Ridership

All passenger rail stations on the *City of New Orleans* and *Crescent* routes are served by two daily trains, one in each northbound and southbound direction. The current and historical annual ridership for both Amtrak services are plotted in Figure 12. The ridership includes the total boardings and alightings for Mississippi stations on the *City* and *Crescent* routes. The ridership trends for individual stations in Mississippi in the years 2007-2018 are provided in Table 11.

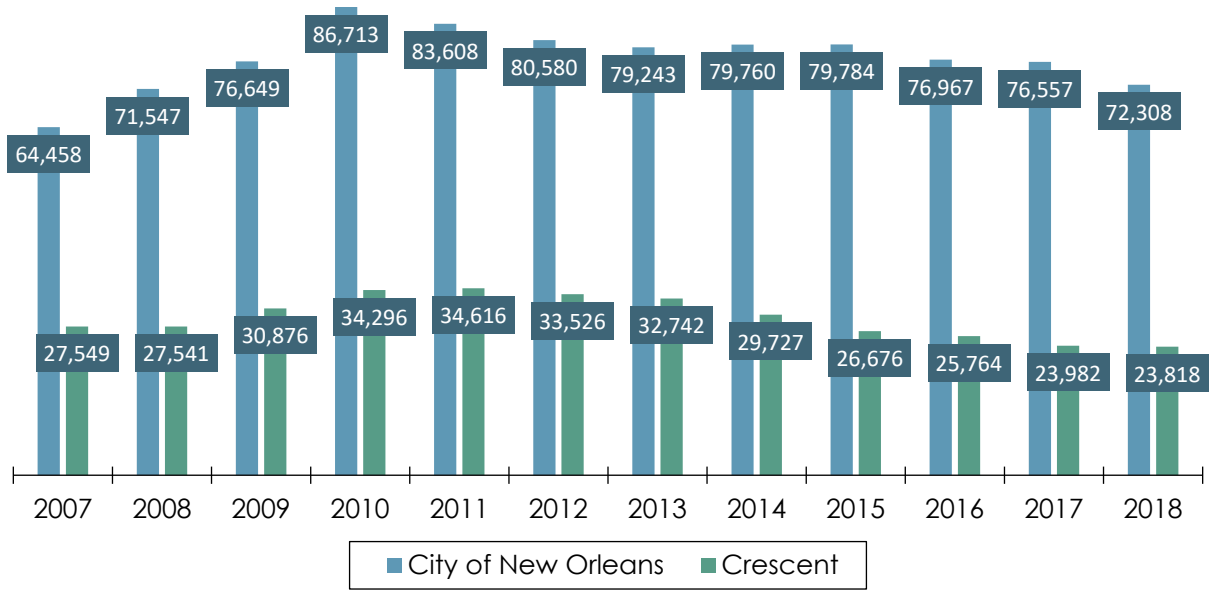
Recent trends in ridership show a steady decline for both services since peaking in 2010, when the *City* had 86,713 boardings and alightings and the *Crescent* had 24,296 boardings and alightings in Mississippi. Since 2010, ridership has declined every year by 2.2 percent and 4.5 percent for the *City of New Orleans* and the *Crescent* respectively. In 2018 the Mississippi ridership on the *City of New Orleans* and *Crescent* were 72,308 and 23,818 respectively. Notably, the 2018 ridership for the Crescent was the lowest recorded in the last decade.

The decline in ridership can be attributed to a variety of factors. Principal are declining on-time performance (discussed below), particularly on the *Crescent* route, and extended planned and unplanned service outages for track maintenance and bridge repair work, which are not reflected in Amtrak's on-time performance reports. These have made the services erratic and unreliable, thereby reducing their attractiveness. Another factor that has affected demand is available capacity and pricing, which has varied considerably since 2010.

Jackson, the state capital, hosts the busiest Amtrak Station in Mississippi with almost 44,000 boardings and alightings in 2018. Stations in Greenwood on the *City of New Orleans* and Meridian and Hattiesburg on the *Crescent* consistently see more than 8,000 annual boardings and

alightings. Greenwood, in particular, has displayed ridership far greater in respect to population than any other station statewide. It has been the second busiest station in Mississippi over the past decade despite a municipal population one-third the size of that in Hattiesburg and Meridian, which were third and fourth in ridership (in some order) throughout that same period. The Greenwood-Chicago market was the third largest in Mississippi in 2018, and the busiest that did not include Jackson.

Figure 12. Boardings and Alightings for Amtrak in Mississippi, 2007-2018



Source: Rail Passengers Association Amtrak Ridership Statistics Retrieved April 2019 (2007 to 2018).

In addition to ridership, the Rail Passengers Association reported the following data for 2018:

- **Trip Length and Yield:** The average Amtrak trip originating or terminating in Mississippi is 430 miles. Amtrak earned a $78.00 average fare from these passengers. The vast majority – 93 percent – of passengers traveled in either coach or business class, with the remainder utilizing first class or sleeper services.

- **Top City Pairs:** The busiest city pairs to or from Mississippi in 2018 were largely Jackson-based. Four of the top eight markets included Jackson: Jackson - New Orleans (1), Jackson - Chicago (2), Jackson - Homewood, Illinois (4), and Jackson - Memphis (6). Of the remaining top pairs two included Greenwood, Greenwood - Chicago (3) and Greenwood - New Orleans (5). The final two markets connected Meridian with New Orleans (7), and with Atlanta (8).

- **Through-Ticketed Passengers:** Approximately 128,641 passengers rode through Mississippi in 2018 without boarding or alighting.

Table 11. Ridership for Amtrak Stations in Mississippi, 2007-2018

											2016	2017	2018
Brookhaven	City of N.O.	4,774	4,591	5,150	5,241	5,019	4,615	4,900	5,178	5,172	4,252	4,131	4,028
Greenwood	City of N.O.	12,723	13,840	14,190	16,207	14,900	15,392	15,434	15,065	15,170	14,905	14,306	13,794
Hattiesburg	Crescent	9,262	9,796	11,137	11,868	12,771	12,951	13,056	11,448	9,940	9,552	8,588	8,685
Hazlehurst	City of N.O.	1,867	2,275	2,056	2,635	2,163	1,960	1,728	1,994	1,926	1,574	1,660	1,332
Jackson	City of N.O.	35,284	39,736	44,219	51,251	50,921	48,585	46,913	47,295	47,355	46,760	47,840	43,950
Laurel	Crescent	4,926	4,606	5,336	5,647	5,603	5,484	5,264	4,487	3,650	3,575	3,614	3,924
Marks	City of N.O.	-	-	-	-	-	-	-	-	-	-	-	1,214
McComb	City of N.O.	6,610	7,892	7,089	7,510	6,979	6,685	6,496	6,464	6,377	5,665	5,033	4,795
Meridian	Crescent	11,386	10,747	11,646	13,923	12,989	12,120	11,500	11,275	10,863	10,179	9,417	9,090
Picayune	Crescent	2,605	2,392	2,757	2,858	3,253	2,971	2,922	2,517	2,223	2,458	2,363	2,119
Yazoo City	City of N.O.	3,200	3,213	3,945	3,869	3,626	3,323	3,722	3,764	3,784	3,811	3,587	3,195

Source: Rail Passengers Association Amtrak Ridership Statistics Retrieved April 2019 (2007-2018).

Service Quality

Performance represents the degree to which the current passenger rail system provides adequate service to Mississippians. The performance of each of the long-distance trains serving Mississippi is summarized in Table 12. Amtrak's fiscal year 2018 operating revenue and operating costs reports reveal that the *City of New Orleans'* revenue covered 48 percent of its operating costs, also known as the fare box recovery ratio. The figure for the *Crescent* was somewhat lower at 45.6 percent.

Table 12. Performance Metrics for Mississippi Passenger Rail, 2018

Performance Metrics	City of New Orleans	Crescent
Ridership[1]	234,859	271,409
Ridership To/From Mississippi[1]	72,308	23,818
Mississippi Stations[1]	7	4
Operating Revenue[2]	$19.4 million	$33.1 million
Operating Expense[2]	$40.4 million	$72.6 million
Adjusted Operating Earnings[2]	-$21.0 million	-$39.4 million
Fare Box Recovery Ratio[2]	48.0%	45.6%
On-Time Performance[2]	69.9%	14.3%

Sources: [1] Rail Passengers Association Amtrak Ridership Statistics Retrieved April 2019. [2] Amtrak Monthly Performance Report YTD September FY 2018, February 19, 2019.

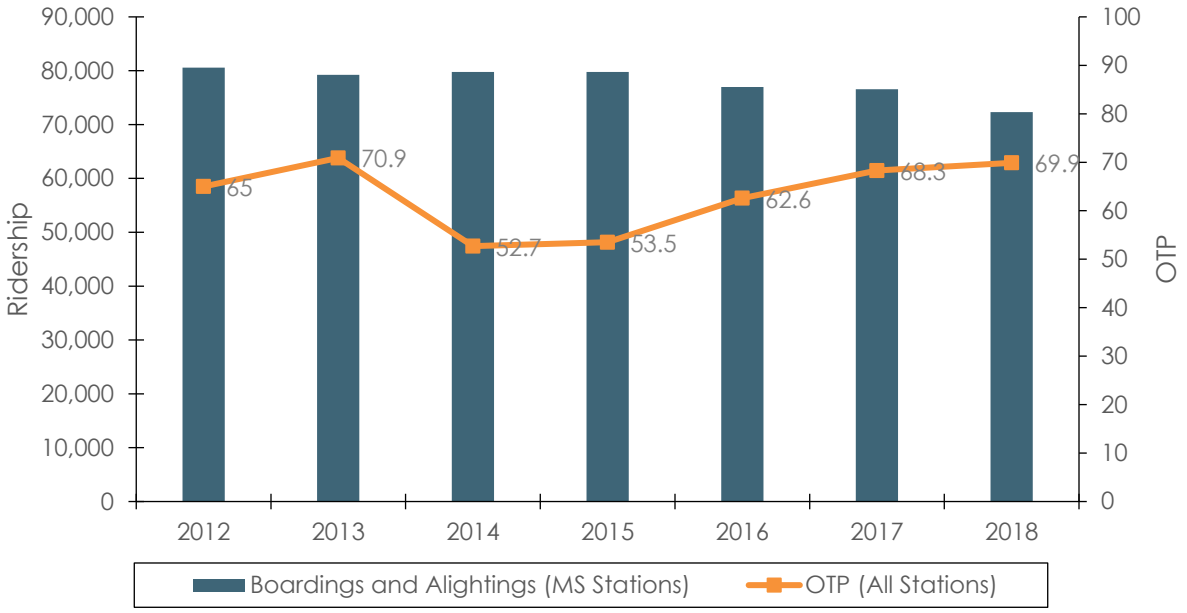
Amtrak defines On-Time Performance (OTP) as the total number of trains arriving on-time at a station divided by the total number of trains operated on that route. A train is considered on-time if it arrives at the final destination within an allowed number of minutes, or tolerance, of its scheduled arrival time. Figure 13 and Figure 14 respectively plot the *City of New Orleans* and *Crescent* ridership on Mississippi stations and OTP for all stations over the last seven years.

The *City of New Orleans* averaged 69.9 percent OTP in fiscal year (FY) 2018. The overall OTP for Amtrak's long-distance routes[59] in the same period was 57 percent. The *City* performed marginally better than the system average. However, that was not the case for the *Crescent*, which averaged 14.3 percent in OTP in FY 2018, the lowest OTP of the whole Amtrak system. This represents a significant decline in OTP for the *Crescent* over the last seven years. Compared to the same period in FY 2012, OTP improved 4.9 percent for the *City of New Orleans*, while it severely declined 59.9 percent for the *Crescent*. A consistent and high on-time performance would make the rail

[59] Section 201 of the Passenger Rail Investment and Improvement Act (PRIIA) of 2008 defined long-distance routes as those that are 750 miles in length or longer.

service more attractive to riders, especially those traveling shorter distances (e.g., intrastate journeys within Mississippi, or journeys between Mississippi and New Orleans, Birmingham, or Memphis).[60]

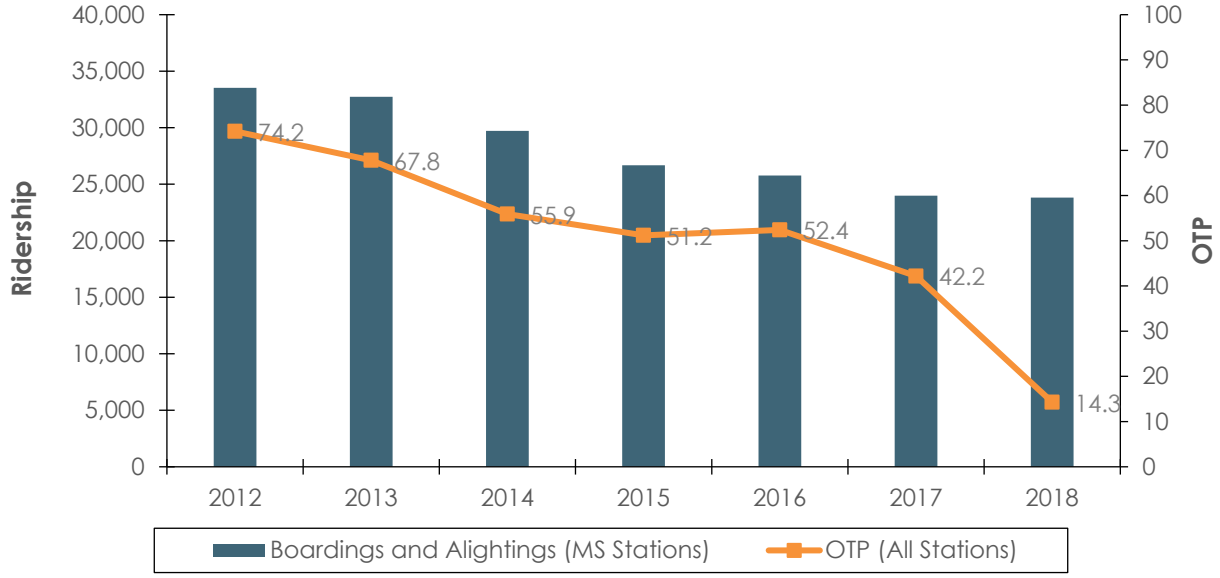
Figure 13. *City of New Orleans* All Stations OTP and Mississippi Ridership, 2012 to 2018



Source: Rail Passengers Association Amtrak Ridership Statistics Retrieved April 2019; and Amtrak Monthly Performance Report YTD September FY 2018, 2017, 2016, 2015, 2014, 2013 and 2012.

[60]See Amtrak Office of Inspector General, Train Operations: Better Estimates Needed of the Financial Impacts of Poor On-Time Performance, October 2019. Since 2008, this topic has been examined three times, with the findings consistently showing substantial revenue and cost impacts from poor on-time performance.

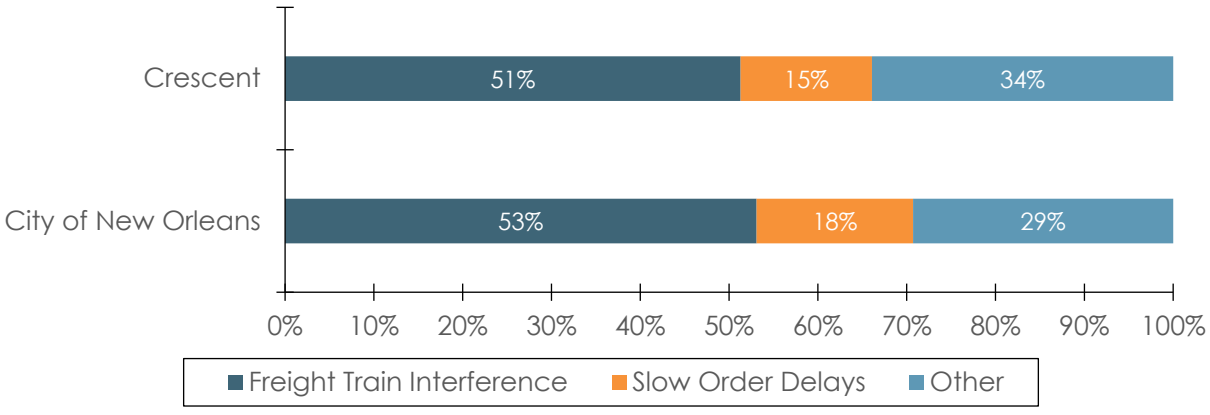
Figure 14. *Crescent* All Stations OTP and Mississippi Ridership, 2012 to 2018



Source: Rail Passengers Association Amtrak Ridership Statistics Retrieved April 2019; and Amtrak Monthly Performance Report YTD September FY 2018, 2017, 2016, 2015, 2014, 2013 and 2012.

Causes for Amtrak train delays can be attributed to a number of reasons including the host railroad, Amtrak itself, or other delays such as law enforcement actions. The delay profile reported by Amtrak for the *City of New Orleans* and the *Crescent* in February 2019 is provided in Figure 15. Overall, about two-thirds of delay minutes could be directly attributed to the host railroads, of which freight train interference is far and away the largest primary cause at about half of all delay minutes, while slow-order delays accounted for another 15-18 percent. These figures do not reflect any outright service cancellations.

Figure 15. Causes of Delay for City of New Orleans and Crescent, February 2019



Source: Amtrak Host Railroad Report February 2019, Minutes of Delay per 10K Train Miles by Service by Largest Two Delay Categories.

2.3 Public Financing for Rail Projects and Services

Mississippi has a long history of providing financial assistance to railroads operating in the state. In 1972, the Mississippi Legislature established the Railroad Revitalization Fund. This revolving fund was designated to hold and disburse federal, state or other funding made available for railroad research, planning, and administration costs incurred by MDOT directly attributable to railroad revitalization projects, assistance to railroads for the rehabilitation or improvement of rail lines, and the construction, improvement or rehabilitation of railroad facilities. This fund complied with the provisions established by the FRA's Local Rail Freight Assistance Program. The State's contributions to this fund were derived from collections from the locomotive fuel tax.

Over time financial assistance to the State's railroads has expanded not only with regard to the level of financial assistance provided, but also by the number of governmental entities within the State that contribute funding for the rail planning and rehabilitation activities conducted with the State. This section provides a description of existing state, local, regional, and federal programs utilized by or available to Mississippi for rail system improvements.

State Rail Assistance Programs

Mississippi established a rail assistance program to address the rail industry's economic problems and service abandonments that began in the 1970s. State assistance programs have generally grown and become more diversified over time, evolving from branch line and short line preservation or improvement programs to addressing capacity constraints, assisting industries seeking rail access or improving existing facilities, enhance intermodal movements, and initiate and/or expand intercity passenger rail service. The following are existing state rail financial assistance sources available to Mississippi.

MDOT Railroad Revitalization Fund

The Railroad Revitalization Fund program has historically provided no-interest loans for up to 75 percent of the costs for rail and rail/highway crossing rehabilitation and upgrade projects. Funds may be expended either separately or in combination with federal-aid funds for providing assistance to railroads and public entities mainly for the rehabilitation of railroad track infrastructure, including service lines to Mississippi industry. Loans to qualified recipients will be made at no interest, provided payments are made in accordance with the loan agreement. Since the inception of the loan program in 1984, MDOT has administered 31 loans totaling more than $14 million, including most recently a $4.3 million loan to Grenada Railroad.[61]

In 2009, the Mississippi Legislature passed HB 1713, which authorized the issuance of up to $16 million of state general obligation bonds to fund rail system and multi-modal projects in the state. Of this amount a total of $12.5 million is to be deposited in the Railroad Revitalization Fund to provide assistance to publicly owned railroads for the rehabilitation or improvement of existing

[61] Information provided by MDOT on July 15, 2020.

freight and passenger rail lines, construction, improvement or rehabilitation of railroad facilities, and for highway-railroad crossing safety. One million dollars of this amount is allocated to the Mississippi Highway-Railroad Grade Crossing Safety Account.

MDOT Multimodal Transportation Improvement Program

This fund, established in 2001 by Senate Bill 2527, is to be expended by MDOT for the improvement of publicly-owned (State, county, or municipality) ports, airports, transit systems, and rail lines. Mississippi Code 65-1-707 provides guidance for the allocation of funds. During each state fiscal year, MDOT is required to distribute available funds among the various modes as follows:

- Ports – 38 percent
- Airports – 34 percent
- Transit Systems – 16 percent
- Rail – 12 percent

Funding was first provided in 2005 at $5 million ($600,000 for rail) and beginning in 2007, funding was doubled to $10 million ($1.2 million for rail). Eligible rail projects must be directly related to capital improvements or the rebuilding or rehabilitation of basic infrastructure and not for routine maintenance, administrative or operational expenses, directly related to the operation of the railroad, and for a purpose outside the normal operating budget of the railroad.

Project applications for Multimodal Improvement Program funding are reviewed by MDOT to ensure eligibility and selected by the Railroad Multi-Modal Fund Committee comprising a director of each railroad, the Executive Director of MDA, and the Executive Director of MDOT or their designees. Types of projects funded include upgrading track to 115 lb. rail to accommodate 286,000 lb. rail car weight capacity, replacing crossties and ballast, new sidings, new rail spurs, bridge repairs, among others.

Over the last five fiscal years, 2016-2020, $6.292 million of funds have been awarded. Recipients include, the Mississippian Railway, Coahoma County, Rail Authority of East Mississippi, Hancock County Port and Harbor Commission, and Mississippi-Alabama Railroad Authority.

Mississippi Highway-Railroad Grade Crossing Safety Account

In addition to the Federal Section 130 Highway-Rail Grade Crossing Program, MDOT utilizes a state highway-rail grade crossing safety account provided via the state legislature. The fund was initially created in 2001 and has had funds added to it from bond sales in 2010 and 2018.

Eligible projects include financial incentives for the closure of public highway-rail grade crossings, installation or upgrades to highway-railroad grade crossing signals, grade separations, and grade crossing surface improvements, among others. A grade crossing signal project must include a 10 percent match of federal funds.

Projects that have been funded through the state highway-rail grade crossing account primarily include grade crossing signal projects. A project to add Manual on Uniform Traffic Control Devices (MUTCD) compliant crossbuck assemblies at grade crossings, as well as a project to level the profile of a grade crossing, were also partially funded with the account.

MDOT Capital Assistance Stimulus for Rail Projects Fund

This fund was created by 2009 HB 1713 as a separate and special fund for the construction, rehabilitation, maintenance and improvement of the State's passenger rail infrastructure. The fund is intended to take advantage of and match federal funding assistance available for conventional intercity passenger, highspeed rail corridor, or other high-speed rail services. Up to $3.5 million of the bonds authorized are allocated to this fund. No projects have been funded with this fund in the last 5 years.

Mississippi Development Authority Rail Funding Programs

MDA is Mississippi's lead economic and community development agency. MDA administers several rail improvement loan and grant programs, as described below. Many of the programs are restricted to publicly-owned infrastructure. Figure 16 shows how much has been awarded and expended on rail projects under each of these programs in the last five years.

- **Freight Rail Service Revolving Loan Program (RAIL)** provides loans and grants to municipalities and counties to finance freight rail service projects in the State. The program aims to increase rail usage and productivity in the State. Eligible projects include projects involving the acquisition, construction, installation, operation, modification, renovation or rehabilitation of any freight rail service facilities or fixtures, machinery or equipment used in conjunction with freight rail service facilities. Loans are limited to a maximum term of 15 years or the life of the project, whichever is less. The loan interest rate is 1 percent below the Federal Reserve Discount Rate at the time of the loan approval. Governing authorities can in turn use the program funds received to make loans to railroad operators for qualified projects.

- **Capital Improvement Revolving Loan Program (CAP)** provides loans to counties or municipalities to finance public infrastructure improvements in Mississippi in support of business location and expansion projects and other community-based projects. Eligible projects include land improvements, drainage systems, rail spurs, industrial access roads, and other projects. Loans made under the Capital Improvements Revolving Loan Program may be made for a maximum of twenty years. The annual interest rate on these loans is 3 percent for taxable activities and 2 percent for tax-exempt activities.

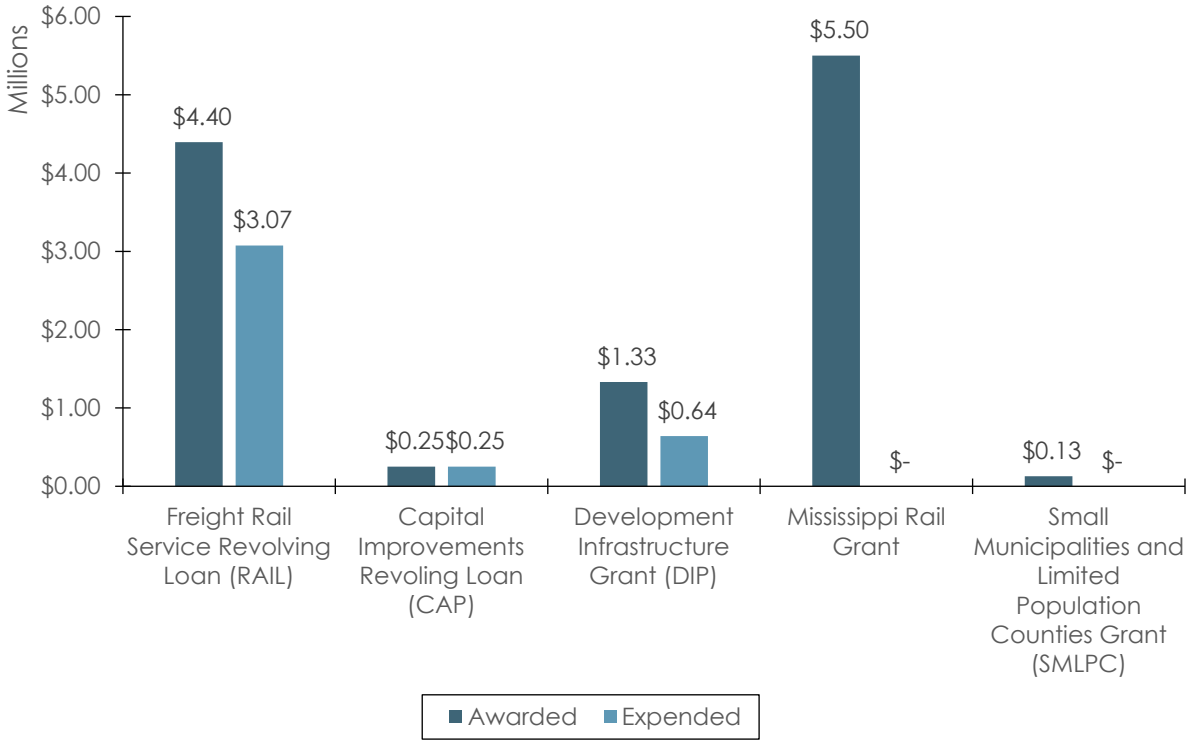
- **Development Infrastructure Grant Program (DIP)** provides grant assistance to counties or municipalities to finance infrastructure projects to support business locations and expansions in Mississippi. Funding from this program can be used by municipalities and counties to assist with the location or expansion of businesses. Usage of the funds must be directly related to the construction, renovation or expansion of industry. Job creation is the goal of the Development

Infrastructure Grant Program. Use of DIP funds must be directly related to business location or expansion projects.

- **Mississippi Rail Grant Program** provides grants to public and private railroads to assist in paying a portion of the cost associated with the repair, rehabilitation, construction, reconstruction, upgrading, and improvement of railroad lines and related facilities, including projects necessary to ensure the safety and structural integrity of rail lines, rail beds, and bridges. In the 2018 First Extraordinary Legislative Session, the Mississippi Legislature made an additional $7.5 million available for the Mississippi Rail Improvement Fund, providing funding to the Mississippi Development Authority to award grants to finance railroad projects that promote economic growth in Mississippi.

- **Small Municipalities and Limited Population Counties Grant (SMLPC)** provides funding to rural communities (defined as a municipality with a population of 10,000 or less or a county with a population of 30,000 or less) to assist with public facilities and infrastructure needs. Transportation facilities, including roads, bridges, and rail lines, are eligible for funding. Applications are taken annually and awarded on a competitive basis. Fund availability is determined annually by the Mississippi Legislature.

Figure 16. MDA Rail Funding, 2016-2020



Source: MDA and MDOT

Regional and Local Government Rail Assistance

Mississippi has established a number of local and state regional authorities that contribute financial resources to conduct rail planning or other functions necessary to improve rail access and operational efficiency. The following are examples of recent projects by local authorities:

- The **Rail Authority of East Mississippi (RAEM)** is comprised of five counties working to reestablish 56 miles of rail service between Waynesboro and Lucedale in southern Mississippi. It will connect to the MDS and MSE short lines, which will provide connections via four Class I railroads. The authority has completed a preliminary environmental analysis and market study to assist in pursuing federal funding for the estimated $225 million project. The Pascagoula Port Authority, Jackson County Port Authority, and member counties contributed toward funding the study. Currently RAEM is in the midst of identifying right-of-way that will be needed, and attempting to acquire right-of-way options from affected landowners.[62]

- **Senate Bill 2913** (Regular Session 2013) designated $1 million to assist in paying costs incurred by RAEM for an environmental impact study and a study to determine economic opportunities for southeast Mississippi related to the wood pellet industry. In 2014, HB 787 designated $500,000 to assist in paying costs incurred by REAM for the second phase of an preliminary environmental analysis. These funds are currently available. Finally, in 2015, Senate Bill 2906 designated $1 million to assist in paying costs incurred by REAM for engineering and design services associated with the development and construction of the East Mississippi Intermodal Rail Corridor. To date, the sale of bonds has not yet occurred.

In addition to local authorities, **Mississippi Planning and Development Districts** provide regional community and economic development services to ten regions across the state. These agencies secure and administer grants and other funding for its member governments and provide other technical and socioeconomic services.

A number of regional authorities with funding available to study or contribute to transportation or transportation-related economic development initiatives have portions of Mississippi located within their geographic boundaries. The authorities described below have a history of providing financial assistance to study or fund rail improvements in their region.

The **Appalachian Regional Commission (ARC)** provides funding for several hundred projects annually throughout the Appalachian Region in support of its five goals, which include[63]:

- Economic opportunities – Invest in entrepreneurial and business development strategies that strengthen Appalachia's economy;

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[62] Input received via email from Waggoner Engineering, Inc. to Josh Stubbs from MDOT on June 16, 2020

[63] "Investing Appalachia's Future: The Appalachian Regional Commission's Five-Year Strategic Plan for Capitalizing on Appalachia's Opportunities". 2016-2020. Available from:

- Ready Workforce – Increase the education, knowledge, skills, and health of residents to work and success in Appalachia;
- Critical Infrastructure – Invest in critical infrastructure – especially broadband, transportation, and water/wastewater systems;
- Natural and Cultural Assets – Strengthen Appalachia's community and economic development potential by leveraging the Region's natural and cultural heritage assets; and
- Leadership and Community Capacity – Build the capacity and skills of current and next-generation leaders and organizations to innovate, collaborate, and advance community and economic development.

ARC, which includes 24 counties in northeast Mississippi, has historically provided support to rail-related efforts in Mississippi, but has not in the past five years.

The **Delta Regional Authority (DRA)**, which encompasses eight states along the Mississippi River valley, was established under federal law to invest in economically distressed areas. Half of the funding available to DRA is earmarked for transportation and basic infrastructure improvements. The DRA may also provide matching funds for other state and federal programs. The DRA region encompasses 47 counties in West Mississippi. Rail-related project investments in Mississippi include[64]:

- Rail Spur Addition in DeSoto County, 2009 – DRA investment $200,000; and
- Quitman County AMTRAK (Marks Station), 2016 – DRA investment $300,000.

Federal Rail Programs

Until the 2008 passage of the Passenger Rail Investment and Improvement Act (PRIIA), federal funding for rail projects beyond the FHWA's Section 130 grade crossing program was very limited, sporadic and largely advanced through earmarks sponsored by congressional representatives. Since then, multiple grant programs have been established that can be tapped for freight and passenger rail programs. In 2012, the Moving Ahead for Progress in the 21st Century (MAP-21) succeeded SAFTEA-LU, the previous surface transportation bill. MAP-21 did not make any changes to potential funding sources for intercity passenger rail service, and actual appropriation levels dropped substantially from those of FYs 2009 and 2010. Successor legislation to MAP-21 did not arrive until December 2015, when Congress approved the Fixing America's Surface Transportation

https://www.arc.gov/images/newsroom/publications/sp/InvestinginAppalachiasFutureARCs2016-2020StrategicPlan.pdf

[64] Delta Regional Authority. Accessed December 18, 2019: https://dra.gov/funding-programs-states-economic-development/states-economic-development-assistance-program/project-investment-mapping-tool/

(FAST) Act. This Act authorized $305 billion in funding for federal surface transportation programs for fiscal year (FY) 2016 through FY 2020. A first for a Federal surface transportation authorization, the Act contained a rail title that defined a program for passenger and freight rail investment, along with policy guidance. The Act is far more prescriptive for passenger rail funding than for freight opportunities. However, funds for these programs must be appropriated annually from general revenues rather than dedicated surface transportation funds. Freight rail funding eligibility is included under broader, surface transportation elements of the bill, offering opportunities for Mississippi carriers and communities. These are described in the following section.

Railway-Highway Grade Crossings (Section 130) Program

This program provides funds for the elimination of hazards at railway-highway crossings. Approximately $230 to $245 million in funding is set aside by the FAST Act on an annual basis, which is allocated to states from the Highway Safety Improvement Program (HSIP) apportionment. Projects funded through the Section 130 program are eligible for 90 percent federal funding Projects may include, but are not limited to, crossing closures, grade separations, crossing surfaces, and installation or improvements to warning devices (flashing lights and gates). Projects must be located at one of Mississippi's roughly 2,200 public crossings. At least half of Mississippi's Section 130 funds have to be used on improvements related to warning devices at highway-railroad crossings. However, MDOT uses almost all of its Section 130 funds on warning device improvements at highway-railroad crossings.

Projects under the Section 130 program are selected on a statewide, competitive basis. A Diagnostic Review of the crossing is held to determine the appropriate level of traffic control at a crossing. If the crossing is determined to need flashing lights and gates, it is placed on a list. This list is used to prioritize potential projects using metrics that include crash history, vehicle volumes (annual average daily traffic - AADT), train volumes, train speeds and the associated required sight distance, among other items.

The amount of funds available through the Section 130 program varies from year to year. The latest funding levels have been about $3.4 million per year with almost every dollar going to warning device improvements.

Better Utilizing Investments to Leverage Development (BUILD) Grant Program

In 2018, the BUILD Transportation Discretionary Grants program replaced the Transportation Investments Generating Economic Recovery (TIGER) Discretionary Grants program. BUILD, like TIGER, is focused on surface transportation infrastructure investments that make a positive impact throughout the country. Funds may be requested for capital projects that include, but are not limited to: passenger and freight rail transportation projects; public transportation projects; intermodal projects; highway, bridge, or other road projects; and port infrastructure investments. Up to $15 million may be awarded as grants for the planning, preparation or design of eligible projects.

In Mississippi, the City of Natchez received a TIGER award of $10 million in 2016 to rehabilitate the Natchez Railway's bridges. The grant funded the rehabilitation and structural upgrades for railroad

truss bridges along the railway, replaced a failing culvert, and installed new passive safety improvements at approximately 20 public at-grade crossings, including new roadside advanced warning signs, railroad cross-bucks, and pavement markings. The project also upgraded the operating speed and increased the gross weight capacity to 286,000 pounds.

Nationally Significant Freight and Highway Projects (NSFHP)

Renamed to Infrastructure for Rebuilding America (INFRA) from FASTLANE in 2018, this competitive grant program authorizes $4.5 billion over five years for projects that will result in improved goods movement, of which up to 20 percent and $500 million of the authorized amount is available for port, rail, and intermodal projects. For projects exceeding $100 million in estimated cost, grant requests must be at least $25 million. Ten percent of funding is set aside for projects under $100 million in total cost, in which case the minimum grant amount is $5 million. In addition, rural set-asides are specified to be a minimum of 25 percent; in reality, they have been closer to 45 percent over the life of the program through FY 2019.[65]

Consolidated Rail Infrastructure and Safety Improvements (CRISI)

This FRA discretionary program was established in Section 11301 of the FAST Act, and thus far has disbursed $628 million through three cycles for projects that improve passenger and freight rail transportation systems in terms of safety, efficiency, or reliability. A number of project types are eligible, including safety technology and PTC, congestion-reducing capital projects, corridor service development plans, and at-grade rail crossing improvement projects. CRISI program guidelines require that at least 20 percent of proceeds be dedicated to rural projects. As noted previously, the Southern Rail Commission was given a $33 million CRISI grant in 2019 for development of corridor service between New Orleans and Mobile.

Federal-State Partnership for State of Good Repair Grant Program

Defined in Section 11302, this FRA-administered program provides funding for capital projects that replace existing assets to increase capacity, bringing to a state of good repair, and maintaining service while assets are brought to a state of good repair. This includes capital projects to replace existing assets in-kind, replacement of existing assets with assets that increase capacity or provide a higher level of service, or projects that bring existing assets into a state of good repair. Thus far, $668 million – but none in Mississippi - has been disbursed under this program to a broad range of projects from short line track improvements to PTC implementation on commuter railroads.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

The FAST Act provides from $2.3 to almost $2.5 billion in CMAQ funding for each year of the authorization - 2016 through 2020. The CMAQ program provides funding to projects that will improve the nation's air quality and reduce traffic congestion. Funding is focused on areas whose

[65] https://www.enotrans.org/article/dot-announces-20-more-infra-grants-for-fy19/

air quality does not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (non-attainment areas) and for former non-attainment areas that are now in compliance (maintenance areas). Funds may be used for transportation projects likely to contribute to the attainment or maintenance of a national ambient air quality standard, with a high level of effectiveness in reducing air pollution. Eligible projects should be included in the metropolitan planning organization's (MPOs) current transportation plan and transportation improvement program (TIP) or the current state transportation improvement program (STIP) in areas without an MPO. Eligible activities include projects that shift traffic demand to non-peak hours or other transportation modes, increase vehicle occupancy rates, or otherwise reduce demand. Mississippi's apportionment of CMAQ funding for FY 2019 was $11.8 million.

Surface Transportation Block Grant Program - 23 USC 133

Offers flexible funding to best address State and local transportation needs. Eligible projects include highway and transit safety infrastructure improvements and programs, including railway-highway grade crossings. Estimated funding under the FAST Act ranges from $11.5 to $12.1 billion each year allocated to states under the authorization from 2016 through 2020.

Metropolitan and Statewide and Non-Metropolitan Transportation Planning Grants (Sec. 5303, 5304, 5305)

This formula funding program, administered by the Federal Transit Administration (FTA), provides funding and procedural requirements for multimodal transportation planning in metropolitan areas and states. Funds are available for planning activities that:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and nonmotorized users;
- Increase the security of the transportation system for motorized and nonmotorized users;
- Increase the accessibility and mobility of people and for freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation; and
- Emphasize the preservation of the existing transportation system.

Funds are apportioned to states by a formula that includes each state's urbanized area population in proportion to the total urbanized area population for the nation, as well as other factors. States can receive no less than 0.5 percent of the amount apportioned. These funds, in turn, are sub-allocated by states to MPOs by a formula that considers each MPO's urbanized area population, their individual planning needs, and a minimum distribution.

Federal Loan Programs and Tax Credits

Federal financing options include the Rail Rehabilitation and Improvement Financing (RRIF) and Transportation Infrastructure Finance and Innovation Act (TIFIA) programs that are available to support freight rail projects.

- **RRIF:** U.S. DOT is authorized to provide direct loans and loan guarantees up to $35.0 billion to finance development of railroad infrastructure. Not less than $7.0 billion is reserved for projects benefiting freight railroads other than Class I carriers. Direct loans can fund up to 100 percent of a railroad project with repayment periods of up to 35 years and interest rates equal to the cost of borrowing to the government. A new pilot program called RRIF Express seeks to reduce the time and costs associated with securing loans for short line and regional railroads to modernize aging freight rail infrastructure.

- **TIFIA:** The TIFIA program provides federal credit assistance to eligible surface transportation projects, including highway, transit, intercity passenger rail, some types of freight rail, and intermodal freight-transfer facilities on terms acceptable to U.S. DOT. There is a rolling application process with significant requirements. The three types of credit assistance are: 1) secured loans; 2) loan guarantees; and, 3) lines of credit to fill market gaps and leverage substantial private co-investment by providing supplemental or subordinate debt. The loans are repaid through dedicated revenue sources that secure the project obligations. Projects eligible for assistance under USC title 23 or chapter 53 of USC title 49, international bridges and tunnels, intercity passenger bus and rail facilities and vehicles, public freight rail projects, private freight rail projects that provide public benefit for highway users, modification projects to facilitate transfer and access into and out of a port. A TIFIA line of credit may cover up to 33 percent of the total project cost. TIFIA loans may cover up to 49 percent of the total project cost.

- **Internal Revenue Service (IRS) Tax Credit:** Section 45G of the Internal Revenue Code created an incentive for short line railroads to invest in track rehabilitation by providing a tax credit of 50 cents for every dollar the railroad spends on track improvements. The maximum credit amount allowed is $3,500 per mile of track. The program was renewed for two years in 2018. American short line railroad advocacy groups are working to convince Congress to continue the program going forward.

2.4 Rail Safety and Security Programs and Projects

Over the past decade rail safety and security has been a high priority by both rail carriers and public agencies. Rail safety has historically been a priority due to its potential impacts on the general public and the efficiency of rail operations. The focus of rail security has been threats

posed by terrorists using the rail mode to disrupt transportation in general or harm large numbers of citizens.

Rail safety requirements are provided through a combination of federal and state laws. Most safety-related rules and regulations fall under the jurisdiction of the Federal Railroad Administration (FRA), as outlined in the Rail Safety Act of 1970 and other legislation, such as the most recent Rail Safety Improvement Act of 2008.

Passenger rail operations are subject to the same FRA safety standards with regard to track conditions, operating practices, and other areas as are freight railroads. In addition, FRA has specific regulations regarding passenger equipment safety standards and passenger train emergency preparedness. FRA's Railroad Safety Advisory Committee makes recommendations to FRA for proposed improvements to continually upgrade existing safety standards.

Rail safety issues generally fall into the following broad categories: employee safety; inspection and maintenance of track, signals, bridges and infrastructure; inspection of locomotives and cars; operating rules and operating practices; radio communications; control of drug and alcohol use; accident reporting; rail-highway grade crossing safety; passenger equipment safety standards; passenger train emergency preparedness; the movement of hazardous materials; the development and implementation of new technology; and other areas specific to the rail industry. The primary responsibility for enforcement of these federal regulations falls under FRA's jurisdiction, but state agencies are heavily involved in efforts to improve the safety of the rail system.

Federal and Mississippi state agencies, along with the State's rail operators, continue to make progress with regard to rail safety and security. The following is a summary of these issues and activities on-going in Mississippi.

Rail Safety Incident History

Railroad incidents for the last full 10-year period 2009-2018 in Mississippi are summarized in Table 13. Reportable incidents include highway-rail grade crossing accidents or incidents as well as train derailments, collisions, and any accident involving railroad employees or trespassers that occur on railroad property and result in fatalities, injuries, or property damage exceeding an amount established by FRA. Because property damage-only crashes are included, there is no direct correlation between the number of fatalities/non-fatalities and the total number of incidents.

As shown in Table 13, total incidents in Mississippi remained fairly stable over the 10-year period. Train incidents and highway-rail incidents decreased over this period by 36 percent and 12 percent, respectively. Other incidents (incidents other than train or crossing incidents that cause physical harm to persons) increased overall by 31 percent over this period.

Table 13. FRA Reportable Railroad Incidents 2009 – 2018 in Mississippi

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Incidents	**112**	**117**	**121**	**111**	**105**	**106**	**101**	**107**	**115**	**114**
Deaths	14	15	6	11	9	9	6	11	15	12
Injuries	83	59	76	71	83	65	72	81	126	83
Train Incidents	**22**	**22**	**19**	**19**	**13**	**16**	**17**	**19**	**17**	**14**
Deaths	0	0	0	0	0	0	0	0	0	0
Injuries	11	2	1	0	0	1	4	0	1	0
Highway-Rail Incidents	**42**	**47**	**52**	**40**	**43**	**34**	**31**	**40**	**46**	**37**
Deaths	8	8	4	5	3	2	1	8	6	6
Injuries	24	15	27	23	36	14	20	35	76	22
Other Incidents	**48**	**48**	**50**	**52**	**49**	**56**	**53**	**48**	**52**	**63**
Deaths	6	7	2	6	6	7	5	3	9	6
Injuries	48	42	48	48	47	50	48	46	49	61

Source: FRA Office of Safety Analysis, 10-Year Accident/Incident Overview 2009-2018.

The United States as a whole also experienced a fairly stable incident rate across the board, although there were some notable increases, as shown in Table 14. Although total incidents increased by four percent overall, total fatalities increased by 20 percent. This increase appears to be driven by deaths resulting from "other" incidents, which are categorized as anything other than train or crossing incidents that cause physical harm to persons. Such incidents are caused by trespasser incursions on railroad rights of way. Highway-rail incidents increased by 15 percent overall. Additionally, total train incidents and other incidents remained flat.

Table 14. FRA Reportable Railroad Incidents 2009 – 2018 in United States

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Incidents	**11,247**	**11,631**	**11,535**	**11,079**	**11,655**	**12,260**	**11,856**	**11,477**	**11,963**	**11,681**
Deaths	695	735	681	669	702	767	749	760	818	832
Injuries	8,023	8,379	8,455	8,462	8,752	8,805	9,133	8,696	8,866	8,208
Train Incidents	**1,912**	**1,902**	**2,032**	**1,766**	**1,853**	**1,886**	**1,932**	**1,724**	**1,782**	**1,915**
Deaths	4	8	6	9	11	5	11	7	7	8
Injuries	127	110	217	465	328	140	563	433	316	203
Highway-Rail Incidents	**1,933**	**2,052**	**2,064**	**1,988**	**2,104**	**2,296**	**2,080**	**2,050**	**2,123**	**2,218**
Deaths	248	261	246	231	232	262	237	255	271	263
Injuries	743	888	1,048	971	977	870	1,048	852	844	842

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Other Incidents	**7,402**	**7,677**	**7,439**	**7,325**	**7,698**	**8,078**	**7,844**	**7,703**	**8,058**	**7,548**
Deaths	443	466	429	429	459	500	501	498	540	561
Injuries	7,153	7,381	7,190	7,026	7,447	7,795	7,522	7,411	7,706	7,163

Source: FRA Office of Safety Analysis, 10-Year Accident/Incident Overview 2009-2018.

At-Grade Rail/Highway Crossing Safety

Rail-highway grade crossings are the most visible to the general public and for which the public is most exposed to potential harm from rail operations. According to the FRA Inventory database, there are approximately 2,200 public at-grade crossings and about 1,800 private, at-grade crossings. Over the last 10 years using Section 130 funding, MDOT has completed 11 crossing surface projects, eight LED flasher projects and 90 signal and gate projects. MDOT's fiscal year 2020 grade crossing projects, which include projects for which a notice to proceed has been issued are listed in Table 15 by county.

Table 15. Grade Crossing Projects in Mississippi, FY 2020

County	2020 No. Projects
Signal and Gate Projects	
Benton	1
Chickasaw	2
Clay	8
Copiah	1
Franklin	1
George	3
Harrison	15
Hinds	2
Holmes	1
Jackson	7
Kemper	2
Lauderdale	3
Lee	2
Leflore	1
Lincoln	3
Lowndes	9
Madison	1
Marshall	1
Monroe	8
Pike	2
Prentiss	2
Quitman	1
Stone	1

County	2020 No. Projects
Tallahatchie	2
Tate	1
Tunica	1
Yazoo	1
Subtotal	***82***
Crossing Surface/Profile Projects	
Leflore	1
Tate	1
Subtotal	***2***
Total Projects	**84**

Source: Mississippi Department of Transportation.

Operation Lifesaver

Operation Lifesaver, Inc. is a nationwide non-profit organization with a mission to end collisions, injuries, and fatalities at, on, and around railroad tracks and at highway-rail grade crossings. To accomplish its mission, Operation Lifesaver promotes 3 E's of safety:

- **Education:** Operation Lifesaver strives to increase public awareness about the dangers around the rails. The program seeks to education both drivers and pedestrians to make safe decisions at crossings and around railroad tracks.
- **Enforcement:** Operation Lifesaver promotes active enforcement of traffic laws relating to crossing signs and signals and private property laws related to trespassing.
- **Engineering:** Operation Lifesaver encourages continued engineering research and innovation to improve the safety of railroad crossings.

The program coordinates a nationwide network of volunteers who work to educate people about rail safety. Operation Lifesaver, Inc. partners with federal transportation agencies, national transportation organizations, railroads, and safety engineering and rail supply companies to achieve its mission. Free programs are presented to schools, businesses and civic organizations as well as specialized programs for school bus drivers, professional drivers, law enforcement and emergency responders.

Rail Safety Inspection

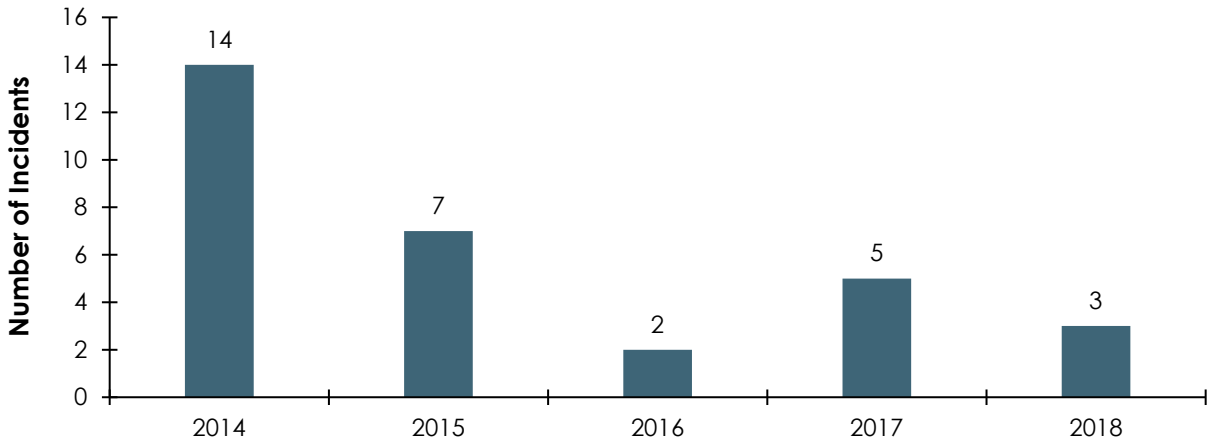
The FRA enforces federal regulations and standards that apply to track, signal, train control, motive power, equipment, operating practices, and hazardous materials. The federal Rail Safety Act of 1970 authorized states to work with FRA to enforce railroad regulations at their expense. MDOT is the lead state agency for rail safety in Mississippi. Rails Inspection is housed in the MDOT Enforcement Division.

Hazardous Materials

Federal common carrier obligations mandate that railroads are required to transport hazardous materials. The U.S. Department of Transportation received the authority to regulate the transportation of hazardous materials through the Hazardous Materials Act. Federal hazardous material regulations apply to all interstate, intrastate, and foreign carriers by rail, air, motor vehicle and vessel.

At the state level, MDOT oversees the registration and regulation of transporters of hazardous waste. MDOT's Office of Enforcement oversees compliance. In the four-year period from 2014 to 2018, 31 hazardous material releases in Mississippi were reported to the FRA, as shown in Figure 17.

Figure 17. Number of Hazardous Materials Incidents by Rail in Mississippi, 2014 – 2018



Source: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Material Safety. Available from: https://portal.phmsa.dot.gov/analytics

Positive Train Control

Positive Train Control (PTC) technology is capable of preventing train-to-train collisions, over-speed derailments and casualties or injuries to roadway workers (e.g., maintenance of way workers, bridge workers, and signal maintainers). The technology combines GPS locating of trains, infrastructure, speed restrictions, and traffic conditions with real-time wireless communications between locomotives and other operating equipment, dispatchers and work crews. The Rail Safety Improvement Act of 2008 (RSIA) mandated the widespread installation of PTC systems on all lines handling passenger trains or hazardous materials, a network totaling approximately 80,000 miles.[66]

[66] FRA, 49 CFR 236.1005.

Almost from the start, progress proved slower and far more expensive than envisioned when RSIA was adopted. While PTC development had been underway for several decades, much of the standards development and technical work necessary for large-scale implementation had not yet been completed. Furthermore, administrative challenges such as permitting of antenna sites and procurement of radio spectrum unexpectedly became part of the critical path. As a result, in November 2015 Congress extended the deadline to December 31, 2018, with some further leeway to 2020 for full implementation.

PTC implementation is required by the FRA along the following mainline segments in Mississippi by December 2020:

- CN – Approximately 300 miles of the mainline from the Louisiana state line, through Jackson, to the Tennessee state line, over which Amtrak's City of New Orleans route operates;
- NS – Approximately 162 miles of the mainline from the Louisiana state line, through Hattiesburg and Meridian, to the Alabama state line, over which Amtrak's Crescent route operates; and
- Also any portions of BNSF, CN, CSXT, KCS, and NS main lines (over which 5 million or more gross tons are transported annually) that carry poisonous inhalation hazard materials.

Table 16 shows the systemwide PTC implementation progress for Mississippi's Class I railroads. All five railroads have locomotives that are fully equipped and PTC operable, full completion of radio towers installed, and full completion of employee training. However, all five railroads have not achieved full interoperability. Interoperability allows any railroad's PTC equipped locomotive to operate over PTC equipped tracks. Due to differences in implementation between the railroads, interoperability is made between host railroads and their tenant railroads. Although Class I railroads and regional passenger operators are bearing most of the burden associated with installing PTC, some Class II and III railroads also are affected by the mandate. Furthermore, CSXT, CN, and NS have not achieved all route miles in PTC operation, and were at 94 percent, 50 percent, and 74 percent, respectively, as of December 31, 2018.

Table 16. Systemwide PTC Implementation Progress Report by Railroad as of December 31, 2018

	BNSF	CSXT	CN	KCS	NS
Locomotives Equipped and PTC Operable	5,000	1,800	586	469	2,900
% Complete	100%	100%	100%	100%	100%
Track Segments Completed	89	123	35	17	145
% Complete	100%	92%	100%	100%	100%
Radio Towers Installed	6,392	423	1,646	975	3,719
% Complete	100%	100%	100%	100%	100%
Employees Trained	21,877	15,634	5,614	2,297	18,645
% Complete	100%	100%	100%	100%	100%
Route Miles in PTC Operation	11,590	9,136	1,553	2,153	5,913
% Complete	100%	94%	50%	100%	74%

	BNSF	CSXT	CN	KCS	NS
Interoperability	8	1	0	0	0
% Complete	33%	8%	0%	0%	0%

Source: FRA, PTC Implementation Status by Railroad, Q4 Oct. 1-Dec. 31, 2018. https://www.fra.dot.gov/app/ptc/.

In 2020, CN announced that it was investing approximately $50 million into its Mississippi infrastructure, focusing on the continued implementation of PTC, as well as replacement of rails and ties, and maintenance of bridges and other track infrastructure. [67]

Freight/Passenger Train Crash Response Plan

In cooperation with U.S. DOT and FHWA, MDOT developed a Comprehensive Emergency Transportation Response Plan (CETRP), which is reviewed annually and updated as necessary. Annex L of the CETRP is the Freight/Passenger Train Crash Response Plan, last updated in January 2017, which details the responsibilities of the Mississippi Department of Public Safety (MDPS), the Mississippi Highway Safety Patrol (MHSP), the affected railroad, and MDOT in the case of a freight or passenger train crash. The plan also covers evacuation procedures in the event of a hazardous material spill.

Rail Security

Effective rail security entails a multi-faceted, cooperative, and unified approach marked by constant vigilance that taps a wide range of capabilities in the private and public sectors to assure preparedness and respond to security threats. The following addresses specific rail security issues and Mississippi's involvement in rail security procedures.

Federal and State Roles in Rail Security

The primary agencies responsible for security related to transportation modes in Mississippi are the U.S. Department of Homeland Security (DHS), MDOT, and the Mississippi Department of Public Safety.

The Transportation Security Administration (TSA), which is housed within the DHS, is responsible for protecting the nation's transportation systems to ensure freedom of movement for people and commerce. The DHS addresses rail system security through the following means:

- Training and deploying manpower and assets for high risk areas
- Producing security actions, procedures, and informational materials for the rail industry

[67] Wilson, Bill. "Canadian National to Insert Millions into Mississippi Track Infrastructure." Railway Track and Structures, July 27, 2020. https://www.rtands.com/rail-news/canadian-national-to-insert-millions-into-mississippi-track-infrastructure/.

- Developing and testing new security technologies
- Performing security assessments of systems across the country
- Providing funding to state and local partners

The Association of American Railroads (AAR), working with the DHS and other federal agencies, has organized the Rail Security Task Force. This task force developed a comprehensive risk analysis and security plan for the rail system that includes:

- A database of critical railroad assets
- Assessments of railroad vulnerabilities
- Analysis of the terrorism threat
- Calculation of risks and identification of countermeasures

The private railroad sector maintains communications with the U.S. Department of Defense, the U.S. Department of Homeland Security, the U.S. Department of Transportation, the Federal Bureau of Investigation, and state and local law enforcement agencies on all aspects of rail security.

The Mississippi Department of Public Safety's Office of Homeland Security acts as the state's lead agency for emergency response. This agency, with the assistance of MDOT, addresses security and emergency response issues related to rail within the state. MDOT coordinates with the U.S. Department of Homeland Security in conducting special joint enforcement details involving railroad police departments and security, along with county and city enforcement offices.

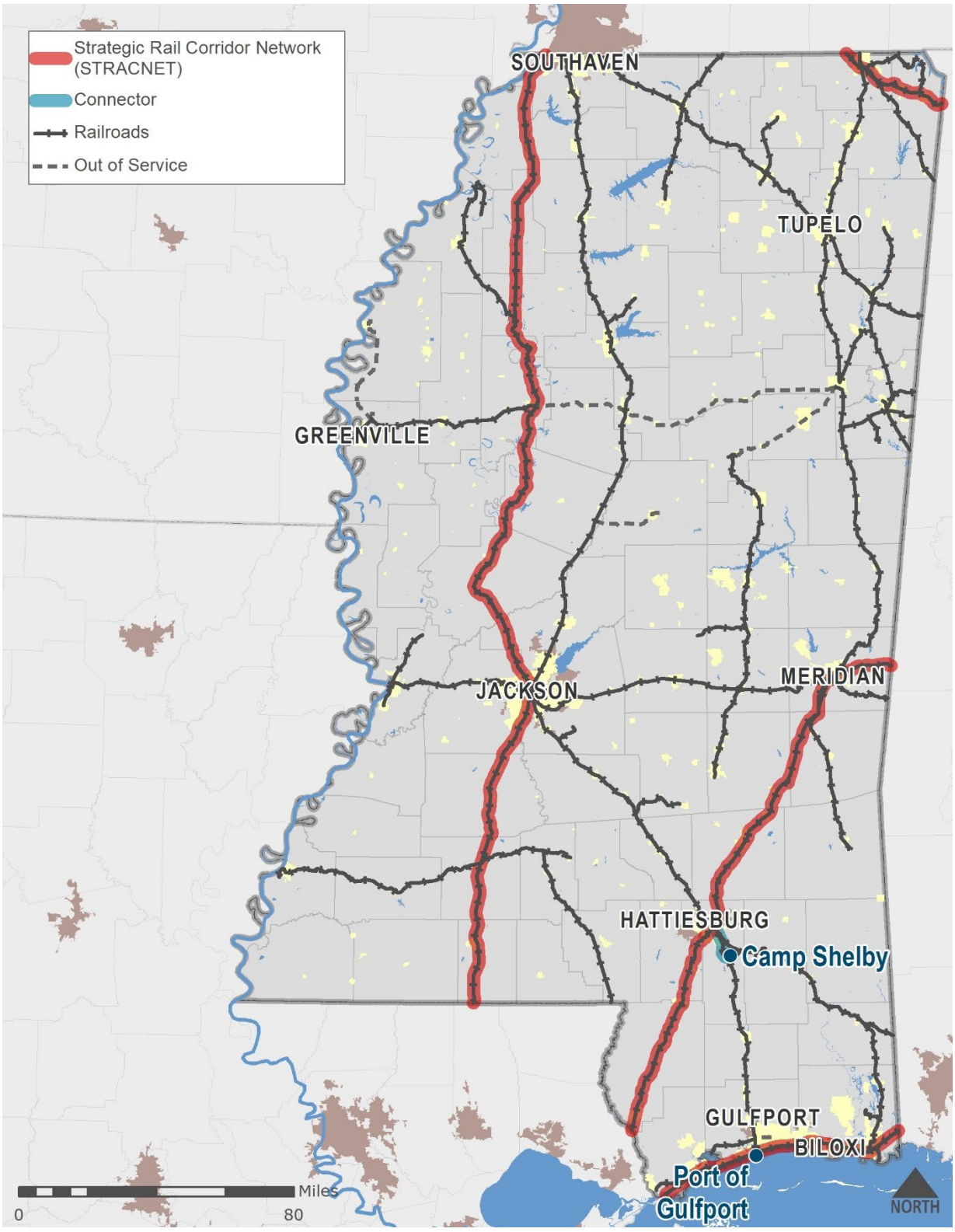
Local emergency plans must address coordination of action for emergency release of hazardous substances at sites and facilities such as shipping terminals and rail yards.

Military Strategic Rail Corridor Network (STRACNET)

The U.S. Army's Transportation Engineering Agency, The Railroads for National Defense Program (RND), in conjunction with the U.S. Federal Railroad Administration (FRA), established the Strategic Rail Corridor Network (STRACNET) to ensure Department of Defense's (DOD) minimum rail needs are identified and coordinated with appropriate transportation authorities. The RND program has identified over 36,000 miles of key railroad corridors serving 126 defense installations as being vital for the movement of military supplies and personnel. The STRACNET corridors in Mississippi, including their connections, are illustrated in Figure 18. In Mississippi, Camp Shelby and Port of Gulfport are identified as defense installations requiring rail service.[68]

[68] Military Surface Deployment and Distribution Command. Transportation Engineering Agency. Strategic Rail Corridor Network (STRACNET) and Defense Connector Lines, October 2018. Available from: https://www.sddc.army.mil/sites/TEA/Functions/SpecialAssistant/RND%20Publications/STRACNET%202018_Reduced.pdf

Figure 18. STRACNET Routes in Mississippi



Source: Federal Rail Administration, 2018.

2.5 Economic and Environmental Impacts of Rail

Public investment in rail offers Mississippians cost effective and environmentally friendly means to move people and products. Passenger rail transportation is a reliable and efficient alternative in congested travel corridors. Freight rail transportation offers a cost-effective means to move heavy cargo, freight railroads divert trucks from highways and thereby make highways safer for the truck and auto travelers that remain.

For freight, diverting truck shipments to rail results in savings in shipping costs, pavement deterioration (i.e. wear and tear on roads), congestion delay (travel time impacts for other vehicles based on the number of trucks on the road), and reducing collision and accident potential between trucks and cars. For passenger rail, diverted ridership from auto travel results in impacts such as more direct rail operator jobs, increased purchases of goods and services, and increased tourist spending, as well as increased safety, congestion relief, and emissions reductions.

The rail system in Mississippi provides service to ports and population centers and to industries including chemicals, forest products, agriculture, and manufacturing. By providing services to many important industries in the state, the railroads support employment in the industries they serve.

According to the Association of American Railroads, in 2017 freight rail in the United States supported 1.1 million jobs, $71 billion in wages, and nearly $220 billion in economic activity, leading to nearly $26 billion in federal, state, and local tax revenue.[69] Mississippi's 27 freight railroads supported 1,831 employees, with an average of $126,060 in wages and benefits per freight rail employee in 2017. In addition, Mississippi had 5,393 railroad retirement beneficiaries, with over $120 million in railroad retirement benefits paid in 2017.[70]

Congestion Mitigation

One train has the potential to carry as much freight as several hundred trucks, depending on the size and weight of the cargo being transported. In 2017, it would have taken approximately 6.3 million additional trucks to handle the 113.1 million tons of freight that originated in, terminated in, or moved through Mississippi by rail.[71]

Rail's ability to divert freight and passengers away from the roadway results in less congestion. Freight rail facilities across the state provide opportunities for products to be transported by train instead of truck. The availability of rail results in a reduction in truck vehicle miles traveled (VMT)

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[69] "Freight Rail Fast Facts". Association of American Railroads. Accessed December 23, 2019. Available from: https://www.aar.org/data/freight-rail-fast-facts/

[70] "AAR State Rankings 2017". Association of American Railroads. Available from: https://www.aar.org/wp-content/uploads/2019/05/AAR-State-Rankings-2017.pdf

[71] Association of American Railroads, "Freight Railroads in Mississippi". Available from: https://www.aar.org/wp-content/uploads/2019/01/AAR-Mississippi-State-Fact-Sheet.pdf

on Mississippi's local and interstate routes that, in turn, benefits the remaining users by reducing the marginal cost of congestion born by those vehicles. The Federal Highway Administration (FHWA) Cost Allocation Study 2000 Addendum[72] estimates the marginal congestion costs per VMT to be $0.47 (2019$) for a 60kip 4 axle US truck on urban interstates and $0.05 (2019$) for a 60kip 4 axle U.S. truck on rural interstates. Similarly, congestion savings total $0.01 for every auto mile diverted to rail on both urban and rural highways.

Safety Impacts

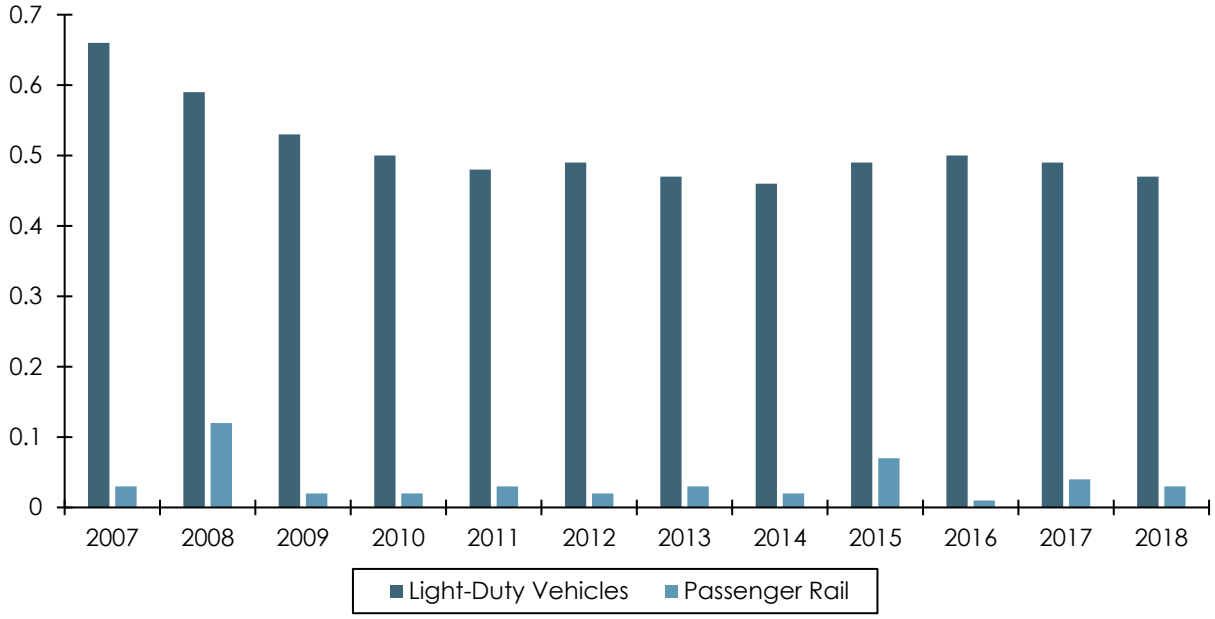
When auto and truck traffic is diverted to rail the diversion reduces the likelihood of crashes and the associated deaths, injuries, and property damage on the state's roadways. Generally, railroads experience a significantly lower incident rate than highways. This is of particular interest with the transportation of hazardous materials (hazmat), where even minor incidents can have catastrophic results. Per the Association of American Railroads, more than 99.999 percent of rail hazmat shipments completed their trip without a release caused by a train accident. Compared to trucks, the railroad incident rate for hazmat is about 1/10th of the rate for trucks, despite roughly similar ton-mileage handled.[73] Reasons for this far lower incident rate physical equipment standards which are more stringent for rail than highway, much longer lengths of haul than for truck (the highest risks of unplanned release occur at the beginning and end of a trip), and the vertical integration of rail systems in North America, which of course is not at all the case with highways. Overarching all of this are the very high liability risks that railroads face with hazmat transportation, and therefore the strong incentive to mitigate them.

Figure 19 presents the passenger fatality rates on a per-mile basis for personal light-duty vehicles and railroad passenger trains. The fatality rate per 100 million passenger miles for light duty vehicles in 2018 was 0.47 compared to a much lower fatality rate of 0.03 for passenger rail. Travel by passenger vehicles present the greatest risk, while rail, has a much lower fatality rate. Encouraging diversion to rail therefore improves transportation safety overall.

[72] FHWA Cost Allocation Study, 2000 Addendum, Table 13, https://www.fhwa.dot.gov/policy/hcas/addendum.cfm

[73] Association of American Railroads, "Why Freight Rail is the Safest Mode for Hazmat". Available at https://www.aar.org/article/freight-rail-safest-mode-hazmat/

Figure 19. Passenger Fatality Rates 2007-2018 – Fatalities per 100 Million Passenger Miles



Source: 2020 National Safety Council. Highway passenger deaths – Fatality Analysis Reporting System data. Railroad passenger deaths and miles – Federal Railroad Administration. Available at: https://injuryfacts.nsc.org/home-and-community/safety-topics/deaths-by-transportation-mode/.

Notes: Light-duty vehicles include passenger cars, light trucks, vans, and SUVs, regardless of wheelbase. Includes taxi passengers. Drivers of light-duty vehicles are considered passengers.

Trade and Economic Development

Global commerce is directly tied to 42 percent of rail traffic and 50,000 domestic rail jobs, worth $5.5 billion in annual wages and benefits. Railroads haul roughly 33 percent of U.S. exports, allowing U.S. industries to compete abroad while providing consumers access to a greater variety of goods.[74]

Rail availability has a significant impact on economic development. MDA noted that the three largest economic development projects in Mississippi – Nissan, Toyota, and Yokohama – all included the addition of rail line spurs to provide direct rail access. The ports which offer connections to rail as well as the waterways are also important industrial development tools for the state. Mississippi has access to the Gulf of Mexico, the Mississippi River and the Tennessee-

[74] Association of American Railroads, "Freight Rail Works for America" Freight Rail Fact Sheet, 2019. Available at https://www.aar.org/wp-content/uploads/2019/01/AAR-Freight-Rail-Fact-Sheet-2019.pdf.

Tombigbee Waterway through 16 water ports, 11 of which have rail access and 2 have plans to add rail access.

Future major developments in Mississippi will need rail spurs connecting to Class I railroads. Improved access to the national rail system, whether through short lines or new intermodal centers, will generate economic advantages to shippers and to the state as a whole. The cost of rail transportation per ton-mile is less than the typical alternative, which is truck. Transportation cost savings can be spent on more manufacturing, which can increase payrolls, which in turn would generate multiplier impacts to the service sector.

Air Quality, Energy Use and Climate Change Impacts

Railroads are the most environmentally sound way for both freight and passenger travel. In 2018, freight railroads in the U.S. moved a ton of freight an average of 473 miles per gallon of fuel, which is equivalent to traveling from Jackson, MS to St. Louis, MO. Shifting freight from truck to rail contributes not only to fuel cost savings but also to environmental quality. On average, railroads are four times more fuel-efficient than trucks. Greenhouse gas emissions are directly related to fuel consumption. Furthermore, that means moving freight by rail instead of truck lowers greenhouse gas emissions by up to 75 percent, on average.[75] The burning of fossil fuels produces Greenhouse gases (GHG) that have been shown to contribute to climate change. Because railroad locomotives consume less fuel per ton-mile than do trucks, GHG is reduced when goods travel by rail rather than by truck.

In the last decades railroads have reduced fuel consumption through technological innovations, investment and operational improvements, including:

- Acquiring new, more efficient locomotives and removing from service older, less fuel-efficient locomotives.
- Increasing the amount of freight in rail cars and on trains. Due to improved railcar design, the use of specialized railcars for specific commodities, and the use of longer trains, the amount of freight railroads carried in an average train in 2018 was 3,661 tons, up from 2,923 tons in 2000.
- Developing and installing advanced computer software systems that, among other things, calculate the most fuel-efficient speed for a train over a given route; determine the most efficient spacing and timing of trains on a railroad's system; and monitor locomotive functions and performance to ensure peak efficiency.

[75] Association of American Railroads, "The Environmental Benefits of Moving Freight by Rail," July 2019. Available at: https://www.aar.org/wp-content/uploads/2018/07/AAR-Environmental-Benefits-Movig-Freight-by-Rail.pdf

- Installing idling-reduction technologies, such as stop-start systems that shut down a locomotive when it is not in use and restart it when it is needed, and expanded the use of distributed power (positioning locomotives in the middle of trains) to reduce the total horsepower required for train movements.

- Providing employee training to help locomotive engineers develop and implement best practices and improve awareness of fuel-efficient operations.

Railroads help reduce the economic costs of highway congestion. A single freight train can replace several hundred trucks, freeing up space on the highway for other motorists. Shifting freight from trucks to rail also reduces highway wear and tear and the pressure to build costly new highways.

In 2008, the U.S. Environmental Protection Agency (EPA) issued new locomotive emission standards. EPA estimates that these new standards when fully implemented will cut particulate matter emissions by as much as 90 percent and nitrogen oxide emissions by as much as 80 percent.[76] Together, a shift by operators towards more environmentally friendly locomotives and the diversion of auto and truck traffic to rail will help Mississippi meet higher air quality standards.

In addition to emissions, other environmental impacts from rail are noise and vibration from trains, including noise from the mandatory use of locomotive horns approaching at-grade crossings. Noise impacts may be reduced by creating quiet zones along freight rail lines that pass through residential areas. While it is a federal requirement for trains to blow their horns at at-grade crossings, there are some instances where alternative safety measures can be put in place to waive this requirement. The required measures are site-specific and vary per intersection, but can include measures such as four quadrant gates or median barriers. Communities can apply for "quiet zone designations", but are responsible for all costs to make their crossings qualify. Other mitigation strategies could include the relocation of trackwork away from sensitive areas and/or the use of special ballast and ties that can help diminish noise and vibration impacts.

Land Use and Community Impacts

Sustainable freight movement is one that maximizes the positive features of freight movement (jobs, economic development, etc.) while minimizing the negative impacts to communities and the natural environment. Freight-generating land uses, such as agriculture, natural resources and mining, construction, warehousing, manufacturing, and port and harbor operations, can bring many benefits to a region. These benefits include direct and indirect employment associated with freight activity; business and income tax benefits to local, regional, and state economies; additional economic output; and lower costs for goods and services.

Association of American Railroads, "The Environmental Benefits of Moving Freight by Rail," July 2019. Available at: https://www.aar.org/wp-content/uploads/2018/07/AAR-Environmental-Benefits-Movig-Freight

On the other hand, freight-generating industries can also produce undesirable impacts, such as noise, vibration, odor, and light pollution, and they may have a negative impact on a region's air quality. Regions need to plan appropriately to accommodate freight-generating industries while protecting the health, safety, and quality of life of residents. The goal is to find a balance between economic activity and external impacts associated with the freight industry. Educating public officials and the public at large about freight benefits and assisting freight-generating businesses to understand and mitigate potential impacts can foster a common understanding among all stakeholders.

Environmental justice is an important consideration in the design and implementation of rail projects. Environmental justice refers to the geographically equitable distribution of the benefits and burdens of government policies, programs, and investments, and to ensure the full and fair participation by all potentially affected communities in the transportation decision-making process. In 1994, Executive Order 12898 defined Environmental Justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative consequences resulting from industrial, municipal, and commercial operations. Many freight facilities are located in communities which have a large number of minority or lower-income residents, and which often receive significant environmental impacts from those facilities. Strategies to reduce or mitigate these impacts must be taken into consideration when expanding freight operations or infrastructure into these communities.

Passenger rail usually has positive land use impacts, since most stops are within existing urbanized areas where passenger rail supports higher density land uses. Most jurisdictions with passenger rail service are supportive of the service and include provision for the service and for growth opportunities in their local land use plans. Passenger rail can contribute to healthier communities by having stations in mixed-use environments that promote walking and transit. For passenger rail, land use plays an important role in determining whether development around station areas encourages or discourages ridership. In addition to reducing congestion and improving safety, rail also offers health and recreational benefits to passenger rail users.

2.6 Trends and Forecasts

The purpose of this section is to describe the trends that will impact the need for rail in Mississippi. Trends that impact both passenger and freight rail include: demographic and economic growth factors, transportation demand, and the future outlook by industrial sector. These factors all contribute to the projected demand and growth for both passenger and freight rail.

Global and national trends have transformed economies around the world, redefining the way businesses operate, challenging supply chains and transportation networks, and creating new customer opportunities in places that were previously inconceivable. To compete in this global marketplace, businesses must optimize every asset: workforce skills, competitively priced products, and reliable multimodal transportation networks to ensure their customers receive quality goods and services when they expect them. As the needs of businesses continue to evolve and the importance of trade expands nationally and internationally, Mississippi companies are more

dependent than ever on integrated, agile, and efficient multimodal transportation networks to sustain and enhance their competitive position in the marketplace.

Demographic and Economic Growth

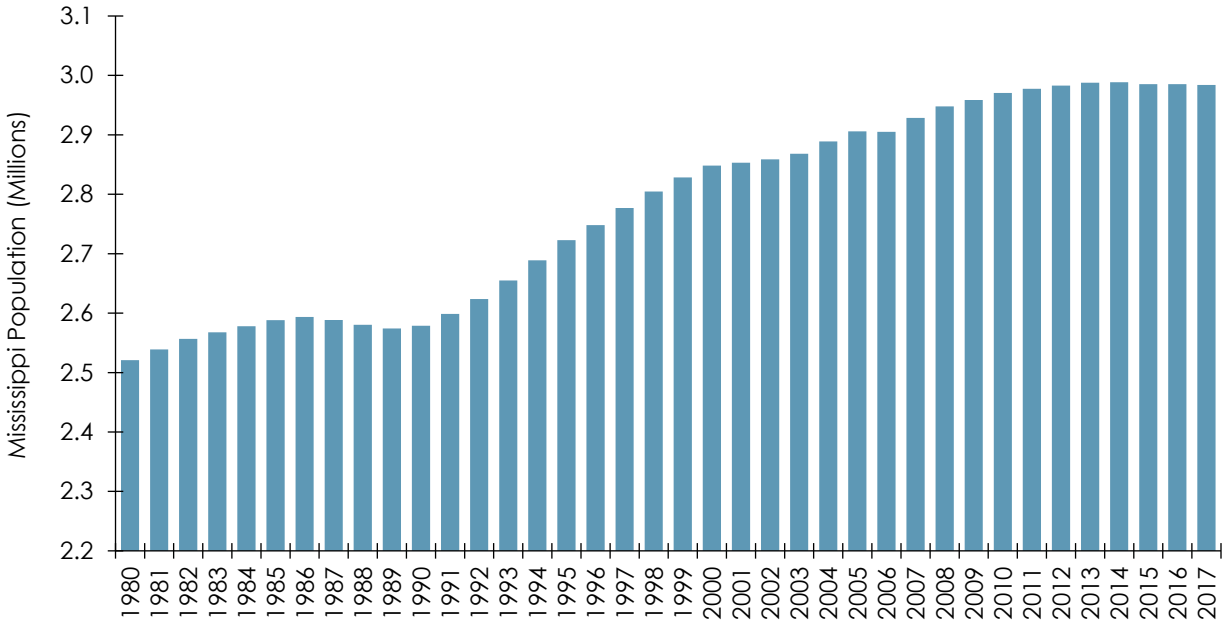
The performance of the State's economy influences freight and passenger demand and industry output. Growth in population and consumer spending fuel demand for durable goods and other consumer products and construction materials to build or improve homes. Growth in consumer demand contributes to growth in manufacturing, wholesale, retail, and other industry sectors that produce and distribute those goods. Growth in those industry sectors contributes to more population and economic growth. Other socio-economic factors, including average income, educational attainment, the cost of energy, and labor productivity, contribute to State's economic competitiveness and are among the factors that many businesses consider when deciding where and when to locate.

Population

Population is a key determinant of transportation demand. The number and geographic distribution of people and their socio-demographic characteristics drive the number and types of trips made on the transportation network.

As shown in Figure 20 and Table 17, the population in Mississippi has been steadily increasing, reaching nearly three million residents in 2017, an increase of 18.4 percent since 1980. The population increased 2.3 percent between 1980 and 1990, 10.5 percent between 1990 and 2000, and 4.3 percent between 2000 to 2010. From 2010 to 2017, the population in Mississippi increased 0.5 percent. Comparatively, the population in the U.S. as a whole increased at a faster pace during the last three decades and over the last seven years, increasing 43.3 percent from 1980 to 2017.

Figure 20. Historical Population for Mississippi, 1980 to 2017



Source: United States Census Bureau.

Table 17. Population Percent Changes and Growth Rates in Mississippi and the United States, 1980 to 2017

Year	Mississippi Population	Mississippi Population Changes (Percent)	MS CAGR	U.S. Population	U.S. Population Changes (Percent)	U.S. CAGR
1980	2,520,800	—	—	227,225,000	—	—
1990	2,578,900	2.3%	0.2%	249,623,000	9.9%	0.9%
2000	2,848,400	10.5%	1.0%	282,162,411	13.0%	1.2%
2010	2,970,437	4.3%	0.4%	309,338,421	9.6%	0.9%
2017	2,984,100	0.5%	0.1%	325,719,178	5.3%	0.7%

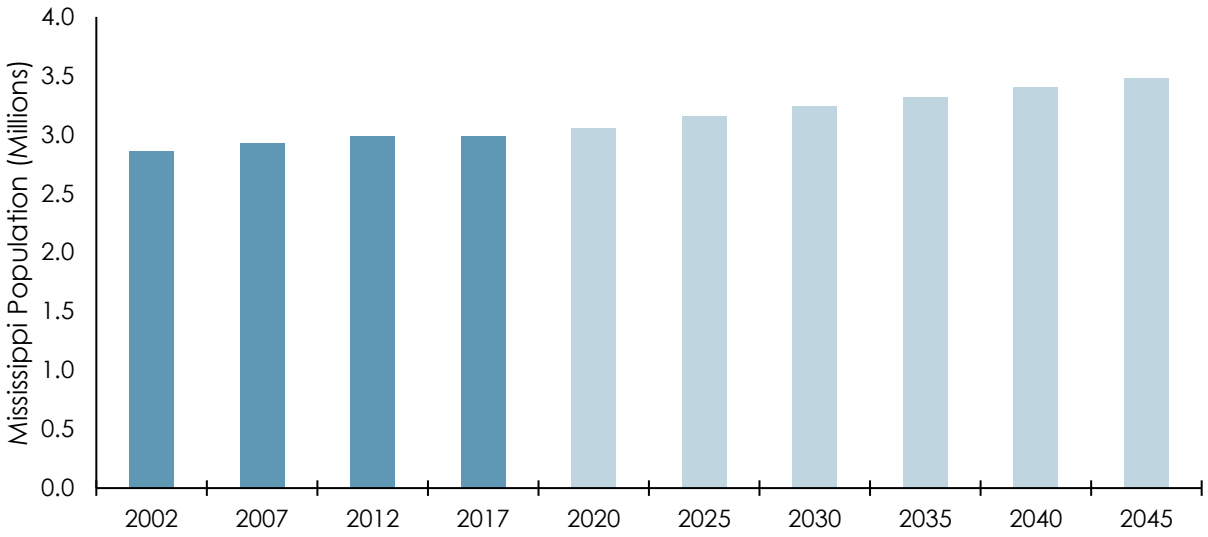
Note: CAGR—Compound Annual Growth Rate.

Source: United States Census Bureau.

Future population projections have Mississippi continuing the steady historic growth pattern, as shown in Figure 21. The state is expected to grow between two to three percent every five years, with approximately 3.48 million residents projected by 2045. These growth trends mirror growth

trends at the national level, the forecast population growth rate for the U.S. is predicted to be approximately two to three percent every five years between 2017 to 2045.[77]

Figure 21. Future Population Projection for Mississippi

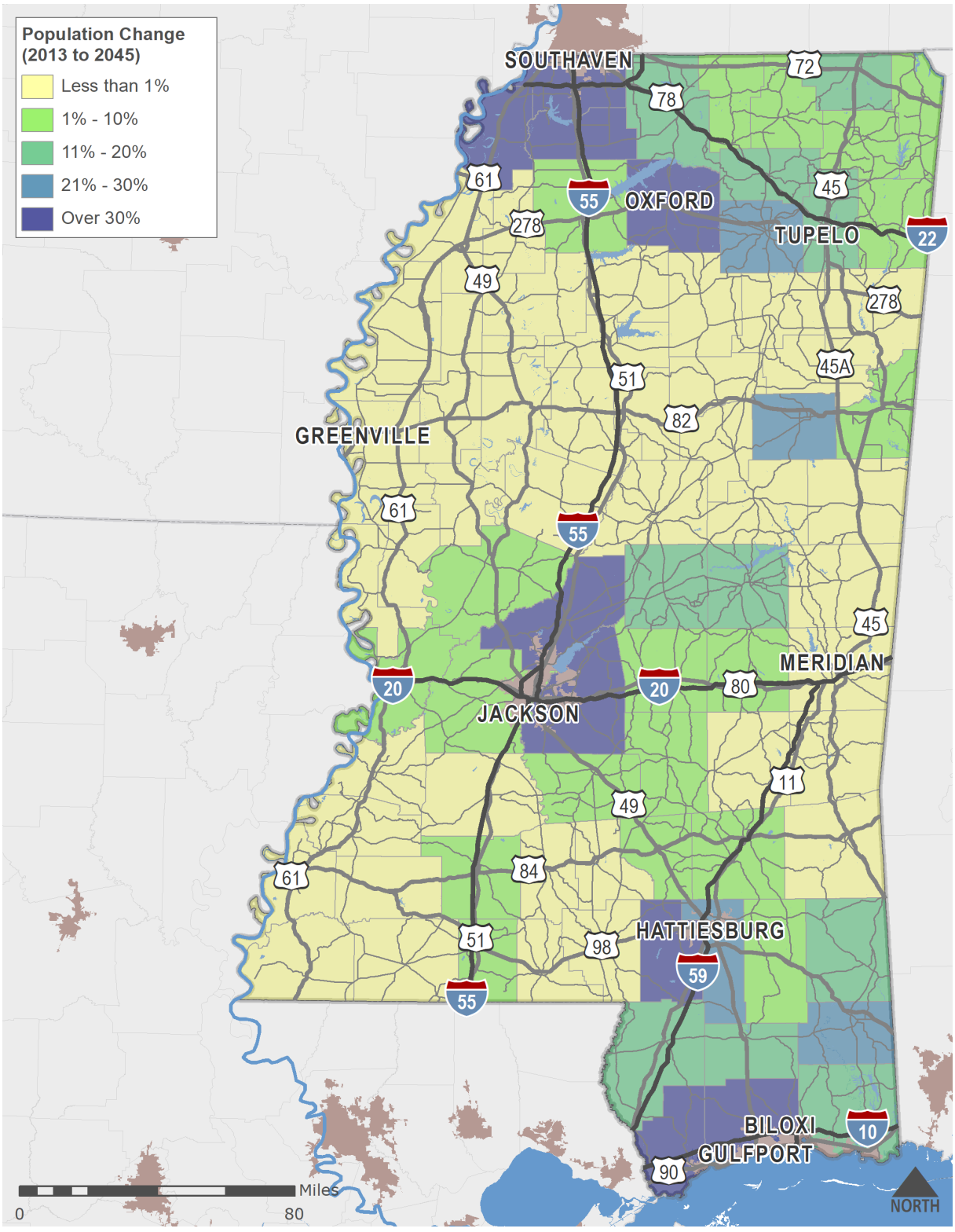


Source: Neel-Schaffer, Mississippi County Socioeconomic Forecasts, July 2019, analysis completed for MULTIPLAN 2045.

Projected population growth by county for Mississippi is presented in Figure 22. These figures indicate that growth is occurring in major cities, including Jackson, Hattiesburg, and along the Gulf Coast. Northeastern Mississippi also is predicted to increase in population during this period, particularly around Oxford and Tupelo. Northwestern Mississippi, in and around DeSoto County, also is expected to see increases. Areas that are predicted to see decreases in population include the western portion of the State, particularly in the Mississippi Delta.

[77] U.S. Census Bureau 2017 National Population Projections.

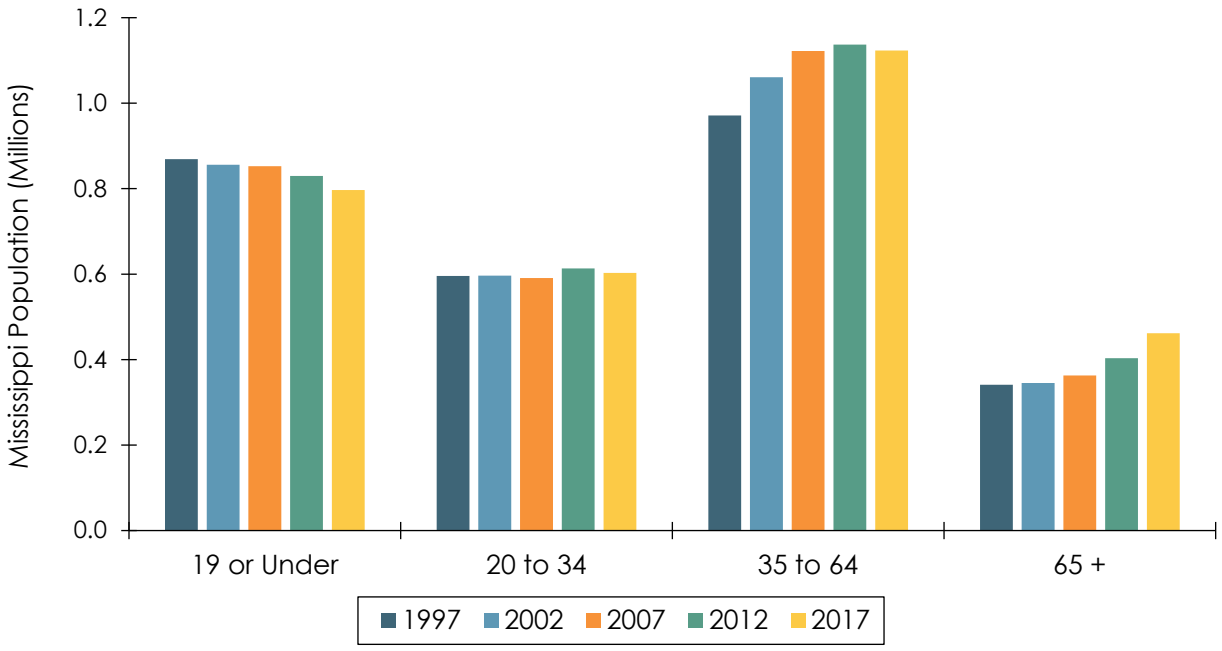
Figure 22. Population Growth by County, 2013 to 2045



Source: Neel-Schaffer, Mississippi County Socioeconomic Forecasts, July 2019, analysis completed for MULTIPLAN 2045.

Since 1997, the trends show an aging population with the number of Mississippi residents between the ages of 35 and 64 increasing, as shown in Figure 23. During this 20-year period, residents between the ages of 35 and 64 increased by 16 percent. During this same time period, the number of residents under 35 years old decreased by four percent while those 65 and older increased by 35 percent.

Figure 23. Historic Population by Age in Mississippi

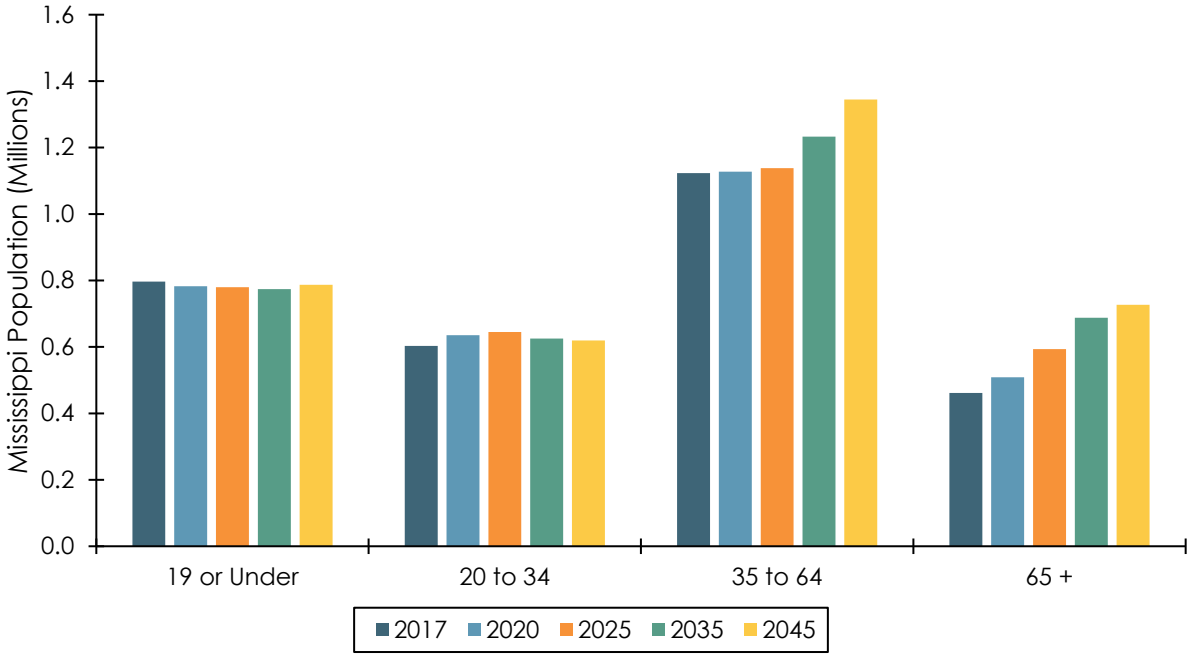


Source: United States Census Bureau.

This aging trend is predicted to continue as shown in Figure 24. Particularly, the number of Mississippi residents above the age of 65 is expected to increase from 2017 to 2045 by approximately 57 percent. In 2017, approximately 461,500 residents were 65 years or older, while there are expected to be approximately 727,000 in 2045. The number of residents 34 years old or younger is forecast to continue to decrease from 2017 through 2045, declining by approximately one percent.

The general aging of the population over time is an important consideration for the types of transportation improvements that are implemented as mobility needs of an older demographic can be different from the overall population. For example, mobility needs may focus more on non-commute as opposed to commute travel.

Figure 24. Forecast Population by Age Group in Mississippi



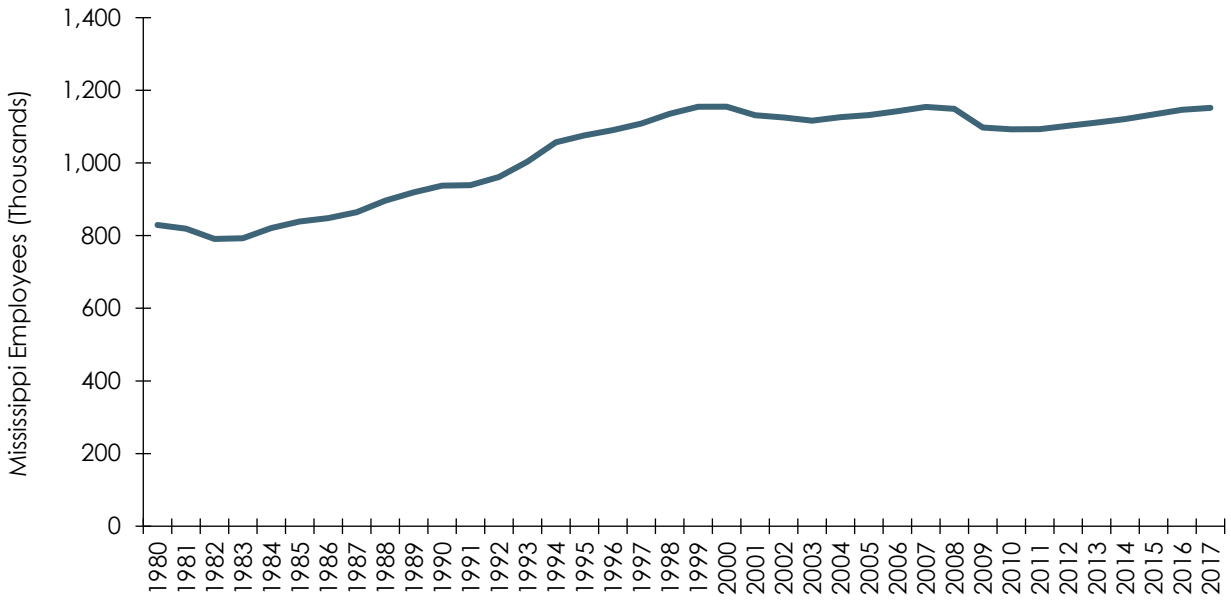
Source: Neel-Schaffer, Mississippi County Socioeconomic Forecasts, July 2019, analysis completed for MULTIPLAN 2045.

Note: Distribution of population by age based on Regional Economic Models, Inc. analysis completed for MULTIPLAN 2045, March 2019.

Employment

The total number of employees in Mississippi between1980 and 2017 is shown in Figure 25. During that period, employment in the state increased by 39 percent as compared to an 18 percent increase in the total population. The more rapid growth in employment, compared to population, coincides with higher increases in the working-age population (ages 20 to 64) relative to the population as a whole, as shown in Figure 23.

Figure 25. Total Number of Nonfarm Employees in Mississippi, 1980 to 2017



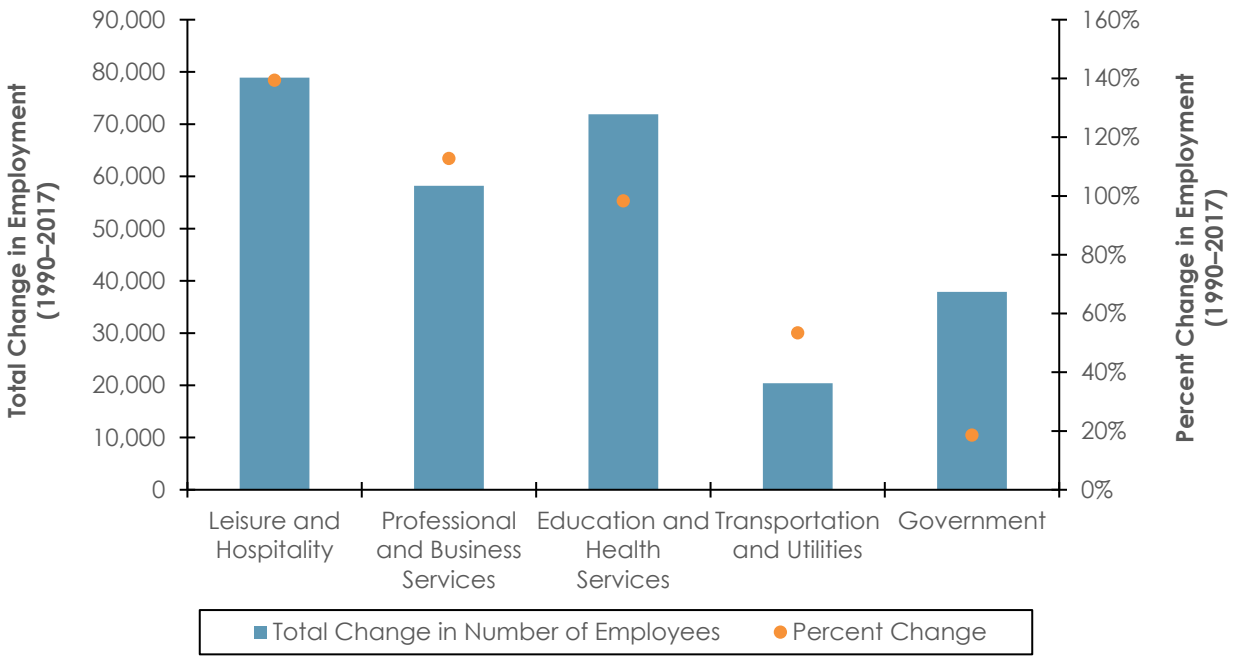
Source: United States Bureau of Labor Statistics.

Note: Total, nonfarm employment, not seasonally adjusted.

Since 1990, increases in employment have been concentrated in a number of industries, including leisure and hospitality; professional and business services; education and health services; transportation and utilities; and government. The total percentage change and total added employment from 1990 to 2017 in the top five industries by growth rate is shown in Figure 26. Each of the top three industries by growth rate increased by over 98 percent between 1990 and 2017, adding a total of more than 205,000 jobs. Leisure and hospitality had the greatest increase from 1990 to 2017 with 78,900 new positions, an increase of 139 percent.

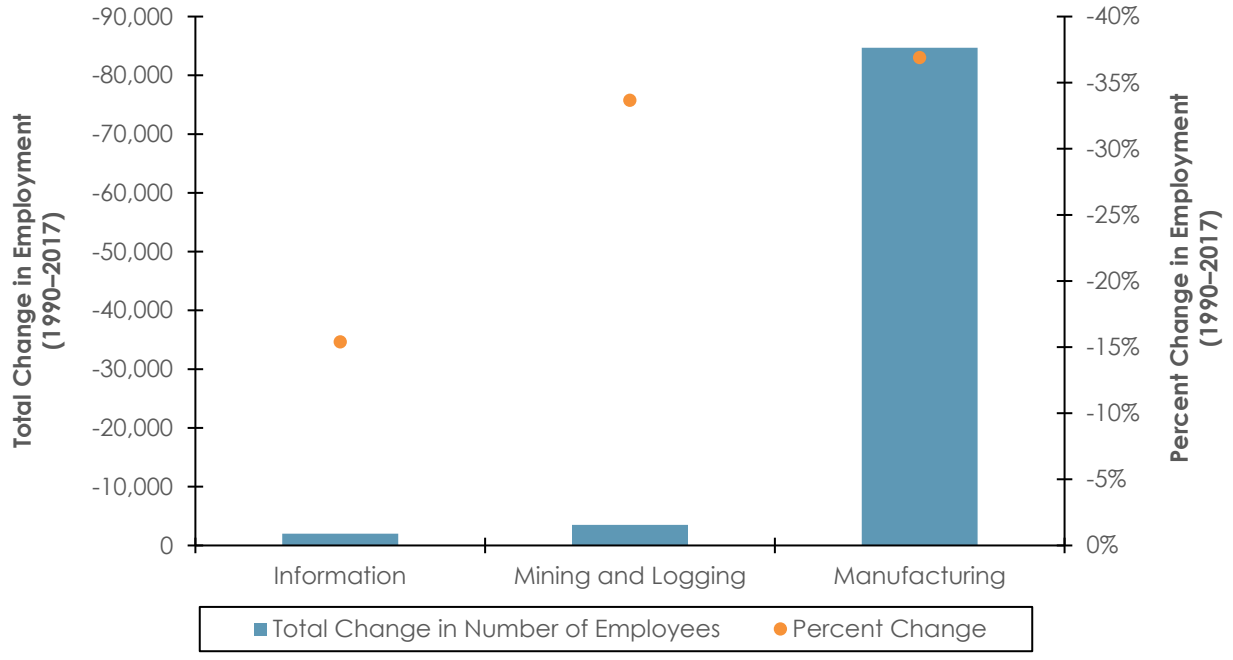
Three industries (information, mining and logging, and manufacturing) that had decreases in the number of employees from 1990 to 2017 are shown in Figure 27. These industries lost 2,000, 3,500, and 84,700 jobs, respectively. For the manufacturing industry, this represented a decrease of 37 percent. In 1990, manufacturing had the largest share of employees with nearly 25 percent of all non-farm employees in the state, but manufacturing employment declined by four percent or more each year from 2000 to 2003, and employment decreased a total of over 11 percent from 2007 to 2009, during the great recession. In 2017, manufacturing accounted for slightly more than 12 percent of all nonfarm employment in Mississippi. Given that manufacturing is a freight-intensive industry, a reduction in industry activity results in less demand on the transportation system for goods movement.

Figure 26. Industries with Highest Employment Gain in Mississippi, 1990 to 2017



Source: United States Bureau of Labor Statistics.

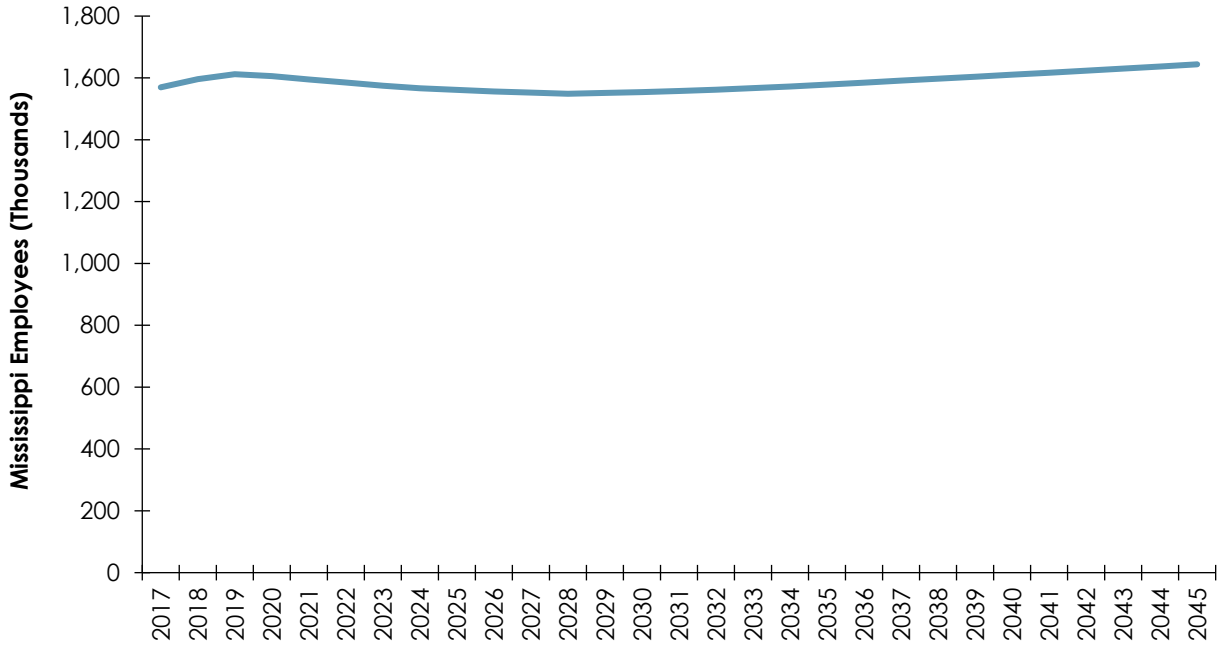
Figure 27. Industries with Highest Employment Loss in Mississippi, 1990 to 2017



Source: United States Bureau of Labor Statistics.

Total employment in Mississippi is expected to increase in future years, as shown in Figure 28. Between 2017 and 2045, the total number of nonfarm employees is expected to increase by approximately 44 percent, with a total change between three and 17 percent every five years. During the same period, the population is also expected to grow by approximately 16 percent.

Figure 28. Forecast Number of Employees in Mississippi, 2017 to 2045

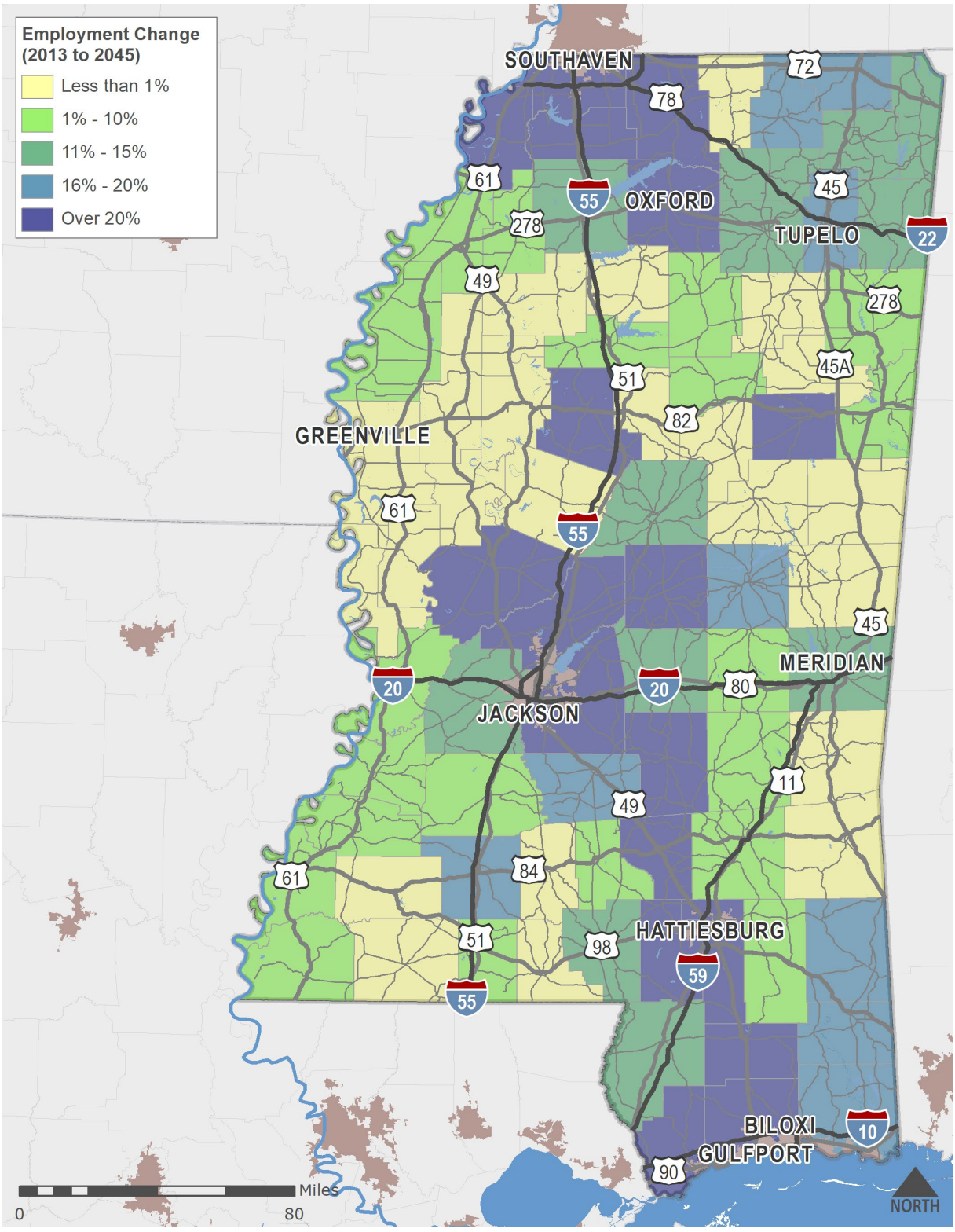


Note: Total, nonfarm employment, not seasonally adjusted.

Source: Neel-Schaffer, Mississippi Socioeconomic Forecasts by County, July 2019, analysis completed for MULTIPLAN 2045.

Projected employment by county for Mississippi is presented in Figure 29. Similar to the projected population growth, employment growth is expected to occur in major cities, including Jackson, Hattiesburg, and along the Gulf Coast, as well as in Northeastern Mississippi and Northwestern Mississippi, in and around DeSoto County. Areas that are predicted to see decreases include the western portion of the State, particularly in the Mississippi Delta.

Figure 29. Employment Growth by County, 2013 to 2045

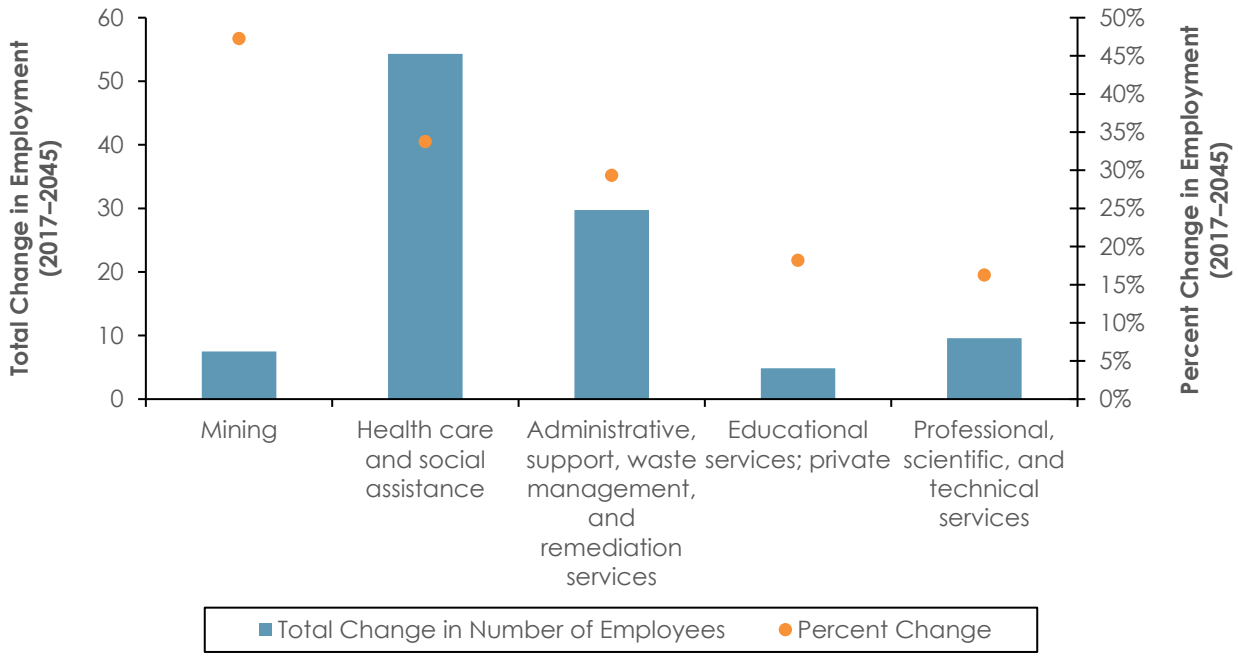


Source: Neel-Schaffer, Mississippi County Socioeconomic Forecasts, July 2019, , analysis completed for MULTIPLAN 2045.

The five industries that are expected to grow the most from 2017 to 2045 are presented in Figure 30. In terms of total employment increase, the health care and social assistance and administrative support, waste management, and remediation services industries are expected to gain the most employees with an increase of approximately 54,000 and 30,000, respectively. The greatest percentage increase in employment is projected to occur in the mining industry, which is projected to grow by 47 percent, though the mining industry is projected to continue to employ less than two percent of all employees in 2045. The remaining top industries in terms of growth are expected to increase by 16 to 34 percent from 2017 to 2045.

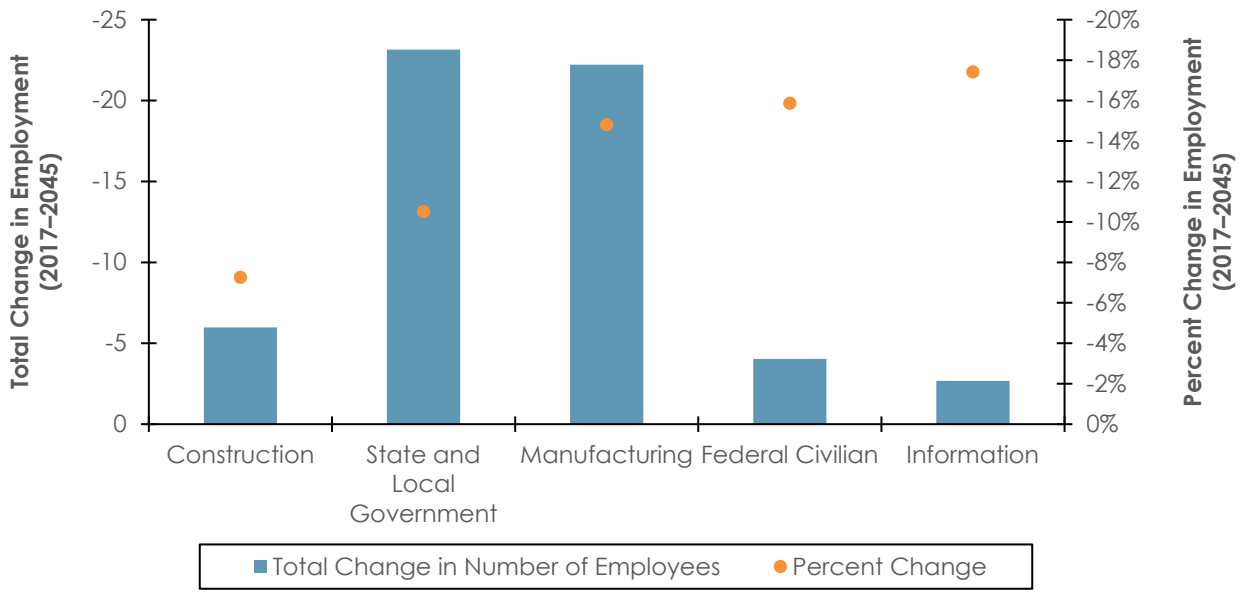
The industries that are expected to have declines in the number of employees are shown in Figure 31. In terms of total employment change, state and local government and manufacturing are the two industries that are expected to have the greatest decrease in the number of employees between 2017 and 2045, with approximately 23,000 and 22,000 employees lost, respectively. The percentage decrease in the number of employees is highest among the information and federal civilian industries at 17 percent and 16 percent, respectively. The percent decreases for the other industries with the largest projected decreases range from 7 to 15 percent.

Figure 30. Industries with Highest Forecast Employment Gain, 2017 to 2045



Source: Regional Economic Models, Inc. analysis completed for MULTIPLAN 2045, March 2019.

Figure 31. Industries with Highest Forecast Employment Loss, 2017 to 2045



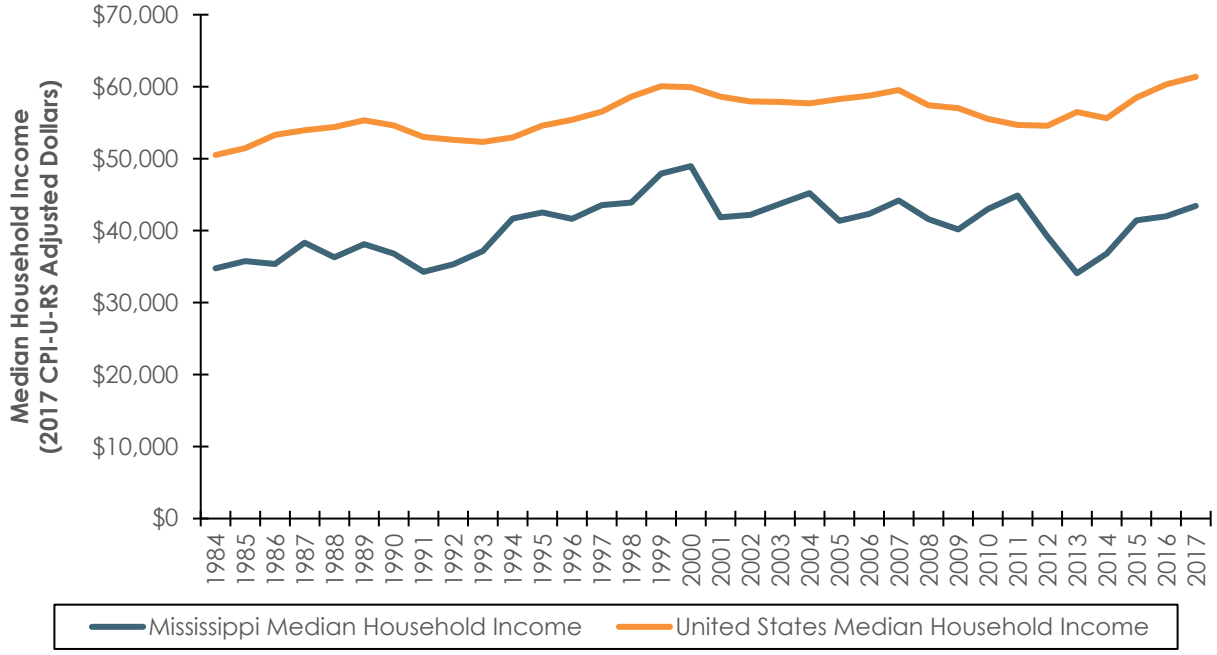
Source: Regional Economic Models, Inc. analysis completed for MULTIPLAN 2045, March 2019.

Income

Historically, the median household income in Mississippi has been lower than the U.S. average, as shown in Figure 32. However, the real median household income among Mississippi residents increased by 25 percent from 1984 to 2017, greater than the 22 percent increase for all U.S. households.

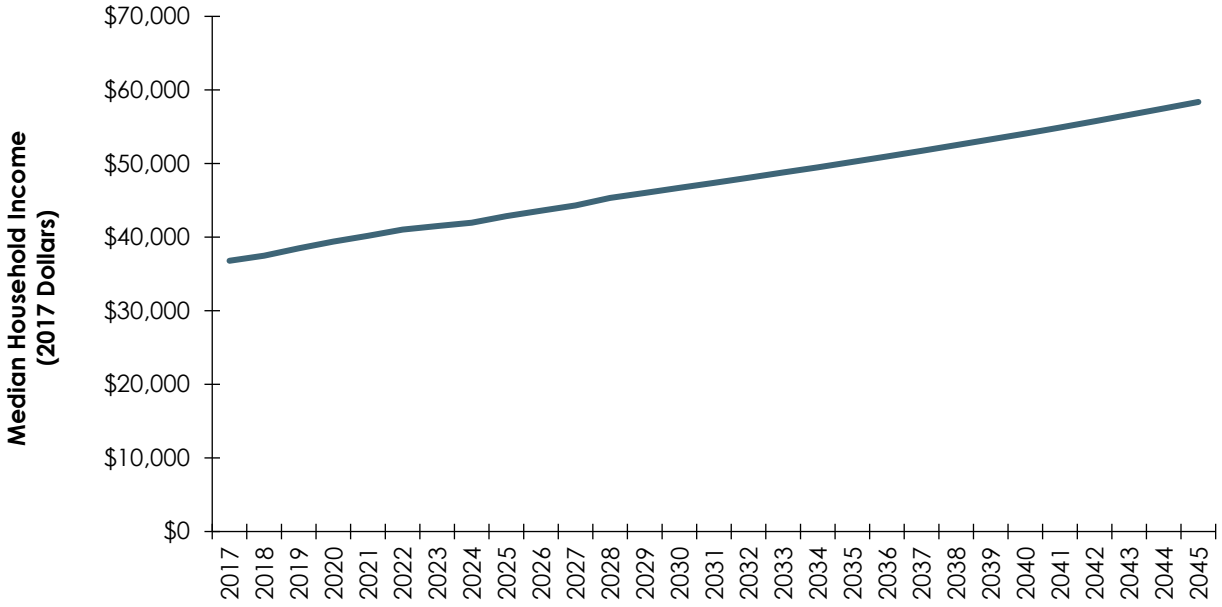
Per capita, personal income is forecast to increase in Mississippi through 2045, as shown in Figure 33. Between 2017 and 2045, real per capita personal income is projected to increase from approximately $36,800 to $58,400 (in 2017 dollars), an increase of 1.7 percent.

Figure 32. Real Household Income in Mississippi and the United States, 1984 to 2017



Source: United States Census Bureau.

Figure 33. Forecast Per Capita Personal Income in Mississippi, 2017 to 2045



Source: Regional Economic Models, Inc. analysis completed for MULTIPLAN 2045, March 2019.

Note: An inflation rate of two percent is assumed, based on Federal Reserve Bank targets.

Freight Demand and Growth

This section describes current and projected freight rail flows in Mississippi. Data for this section are drawn from Surface Transportation Board (STB) Confidential Carload Waybill Sample, as well as Federal Highway Administration's (FHWA) Freight Analysis Framework Version 4.5 (FAF4.5) Database.

- **2017 Confidential Carload Waybill Sample for Mississippi.** The Association of American Railroads (AAR) collects a stratified sample of carload waybills annually for the STB from railroads that terminated at least 4,500 carloads each year for each of the previous three years, or which move five percent or more of any State's total rail traffic. MDOT obtained and provided to the consultant the confidential version of the Waybill Sample, which includes detailed shipment data, including origin county, destination county, 7-digit-level Standard Transportation Commodity Code (STCC) commodity type, equipment type, and tonnage. This data formed the basis for the base year (2017) freight rail traffic.

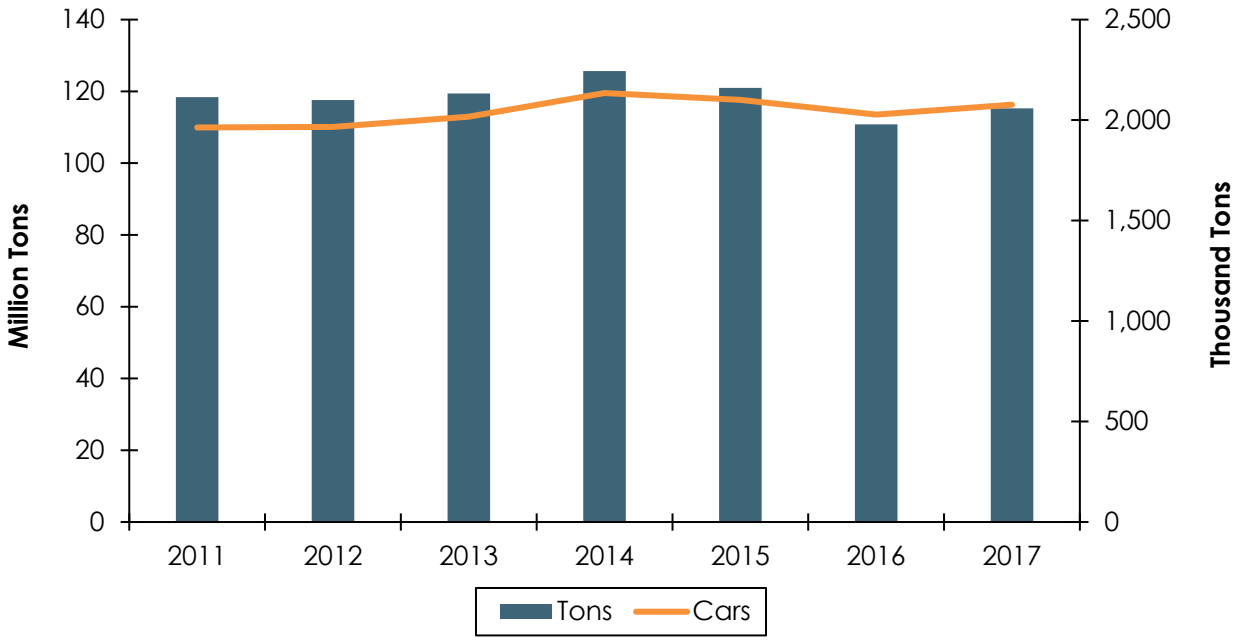
- **FAF4.5 Database.** The FAF, produced through a partnership between Bureau of Transportation Statistics (BTS) and FHWA, integrates data from a variety of sources to create a comprehensive picture of freight movement among States and major metropolitan areas by all modes of transportation. Starting with data from the 2012 Commodity Flow Survey (CFS) and international trade data from the Census Bureau, FAF incorporates data from agriculture, extraction, utility, construction, service, and other sectors. FAF4.5 provides estimates for tonnage and value by regions (multi-county or State FAF zones) of origin and destination, a 2-digit Standard Classification of Transported Goods (SCTG) commodity type, and mode. Data are available for the base year of 2012, synthesized for the years 2013 to 2017, and forecasts from 2020 through 2045 in five-year intervals. Growth factors estimated from FAF4.5 for rail-only (carload equivalent) mode and multiple modes and mail mode (which includes rail intermodal) were applied to 2017 Carload Waybill Sample data to forecast the future year (2045) freight rail traffic.

Current Freight Flows

The following sections provide an overview of the nature of the freight traffic handled on Mississippi's rail network, specifically types of commodities moving by rail, type of rail equipment, origins and destinations, and direction of the freight rail traffic in Mississippi.

Historical trends as shown in Figure 34, illustrate that over the last seven years rail volumes have decreased slightly, however, overall rail volumes hovered around 110 million tons (2016) and 125 million tons (2014). In 2017, the most current year of data, rail moved 115 million tons of freight in about 2.1 million railcars.

Figure 34. Historical Trends of Mississippi Rail Volume, 2011-2017

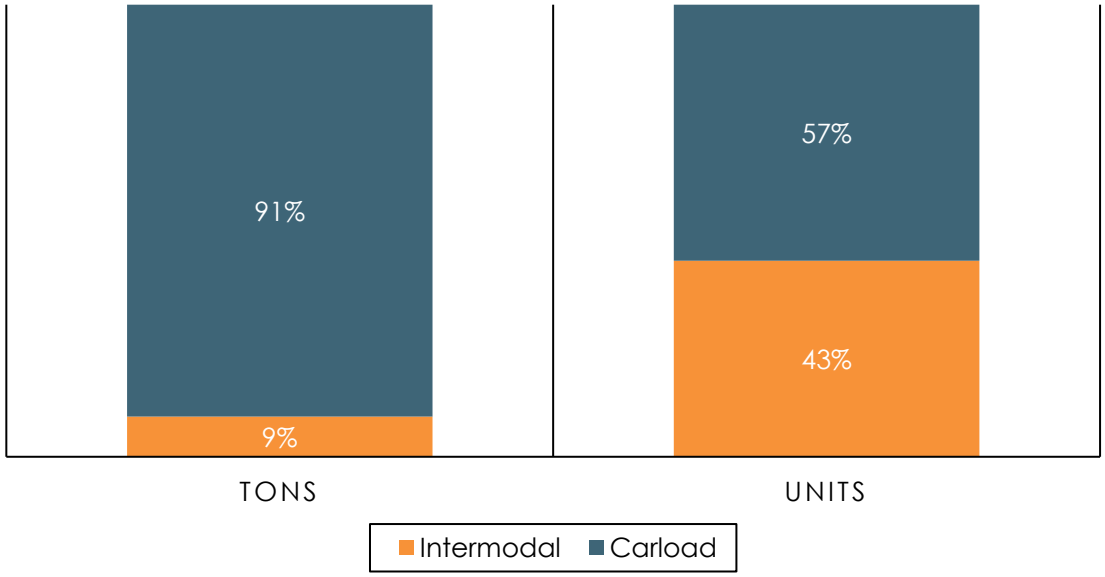


Source: 2012-2017 STB Confidential Carload Waybill Sample.

Demand by Rail Equipment Type

Of the 115 million tons of rail cargo 91 percent moved as carload traffic and 9 percent moved as intermodal traffic. However, when measured by number of railcars or rail units, rail intermodal accounted for a much larger share, 43 percent, of the total rail traffic (2.1 million cars) moving in Mississippi, as shown in Figure 35. Carload traffic typically includes movements of coal, petroleum products, chemicals, grain, pulp, stone, gravel, sand, primary metal products, among others; while rail intermodal consists of shipping containers and truck trailers moved on railcars. This disparity between intermodal tonnage and intermodal units is the direct result of the much larger capacity of carloads versus intermodal units. A typical modern carload has two to four times the volume and up to five times the tonnage capacity of a 53-foot-long highway trailer or container. This effect is compounded further by the tendency of intermodal freight to have a lower density than carload freight, which typically consists of dense bulk products such as coal and grain.

Figure 35. Mississippi Rail Volume by Equipment Type 2017, Tons (Left) Units (Right)



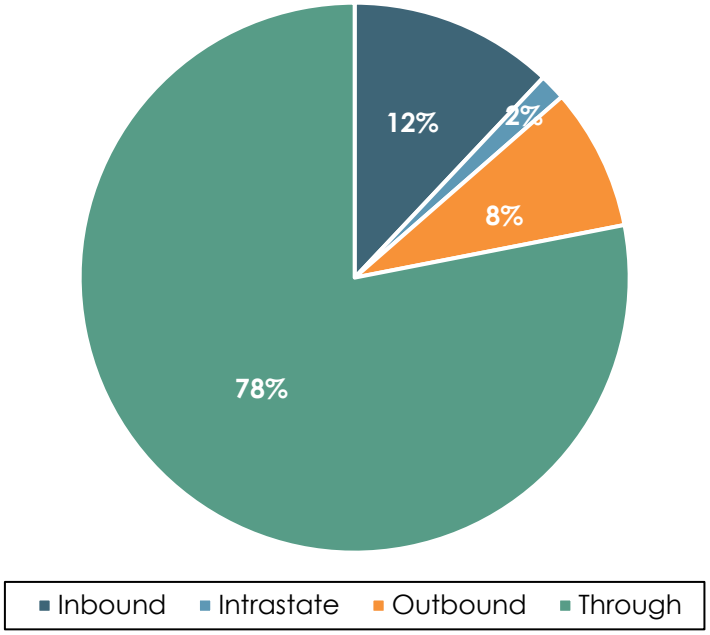
Source: 2017 STB Confidential Carload Waybill Sample.

Demand by Direction

Figure 36 shows the directional share of the tonnage for rail shipments moving inbound, outbound, intrastate, and through Mississippi in 2017. Through freight movements account for the largest category of directional flow, representing 78 percent of the rail tons moved in the State. Through movements originate outside of the State, traverse the State, and terminate outside of the State. Inbound moves are the next largest segment when measured by tonnage (12 percent), followed by outbound (8 percent) and intrastate (2 percent). The noteworthy components of intrastate rail include almost 1 million tons moving within the State from Harrison County and Monroe County. These rail shipments account for over half of the intrastate rail traffic.

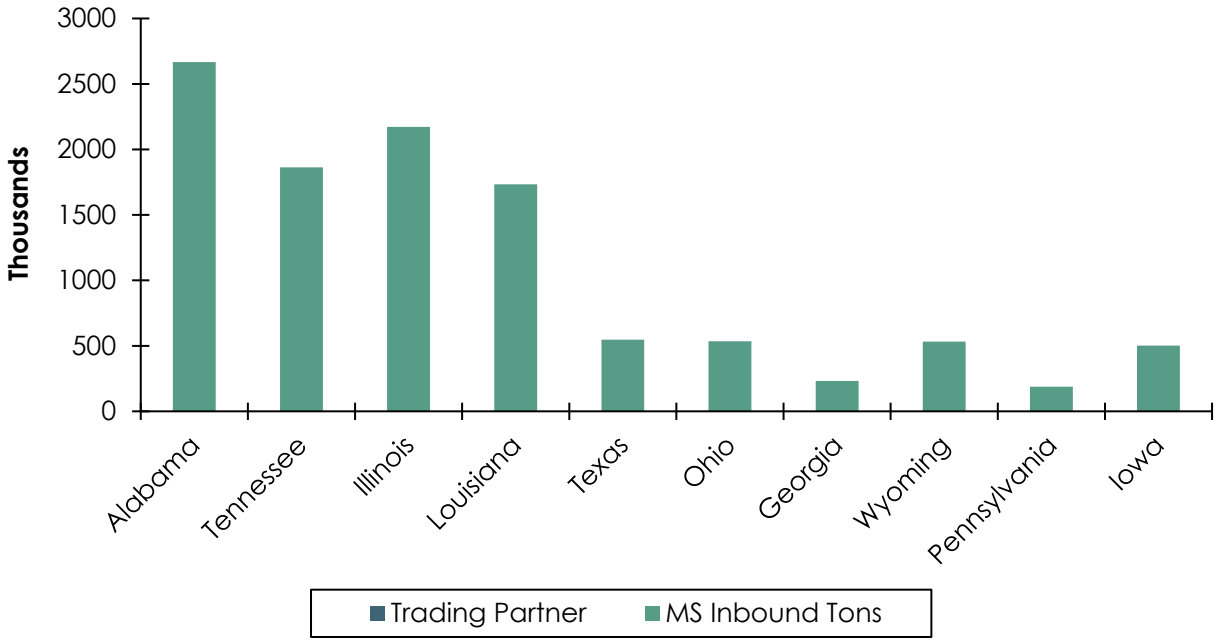
Figure 37 shows Mississippi's top 10 trading partners for rail freight moving inbound and outbound to and from the State. Alabama is Mississippi's top rail trading partner, accounting for 3.4 million tons moved between the two states in 2017. Most of these shipments were inbound to Mississippi from Alabama, and consisted of nonmetallic minerals, primary metal products and chemicals. The remaining top trading partners are: Tennessee with 2.9 million tons traded between the two States (inbound coal, and outbound chemicals and transportation equipment); Illinois with 2.6 million tons (mostly outbound chemicals, and some inbound food and farm products); Louisiana with 2.5 million tons (inbound chemicals and farm products, and outbound chemicals and nonmetallic minerals); Texas with 1.7 million tons (mostly outbound nonmetallic minerals, primary metals and chemicals, and some inbound waste and chemicals); and the remaining top trading partners are Ohio, Georgia, Wyoming, Pennsylvania and Iowa. Rail shipments from the top 10 trading partners accounted for 79 percent of the inbound tonnage and 58 percent of the outbound tonnage.

Figure 36. Mississippi Rail Tonnage by Direction, 2017



Source: 2017 STB Confidential Carload Waybill Sample.

Figure 37. Top Trading Partners for Inbound and Outbound Trade by Weight, 2017

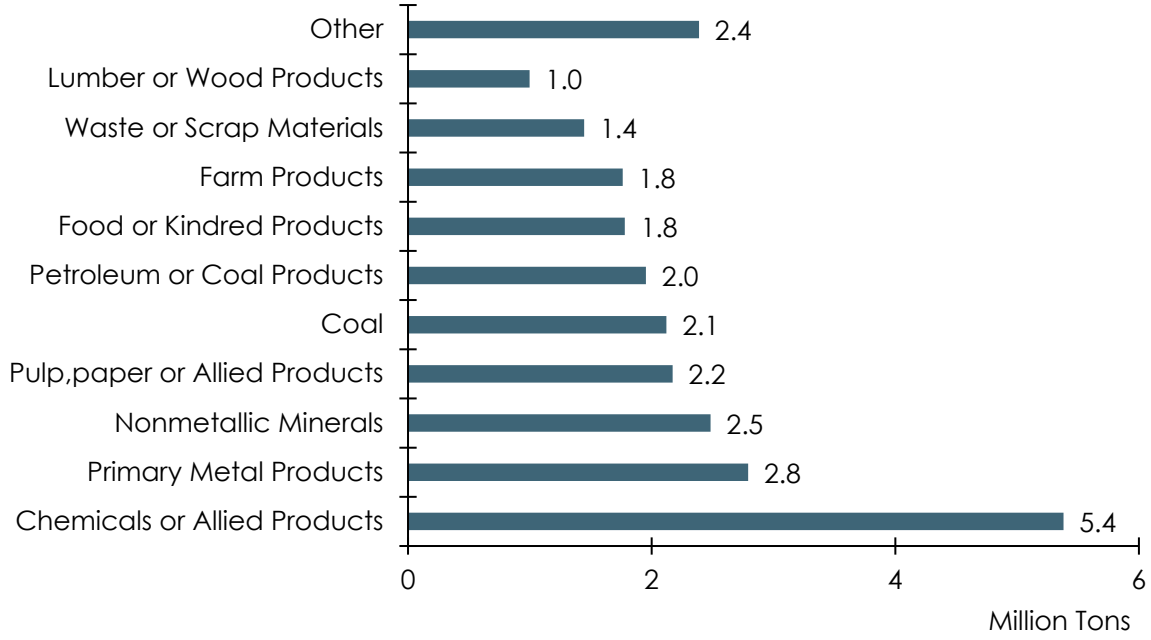


Source: 2017 STB Confidential Carload Waybill Sample.

Demand by Commodity

The top 10 commodities moved to, from and within Mississippi by rail are shown in Figure 38. These commodity flows account for 91 percent or 23 million tons of the total rail tons in 2017 (excluding through traffic or traffic that does not originate or terminate in the State). The top commodity was chemicals and allied products mostly traded with Louisiana, Alabama, Tennessee, Michigan, and Illinois. Next, were primary metal products (e.g., inbound from AL, outbound to TX, and within MS), followed by nonmetallic minerals, such as stone, gravel and sand (e.g., inbound from AL, outbound to TX, LA, and OH). These are followed by pulp and paper products, coal, petroleum and coal products, food products, and farm products, and each total about 2 million tons moved in the State. The rest of the top commodities are waste and scrap, and lumber and wood products.

Figure 38. Top Rail Commodities by Weight, 2017



Source: 2017 STB Confidential Carload Waybill Sample.

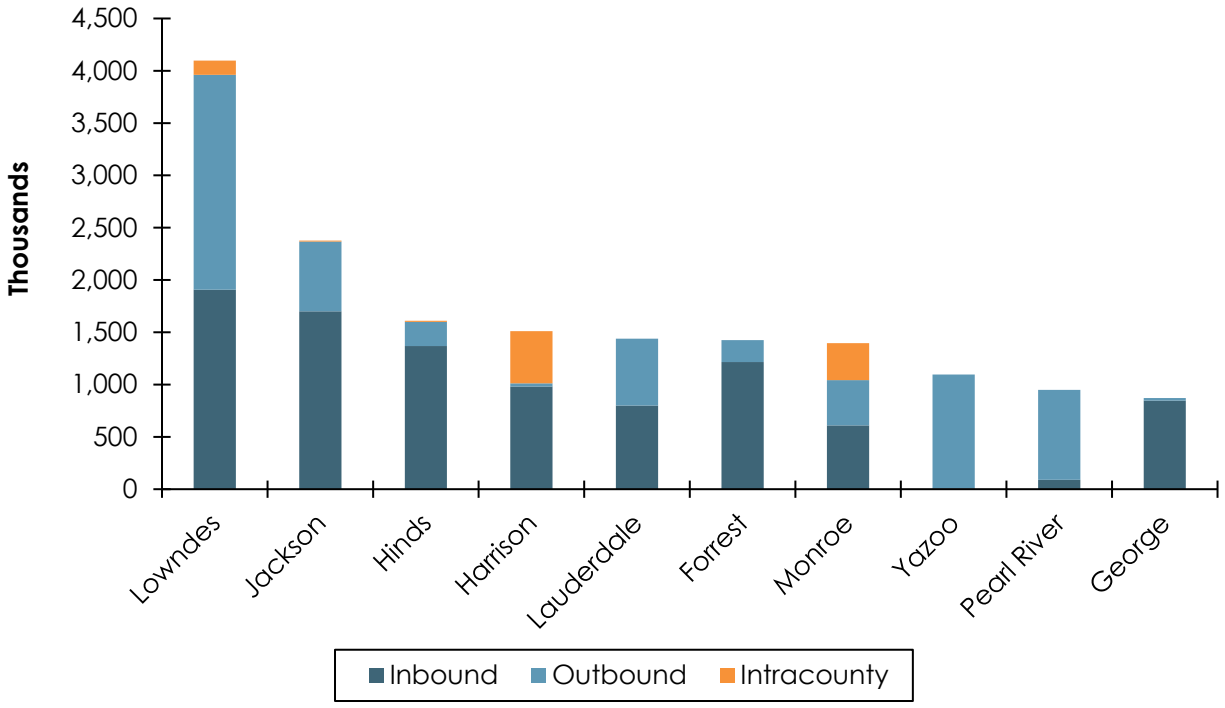
Even though through freight moves do not directly impact Mississippi's economy to a significant degree, this traffic does utilize and impact the State's rail system as a means to reach its final destination. The top through commodities moving by rail in the State are coal, chemicals and allied products, miscellaneous mixed shipments, food products, pulp and paper products, and farm products, accounting for 80 percent of the through tonnage in 2017.

Rail Freight Production and Attraction by County

Figure 39 shows the top Mississippi counties for rail freight attraction and production in 2017. The chart includes the total tonnage being generated by county and shows the share that originates, terminates, and stays within each county. The leading rail freight generating counties are Lowndes, Jackson, Hinds, and Harrison. Rail shipments generated by Lowndes County reached

4.1 million tons in 2017 and included shipments of primary metal products, waste and scrap, and pulp, paper and allied products. Jackson County generated over 2.4 million tons of freight. These rail shipments primarily consisted of coal, nonmetallic minerals, chemicals, and petroleum and coal products. Hinds County generated 1.6 million tons by rail of primary metal products, nonmetallic minerals, pulp, paper and allied products, food and kindred products, and chemicals, among others. Harrison County generated about 1.5 million rail tons, primarily of metallic ores, chemicals and allied products, pulp, paper and allied products, and petroleum or coal products.

Figure 39. Top Counties by Rail Tonnage Generated, 2017

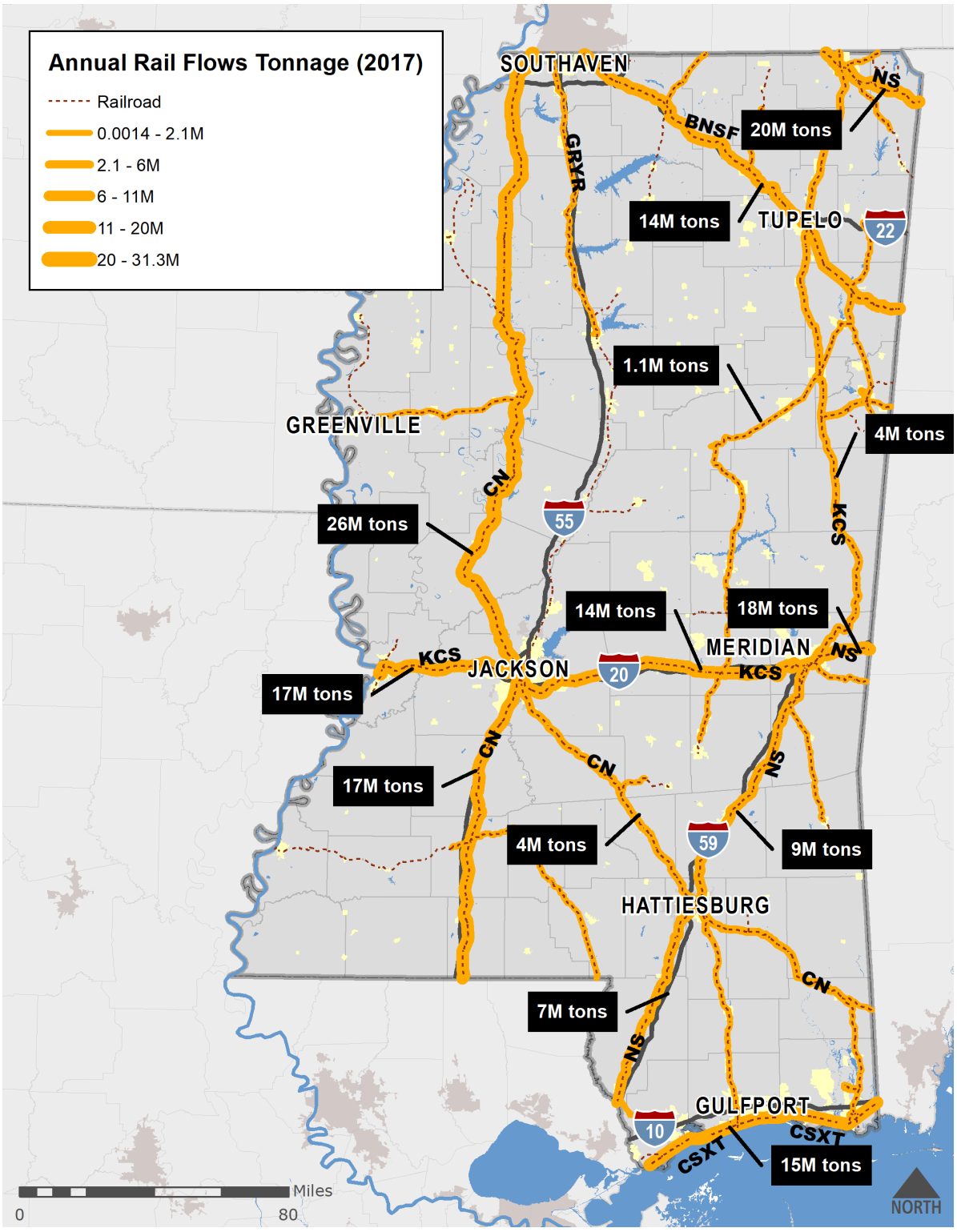


Source: 2017 STB Confidential Carload Waybill Sample.

Rail Flows

Figure 40 shows the 2017 rail tons carried on the Mississippi rail mainlines. The corridor with the most tonnage was the CN Southaven-Jackson corridor carrying up to 26 million tons in 2017. Other high volume freight rail corridors, carrying over 14 million tons in 2017 include NS Mt. Pleasant-Corinth-Iuka, NS Picayune-Hattiesburg-Meridian, KCS Vicksburg-Jackson-Meridian, CN (Jackson-McComb), CSXT Gulf Coast, and BNSF Olive Branch-Tupelo- Fulton.

Figure 40. Mississippi Rail Flows, 2017



Source: 2017 STB Confidential Carload Waybill Sample assigned to the FRA National Rail Network by Cambridge Systematics.

Projected Freight Flows

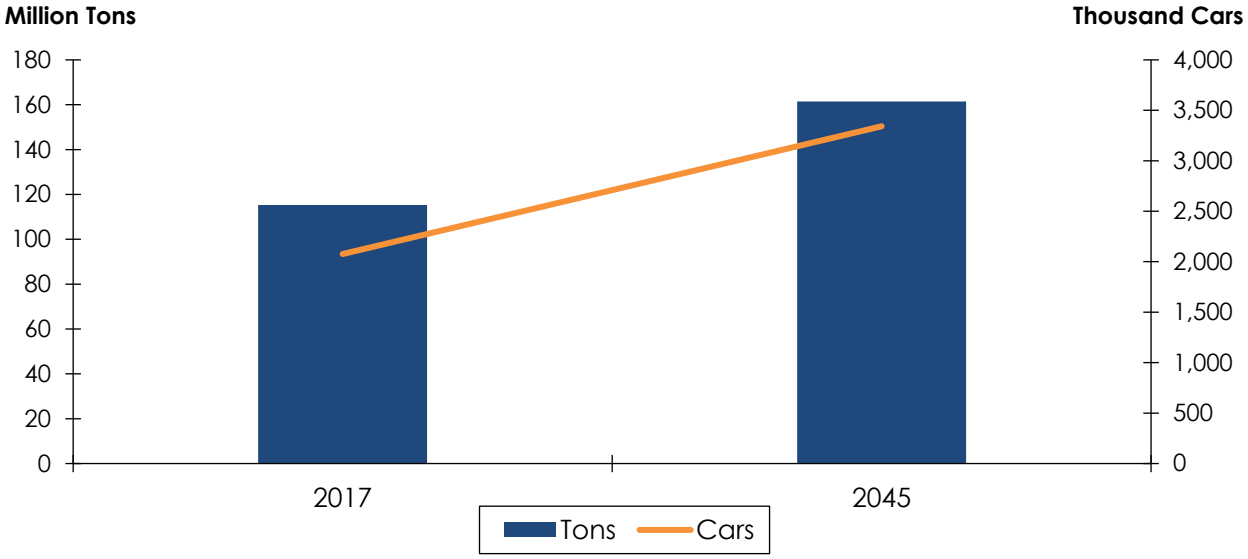
The future needs of Mississippi's rail freight system are substantially driven by what future rail demand might look like. This section presents potential future demand for freight rail in the State for the plan year of 2045. It also provides insight into future trading partners, top commodities, and equipment and service needs of the State's rail-dependent industries.

This forecast provides a "baseline" against which future demand for rail can be considered, and thus is not only a reflection of current macroeconomic trends, but also the current trends in logistics, distribution, and sourcing within the freight-dependent economic sectors. However, there can and will be significant changes in the rail industry, economic composition, logistics, public policy, and other factors that can and will affect the general demand for goods movement.

Statewide Freight Rail Demand

In 2017, 115 million tons of freight in 2.1 million railcars moved over Mississippi's rail transportation system. By 2045, Mississippi's freight rail system is projected to carry more than 161 million tons of freight on 3.3 million railcars (see Figure 41), an increase of 40 percent by tonnage and 61 percent by rail units.

Figure 41. Rail Freight Flows by Weight and Units, 2017 to 2045



Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's FAF4.5 growth rates processed by Cambridge Systematics.

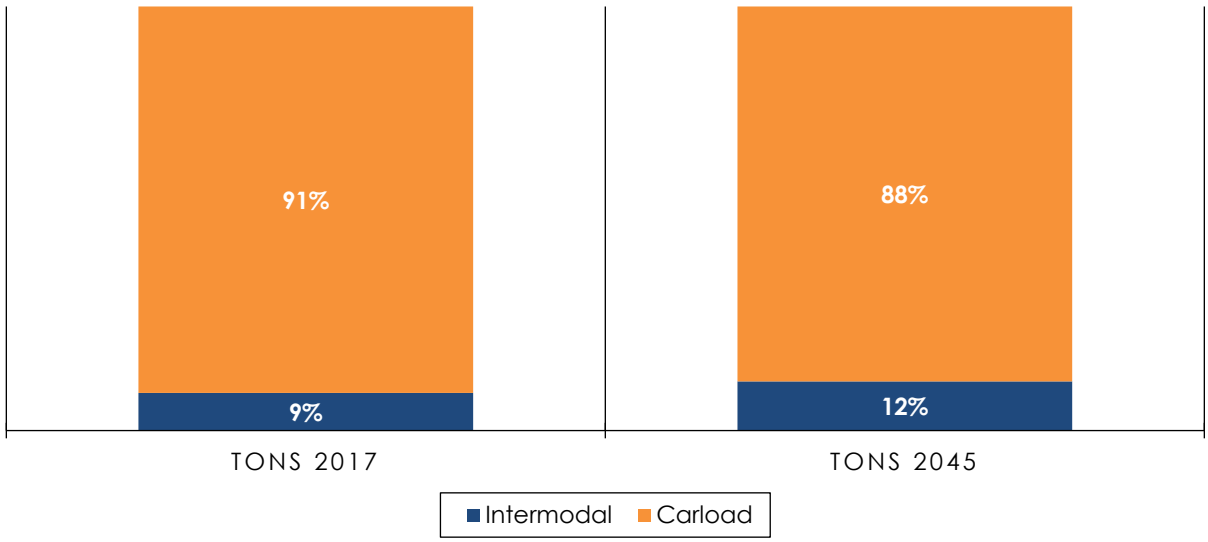
Demand by Rail Equipment Type

Figure 42 and Figure 43 show the distribution of the existing and future tonnage and units by rail equipment type (i.e., intermodal and carload). The discrepancy between the percentage of units and percentage of weight carried is because intermodal containers typically carry higher-value, lower-weight goods and the direct result of the much larger capacity of carloads versus

intermodal units. Products such as consumer goods utilize a large number of intermodal cars, but account for only a small percentage of the overall weight compared to carload shipments, which typically carry heavier bulk material, such as coal, lumber, or nonmetallic minerals.

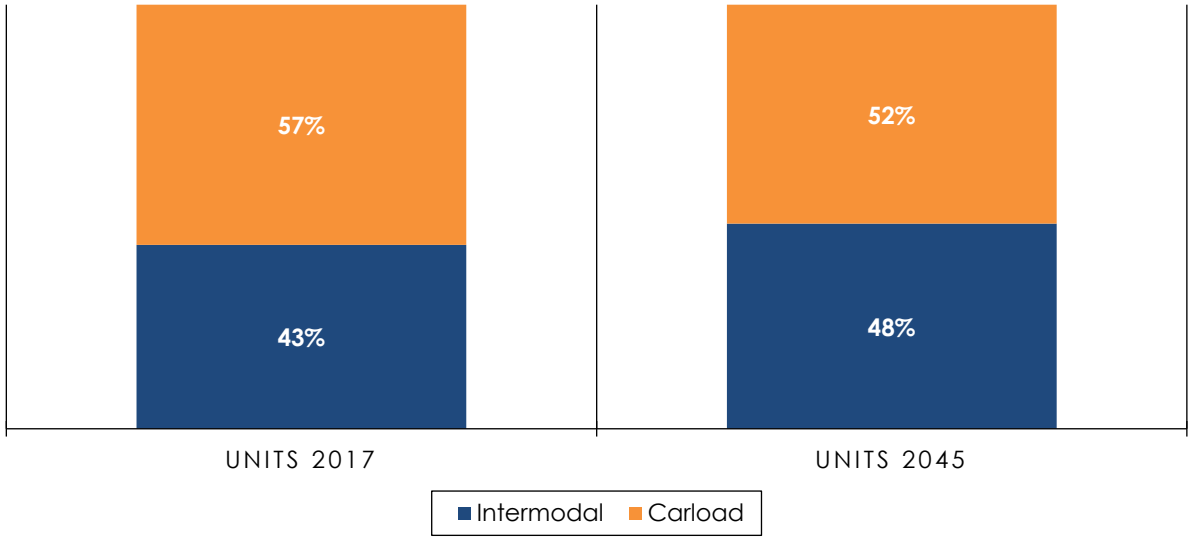
By 2045, the share of intermodal rail is expected to increase to 12 percent of the total tonnage and 48 percent of the total railcars moving in the State. This is due to the higher growth projected for rail intermodal, at 2.2 percent of annual growth for tons and 2.1 percent for units, compared to about one-half of that growth projected for carload tons (1.1 percent annual growth) and units (1.4 percent annual growth).

Figure 42. Intermodal/Carload Rail Freight Flows by Weight, 2017 to 2045



Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's FAF4.5 growth rates processed by Cambridge Systematics.

Figure 43. Intermodal/Carload Rail Freight Flows by Units, 2017 to 2045

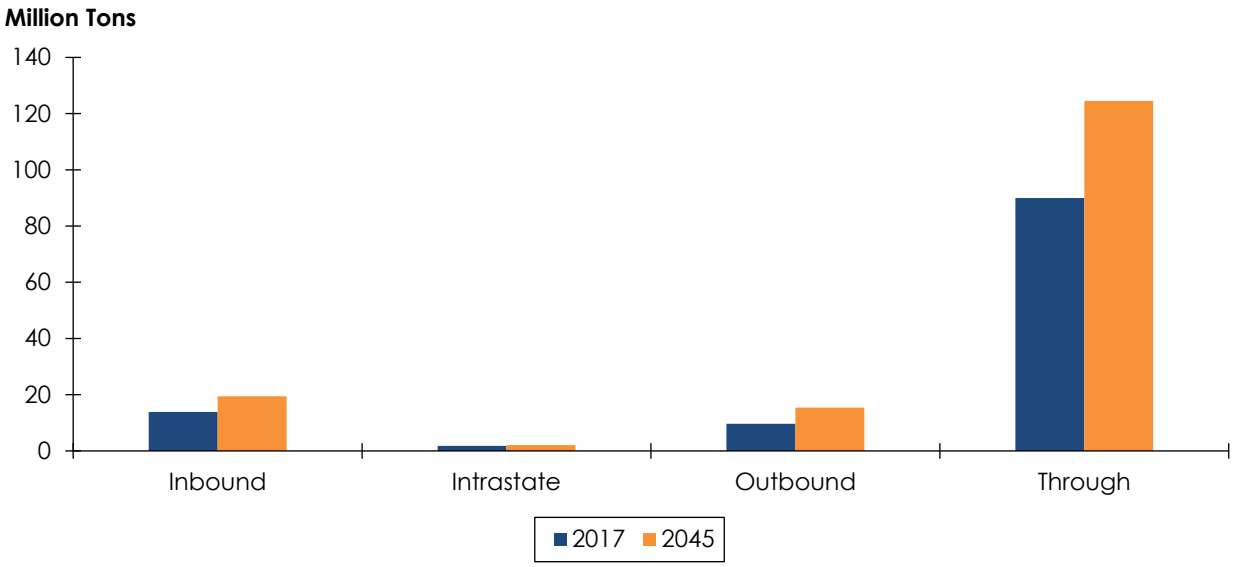


Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's FAF4.5 growth rates processed by Cambridge Systematics.

Demand by Direction

Freight rail moves to, from, within, and through Mississippi every day. Figure 44 shows the existing and projected future rail tons for inbound, outbound, intrastate and passthrough flows. The vast majority of rail movements in Mississippi are through shipments (78 percent of total rail tons), a trend that is projected to continue through 2045. Inbound and outbound rail flows are projected to grow 40 percent and 60 percent respectively by 2045. Intrastate rail tons account for a very small share of the total rail traffic in the State (less than 2 percent), and by 2045 intrastate rail tons are projected to grow by only 16 percent or 0.5 percent growth annually.

Figure 44. Mississippi Rail Freight Tonnage by Direction, 2017 to 2045



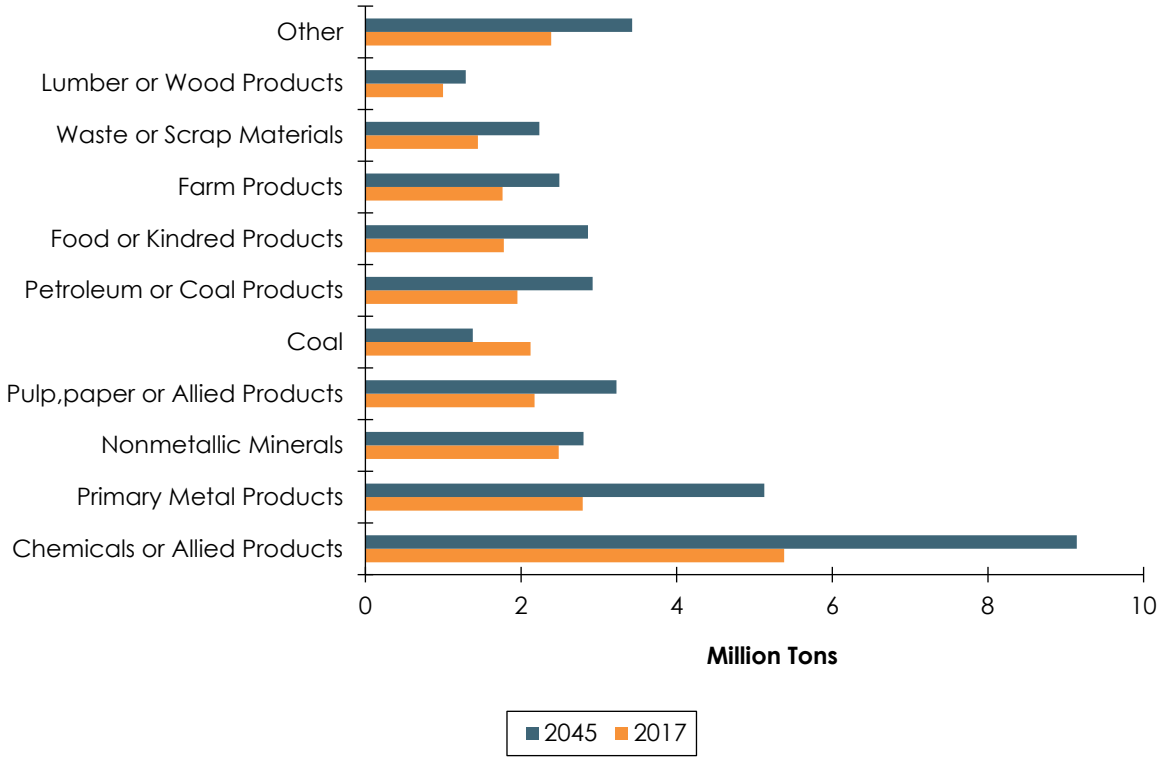
Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's Freight Analysis Framework Version 4.5 (FAF4.5) growth rates processed by Cambridge Systematics.

Demand by Commodity

The 2017 top 10 commodities moved to, from, and within Mississippi by rail and their 2045 projections are shown in Figure 45. These commodity flows account for 91 percent (or 23 million tons) of the total rail tons in 2017 and the projected total rail tons in 2045 (or 33 million tons for the top 10 commodities), excluding through traffic or traffic that does not originate or terminate in the State.

Chemicals and allied products are expected to continue to be the top commodity group by 2045, accounting for 21 percent of the rail tons in 2017, and projected to account for 25 percent by 2045. The remaining top commodity groups and their projections for 2045 are shown in Figure 45. Highlights of the expected trends for these rail commodity flows over the next decades include the projected decline of coal shipments (35 percent decline in rail tons between 2017 and 2045), and the modest growth for nonmetallic mineral shipments (including stone, riprap, gravel, and sand). Worth noting is the projected high growth for transportation equipment shipments by rail (including motor vehicles, railroad cars, and vehicle parts and accessories), which is not included in the existing top 10 commodity groups, but is expected to be in the top 10 by 2045 by more than doubling the rail tons from 700,000 tons in 2017 to 1.7 million tons by 2045.

Figure 45. Top Rail Commodities by Weight, 2017 to 2045



Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's FAF4.5 growth rates processed by Cambridge Systematics.

Trading Partners

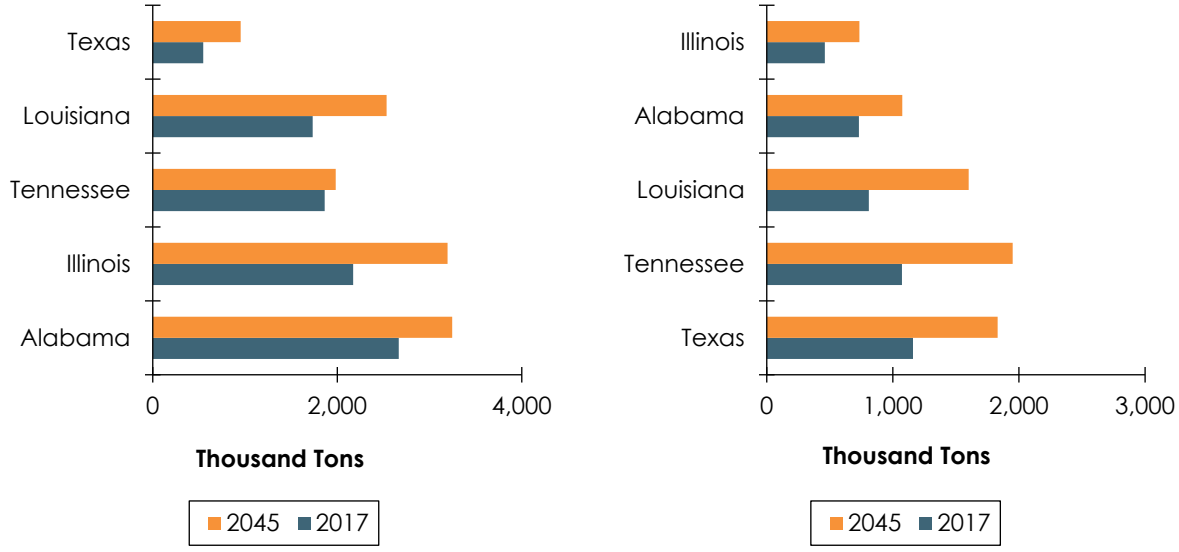
Figure 46 shows the top five trading partners for Mississippi's inbound and outbound rail tonnage in 2017 and 2045 projections.

Mississippi receives goods by rail from trading partners across the country, Mexico, and Canada. The top five origins shown in Figure 46 (left chart) accounted for 65 percent (9 million tons) of the total inbound tonnage in 2017, and expected to account for 62 percent (12 million tons) of the inbound tonnage in 2045. Mississippi received the most tonnage from Alabama, followed by Illinois, Tennessee, Louisiana, and Texas. By 2045, the top origins for Mississippi's rail inbound tonnage are projected to continue to be within the top trading partners for inbound rail freight. Shipments from Tennessee are expected to exhibit very modest growth due to the projected decline in coal shipments.

Goods shipped by rail from Mississippi travel to a wide range of U.S. destinations, Mexico and Canada. In 2017, over 9.6 million tons of goods were shipped by rail from Mississippi. The top five destinations were Texas (12 percent of the outbound tonnage), Tennessee (11 percent), Louisiana (8 percent), Alabama (8 percent), and Illinois (5 percent). Figure 46 shows the top five trading partners for Mississippi's outbound rail freight tonnage in 2017 and 2045 projections. By 2045,

Tennessee is projected to grow to be the top destination State exhibiting strong growth in rail shipments of motor vehicles, chemical products, and farm products from Mississippi.

Figure 46. Top Trading Partners for Inbound (Left) and Outbound (Right) Trade by Weight, 2017 to 2045, Origins (Left) and Destinations (Right)



Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's FAF4.5 growth rates processed by Cambridge Systematics.

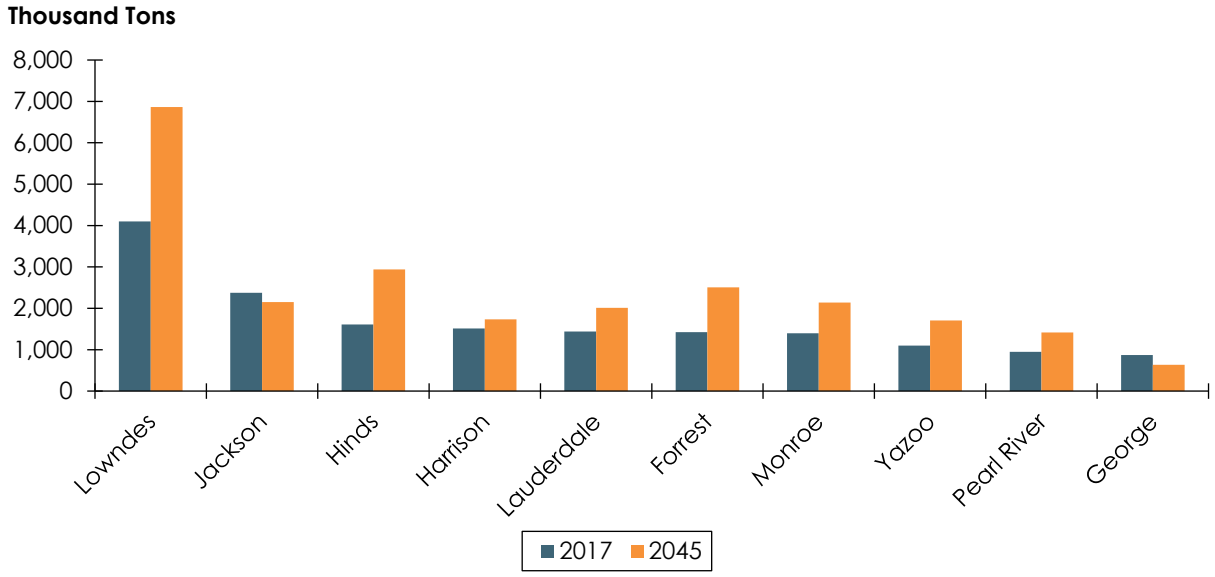
County Rail Freight Production and Attraction

Figure 47 shows the top Mississippi counties for rail freight attraction and production in 2017 and the 2045 projections. The chart includes the total tonnage being generated by county, including tons originating, terminating, and staying within each county.

Lowndes County was the top county for rail goods movements by weight in Mississippi in 2017. A total of 4.1 million tons were shipped from or to the County, accounting for 16 percent of the 25.3 million tons shipped to, from, and within Mississippi in 2017. Lowndes County is expected to remain the top county for freight rail activity by weight in 2045, generating 6.9 million (19 percent) of the tons shipped to, from, and within Mississippi.

Except for George County, the remaining top 10 counties with freight rail activity (inbound, outbound, and intra-county combined) are projected to remain in the top by 2045, albeit with different rankings. Among the top 10, the largest percentage growth by 2045 is forecasted for Hinds County (82 percent growth), followed by Forrest County (76 percent growth). On the other hand, among the top 10, the largest percentage decline by 2045 is forecasted for George County (27 percent decline) and Jackson County (9 percent decline), mostly driven by the projected decline for inbound coal.

Figure 47. Top Counties by Rail Tonnage Generated, 2017 to 2045

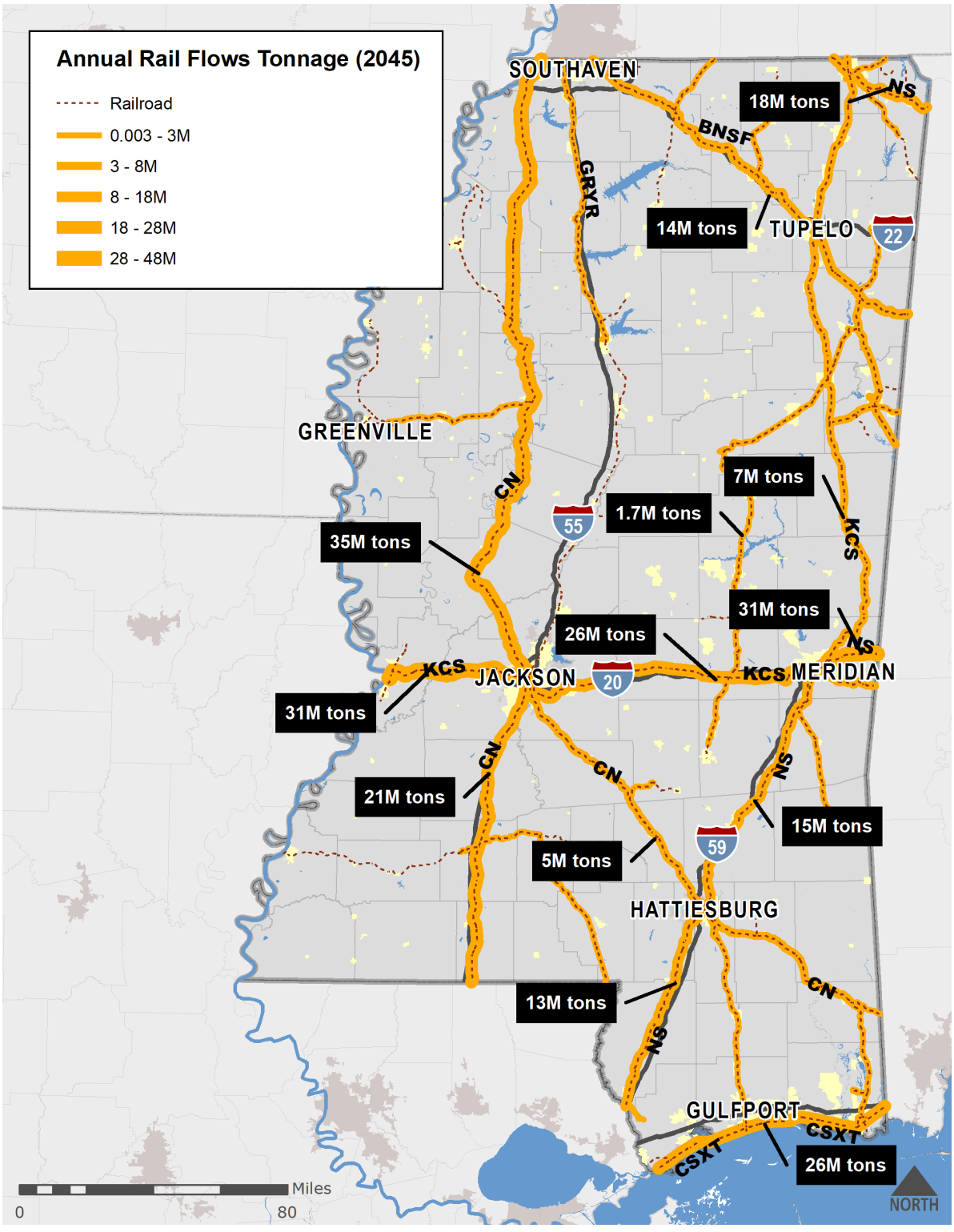


Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's Freight Analysis Framework Version 4.5 (FAF4.5) growth rates processed by Cambridge Systematics.

Rail Flows

Figure 48 show the 2045 rail tons projected to be carried on the Mississippi rail mainlines. The corridors with the largest projected growth by 2045 are the KCS Vicksburg-Jackson-Meridian corridor with up to 31 million tons (82 percent growth 2017-2045), and CSXT Gulf Coast corridor with 26 million tons (73 percent growth 2017–2045). CN Southaven-Jackson corridor is projected to continue to carry the most tonnage with up to 25 million tons by 2045. Other corridors are projected to have flat growth, such as the BNSF Olive Branch-Tupelo- Fulton; or decline in tonnage such as the NS Mt. Pleasant-Corinth-Iuka corridor with a 10 percent decrease in tons by 2045. This decline and moderate growth is mostly driven by the expected decline in coal tonnage.

Figure 48. Mississippi Rail Flows, 2045



Source: 2017 STB Confidential Carload Waybill Sample and 2045 forecast based in FHWA's FAF4.5 growth rates, processed and assigned to the FRA National Rail Network *by Cambridge Systematics.*

Passenger Travel Demand and Growth

This section provides an assessment of existing and future demand for the passenger rail system in Mississippi. Several future service and capacity scenarios are evaluated. The Status Quo scenario, assumes the continuation of current conditions—neither Amtrak nor MDOT makes alterations to current routes, frequencies, or train capacity on current passenger rail services. The remaining scenarios reflect potential service changes proposed in the 2016 Mississippi State Rail Plan Update.

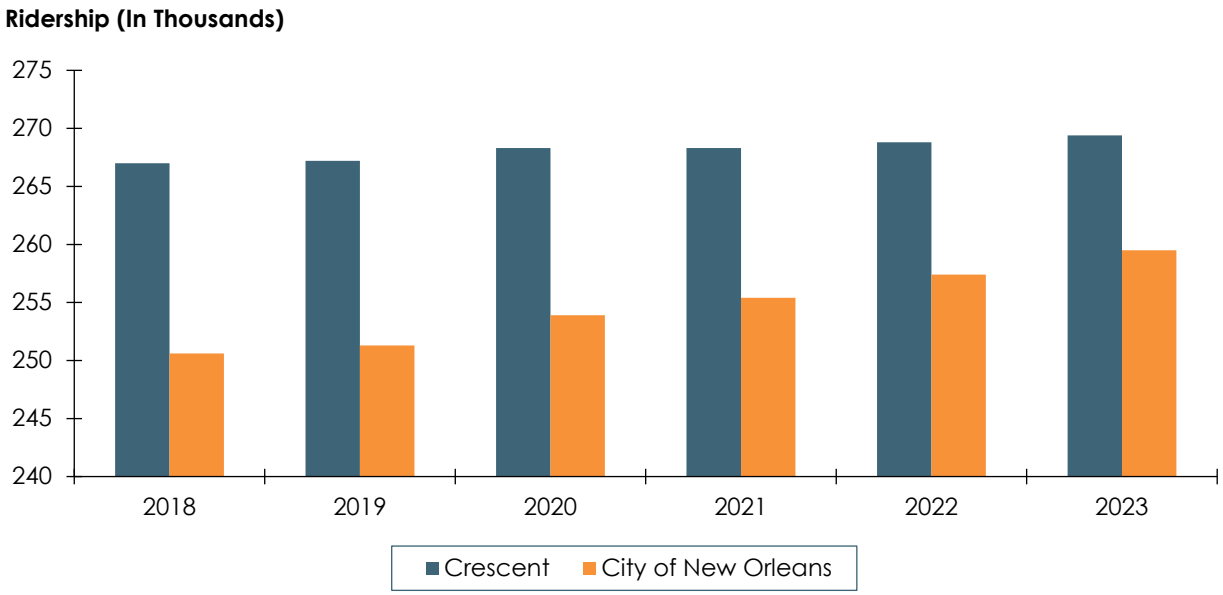
Status Quo Scenario

The status quo scenario assumes no alterations to current routes, frequencies, or train capacity along Mississippi passenger rail services. In line with the methodology used to project future ridership for the 2040 Mississippi Unified Long-Range Transportation Infrastructure Plan, estimates for future performance of the Mississippi passenger rail system were evaluated using a compound annual growth rate (CAGR).

Under the status quo scenario for the 2040 Mississippi Unified Long-Range Transportation Infrastructure Plan, a 1.7-percent growth rate was assumed for the passenger rail, in line with the 15-year national system growth rate for Amtrak passenger miles traveled (PMT) between 2000 and 2014. Given that no long-term ridership forecasts were available for either of Amtrak's services in Mississippi, forecasts for this update rely on estimates from Amtrak's short-term Five-Year Service Line Plans, recent ridership trends for Mississippi stations, and long-term demographic predictions.

Short-term ridership projections for the Crescent and City of New Orleans routes (for all stations on each route), including actual 2018 ridership figures, are shown in Figure 49. Throughout both routes, modest increases in ridership are expected—a 0.18-percent CAGR is expected between 2018 and 2023 along the *Crescent*, and a 0.7-percent CAGR is projected for the *City of New Orleans*.

Figure 49. Actual 2018 and Projected 2019 to 2023 Total Ridership Along Amtrak Lines



Source: Amtrak Five-Year Service Line Plans. Base (FY 2018) + Five-Year Strategic Plan (FY 2019 to 2023). https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/businessplanning/Amtrak-Five-Year-Service-Plans-FY18-FY23.pdf

Recent trends in Mississippi ridership show a decline on statewide passenger rail ridership, as shown in Table 18. Computed compound annual growth rates in Table 18 were derived from three time ranges: 4-year (2015 to 2018), 8-year (2011 to 2018), and 11-year (2008 to 2018) growth rates. While the sources of these declines have not been evaluated, one cause has certainly been the poor on-time performance of both trains in recent years, as well as some extended outages. Thus, future ridership growth will be heavily dependent on the reliability of the service.

Table 18. Historical CAGR for Amtrak O/D Ridership in Mississippi

Service	4-Year Rate (2015–2018)	8-Year Rate (2011–2018)	11-Year Rate (2008–2018)
City of New Orleans	-2.43%	-1.80%	0.13%
Crescent	-2.52%	-2.55%	-0.38%
Statewide	-2.48%	-2.24%	-0.16%

Impacts of socioeconomic and demographic trends also may negatively impact ridership. Between 2010 and 2018, Mississippi's population grew by an estimated 0.6 percent, compared to

6.0 percent for the entire United States. By 2030, however, Mississippi's population could begin to decline as a result of an aging population and slowing birth rate.[78]

Based on these trends of slowing ridership and population projections, a 1.5-percent CAGR is assumed for ridership, revised down from the 1.7-percent figure from the 2040 analysis. A 1.5-percent CAGR also is consistent with prior assumptions from surrounding States. In their 2015 State Rail Plan, Georgia DOT assumed a 2-percent CAGR through 2040, while the Louisiana Department of Transportation and Development assumed a 1.2-percent CAGR through 2032 in their 2015 State Rail Plan.

Ridership Projections

Table 19 shows the ridership projections for each Mississippi passenger rail station through the 2045 planning horizon. Figure 50 charts these projections for each Amtrak route and statewide.

In order to account for variations in trip lengths between riders, projected ridership also was estimated in terms of passenger-miles traveled (PMT). The methodology for estimating PMT for each service consisted of multiplying average trip lengths for passengers at each station by the projected annual number of passengers at each station (assuming a 1.5-percent CAGR).[79] Resulting projected PMT through 2045 is provided in Table 20.

[78] Observed and Total Population for the U.S. and the States, 2010–2040, University of Virginia Weldon Cooper Center for Public Service.

[79] Information provided by the Rail Passengers Association Amtrak Ridership Statistics Database.

Table 19. Projected O/D for Mississippi Amtrak Stations, 2019 to 2045

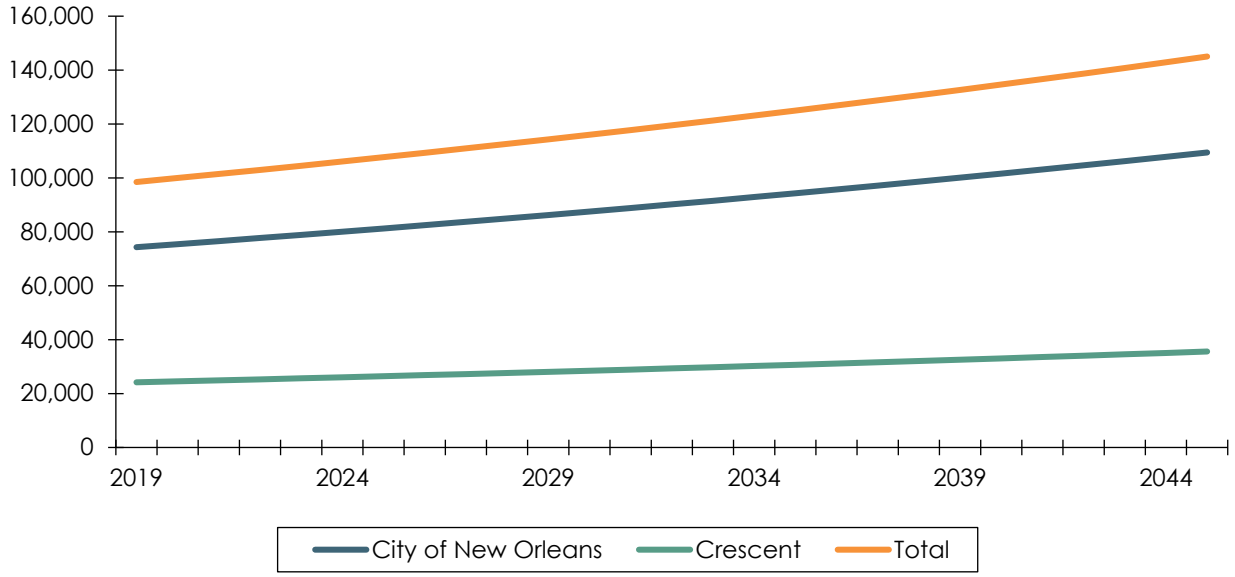
Service	Station	Forecast O/D (1.5 Percent CAGR)			
		2019	2025	2035	2045
City of New Orleans	Brookhaven	4,088	4,470	5,188	6,021
	Greenwood	14,001	15,309	17,767	20,619
	Hazlehurst	1,352	1,478	1,716	1,991
	Jackson	44,609	48,778	56,608	65,696
	Marks*	2,144	2,344	2,721	3,158
	McComb	4,867	5,322	6,176	7.168
	Yazoo City	3,243	3,546	4,115	4,776
	Overall	74,304	81,248	94,291	109,429
Crescent	Hattiesburg	8,815	9,639	11,186	12,982
	Laurel	3,983	4,355	5,054	5,866
	Meridian	9,226	10,008	11,708	13,588
	Picayune	2,151	2,352	2,729	3,167
	Overall	24,175	26,434	30,678	35,603
Statewide	**Overall**	**98,480**	**107,682**	**124,969**	**145,032**

[1] *Service to Marks commenced in May 2018. As such, projected figures were adjusted accordingly for the following years based on a 7-month total of 1,214 passengers for 2018.*

Table 20. Projected PMT for Mississippi Amtrak Stations, 2019 to 2045

Service	Forecast PMT, in Millions (1.5 Percent CAGR)			
	2019	2025	2035	2045
City of New Orleans	32.5	35.5	41.2	47.8
Crescent	9.4	10.3	11.9	13.8
Statewide	**41.9**	**45.8**	**53.1**	**61.6**

Figure 50. Projected Ridership in Mississippi, 2019 to 2045



Capacity

At present, neither the Crescent or the City of New Orleans are operating at capacity during their runs through the State. Beyond managing demand through revenue yield management, Amtrak can make seasonal adjustments in capacity between peak and off-peak periods by adding or removing cars to optimize the financial performance of a route. However, it is important to keep in mind that both trains pick up and drop off passengers at multiple locations along their multistate routes, and that revenue and capacity management must take the entire route into account. In the case of the Crescent, ridership peaks on the segment between Atlanta and Washington, and thus while there may be the appearance of excess capacity on the segment through Mississippi, it may not be case further up the route. On the City of New Orleans, passenger loads are more evenly distributed across the entire route, as New Orleans and Chicago form equally strong ridership anchors at either end.

Alternative Future Scenarios

In addition to the status quo scenario, alternative future scenarios also are considered, based on ongoing and previous proposals. These scenarios include service changes proposed by Amtrak, and service expansions/new corridors.

Service Changes Proposed by Amtrak

The following service changes were previously identified in the 2040 Unified Long-Range Transportation Infrastructure Plan and Amtrak's PRIIA reports.

New Station Stop Completed on City of New Orleans at Marks, Mississippi

In May of 2018, Amtrak commenced service to Marks, Mississippi, along the City of New Orleans line and approximately 70 miles south of Memphis. Service along the line is operated in a flag stop

format and includes one evening stop at 8:31 PM northbound towards Chicago, and one morning stop at 8:01 AM southbound towards New Orleans. Construction was completed by the City of Marks at a total of $1.2 million, with funding secured through a $500,000 FHWA grant, 20 percent local matching grant from Quitman County, and additional grants from the Mississippi Development Authority and Delta Regional Authority.[80]

For the latter 7 months of 2018, 1,214 passengers utilized the Marks station. Assuming the 1.5 percent CAGR, and adjusting this figure to account for a full 12 months of service, it is anticipated that this will rise to approximately 3,158. This figure appears to be in line with ridership at other stations serving predominantly rural regions of Mississippi.

Remove Cars from the Crescent South of Atlanta

Amtrak has previously proposed to reinstate the switching of cars to reduce costs along the Crescent line south of Atlanta. This move would be in response to the service operating at approximately one-quarter of capacity (as of 2014) between Atlanta and New Orleans. It is unclear what the current status of this proposal is. As of 2015, however, Amtrak had not yet proposed an implementation date.

Service Expansions and New Corridors

Reinstate Gulf Coast Corridor (New Orleans—Orlando)

Reinstating passenger service along the Gulf Coast is the number one priority for the Southern Rail Commission (SRC). In 2015, the SRC commissioned Amtrak to release a report entitled, 'Potential Gulf Coast Service Restoration Options,' to evaluate this proposal. The report included multiple alternatives, each of which would include passenger rail service to four locations in Mississippi: Bay St. Louis, Biloxi, Gulfport, and Pascagoula. Those alternatives are:

- **Alternative A.** Extend the City of New Orleans from New Orleans to Orlando and operate a single State-supported round trip between New Orleans and Mobile.
  - Alternative A1: Extend the City of New Orleans from New Orleans to Orlando without additional service between New Orleans and Mobile.
- **Alternative B.** Two daily State-supported round trips between New Orleans and Mobile.
  - Alternative B1: Two daily State-supported round trips between New Orleans and Mobile with a dedicated Amtrak Thruway motorcoach connection between Mobile and Jacksonville.

[80] "Marks, MS (MKS)". The Great American Stations. Accessed December 23, 2019. Available from: https://www.greatamericanstations.com/stations/marks-ms-mks/.

- **Alternative C.** Stand-alone long-distance train operating between New Orleans and Orlando.

A comparison of each alternative is provided in Table 21. The figures below, however, do not include capital upgrade requirements. Given that much of the corridor was affected by Hurricane Katrina, capacity, signal, and station improvements are needed throughout the entire corridor. In May 2017, the Gulf Coast Working Group, led by the Federal Railroad Administration (FRA), submitted their findings to Congress, which included $118 million in capital improvements.[81]

Table 21. Comparison of Restored Gulf Coast Corridor Alternatives

	Alternative A	Alternative A1	Alternative B	Alternative B1	Alternative C
Projected Ridership	153,900	138,300	38,400	43,400	69,100
Passenger Miles	65.14M	63.00M	3.79M	5.23M	24.04M
Total Revenue	$12.72M	$12.25M	$704K	$1.05M	$4.03M
Long-Distance Incremental Cost	$17.67M	$17.73M	n/a	n/a	$18.43M
Long-Distance Incremental Loss	$5.71M	$5.48M	n/a	n/a	$14.40M
Total Annual Funding Need	**$9.49M**	**$5.48M**	**$6.97M**	**$8.26M**	**$14.40M**

Source: Potential Gulf Coast Service Restoration Options.

Efforts to implement Alternative B, corridor service between New Orleans and Mobile are currently moving forward.[82] A study is underway to detail the service approach for two daily roundtrips between New Orleans and Mobile, along with the corresponding capital and operating costs required to ensure that freight and passenger services can successfully coexist. Initially anticipated for completion in early 2021, the study is being led by Amtrak with CSX and NS providing input.[83] With the freight operating environment having changed substantially since the previous study, the capital needs and operating costs will likely be different.

[81] Amtrak Fact Sheet, Fiscal Year 2017—State of Mississippi. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/statefactsheets/MISSISSIPPI17.pdf.

[82] Press Release from Roger Wicker, U.S. Senator for Mississippi. "Wicker Announces $33M Award for Gulf Coast Passenger Rail Project". June 7, 2019. Available from: https://www.wicker.senate.gov/public/index.cfm/press-releases?ID=4A17175F-AD08-485C-856F-C76528261F79

[83] https://mynbc15.com/news/local/reality-check-questioning-the-existence-of-amtrak

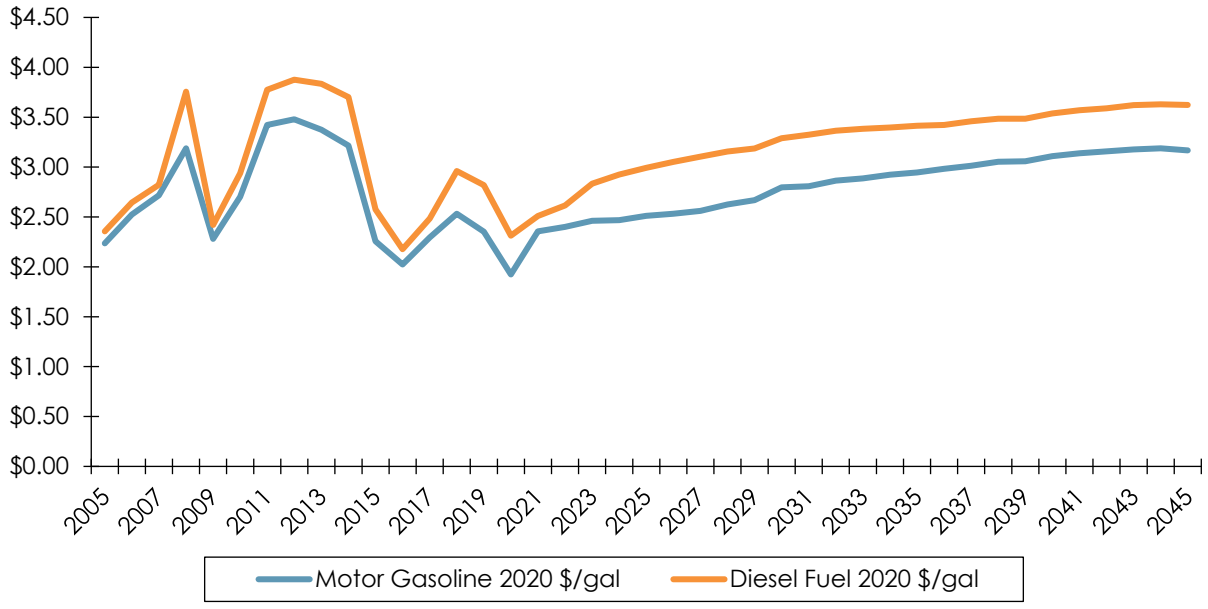
Amtrak notified host railroads CSX and NS in January 2021 that it plans to start two daily round trips in January 2022, and is asking the Surface Transportation Board (STB) to require CSX and NS to allow the Gulf Coast Service.[84]

Fuel Cost Trends

Figure 51 shows prices of gasoline and diesel in the U.S. Gulf Coast region from 2010 to 2020 and projections for prices through 2045. Historic trends in the Gulf Coast region generally mirror national trends with a peak in prices around 2012, a low in 2016, and rising prices to 2018 with a decline in 2019 and 2020. However, overall costs compared to other regions has typically been lower. For example, the U.S. average cost per gallon of gasoline peaked at $3.62 in 2012 versus $3.48 in the Gulf Coast.

The price for gasoline is projected to grow by approximately 25 percent between 2018 and 2045, with diesel increasing 22 percent. It should be noted that fuel prices are highly volatile, so forecasts are subject to error.

Figure 51. Price of Gasoline and Diesel Fuel, 2005 to 2045



Source: U.S. Energy Information Administration, Annual Energy Outlook 2021.

Higher fuel prices provides favorable conditions for increasing usage of rail, as rail is more fuel efficient than truck or automobile transportation. On average, railroads are about four times more fuel-efficient than trucks. In 2018, freight railroads in the U.S. moved a ton of freight an average of

[84] https://www.trains.com/trn/news-reviews/news-wire/amtrak-asks-stb-to-require-csx-ns-to-allow-gulf-coast-service/. Accessed March 17, 2021.

473 miles per gallon of fuel, whereas trucks can move one ton of freight about 120 miles on a gallon of diesel. [85] Intercity passenger trains can move one passenger approximately 58 miles per gasoline gallon-equivalent unit of fuel, compared to automobiles, which move a passenger 41.7 miles per gasoline gallon-equivalent. [86] Many factors, including adjustments to freight load factors, terrain and operating characteristics, intercity rail ridership and car occupancy, among others, can influence these comparative statistics.

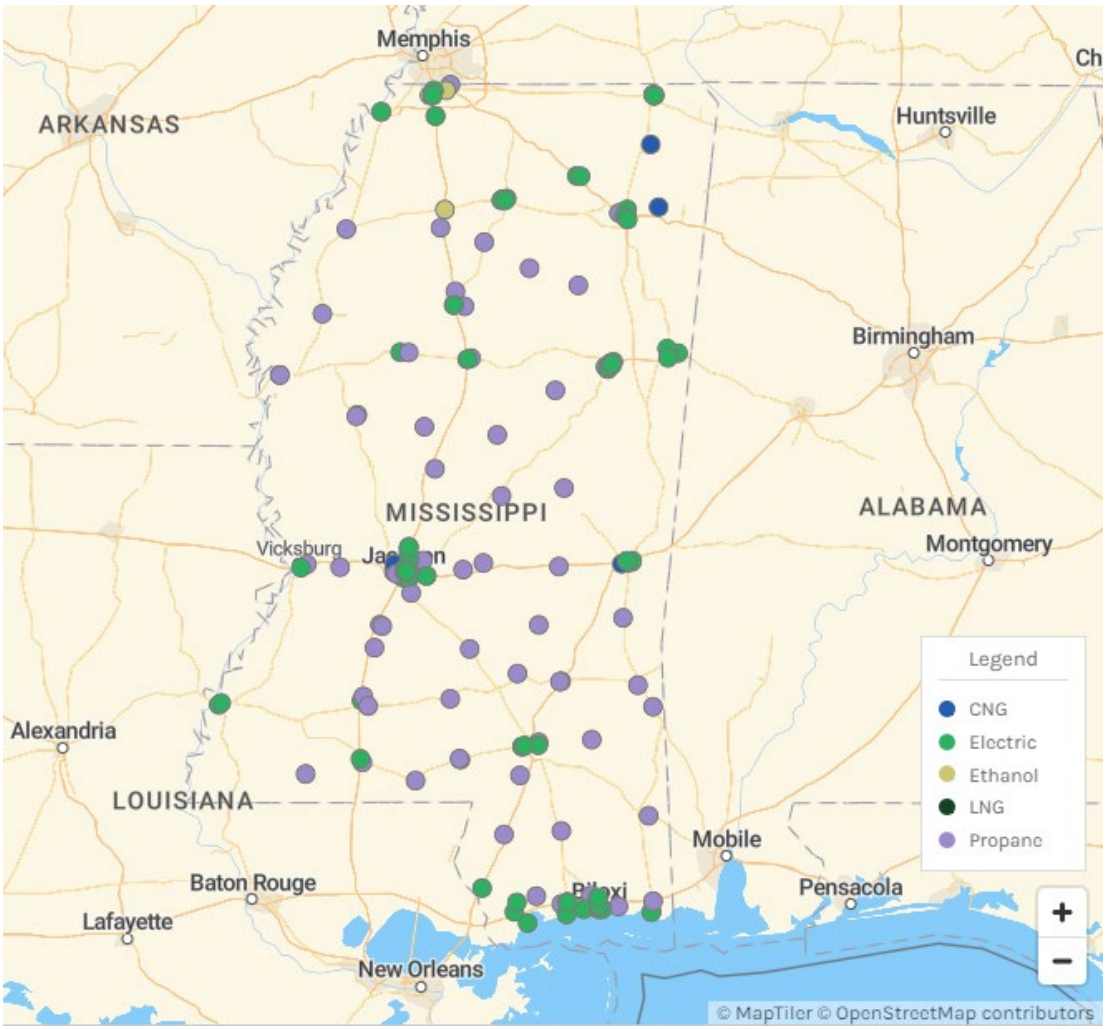
The potential switch to rail due to rising fuel prices may in some part be offset by an expanding infrastructure of alternative fueling locations (and increasing number of vehicles).[87] Mississippi has a network of more than 250 alternative fueling locations, the vast majority of which serve electric vehicles, some of which may be able to accommodate heavy duty vehicles, including trucks. These sites are shown in Figure 52.

[85] Association of American Railroads, "The Environmental Benefits of Moving Freight by Rail," July 2019. Available at: https://www.aar.org/wp-content/uploads/2018/07/AAR-Environmental-Benefits-Movig-Freight-by-Rail.pdf. Truck fuel efficiency estimate was derived by multiplying fuel economy (estimated at 6 miles per gallon) by a load capacity assumption of 20 tons of freight per truck.

[86] https://afdc.energy.gov/data/10311

[87] http://afdc.energy.gov/states/ms

Figure 52. Mississippi Alternative Fueling Locations



Source: https://afdc.energy.gov/stations/#/analyze?region=US-MS&show_map=true&country=US&hy_nonretail=true&ev_levels=all&lpg_secondary=true&fuel=ELEC&fuel=E85&fuel=LNG&fuel=LPG&fuel=CNG

Rail Industry Trends

Since the regulatory reforms of the early 1980's, the railroad industry has evolved through a series of three distinct periods:

- From 1980 through the mid-1990s, railroads underwent a formative period of revival. Regulatory reforms greatly increased their ability to set rates and services, enter and leave markets, and undertake mergers. This new flexibility was combined with aggressive cost reduction, adoption of new technologies, mergers, line spin-offs, and abandonments. Altogether, the effect was vastly improved asset productivity. Widespread implementation of unit trains to move bulk goods and the rise in intermodal traffic driven by imports brought the

railroads new traffic that replaced domestic carload traffic that was being lost either to economic change or other modes.

- The late 1990s through the mid-2010s represented a period of financial strength and growth. Contributing to this success was expansion in the core traffic base, rising trucking costs, and benefits from a consolidated industry consisting of seven major railroads across North America. Productivity gains continued, as revenues doubled through a combination of lessened intra-modal competition and increasing costs faced by their modal competitors. Intermodal continued its robust growth, coal reached peak volumes, and a global commodities boom drove increases in other bulk traffic. As a result, railroad capital investments hit record levels.

- By 2014, the longstanding upward trend in traffic volumes and financial performance that began in 1980 had leveled off and the institutional conditions driving the rail industry evolved. This present period has been marked by increasing volatility in traffic volumes, uneven financial performance, and diminished prospects for productivity gains. As a result, this new shift may be as fundamental as the transition that came on in the 1980s.

Technology Trends

Precision-Scheduled Railroading

Precision Schedule Railroading (PSR) is an approach to operating a railroad that attempts to maximize asset utilization, minimize costs, and expedite the delivery of shipments. This is achieved through consolidating networks, abandoning less efficient services and lines, streamlining train operations by reducing the frequency of intermediate switching, lengthening trains, and reducing complexity by conducting operations on a consistent basis. The end result is substantially lower labor costs, a reduction in the physical assets required to support demand, along with increased average car velocity, and reduced terminal dwell times.[88]

Since its original implementation by Hunter Harrison at CN, CP and CSX, PSR has been implemented in some form on all Class I railroads except BNSF, which has resisted most of the operational changes. Adoption has been driven by investors, who, after seeing the financial gains at CN, expect similar results at the other large railroads. However, many shippers have stated that PSR has forced them to restructure their operations to receive and dispatch cars outside normal business hours or different days. Some shippers have reported receiving high volumes of cars at a time, more than they are capable of handling at a given time, exceeding their capacity for timely loading or unloading. This can expose shippers to incurring substantial demurrage charges when

[88] https://www.railjournal.com/in_depth/precision-scheduled-railroading-evolution-revolution

they are unable to handle the cars in a timely manner.[89] Furthermore, there have been substantial impacts on the Class I railroad workforce; in 2019 more than 20,000 U.S. rail workers lost their jobs.[90]

Although the railroad industry has seen strong growth in financial performance since the implementation of PSR, it is unclear to what extent these gains are directly attributable to PSR, increasing rates, or other market factors. As overall freight demand continues to increase, shippers are increasingly looking for alternatives to move their goods quickly, efficiently, and cost-effectively. It will be some time before the full impact of PSR is realized, in terms of whether Class I railroads can sustain their strong financial performance while suffering the continued loss of coal traffic, maintaining assets and service quality at a sufficiently competitive level.[91]

Positive Train Control

Positive Train Control (PTC) implementation has the potential to transform future main line operations. While the PTC mandate has been driven by safety concerns, as discussed in the Positive Train Control section of Chapter 2.4, the railroad industry has begun to acknowledge its utility as the foundation for future improvements in operating efficiency and train performance. This "Version 2" of PTC – the deployment of which will take place in the 2020s – is likely to bring extensive change to railroading, first, through greatly improved monitoring and control of trains, and eventually the automation of train operations. These improvements will permit the reduction of crew size in road trains, and potentially fully autonomous operation. For railroads, fully autonomous train operation is a far simpler technological challenge than its if for highway vehicles. For railroads to remain competitive once autonomous trucks become commonplace, the productivity gains brought by these technologies will be imperative to their survival.[92]

Remote-Control Locomotives

Different from the idea of autonomous trucks being developed in the trucking industry, remote-control locomotives have been used by railroads since the 1980s. In specific areas, such as yards, a locomotive engineer may control a remote-control locomotive from a waistband pack. A locomotive engineer can move and control the train from outside the cab with a waistband pack. If the locomotive loses communications with the remote control, it stops automatically. Being able

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[89] Ibid.

[90] https://www.washingtonpost.com/business/economy/railroads-are-slashing-workers-cheered-on-by-wall-street-to-stay-profitable-amid-trumps-trade-war/2020/01/02/dc757ed4-1603-11ea-a659-7d69641c6ff7_story.html

[91] Ibid.

[92] See, for example, *On a high-tech trek: Norfolk Southern notes progress in its quest to become a 'technology-enabled railroad of the future'*, https://www.progressiverailroading.com/ptc/article/On-a-high-tech-trek-Norfolk-Southern-notes-progress-in-its-quest-to-become-a-technology-enabled-railroad-of-the-future—55310

to operate the train from outside the cab improves the operational efficiency of working within a yard. PTC implementation could further enhance this application, although it is unlikely that yard operations will someday be fully autonomous due to the physical work that it takes to build and operate trains. Some examples of physical work required include throwing manual switches, attaching air hoses, and engaging hand brakes.

Longer Trains

Longer trains allow more freight to be moved by fewer crews, improving labor productivity. Distributed power, the technology that has allowed railroads to increase the length of trains, was initially developed in the 1960's. Distributed power places locomotives in several locations across the length of the train, allowing a single engineer to remotely control all of the units. The distribution of locomotive power can provide for the safe handling of longer trains through improved braking and mitigation of in-train forces that raise the risk of derailments. This is how railroads can move trains of 10,000 feet in length or longer.

A key concern with long trains is the length of time that level crossings can be occupied. While a 10,000-foot train going 60 miles per hour would take two minutes to clear a crossing, at 10 miles per hour it would take 12 minutes, an excruciating amount of time for waiting vehicles. Investors have advocated for longer trains as a way to reduce operating costs and minimize capital needs. While long trains can function well with high volume bulk and container trains, their suitability for service sensitive operations is debatable. Long trains take longer to build and break down, and their immense length can complicate and slow down operations in terminals as well as along main lines. Furthermore, rectifying enroute breakdowns can take far longer, potentially causing disruptive network delays.

Autonomous Trucks

Autonomous highway technologies entail a range of capabilities, and are in various levels of development across the globe. Closest to commercial viability is truck platooning, which uses wireless technology to link multiple trucks together. Only the truck leading the platoon is occupied by a driver, who controls and monitors the entire set of trucks. When the platoon needs to slow or accelerate, the collected group reacts simultaneously. European regulators expect truck platooning to be introduced in limited fashion in 2022. Volvo and FedEx are currently testing truck platooning on public U.S. roads in North Carolina, and the Oregon Department of Transportation has also given permission for the testing truck platooning technology. [93]

More fully autonomous trucks are a far more complex development, although early implementations have already occurred in captive environments such as ocean container terminals. Broader deployments are farther out, due to the sheer technical as well as regulatory

[93] "Volvo, FedEx test truck 'platooning' on public U.S. road". Reuters. June 27, 2018. Accessed December 23, 2019. Available from: https://www.reuters.com/article/us-volvo-fedex-trucks/volvo-fedex-test-truck-platooning-on-public-u-s-road-idUSKBN1JN2JI

and institutional complexities of such implementations. While autonomous vehicle technology has the potential to mitigate the ongoing truck driver shortage, there are many policy issues that need to be addressed. Most critically, these include the type of access that autonomous vehicles will have to public roadways, and their impact on other roadway users from the standpoint of safety, access, and congestion. For example, while platooning may indeed be viable by 2022, where and under what conditions such operations will be permitted has yet to be determined. If platooning technology is only permitted on truck-only lanes/highways, then the deployment is likely to be limited due to high capital costs of roadway construction. Alternatively, if platooning is broadly permitted on public highways, then the impacts could be far-reaching, but with commensurate public concerns.

Autonomous trucking could be both a benefit and challenge to railways. Lower labor costs could make trucking more cost competitive, allowing it divert more service sensitive traffic from railroads in mid to long hauls. However, railroads could respond with similar technological advances, such as reducing the train crew size from two to one individuals, and eventually fully autonomous operation. Autonomous trucking could also complement the railroad industry, which could use the technology to operate trucks in their rail yards and intermodal yards.

Highway Congestion Trends

Congestion is an indicator that demand for transportation and supply of capacity are out of balance. The impacts of congestions can have negative social, economic, and quality of life impacts by decreasing productivity, reducing air quality, causing frustration, and adding to the risk of accidents.

By 2045, the majority of roadways in Mississippi will continue operating at Level of Service (LOS) A, with a daily volume to capacity ratio of less than 0.3 statewide. However, the increased VMT and VHT in urban areas by 2045 would result in lower average daily travel speeds and changes in roadway LOS. Table 22 shows the distribution of lane-miles by LOS in 2013 and 2045. The number of lane-miles with no to slight congestion (LOS A to B) is anticipated to decrease by 2.5 percent (from 56,572 in 2013 to 55,160 in 2045), while the number of lane-miles with moderate congestion (LOS C to D) would increase by 51 percent (from 1,812 in 2013 to 2,735 in 2045). The number of lane-miles experiencing heavy (LOS E) or significant congestion (LOS F)would account for 1,015 in 2045, compared to 64 in 2013. Most of the daily congestion will occur in larger Mississippi cities, such as Jackson, the Gulfport-Biloxi-Pascagoula area, and Hattiesburg, with some congestion in other parts of the State, including Meridian, Tupelo, and Southaven. The LOS results correspond to all roadways coded in the MS Statewide model, including those that are urban, local and not State maintained. The MS Statewide model includes these roadways to ensure zone connectivity where they otherwise would be omitted owing to model scale and fidelity.

Table 22. Level of Service in Mississippi Roads, 2013 to 2045

Level of Service	Lane-Miles 2013	Lane-Miles 2013 (Percent)	Lane-Miles 2045	Lane-Miles 2045 (Percent)	Lane-Miles Change 2013–2045	Lane-Miles Change (Percent) 2013–2045
A	51,652	88.40%	52,035	88.3%	383	1%
B	4,920	8.40%	3,125	5.3%	-1,795	-36%
C	1,386	2.40%	1,893	3.2%	507	37%
D	426	0.70%	843	1.4%	417	98%
E	43	0.10%	663	1.1%	620	1442%
F	21	0.04%	352	0.6%	331	1574%
Total	**58,448**	**100.00%**	**58,910**	**100.00%**		

Source: Statewide Travel Demand Model, 2019.

Airport Congestion Trends

The effectiveness of an airport or an airport system is commonly measured in terms of its capacity. Airport capacity is generally defined as the ability of an airport's airfield facilities (i.e., runways, taxiways, etc.) to safely and efficiently accommodate a given volume of aircraft traffic (demand) over a specified period of time.

Mississippi has a well-rounded system of airports serving a variety of users and supporting a variety of facilities and services. Mississippi's 74 public-use airports not only serve recreational pilots and pleasure fliers, but they also support local, regional, and statewide economies and are responsible for generating more than $2.5 billion in economic activity.

The capability of Mississippi's airport system to provide sufficient operational capacity to accommodate future activity levels, given long-term trends, is important. The system is evaluated based on the relationship between annual operational demand and annual operational capacity, or the demand/capacity ratio. In this analysis, the demand/capacity ratio is derived by comparing each individual airport's current annual operational activity with its calculated Annual Service Volume (ASV). An ASV is an estimate of an airport's annual capacity based on airfield configuration, runway use, fleet mix, weather conditions, and instrument approach facilities. Airports approaching and/or exceeding annual capacity will likely experience delays.

For long-range planning purposes, the Federal Aviation Administration (FAA) recommends airports that are operating at 60 percent of their annual capacity should begin to consider capacity-enhancing projects into their plans. Typically, when an airport's annual operations exceed 60 percent of its ASV, some aircraft delay occurs and planning for new airfield facilities should be initiated. When airport activity reaches 80 percent of ASV, new airfield facilities should be constructed, or demand management strategies implemented. Currently, there are no airports within the Mississippi system that are operating at or above 60 percent of their capacity.

Land Use Trends

The state of Mississippi is composed of 82 counties ranging in population from 1,327 people in Issaquena County, the least populated, to 231,840 people in Hinds County, the most populated. As of the 2019 Census population estimates, the state averages 63.4 people per square mile, compared to the national average of 92.9 people per square mile. The most densely populated counties in the state are DeSoto (388.4 people per square mile), Harrison (362.5 people per square mile), and Hinds (266.5 people per square mile). DeSoto County is located along the Tennessee border near Memphis. Harrison County is located along the Gulf Coast and includes the major tourist destinations of Gulfport and Biloxi. Hinds County is located in the south central part of the state and includes the state capital of Jackson.

Mississippi is classified as a mostly rural state. Based on the 2010 Census, 63 percent of the state is classified as rural compared to 37 percent urban. Urban areas are defined as densely populated areas in and around large cities having a population of over 50,000. Urban areas also include residential areas outside of cities with a population of 2,500 or greater. Jackson had a 2019 population of 160,628 people and is the only city in the state with a population over 100,000.

Agricultural land uses dominate the northwestern portion of the state in the Mississippi Delta area. More densely populated urban areas are located around the cities of Jackson, Gulfport/Biloxi, Meridian, and Hattiesburg. Commercial, retail, and institutional land uses are concentrated in these areas. Industrial land uses related to oil and gas facilities and refineries are located in the southern portion of the state. Tourism is a major industry along the Gulf Coast of Mississippi where land uses include hotels, resorts, restaurants, golf courses, and recreational attractions.

Other national and global trends also have an impact on land use in Mississippi. E-commerce, which has seen a rapid increase since the COVID-19 pandemic, has created a larger demand for industrial/warehousing land uses, especially near population centers in order to serve customers on a timely basis. According to U.S. Census data, e-commerce represented zero percent of retail sales in 1998, and increased its share to 11 percent by 2019. In 2020, the COVID-19 pandemic and associated social-distancing measures contributed to a rapid increase in e-commerce to 14 percent of retail sales. The growth of e-commerce in particular has significant implications for Federal, State, and local planners. E-commerce can only function successfully – and the industry can only achieve its ambitious goals – if the public sector keeps pace with the private sector in making investments to accommodate the expected volumes. This may include public and private infrastructure investments including port expansions, highway developments, rail improvements, customs enhancements, distribution center developments, and industrial real estate market growth aimed to provide the capacity needed. The public and private sector must also collaborate to address last-mile delivery issues, including urban congestion, parking and loading zones, streetscape and building design.

2.7 Rail Service Needs and Opportunities

This section draws from the service characteristics, projections, and trends reported in the preceding sections to summarize rail freight and passenger service needs, challenges, and

opportunities. These form the basis for the passenger and freight rail improvements recommended in Chapters 3 and 4.

Freight Rail Service

With five Class I railroads providing service to all regions of the state, and with a diverse network of regional and local railroads able to provide cost-effective service to smaller rail markets outside of the major market areas, Mississippi is blessed with good overall competitive rail service.

Reflecting the general conditions described in this Chapter, Mississippi faces several significant freight rail challenges that should be addressed if the state's freight movement and economic development needs are to be addressed by a robust, multimodal freight system.

Embargoed Routes

The north central region of the state is currently dealing with extended sections of embargoed track, leaving those regions without rail service, even though short line railroads maintain ownership of the track. The cost to repair the embargoed track may be beyond the ability of owning railroads to fund the needed repairs.

"Last Mile" Connections

Examination of Mississippi's freight network, including receipt of input from the RAC and other freight stakeholders, has revealed that beyond conditions on the primary facilities of the freight network corridors, there is a challenge in meeting the "last mile" deficiencies for connectors to important intermodal facilities such as ports, rail-highway interchange sites, or major warehousing/distribution centers. Often, these intermodal connectors are not elements of the national highway network or even of Mississippi's secondary highway network, but are county or municipally-maintained roads or streets. Congestion or operating restrictions can adversely affect freight movement reliability and public safety.

Railroad Weight Capacity

Consistent railroad weight capacity is important to maintaining freight rail movement efficiency and cost advantage. Shippers on rail lines that cannot handle standard 286,000-pound gross carloads may either be forced to use trucks or to break loads inefficiently. Most of the Class I system in Mississippi can carry 286,000 (286k) pound cars, and the entire Mississippi Freight Network (MFN) Tier I is capable of handling 286k cars, although gaps in the system exist. As shown in Table 6 and Figure 5 there are significant lines that are not, including the Tier II US 45/KCS Artesia subdivision mainline from West Point to Corinth.

Class II and Class III railroad weight limits are mixed. While some have sections of the system that can handle 286,000-pound rail cars, many still limit rail cars to 263,000 pounds. Mississippi short line railroads (Classes II/III) have reported having lost freight traffic due to sub-286,000-pound carload capacity caused by track conditions. As the number of 286k capable cars grows, the pressure for rail lines to accommodate this heavier weight will continue to increase. Bridges pose a problem,

as the cost to replace or upgrade them to 286k capacity is substantial. Classes II/III railroads face an even larger challenge, since they often lack the capital resources for such repairs.

Railroad Safety

While maintenance of the rail network is the responsibility of the privately owned railroad companies, the key point of contact between freight railroads and the public is at rail-highway grade crossings. As Mississippi's economy grows and freight traffic increases on both major rail lines and on highways, an indicator of rail safety is grade crossing safety.

According to the FRA Inventory database, there are approximately 2,200 public at-grade crossings:

- Approximately 4 percent of all public crossings do not have any warning devices (i.e., no signs, no flashers, no gates)
- Approximately 49 percent of all public crossings have only passive warning devices (i.e., crossbucks or stop signs)
- Approximately 47 percent of public crossings have some form of active warning device (i.e., bells, flashing lights, and gates)

Port Rail Needs

Eleven Mississippi ports are served by rail, and two are planning for rail service. Based on needs identified in the 2016 Mississippi State Rail Plan and input from the RAC port rail needs are listed in Table 23. Typical port rail needs in the State include track upgrades, restoration and/or construction of rail yards to support port activities, as well as reconstruction of dormant port rail linkages.

Table 23. Mississippi Port Rail Needs Summary

Port	Serving Railroad	Identified Need
Aberdeen	KCS	No current rail service. Construct 3.2-mile connection track to Port of Aberdeen.
Bienville	PBVR	Replace CSXT bridge over Pearl River. Replace bridge to improve passage for barge traffic in Bienville Port. Narrow passage and bridge location restricts barge traffic.
Gulfport	CSXT	Enhance CSX's ability to serve the Port of Gulfport directly without interchanging to KCS.
Lowndes	KCS connection	The west bank terminal is without rail service. Conduct engineering/ environmental planning and land acquisition for west bank rail connection track. Rehabilitate east bank trackage and scale.
Natchez	NTZR	Rehabilitate and structurally upgrade five truss bridges to provide better service to the Natchez- Adams County Port and Industrial Park.

Port	Serving Railroad	Identified Need
Pascagoula	MSE, CSXT	Upgrade rail connections and relocate Class III lines to a more direct route, allowing closure of 16 grade crossings.
Rosedale	GTR	Reinstate rail access to the Port of Rosedale and the Rosedale Industrial Park by rehabilitating 32 miles of Port Commission-owned railroad.
Vicksburg	VSOR	Develop unit train capability at Port of Vicksburg Establish a new port terminal with rail access. Vicksburg is currently out of space. Upgrade the existing rail trackage in the port.
Yellow Creek	NS connection	Construct a 3-mile rail connection from the NS main line to the container-on- barge distribution port terminal in the Northeast Mississippi Waterway Industrial Park .
	YCRK	Rehabilitate the 10-mile YCRK connecting Yellow Creek State Inland Port to KCS.

Source: 2016 Mississippi State Rail Plan, updated based on information from RAC.

Passenger Rail Service

Passenger rail service in Mississippi consists of two Amtrak long-distance intercity trains serving the state as part of Chicago to New Orleans and Washington, DC to New Orleans services. Even though both Amtrak services consist of one daily roundtrip, the state is fortunate in that both routes serve Mississippi stations during daylight hours, offering opportunity to coordinate with local public transportation and to use station activity as a supporting element of urban development efforts. The challenges and opportunities faced by passenger rail service are described below.

Freight Rail Growth

Increased freight service may impact reliability for passenger service. As noted in the Service Quality section of Chapter 2, freight rail traffic accounted for much of the delay affecting the on-time performance of passenger trains. In some cases, schedule optimization may help to improve reliability. In other cases, passing track may be needed to accommodate increasing passenger and freight train service. Mississippi and its partner railroads must negotiate agreements acceptable to the FRA that define performance standards (schedules, on-time performance) and capacity utilization - balancing freight benefits and passenger rail benefits and preserving some capacity constructed with public funds for future passenger rail service.

On November 2020, the FRA issued a Final Rule[94] on the Performance and Service Quality of Intercity Passenger Rail. The final rule requires Amtrak and its host railroads to certify Amtrak schedules, and sets an OTP minimum standard of 80 percent for any two consecutive calendar

[94] https://railroads.dot.gov/elibrary/metrics-and-standards-final-rule-november-16-2020

quarters. Other metrics that FRA defines in the final rule include ridership, train delays, station performance, and host running time.

Freight Railroad Partnerships

An opportunity in addressing passenger rail improvements is a close working relationship with the partner freight railroads. The freight railroad must not only be a partner but an advocate of the proposed improvements. The freight railroad's traffic needs must be a key consideration in developing plans for enhanced passenger service. Corridor improvement strategies must not only improve and add capacity for passenger rail service but identify how freight service is improved as part of the investment. By identifying improvements that also improve rail freight service, the opportunity for additional freight railroad capital investment arises.

Funding

Funding is another challenge for passenger rail. States will be challenged to raise the required 20 percent match for capital investments and especially challenged to identify long-term funding flows needed to cover yearly operating costs.

One of the tasks mandated by PRIIA was for Amtrak's Board of Directors, U.S. DOT, and the states to develop and implement a single, nationwide standardized methodology for establishing and allocating the capital and operating costs required in providing state-sponsored intercity passenger rail service.

Requirements for the federal funds are rigorous. Not only must prospective applicants have strong state and regional plans, but the states' or regions' priorities must be clearly delineated. They also must demonstrate the ability to generate a flow of funding over time to maintain the service. Strong program management must be shown and most importantly agreements with partner states, freight railroads and other stakeholders must show a strong consensus regarding the importance of the proposed project.

Stakeholder Outreach

Opportunities for passenger rail enhancements can be improved with support from a wide range of stakeholders. Strong outreach to a wide range of stakeholders is also important in achieving the funding requirements required to support the service and the phasing plan developed by the Southern Rail Commission (SRC), and is also a key requirement of PRIIA. Public transportation advocates, on-line cities, the tourism industry, downtown business interests, connecting transit networks, taxi companies and rail line freight users all will benefit from an improved service and rail network. Leveraging both private and public funds, capital investment planning and construction would focus on projects designed to lay the foundation for future passenger rail service while providing near-term benefits to key stakeholders, especially the freight railroad partners and freight shippers (by also improving rail freight service), cities (through grade crossing improvement projects) and current rail travelers.

3.0 Proposed Passenger Rail Improvements and Investments

This chapter summarizes known and proposed passenger rail improvements and investments in Mississippi identified as part of this State Rail Plan. Proposed improvements and investments include projects for existing intercity rail service along Amtrak's *Crescent* and *City of New Orleans* corridors; projects for proposed new intercity passenger rail service along the *Gulf Coast* corridor; and, potential new and expanded intercity rail service along new corridors and additional frequencies on existing corridors.

All proposed projects and details were gathered from Amtrak, MDOT, Southern Rail Commission (SRC) and publicly available reports and resources, such as the 2016 State Rail Plan and online news articles. Projects were characterized by the type of issues they addressed, including:

- Improving service reliability
- Increasing ridership
- Improve safety
- Increasing ADA accessibility
- Improving multimodal connections
- Increasing awareness

3.1 Proposed Improvements to Existing Passenger Rail Service

This section describes proposed improvements to existing passenger rail service in Mississippi. These potential improvements include improving reliability to increase ridership; upgrading passenger stations to improve station attractiveness, utility, and accessibility; improving local transit coordination; and enhanced marketing to expand public awareness. Currently, service adjustments resulting from the COVID-19 pandemic have included tri-weekly operation of the two Amtrak long-distance trains serving Mississippi. These trains are expected to resume daily service once normal conditions return. Beyond that, Amtrak has not indicated any planned changes to their frequency or capacity.

Improve Service Reliability, Ridership and Safety

Nationwide, two factors that negatively impact passenger rail ridership are train schedules and the perception of unreliability of service, particularly in terms of overall travel speed and poor on-time train performance. Two avenues to increase ridership on passenger rail routes are to make schedules more attractive, primarily by serving key market at reasonable hours, and ensuring

reliable, on-time performance (OTP). Fortunately, both the *Crescent* and *City of New Orleans* trains serve Mississippi stations during daylight hours, so no changes seem needed in this regard.

OTP, which has been a continuing challenge across the entire Amtrak network, has substantial impacts on ridership and financial results.[95] Mississippi's two long-distance trains have reflected these systemwide trends, with considerable variation in OTP in recent years. In FY2019, the *City of New Orleans* was Amtrak's top-performing long-distance route, with 73 percent of trains arriving on time. In contrast, the *Crescent* was Amtrak's third-worst long-distance route in terms of OTP, with only 31 percent of trains arriving on time.[96] However, both routes are below the PRIIA Section 207 standard of 80 percent. In FY2018, the *Crescent*'s OTP dipped as low as 15 percent and *City of New Orleans* reached 57%, so the FY2019 results mark a significant improvement for both routes.[97] Host railroad delays are most often attributable to interference from freight train operations and slow orders. Without additional line capacity, these delays are likely to increase as freight rail operations increase over the next 20 years. Therefore, improving coordination and developing partnerships with the freight railroads is a critical component of improving reliability for passenger rail routes.

On November 2020, the FRA issued a Final Rule[98] on the Performance and Service Quality of Intercity Passenger Rail. The final rule sets forth metrics and a minimum standard to measure the performance and service quality of Amtrak intercity passenger train operations, including metrics relating to OTP and train delays, customer service, financial, and public benefits. It requires Amtrak and its host railroads to certify Amtrak schedules, and sets an OTP minimum standard of 80 percent for any two consecutive calendar quarters. Other metrics that FRA defines in the final rule include ridership, train delays, station performance, and host running time. The final rule's singular OTP standard gives customers, Amtrak, the host railroads, and other stakeholders a method to objectively gauge Amtrak trains.[99]

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[95] See USDOT OIG, Effects of Amtrak's Poor On-Time Performance, (CR-2008-047), March 2008 and, Amtrak, OIG, Train Operations: Better Estimates Needed of the Financial Impacts of Poor On-Time Performance, October 2019.

[96] https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/HostRailroadReports/Amtrak-2019-Host-Railroad-Report-Card-FAQs.pdf

[97] https://web.archive.org/web/20190209201644/https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2018/Amtrak-Monthly-Performance-Report-December-2018.pdf

[98] https://railroads.dot.gov/elibrary/metrics-and-standards-final-rule-november-16-2020

[99] https://railroads.dot.gov/newsroom/press-releases/fra-publishes-final-rule-establishing-metrics-and-minimum-standard-measure

Amtrak expressed[100] that "the rule fulfills the intent of Congress to create a framework to help ensure that Amtrak customers arrive at their destination on time, and if they do not, the responsible parties are held accountable. If the standard is not met, the STB can investigate, and if it finds that the poor performance was attributable to a failure to provide Amtrak passengers with preference over freight trains, damages and other relief can be awarded. While this rule finally provides a potential enforcement mechanism for OTP more must be done to build a world-class passenger rail network. We will continue to ask Congress to allow Amtrak to enforce its right to preference over freight transportation that is already the law."

Many of the rail improvement projects proposed by the freight railroads (discussed in Chapter 4) would also benefit passenger rail by improving reliability. Additional rail sidings or second main track in congested areas will benefit the efficient operation of both passenger and freight trains. Furthermore, the SRC's earmarked funding for safety improvements could potentially be applied to improvements on existing passenger routes. The improvement or elimination of existing at-grade rail crossings is another way to improve reliability and safety by removing conflict points between trains and automobiles. MDOT has numerous Section 130 projects underway or planned to improve grade crossings.

Passenger Station Upgrades

Passenger station upgrades are largely needed to meet ADA requirements, but these upgrades may also benefit ridership. In accordance with a December 2020 settlement between Amtrak and the U.S. Department of Justice (DOJ) regarding Amtrak's ADA compliance, Amtrak is responsible for ADA compliance for station facilities of which it owns more than 50 percent.[101] As of 2020, Amtrak has recently completed or is currently making upgrades to ensure ADA compliance at a number of its stations in Mississippi, including: Picayune, Hazlehurst, Greenwood, Laurel, McComb, and Yazoo City.

In Picayune, Amtrak completed a 400-foot long concrete platform with lighting, signage, drainage system, and emergency egress ramp in September 2020.[102] The new platform also includes a wheelchair lift enclosure and is connected to the station by an accessible concrete path.

In Hazlehurst, Amtrak completed in 2020 two accessible brick pathways that connect to a 350-foot long concrete platform with lighting, an unconditioned passenger shelter, signage, guardrail, and drainage system. Also, a custom wheelchair lift enclosure was added emulating the historic train station owned by the City.

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[100] https://media.amtrak.com/2020/11/amtrak-statement-on-fra-metrics-and-standards-final-rule/.

[101] https://www.ada.gov/amtrak_sa.html.

[102] Snyder, Bill. "All Aboard the New Amtrak Passenger Platform in Picayune." WLOX, September 23, 2020. https://www.wlox.com/2020/09/23/all-aboard-new-amtrak-passenger-platform-picayune/.

In Greenwood, where the Amtrak station is owned by CN, work is underway (as of March 2021)[103] to replace the existing platform with a 750-foot long concrete platform 8-inches above top of rail (ATR) with lighting, signage, guardrail, and drainage system. The existing waiting room will be fully renovated with an accessible single occupant restroom and accessible entrance door.

In Laurel, the planned improvements include an accessible concrete walk, a 650-foot long concrete platform 8-inch ATR with lighting, signage, guardrail, and drainage system. Also, a custom steel canopy on the north end of the platform to provide an enclosure for the wheelchair lift. Wayfinding signage will be installed in the city owned parking lot to assist passengers in finding the waiting room and platform.

In McComb, the planned station upgrades include providing access from the public right-of-way to the platform, providing a wheelchair lift enclosure at the platform, constructing an 8-inch ATR, 750-foot long, and 12-foot wide, fully lit platform. Also included is constructing a new concrete walkway connecting six pathway grade crossings for access to the Main 2 Track, adding city identification signs at the platform and other exterior signs as required, and adding a guardrail at the rear of the platform.

The Yazoo City station upgrade program will provide a new 300-foot long, 8-inch ATR platform, with two accessible egress paths at the ends of the platform, along with accessibility upgrades to the station's parking area. Also, there are ongoing long-term discussions between Amtrak and Yazoo City about the construction of a permanent station building (currently there is only a platform at this station, without any indoor waiting area).[104]

Additionally, according to Amtrak, upgrades to provide ADA compliant 8-inch ATR platforms at Hattiesburg, Jackson, and Meridian stations will be complete by 2025.

Since the completion of the last rail plan, the *City of New Orleans* commenced serving a new flag stop station in Marks, Quitman County, in May 2018. The flag stop is in Marks' downtown along the CN main line, following an agreement between the City of Marks, Quitman County, Amtrak, and CN reached in 2015. The $1.2 million passenger facility was funded in part by a $500,000 grant from the Federal Highway Administration and appropriated through the Mississippi Department of Transportation with a 20 percent local match from Quitman County. The local match was secured by a grant of $150,000 from the Mississippi Development Authority, and a $300,000 grant from the

[103] Montgomery, Susan. "Amtrak Depot Work." The Greenwood Commonwealth. Accessed December 15, 2020. https://www.gwcommonwealth.com/news/article_52c8b98e-9b0b-11ea-b8c8-b328a30d9ef3.html.

[104] Patterson, Jamie. "Yazoo City Hopes to Land a Train Station." The Yazoo Herald, February 7, 2020. http://www.yazooherald.net/news/yazoo-city-hopes-land-train-station.

Delta Regional Authority.[105] Currently there are no plans to add new stations to the existing Amtrak routes in Mississippi.

Local Transit Coordination

Coordinating Amtrak train arrivals with local transit agency schedules and routes is another strategy for improving both Amtrak and local transit ridership. The MDOT Public Transit Division (PTD) is responsible for the development and administration of general public and specialized transportation program grants and contracts. Certain grant programs administered by PTD provide funding to improve intermodal connections. For example, Enhanced Mobility of Seniors & Individuals with Disabilities - Section 5310 funds can be used to operate feeder services to intercity rail stations.

In 2016, MDOT PTD completed an Intercity Bus Study to determine intercity bus service needs in Mississippi. The report identified a disconnection between the location of current intercity bus stations and other modes of transportation, including passenger rail. As an example, an Amtrak station is located in Hattiesburg's Intermodal Center, but Greyhound chose not to utilize the Intermodal Center and is instead located on the outskirts of town. This makes it very difficult for passengers to transfer between Greyhound and Amtrak. The report also noted that the Brookhaven Greyhound station is a long walk (without sidewalks) to the Amtrak station. There was also a documented desire from the project's statewide working groups to increase connectivity with Amtrak, especially in areas with both Amtrak and intercity bus service.[106] [107]

Enhanced Marketing

Promotion of existing passenger rail service provides an opportunity to build awareness and ridership of rail transportation. There are several relatively inexpensive ways to enhance marketing of existing passenger rail services. Noting the availability of Amtrak service on local and state tourism websites, along with a link to the Amtrak website, is an easy way to promote the service

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[105] Kidd, Patrick. "Amtrak Welcomes Marks, Miss., To Its National Network." Great American Stations (blog). Accessed December 16, 2020. https://www.greatamericanstations.com/amtrak-welcomes-marks-miss-to-its-national-network/.

[106] "MDOT Intercity Bus Report." Mississippi Department of Transportation, January 2016. https://mdot.ms.gov/documents/Public%20Transit/Reports/Studies/MDOT%20Intercity%20Bus%20Report%20Jan.%202016.pdf

[107] At the Rail Advisory Council meeting December 2, 2020, Amtrak expressed that it had had initial discussions before the COVID-19 pandemic to explore a connecting intercity bus service between the *City of New Orleans* in Memphis and the *Crescent* in Birmingham to establish further linkages across the southern states, that would connect cities such as Batesville, Oxford and Tupelo, Mississippi and Jasper, Alabama with the Amtrak network. This motorcoach service was also included for Amtrak's consideration in a letter SRC sent Amtrak February 4, 2021 in response to reviewing Amtrak's 2035 map of corridors planned for future investment.

and has been done in other states. One potentially impactful method to enhance Amtrak's profile is to place wayfinding signage at Interstate exits near Amtrak stations to make travelers aware of Amtrak as a future travel option.

MDOT should coordinate efforts among stakeholders to promote enhanced usage of current rail services. Both the *City of New Orleans* and the *Crescent* have daytime schedules through Mississippi and offer a travel option for residents as well as visitors. Serving as a facilitator and perhaps with an allocation of funding for promotion, the state can enhance the promotion of existing passenger rail services.

3.2 Proposed New Passenger Rail Service

Although Amtrak does not have any current plans to increase the frequency or capacity of existing passenger rail service in Mississippi, under the interstate leadership of the SRC, reinstating passenger rail service east of New Orleans, Louisiana is the number one priority for the SRC.

Reinstate Gulf Cost Corridor

Until Hurricane Katrina hit the Gulf Coast in August 2005, Amtrak's *Sunset Limited* provided intercity passenger rail service on a tri-weekly basis along the Gulf Coast of Mississippi, as part of a transcontinental route from Orlando, Florida to Los Angeles, California. The destruction to the CSXT line caused by the hurricane along the Gulf Coast forced Amtrak to suspend the service east of New Orleans. The service remains suspended today.

In 2015, Amtrak conducted a ridership and revenue study for the SRC that outlined three potential options for restoring service between New Orleans, the Gulf Coast and Florida. Subsequently, the FAST Act of 2015 required Amtrak and the FRA to perform an analysis that was developed from the option the SRC chose to pursue from the previous study: a daily, long-distance service between New Orleans and Orlando (with through service from Chicago) and a daily corridor service between New Orleans and Mobile, Alabama. In February 2016, Amtrak, in partnership with the SRC, operated a two-day inspection train from New Orleans to Jacksonville. The train made stops at all the previously served stops with significant fanfare and political support at each location. The Gulf Coast Working Group, led by the FRA, concluded their work in May 2017 and submitted their findings to Congress, which included $118 million in capital improvements.

While discussions continue between the parties to restore service between New Orleans and Florida, a nearer term objective is the development of a multiple frequency corridor service between New Orleans and Mobile. In July 2019, the SRC secured a $33 million Consolidated Rail Infrastructure and Safety Improvements (CRISI) Grant to commence development of corridor service along this segment, which is expected to cost around $65.9 million for capital, and $7.7 million annually for operations of a twice-daily service. A further grant of $4.4 million was received in September 2019 from the FRA under the Restoration and Enhancement (R&E) program that is part of the FAST Act to support operating expenses for a portion of the rail line's first year. In May 2020, SRC received another $5.45 million grant through the federal R&E Program, to fund operating expenses for the first and second years of service between New Orleans and Mobile. The grant also leverages commitments from the states of Louisiana and Mississippi, as well as from

the city of Mobile.[1] Other capital funding commitments have come from Louisiana at $10 million, Mississippi at $15 million, Amtrak, and line-side communities, including Mobile.

A study is currently underway to detail the service approach for two daily roundtrips between New Orleans and Mobile, along with the corresponding capital and operating costs required to ensure that freight and passenger services can successfully coexist. Initially anticipated for completion in early 2021, the study is being led by Amtrak with CSX and Norfolk Southern providing input.[108] With the freight operating environment having changed substantially since the previous study, the capital needs and operating costs will likely be different. Once the study has been completed and the results accepted by the involved parties, agreements must be finalized with the host railroads, along with funding agreements for operations among the service sponsors, and capital improvements completed.

Amtrak notified host railroads CSX and NS in January 2021 that it plans to start two daily round trips in January 2022, and is asking the Surface Transportation Board (STB) to require CSX and NS to allow the Gulf Coast Service.[109]

3.3 Potential New or Expanded Passenger Rail Service

In addition to the ongoing Gulf Coast Corridor service initiative, prior state rail plans have included a number of other potential new and expanded passenger rail services. These are listed below and illustrated in Figure 53.

- Meridian – Jackson – Shreveport – Fort Worth
- New Orleans – Meridian
- New Orleans – Jackson – Memphis

Where available, specific studies related to potential improvements are referenced, including feasibility studies. The first route is a higher priority for the SRC, and the last two routes were carried over from the 2016 Rail Plan but are not a priority by the RAC for this 2020 update. Neither of these

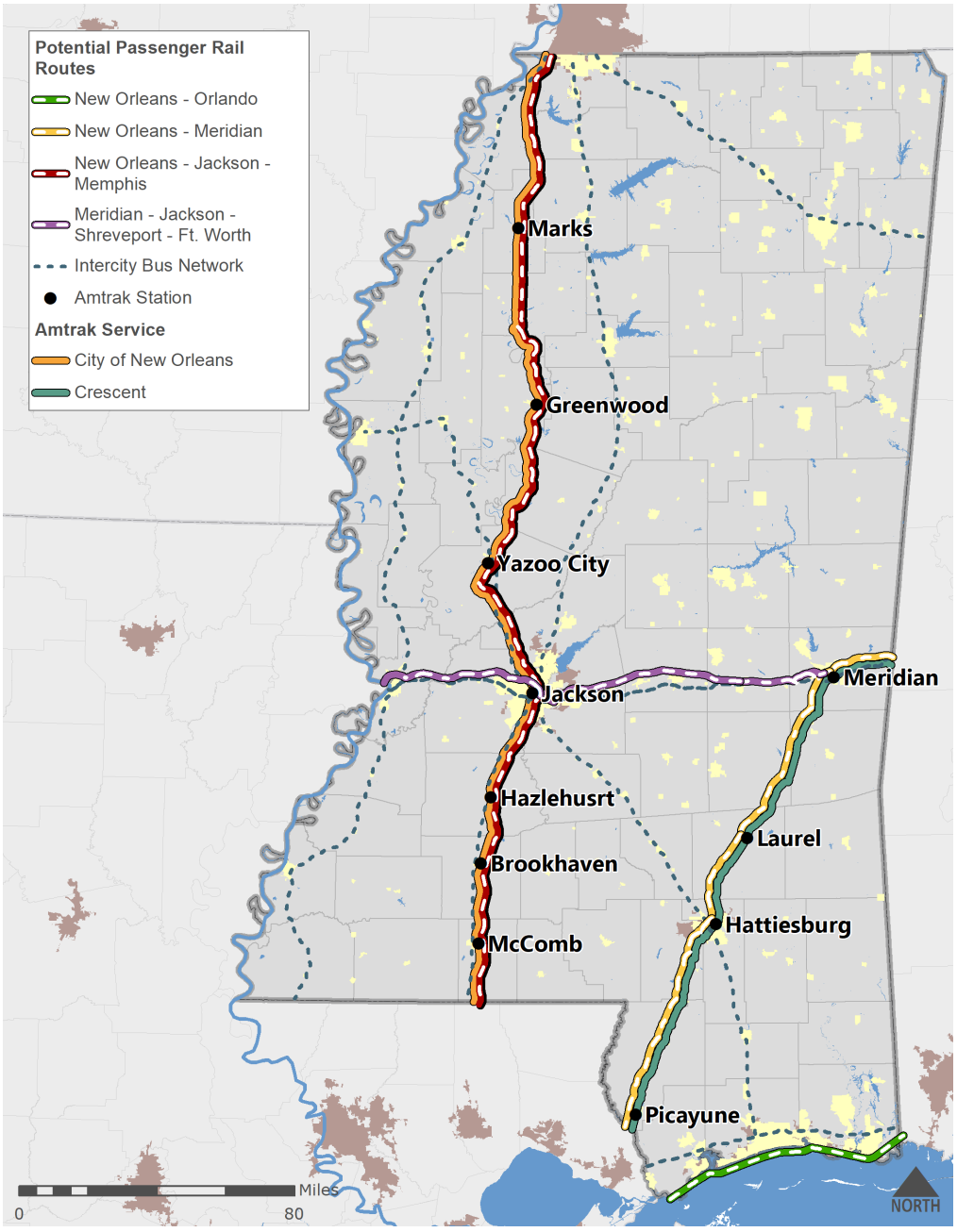
[1] SRC wins grant for Gulf Coast passenger-rail line, May 4, 2020. Available from: https://www.progressiverailroading.com/passenger_rail/news/Southern-Rail-Commission-wins-grant-for-Gulf-Coast-passenger-rail-line--60354

[108] https://mynbc15.com/news/local/reality-check-questioning-the-existence-of-amtrak

[109] https://www.trains.com/trn/news-reviews/news-wire/amtrak-asks-stb-to-require-csx-ns-to-allow-gulf-coast-service/. Accessed March 17, 2021.

potential new or expanded services were included in Amtrak's System 2035 map of corridors planned for future investment published in September 2020.[110]

Figure 53. Potential New or Expanded Service



[110] Amtrak and Rail Passengers Association, Developing New Amtrak Corridors: Expanding the U.S. Passenger Market, September 2020. https://railpassengers.org/site/assets/files/16610/september_23_-_new_corridors.pdf

Meridian-Jackson-Fort Worth (new service)

Development of a new passenger rail route from Meridian, Mississippi to Fort Worth, Texas operating through Jackson and Vicksburg, is a priority for the SRC. The service would split from the existing *Crescent* route at Meridian and operate over the KCS/NS joint venture 320-mile "Meridian Speedway" through Jackson, Vicksburg, and Shreveport, Louisiana., and thence continuing west over KCS trackage to Dallas and Fort Worth, Texas.

In 2014, the Northwest Louisiana Council of Governments (NLCOG) commissioned a feasibility study to assess the potential for initiating passenger rail service over the route. The track would be upgraded to allow maximum operating speeds for passenger trains of up to 79 miles per hour, with Amtrak the recommended service operator. For a train service linking Meridian and Shreveport, ridership modeling indicated a projected volume at 81,500 passengers annually in 2016 (approximately 220 per day), and generating $1.35 million in annual revenues from ticket sales.[111] Extension of the service from Shreveport to Fort Worth, would produce a substantial boost in ridership to 181,000 annual riders (approximately 500 per day). In 2015, Amtrak determined that the Fort Worth-Meridian route was economically feasible without any state subsidies from Texas, Louisiana, or Mississippi.[112]

The Texas-based I-20 Corridor Council has been working with state and federal officials and Amtrak to implement passenger rail service from Meridian to Marshall, Texas, which would ultimately connect Atlanta and Dallas. In October 2017, the I-20 Corridor Council and the Texas Department of Transportation (TxDOT) published a capacity study for the DFW to Meridian corridor. The study estimated $82 million will be required to construct additional rail sidings along the route, with an additional $7.5 million needed for the costs of new passenger terminal facilities within Louisiana and Mississippi. In total, the study projected a total cost of $11.37 million for the Mississippi segment, including $8 million for siding improvements, $2.57 million for a new station location in Vicksburg, and $800,000 for improvements to Jackson Union Station to accommodate the service. The study also included a Benefit Cost Analysis (BCA), accounting for travel time/cost savings, emissions impacts, and crash costs avoided, which concluded that the benefits of the project outweigh its costs by a factor of 2.8 to 1.[113]

Per communications with KCS as this rail plan was developed, it appears that the studies described above had little engagement with the railroad. Thus, prior to undertaking any renewed efforts to develop the service, it is recommended that the previous analyses be reviewed with KCS. This discussion would facilitate carrier involvement which will be critical to the future success of this

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[111] Northwest Louisiana Council of Governments, North Louisiana Passenger Rail Feasibility Study, Final Rail Meeting Handout, July 2015.

[112] https://irp-cdn.multiscreensite.com/be785d40/files/uploaded/Feasibility%20Study.pdf

[113] https://irp-cdn.multiscreensite.com/be785d40/files/uploaded/DFW%20to%20Meridian%20Passenger%20Rail%20Study.pdf

initiative and help inform requirements for next steps on the path to implementing service along the route.

Meridian-New Orleans (additional frequency)

This potential service addition would offer additional flexibility for travel on the existing *Crescent* route between New Orleans and Meridian, and could extend on to Birmingham and Atlanta, as part of an expanded Southeast passenger rail initiative. This includes the eastern Mississippi leg of the Gulf Coast High-Speed Corridor and follows the NS's *Crescent* Corridor linking the Mississippi cities of Meridian, Laurel, Hattiesburg and Picayune with New Orleans, Birmingham, and Atlanta. This segment of the corridor was discussed in the 2011 Rail Plan and was intensively reviewed in the *Gulf Coast High-Speed Rail Corridor Development Plan, Phase I: Improvement Implementation Plan – Meridian to New Orleans, Volume I Summary Report*, September 2002.

The line has a significant number of freight trains. In addition to local freight trains serving on-line industries and Amtrak's *Crescent*, the *Improvement Implementation Plan – Meridian to New Orleans* noted that the line is used by an average of 16 through freight trains per day, a heavy volume for a single-track rail line. Amtrak's *Crescent* currently takes just over four hours eastbound (including intermediate stops) between New Orleans and Meridian, for an average speed of just over 50 mph.

Additional passenger trains, operating with up to six round trips daily at speeds up to 90 mph, would require substantial capacity improvements to ensure fluid passenger and freight operations. The 2002 *Improvement Implementation Plan – Meridian to New Orleans* estimated a need for $251.6 million in line capacity and signal improvements in Mississippi.

This potential passenger service expansion is not currently a priority for MDOT, the SRC or the RAC. However, it should remain a consideration for long-term passenger rail improvements.

New Orleans-Jackson-Memphis (additional frequency)

Similar to increased frequency between Meridian and New Orleans, this potential service expansion would supplement the existing *City of New Orleans* service with two additional daily round trips and could serve as a future feeder route to the Gulf Coast High-Speed Rail Corridor. Presently, the *City of New Orleans,* which operates between New Orleans, Jackson, Memphis, and Chicago, completes the northbound journey between New Orleans and Jackson in about four hours and an average speed of 46 mph, and between Jackson and Memphis in about four hours and 30 minutes and an average speed of 50 mph.

The route from New Orleans and Memphis primarily utilizes two CN subdivisions, the 97-mile McComb Subdivision running south from Jackson and 206-mile Yazoo Subdivision running north from Jackson. Both subdivisions permit speeds of up to 79 mph for passenger trains. In addition to local freight trains serving local on-line industries and the *City of New Orleans*, a 2005 analysis of this largely single-track route noted the operation of an average of 12 through freight trains on the McComb Subdivision and an average of 16 through freight trains on the Yazoo Subdivision.

The 2011 Rail Plan suggested that two additional frequencies could be operated along this route. The first would mirror the current *City of New Orleans* schedule but in the opposite direction, leaving New Orleans in the early morning and arriving in Memphis in the early afternoon. Southbound the schedule would leave Memphis in the late morning arriving New Orleans in the early evening. The second additional frequency option would operate between Jackson and New Orleans. It would depart Jackson in the early morning arriving in New Orleans before noon. The return schedule would leave New Orleans in the late afternoon arriving in Jackson in the early evening. This frequency would allow same-day trips to New Orleans from mid-state Mississippi and would maximize connections to Gulfport, Mobile and Houston as the Gulf Coast High-Speed Rail Corridor is developed. No passenger ridership or rail line capacity studies have been conducted for this route.

This potential passenger route is not a priority for MDOT, the SRC or the RAC. However, it should remain a consideration for long-term passenger rail improvements.

4.0 Proposed Freight Rail Improvements and Investments

This chapter describes known and proposed improvements and investments that could address the freight rail and rail safety needs of Mississippi. An overview of projects identified by Mississippi railroads and other participants in the outreach activities conducted during the development of this State Rail Plan is provided below.

4.1 Potential Improvements to Existing Freight Rail Service

The potential improvements discussed in this section are developed to address challenges or deficiencies in Mississippi's existing freight rail system documented in Chapter 2. Potential rail projects were developed based on input from the railroads from surveys, interviews, and RAC meetings. These potential improvements to existing freight rail service include projects to improve:

- **State of Good Repair (SOGR).** These projects are necessary to maintain a competitive service and market relevance for both track and civil works. This includes addressing deferred maintenance, such as rehabilitating and upgrading bridges, and tie and rail replacement programs. These can also include investments necessary to increase vertical and horizonal clearance conditions and to upgrade track and structures to economically support the handling of 286,000 pound (286k) freight cars, generally a necessity for a railroad that intends to stay in business.

- **Modernization.** These projects entail improvements to infrastructure as well as rolling stock to meet market demands, now and in the future. Most commonly, they include track-related capacity projects on main lines, such as double tracking, adding sidings, rehabilitation of existing track, reconstructing segments, raising line speeds, and expanding capacity at interchanges. Improvements to civil works, such as bridge replacement and tunnel rehabilitation, can benefit operational efficiency and safety, achieve a state of good repair, and improve capacity by allowing the operation of 286k freight cars and/or double-stack service. Terminal improvements, including intermodal, transload, and yard facility projects, capacity expansions, and building or upgrading terminal trackage support existing customers as well as attract new ones. In addition to enhancing system capacity and reliability, many of these improvements also help improve resiliency and mitigate potential disruptions due to flooding and natural disasters.

  Rolling stock improvements include the acquisition of new or rehabilitated locomotives and freight railcars. While railroads generally acquire rolling stock through private funding, there is a role for public support in some areas, particularly in the realm of locomotives. With the lifespan of locomotives measured in decades and costs for new in the millions, smaller railroads typically utilize power that does not meet current emissions standards. Thus, significant and cost-effective reductions in emissions can be gained by providing support to acquire new low-

emissions switching locomotives, or retrofitting existing locomotives with auxiliary power units, which allows idle units to be shut down and readily restarted in cold weather.

- **Safety.** The principal intent of safety investments is to reduce the risks associated with at-grade highway-rail crossings. Typical projects include installing or upgrading active or passive warning devices and crossing closures. Less common actions to reduce public safety risks include crossing profile improvements, grade separations, etc.

- **Rail Access.** These include providing rail access to existing or new customers, such as new or improved connections to commercial and industrial developments, ports, intermodal, and transload facilities. This entails projects that are intended to attract specific traffic that is currently not being shipped by the sponsoring carrier, such as constructing or rehabilitating a rail spur, or enhancing or rehabilitating rail access to the state's water ports.

- **Service Expansion.** These projects entail re-opening embargoed or abandoned rail lines and upgrading rail infrastructure to accommodate new rail traffic.

The following sections discuss the proposed SOGR and system capacity improvements for the Class I railroads and short line railroads, at-grade crossing safety projects, and rail access projects. Section 1.2 discusses potential new or renewed service expansion projects.

Class I Rail Projects

Potential Class I rail projects were developed based on input from the Class I railroads. High priority Class I rail improvements include:

- **Hattiesburg Grade Separation.** This project would involve the construction of a grade-separated crossing in downtown Hattiesburg along Hall Avenue over the CN rail line, and a new rail connection to an NS rail yard. Railroad crossings in downtown Hattiesburg are routinely blocked, leaving motorists stranded. A rail overpass would relieve congestion and provide motorists with an available route. $5.4 million of the project's funding comes from a U.S. DOT Consolidated Rail Infrastructure and Safety Improvements (CRISI) program award, announced in early 2020. Additionally, Hattiesburg won $13.2 million in BUILD funding for the Hall Avenue overpass. Local officials expect to break ground on the project some time in 2021.[114]

- **Increasing Track Capacity on CSX's Coastal Mainline.** CSX has indicated that it plans to upgrade its coastal mainline, paralleling I-10, to increase track capacity. Potential interventions include additional sidings or double tracking on certain sections of the route.

[114] Burns, Haskel. "Hattiesburg Receives $13.2 Million Grant for Hall Avenue Overpass." Pine Belt News, September 10, 2020. https://www.hubcityspokes.com/news-hattiesburg/hattiesburg-receives-132-million-grant-hall-avenue-overpass.

- **BNSF Upgrades to Bridges in Amory Division.** BNSF is in the process of updating nine bridges in the Amory subdivision to handle 286,000-pound rail cars.

- **KCS Mainline Improvements Corinth-Tupelo-West Point.** KCS has indicated the need to make upgrades on its mainline from Corinth to Tupelo in order to raise the line's speed, and from Corinth to West Point in order to handle 286,000-pound rail cars.

Short Line Rail Projects

Potential short line rail projects were developed based on needs and projects identified in survey responses from the short line railroads, as well as projects submitted to MDOT. In terms of improvements to existing short line railroads, many projects identified include upgrades to handle 286,000-pound rail cars. Other projects include connections into industrial parks, adding track capacity, upgrading bridges, improving horizontal and vertical clearance conditions, and expanding interchange capacity.

In addition to projects related to maintaining track, replacing ties, addressing drainage issues, and bridge rehabilitation or upgrades, examples of specific projects submitted by the short line railroads include:

- **Mississippi Export Railway (MSE)** plans to extend its Evanston Yard interchange from ~6,000 feet to ~8,000 feet to accommodate larger unit trains and increases in manifest traffic. This project would increase unit train interchange capacity to accommodate units of 150 railcars as opposed to current configuration for 120 car trains, as well as maximize manifest traffic interchange efficiency. In Jackson County, MSE plans to build a larger railcar repair facility inland, to broaden capabilities offered to fully support customers' railcar repair needs rather than that work traveling out of state. Additionally, in 2018 the Jackson County Board of Supervisors approved $4.7 million in funding for MSE to construct 3.2 miles of rail car storage, passing and field repair space.[115]

- **Port Bienville Railroad (PBVR)** plans to build new storage infrastructure, in order to meet current demand and to provide storage-in-transit options to other Gulf Coast manufacturers. Several shippers are expanding their plants in Hancock County, and HCPHC is actively recruiting new rail shippers to the Port, so the railroad expects to grow. PBVR is in the process of construction of the second leg to make a full wye for interchange with CSX, improving interchange efficiency and safety for longer trains.

- **Great River Railroad (GTR)** proposes to build a new rail bridge crossing over the Mississippi River as part of the proposed I-69 route. The closest Mississippi River rail crossing to the north is in Memphis and to the south in Vicksburg.

[115] Mississippi Export Railroad. "Mississippi Export Railroad Investing in Rail Improvements," June 1, 2018. https://mserr.com/mississippi-export-railroad-investing-in-rail-improvements/.

- **Golden Triangle Railroad (GTRA)** needs to expand its interchange capacity in Columbus, Mississippi. GTRA also identified close clearance conditions in the Trinity Subdivision that need to be addressed.

- **Ripley and New Albany (RNA)** has proposed the construction of a public reload center and upgrading excepted track to FRA track Class 1.

- **Yellow Creek Port Railroad (YCRK)** plans to develop the FerrouSouth Coil Storage Building, a 30,000 sq. ft. coil storage building with a crane in Tishomingo County. The new facility would provide additional warehousing with improved loading abilities.

At-Grade Crossing Safety Projects

As noted in Chapter 2.7, 53 percent of public at-grade rail crossings do not have any form of active warning (flashers or gates), including 4 percent that do not have any warning devices. The MSFP (2015) recommends upgrading all MFN Tier I rail grade crossings on collector roads or higher to full active warning devices. Using Federal Section 130 Highway-Rail Grade Crossing Program funds, MDOT is currently implementing 36 grade crossing improvement projects (signals and gates or crossing surface) in 17 counties. MDOT has also planned an additional 48 grade crossing improvement future projects in 19 counties that will likely be funded if current funding levels are maintained.

The amount of funds available through the Section 130 program varies from year to year. The latest funding levels have been approximately $3.4 million per year, allowing MDOT to fund 10-15 Section 130 projects each year.

Port Rail Access Projects

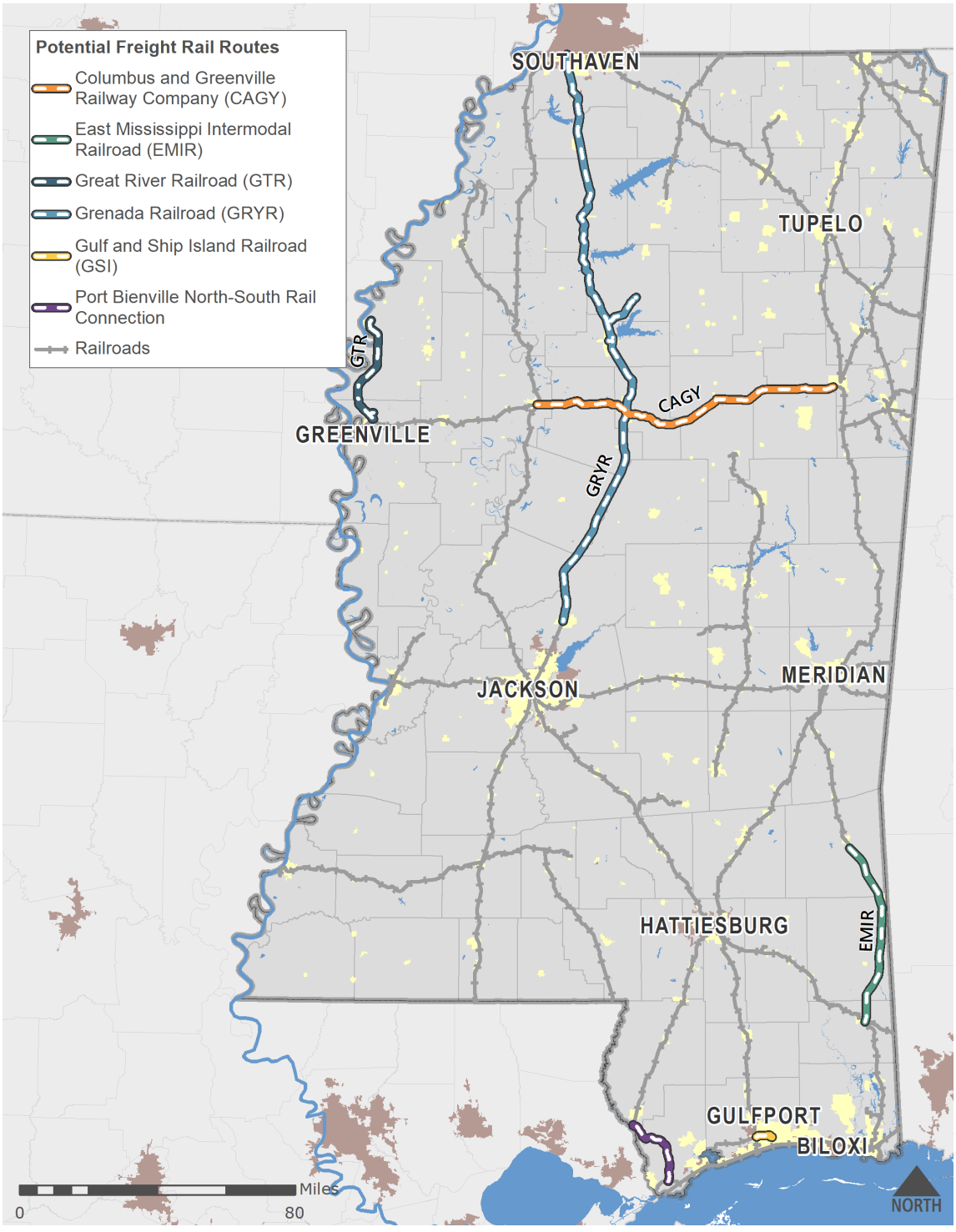
Potential port rail access projects were identified based on recommended projects from the 2016 State Rail Plan, input from the railroads, input from the RAC, and discussions with MDOT. Port rail needs, discussed in Chapter 2.7, include projects such as track and bridge rehabilitation and new rail connections. A total of 13 rail project needs were identified at the state's 13 ports. Specific project needs are listed in Table 23 by port and rail line.

4.2 Potential New, Renewed, or Expanded Freight Rail Service

During development of the 2016 State Rail Plan, the RAC noted several needs related to potential new or expanded freight rail service. The first was the need to provide additional rail access to ports. Port rail projects are discussed in the previous Section. The second was the need for a funding source for privately-owned railroads since the state's Railroad Multimodal Funds can only be used by publicly-owned railroads. One suggestion from the MSFP was to reinstate MDOT's Intermodal Connector Improvement Program. The third was the need to quickly provide infrastructure, such as rail spurs and intermodal facilities, for major developments to promote economic development in the state. The MDA noted that this is important when competing with other states to attract developments.

In addition to needs stated by the RAC, Figure 54 shows the proposed and planned projects to provide renewed and new freights rail service in Mississippi.

Figure 54. Potential New or Renewed Freight Service Routes



Source: 2016 State Rail Plan, input from RAC, and Railroad Survey administered in March 2020.

Grenada Railway

The entire line has been undergoing a rehabilitation project with the goal of upgrading the entire track to Class 3 (40 MPH) operating standards and the industry standard 286k capacity. The $15.05 million project is being supported with a $7.54 million Infrastructure for Rebuilding America (INFRA) Grant, a $3.1 million loan from the State of Mississippi along with RailUSA investing the required matching funds.[116] Improvements to the 90-mile segment between Canton and Grenada have already been completed.

In September 2020 a $6.22 million CRISI grant was awarded to the railroad to rehabilitate the remaining segment of the rail line from Grenada to Memphis. This includes upgrading 25 bridges, and approximately 100 miles of line with new crossties and rail and improving 11 bridges and track conditions on the Water Valley Spur Line. This project would also repair three tracks in the Durant rail yard and construct a locomotive pit for employees working under the locomotives. Grenada Railroad is providing a $4.97 million match for the project, which is expected to cost a total of $12.44 million.[117]

Port Bienville North-South Rail Connection to Nicholson

This proposed $150 million project envisions the construction of a new freight rail line, approximately 24 miles in length, which would provide a single-track, direct connection between the Port Bienville Railroad (PBRR), located at the Port Bienville Industrial Park in Hancock County and an existing NS line near Interstate 59 north of NASA's John C. Stennis Space Center near Nicholson in Pearl River County. This connection would provide a second Class I rail connection to Port Bienville and the Port Bienville Industrial Park, thereby improving access and helping to alleviate congestion along the single track of CSX line that runs along the Mississippi Gulf Coast into the New Orleans Public Beltway.

Efforts to initiate this project began in 2013 when the Hancock County Port and Harbor Commission (HCPHC) commissioned a feasibility study in coordination with both the FRA and MDOT. This feasibility study developed and analyzed a number of alternatives for the proposed rail corridor alignment. One main corridor of least impact was identified for the majority of the alignment; four segments along the corridor still had multiple alternates. As these segments were evaluated using an impact matrix, alternate segments were eliminated, and a reasonable Build Alternative was brought forward for detailed study in the draft environmental impact statement (DEIS) by MDOT.

The Final EIS and Record of Decision (ROD) for the Port Bienville Railroad Project was approved by the FRA on February 3rd, 2020, and does not include substantial changes to the proposed action

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[116] "Grenada Railroad". RailUSA. Available from: https://www.railusa.net/grenada-railroad/

[117] "$6.22 Million Grant Announced for Railroad Project". The Clarksdale Press Register. Available from: https://www.pressregister.com/front-page-slideshow/622-million-grant-announced-railroad-project#sthash.1htICkD4.dpbs

in terms of environmental or safety concerns, nor are there significant new circumstances or information relevant to environmental concerns of the proposed action or its impacts.[118] Currently, there is no funding identified to commence project construction.[119]

Gulfport and Seaway Lead

Harrison County Development Commission (HCDC) purchased an industrial lead track from KCS on December, 30 2020. The 5.4 mile line, known as the Seaway Lead, is located in Gulfport and includes an additional 0.5 mile Intraplex Parkway Branch. HCDC has leased the rail line to Chicago Rock Island and Pacific Railroad and its subsidiary Gulf and Ship Island Railroad (GSI) to be the contracted operating railroad. HCDC wants to rebuild the line and the Bayou Bernard Bridge to a state of good repair. Additionally, a multipurpose transload facility at North Harrison Industrial Park is being proposed after the required structure and track repairs are completed. There are 24 industries that will have direct access to rail service when the Seaway Lead is rebuilt, including manufacturing and distribution of chemical products, lumber, metal products, food, plastics, and boat builders. Rail line repairs are underway and it is expected to be in operation in the Spring of 2021.

East Mississippi Intermodal Railroad

The Rail Authority of East Mississippi (RAEM) is proposing to restore continuous rail service in Southeast Mississippi by developing the East Mississippi Intermodal Railroad. This new 56-mile line would connect with existing short lines and provide continuous rail service between the Meridian Speedway and the Gulf of Mexico. Constructing the new 56-mile line involves rehabilitation of 19 miles of the abandoned Gulf Mobile and Ohio (GM&O) Railroad from Waynesboro, Miss. to State Line, Miss. and an additional 37 miles of greenfield construction between State Line and Evanston, Miss. Completion of this project would restore rail access along the entire length of Mississippi's eastern border and create a through-rail corridor linking the Port of Pascagoula to Meridian.

The project is sponsored by RAEM, a five-county intergovernmental partnership. RAEM conducted an Environmental Feasibility Study and preliminary engineering funded by the Mississippi Legislature. As of September 2018, the federal environmental review process and coordination with the Federal Railroad Administration (FRA) was ongoing.[120]

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[118] "Port Bienville Railroad Project Final EIS and Record of Decision" Federal Railroad Administration. https://railroads.dot.gov/environment/environmental-reviews/port-bienville-railroad-project

[119] "HCPHC Announces Release of Record of Decision and Final EIS for Port Bienville Railroad Project," Hancock County Port & Harbor Commission. May 14, 2020. http://portairspace.com/news/article/hcphc-announces-release-of-the-rod-and-final-eis-for-the-port-bienville-rai.

[120] "Rail Authority of East Mississippi Annual Commission Meeting Program Briefing & Progress Report". September 25, 2018. https://raem.ms/wp-content/uploads/2019/03/EMIR-Briefing-Slides-Sept-2018.pdf

The latest financial feasibility analysis (April 2013) conducted by RAEM indicates the creation of more than 2,400 direct jobs and 9,240 indirect jobs within the region as a result of developing the EMIR. Total benefits of the project, including personal income, state and local tax revenues, and economic investments in the region, are estimated at $576 million over 20 years. With a total project cost of approximately $178 million, the benefit cost ratio is projected to be greater than 3:1.

Columbus and Greenville Railway Greenwood – West Point

CAGY began operation in October 1975, between Columbus and Greenville on 162 miles of track formerly owned by the Illinois Central Gulf Railroad. Genesee and Wyoming, Inc. purchased the line from CAGY Industries in 2008. In 2001, CAGY suspended service over 92 miles of track between West Point and Greenwood due to a washout. This action split the line in two. CAGY currently operates over 85 miles of track; it owns 150 miles of track and operates 27 miles on trackage rights from KCS. Of the 150 miles owned by CAGY, 92 miles between Greenwood and West Point are currently out of service.

Even though there are no immediate plans to revive this portion of the line, this Plan includes as a proposed service expansion project to re-open the embargoed section of the Columbus and Greenville Railway line between Greenwood and West Point in northcentral Mississippi. This recommendation is a not a formal project with identified funding but is a recommendation, nevertheless, due to its potential to provide new access to shippers and enhance economic development in northcentral Mississippi.

5.0 Mississippi's Rail Service and Investment Program

This chapter describes Mississippi's Rail Service and Investment Program (RSIP), including the long-term vision for rail service and its role in the statewide multimodal transportation system. It provides a description of the public and private benefits of the state of the proposed passenger and freight projects and provides a summary of the passenger and freight capital projects making up of the RSIP. The RSIP is organized as short-range (2021 to 2024) and long-range (2025 to 2045). The chapter also includes a listing of recommended short-term rail planning studies.

5.1 Vision for Mississippi Rail

An important step in the development of MULTIPLAN 2045 entailed a review of the vision and goals for transportation in Mississippi, including the role of rail. The vision adopted in the 2016 Rail Plan was determined to be consistent with MULTIPLAN 2045 and thus forms the State's vision for rail going forward. It is as follows:

Mississippi's Vision for Rail Transportation

The future Mississippi rail system will provide safe and reliable mobility for people and goods while protecting and enhancing the human and natural environment. The state's rail infrastructure and service will be improved, and expanded as necessary, to provide increased transportation efficiency, accessibility, capacity, and intermodal connectivity to meet freight and passenger market demands. The state will continue to make strategic investments to accomplish these goals, as well as to improve the economic competitiveness of Mississippi, while improving environmental quality and enhancing the overall safety of the state rail system.

Passenger rail and freight rail goal areas were aligned with the MULTIPLAN 2045 and the 2017 State Freight Plan goals, as shown in Figure 55. The following are the MULTIPLAN 2045 goals:

- **Environmental Stewardship**: The expansion and modernization of the transportation network should be mindful of its effect on the environment and attempt to mitigate the impacts.
- **Maintenance and Preservation**: Preserve and maintain existing transportation infrastructure.
- **Awareness, Education and Cooperative Processes**: Establish effective transportation partnerships and collaborations while increasing awareness of the benefits and needs of an intermodal system.
- **Accessibility and Mobility**: Improve connectivity and travel of residents, commerce, and industry.

- **Funding and Finance**: Provide reliable funding and finance options for the transportation system and allocate funds efficiently.
- **Safety**: Ensure a safe transportation network for all users.
- **Economic Development:** Invest in strategic transportation improvements to support the State's economy and competitiveness.

From the 2017 State Freight Plan, the following goals were relevant to rail:

- **Economic Development**: Improve economic benefits of the statewide freight network.
- **Accessibility and Mobility**: Improve reliability and reduce congestion on the priority freight corridors.
- **Safety**: Protect the safety and security of freight infrastructure.
- **Maintenance and Preservation**: Maintain the Mississippi freight network infrastructure in a state of good repair.
- **Environmental Stewardship**: Protect and enhance the environment while enhancing the freight network performance.

Figure 55. Alignment of State Rail Plan Goals with MULTIPLAN 2045 and the State Freight Plan

These goals from the MULTIPLAN 2045 and the 2017 State Freight Plan were evaluated and expanded for the Rail Plan with input from the RAC to include:

- **Economic competitiveness.**
- Promoting the benefits of **providing options** or alternate modes of transport for shippers and travelers.
- **Redundancy** across and within modes.
- **Resiliency** to ensure that the rail system is able to adapt and meet the challenges of changing markets, natural environment, and institutional arrangements.

Goals and Objectives

Mississippi's goals and objectives for rail transportation are described below. Their foundation is drawn from goals listed above, with the details developed through discussion within MDOT and the RAC.

Economic Development and Competitiveness

Enhance economic development opportunities and competitiveness

- Invest in strategic transportation improvements to support the State's **economy and competitiveness.**
- Improve **economic benefits** of the statewide freight network.
- Support the State's freight economy sectors to attract quality **growth** and high paying **jobs.**
- Expand access to **competitive multimodal** transportation **options.**
- Improve **access** to freight-related **industries** and potential industrial development sites.

Accessibility, Mobility and Reliability

Improve rail system connectivity, efficiency, reliability and resiliency for residents, commerce, and industry

- Enhance **integration and connectivity** across and between **modes** for freight and passenger rail.
- Strategically expand system **capacity** where existing infrastructure can no longer be optimized.
- Provide **reliable** and predictable **travel times** along major freight corridors by reducing time delays.

- Improve **on-time performance** of passenger rail service.
- Enhance **rail access** to intermodal and logistics hubs.
- Improve **multimodal access** to rail stations and coordinate train schedules with local transit providers.
- Increase passenger **ridership** by 15% over the next 20 years.
- Maintain **alternate access routes** and **redundancy** in the system for rapid recovery from weather or other disaster events.

Safety and Security

Ensure a safe transportation network for all users

- Reduce **fatality, injury, and crash/incident** rates on all modes to improve public health.
- Reduce **economic losses** due to transportation crashes and incidents.
- Eliminate **safety hazards** by proactively working with stakeholders and agencies responsible for the freight transportation system.
- Improve system **security** to protect people, cargo, and critical infrastructure assets.

Maintenance and Preservation

Preserve and maintain existing transportation infrastructure

- **Maintain, preserve, and extend the service life** of existing and future transportation infrastructure serving freight and passenger rail.
- Monitor and continuously improve **infrastructure conditions** that affect freight and passenger rail bottlenecks and reliability issues.

Environmental Stewardship

Protect and enhance the environment while enhancing the rail network performance

- Implement **freight-specific environmental stewardship programs** to reduce the impact of freight movement on the state's communities.
- Reduce greenhouse gas (GHG) emissions and energy consumption.
- Reduce **noise, vibration,** and other freight-induced negative impacts on residential communities.
- Improve **quality of life** for those communities most impacted by freight operations.

Awareness, Education & Cooperative Processes

Establish effective transportation partnerships and collaborations while increasing awareness of the benefits and needs of an intermodal system

- Develop and nurture **partnerships** with **private industries** with significant role in the State's economy.
- **Coordinate** with **local and regional transit providers** to increase awareness of and access to Amtrak routes.
- Enhance **marketing** for passenger rail service.
- Expand external **communication** through **social media** and **mobile apps.**

Funding and Finance

Provide reliable funding and finance options for the transportation system and allocate funds efficiently

- Increase **public investment** to facilitate rail system improvements that generate jobs and enhance Mississippi's competitive position.
- Secure funding for projects with **long-term benefits** or high **benefit-cost ratios.**
- Leverage **Federal funding** in freight and passenger rail projects.
- Maintain high standards in **management of public assets** and **resources.**

5.2 Program Coordination

This State Rail Plan is integrated with other statewide and regional transportation planning efforts, including MULTIPLAN 2045, Mississippi's current Long Range Transportation Plan, the 2017 Freight Plan, and state rail plans of neighboring states. The Rail Plan has been developed to be consistent with the goals and objectives described in 5.1 above. Examples of policy and projects that address these goals include the following:

- Investments to achieve a state of good repair, such as rail and bridge rehabilitation, passenger station improvements;
- Ensuring that rail can remain relevant to Mississippi industry by undertaking functional improvements to support current standards with a particular focus on 286,000-pound freight cars;
- Port and industrial facility access to facilitate industrial development;
- Passenger rail service expansion; and,

- Continued investments to improve safety at grade crossings.

Mississippi coordinates its rail planning activities with the neighboring states of Louisiana, Tennessee, and Alabama. This included examining the most recent rail plans, which were as follows:

- Alabama Rail Plan, June 2014
- Louisiana State Rail Plan, August 2020
- Tennessee Statewide Rail Plan, 2018

The state is actively engaged with the Southern Rail Commission (SRC). A consortium of the states of Louisiana, Mississippi, and Alabama, the SRC has been working to bring improved intercity passenger rail service to the Gulf Coast region since 1983.

Finally, the FRA's National Rail Plan (2009) and National Rail Plan Progress Report (2010) were reviewed. The national plan contains visions for passenger and freight rail: a high-speed and intercity passenger rail system and a high-performing freight rail system. The goal for the nation's passenger rail system is to connect communities with high-speed and intercity passenger rail where population densities and competitive trip times create markets for success. FRA's vision includes a tiered approach for core express corridors, regional corridors, emerging/feeder routes, and community connections. National freight rail system goals include supporting the current freight rail market share and growth and developing strategies to attract 50 percent of all shipments 500 miles or greater to intermodal rail. Mississippi's 2021 State Rail Plan vision, goals, and objectives are consistent with and support the national rail plan.

5.3 Rail Agencies

MDOT is Mississippi's lead agency for rail planning and for administering rail safety and rail improvement programs. As was detailed in Chapter 1, the rail-related duties and responsibilities of MDOT are housed in multiple units of the Department. Preparation of the State Rail Plan is administered by the Highway and Rail Safety Division (HRSD), which is also responsible for the State's highway-rail grade crossing program. Rail safety programs are administered in conjunction with the FRA by the Enforcement Division, within MDOT's Office of Enforcement. The railroad improvement portion of the State's Multimodal Transportation Improvement Fund is administered by the HRSD. No organizational or policy changes are proposed.

5.4 Program Effects

This section describes the expected benefits of the program of rail projects presented in Chapters 3 and 4. These proposed passenger and freight projects would produce both public and private benefits to Mississippi. Passenger and freight movements are important elements of a regional and national economy. Improved efficiency of movement benefits Mississippi industries, residents and visitors, through expanded market reach and/or transportation cost savings. For example, passengers may have better access to jobs or educational opportunities. Shippers and

consignees may be able to compete in new markets or gain cost savings that can be applied to other parts of their business operations. Collectively, these changes may generate growth in jobs or productivity gains that advance the state's economic prosperity.

Public investment in rail offers Mississippi's residents and businesses a cost-effective and environmentally friendly means to move people and products that support the economy's operation. Passenger rail is a reliable and efficient alternative in busy travel corridors, while freight rail offers a cost-effective means to move large volumes of freight and diverts trucks from highways—benefiting both the truck and auto travelers that remain.

To summarize the effects of the passenger and freight rail programs, the project list for each respective program was sorted by project type for the period near- (2021-2024) and long-term (2025-2040). Project categories were assigned based on the primary purpose of the project. The effects, typically positive and therefore denoted as benefits, associated with the project categories are described in more detail below. The detailed listings of the freight and passenger rail projects are included in Appendix A.

Costs for the 10 near-term 2021-2024 passenger projects with specified costs are estimated at $37.2 million, and the costs of the 27 short-range freight projects total $171.4 million (2020 $). The costs of the 36 long-range freight projects with identified costs total $418.4 million (2020 $). Additionally, near-term safety investments through FHWA Section 130 grade crossing improvements are budgeted at $13.6 million (2020 $), and $71.4 million for the long-term. An additional $26.1 in safety investments is anticipated outside of Section 130 for the near-term period 2021-2024. Missing from the near-term cost estimate is the implementation of passenger rail corridor service along the Gulf Coast between New Orleans and Mobile, Ala. Also, the costs of the two long-range passenger projects have yet to be determined as well.

Passenger Rail

For passenger projects, Chapter 3 describes the five types of projects that were identified. In brief, these are as follows:

- Service Reliability: improving the performance and safety of the Amtrak long-distance trains passenger trains operating in the state.
- Station Upgrades: These activities entail ensuring ADA compliance and general state of good repair at station facilities presently used by Amtrak's *City of New Orleans* and *Southern Crescent* services.
- Service Expansion: Potential services on new routes and additional frequencies on routes served Amtrak at present.
- Local Transit Coordination: Improving coordination between local transit operators and Amtrak by providing timely and accessible bus service at Amtrak stations.
- Marketing: Increasing public awareness of intercity passenger rail service.

Table 24 shows the program effects and estimated costs for the short-range and long-range passenger rail programs by project category. The detailed listings of passenger rail projects are included in Table A-4 and Table A-5 in Appendix A.

In the table, checkmarks are used to denote when a program category has an effect; effects may be positive or negative. In general, many of the effects are similar across the program categories with slight deviations.

For example, all projects have an effect on the state's transportation system because otherwise there would not be a need to make the capital investment. In general, these effects are positive as denoted by providing public and private benefits. The remaining boxes list more specific effects that the projects may provide in accordance with the goals and objectives that were developed as described previously in Section 5.1.

Table 24. Passenger Rail Program Effects and Costs Across Project Types

Program Effect	Service Reliability	Station Upgrades	Service Expansion	Local Transit Coordination	Marketing
State's transportation system	X	X	X	X	
Public and private benefits	X	X	X	X	
Rail capacity and congestion	X		X		
Transportation system capacity, congestion, safety and resiliency	X	X	X		
Local transit, highway, aviation and waterway modes	X	X	X	X	X
Environmental, economic and employment impacts	X	X	X	X	X
Total Cost 2021-2024 (2020 $ Millions)	**TBD**	**$37.3**	**TBD**	**TBD**	**TBD**
Total Cost 2025-2045 (2020 $ Millions)	**TBD**	**TBD**	**TBD**	**TBD**	**TBD**

The passenger rail program will result in projects that provide a range of benefits to Mississippi residents and visitors, users and non-users alike. Passenger rail users may divert from other modes of transportation including highway, air, and intercity bus. Although the potential for diverting passengers from air to rail is limited, passenger rail service can provide more direct access to a greater number of regions in the state than is the case with commercial air service. Passengers may also benefit from travel cost savings, particularly over air. By diverting to rail, gains in environmental and safety impacts are possible because trains can transport large numbers of passengers more safely and fuel efficiently than many other modes. Non-users benefit from the modal diversion through reduced emissions and increased highway capacity and reductions in highway maintenance costs when drivers switch from auto to rail.

The state's principal influence with service reliability is safety-related through improvements in grade crossings. Such projects reduce the likelihood of incidents between motor vehicles, pedestrians, and cyclists with trains, thereby reducing injuries, fatalities, and property damage. Station improvements (such as modern platforms) can reduce station delays and mitigate passenger safety risks. In addition, capacity improvements on host railroad routes used by Amtrak service can benefit service reliability. Grade crossing and freight line capacity improvements are addressed in the Freight Rail section.

During the short-term period comprising the years 2021 through 2024, a number of improvements are expected to be undertaken that will benefit passenger rail service. Investment activities will focus on two areas: (1) ensuring that station facilities serving the existing Amtrak long distance trains achieve a state of good repair and meet ADA requirements, and (2) development of corridor service along the Gulf Coast between New Orleans and Mobile, Alabama. Beyond 2024, two initiatives to implement passenger rail service are envisioned. These are reviewed in detail in Chapter 3 and summarized below. Discussion on improving coordination between local transit services in the various communities and Amtrak and enhancing marketing of Amtrak intercity rail service can be found in Chapter 3.

Station Improvements

Station upgrades will be undertaken at seven locations along the routes of Amtrak's *Crescent* and *City of New Orleans*. Along the route of the *Crescent*, improvements are planned for Hattiesburg, Laurel, and Meridian, while stations served by the *City of New Orleans* will be improved at McComb, Jackson, Yazoo, and Greenwood. The anticipated work commonly entails improvements to platforms, parking lots, walks, and facility access. The total projected cost of these upgrades is projected at $37.3 million in 2020, with all funding provided by Amtrak through federal appropriations.

Passenger Service Expansion

The cost of implementing corridor service along the Gulf Coast between New Orleans and Mobile is still being developed. However, as described in Chapter 3.2, thus far the project has succeeded in garnering federal, state, and local funding commitments totaling $67.8 million for capital improvements and start-up expenses. Implementation is expected in the short-term. Remaining funding needs are anticipated to be covered through a combination of sources, including federal INFRA, CRISI, and Restoration and Enhancement grants. Amtrak notified host railroads CSX and NS in January 2021 that it plans to start two daily round trips in January 2022, and is asking the Surface Transportation Board (STB) to require CSX and NS to allow the Gulf Coast Service.[121]

During the period 2025 through 2045, two additional passenger service expansions are under consideration. These are as follows: (1) reinstatement of service along the Gulf Coast between

[121] https://www.trains.com/trn/news-reviews/news-wire/amtrak-asks-stb-to-require-csx-ns-to-allow-gulf-coast-service/. Accessed March 17, 2021.

New Orleans and Florida, which was suspended following Hurricane Katrina, and (2) implementation of service between Meridian and Vicksburg, then on to Shreveport, Louisiana and Dallas, Texas along the KCS/NS joint venture Meridian Speedway. Specific capital and ongoing operational costs, the associated implementation and service requirements, and funding sources remain to be developed for both initiatives.

Freight Rail

For freight rail improvements, five general types of needs were identified in accordance with the State's goals and objectives. Though described in detail in Chapter 4, in brief these are as follows:

- State of Good Repair (SOGR): Ensuring the continued viability of freight rail service by bringing the system to a SOGR.
- Modernization: Improving the rail system to ensure its long-term sustainability by supporting efficient operations and current physical standards such as 286,000-pound weight limits, as well as capacity expansions of existing rail lines, terminals, and yards.
- Port Rail Access: Improving multi-modal connectivity between the state's ports and rail networks.
- Service Expansion: Investing to serve new customers and markets. This category includes restoration of out-of-service rail lines, and construction of new lines, yards, and terminals.
- Safety: Continued advancement of the state's commitment to improving safety at at-grade crossings through physical improvement and institutional engagement.

Program effects and available costs by category for the short-range and long-range freight rail projects are shown in Table 25. As with Table 24, which describes passenger effects, checkmarks are used to denote when a program category has an effect; effects may be positive or negative. In general, many of the effects are similar across the program categories with slight deviations.

Table 25. Freight Rail Program Effects and Costs Across Project Types

Program Effect	SOGR	Modernization	Port Rail Access	Service Expansion	Safety
State's transportation system	X	X	X	X	X
Public and private benefits	X	X	X	X	X
Rail capacity and congestion	X	X	X	X	
Transportation system capacity, congestion, safety and resiliency	X	X	X	X	X
Local transit, highway, aviation and waterway modes	X	X	X	X	X
Environmental, economic and employment impacts	X	X	X	X	
Total Cost 2021-2024 (2020 $ Millions)	**$20.0**	**$23.7**	**$94.0**	**$33.8**	**$39.6**
Total Cost 2025-2045 (2020 $ Millions)	**TBD**	**$5.8**	**$307.7**	**$414.7**	**$71.4**

The freight rail program results in projects that impact the State's transportation system by providing public and private benefits to users and nonusers. Users of freight rail may divert shipments from highway and potentially air and maritime modes. Because trains transport large volumes of freight over long distances with greater fuel efficiency and safely than many other modes, there are environmental and safety benefits to diverting shipments to rail. Typically, rates for shipping by rail are lower than for truck, particularly over longer distances, thus providing cost savings for shippers switching from truck to rail. On average, one rail car can take three to four trucks off the road, freeing up highway capacity. Heavy trucks also cause substantially more damage to roads than automobiles due to their weight and use more fuel to move an equivalent amount of freight than trains. Non-users therefore benefit from the modal diversion of truck to rail through reduced highway congestion, and reductions in highway maintenance costs and crashes involving trucks, reliance on fossil fuels, and the associated emissions.

The range of projects are covered in the following sections, with more extensive discussion to be found in Chapter 4 of this Rail Plan. The detailed listings of freight and safety rail projects are included in Table A-1, Table A-2, and Table A-3 in Appendix A.

Freight Rail System State of Good Repair

Projects in this category are intended to ensure the continued function of the state's rail network, with a particular focus on the low-density lines that serve the state's rural regions. Most typically, projects entail crosstie and rail replacement, along with stabilization or repair of civil structures such as bridges, tunnels, and culverts. Without these improvements, rail service would cease.

During the short-range 2021-2024 period, nine projects were identified. Four projects have specified costs totaling $20 million (2020 $), of which $12.4 million is associated with the ongoing rehabilitation of the Grenada Railway between Canton, Miss. and Memphis, Tenn. Costs for the other five are to be determined. Funding sources for these projects include the MDA, MDOT, the state legislature, the applicable federal grant programs, and private investment. Beyond 2024, 15 projects were identified, of which the timing and cost have not been developed for any projects.

Freight Rail System Modernization

Projects in this category are intended to ensure that the rail system meets the evolving needs of freight shippers by providing cost-effective and competitive service. These include the previously mentioned improvements to support the efficient operation of 286,000-pound railcars, renewal of civil works, expansion of track capacity and signal system upgrades that enhance and ensure the ability to handle traffic growth. System modernization projects sometimes may support service expansion as well. Thus, when classifying projects, if the primary purpose of a project is to support growth of existing services, then it would be assigned to the system modernization category.

During 2021-2024, six projects totaling $23.7 million (2020 $) are anticipated, entailing a mix of bridge, mainline, and yard improvements, along with the acquisition of a rebuilt and more efficient locomotive. For most projects, funding is still to be determined. Beyond 2024, or with schedules to be determined, an additional eight projects were identified. Only one project has an estimated cost ($5.8 million), with costs and schedules to be determined for the remaining seven projects. Funding sources for these projects may include the MDA, MDOT, the state legislature, the applicable federal grant programs, and private investment.

Port Rail Access Projects

A longstanding objective of MDOT, MDA, and the state's ports authorities has been to improve linkages between ports and the rail network. These linkages can enhance the economic prospects of the cities and regions that are home to these ports, by providing competitive options to industries seeking to efficiently leverage the benefits of multimodal transportation for bulk and break-bulk goods along the Mississippi River System, the Tennessee–Tombigbee Waterway, and the Gulf Coast. Common objectives of port rail access projects included enhancing economic development, improving operational efficiencies, supporting the efficient handling of 286,000-pound railcars, enhancing public safety, and helping to achieve SOGR. Typical activities include track upgrades, restoration and/or construction of rail yards to support port activities, as well as reconstruction of dormant port rail linkages.

Over the near-term, 2021-2024, six projects with projected costs totaling $94 million (2020 $) are expected to be completed. Funding for these projects will come from a range of sources, including MDOT Port Multimodal Funds, MDOT Railroad Multimodal Funds, MDA funds, federal grants such as BUILD and INFRA, and private investment. Beyond 2024, an additional seven projects were identified, with $307.7 million (2020 $) in quantified costs, with the remainder to be determined.

Service Expansion

These projects entail providing access to attract or serve new customers through the construction of new or restoration of existing infrastructure, acquisition of new rolling stock, or provision of new services, such as railcar repairs.

Between 2021 and 2024, six projects totaling $33.8 million (2020 $) are expected to be undertaken. The largest of these is the construction of an intermodal shuttle terminal at Port Bienville to provide service to the Port of New Orleans. At an estimated cost of $15.98 million (2020 $), funding remains to be identified for this project. The remaining four projects have identified prospective funding from a mix of state, federal and private sources.

Six projects were identified either to be undertaken after 2024 or with schedules to be determined. Four of these projects have estimated costs totaling $408.7 million (2020 $), with the other two still requiring cost estimates. Two projects stand out: The East Mississippi Intermodal Railroad totaling $228 million in 2020 costs, which includes construction of 37 miles of new rail line in addition to rehabilitation of another 19 miles, and $140 million for the construction of a north-south rail connection to an NS interchange at Nicholson, Miss. Funding sources for all of the six projects remain to be identified.

Safety

A primary focus of Mississippi's railroad safety efforts entails reducing the frequency and severity of incidents at highway-rail grade crossings through the installation or improvement of warning systems. Managed through MDOT's FHWA Section 130 program, typical investments include installation of warning devices such as lights and gates, LED flasher upgrades, circuitry upgrades, and crossing profile improvements. There are 84 projects identified for potential implementation between 2021 and 2024 totaling $13.6 million in 2020. For the long-term period 2025 through 2045, it is anticipated that roughly $71.4 million will be available through Section 130, assuming continuation of current funding levels.

In addition, two projects are programmed outside of MDOT's Section 130 program. Scheduled for completion between 2021 and 2024 is a grade separation in Hattiesburg, and a grade crossing improvement on the MSRW for a total cost of $26.1 million (2020 $).

5.5 Rail Studies and Reports

Various rail studies and reports have been completed since the completion of MDOT's 2016 Rail Plan and are listed in Table 26. Over the next four years, MDOT, on its own or in conjunction with other parties will embark on a few studies pertinent to its passenger and freight rail systems. These studies are identified in Table 27.

Table 26. Ongoing and Recently Completed Rail Studies and Reports

Study	Lead Agency	Description	Status
New Orleans-Mobile Service Study	Southern Rail Commission	Analysis of requirements for implementing twice-daily corridor service between New Orleans LA and Mobile, AL	Underway
Crescent Meridian-Dallas-Ft. Worth Section Route and Service Financial Evaluation	Amtrak	Evaluation of alternatives for implementing a connection between Meridian MS, Shreveport LA, and Ft. Worth TX.	Complete 2015
East Mississippi Intermodal Railroad	Rail Authority of East Mississippi	Federal environmental review process for rehabilitation of 19 miles of abandoned Gulf Mobile and Ohio (GM&O) Railroad from Waynesboro, MS to State Line, MS, and additional 37 miles of new rail between State Line and Evanston, MS. Would restore rail access long the entire eastern border of MS.	Incomplete
Port Bienville Railroad Project	Hancock County Port and Harbor Commission (HCPHC)	Final EIS and Record of Decision	February 2020

Table 27. Recommended Planning Studies

Study	Lead Agency	Description	Estimated Cost	Funding Source(s)
Gulf Coast Rail Service Restoration to Florida	Southern Rail Commission	Service Development Plan (SDP) for re-introduction of long-distance train service between New Orleans and Florida.	$400,000	Federal CRISI or Restoration & Enhancement Grants
State Highway-Rail Grade Crossing Safety Action Plan (SAP)	MDOT	Plan to prioritize investments in grade crossing improvements in accordance with December 14, 2020 guidance. SAP is due February 14, 2022.	$180,000	FHWA Section 130

5.6 Summary of Passenger and Freight Rail Capital Program

Near-term 2021-2024 and long-term 2025-2045 capital expenditures are summarized in Table 28, below. In considering the totals shown, they only reflect identified projects for which public funding may be sought, and thus are incomplete, particularly for the long-range investment needs. Notably, none of the 15 listed SOGR projects categorized as long-range has any costs associated with it. Furthermore, program costs for implementing passenger rail service along the Gulf Coast

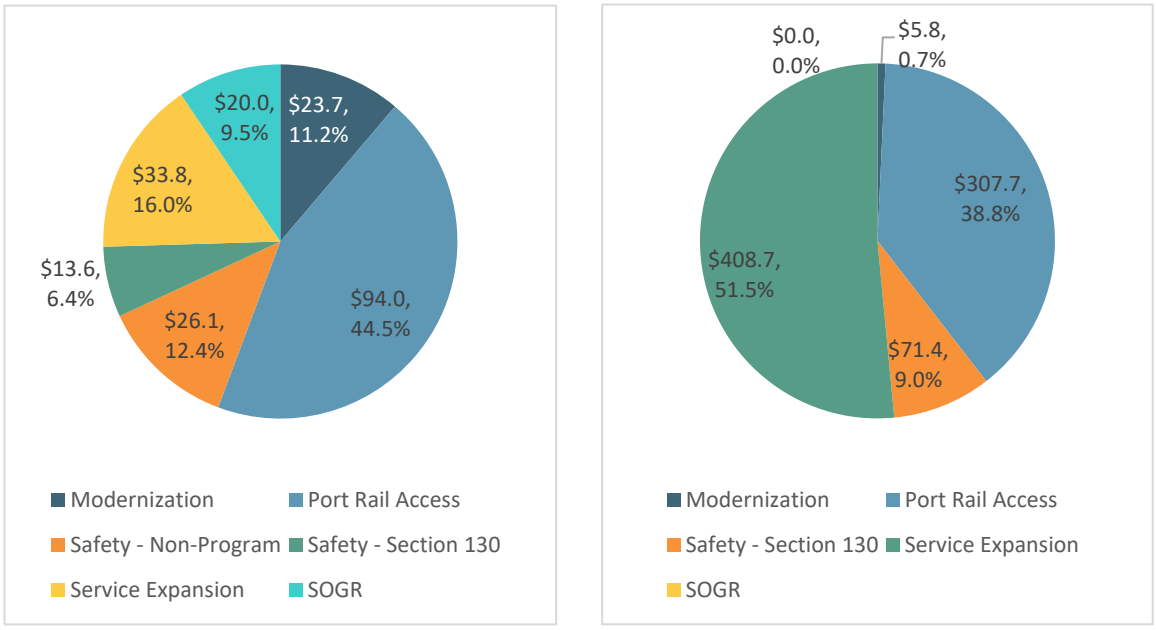
corridor, anticipated for completion by 2024, as well as two service expansion projects that are part of long-term plans were not available and thus not included.

Table 28. Summary of Passenger and Freight Rail Capital Program (2020 $)

Category	Short Range 2021-2024		Long Range 2025-2045	
	Cost ($ Million)	Projects	Cost ($ Million)	Projects
Freight				
SOGR	$20.0	9	TBD	15
Modernization	$23.7	6	$5.8	8
Port Rail Access	$94.0	6	$307.7	7
Service Expansion	$33.8	6	$408.7	6
Safety	$39.7	86	$71.4	TBD
FHWA Section 130	*$13.6*	*84*	*$71.4*	*TBD*
Funded by other sources	*$26,1*	*2*		
Total	**$ 211.2**	**113**	**$793.6**	**36**
Passenger				
Local Transit Coordination	TBD	1		
Marketing	TBD	1		
New Passenger Rail Service	TBD	1	TBD	2
Station Upgrades	$37.3	7		
Total	**$211.2**	**10**	**TBD**	**2**
Total Rail Program	**$248.5**	**123**	**$793.6**	**38**

The total near-term capital program for freight and passenger rail projects envisions expenditures of $248.4 million (2020 $) in known costs. Approximately $211.1 million and roughly 85 percent of the total planned investments are for the freight rail network (see Figure 56), with significant investments distributed over all of the major categories. Freight project categories that rely most heavily on public funding – port rail access and safety (grade crossing) improvements – account for 63.3 percent of the total identified needs. Service expansion at 16 percent is next, followed by modernization at 11.2 percent and SOGR at 9.5 percent.

Figure 56. Near-Term and Long-Term Capital Program for Freight Rail by Category (2020 $)



Near-Term 2021-2024 ***Long-Term 2025-2045***

The long-term freight rail investments are projected at $722.2 million ($ 2020), of which 51.5 percent and $408.7 million is devoted to service expansion. These are followed by port rail access at $307.7 million and 38.8 percent of the overall expenditures. As the various projects are further developed, the overall costs and the proportion of projected investments by category can be expected to change substantially.`

Projects identified in the program will come from a variety of state, local, federal, and private sources. Highway at-grade crossing improvements are funded principally through the Federal Section 130 program that is managed by MDOT. In addition, for publicly owned railroads, MDOT Railroad Multimodal Funds can used to fund improvements, as can public port rail access projects using MDOT Port Multimodal Funds. Other available sources for funding include the MDA, a range of federal grant and loan programs, along with local and private sector sources. In recent years, Mississippi applicants have been successful in securing federal grants through a range of programs such as BUILD (previously TIGER), INFRA, and CRISI. These competitive grant programs, which allow the investment of public funds in private facilities, have proven to be popular and are expected to continue in some form in the future.

APPENDIX A. PASSENGER AND FREIGHT RAIL PROGRAM OF PROJECTS

The tables on the following pages contain detailed listings of the freight and passenger rail projects. For the freight and passenger rail projects, separate tables are provided for short- and long-term initiatives, with projects for which timing has not yet been determined included in the long-term listing. Within each table, projects are sorted by railroad and project name, and includes a brief description, the project type, time horizon, and projected implementation cost.

For safety investments, projected FHWA Section 130 program expenditures are summarized by short- and long-term, with non-program initiatives listed individually for each project.

Costs were identified using various sources. The 2016 State Rail Plan served as a starting point for projects that were continued into the 2021 Plan. Costs for new projects, as well as updated costs for projects that were continued from the 2016 Plan were incorporated to the extent that they were available, and then inflated to 2020 values using the FHWA's National Highway Construction Cost Index (NHCCI)[122].

[122] While the mix of construction activities in the NHCCI is not identical to those involved in railroad construction (for example, railroad construction involves little use of asphalt in contrast to highways), it is more reflective of railroad construction than other publicly available construction cost indexes which largely focus on structures. For more on the NHCCI, see https://www.fhwa.dot.gov/policy/otps/nhcci/.

Table A-1. Short-Term 2021-2024 Freight Program Investments

Project Name	Railroad	Project Description	Project Type[1]	2020 Cost ($ Millions)
Add yard air to CSX interchange tracks	CSXT and PBVR	Install air compressor and associated piping to provide yard air for outbound CSX interchange traffic, so that PBVR can deliver cars to CSX with completed Class I brake test	Modernization	$0.50
Construct wye for CSX interchange	CSXT and PBVR	Complete construction of second leg to make a full wye for interchange with CSX, improving interchange efficiency and safety for longer trains	Modernization	$3.00
Re-Open Embargoed Grenada Railway (GRYR)	GRYR	Final phase to rehabilitate rail line between Canton, Miss., and Memphis, Tenn. Includes upgrading 25 bridges, replacing ties on 88 miles of railroad, improving 11 bridges and track conditions on the Water Valley spur, repairing three tracks in the Durant yard, and adding a locomotive pit for maintenance work.	SOGR	$12.44
Rail Connection to Port of Aberdeen	KCS	Construct 3.2-mile connection track to Port of Aberdeen.	Port Rail Access	$7.55
Connection Track into Port of Lowndes	KCS connection	Engineering/environmental planning and land acquisition for west bank rail connection track. The west bank terminal is without rail service.	Port Rail Access	$7.68
Rehabilitate East Bank Trackage at Port of Lowndes	KCS connection	Rehabilitate east bank trackage and scale.	Port Rail Access	$0.64
Build new railcar repair shop	MSE	Build larger railcar repair facility inland to broaden capabilities offered to fully support customers' railcar repair needs rather than that work traveling out of state.	Service Expansion	$10.00
George County Industrial Park lead upgrade	MSE	Upgrade infrastructure supporting industrial park users and extend for new user (Enviva)	Service Expansion	$1.10
Industrial site purchase and certification	MSE	Acquire additional land for rail user development, certify through Project Ready or similar program, promote with MDA	Service Expansion	$2.00
Upgrade and purchase locomotives	MSE	Rebuilt second GP 38 in a year, purchased another GP 38	Modernization	$1.30
Bridge Rehab/Repair	GSI (HCDC)	1 bridge crossing Bayou Bernard west of Three Rivers Road Gulfport, MS in need of rehab/repair	SOGR	TBD

Project Name	Railroad	Project Description	Project Type[1]	2020 Cost ($ Millions)
Rehabilitate Out of Service Track	GSI (HCDC)	Out of service track in need to be upgraded to FRA track Class 1. Seaway Lead Main Line (MP 0 to MP 5.4) and Intraplex Parkway Branch (3.4 MP to 3.9 MP)	SOGR	TBD
Transload Facility at North Harrison Industrial Park	GSI (HCDC)	Transload Facility at North Harrison Industrial Park	Service Expansion	$4.00
Evanston Yard extension	MSE, CN	Extending Evanston Yard interchange from ~6,000 feet to ~8,000 feet to accommodate larger unit trains and increases in manifest traffic	Modernization	$2.00
Port of Pascagoula Rail Access Improvements	MSE, CSXT	Upgrade rail connections and relocate Class III lines to a more direct route, allowing closure of 16 grade crossings.	Port Rail Access	$56.32
RR Bridge at Tibbee Creek (West Point, MS)	MSR	Bridge Construction/Replacement	SOGR	$3.13
Bridge Rehab/Repair	MSRW	Bridges in need of rehab/repair	SOGR	$2.90
Build New Storage Tracks	MSRW	Build new storage tracks	Service Expansion	$0.72
Replace Cross Ties	MSRW	Major crosstie replacement	SOGR	TBD
Rail Extension into Burnsville Industrial Park (also part of Yellow Creek Port)	NS connection	Construct a 3-mile rail connection from the NS main line to the container-on- barge distribution port terminal in the Northeast Mississippi Waterway Industrial Park (NEMWIP).	Port Rail Access	$3.84
Rehabilitate Natchez Railway Bridges	NTZR	Rehabilitate and structurally upgrade five truss bridges to provide better service to the Natchez- Adams County Port and Industrial Park.	Port Rail Access	$17.92
Replace Ties	OAR	Yearly track maintenance (tie replacement program)	SOGR	TBD
Build Intermodal Shuttle Terminal to Connect Port Bienville with Port of New Orleans	PBVR	Build intermodal shuttle terminal to connect Port Bienville with the Port of New Orleans to start in Q3 2020.	Service Expansion	**$**15.98
Build New Storage Infrastructure	PBVR	Expand storage infrastructure to meet current demand and to provide storage-in-transit options to other Gulf coast manufacturers. Several shippers are expanding their plants, and HCPHC is actively recruiting new rail shippers to the Port, so the railroad expects to grow.	Modernization	$15.20

Project Name	Railroad	Project Description	Project Type[1]	2020 Cost ($ Millions)
Yard Improvements	PBVR	Upgrade switches in yard and replace rail and switches on storage leads	Modernization	$1.66
Maintain Track and Mitigate Flooding Damage	VSOR	Rail capital expenditures to maintain operable track to meet customer needs, also significant capital to mitigate damage from flooding when applicable	SOGR	TBD
Tie replacement	YCRK	Tie replacement	SOGR	$1.50

[1] *The program effects for each freight rail project type are shown in Table 25 of Chapter 5.*

Table A-2. Long-Term 2025-2045 Freight Program Investments – *Includes Unspecified Timing (TBD)*

Project Name	Railroad	Project Description	Project Type[1]	2020 Cost ($ Millions)
Bridge Rehab/Repair	ABS	3 bridges in need of rehab/repair	SOGR	TBD
Upgrade Bridges in Amory Subdivision	BNSF	BNSF is upgrading 9 bridges in the Amory subdivision to handle 286,000-pound rail cars.	Modernization	$5.76
Re-Open Embargoed Section of Columbus and Greenville Railway (CAGY) Line	CAGY	Re-open embargoed section of Columbus and Greenville Railway (CAGY) line between Greenwood and West Point.	Service Expansion	$38.40
Enhance CSX's ability to serve the Port of Gulfport directly (without interchanging to KCS)	CSXT	Enhance CSX's ability to serve the Port of Gulfport directly (without interchanging to KCS).	Port Rail Access	TBD
Replace CSXT bridge over Pearl River	CSXT	Replace bridge to improve passage for barge traffic in Bienville Port. Narrow passage and bridge location restricts barge traffic.	Port Rail Access	TBD
Increase Track Capacity on CSXT Coastal Mainline	CSXT and PBVR	Increase track capacity along the CSX coastal mainline (i.e., more sidings or double track).	Modernization	TBD
East Mississippi Intermodal Railroad	EMIR	Rehabilitation of 19 miles of abandoned Gulf Mobile and Ohio (GM&O) Railroad from Waynesboro, MS to State Line, MS, and additional 37 miles of new rail between State Line and Evanston, MS (56 miles total). Restore rail access along the entire eastern border of Mississippi.	Service Expansion	$227.84
Bridge Rehab/Repair	GTR	5 bridges in need of rehab/repair	SOGR	TBD

Project Name	Railroad	Project Description	Project Type[1]	2020 Cost ($ Millions)
Bridge Upgrades	GTR	5 bridges in need of upgrade	SOGR	TBD
Build New Rail Bridge over the Mississippi River as Part of Proposed I-69	GTR	The proposed route for I-69 in the state crosses right over the Great River Railroad, which makes it an ideal location for a new rail bridge as a part of the I-69 crossing over the MS River. This could be huge for the state seeing that the closest rail crossing to the north is at Memphis and to the south is at Vicksburg. Redundancy is a key factor in reliable and effective freight transportation.	Service Expansion	TBD
GTR Improvements to Increase Weight Limit	GTR	Upgrades for the line to be able to accommodate 286,000 lbs. rail cars	Modernization	TBD
Reinstate Rail Access to Port of Rosedale (Great River Railroad - GTR)	GTR	Reinstate rail access to the Port of Rosedale and the Rosedale Industrial Park by rehabilitating 32 miles of Port Commission-owned railroad.	Port Rail Access	TBD
Bridge Rehab/Repair	GTRA	4 bridges in need of rehab/repair	SOGR	TBD
Expand Interchange Capacity in Columbus, MS	GTRA	Expand interchange capacity in Columbus, MS	Modernization	TBD
Golden Triangle Railroad (GTRA) close clearance conditions	GTRA	Trinity Subdivision close clearance locations: GTRA Shop Entrance – Both sides; Weyerhaeuser CCF HM#5 Track – South side; and Weyerhaeuser CCF Pulp shed – Both sides	SOGR	TBD
Maintain Track, Replace Ties, and Address Drainage Issues	GTRA	Maintain and upgrade the existing infrastructure: rail, ties, surfacing, switches, frogs, and address drainage issues.	SOGR	TBD
KCS Mainline Improvements to Increase Line Speed	KCS	Track improvements on KCS mainline from Corinth to Tupelo to raise line speed.	Modernization	TBD
KCS Mainline Improvements to Increase Weight Limit	KCS	Upgrade KCS mainline from Corinth to West Point to handle 286,000-pound carloads.	Modernization	TBD
Bridge Rehab/Repair	MSCI	Various bridges in need of rehab/repair	SOGR	TBD
Bridge Upgrades	MSCI	23 bridges in need of upgrade	SOGR	TBD
MSCI Improvements to Increase Weight Limit	MSCI	Upgrades to 50% of the line to be able to accommodate 286,000 lbs. rail cars	Modernization	TBD
Upgrade Existing Track	MSCI	Excepted track in need to be upgraded to FRA track Class 1 (517.8 MP to 570.5 MP)	SOGR	TBD

Project Name	Railroad	Project Description	Project Type[1]	2020 Cost ($ Millions)
Bridge Rehab/Repair	MSR	8 bridges in need of rehab/repair	SOGR	TBD
Bridge Upgrades	MSR	8 bridges in need of upgrade	SOGR	TBD
MSR Improvements to Increase Weight Limit	MSR	Bay Springs Subdivision 263k weight capacity from 159.5 MP to 132.6 MP	SOGR	TBD
Build the North-South Rail Connection to Nicholson, MS with an Interchange to NS	PBVR	Construction of the north-south rail connection to Nicholson, MS with an interchange to Norfolk Southern. This project would be contingent upon customer demand if one or more large new shippers locate on the existing railroad. Federal FONSI has been obtained.	Service Expansion	$140.00
Bridge Rehab/Repair	RNA	Various bridges in need of rehab/repair	SOGR	TBD
Bridge Upgrades	RNA	2 bridges in need of upgrade	SOGR	TBD
Build Public Reload Center	RNA	Build public reload center	Service Expansion	TBD
Upgrade Existing Track	RNA	Excepted track in need to be upgraded to FRA track Class 1 (335 MP to 336 MP)	SOGR	TBD
Bridge Rehab/Repair	VSOR	27 bridges in need of rehab/repair	SOGR	TBD
Develop Unit Train Capability at Port of Vicksburg	VSOR	Unit train capability at Port of Vicksburg	Port Rail Access	TBD
Establish a New Port Terminal with Rail Access to Port of Vicksburg	VSOR	Port of Vicksburg is currently out of space. Expand the port with a new terminal south of I-20 and just west of US 61 along the river. There is an existing rail spur that will need to be upgraded to serve the site. The environmental phase for this new port site has been started. A RAISE Grant application is being developed for some of the initial construction.	Port Rail Access	$303.76
Upgrade Existing Rail Trackage in Port of Vicksburg	VSOR	Vicksburg is in the process of upgrading the existing trackage in the port.	Port Rail Access	$0.06
FerrouSouth Coil Storage Building	YCRK	Develop 30,000 sq. ft. coil storage building with crane	Service Expansion	$2.50
Rehabilitate the Yellow Creek Railroad (YCRK)	YCRK	Rehabilitate the 10-mile Yellow Creek Railroad connecting Yellow Creek State Inland Port to KCS.	Port Rail Access	$3.84

[1] *The program effects for each freight rail project type are shown in Table 25 of Chapter 5.*

Table A-3. Safety Investments – Short- and Long-Term

Project Name	Railroad	Project Description	Project Type	Short/Long Term Plan	2020 Cost ($ Millions)
MDOT FHWA Section 130 Program					
Safety Projects - Grade Crossing Improvements	Various	Includes various projects across the state to improve approaches and grade crossings.	Safety - Section 130	Short-Term	$13.60
Safety Projects - Grade Crossing Improvements	Various	Includes various projects across the state to improve approaches and grade crossings.	Safety - Section 130	Long-Term	$71.40
Safety Non-Program					
Upgrade Crossings	MSRW	Upgrade a main crossing along with 2 smaller crossings impacting a major shipper	Safety - Non-Program	Short-Term	$0.12
Hattiesburg Grade Separation	NS, CN	Build a grade separated crossing downtown along Hall Avenue, over the CN rail line, and a new rail connection to an NS rail yard	Safety - Non-Program	Short-Term	$26.00

[1] *The program effects for each rail safety project type are shown in Table 25 of Chapter 5.*

Table A-4. Short-Term 2021-2024 Passenger Rail Program

Project Name	Passenger Route	Project Description	Project Type[1]	2020 Cost ($ Millions)
Improved Marketing	*Crescent* and *City of New Orleans*	Add signage at interstate exits to indicate Amtrak stations	Marketing	TBD
Local Transit Coordination	*Crescent* and *City of New Orleans*	Coordinate train arrivals with local transit schedules and routes.	Local Transit Coordination	TBD
Greenwood Station Upgrade for ADA Compliance	*City of New Orleans*	An accessible concrete ramp connects two accessible parking spaces to the platform and waiting room. The existing platform will be replaced with a 750-foot concrete platform 8-inches above top of rail with lighting, signage, guardrail, and drainage system. The existing waiting room will be fully renovated with an accessible single occupant restroom and accessible entrance door. This historical canopy covering a portion of the platform will be repaired.	Station Upgrades	$4.55

Project Name	Passenger Route	Project Description	Project Type[1]	2020 Cost ($ Millions)
Laurel Station Upgrade for ADA Compliance	*Crescent*	An accessible concrete walk, directly in front of the Amtrak waiting room located in the City owned Historic Train station, connects passengers to a 650-foot concrete platform 8-inches above top of rail with lighting, signage, guardrail, and drainage system. A custom steel canopy on the north end of the platform provides an enclosure for the wheelchair lift. The platform is also accessible from Central Avenue by concrete walk. Wayfinding signage will be installed in the city owned parking lot to assist passengers in finding the waiting room and platform.	Station Upgrades	$3.00
McComb Station Upgrade for ADA Compliance	*City of New Orleans*	Provide access from public right-of-way to platform. Provide wheelchair lift enclosure at platform. Provide 8" above top of rail (ATR), 750' long, 12' wide platform with lighting along the entire platform. Provide new concrete walkway connecting (6) grade crossings for access to Main 2 Track. Provide city identification signs at platform and other exterior signs as required. Relocate A11 sign. Provide guardrail at rear of platform.	Station Upgrades	$5.50
Yazoo City Station Upgrade for ADA Compliance	*City of New Orleans*	Provide two new (2) accessible parking stalls. Restripe parking lot with new wheel stops and bollards. Provide compliant walkway from parking area to shelter and platform. Provide passenger drop off area. Provide open shelter with seating. Locate wheelchair lift at platform. Provide new 8" ATR, 300' long x 12' width platform. Provide two egress paths at ends of platforms.	Station Upgrades	$3.00
Hattiesburg Station Upgrade for ADA Compliance	*Crescent*	Provide compliant 8" ATR platform	Station Upgrades	$2.30
Jackson Station Upgrade for ADA Compliance	*City of New Orleans*	Provide compliant 8" ATR platform	Station Upgrades	$9.70
Meridian Station Upgrade for ADA Compliance	*Crescent*	Provide compliant 8" ATR platform	Station Upgrades	$9.20
Reinstate New Orleans to Mobile Route	New Amtrak Route	Reinstating passenger rail service along the Gulf Coast east of New Orleans to Mobile.	New Passenger Rail Service	TBD

[1] *The program effects for each passenger rail project type are shown in Table 24 in Chapter 5.*

Table A-5. Long-Term 2025-2045 Passenger Rail Program

Project Name	Passenger Route	Project Description	Project Type	2020 Cost ($ Millions)
Reinstate New Orleans to Orlando Route	New Amtrak Route	Reinstating passenger rail service along the Gulf Coast east of New Orleans to Orlando.	New Passenger Rail Service	TBD
New Meridian to Vicksburg Route	New Amtrak Route	Development of the Meridian to Vicksburg leg of a new passenger rail route from Meridian to Fort Worth, Texas.	New Passenger Rail Service	TBD

[1] *The program effects for each passenger rail project type are shown in Table 24 in Chapter 5.*