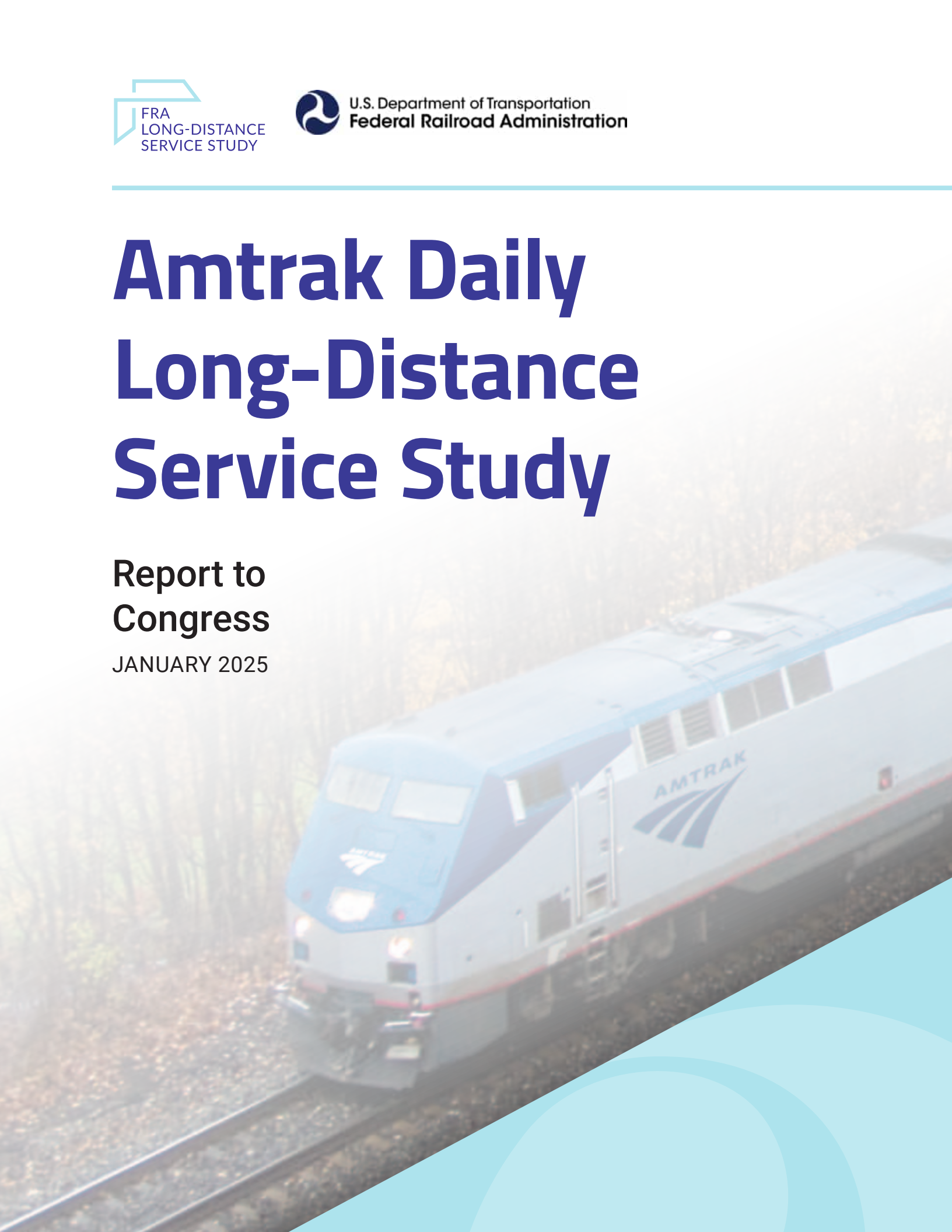
FRA
LONG-DISTANCE
SERVICE STUDY

U.S. Department of Transportation
Federal Railroad Administration

Amtrak Daily Long-Distance Service Study

Report to Congress

JANUARY 2025



Amtrak Daily Long-Distance Service Study Report to Congress

FRA
LONG-DISTANCE
SERVICE STUDY

JANUARY 2025

Prepared by

United States Department of Transportation
Federal Railroad Administration

Table of Contents

Tables

Figures

Acronyms and Abbreviations

AI	Artificial Intelligence
BNSF	Burlington Northern Santa Fe Railway
BTS	Bureau of Transportation Statistics
CEQ	Council on Environmental Quality
Corridor ID	Corridor Identification and Development
CPO	Climate Policy Office
DHS	Department of Homeland Security
DOT	U.S. Department of Transportation
FAST	Fixing America's Surface Transportation Act of 2015
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FY	Fiscal Year
IIJA	Infrastructure Investment and Jobs Act
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
NEC	Northeast Corridor
NEPA	National Environmental Policy Act
O&M	Operating and Maintenance
OASD	Office of the Assistant Secretary of Defense
OD	Origin-Destination
OMB	Office of Management and Budget
PE	Preliminary Engineering
STB	Surface Transportation Board
Study	Amtrak Daily Long-Distance Service Study
TEMPO	Texas Eagle Marketing and Performance Organization
U.S.C.	United States Code

Definitions

Note: Sources noted in definitions can be found at the end of the document.

Area of Persistent Poverty. As defined by IIJA, counties that consistently had greater than or equal to 20 percent of the population living in poverty in all three of the following datasets: (a) the 1990 decennial census; (b) the 2000 decennial census; and (c) the most recent (2021) small area income poverty estimates; OR counties that had a poverty rate of at least 20 percent as measured by the 2014-2018 5-year data series available from the American Community Survey of the Bureau of the Census; OR areas in any territory or possession of the United States (DOT 2024a).

Catchment Area. For this Study, an area 30 miles around potential stations in metropolitan statistical areas and 50 miles around potential stations outside of metropolitan statistical areas. Catchment area sizes were validated with Amtrak by comparing the population included within catchment areas with data provided by Amtrak on travel distances for Amtrak customers accessing Amtrak stations. The locations of potential new stations are conceptual and would require additional planning and analysis prior to implementation.

Core-based Statistical Area. As defined by the U.S. Census Bureau, counties and county equivalents with at least one urban area with at least 10,000 population (Metropolitan and Micropolitan Statistical Areas), plus adjacent counties with a high degree of social and economic integration with the urban area (U.S. Census Bureau 2023).

Direct Impact. The activity generated by the construction industry at the construction site or by the operator at their facilities due to the increased expenditure.

Discontinued Network. For this Study, a collective term for those long-distance routes that have been discontinued by Amtrak as of November 15, 2021, and long-distance routes in service as of April 1971 but not continued by Amtrak.

Enhanced Connectivity. For this Study, a measurement of the number and population of MSAs on a route option not currently served by passenger rail, as well as the percentage of route miles that included discontinued long-distance routes.

Health-disadvantaged Community. Defined as part of the Justice40 Initiative, any Census Tract at or above the 90th percentile for asthma, diabetes, heart disease, or low life expectancy, and at or above the 65th percentile for low income (CEQ 2022).

Higher Education Institution. For this Study, public and private not-for-profit higher education institutions (U.S. DHS 2023).

Historically Disadvantaged Community. Defined by the Justice40 Interim Guidance Addendum, issued by the White House Office of Management and Budget (OMB), White House Council on Environmental Quality (CEQ), and Climate Policy Office (CPO): (1) any

Census Tract identified as disadvantaged in the Climate & Economic Justice Screening Tool (geoplatform.gov), created by CEQ, which identifies such communities that have been marginalized by underinvestment and overburdened by pollution or (2) any federally recognized Indian Tribe or tribal entity, whether or not they have land (CEQ, CPO, and OMB 2023; DOT 2024a).

Indirect Impact. The activity generated by other industries that supply the construction industry or operator with inputs by vendors and suppliers, such as equipment, steel, and concrete.

Induced Impact. The activity generated through consumption (consumer goods and services, food, etc.) due to the activity generated by the expenditure in the construction industry or operator through the direct and indirect impacts. Jobs supported by workers' spending on food, clothes, and housing are induced impacts.

Justice40 Initiative. Issued by the White House OMB, CEQ, and CPO, an all-government approach that seeks to provide an opportunity to address gaps in transportation infrastructure and public services in underserved communities by working toward the goal that at least 40 percent of the benefits from federal programs support disadvantaged communities (DOT 2024b).

Large Community. For this Study, a community located inside a Metropolitan Statistical Area.

Low-Income. As defined by the U.S. Census Bureau, households where household income is at or below 200 percent of the federal poverty level, not including students enrolled in education (U.S. Census Bureau 2023).

Medical Center. For this Study, Level I/Level II Trauma Centers, cancer centers, and veteran facilities (U.S. DHS 2023).

Metropolitan Statistical Area. As defined by the U.S. Census Bureau, a geographic area that includes a core area with a large population of at least 50,000 and adjacent communities that are economically and socially integrated with the core (U.S. Census Bureau 2023).

Micropolitan Statistical Area. As defined by the U.S. Census Bureau, county or counties associated with at least one urban cluster of at least 10,000 but less than 50,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties (U.S. Census Bureau 2023).

Military Installation. For this Study, all Department of Defense sites, including installations, ranges, training areas, bases, forts, camps, and armories (OASD 2022).

National Park Service Land. For this Study, National Parks, National Recreation Areas, and National Preserves (National Park Service 2019). There are many additional

National Park Service unit types that passengers may want to access, including National Monuments, National Historic Sites, and others; future studies may consider different or additional measures of access to the National Park System.

NextGen. FHWA Next-Generation (NextGen) National Household Travel Survey data used by the Study to identify metropolitan area pairs with 500,000 or more annual trips (all modes) between 100 miles and 1,000 miles that were not served directly by passenger rail (FHWA 2023).

North American Rail Network. Defined by FRA, a dataset of all railway tracks in North America's railway system, covering all 50 states, the District of Columbia, Mexico, and Canada. The dataset supports the topology of the network and provides geographic location information and attribute information for use in network analysis applications (BTS 2024).

Origin-Destination (OD) Pair. For this Study, the originating passenger rail station and the destination passenger rail stations accessible via passenger rail trips with two or fewer transfers between rail services, with each transfer time between 1 and 12 hours.

Rural Area. For this Study, any location not within one of the 2,646 urban areas defined by the U.S. Census Bureau as of June 2023 (U.S. Census Bureau 2023).

Small Community. For this Study, a community located outside a Metropolitan Statistical Area.

Transportation-disadvantaged Community. Defined as part of the Justice40 Initiative, any Census Tract at or above the 90th percentile for diesel particulate matter exposure, transportation barriers, or traffic proximity and volume, and are at or above the 65th percentile for low income (CEQ 2022).

Tribal Lands. For this Study, population living in American Indian, American Indian Tribal Subdivisions, Bureau of Indian Affairs Regional Boundaries, and Oklahoma Tribal Statistical Areas.

Executive Summary

ES.1 Amtrak Daily Long-Distance Service Study Requirements

Terms presented in **bold** and *italics* are defined at the beginning of this report in the Definitions section.

Congress directed the Federal Railroad Administration (FRA) to conduct the Amtrak Daily Long-Distance Service Study (the Study) in Section 22214 of the Infrastructure Investment and Jobs Act (IIJA) of 2021 (Pub. L. 117-58). The Study evaluated the restoration of daily intercity passenger rail (49 U.S.C. 24102(4)) service along Amtrak long-distance routes that occur on a non-daily basis or have been discontinued. Long-distance passenger rail service is defined by statute as routes of more than 750 miles between endpoints operated by Amtrak (49 U.S.C. 24102(5)).

Congress also directed FRA to evaluate potential new Amtrak long-distance routes, with specific attention to routes in service as of April 1971 but not continued by Amtrak, when considering expansions of long-distance service. For potential new routes, the legislation directs FRA to consider whether new long-distance routes link ***large and small communities***, advance the well-being of ***rural areas***, provide ***enhanced connectivity***, and reflect public engagement and support for restored passenger rail service.

In conducting the Study, FRA was required, through working groups or other forums, to consult with Amtrak, states along relevant routes, regional planning organizations, municipalities and communities along relevant routes, host railroads, organizations representing onboard Amtrak employees, nonprofit organizations representing Amtrak passengers, relevant regional passenger rail authorities, and federally recognized Indian Tribes.

The Study received over 50,000 stakeholder and public comments, showing strong support for passenger rail.

Section 22214 directs FRA to submit a report to Congress not later than 2 years after the date of enactment of IIJA (November 15, 2021). FRA has worked on the Study since 2022, completing the required analyses for the Study and conducting 24 regional working group meetings with stakeholders in 21 cities across the country. The Study received over 50,000 stakeholder and public comments, the overwhelming majority of which indicated strong support for long-distance services and/or passenger rail in general. FRA developed an Interim Report to Congress as an overview of progress and findings for the Study as of June 2023, which was submitted to Congress in January 2024.

This document is the Final Report to Congress. This report includes:

- Preferred options for restoring, enhancing, or expanding long-distance service.
- Prioritized inventory of capital projects and other actions that are required to restore, enhance, or expand the service, including high-level cost estimates for those projects and actions.
- Potential federal and non-federal funding sources to restore, enhance, or expand the service.
- Estimated costs and public benefits of restoring, enhancing, or expanding intercity passenger rail transportation in the region impacted for each preferred option.
- Recommendations for methods by which Amtrak could work with local communities and organizations to improve public use of intercity passenger rail service along each route.

More details on the report requirements can be found in Chapter 1.

Consistent with IIJA Section 22214, the Study focused solely on new or restored Amtrak long-distance services and daily service on the two Amtrak long-distance routes that currently operate with less than daily frequencies (Cardinal and Sunset Limited). It did not consider changes to service for existing daily Amtrak long-distance services, Amtrak state-supported service, Amtrak Northeast Corridor (NEC) service, high-speed rail, or other types of passenger rail service.

ES.2 Study Opportunities and Challenges

Opportunities

FRA is building the foundation for a long-term rail program, bringing world-class passenger rail service to regions across the country and growing a safer, cleaner, and more equitable rail system. Long-distance services are an important component of these goals, but they are only one piece of an integrated and enhanced passenger rail system. Along with other passenger rail programs and efforts, including those established in IIJA, there are more opportunities to develop passenger rail than ever before, including opportunities to grow essential connections to heavily populated areas, and opportunities to strengthen connections with small and rural communities that have borne the burden of past passenger rail service reductions.

Long-distance services are an important component of bringing world-class passenger rail service to regions across the country, but they are only one piece of an integrated and enhanced passenger rail system.

Long-distance passenger rail service reductions over the past 50 years have resulted in some communities losing passenger rail transportation options, as well as the related economic and social benefits of those connections. Some previous studies have examined restructuring routes or eliminating services in the attempt to reduce federal operating financial support for Amtrak long-distance services (DOT 1979). The Study, as required under IIJA, instead looked at options for restoring, enhancing, or expanding long-distance service.

Through the Study, FRA identified preferred long-distance route options consistent with the requirements of IIJA. The preferred long-distance route options reflect current travel demand, as well as opportunities to increase passenger rail access to ***rural areas*** and ***transportation-disadvantaged communities***, increase connectivity with existing and future passenger rail services, consider the impacts of previously discontinued long-distance passenger rail service, and address significant stakeholder input over the life of the Study.

The selected preferred route options could increase access to intercity passenger rail for millions of Americans and create a more robust integrated network. They could create new and increased connections with Amtrak intercity passenger rail, including other long-distance routes, state-supported routes, and NEC routes, as well as other modal options. More details on the identification of selected preferred route options can be found in Chapter 5.

The selected preferred route options identified in the Study could increase access to intercity passenger rail for millions of Americans and create a more robust integrated network. They allow for new and increased connections with Amtrak intercity passenger rail, including other long-distance routes, state-supported routes, and NEC routes, as well as other modal options.

FRA received significant stakeholder feedback related to the existing long-distance network as well as on other intercity passenger rail expansion efforts. This feedback and interest highlight an opportunity to develop a broader intercity passenger rail vision that assesses all potential market and service needs, including corridor services, through an integrated national network. Chapter 2 provides an overview of the feedback received. Chapter 10 provides details on potential future opportunities to promote a more integrated, cohesive vision for rail service that includes analysis of multimodal transportation needs and opportunities in rural and small urban areas.

Challenges

FRA identified significant challenges in implementing the selected preferred route options identified in the Study. These challenges include:

- **Planning Challenges:** The Study fulfills a crucial early step to identify actions needed to restore or enhance long-distance service or expand the long-distance route network. But further analysis would be necessary to advance selected preferred route options through project planning, including time-intensive detailed engineering work and cost estimates for capital and infrastructure projects needed for new passenger rail service. In this Study, FRA identified capital cost estimates for selected passenger service-required capital projects. However, FRA did not quantify the full range of capital projects that may be needed, including potentially significant projects related to track capacity and grade crossing improvements. Although the Study meets the requirements of Section 22214, this effort should not preclude other planning efforts that may assess long-distance service changes.
- **Funding Challenges:** Existing intercity passenger rail grant programs could potentially fund limited capital or infrastructure projects associated with restoring, enhancing, or expanding long-distance routes. However, the scope and scale of these passenger rail grant programs are insufficient to fund capital needs for the existing national network and are not structured to meet the significant funding needs associated with new long-distance passenger rail service. Further, the current operations of long-distance routes do not receive any state or local contributions for operations and require significant federal funding, and the federal government would need to commit to ongoing operations funds for new routes, on an annual basis.
- **Governance Challenges:** Through financial support for operations, as well as many related statutory requirements, the federal government is the primary sponsor of Amtrak's long-distance services, and Amtrak is responsible for operations and related business decisions. Unlike state-supported services, states do not participate in any cost-sharing for the operations of long-distance routes. Additionally, unlike NEC and state-supported services, long-distance service does not have a committee to serve as a forum for stakeholders to provide feedback for the purpose of improving Amtrak long-distance service, including opportunities for planning and service efficiencies. The Amtrak long-distance network has not changed significantly for several decades; the roles and responsibilities for long-distance network changes or expansion need to be established and/or clarified, including identifying the parties responsible for planning, funding, and construction related to new service.

- **Operational Challenges**
  - **On-Time Performance**: Long-standing issues related to on-time performance and delays on Amtrak long-distance routes have reduced reliability for passengers and increased operating costs. These service challenges would likely need to be addressed in the implementation of potential new long-distance service.
  - **Nighttime Only Service**: Since all Amtrak long-distance routes are over 750 miles in length and have schedules that exceed 12 hours, some communities are only served by long-distance routes during the night. Although long-distance routes might be the only intercity passenger rail service for some communities, that benefit is minimized in communities with only nighttime service.
  - **Access and Infrastructure Improvements to Host Railroad Lines**: Amtrak long-distance routes primarily operate on host railroad tracks, which Amtrak does not own. Except in emergency situations, Amtrak services have preference over freight transportation using a rail line (49 U.S.C. 24308(c)). The existing framework for Amtrak and host railroad engagement regarding access and responsibilities regarding infrastructure improvements is not always clear, which can complicate implementation of new long-distance service.
  - **Fleet Availability and Industry Capacity**: The existing Amtrak fleet of vehicles is insufficient to undertake a significant expansion of long-distance service. Additional funding and staffing would be required to build, operate, and maintain an expanded network and to provide additional vehicles.

An expanded discussion on the Study's opportunities and challenges can be found in Section 1.5.

ES.3 FRA Overview

FRA, created in 1966, is an agency within the Department of Transportation (DOT). FRA's mission is to enable the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future. FRA accomplishes this mission primarily through issuance, implementation, and enforcement of safety regulations, managing federal investments in freight and passenger rail across the country, and research and technology development.

FRA's Office of Railroad Development, which conducted the Study, is responsible for working with stakeholders to develop cohesive goals and policies for maintaining and improving the U.S. freight and passenger rail networks, as well as for managing a portfolio of grant investments that contribute to achieving these goals. This office also oversees grant agreements with Amtrak to administer federal funds appropriated by Congress to support Amtrak's operations, infrastructure, and equipment.

> Amtrak was a key stakeholder in this Study, but the Study was conducted – per IIJA requirements – by FRA.

ES.4 Amtrak Overview

Amtrak was established by the Rail Passenger Service Act of 1970, which relieved private U.S. railroads of their passenger rail service obligation and created Amtrak to fulfill that role instead (U.S. Congress 1970). In 1971, the DOT Secretary designated 21 city pairs between which intercity passenger trains should operate, and Amtrak began service between those cities later that year (Volpe 1971). Amtrak is a corporation established and authorized by federal law. It is operated and managed as a for-profit corporation; it is not a department or agency of the U.S. government. However, Amtrak's mission and goals are detailed in federal law, and the federal government provides ongoing financial support to Amtrak – typically in the form of annual appropriations, which FRA administers via annual grant agreements with Amtrak – to cover certain costs related to Amtrak's operations, capital investments, and debt, including costs associated with operating long-distance service.

500+
destinations

46
states

The current Amtrak network provides passenger rail service across three service lines, serving more than 500 destinations in 46 states.

- The **NEC** service line provides service between Boston, Massachusetts; New York, New York; and Washington, DC, on the Northeast Regional and Acela routes. Amtrak owns most of the NEC main line and provides high-speed service on Acela.

- The **State-Supported** service line provides service on 30 routes of not more than 750 miles through cost-sharing agreements with state partners.
- The **Long-Distance** service line provides service on 15 Amtrak routes over 750 miles; long-distance routes are defined in statute as Amtrak routes over 750 miles (49 U.S.C. 24102(5)). Funding for operation of these routes comes from ticket revenue and federal financial support.

Both state-supported and long-distance routes primarily operate on host railroad tracks, which are not owned by Amtrak.

Despite differences in governance and funding, from the customer perspective these service lines operate as a single network under the Amtrak brand. Figure ES-1 identifies the existing Amtrak network.

Photo courtesy of Amtrak

Figure ES-1. Amtrak's Passenger Rail Network (2024)

ES.5 Current Long-Distance Service and Passengers

The Study focused solely on Amtrak as the service provider of long-distance routes.

Amtrak's long-distance routes are the longest routes in the Amtrak passenger rail network. They form a backbone of the national passenger rail network across 39 states, stitching together regional state-supported routes, NEC, and connecting Amtrak Thruway bus services (Amtrak's system of through-ticketed services to connect with areas not served by Amtrak trains), creating connections that link ***large and small communities*** across the country. Of 46 states served by the Amtrak passenger rail network, 22 are served only by Amtrak long-distance routes (Figure ES-1).

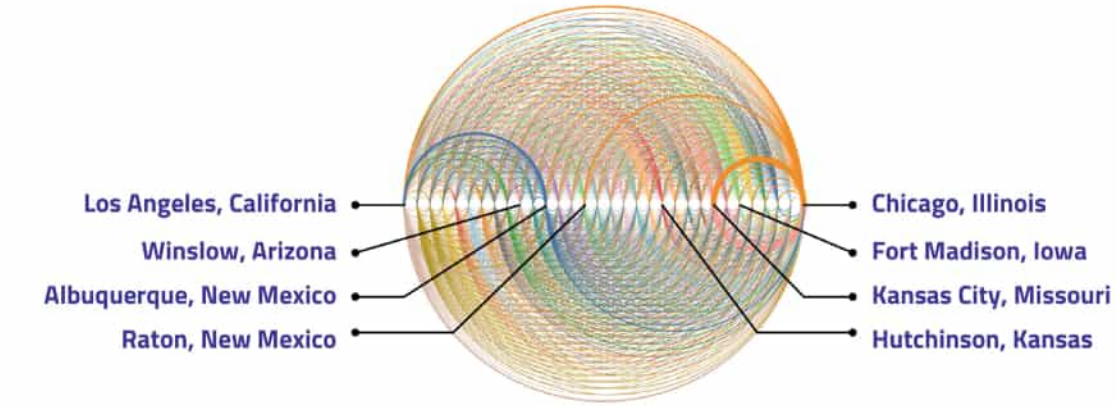
Most long-distance routes operate once per day in each direction (except for the Cardinal and Sunset Limited). Due to route length, some stations are served only at night. Both coach and sleeper tickets are offered on most routes, but over 80 percent of long-distance passengers ride in coach. Less than 10 percent of riders on long-distance routes travel the entire length of the route; these routes have many different ***origin-destination pairs***, or station pairs, giving passengers the opportunity to travel between and among rural and urban communities. Trip length is a key characteristic influencing mode choice; in the United States, air is the dominant mode for trips of more than 600 miles in length. In 2019, only about one quarter of long-distance route passenger rail trips were over 750 miles (Amtrak 2023a; BTS 2023a; FHWA 2023).

<10%

Less than 10 percent of riders on long-distance routes travel end to end – these routes have many different ***origin-destination pairs*** along one line, connecting rural and urban communities.

Figure ES-2 shows an example of the many different station pair options along a single long-distance route. The Southwest Chief runs once per day in each direction between Los Angeles, California, and Chicago, Illinois, via stations in Illinois, Iowa, Missouri, Kansas, Colorado, New Mexico, Arizona, and California. This route serves 32 stations, offering a staggering 496 different station pair options for passengers to travel between, linking ***large and small communities*** along the way. In addition to station pairs along the route, the Southwest Chief connects with 9 other Amtrak long-distance routes, 9 Amtrak state-supported routes, and 32 Amtrak Thruway bus connections (Amtrak 2019a).

Figure ES-2. Illustration of Station Pair Options on the Southwest Chief



Source: Amtrak Schedules (Amtrak 2024d)
Note: The figure illustrates all 496 station pairs for the 32 station stops on the Southwest Chief, with stations arranged from Los Angeles, California, on the left to Chicago, Illinois, on the right. Each colored line represents a station pair.

Most passengers on long-distance routes travel for personal purposes – but that category includes a wide range of trip types, including short and long-term visits to family and friends, including events like weddings and funerals (Amtrak 2022a). Based on feedback FRA received during the Study, some passengers choose long-distance trains because they are more affordable or accessible than other transportation options, including passenger air service or personal vehicles. Other passengers use long-distance trains because of disabilities that make it difficult to access or use other modes of travel.

Some communities also see long-distance stations as opportunities for economic development and tourism. The Texas Eagle is an Amtrak long-distance route that connects Chicago, Illinois, with San Antonio, Texas, via St. Louis, Missouri; Little Rock, Arkansas; Dallas, Texas; and Austin, Texas. The Texas Eagle Marketing and Performance Organization (TEMPO), which includes representatives and elected officials from cities along the route, provides feedback to Amtrak on a range of local issues related to the route including service, conditions of stations, and marketing. TEMPO also maintains a website (http://www.texaseagle.com/) with events in communities along the route, such as state and county fairs, music and theatre festivals, and other local events accessible by the Texas Eagle.

ES.6 Selected Preferred Route Options

Daily Cardinal and Sunset Limited Service

As required, the Study evaluated the restoration of daily passenger rail service along any long-distance routes that occur on a non-daily basis consistent with IIJA Section 22214(a)(2). Thirteen of Amtrak's fifteen long-distance routes operate daily, with one trip in each direction. However, two Amtrak long-distance routes currently operate less than daily service (three times per week in each direction): the Cardinal and the Sunset Limited.

> The Study recommends daily service restoration for the non-daily Cardinal and Sunset Limited routes, bringing each route to daily service.

The Cardinal operates between New York, New York, and Chicago, Illinois, via Washington, DC; Cincinnati, Ohio; and Indianapolis, Indiana. The Cardinal also serves western Virginia, southern West Virginia, and eastern Kentucky. The non-daily Cardinal is currently the only passenger rail service along much of its route, including in cities like Cincinnati, Ohio, and Indianapolis, Indiana.

The Sunset Limited operates between New Orleans, Louisiana, and Los Angeles, California, via Houston, Texas; San Antonio, Texas; El Paso, Texas; and Tucson, Arizona. The Sunset Limited also serves communities in southern Louisiana, west Texas, southern New Mexico, Arizona, and California. The non-daily Sunset Limited is currently the only passenger rail service along much of its route, including cities like Houston and El Paso, Texas.

FRA evaluated the restoration to daily service for the non-daily Cardinal and Sunset Limited routes. FRA then selected preferred route options to enhance these services to daily. Independent of this Study, the Cardinal and Sunset Limited were each selected into the Corridor Identification and Development (Corridor ID) Program in December 2023, with Amtrak as the corridor sponsor, for the purpose of increasing each route to daily service. More details, including a map of the two routes, can be found in Chapter 4.

Selected Preferred Route Options

FRA evaluated long-distance route options for restoring or enhancing to daily-basis service along both (i) long-distance routes that were discontinued by Amtrak as of November 15, 2021, and (ii) long-distance routes that occur on a non-daily basis as of November 15, 2021, consistent with IIJA Section 22214. FRA also evaluated long-distance route options for new long-distance routes with specific attention provided to long-distance routes in service as of April 1971 but not continued by Amtrak. FRA selected preferred route options for service restoration, enhancement, or expansion, as directed by IIJA. The preferred route options selected by FRA

as a result of the Study are referred to as "selected preferred route options." The selected preferred route options reflect current travel demand, as well as opportunities to increase access to rural and ***transportation-disadvantaged communities***, increase connectivity with existing and future services, consider the impacts of previously discontinued long-distance service, and address significant stakeholder input over the life of the Study. FRA selected preferred route options for service restoration, enhancement, or expansion. The selected preferred route options are not FRA proposals for service, and do not restrict or preclude future plans or planning activities.

Figure ES-3 shows the selected preferred route options identified in the Study, and Figure ES-4 shows the potential benefits of the entire network of selected preferred route options. The selected preferred route options include enhancing non-daily Cardinal and Sunset Limited routes to daily. More details on the identification of preferred route options can be found in Chapter 5. FRA is not recommending advancing any selected preferred route option into project development or implementation without an additional detailed assessment of the service and capital projects needed to implement the selected preferred route options.

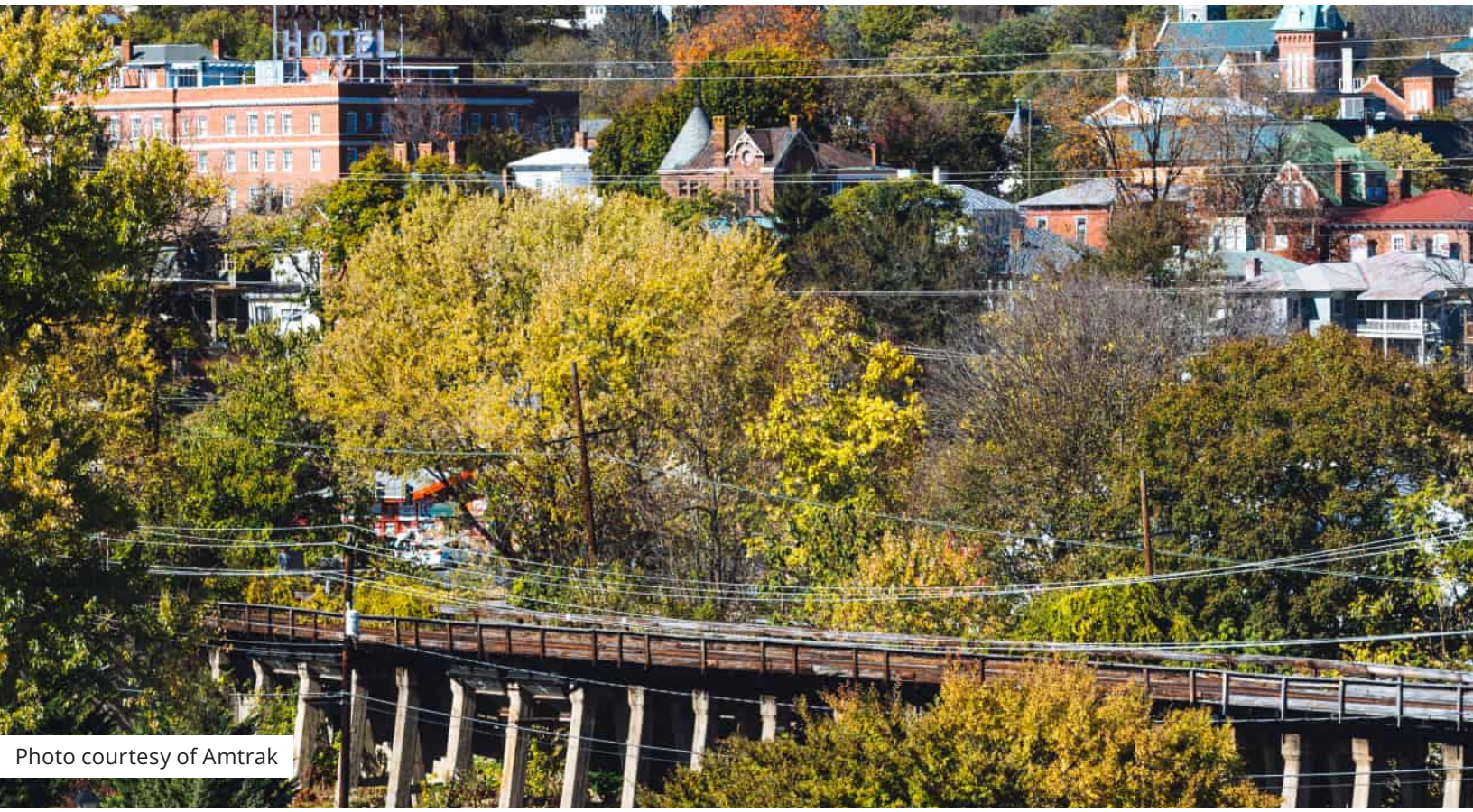


Photo courtesy of Amtrak

Figure ES-3. Selected Preferred Route Options

Further analysis and identification of funding would be necessary to advance the selected preferred route options through project planning and project development activities prior to implementation.

Figure ES-4. Potential Benefits of the Network of Selected Preferred Route Options

+61
Number of Additional MSAs Served

3,237
U.S. Higher Education Institutions Served

+39 million
Additional U.S. Population Served

75
National Parks, Recreation Areas, and Preserves Served

23,200
Long-Distance Route Miles Added

+67%
of Previously Unserved Population on Tribal Lands Added

+74
Additional U.S. Medical Centers Served

43% more
Rural, Transportation-Disadvantaged Population Served

1. Introduction

1.1 Amtrak Daily Long-Distance Service Study Requirements

The purpose of the Amtrak Daily Long-Distance Service Study (the Study) was to evaluate the restoration or enhancement to daily intercity passenger rail (as defined in 49 U.S.C. 24102(4)) service along Amtrak long-distance routes that occur on a non-daily basis or have been discontinued, as of November 15, 2021. Specifically, IIJA Section 22214 directed the Federal Railroad Administration (FRA) to conduct a Study to evaluate the restoration of daily intercity passenger rail service along:

- Any Amtrak long-distance routes that, as of the date of enactment of IIJA, were discontinued.
- Any Amtrak long-distance routes that, as of the date of enactment of IIJA, operate on a non-daily basis.

Under the statute, the Study must:

- Evaluate all options for restoring or enhancing to daily basis intercity passenger rail service along each Amtrak route.
- Select a preferred option for restoring or enhancing the service.
- Develop a prioritized inventory of capital projects and other actions that are required to restore or enhance the service, including cost estimates for those projects and actions.
- Develop recommendations for methods by which Amtrak could work with local communities and organizations to develop activities and programs to continuously improve public use of intercity passenger rail service along each route.
- Identify federal and non-federal funding sources required to restore or enhance the service.

In addition, under the statute, FRA may evaluate potential new Amtrak long-distance routes, with specific attention given to routes in service as of April 1971 but not continued by Amtrak when considering expansions of long-distance service, considering whether those new routes would:

- Link and serve ***large and small communities*** as part of a regional rail network.
- Advance the economic and social well-being of ***rural areas.***
- Provide ***enhanced connectivity*** for the national long-distance passenger rail system.
- Reflect public engagement and local and regional support for restored passenger rail service.

In conducting the Study, FRA was required to consult, through working groups or other forums, with a wide range of stakeholders, including:

- Amtrak;
- Each state along a relevant route;
- Regional transportation planning organizations and metropolitan planning organizations (MPOs), municipalities, and communities along those relevant routes, as selected by FRA;
- Host railroad carriers the tracks of which may be used for service;
- Organizations representing onboard Amtrak employees;
- Nonprofit organizations representing Amtrak passengers;
- Relevant regional passenger rail authorities;
- Federally recognized Indian Tribes; and
- Other entities selected by FRA.

At the conclusion of the Study, IIJA directed FRA to submit a Final Report to Congress that includes:

- Preferred options selected for restoring or enhancing Amtrak long-distance routes, and the reasons for selecting each option.
- Prioritized inventory of capital projects and other actions required to restore, enhance, or expand Amtrak long-distance service, including cost estimates for those projects and actions.
- Federal and non-federal funding sources required to restore, enhance, or expand Amtrak long-distance service.
- Estimated costs and public benefits of restoring, enhancing, or expanding intercity passenger rail transportation in the region impacted for each relevant Amtrak route.
- Any other information FRA determined to be appropriate.
  - IIJA Section 22214(b) requires the following for inclusion in the Study: Recommendations for methods by which Amtrak could work with local communities and organizations to develop activities and programs to continuously improve public use of intercity passenger rail service along each route. FRA has included this in the Final Report.
  - IIJA Section 22214(c) notes that in evaluating intercity passenger rail routes, FRA may evaluate potential new Amtrak long-distance services. FRA has included this evaluation in the Final Report.

This Final Report represents the conclusion of the Study and includes the following:

- **Chapter 1:** Introduction
- **Chapter 2:** Stakeholder Engagement
- **Chapter 3:** Network Expansion Considerations

- **Chapter 4:** Current Non-Daily Long-Distance Routes
- **Chapter 5:** Evaluation and Selection of Preferred Route Options
- **Chapter 6:** Cost Estimates
- **Chapter 7:** Public Benefits
- **Chapter 8:** Federal and Non-Federal Funding Sources
- **Chapter 9:** Implementation and Initial Prioritization
- **Chapter 10:** Working with Communities
- **Chapter 11:** Conclusion

1.2 Intercity Passenger Rail Background

1.2.1 Amtrak

1.2.1.1 History and Organization

Amtrak was established by the Rail Passenger Service Act of 1970, which relieved private U.S. railroads of their passenger rail service obligation and created Amtrak to fulfill that role instead (U.S. Congress 1970). In 1971, the U.S. Department of Transportation (DOT) Secretary designated 21 city pairs between which intercity passenger trains should operate, and Amtrak began service between those cities later that year (Volpe 1971). The new passenger rail system was about half the size (by route miles) of the pre-1971 U.S. passenger rail system, which had been operated by multiple railroads.

Amtrak is a corporation established and authorized by federal law. It is operated and managed as a for-profit corporation and is not a department or agency of the U.S. government. However, Amtrak's mission and goals, along with many requirements specific to the corporation, are detailed in 49 U.S.C. 24101. Amtrak receives funds to operate and manage its services from a variety of sources, including passenger ticket revenue, cost-sharing agreements with state partners, and the federal government. The Amtrak Board of Directors is appointed by the President of the United States and confirmed by the U.S. Senate (49 U.S.C. 24302). The federal government owns Amtrak's preferred stock and holds a lien on the mortgage on the Northeast Corridor (NEC), as well as most Amtrak-owned property and infrastructure (49 U.S.C. 24907). DOT is a member of the Amtrak Board of Directors and has a role in several congressionally established organizations that provide additional oversight of and direction to Amtrak, including the Northeast Corridor Commission (49 U.S.C. 24905) and the State-Amtrak Intercity Passenger Rail Committee (49 U.S.C. 24712).

1.2.1.2 Amtrak Service

Amtrak, which operates almost all intercity passenger rail services in the continental United States, serves more than 500 destinations in 46 states, and several locations in Canada. Amtrak has three operating service lines: NEC, state-supported, and long-distance. The service line framework was standardized under the Passenger Rail Investment and Improvement Act of 2008 (U.S. Congress 2008), and further developed in the Fixing America's Surface Transportation (FAST) Act in 2015 (U.S. Congress 2015). Each Amtrak route is part of a service line, and each service line and its associated routes have different service characteristics (and some have different funding sources); however, all routes in each service line are operated by Amtrak. Current Amtrak routes can be seen on Figure 1-1. A summary of Amtrak's service lines, as of June 2024, is in Table 1-1.

These operating service lines, except the NEC, primarily operate on host railroad tracks, which are not owned by Amtrak. Despite differences in governance and funding, from the customer perspective these service lines operate as a single network under the Amtrak brand. In addition to the service lines operated by Amtrak, Amtrak also operates a system of Amtrak Thruway bus services of through-ticketed motorcoach services to connect with areas not served by Amtrak trains.

In addition to Amtrak service, a privately operated company – Brightline Trains Florida, LLC – has recently begun operating an intercity passenger rail service in Florida between Miami and Orlando, Florida. DOT also selected the Nevada Department of Transportation for a $3 billion grant for Brightline West, a privately operated high-speed rail line between Las Vegas, Nevada, and Southern California Corridor (FRA 2023b). Outside of the continental United States, the State of Alaska owns the Alaska Railroad, which provides passenger service between Seward, Alaska, and Fairbanks, Alaska.

AMTRAK SERVICE

500+
destinations

46
states, and several locations in Canada

3
operating service lines

Figure 1-1. Amtrak's Passenger Rail Network (2024)

Data Source: Amtrak (Amtrak 2024d)

Table 1-1. Amtrak Service Lines

Service Line	Service Characteristics	Primary Operating Fund Source	Amtrak Routes	States Served	Passenger Miles (2023)
Northeast Corridor (NEC)	Routes on the NEC between Washington, DC, and Boston, Massachusetts. Relatively high-frequency daily service. Track primarily owned by Amtrak.	Ticket revenue.	2	8 states and Washington, DC	2,208.0 million
State-Supported	Routes under 750 miles; states/ agencies have contracts with Amtrak to operate service. Service frequency varies by state and route. Typically operate on privately owned host railroad tracks.	Ticket revenue and cost-sharing agreements with state partners; some federal financial support.	30	22 states and Washington, DC	1,572.3 million
Long-Distance	Routes over 750 miles; typically operate once per day in each direction. Typically operate on privately owned host railroad tracks.	Ticket revenue and federal financial support.	15	39 states and Washington, DC	2,042.8 million

Source: Amtrak Monthly Performance Report: Year-to-Date September FY 2023 (Amtrak 2023e)

1.2.1.3 Current Long-Distance Service and Passengers

Consistent with IIJA Section 22214, the Study focused solely on Amtrak as a service provider of long-distance routes.

Amtrak currently operates 15 long-distance routes, which are defined in statute as Amtrak routes over 750 miles (49 U.S.C. 24102(5)). Table 1-2 is a list of current long-distance routes. Long-distance routes form a backbone of the national passenger rail network across 39 states, stitching together regional state-supported routes, NEC, and connecting Amtrak Thruway bus services (Amtrak's system of through-ticketed services to connect with areas not served by Amtrak trains), creating connections that link ***large and small communities*** across the country. Of 46 states served by the Amtrak passenger rail network, 22 are served only by Amtrak long-distance routes; approximately 20 percent of long-distance passengers transfer to another Amtrak service, and about one out of every five long-distance passenger trips are to a station area outside a ***Metropolitan Statistical Area*** (MSA).

Long-distance routes provide the only passenger rail service in 22 of the 46 states in the Amtrak passenger rail network.

Most long-distance routes operate once per day in each direction (except for the Cardinal and Sunset Limited), with end-to-end travel times well over 12 hours. Due to the length of these routes, some communities are served only at night. Although most long-distance routes provide accommodations for both coach and sleeper services, the majority of long-distance passengers – over 80 percent – ride in coach. Passengers riding in coach tend to take relatively shorter trips (average trip length of 446 miles) than those in sleeper (average of just over 1,000 miles). Trip length is a key characteristic influencing mode choice; in the United States, air is the dominant mode for trips of more than 600 miles in length. In 2019, only about one quarter of long-distance route passenger rail trips were over 750 miles (Amtrak 2023a; BTS 2023a; FHWA 2023).

Although most long-distance routes provide accommodations for both coach and sleeper services, the vast majority – over 80 percent – of long-distance passengers ride in coach.

Table 1-2. Current Amtrak Long-Distance Routes

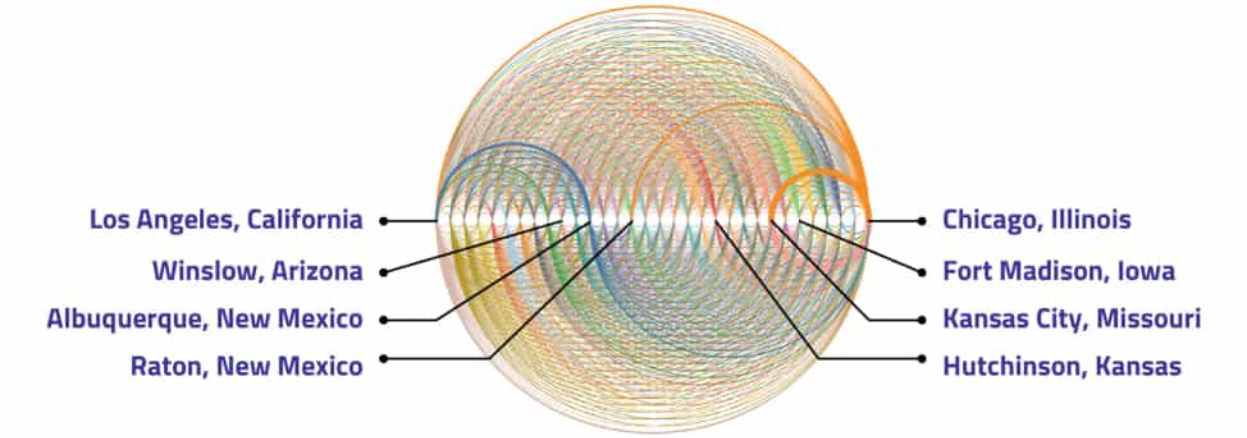
Route	Route Distance (miles)	Endpoints	Frequency	Services Offered	FY 2023 Ridership
Auto Train	855	Sanford, Florida – Lorton, Virginia	Daily	Coach Sleeper	283,645
California Zephyr	2,438	Emeryville, California – Chicago, Illinois	Daily	Coach Sleeper	328,665
Capitol Limited	780	Chicago, Illinois – Washington, DC	Daily	Coach Sleeper	126,309
Cardinal	1,147	Chicago, Illinois – New York, New York	3 round trips per week	Coach Sleeper	82,698
City of New Orleans	934	New Orleans, Louisiana – Chicago, Illinois	Daily	Coach Sleeper	233,876
Coast Starlight	1,377	Los Angeles, California – Seattle, Washington	Daily	Coach Business Sleeper	337,355
Crescent	1,377	New Orleans, Louisiana – New York, New York	Daily	Coach Sleeper	270,628
Empire Builder	2,205 (Seattle, Washington – Chicago, Illinois) 2,255 (Portland, Oregon – Chicago, Illinois)	Portland, Oregon / Seattle, Washington – Chicago, Illinois	Daily	Coach Sleeper	348,993
Lake Shore Limited	959 (Chicago, Illinois – New York, New York) 849 (Chicago, Illinois – Boston, Massachusetts)	Chicago, Illinois – New York, New York / Boston, Massachusetts via Albany-Rensselaer, New York	Daily	Coach Sleeper	351,049

Route	Route Distance (miles)	Endpoints	Frequency	Services Offered	FY 2023 Ridership
Palmetto	829	Savannah, Georgia – New York, New York	Daily	Coach Business	318,005
Silver Meteor	1,389	Miami, Florida – New York, New York	Daily	Coach Sleeper	283,890
Silver Star	1,522	Miami, Florida – New York, New York	Daily	Coach Sleeper	351,728
Southwest Chief	2,265	Los Angeles, California – Chicago, Illinois	Daily	Coach Sleeper	253,838
Sunset Limited	1,995	Los Angeles, California – New Orleans, Louisiana	3 round trips per week	Coach Sleeper	77,288
Texas Eagle	1,305 between San Antonio, Texas, and Chicago, Illinois	Chicago, Illinois - San Antonio, Texas, with some through-cars that operate between Los Angeles, California, and San Antonio, Texas, in combination with the Sunset Limited	Daily	Coach Sleeper	294,439

Source: Amtrak Route Performance Report: Year-to-Date September FY 2019 (Amtrak 2020), Amtrak General and Legislative Annual Report and Fiscal Year 2025 Grant Request (Amtrak 2024b).

Less than 10 percent of riders on long-distance routes travel end to end; these routes have many different ***origin-destination (OD) pairs***, or station pairs, along one line, giving passengers the opportunity to travel between and among rural and urban communities. Figure 1-2 shows an example of the many different station pair options along a single long-distance route. The Southwest Chief runs once per day in each direction between Los Angeles, California, and Chicago, Illinois, via stations in Illinois, Iowa, Missouri, Kansas, Colorado, New Mexico, Arizona, and California. The Southwest Chief serves 32 stations, providing 496 different station pair options for passengers to travel between, linking ***large and small communities*** along the way. In addition to station pairs along the route, the Southwest Chief connects with 9 other Amtrak long-distance routes, 9 Amtrak state-supported routes, and 32 Amtrak Thruway bus connections. FRA reviewed current Amtrak long-distance service and trip types, as well as market opportunities for expansion, including restoration of discontinued routes, in Chapter 3.

Figure 1-2. Illustration of Station Pair Options on the Southwest Chief



Source: Amtrak Schedules (Amtrak 2024d)
Note: The figure illustrates all 496 station pairs for the 32 station stops on the Southwest Chief, with stations arranged from Los Angeles, California, on the left to Chicago, Illinois, on the right. Each colored line represents a station pair.

1.2.2 Federal Government

1.2.2.1 FRA

FRA, created in 1966, is an agency within DOT. FRA's mission is to enable the safe, reliable, and efficient movement of people and goods for a strong America, now and in the future. FRA accomplishes this mission primarily through issuance, implementation, and enforcement of safety regulations, managing federal investments in freight and passenger rail across the country, and research and technology development.

Amtrak was a key stakeholder in this Study, but the Study was conducted – per IIJA requirements – by FRA.

FRA's Office of Railroad Development, which conducted the Study in compliance with IIJA requirements, is responsible for working with stakeholders to develop cohesive goals and policies for maintaining and improving the United States' freight and passenger rail networks, as well as for managing a portfolio of grant investments that contribute to achieving these goals. This office also oversees grant agreements with Amtrak to administer federal funds appropriated by Congress to support Amtrak's operations, infrastructure, and equipment.

1.2.2.2 Federal Funding and Statutory Support

The federal government provides ongoing financial support to Amtrak – typically in the form of an annual directed grant, subject to Congressional appropriations – to cover certain costs related to Amtrak's operations, capital investments, and debt, including costs associated with operating the long-distance services (refer to Chapter 8 for additional information on funding). Congress has also indicated the importance of long-distance service, especially in rural communities, in the following provisions of IIJA, other than appropriations and authorizations of appropriations:

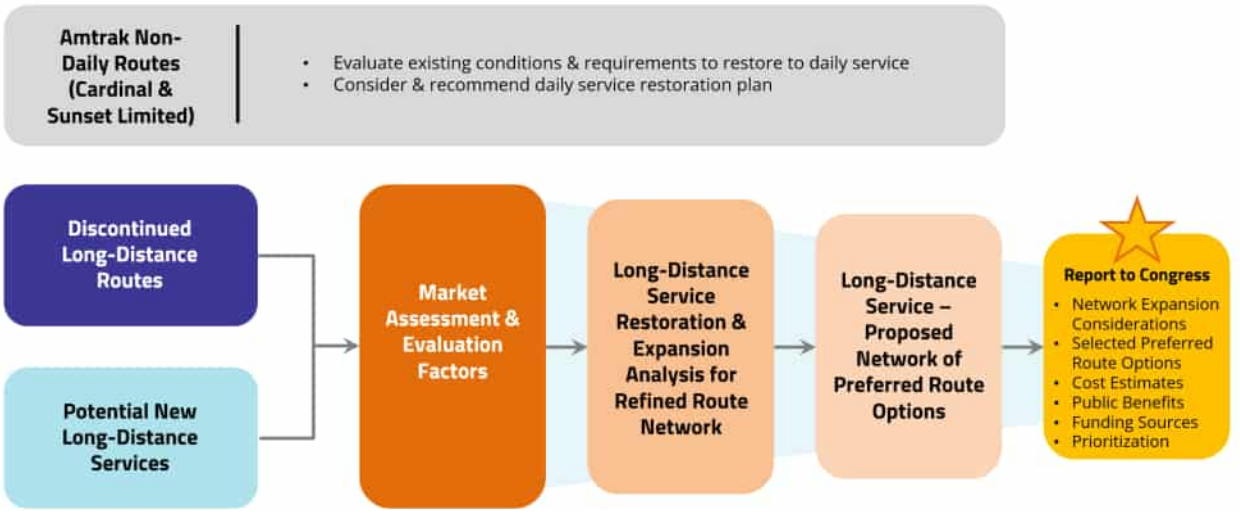
- **Section 22210, Protecting Amtrak Routes Through Rural Communities:** Amtrak may not discontinue, reduce the frequency of, suspend, or substantially alter the route of rail service on any segment of any long-distance route in any fiscal year in which Amtrak receives adequate federal funding for such route on the national network.
- **Section 22201(a)(4), Amtrak Findings, Mission, and Goals:** Amended 49 U.S.C. 24101(a) to include, as paragraph (9), "Long-distance routes are valuable resources of the United States that are used by rural and urban communities."
- **Section 22201(b)(4), Amtrak Findings, Mission, and Goals:** Amended 49 U.S.C. 24101(c) to include, as paragraph (13), that Amtrak shall "support and maintain established long-distance routes to provide value to the Nation by serving customers throughout the United States and connecting urban and rural communities."
- **Section 22202(a)(4), Composition of Amtrak's Board of Directors:** Amended 49 U.S.C. 24302(a) to include Amtrak Board representation from individuals who reside in states served by a long-distance route operated by Amtrak.
- **Section 22308, Corridor Identification and Development (Corridor ID) Program:** This is a planning and development program that guides intercity passenger rail development throughout the country. The term "intercity passenger rail corridor" is defined as --
  - A new intercity passenger rail route of less than 750 miles.
  - Enhancement of an existing intercity passenger rail route of less than 750 miles.
  - Restoration of service over all or portions of an intercity passenger rail route formerly operated by Amtrak.
  - Increase of service frequency of a long-distance intercity passenger rail route.

Through financial support for operations, the federal government is the primary sponsor of Amtrak's long-distance services. The average long-distance route (excluding the Auto Train) traverses eight states and serves 29 stations.

1.3 Study Approach

FRA initiated the Study with a review and analysis of discontinued and current long-distance services and their respective travel markets. Those analyses were the foundation for the methods and tools used to evaluate concepts to restore or expand long-distance services. The Study concluded with the selection of preferred route options for service restoration, enhancement, or expansion; the estimation of operating and maintenance (O&M) costs; development of an inventory of selected capital projects and their estimated costs; identification of public benefits; analysis of potential funding sources; and identification of other recommendations. Figure 1-3 provides an overview of the Study approach.

Figure 1-3. Study Approach



1.4 Relationship of Study to FRA Project Lifecycle

The Study is a crucial early step in a comprehensive process to identify the actions needed to enhance long-distance service. The *FRA Guidance on Development and Implementation of Railroad Capital Projects* describes the stages in the development and implementation of railroad capital projects, from inception to operation (FRA 2023a). The project lifecycle described in this guidance has six stages, beginning with the identification of a railroad capital project during systems planning, followed by project planning and project development in the development stages, and final design and construction in the implementation stage to project completion and operation.

The FRA project lifecycle is shown on Figure 1-4, where the line immediately below each lifecycle stage identifies some of the FRA intercity passenger rail efforts and funding programs intended to support the identification and completion of the lifecycle stages. The Study is comparable to the completion of the systems planning phase and the initiation of project planning by identifying initial passenger service-required capital projects for the selected preferred route options, which fulfills the intent of the legislation. The selected preferred route options identified in this Final Report to Congress will require significant additional time, resources, and analysis to further identify and refine projects, costs, funding sources, and other key items needed for implementation. Significantly more project planning is necessary to advance the selected preferred route options from this Study through the FRA project lifecycle.

Figure 1-4. FRA Project Lifecycle and Intercity Passenger Rail Programs

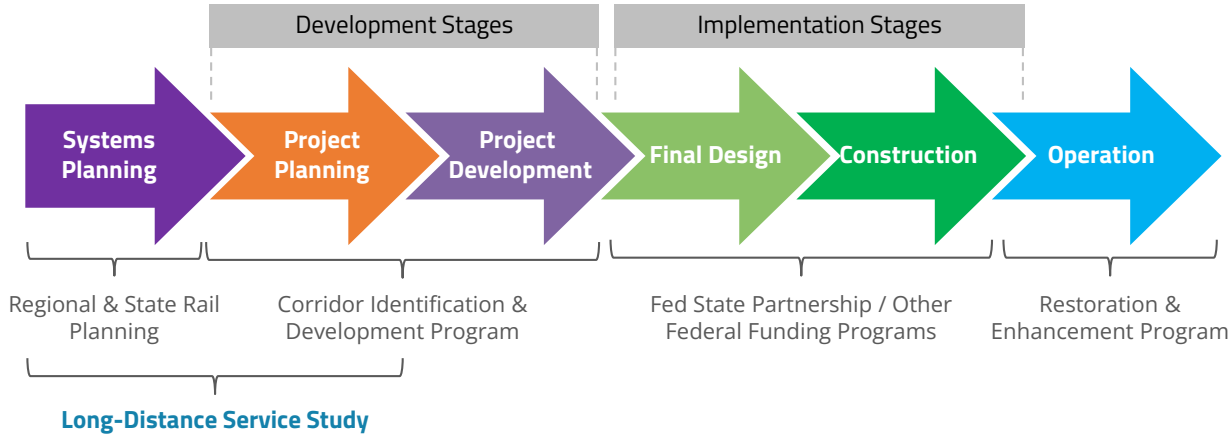


Figure 1-5 provides a summary of the key systems and project planning tasks undertaken by the Study, as well as the tasks needed to advance the selected preferred route options. Completing subsequent phases of the FRA project lifecycle will require further analysis, including coordination with host railroads and other stakeholders associated with any selected preferred route option for an enhanced, restored, or new route, as well as identifying significant funding for infrastructure improvements, fleet needs, and ongoing operating support. Currently, there is no sustained financial support or program to construct or operate the selected preferred route options identified in the Final Report, although some of them may be eligible for additional planning funds through FRA's Corridor ID Program.

> Currently, there is no sustained financial support to further advance the selected preferred route options identified by the Study.

Figure 1-5. Long-Distance Service Study Key Systems and Project Planning Tasks

Key Systems and Project Planning Tasks Undertaken by the Study

- ✓ Create a foundation for further planning of potential future long-distance services
- ✓ Examine broad needs, challenges, and opportunities
- ✓ Consider links with other transportation modes
- ✓ Identify selected passenger service-required projects, including their respective costs and benefits

Key Project Planning Tasks Subject to Additional Analysis AFTER the Study

- ❑ Route, service, and passenger service-required capital project recommendations are subject to further development and refinement under subsequent detailed project planning and project development efforts
- ❑ Identify potential capacity related improvements and operational issues
- ❑ Develop conceptual engineering concepts

1.5 Study Opportunities and Challenges

1.5.1 Opportunities

Long-distance network service reductions over the past 50 years have resulted in some communities losing passenger rail transportation options, as well as the related economic and social benefits of those connections. Some previous studies have primarily focused on route restructuring or eliminating services in the attempt to reduce federal operating financial support for Amtrak long-distance services (DOT 1979). This Study instead looked at options for restoring, enhancing, or expanding long-distance routes to daily service, consistent with IIJA Section 22214.

Long-distance services are an important component of these goals, but they are only one piece of an integrated and enhanced passenger rail system.

FRA is building the foundation for a long-term rail program, bringing world-class passenger rail service to regions across the country and growing a safer, cleaner, and more equitable rail system. Long-distance services are an important component of these goals, but they are only one piece of an integrated and enhanced passenger rail system. Along with other passenger rail programs and efforts, including those established in IIJA, there are more opportunities to develop passenger rail than ever before, including opportunities to grow essential connections to heavily populated areas, and opportunities to strengthen connections with small, often rural communities that have borne the burden of past passenger rail service reductions.

Through the Study, FRA evaluated long-distance route options for restoring or enhancing to daily service along long-distance routes that were discontinued by Amtrak and long-distance routes that occur on a non-daily basis as of November 15, 2021. FRA also evaluated long-distance route options for new long-distance routes with specific attention provided to long-distance routes in service as of April 1971 but not continued by Amtrak.

FRA selected preferred route options for service restoration, enhancement, or expansion, as directed by IIJA. The preferred route options selected by FRA as a result of the Study are referred to as "selected preferred route options." The selected preferred route options are not FRA's proposals for service, and do not restrict or preclude future plans or planning activities. Future planning efforts may identify different alignments or cities to be served by new, expanded, or restored long-distance services. More details on the analysis and identification of selected preferred route options can be found in Chapter 5.

The selected preferred route options reflect current travel demand, as well as opportunities to increase access to rural and ***transportation-disadvantaged communities***, increase connectivity with existing and future services, consider the impacts of the ***discontinued network***, and address significant stakeholder input over the life of the Study. The selected preferred route options could increase access to intercity passenger rail for

millions of Americans and create a more robust integrated network. These options may also create new and increased connections with Amtrak intercity passenger rail, including other long-distance routes, state-supported routes, and NEC routes, as well as other modal options.

During the Study, FRA received significant stakeholder feedback related to the existing long-distance network as well as other intercity passenger rail expansion efforts. This feedback and interest highlight an opportunity to develop a broader intercity passenger rail vision that assesses all potential market and service needs through an integrated network. Chapter 10 provides details on potential future opportunities to promote a more integrated, cohesive vision for rail service that includes analysis of multimodal transportation needs and opportunities in rural and small urban areas.

1.5.2 Challenges

FRA identified significant challenges in implementing the selected preferred route options identified in the Study. These challenges include:

- **Planning Challenges**: The Study fulfills a crucial early step to identify actions needed to restore or enhance long-distance service or expand the long-distance route network. But developing new passenger rail services takes time and requires a rigorous process. Further analysis would be necessary to advance selected preferred route options through project planning, including time-intensive detailed engineering work and cost estimates for capital and infrastructure projects needed for new passenger rail service. This work would require significant coordination with host railroads and other stakeholders. Amtrak long-distance routes primarily operate on host railroad tracks, which Amtrak does not own. The Study identified conceptual route and service options, but different alignments and variations of the selected preferred route options may be identified by future project planning through more refined route and service analyses. Additionally, although the Study meets the requirements under Section 22214, this effort should not preclude other planning efforts that may assess long-distance service changes. The Study lays an initial framework for an expanded and interconnected long-distance passenger rail network, but other approaches to assessing long-distance services changes and improvements may be developed in subsequent planning efforts.
- **Funding Challenges:** Existing intercity passenger rail discretionary grant programs could potentially fund limited capital or infrastructure projects associated with some new long-distance routes, but the scope and scale of existing intercity passenger rail funding programs is not structured to meet the significant funding needs associated with new long-distance passenger rail service. FRA's intercity passenger rail competitive grant programs are already oversubscribed; the scope and scale of these passenger rail grant programs are insufficient to fund capital needs for the existing national network and are not structured to meet the significant funding needs associated with new long-distance passenger rail service. In addition, the

federal government, under the existing framework, would need to commit to ongoing operations funds for new routes, on an annual basis. More information on existing funding programs can be found in Chapter 8.

- **Governance Challenges:** Through financial support for operations and some capital expenses, as well as many related statutory requirements, the federal government is currently positioned as the primary sponsor of Amtrak's long-distance services, although Amtrak is responsible for operations and related business decisions, in compliance with various statutory requirements related to its role as an intercity passenger rail service operator. Unlike state-supported services, states do not participate in any cost-sharing for the operations of long-distance routes. Additionally, unlike NEC and state-supported services, long-distance service does not have a committee to serve as a forum for stakeholders to provide feedback for the purpose of improving Amtrak long-distance service, including opportunities for planning and service efficiencies. The Amtrak long-distance network has not changed significantly for several decades; the roles and responsibilities for network changes or expansion need to be established and/or clarified, including which parties are responsible for planning, funding, and construction related to new service.
- **Operational Challenges**
  - **On-Time Performance**: In FY 2023, just over 52 percent of Amtrak long-distance passengers arrived at their destination within 15 minutes of their published scheduled arrival time (Amtrak 2023d). Long-standing issues related to delays on these routes have reduced reliability for passengers and increased operating costs. These service challenges would likely need to be considered and addressed in the implementation of potential new long-distance service.
  - **Access and Infrastructure Improvements to Host Railroad Lines**: Amtrak long-distance routes primarily operate on host railroad tracks, which Amtrak does not own. Except in emergency situations, Amtrak services have preference over freight transportation using a rail line (49 U.S.C. 24308(c)). Amtrak engages with host railroads on Amtrak passenger train scheduling and infrastructure improvements on these shared-use corridors, resulting in bilateral agreements between Amtrak and host railroad carriers. The existing framework for Amtrak and host railroad engagement regarding access and responsibilities for infrastructure improvements is not always clear, which can complicate implementation of new long-distance service. Even changes in current service schedules can lead to lengthy negotiations between Amtrak and host railroads, as well as other passenger rail operators who may use the tracks.
  - **Fleet Availability and Industry Capacity**: While IIJA provided Amtrak funding to replace Amtrak's obsolete passenger equipment, the existing Amtrak fleet of vehicles is insufficient to undertake a significant expansion of long-distance service. Additional funding and staffing would be required to build, operate, and maintain an expanded network and to provide additional vehicles for expanded service.

- **Nighttime Only Service**: Since all Amtrak long-distance routes are over 750 miles in length and have schedules that exceed 12 hours, some communities are only served by long-distance routes during the night. About 29 percent of stations on long-distance routes have at least some nighttime service and 12 percent have only nighttime service (Amtrak 2022e). Although long-distance routes might be the only intercity passenger rail service for some communities, that benefit is minimized in communities with only nighttime service.

- **Study Technical Limitations**

  - **Initial High-level Analysis**: Since the Study was a system planning analysis, there were limitations on the ability to produce detailed project-level estimates. Technical components assessed at a relatively high-level include the following:

    ✓ Passenger and freight operating schedules for each of the selected preferred route options. The conceptual service does not consider existing or future rail traffic conditions.

    ✓ Analysis of alignment capacity. Systemwide average scheduled speeds of existing Amtrak long-distance route schedules were used to estimate travel times on the selected preferred route options.

    ✓ Amtrak station conditions. The Study relied on generic identification of station types based upon Amtrak's definition of Amtrak stations (Amtrak 2022c).

    ✓ Travel demand and ridership forecasts for each of the selected preferred route options. The concept-level demand projections were developed based on Federal Highway Administration (FHWA) (FHWA 2023) and Bureau of Transportation Statistics (BTS) data sources (BTS 2021, 2022, 2023a). Detailed analysis of travel demand to refine ridership forecasts requires coordination with host railroads, Amtrak, and the communities served.

  - **Capital Projects and Cost Estimates**: Based on the scope and scale of the Study, and after feedback from stakeholders, the Study identified a subset of capital projects needed for passenger service on selected preferred route options (such as track upgrades to meet passenger service requirements, stations, and fleet), but not the full range of capital projects that could be needed, including potentially significant projects related to track capacity and grade crossing improvements. These complex, time-intensive projects would need to be determined based on future studies and analysis. Chapter 6 contains more details on the Study's cost estimates.

2. Stakeholder Engagement

In conducting the Study, FRA engaged stakeholders through working groups or other forums, including Amtrak; regional planning organizations; states, municipalities, and communities along relevant routes; host railroads; organizations representing onboard Amtrak employees; nonprofit organizations representing Amtrak passengers; relevant regional passenger rail authorities; and federally recognized Indian Tribes.

The goals of the stakeholder engagement activities were to:

- Execute an engagement process that supports the requirements in Section 22214 of IIJA.
- Establish trust and accountability with agencies, stakeholders, and the public through transparent and frequent communication.
- Build and sustain support for the Study methodologies and recommendations that extend beyond the life of the Study, including potential future implementation of Study recommendations, by sharing information that fosters support for advancing the Study.
- Increase public awareness by providing easily accessible information and ample opportunity for two-way communication.

FRA conducted a robust public engagement process on the Study since 2022, including 24 regional working group meetings with stakeholders in 21 cities across the country. The Study received over 50,000 stakeholder and public comments, the overwhelming majority of which indicated strong support for long-distances services and/or passenger rail in general.

The Study received over 50,000 stakeholder and public comments, showing strong support for passenger rail.

2.1 Stakeholder Engagement Process

2.1.1 Project Website and Social Media

In October 2022, FRA established and launched a website (www.fralongdistancerailstudy.org) to share Study information and create a mechanism for interested parties to sign up for a mailing list. Also, in coordination with the launch of the website, FRA posted on Facebook, Instagram, LinkedIn, and Twitter (now X). In June 2023, FRA added a Tribal Interest section to the website to further engage and communicate with the tribal interests associated with the Study. From the launch of the website to July 2024, more than 137,000 unique visitors accessed the website to review Study information.

2.1.2 Regional Working Group Meetings

A key component of Study engagement was a series of regional working group meetings across the country. Attendees reviewed technical elements of the Study and shared stakeholder feedback to help guide FRA as Study methodologies and results were developed. FRA hosted a total of 24 regional working group meetings across the country—four meetings in each of the six regions. Each meeting was hosted both virtually and in-person with in-person attendance encouraged. Figure 2-1 shows the locations of each regional working group meeting. Table 2-1 lists the dates of the meetings.

Attendees included representatives from state DOTs, regional passenger rail authorities, nonprofit organizations representing Amtrak passengers, Amtrak, regional planning organizations (MPOs), municipalities, host railroad carriers, organizations representing onboard Amtrak employees, federally recognized Indian Tribes, economic development organizations, and the National Park Service. FRA invited stakeholders in Utah, Colorado, North Dakota, South Dakota, Kansas, Mississippi, Kentucky, and Washington, DC, to participate in more than one region or self-select the region most applicable to them.

FRA posted meeting materials, including all presentations, results of interactive activities, and meeting summaries on the Study website after each meeting series. Those materials are available at https://fralongdistancerailstudy.org/meeting-materials/.

Photo courtesy of Amtrak

Figure 2-1. Regional Working Group Meeting Locations

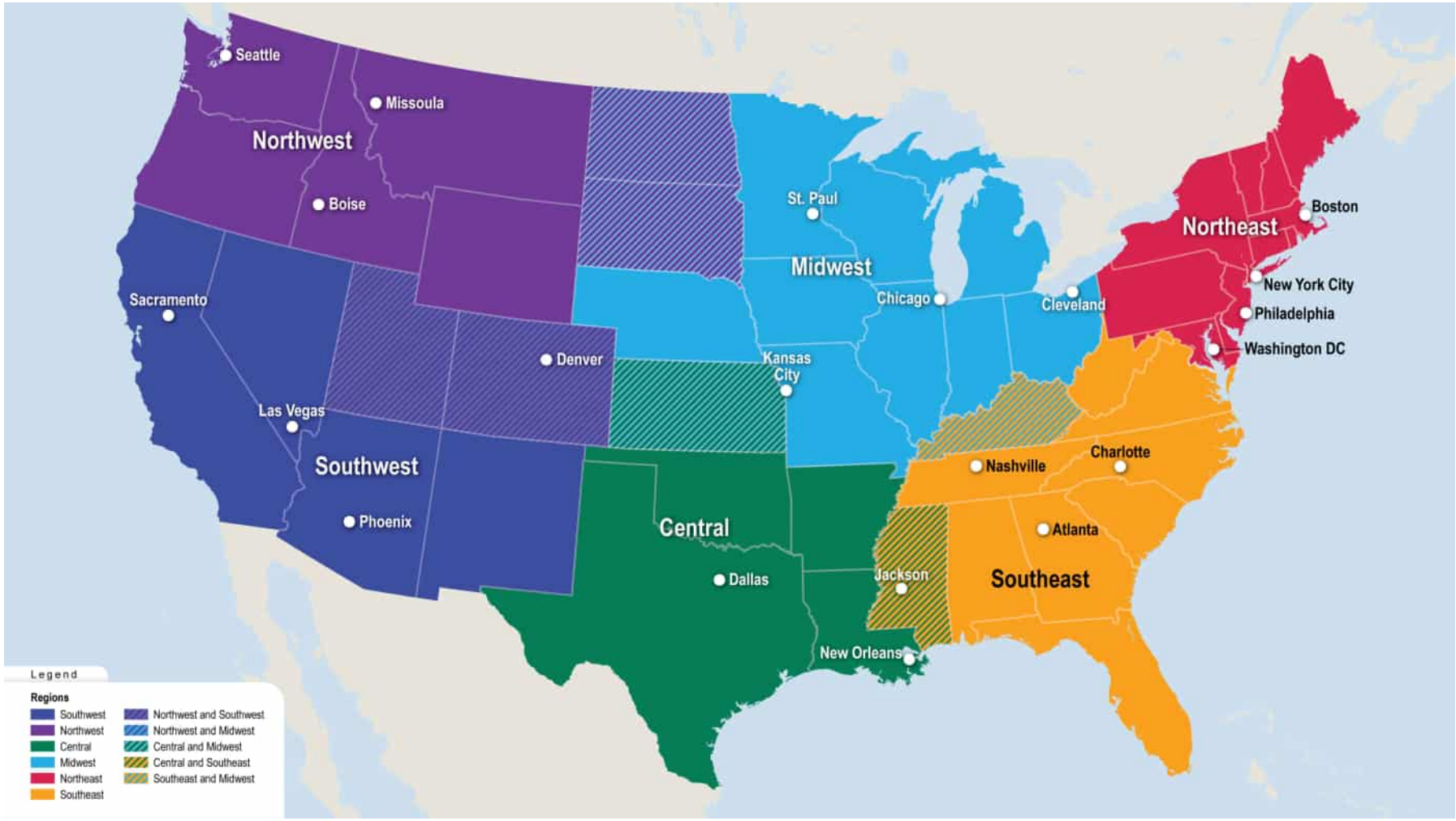


Table 2-1. Regional Working Group Meeting Locations and Dates

Region	Meeting Location	Date	Region	Meeting Location	Date
Meeting Series 1			**Meeting Series 2**		
Southeast	Washington, DC	1/31/2023	Southeast	Atlanta, GA	7/11/2023
Northeast	Washington, DC	2/3/2023	Central	New Orleans, LA	7/13/2023
Central	Jackson, MS	2/7/2023	Northwest	Boise, ID	7/18/2023
Midwest	Chicago, IL	2/9/2023	Southwest	Phoenix, AZ	7/20/2023
Northwest	Denver, CO	2/14/2023	Northeast	Philadelphia, PA	7/25/2023
Southwest	Denver, CO	2/15/2023	Midwest	Cleveland, OH	7/27/2023
Meeting Series 3			**Meeting Series 4**		
Southwest	Sacramento, CA	2/6/2024	Northeast	New York, NY	6/4/2024
Southeast	Charlotte, NC	2/7/2024	Midwest	St. Paul, MN	6/5/2024
Northwest	Seattle, WA	2/8/2024	Northwest	Missoula, MT	6/6/2024
Central	Kansas City, MO	2/13/2024	Southwest	Las Vegas, NV	6/11/2024
Midwest	Kansas City, MO	2/14/2024	Central	Dallas, TX	6/12/2024
Northeast	Boston, MA	2/15/2024	Southeast	Nashville, TN	6/13/2024

2.1.3 Tribal Engagement

Prior to each series of regional working group meetings, FRA sent invitations to 347 federally recognized Indian Tribes in the contiguous 48 states, using the Department of the Interior's Bureau of Indian Affair's list of federally recognized Indian Tribes (Indian Affairs Bureau 2023). FRA also offered federally recognized Indian Tribes the opportunity to attend Tribal Interest Briefings.

In addition to the regional working group meetings, 24 tribes expressed interest in the Study and FRA held 4 Tribal Interest Briefings. FRA also presented Study materials at the National Transportation in Indian Country Conference in August 2023.

2.1.4 Host Railroad Engagement

Host railroads are railroads whose tracks can be used for passenger service identified in the Study. These include Class I rail carriers (referred to hereinafter as Class I railroads), short line and regional railroads (Class II and Class III rail carriers), and other publicly owned railroads (Surface Transportation Board [STB] 2024).

Most track miles to be assessed for the restoration or expansion of long-distance passenger rail service were anticipated to be on Class I railroad track; therefore, FRA concentrated early outreach efforts on engagement with the Class I railroads. FRA conducted individual introductory meetings with six of the seven then-existing Class I railroads in October and December 2022, and kept the railroads informed as the Study progressed. FRA held pre-briefings with Class I railroads prior to regional working group meetings. FRA also invited Class I railroads to attend the regional working group meetings that pertained to their respective regions. Additionally, FRA held a briefing with the American Short Line and Regional Railroad Association in April 2024. FRA did not engage with the Class I railroad Kansas City Southern because no Amtrak trains were hosted on Kansas City Southern-owned tracks; Kansas City Southern also merged with Canadian Pacific Railway in April 2023. Among the Class I railroads, representatives from Burlington Northern Santa Fe Railway (BNSF), Norfolk Southern Corporation, Canadian Pacific, Canadian National Railway, CSX Transportation, and Union Pacific Railroad attended regional working group meetings.

2.1.5 Amtrak Labor Union Engagement

Amtrak's on-board employees (defined generally as train and engine crews and on-board service personnel) are represented by several labor organizations, such as the Brotherhood of Locomotive Engineers and Trainmen; the Transportation Communications Union; the Transportation Communications Union – American Railway and Airline Supervisors Association; the Transportation Division of the International Association of Sheet Metal, Air, Rail and Transportation Workers; Amtrak Service Workers Council Transportation Workers; Transport Workers Union of America; and Unite-Here. FRA provided briefings to Amtrak Labor Union representatives three times throughout the Study.

2.1.6 Additional Engagement

FRA presented the Study materials to over 20 stakeholder groups, including regional passenger rail authorities and passenger advocacy groups. FRA also provided briefings to a variety of organizations at their request. They include:

- American Association of State Highway and Transportation Officials Council on Rail Transportation – September 22, 2022.
- I-20 Corridor Passenger Rail Stakeholder Convening – November 3, 2022.
- Midwest Interstate Passenger Rail Commission – November 18, 2022.
- Big Sky Passenger Rail Authority – December 14, 2022.
- Transportation Research Board – January 3, 2023.
- United Rail Passenger Alliance – January 12, 2023.
- Rail Passengers Association RailNation – March 10, 2023.
- Southeast Rail Forum – March 21, 2023.
- Big Sky Passenger Rail Authority Annual Conference – August 9, 2023.

- Midwest Interstate Passenger Rail Commission – September 19, 2023.
- Rail Passengers Association – October 7, 2023.
- States for Passenger Rail Coalition – October 10, 2023.
- Rail Passengers Association RailNation – March 18, 2024.
- National Park Service – March 24, 2024.
- Big Sky Passenger Rail Authority Annual Meeting – June 7, 2024.

2.1.7 Selected Media Coverage

Local and national media covered the Study and the preliminary 15 preferred route options, using content from the Study website and comments provided by FRA upon request. Local news outlets in 15 cities, including Tallahassee, Florida; Dayton, Ohio; Tampa, Florida; Helena, Montana; Minneapolis, Minnesota; Des Moines, Iowa; Sioux Falls, South Dakota; Wichita, Kansas; Amarillo, Texas; Cheyenne, Wyoming; Seattle, Washington; Columbus, Ohio; Kansas City, Missouri; Springfield, Missouri; and Salt Lake City, Utah, produced radio, television, and digital stories about the Study. Outlets included the *Montana Free Press*, the *Minneapolis Star Tribune*, *Tampa Bay Times*, the *Salt Lake Tribune*, West Central Florida's National Public Radio, and others. National trade and travel-focused media such as Railway Age (Alan 2023), Trains.com (Johnston 2024), and Thrillist (Lawler 2023) also produced stories.

2.2 Summary of Public and Stakeholder Comments

In addition to feedback received from regional working group meetings and other forums, FRA received more than 50,000 comments via a comment form on the Study website and email address. FRA received most of these comments (over 47,000) in February and March 2024, after the preliminary 15 preferred route options discussed in regional working group meetings were posted on the Study website.

Due to the high-volume of messages received, FRA analyzed many of the comments using Artificial Intelligence (AI). The goal of the AI analysis was a first-level review to identify routes, markets, and topics addressed by the comments. FRA validated the AI analysis by reviewing 500 randomly selected comments to confirm the correct routes, markets, and topics were identified.

Key themes that emerged from the comments include:

- **Support for Passenger Rail:** Very strong support for the Study and expansion of long-distance passenger rail; 99 percent of comments supported the Study, and 23 percent of the comments offered broad support for passenger rail, without mentioning specific markets or routes.
- **Support for Preferred Route Options:** The preferred route options mentioned most often in the public comments were Dallas/Fort Worth – Miami and Chicago – Miami. Chicago, Illinois, and Miami, Florida, were the cities mentioned most often.

Tallahassee, Florida; Dallas/Fort Worth, Texas; and New Orleans, Louisiana, were also mentioned frequently in the comments (Figure 2-2).

- **Preferred Route Option Changes**
  - **New Cities:** Requests to add cities that were not directly served by the preferred route options identified; in each region, the cities that received the most comments (generally any cities that received over 100 public and stakeholder comments) included Boston, Massachusetts; Buffalo, New York; Cleveland, Ohio; Fort Wayne, Indiana; Butte, Montana; San Diego, California; Little Rock, Arkansas; Tampa, Florida; Memphis, Tennessee; and Charlotte, North Carolina. Opportunities to serve these markets directly in the network of selected preferred route options are described in Section 5.3.
  - **Increased Frequencies:** Interest in evaluating twice daily service on the preferred route options identified as well as on the existing long-distance network.
  - **International Service:** Desire for FRA to evaluate long-distance service to Canada and Mexico. Currently, long-distance routes only serve the contiguous United States.
  - **Extensions to Existing Long-distance Routes:** Interest in extending existing long-distance routes.
- **Services, Education, and Recreation:** Support for increasing access to places of interest such as National Parks, ***military installations***, colleges, etc.
- **Recurring Long-Distance Engagement and Planning:** Support for enhanced, recurring long-distance network planning efforts, as well as increased long-distance service stakeholder engagement.
- **Implementation:**
  - Concerns regarding the time needed to implement selected preferred route options, and a strong desire to increase the speed with which projects can be developed.
  - Need for continued engagement with host railroads on potential recommendations, considering the capacity needs of the tracks shared by both freight and passenger rail, as well as other key issues.

Figure 2-2. Cities Mentioned in Stakeholder and Public Comments from February 6, 2024, to March 11, 2024

Further analysis and identification of funding would be necessary to advance the selected preferred route options through project planning and project development activities prior to implementation.

3. Network Expansion Considerations

Amtrak currently operates 15 long-distance routes in 39 states throughout the contiguous United States, all of which (except the Auto Train) have connections to other passenger rail services, and some of which also connect to commuter rail services and local transit services. Since Amtrak began passenger rail service in 1971, at least 15 long-distance routes have been discontinued, and 4 long-distance routes that were in service before Amtrak (as of April 1971) were not continued when Amtrak began operations (Table 3-1). The current long-distance route network has remained mostly static since a reduction in service on the Sunset Limited after Hurricane Katrina in 2005, and temporary service reductions during the COVID-19 pandemic.

15
existing long-distance routes operated by Amtrak

39
states throughout the contiguous United States

To identify potential long-distance expansion opportunities, FRA first reviewed trends in how people have traveled over the past three decades using long-distance passenger rail. FRA also considered competing modes for long-distance travel such as air and travel by motor vehicles (automobile and intercity bus), as well as demographic and socioeconomic conditions of cities currently or previously served by Amtrak long-distance passenger rail.

Table 3-1. Discontinued Routes (or Discontinued Network)

Route Name	Endpoints	Substantial Discontinued Segments Still Served by Amtrak with One-Seat Rides
Long-distance routes in service as of April 1971 but not continued by Amtrak		
City of Miami	Chicago, Illinois – St. Petersburg, Florida, and Miami, Florida	–
George Washington	Washington, DC – St. Louis, Missouri	–
Pan American	Cincinnati, Ohio – New Orleans, Louisiana	–
San Francisco Chief	Chicago, Illinois -- Richmond, California	–

Route Name	Endpoints	Substantial Discontinued Segments Still Served by Amtrak with One-Seat Rides
Long-distance routes that have been discontinued by Amtrak as of November 15, 2021		
Broadway Limited/ Three Rivers	Chicago, Illinois – New York, New York	–
Champion	New York, New York – St. Petersburg, Florida	Discontinued route segment between New York, New York, and Tampa, Florida, is currently served by the Silver Meteor.
Desert Wind	Chicago, Illinois – Los Angeles, California	Discontinued route segment between Chicago, Illinois, and Salt Lake City, Utah, is currently served by the California Zephyr.
Floridian	Chicago, Illinois – St. Petersburg, Florida, and Miami, Florida	–
Gulf Breeze	Birmingham, Alabama - Mobile, Alabama; through service connection to the Crescent	–
Hilltopper	Boston, Massachusetts – Ashland, Kentucky	Discontinued route segment between New York, New York, and Petersburg, Virginia, currently served by the Northeast Regional, Carolinian, Silver Meteor, Silver Star, and Palmetto.
Inter American	Chicago, Illinois – Laredo, Texas, and Houston, Texas	Discontinued route segment between Chicago, Illinois, and San Antonio, Texas, currently served by the Texas Eagle.
James Whitcomb Riley	Chicago, Illinois – Washington, DC, and Newport News, Virginia	Discontinued route segment between Washington, DC, and Cincinnati, Ohio, currently served by the Cardinal.
Lone Star	Chicago, Illinois – Dallas, Texas, and Houston, Texas	Discontinued route segment between Chicago, Illinois, and Newton, Kansas, currently served by the Southwest Chief.
Mountaineer	Chicago, Illinois – Norfolk, Virginia	–
National Limited	Kansas City, Missouri – New York, New York, and Washington, DC	–
North Coast Hiawatha	Chicago, Illinois – Seattle, Washington	–
Pioneer	Seattle, Washington – Denver, Colorado, connecting with the California Zephyr east to Chicago, Illinois	–

Route Name	Endpoints	Substantial Discontinued Segments Still Served by Amtrak with One-Seat Rides
River Cities	Through-service between St. Louis, Missouri-Carbondale, Illinois, connecting to other services in Missouri and Illinois	–
Silver Palm	New York, New York – Miami, Florida	Discontinued route segment between New York, New York, and Savannah, Georgia, currently served by the Palmetto; discontinued route segment between New York, New York, and Jacksonville, Florida, currently served by Silver Meteor.

Note: The Sunset Limited segment that served Phoenix, Arizona, was discontinued in 1996. The Sunset Limited segment between New Orleans, Louisiana, and Orlando, Florida, ceased operations after Hurricane Katrina in 2005. Other Amtrak services may serve segments of discontinued routes; see Figure 3-1 for more detail on discontinued long-distance route segments.

3.1 Market Expansion Opportunities

FRA identified market opportunities for long-distance passenger rail service by examining the following:

- Projected growth in population and trip-making throughout the contiguous United States.
- Top ***origin-destination*** (***OD) pairs*** (based on annual travel demand for all modes, not just passenger rail) previously served by the ***discontinued network*** (i.e., long-distance routes that have been discontinued by Amtrak as of November 15, 2021, and long-distance routes in service as of April 1971 but not continued by Amtrak) (Table 3-1). With the discontinuation of these long-distance routes, some communities lost passenger rail service entirely (Figure 3-1).
- Passenger rail connections between ***large and small communities***, as well as connections to more rural and disadvantaged communities.

Figure 3-1. Discontinued Network

Source: Amtrak 2022b, Streamliner Schedules 2023a, Streamliner Schedules 2023b, and the FRA ***North American Rail Network***.

3.2 Projected Population and Trip Growth from 2020 to 2050

The U.S. population is projected to grow 7.8 percent from 2020 to 2050 (U.S. Census Bureau 2020, Moody's Analytics 2023). Areas of substantial projected growth around the country include:

- Most of Florida;
- Major cities within the "Texas Triangle" (Dallas-Fort Worth, Houston, San Antonio);
- Major urban areas in Georgia, Tennessee, and North Carolina; and
- Parts of Arizona, Colorado, Nevada, Utah, and Washington.

Some long-distance routes currently provide once-daily interregional connections among many of these high-growth regions (Figure 1-1). Current Amtrak long-distance routes with the greatest projected population growth along their corridors are the Silver Star and Silver Meteor, driven by growth in Florida and North Carolina. The Texas Eagle and Sunset Limited corridors also are projected to have notable population increases. Passenger rail routes with the greatest projected increase in total trips from 2020 to 2050 (all modes) by both absolute increase and percentage increase are the Silver Star (+71.3 million trips, +52 percent) and Silver Meteor (+53.5 million trips, +51 percent), followed by the Coast Starlight (+29.8 million) and Crescent (+24.2 million) in absolute terms and the Texas Eagle (+47 percent) and California Zephyr (+46 percent) in percentage terms.

The top growth passenger rail corridors in percentage terms include areas in Florida. Population within the ***discontinued network*** is projected to increase the most for the discontinued Sunset Limited service east of New Orleans (21 percent) and the Floridian (17 percent) corridors. The discontinued Sunset Limited service served cities between New Orleans, Louisiana, and Orlando, Florida, including Mobile, Alabama, and Jacksonville, Florida. The Floridian served cities between Chicago, Illinois, and Miami/St. Petersburg, Florida, including Louisville, Kentucky; Nashville, Tennessee; Birmingham, Alabama; Tampa, Florida; and Ft. Lauderdale, Florida. Across the ***discontinued network***, projected trips (all modes) increase the most in percentage terms in the City of Miami and Floridian corridors. The City of Miami corridor served cities between Chicago, Illinois, and Miami/St. Petersburg, Florida, including Champaign-Urbana, Illinois; Jackson, Tennessee; Birmingham, Alabama; Columbus, Georgia; and various cities in Florida. The Floridian also served cities between Chicago, Illinois, and Miami/St. Petersburg, Florida, as described above for the population growth. The ***discontinued network*** is shown on Figure 3-1.

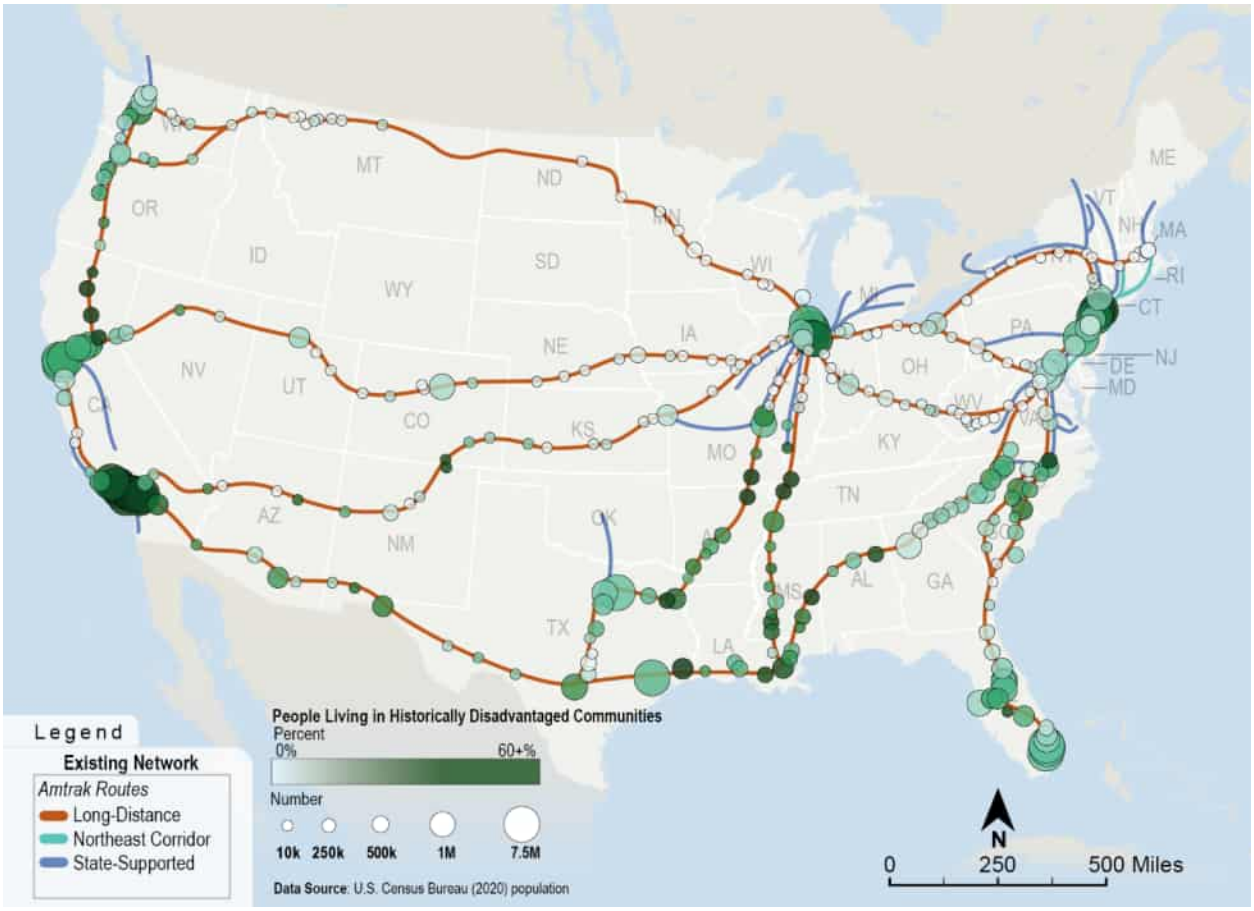
3.3 Linking Communities

Amtrak's passenger rail network links communities of varying sizes, demographics, and socioeconomic characteristics throughout the contiguous United States. In many of these communities – and in 22 states – Amtrak long-distance passenger rail service is the only passenger rail service available.

Figure 3-2 shows how long-distance passenger rail connects rural communities and areas with high concentrations of ***low-income*** residents or ***historically disadvantaged communities*** compared to the national average. Memphis, Tennessee; New Orleans, Louisiana; and Jackson, Mississippi, are examples of large cities served only by long-distance passenger rail with high concentrations of residents living in ***areas of persistent poverty*** and ***historically disadvantaged communities***. Examples of ***small communities*** served only by long-distance passenger rail that fit this definition include Gallup, New Mexico, and Greenwood, Mississippi.

Regions with significant rural populations previously served by discontinued long-distance routes that no longer have passenger rail service include the Ohio River Valley, areas in the Southeast, and western Oklahoma. Discontinued long-distance routes also once connected areas with high shares of people living in ***areas of persistent poverty*** and ***historically disadvantaged communities***, including areas throughout the Southeast, spanning Mississippi, Alabama, western Tennessee, and southern Georgia.

Figure 3-2. Current Amtrak Long-Distance Route Stations by Share of Population in Historically Disadvantaged Communities (2019)



Source: 2020 Decennial Census (U.S. Census Bureau 2020) for population figures. DOT data (DOT 2023) were used to identify Census Tracts designated as ***historically disadvantaged communities***. Amtrak route and station geospatial data (Amtrak 2022b).

Note: Data presented are from 2019 but were documented in 2020 by the U.S. Census Bureau.

3.4 Operating Challenges

As noted in Section 1.5.2., there are challenges associated with implementing the selected preferred route options identified in the Study, including operational challenges associated with existing long-distance routes. In FY 2023, just over 52 percent of Amtrak long-distance passengers arrived at their destination within 15 minutes of their published scheduled arrival time (Amtrak 2023d). Long-standing issues related to delays on these routes have reduced reliability for passengers and increased operating costs. These service challenges would likely need to be considered and addressed in the implementation of potential new long-distance service. Better on-time performance could improve overall reliability, which could, in turn, boost ridership. Additional operating changes such as increased frequencies and daytime service availability could benefit many communities.

FRA's Quarterly Reports on the Performance and Service Quality of Intercity Passenger Train Operations provide detailed quarterly data on customer on-time performance, as well as delay types and minutes experienced by Amtrak routes. For more information, refer to FRA's website at https://railroads.dot.gov/rail-network-development/passenger-rail/amtrak/intercity-passenger-rail-service-quality-and.

In addition, Amtrak long-distance routes primarily operate on host railroad tracks, which Amtrak does not own. Except in emergency situations, Amtrak services have preference over freight transportation using a rail line (49 U.S.C. 24308(c)). Amtrak engages with host railroads on Amtrak passenger train scheduling and infrastructure improvements on these shared-use corridors, resulting in bilateral agreements between Amtrak and host railroad carriers. The existing framework for Amtrak and host railroad engagement regarding access and responsibilities for infrastructure improvements is not always clear, which can complicate implementation of new long-distance service. Even changes in current service schedules can lead to lengthy negotiations between Amtrak and host railroads, as well as other passenger rail operators who may use the tracks.

The Cardinal and Sunset Limited currently operate three days per week. These routes have the lowest ridership of all the 15 current long-distance routes. The Sunset Limited has the lowest passenger load factor, 30 percent to 50 percent, depending on location. The Cardinal has a load factor of 40 percent to 70 percent, depending on location. The Cardinal had about two-thirds the ridership of the Capitol Limited (82,698 compared to 126,309) and was second-to-last in terms of ridership, in FY 2023 (Amtrak 2024b). Increasing the frequency to daily service on the Cardinal and Sunset Limited could result in increased annual ridership on each route. More details on these routes are included in Chapter 4.

Since all Amtrak long-distance routes are over 750 miles in length and have schedules that exceed 12 hours, some communities are only served by long-distance routes during the night. About 29 percent of stations on long-distance routes have at least some nighttime service and 12 percent have only nighttime service (Amtrak 2022e). Although long-distance routes might be the only intercity passenger rail service for some communities, that benefit is minimized for communities with only nighttime service. In FY 2019, before the temporary service reductions during the COVID-19 pandemic, 10 percent of all Amtrak long-distance passengers made nighttime boardings between 11 PM and 5 AM local time. Providing daytime service in each direction to communities that lack daytime service or convenient daytime service could result in higher ridership. Major cities that have long-distance passenger rail nighttime departures only include Atlanta, Georgia (eastbound on the Crescent); Cincinnati, Ohio (eastbound and westbound on the Cardinal); Cleveland, Ohio (westbound on Lake Shore Limited and Capitol Limited, and eastbound on the Capitol Limited); Indianapolis, Indiana (eastbound on the Cardinal); Salt Lake City, Utah (eastbound and westbound on the California Zephyr); and Spokane, Washington (eastbound and westbound on the Empire Builder), among others (Amtrak 2022e).

Finally, while IIJA provided Amtrak funding to replace Amtrak's obsolete passenger equipment (refer to Section 8.1.4), the existing Amtrak fleet of vehicles is insufficient to undertake a significant expansion of long-distance service. Additional funding and staffing would be required to build, operate, and maintain an expanded network and to provide additional vehicles for expanded service.

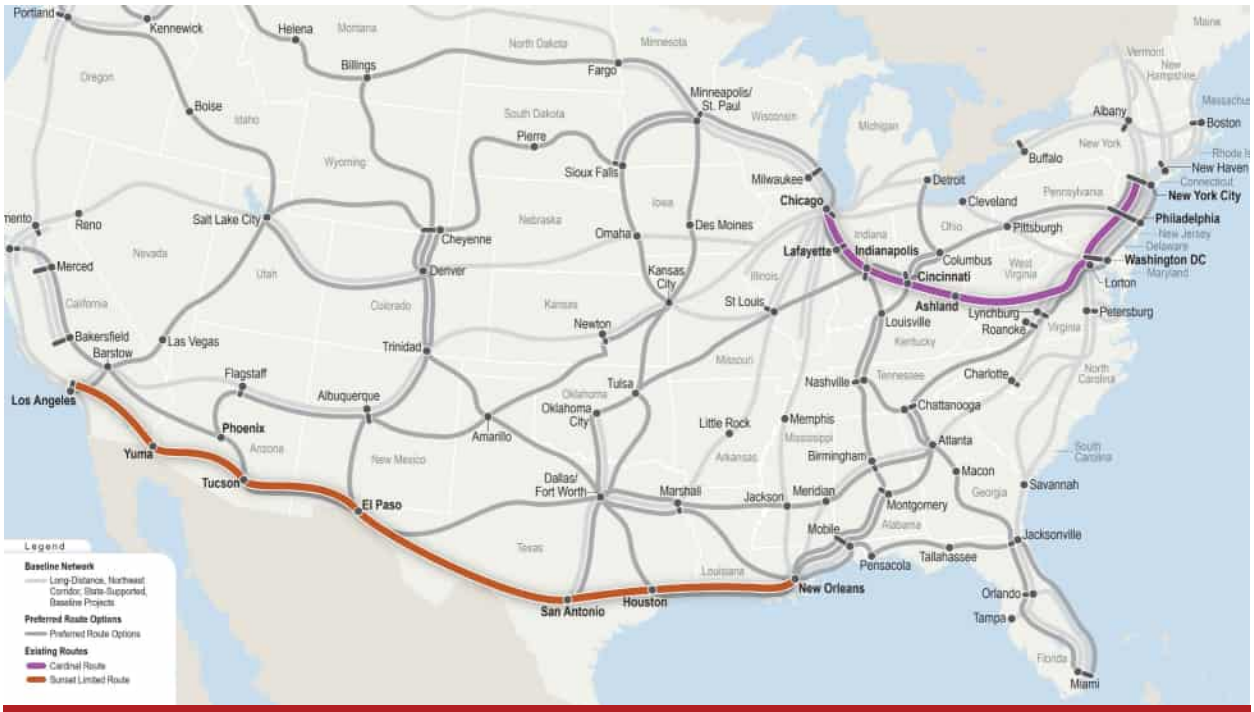
Throughout the Study, FRA also identified future opportunities to enhance and strengthen existing intercity passenger rail services and other transportation connections between and among rural and urban areas across the United States. Chapter 10 provides details on potential future opportunities to study some of these operating challenges and promote a more integrated, cohesive vision for rail service.

Photo courtesy of Amtrak

4. Current Non-Daily Long-Distance Routes

FRA evaluated any Amtrak route that, as of the date of the enactment of IIJA, operated on a non-daily basis. Amtrak currently operates 15 long-distance routes; 13 routes provide daily service, but the Cardinal and the Sunset Limited only operate three times per week (Figure 4-1). The following sections describe current service levels on both routes, and FRA's evaluation of Cardinal and Sunset Limited to daily service. Table 4-1 provides an overview of current service characteristics for both routes.

Figure 4-1. Cardinal and Sunset Limited Routes



Further analysis and funding would be necessary to advance daily Cardinal and Sunset Limited service through project development activities, including fleet procurement.

Independent of this Study, the Cardinal and Sunset Limited were each selected into the Corridor ID Program in December 2023, with Amtrak as the corridor sponsor, for the purpose of increasing each route to daily service. As part of this program, these routes have access to funding to support project planning and development activities – but would require additional funding to implement the service.

The estimated vehicle needs and operating expenses required to increase the service frequency of each route to daily service in this report reflect high-level FRA analyses. Amtrak, as the corridor sponsor for each route, will develop more detailed analyses of these needs though the Corridor ID Program. Refer to Section 4.5 for more information on Amtrak's evaluation of these routes as part of the Corridor ID Program.

Table 4-1. Service Characteristics and Stations/Populations Served by Current Non-Daily Amtrak Long-Distance Routes

Route Name	West/South Endpoint	East/North Endpoint	Frequency (Round trip)	Length (miles)	Number of Stations Served	Number of Stations Served Only by this Non-daily Route	States Served by Route
Cardinal	Chicago, Illinois	New York, New York	3x/week	1,147	32	20	New York, New Jersey, Pennsylvania, Delaware, Maryland, Washington, DC, Virginia, West Virginia, Kentucky, Ohio, Indiana, Illinois
Sunset Limited	Los Angeles, California	New Orleans, Louisiana	3x/week	1,995	22	19	California, Arizona, New Mexico, Texas, Louisiana

Table 4-2 provides an overview of selected financial performance metrics for both routes. Over the past 3 years financial performance has significantly improved for both routes as systemwide ridership recovered from the COVID-19 pandemic. However, the cost recovery ratio for both routes has been much lower than that of Amtrak's long-distance passenger rail system overall, which was 53 percent in 2019 and 50 percent in 2023.

Table 4-2 Selected Performance Metrics (actual year of expenditure) for Current Non-Daily Amtrak Long-Distance Routes

Metric	2019	2020	2021	2022	2023
Cardinal					
Ridership	108,900	63,200	69,100	80,300	82,700
Net Operating Costs	−$15.96 million	−$22.25 million	−$18.23 million	−$18.95 million	−$19.57 million
Cost Recovery Ratio	34%	20%	26%	30%	31%
Average Load Factor	49%	34%	41%	56%	58%
Sunset Limited					
Ridership	92,800	55,100	57,600	73,900	77,300
Net Operating Costs	−$31.50 million	−$35.51 million	−$39.85 million	−$41.79 million	−$44.65 million
Cost Recovery Ratio	28%	18%	17%	21%	21%
Average Load Factor	45%	27%	28%	37%	44%

Source: Amtrak Route Performance Reports for FY 2019 (Amtrak 2020), FY 2020 and FY 2021 (Amtrak 2021), FY 2022 (Amtrak 2023f), and FY 2023 (Amtrak 2024c). Note: Ridership numbers are rounded to the nearest hundred.

FRA evaluated the restoration of daily intercity passenger rail service for the non-daily Cardinal and Sunset Limited, as directed by IIJA. The selected preferred route options are to enhance the services to daily. Daily Cardinal and Sunset Limited passenger rail service was assumed in the selected preferred route options in Chapter 5.

4.1 Cardinal Service

The Cardinal currently operates three times per week in each direction between New York, New York, and Chicago, Illinois, via Washington, DC; Cincinnati, Ohio; and Indianapolis, Indiana. This service frequency means that cities such as Cincinnati, Ohio, and Indianapolis, Indiana, only see three trains a week heading in either direction; both cities rank in the top 35 largest MSA populations in the United States and are among some of the largest communities without daily Amtrak service (U.S. Census Bureau 2020). The Cardinal also serves residents of western Virginia, southern West Virginia, and eastern Kentucky. Table 4-1 lists all states served by the Cardinal.

The Cardinal serves 32 stations along its route, serving communities in rural Appalachia, where public transportation options are often limited. Additionally, the Cardinal is currently the only passenger rail service connecting cities like Indianapolis, Indiana, or Cincinnati, Ohio, to Chicago, Illinois. In FY 2023, annual ridership on the Cardinal was 82,698 riders (Amtrak 2024b). FRA estimated that increasing Cardinal to daily service frequency could result in approximately 110,000 new annual riders, and an additional $11 million operating revenue from ticket and food and beverage sales. Daily Cardinal service would provide enhanced connectivity to the passenger rail network in Chicago and along the NEC. In addition, daily Cardinal service would improve service in communities that only have passenger rail service from the Cardinal, such as in Indianapolis, Indiana; Cincinnati, Ohio; and Charleston, West Virginia.

4.2 Sunset Limited Service

The Sunset Limited currently operates three times per week in each direction between New Orleans, Louisiana, and Los Angeles, California, via Houston, Texas; San Antonio, Texas; El Paso, Texas; and Tucson, Arizona. The Sunset Limited provides the only passenger rail service to Houston, Texas, the nation's fifth largest MSA, with a total population of more than 7 million (U.S. Census Bureau 2020); this means that Houston, Texas, only has three passenger rail trains per week, in each direction. Houston is the largest MSA in the United States without daily Amtrak service.

Houston is the largest MSA in the United States without daily Amtrak service.

On days when the Sunset Limited runs, some Texas Eagle cars separate at San Antonio to join the westbound Sunset Limited, and some eastbound Sunset Limited cars separate at San Antonio to join the northbound Texas Eagle.

The Sunset Limited serves 22 stations along its route. In addition to large cities, the Sunset Limited serves small communities in southern Louisiana, east Texas, west Texas, southern

New Mexico, and southern Arizona. Table 4-1 lists all states served by the Sunset Limited. In FY 2023, annual ridership on the Sunset Limited was 77,288 riders (Amtrak 2024b). FRA estimated that increasing Sunset Limited to daily service frequency could result in approximately 103,000 new annual riders, and an additional $19 million operating revenue from ticket and food and beverage sales. Daily Sunset Limited service would provide enhanced connectivity to the passenger rail network in Los Angeles, California; San Antonio, Texas; and New Orleans, Louisiana. In addition, daily Sunset Limited service would improve service in communities that only have passenger rail service from the Sunset Limited, such as in Tucson, Arizona, and El Paso, Texas.

4.3 Estimated Vehicle Needs for Daily Operation

The Cardinal is a one-night route (it needs one overnight segment to complete a trip between New York, New York, and Chicago, Illinois); the Sunset Limited is a two-night route (it needs two overnight segments to complete a trip between New Orleans, Louisiana, and Los Angeles, California). Assuming the layover time at stations for each train is 8 hours, and that Amtrak may need up to 25 percent spare vehicles to ensure continuous operations (in case part of a train needs to be taken out of service for mechanical repairs), both trains would need additional vehicles to increase their service frequency to daily (Table 4-3).

Table 4-3. Cardinal and Sunset Limited Estimated Vehicle Needs for Daily Operation

Route	Current Trainsets Needed for 3x/week Service	Additional Trainsets Needed for Daily Service	Total Trainsets Needed for Daily Service
Cardinal	2	2	4
Sunset Limited	3	4	7

Note: Reflects high-level FRA estimates for daily service; these are not Amtrak estimates.

For a one-night route, the set of railroad vehicles included in a train trip, referred to as a trainset, is assumed to include two locomotives, one baggage car, three sleeper cars, one diner, one lounge (café/sightseer), and three coach cars. For a two-night route, a trainset is assumed to include the same vehicles as a one-night trainset, plus an additional coach car and a transition/sleeper car.

This estimate assumes bi-level equipment would be used on the Sunset Limited, consistent with current operations, and single-level equipment would be used on the Cardinal (also consistent with current operations).

4.4 Estimated Operating Expenses for Daily Operation

FRA estimated O&M costs for daily service on the Cardinal and Sunset Limited using existing operating costs for each route from FY 2019 (Amtrak 2019b). Operating costs for passenger rail service include costs like labor, fuel, vehicle maintenance, turnaround (to get the train ready for its next run), and station operations. These costs do not include estimated costs to procure vehicles needed for daily operations, or other capital costs that may be needed for daily service.

The costs provided here are high-level cost estimate ranges to support early project planning. Two methods were used to develop preliminary low- and high-end range of additional costs associated with increasing the frequency of the Cardinal and Sunset Limited to daily service. Both approaches used route-level unit costs derived from Amtrak FY 2019 operating expenses and operating statistics, inflated to FY 2025 dollars (Amtrak 2019b). The two methods are:

- **Route-specific:** Applying costs derived specifically from FY 2019 O&M costs for the Cardinal and Sunset Limited routes.
- **Route-type:** Applying average unit costs derived for similar long-distance routes, based on route duration (one night for the Cardinal and two nights for the Sunset Limited).

The route-specific scenario represents the high end and is the more conservative estimate. Table 4-4 summarizes preliminary estimated daily operating costs, based on FY 2022 average train consists (a consist refers to the number and type of railroad vehicles that make up a trainset). These operating costs are preliminary estimates and reflect bi-directional operations. While there are additional costs to providing daily Cardinal and Sunset Limited service, it could be more cost effective to operate daily service compared to current three times per week service. There are fixed costs for providing Cardinal and Sunset Limited service three times per week that could remain consistent with daily service. FRA estimated the operating cost per train for daily Cardinal service could be 14 percent to 25 percent less than three times per week service, and the operating cost per train for daily Sunset Limited service could be 7 percent to 24 percent less than three times per week service.

For reference, FY 2024 reported operating costs for Cardinal tri-weekly service were approximately $31 million, and approximately $59 million for the Sunset Limited triweekly service (Amtrak 2024a).

Table 4-4. Estimated Daily Service Operating Costs for the Cardinal and Sunset Limited

Route	Daily Service Cost Preliminary Range (millions FY 2025 dollars)
Cardinal	$70 -$75
Sunset Limited	$109 -$122

Source: Average train consists (Amtrak 2023b) and Amtrak Performance Tracking system data (Amtrak 2023c).
Note: Reflects high-level FRA estimates for daily service; these are not Amtrak estimates.
Does not include procurement or other capital costs

4.5 Corridor ID Program

The Cardinal and Sunset Limited routes were two of three long-distance service corridors selected into the Corridor ID Program in December 2023, with Amtrak as the sponsor for each route.

In addition to upgrading both routes to daily service, Amtrak is evaluating the following improvements to the routes:

- **Cardinal.** Passenger rail route infrastructure improvements to increase train speeds and reduce travel times between Indianapolis and Dyer, Indiana; service improvements in Indiana, Ohio, and West Virginia; and connectivity improvements to the passenger rail network in Chicago, Illinois, and along the NEC.
- **Sunset Limited**: Restoration of passenger rail service to Phoenix, Arizona (the largest city in the United States without passenger rail service); service improvements in Arizona, New Mexico, Texas, and Louisiana; and connectivity improvements to the passenger rail network in Los Angeles, California; San Antonio, Texas; and New Orleans, Louisiana.

Corridor ID Program eligibility includes short-distance (less than 750 miles) services, as well as increasing the frequency of long-distance services (such as the Cardinal and Sunset Limited), and restoring service over any route formerly operated by Amtrak. However, new long-distance routes are not eligible under the Corridor ID Program.

Phoenix is the largest city in the United States without passenger rail service.

The Corridor ID Program provides funding and support for planning and project development; it does not fund implementation, although projects identified under the Corridor ID Program will receive preference in one of FRA's discretionary grant programs, the Federal-State Partnership for Intercity Passenger Rail (FRA 2023b). Chapter 8 provides more information on the Corridor ID Program, as well as FRA's discretionary grant programs.

5. Evaluation and Selection of Preferred Route Options

FRA evaluated long-distance route options for restoring or enhancing to daily service along long-distance routes that were discontinued by Amtrak and long-distance routes that occur on a non-daily basis as of November 15, 2021. FRA also evaluated long-distance route options for new long-distance routes with specific attention provided to long-distance routes in service as of April 1971 but not continued by Amtrak. FRA selected preferred route options for service restoration, enhancement, or expansion, as directed by IIJA. The preferred route options selected by FRA as a result of the Study are referred to as "selected preferred route options." Future planning efforts may identify different alignments or cities served for these selected preferred route options, in coordination with stakeholders.

This chapter describes the process used to evaluate the route options, as well as the selected preferred route options themselves. As noted in Section 1.5, further analysis and identification of funding would be necessary to advance the selected preferred route options through project planning, project development, and implementation.

FRA evaluated the restoration of daily intercity passenger rail service for the non-daily Cardinal and Sunset Limited. The selected preferred route options are to enhance the service on each route to daily. Daily Cardinal and daily Sunset Limited service are assumed in the selected preferred route options. Chapter 4 contains additional details on enhancing those routes to daily service.

5.1 Network Development

In addition to evaluating restoration of discontinued long-distance routes, IIJA Section 22214(c) allows FRA to evaluate potential new long-distance routes, including routes in service as of April 1971, but not continued by Amtrak. To identify potential new or restored long-distance routes FRA first reviewed a baseline network of existing passenger rail service and committed intercity passenger rail projects and considered the factors described in IIJA Section 22214(c), then developed an enhanced network of conceptual segments that could be used as building blocks for potential new or restored long-distance routes. This section provides an overview of the process, from baseline network review to development of a network of selected preferred route options.

5.1.1 Enhanced Network Development

The development of the enhanced network included identifying conceptual new segments for future routes by considering travel flows and market demand between metropolitan areas not currently served by passenger rail, assessing gaps in geographic coverage, and considering stakeholder input. The enhanced network segments also included discontinued segments of the ***discontinued network***. The ***discontinued network*** is shown on Figure 3-1. The conceptual new segments had to align with the ***North American Rail Network*** and assume the use of main line, branch line, or disused tracks that are not abandoned. Abandoned track segments were not eligible for conceptual new segments, nor were new "greenfield" alignments. These conceptual new segments served as the building blocks for new long-distance routes and service options.

Large and small communities

Link and serve large and small communities as part of a regional rail network.

Focus on rural

Advance the economic and social well-being of rural areas of the United States.

Enhance connectivity

Provide enhanced connectivity for the national long-distance passenger rail system.

Reflect public engagement

Reflect public engagement and local and regional support for restored passenger rail service.

In addition to considering the ***discontinued network***, FRA developed the enhanced network segments using the considerations in IIJA Section 22214(c) for evaluating potential new Amtrak long-distance routes:

- **Link and serve *large and small communities* as part of a regional rail network**: FRA used FHWA ***NextGen*** 2021 data to identify metropolitan area pairs with 500,000 or more annual trips (all modes) between 100 miles and 1,000 miles that were not served directly by passenger rail (FHWA 2023).
- **Advance the economic and social well-being of *rural areas***: FRA considered rural and disadvantaged communities identified by the ***Justice40 Initiative*** not currently served by passenger rail, including ***tribal lands***; counties outside of ***core-based statistical areas***; and ***low-income***, ***transportation-disadvantaged***, and ***health-disadvantaged communities***.
- **Provide *enhanced connectivity* for the national long-distance passenger rail system:** FRA considered gaps in the current passenger rail network and network connectivity, including states not currently served by passenger rail (South Dakota and Wyoming).
- **Reflect public engagement and local and regional support for restored passenger rail service:** FRA reviewed Study stakeholder and public feedback to verify segments identified in the first three steps.

Figure 5-1 summarizes the process to develop the enhanced network. Figure 5-2 shows the resulting enhanced network.

Figure 5-1. Enhanced Network Development Process Overview

Existing Network

- Long-distance routes
- State-supported routes
- Northeast Corridor (NEC)

Baseline Network

- Existing Network
- Committed Intercity passenger rail projects
  - Brightline (Florida) (service to Orlando began in September 2023)
  - California High-Speed Rail Minimum Operating Segment (MOS) Merced-Bakersfield
  - Gulf Coast Passenger Rail (New Orleans, Louisiana - Mobile, Alabama)
  - Borealis (service initiated in May 2024 between Minneapolis, Minnesota and Chicago, Illinois)

Enhanced Network

- Baseline Network
- Discontinued Network
- IIJA Legislative Considerations
  - Serve large and small communities
  - Focus on rural
  - Enhance connectivity
  - Reflect public engagement

Photo courtesy of Amtrak

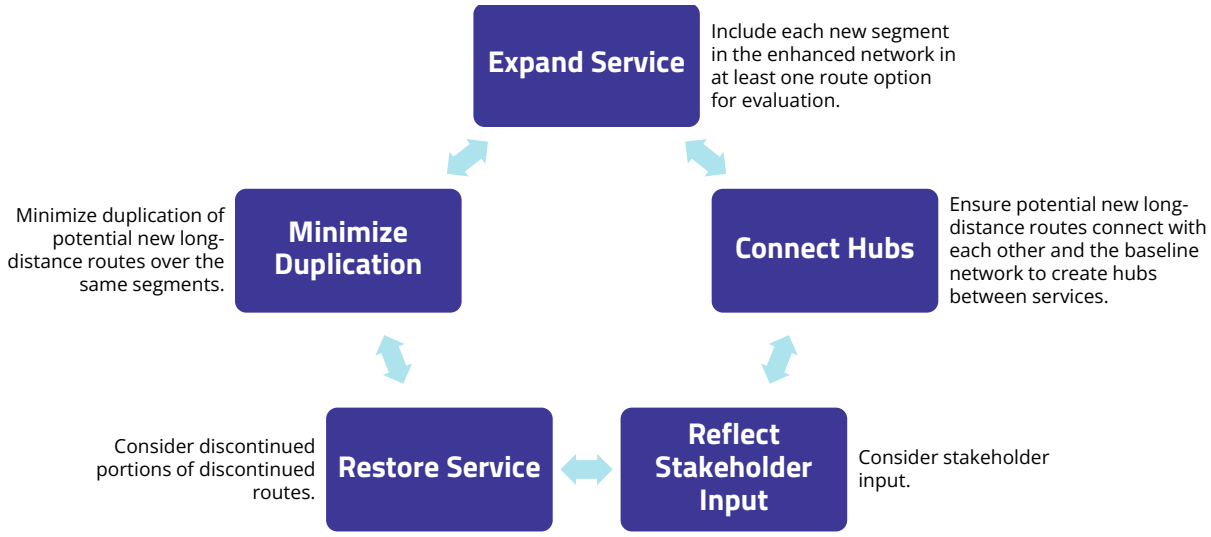
Figure 5-2. Enhanced Network of Segments for Potential Preferred Route Options Development

Segments are conceptual building blocks for consideration in developing potential new long-distance route options

5.1.2 Preferred Route Options Development

To develop and analyze a range of long-distance route options to select the preferred route options, FRA identified major markets not connected directly by rail in the baseline network, then connected those markets with a range of route options, using segments in the enhanced network (Figure 5-3).

Figure 5-3. Approach to Develop Potential New Long-Distance Routes



FRA then considered the criteria listed in IIJA Section 22214(c), as listed in Section 5.1.1, for evaluating the effectiveness of the route options. Based on this evaluation, FRA selected preferred route options for service restoration, enhancement, or expansion. The preferred route options selected by FRA as a result of the Study are the "selected preferred route options."

5.2 Network of Selected Preferred Route Options

The network development described in Section 5.1 resulted in a network of selected preferred route options, shown on Figure 5-4. Figure 5-5 highlights segments where discontinued long-distance routes could be restored by the selected preferred route options. Table 5-1 identifies the discontinued routes with segments that could be restored for each selected preferred route option.

Figure 5-4. Network of Selected Preferred Route Options

Further analysis and identification of funding would be necessary to advance the selected preferred route options through project planning and project development activities prior to implementation.

Figure 5-5. Potential Restored Portions of Discontinued Routes Not Currently Served by Passenger Rail

Further analysis and identification of funding would be necessary to advance the selected preferred route options through project planning and project development activities prior to implementation.

Table 5-1. Portions of Discontinued Network Restored by Selected Preferred Route Option

Selected Preferred Route Option	Discontinued Routes with Restored Segments
Chicago - Miami	Floridian, Pan American
Dallas/Fort Worth - Miami	Sunset Limited (discontinued segment east of New Orleans, Louisiana)
Denver - Houston	Texas Eagle
Los Angeles - Denver	Desert Wind, Pioneer
Phoenix - Minneapolis/St. Paul	San Francisco Chief
Dallas/Fort Worth - New York	National Limited
Houston - New York	Pan American, Gulf Breeze, Sunset Limited (discontinued segment east of New Orleans, Louisiana)
Seattle - Denver	Pioneer
San Antonio - Minneapolis/St. Paul	–
San Francisco - Dallas/Fort Worth	San Francisco Chief; Sunset Limited service between Tucson, Arizona, and Phoenix, Arizona
Detroit - New Orleans	Floridian, Pan American, Gulf Breeze, Sunset Limited (discontinued segment east of New Orleans, Louisiana)
Denver - Minneapolis/St. Paul	–
Seattle - Chicago	North Coast Hiawatha
Dallas/Fort Worth - Atlanta	–
El Paso - Billings	–

Note: San Antonio – Minneapolis/St. Paul, Denver – Minneapolis/St. Paul, Dallas/Fort Worth – Atlanta, and El Paso – Billings could restore some portions of the discontinued network at stations, but do not restore segments of the discontinued network.

Selected preferred route option conceptual service overviews in Section 5.4 provide more information on the conceptual service and the potential communities that could be served by each selected preferred route option. The conceptual services for the selected preferred route options are generally consistent with existing long-distance routes—they are over 750 miles in length and provide one train a day in each direction. The average distance between stations on the existing long-distance routes is approximately 50 miles (Amtrak 2022b). Where the selected preferred route option expands the passenger rail network into new markets not served by the existing passenger rail network, FRA included new stations spaced approximately every 50 miles in cities with populations greater than

5,000 people. FRA also included station locations from discontinued long-distance routes and existing state-supported routes where they overlapped the selected preferred route options and support long-distance operations and an average station spacing of 50 miles.

Due to the length of the selected preferred route options, consistent with the existing long-distance routes, some markets would be served in the daytime, and others at night. The conceptual services were developed to support FRA's analysis of the selected preferred route options, and they are presented for illustrative purposes only. FRA developed these conceptual services to maximize potential daytime service for metropolitan areas served by the selected preferred route option that have the highest volume of trips on all modes (FHWA 2023). However, other service could be considered that would optimize other factors, such as daytime service for ***rural areas***. These conceptual services do not consider existing or future traffic conditions along the selected preferred route options, or site-specific conditions such as steep grades that could affect the travel time or on-time performance. The conceptual services are presented for illustrative purposes only, and do not reflect actual schedules developed and negotiated by Amtrak with host railroads and other stakeholders.

The selected preferred route options are not FRA's proposals for service, and do not restrict or preclude future plans or planning activities. As noted in Section 1.5, the selected preferred route options are conceptual and require additional planning and analysis to determine actual alignments; further analysis and identification of funding would be necessary to advance the selected preferred route options through project planning, project development, and implementation.

5.3 Selected Preferred Route Option Descriptions

This section describes each of the selected preferred route options, as shown on Figure 5-4. Selected preferred route option conceptual service overviews in Section 5.4 provide additional information about the route service. An overview of the enhancement of non-daily to daily Cardinal and Sunset Limited passenger rail service is found in Chapter 4.

- **Chicago – Miami:** This selected preferred route option could cover 1,531 miles in approximately 36 hours, serving 37 stations, including 16 stations not currently served by passenger rail. This selected preferred route option could provide additional service between Chicago, Illinois, and Indianapolis, Indiana, and between Jacksonville, Orlando, and Miami, Florida. It could restore service between Louisville, Kentucky, and Nashville, Tennessee (approximately 223 miles of discontinued long-distance routes). This selected preferred route option could provide geographic coverage and network connectivity by expanding access to unserved markets in Georgia and Tennessee. Although this selected preferred route option does not currently include Tampa, Florida, potential service and connections could be evaluated in future studies.
- **Dallas/Fort Worth – Miami:** This selected preferred route option could cover 1,507 miles in approximately 36 hours, serving 35 stations, including 18 stations not currently served by passenger rail. It could serve stations in both downtown

Dallas, Texas, and downtown Fort Worth, Texas. This selected preferred route option could provide new service between Marshall, Texas; New Orleans, Louisiana; and Mobile, Alabama. It could restore service between Mobile, Alabama, and Jacksonville, Florida (approximately 618 miles of discontinued long-distance routes). This selected preferred route option could provide new service between Shreveport and Baton Rouge, Louisiana, and expand access to unserved markets in Florida.

- **Denver – Houston:** This selected preferred route option could cover 1,088 miles in approximately 25 hours, serving 21 stations, including 16 stations not currently served by passenger rail. It could serve stations in both downtown Dallas, Texas, and downtown Fort Worth, Texas. This selected preferred route option could restore service between Dallas/Fort Worth and Houston, Texas (approximately 264 miles of discontinued long-distance routes), and provide new service between Denver, Colorado; Trinidad, Colorado; Amarillo, Texas; and Dallas/Fort Worth, Texas.
- **Los Angeles – Denver:** This selected preferred route option could cover 1,423 miles in approximately 33 hours, serving 24 stations, including 15 stations not currently served by passenger rail. It could restore service between Barstow, California; Las Vegas, Nevada; Salt Lake City, Utah; and Cheyenne, Wyoming (approximately 1,217 miles of discontinued long-distance routes). This selected preferred route option could provide geographic coverage by restoring service to discontinued long-distance routes and expanding access to unserved markets in Wyoming, Utah, and Nevada.
- **Phoenix – Minneapolis/St. Paul:** This selected preferred route option could cover 2,135 miles in approximately 47 hours, serving 32 stations, including 23 stations not currently served by passenger rail. In addition to St. Paul, Minnesota, it could serve a potential new station in downtown Minneapolis, Minnesota. This could provide additional service between Flagstaff, Arizona, and Albuquerque, New Mexico, and between Newton, Kansas, and Kansas City, Missouri. It could restore service between Amarillo, Texas, and Wichita, Kansas (approximately 726 miles of discontinued long-distance routes). This selected preferred route option could provide geographic coverage and network connectivity by expanding access to new markets in South Dakota.
- **Dallas/Fort Worth – New York:** This selected preferred route option could cover 1,907 miles in approximately 44 hours, serving 33 stations, including 16 not currently served by passenger rail. It could provide additional service between Fort Worth, Texas, and Oklahoma City, Oklahoma; between Indianapolis, Indiana, and Cincinnati, Ohio; and between Pittsburgh, Pennsylvania, and New York City. It could restore service between St. Louis, Missouri, and Indianapolis, Indiana; and between Columbus, Ohio, and Pittsburgh, Pennsylvania (approximately 524 miles of discontinued long-distance routes). This selected preferred route option could provide access to populations on ***tribal lands*** in Oklahoma.
- **Houston – New York:** This selected preferred route option could cover 1,841 miles in approximately 43 hours, serving 42 stations, including 16 not currently served by passenger rail. It could provide additional service between Houston, Texas, and Mobile, Alabama, and between Roanoke, Virginia, and New York, New York. This

selected preferred route option could restore service between Mobile, Alabama, and Montgomery, Alabama (approximately 356 miles of discontinued long-distance routes). This selected preferred route option could provide rural accessibility by more directly connecting unserved rural markets in Alabama, Tennessee, and Virginia.

- **Seattle – Denver:** This selected preferred route option could cover 1,647 miles in approximately 40 hours, serving 29 stations, including 13 not currently served by passenger rail. It could provide additional service between Seattle, Washington, and Portland, Oregon, and between Salt Lake City, Utah, and Denver, Colorado. This selected preferred route option could restore service between Portland, Oregon; Boise, Idaho; and Pocatello, Idaho (approximately 773 miles of discontinued long-distance routes).
- **San Antonio – Minneapolis/St. Paul:** This selected preferred route option could cover 1,292 miles in approximately 32 hours, serving 28 stations, including 18 not currently served by passenger rail. In addition to St. Paul, Minnesota, the route could serve a potential new station in downtown Minneapolis, Minnesota. The selected preferred route option could provide additional service between San Antonio, Texas, and Fort Worth, Texas, and new service between Tulsa, Oklahoma; Kansas City, Missouri; and Des Moines, Iowa.
- **San Francisco – Dallas/Fort Worth:** This selected preferred route option could cover 1,906 miles in approximately 42 hours, serving 29 stations, including 13 not currently served by passenger rail. It could serve stations in both downtown Dallas, Texas, and downtown Fort Worth, Texas. The selected preferred route option could provide additional service between San Francisco, California, and Bakersfield, California, and between Tucson, Arizona, and El Paso, Texas. It could restore service between Bakersfield, California, and Barstow, California, and between Phoenix and Tucson, Arizona (approximately 207 miles of discontinued long-distance routes). This selected preferred route option could provide direct connections between Barstow, California, and Phoenix, Arizona, as well as between El Paso, Texas, and Dallas/Fort Worth.
- **Detroit – New Orleans:** This selected preferred route option could cover 1,244 miles in approximately 29 hours, serving 30 stations, including 20 not currently served by passenger rail. It could provide additional service between New Orleans, Louisiana, and Mobile, Alabama. The selected preferred route option could restore service between Mobile, Alabama, and Cincinnati, Ohio (approximately 985 miles of discontinued long-distance routes). This route could provide new service between Detroit, Michigan; Columbus, Ohio; and Cincinnati, Ohio. Although this selected preferred route option does not currently include Cleveland, Ohio, potential service and connections to Cleveland could be evaluated in future studies.
- **Denver – Minneapolis/St. Paul:** This selected preferred route option could cover 1,143 miles in approximately 26 hours, serving 20 stations, of which only 2 are currently served by passenger rail (Denver, Colorado, and St. Paul, Minnesota). In addition to St. Paul, Minnesota, the route could serve a potential new station in

downtown Minneapolis, Minnesota. This selected preferred route option primarily could provide new service, connecting Cheyenne, Wyoming, and Sioux Falls, South Dakota.

- **Seattle – Chicago:** This selected preferred route option could cover 2,314 miles in approximately 50 hours, serving 34 stations, including 15 not currently served by passenger rail. It could provide additional service between Kennewick, Washington (Pasco, Washington), and Sandpoint, Idaho, and between Fargo, North Dakota, and Chicago, Illinois. This selected preferred route option could primarily restore service along the discontinued North Coast Hiawatha long-distance route (approximately 1,285 miles of discontinued long-distance route). Although this selected preferred route option does not currently include Butte, Montana, potential service and connections to Butte could be evaluated in future studies.
- **Dallas/Fort Worth – Atlanta:** This selected preferred route option could cover 855 miles in approximately 22 hours, serving 15 stations, including 4 not currently served by passenger rail. It could serve stations in both downtown Dallas, Texas, and downtown Fort Worth, Texas. This selected preferred route option could provide additional service between Fort Worth, Texas, and Marshall, Texas, and between Meridian, Mississippi, and Atlanta, Georgia. It could provide a new east-west connection between Marshall, Texas; Jackson, Mississippi; and Meridian, Mississippi.
- **El Paso – Billings:** This selected preferred route option could cover 1,390 miles in approximately 31 hours, serving 23 stations, including 16 not currently served by passenger rail. It could provide additional service between Albuquerque, New Mexico, and Trinidad, Colorado. New service provided by this selected preferred route option could connect between El Paso, Texas, and Albuquerque, New Mexico, and between Trinidad, Colorado, and Billings, Montana.

FRA selected the preferred route options based on an evaluation considering the criteria in IIJA Section 22214(c), as described in Section 5.2. Future planning efforts may identify different alignments or cities served for these selected preferred route options. For each region, FRA reviewed stakeholder and public feedback and identified the top markets or cities not directly served by the selected preferred route options by volume of comments received. The markets include Boston, Massachusetts; Buffalo, New York; Cleveland, Ohio; Fort Wayne, Indiana; Butte, Montana; San Diego, California; Little Rock, Arkansas; Tampa, Florida; Memphis, Tennessee; and Charlotte, North Carolina.

These markets could be served by the selected preferred route options as part of future planning efforts. Sponsors of future planning efforts may consider modifying the selected preferred route options to serve one or more of these markets, considering the trade-offs of changes in populations served, travel times, costs, or other factors. Sponsors may also consider other Amtrak services to enhance service to these markets. In addition, sponsors may consider enhancing existing state-supported services or pursuing Amtrak Thruway bus service to provide access where none exists today.

Photo courtesy of Amtrak

5.4 Selected Preferred Route Option Conceptual Service Overview

As described in Section 5.2, the conceptual services for the selected preferred route options are presented for illustrative purposes only, and do not reflect actual schedules developed and negotiated by Amtrak with host railroads and other stakeholders. The selected preferred route options require additional planning and analysis to determine actual alignments and service development plans to create an expanded and interconnected long-distance passenger rail network prior to implementation.

Chicago – Miami

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 36 hours
Route length	average of both directions	1,531 miles
Chicago, Illinois departure time	local time	late morning
Miami, Florida arrival time	local time	late evening[+1]
Miami, Florida departure time	local time	early afternoon
Chicago, Illinois arrival time	local time	nighttime[+2]
Average travel time improvements	hours	11
ROUTE STATIONS		
Total number of stations	count of stations	37
Stations in small communities	count of stations	5
Existing stations adding new service	count of stations	21

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

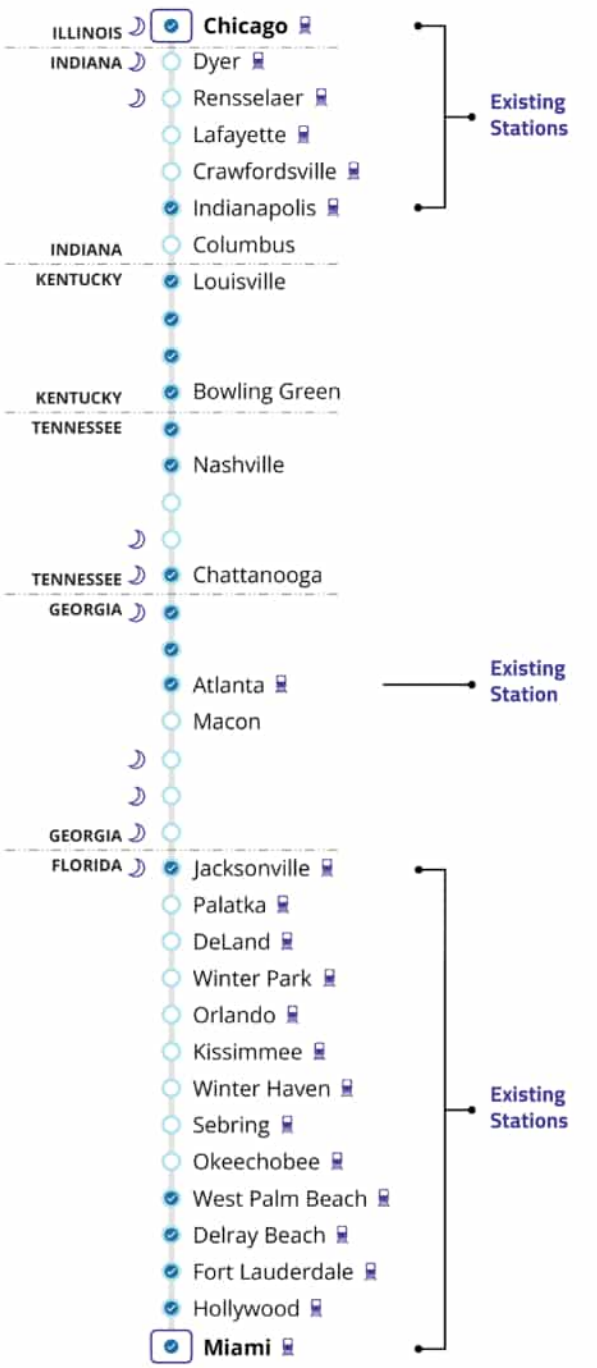
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Dallas/Fort Worth – Miami

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 36 hours
Route length	average of both directions	1,507 miles
Fort Worth, Texas departure time	local time	early morning
Miami, Florida arrival time	local time	late afternoon+1
Miami, Florida departure time	local time	midday
Fort Worth, Texas arrival time	local time	late evening+1
Average travel time improvements	hours	13
ROUTE STATIONS		
Total number of stations	count of stations	35
Stations in small communities	count of stations	5
Existing stations adding new service	count of stations	17

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

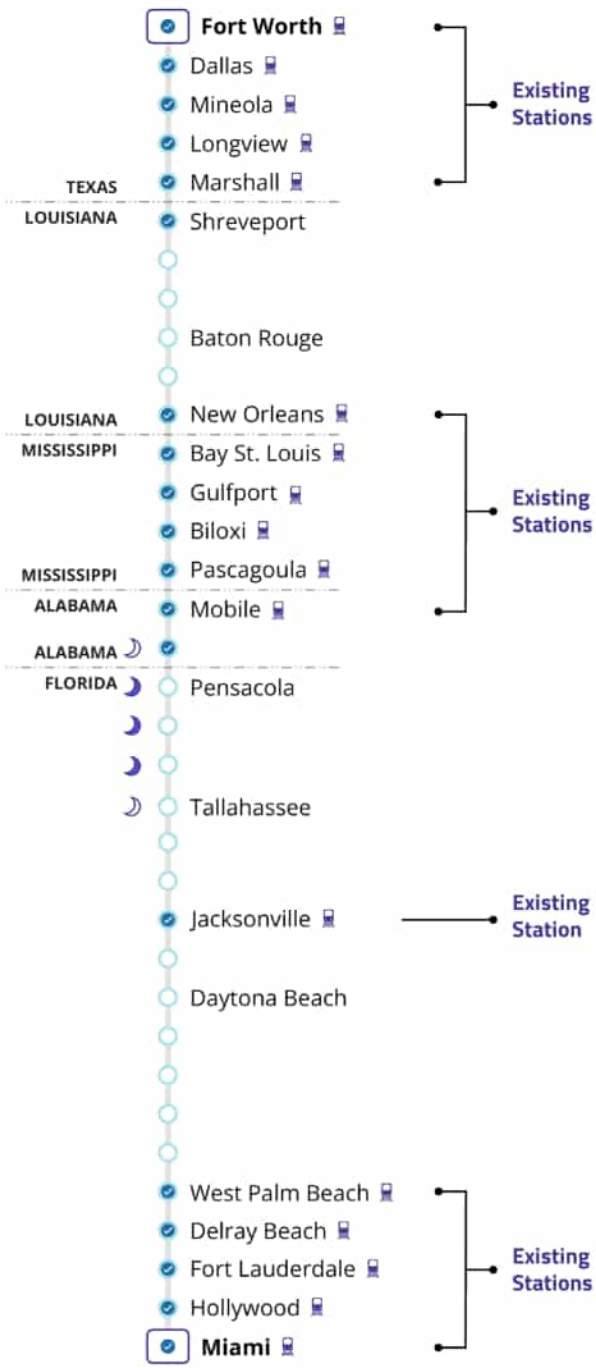
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Denver – Houston

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 25 hours
Route length	average of both directions	1,088 miles
Denver, Colorado departure time	local time	early evening
Houston, Texas arrival time	local time	early evening +1
Houston, Texas departure time	local time	early morning
Denver, Colorado arrival time	local time	early morning +1
Average travel time improvements	hours	15
ROUTE STATIONS		
Total number of stations	count of stations	21
Stations in small communities	count of stations	9
Existing stations adding new service	count of stations	5

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.

Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Los Angeles – Denver

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 33 hours
Route length	average of both directions	1,423 miles
Los Angeles, California departure time	local time	midday
Denver, Colorado arrival time	local time	late evening[+1]
Denver, Colorado departure time	local time	early morning
Los Angeles, California arrival time	local time	early afternoon[+1]
Average travel time improvements	hours	24.5
ROUTE STATIONS		
Total number of stations	count of stations	24
Stations in small communities	count of stations	7
Existing stations adding new service	count of stations	9

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

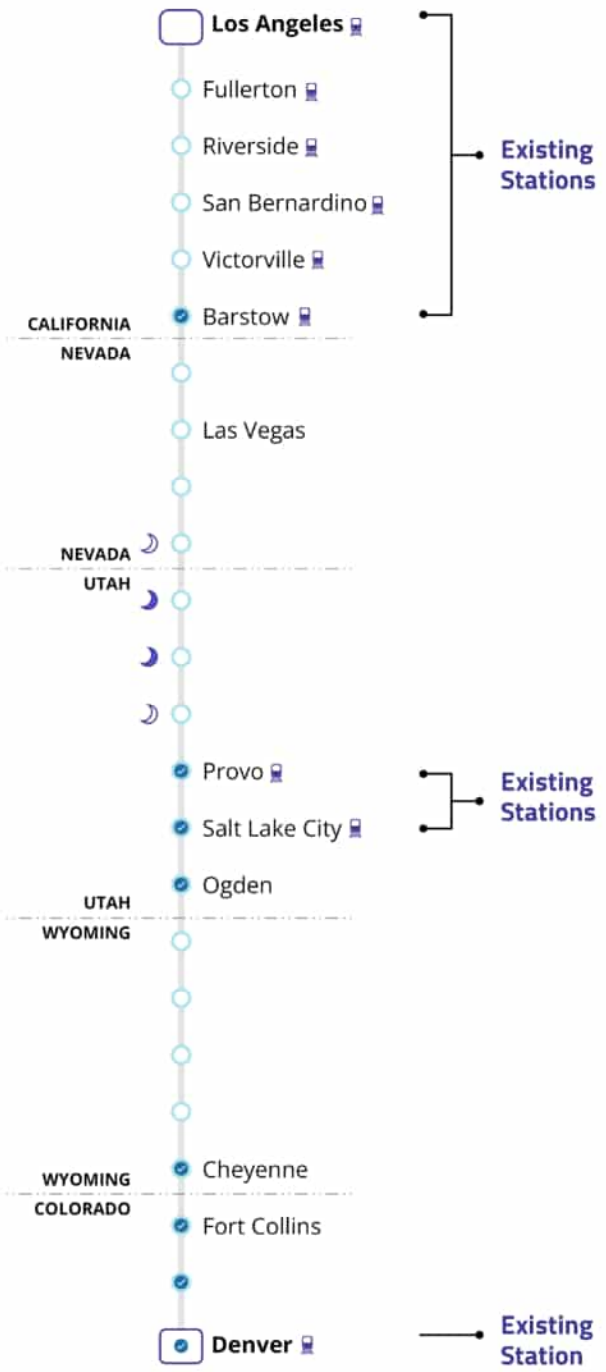
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Phoenix – Minneapolis/St. Paul

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 47 hours
Route length	average of both directions	2,135 miles
Phoenix, Arizona departure time	local time	early afternoon
St. Paul, Minneapolis arrival time	local time	early afternoon[+2]
St. Paul, Minneapolis departure time	local time	early morning
Phoenix, Arizona arrival time	local time	nighttime[+2]
Average travel time improvements	hours	19.5
ROUTE STATIONS		
Total number of stations	count of stations	32
Stations in small communities	count of stations	14
Existing stations adding new service	count of stations	9

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

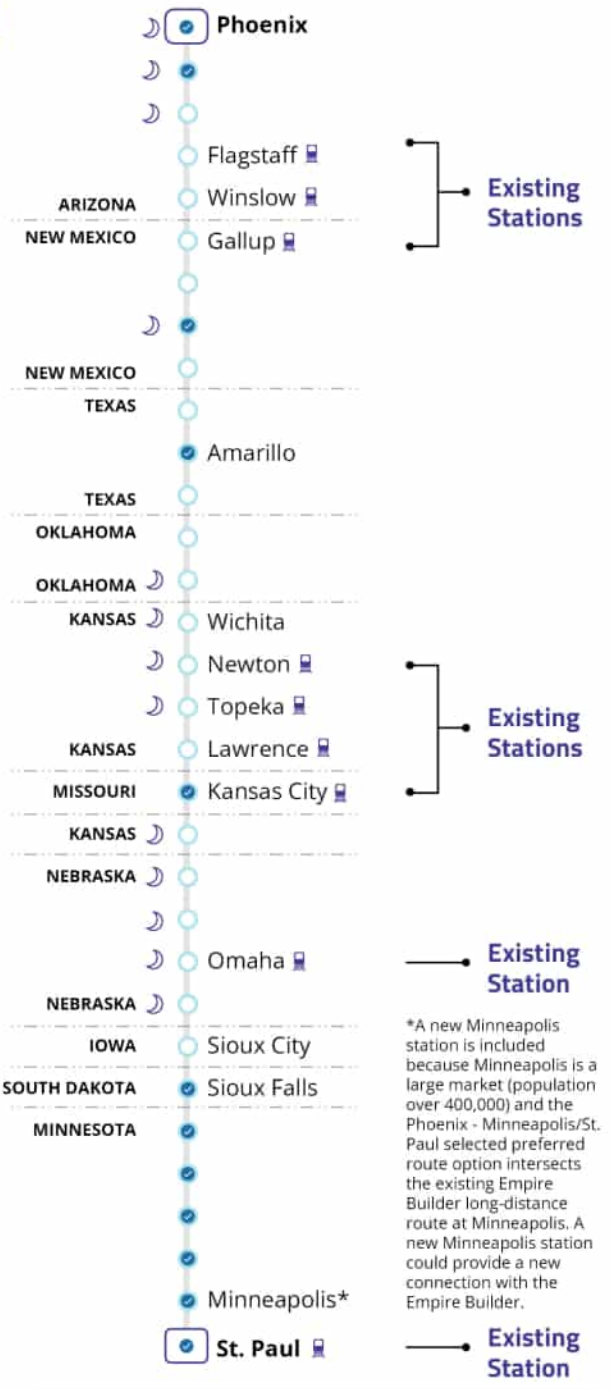
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Dallas/Fort Worth – New York

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 44 hours
Route length	average of both directions	1,907 miles
Dallas, Texas departure time	local time	midday
New York, New York arrival time	local time	late morning[+2]
New York, New York departure time	local time	early afternoon
Dallas, Texas arrival time	local time	midday[+2]
Average travel time improvements	hours	7
ROUTE STATIONS		
Total number of stations	count of stations	33
Stations in small communities	count of stations	3
Existing stations adding new service	count of stations	17

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.

Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Houston – New York

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 43 hours
Route length	average of both directions	1,841 miles
Houston, Texas departure time	local time	early evening
New York, New York arrival time	local time	late afternoon[+2]
New York, New York departure time	local time	early afternoon
Houston, Texas arrival time	local time	early morning[+2]
Average travel time improvements	hours	13
ROUTE STATIONS		
Total number of stations	count of stations	42
Stations in small communities	count of stations	5
Existing stations adding new service	count of stations	26

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

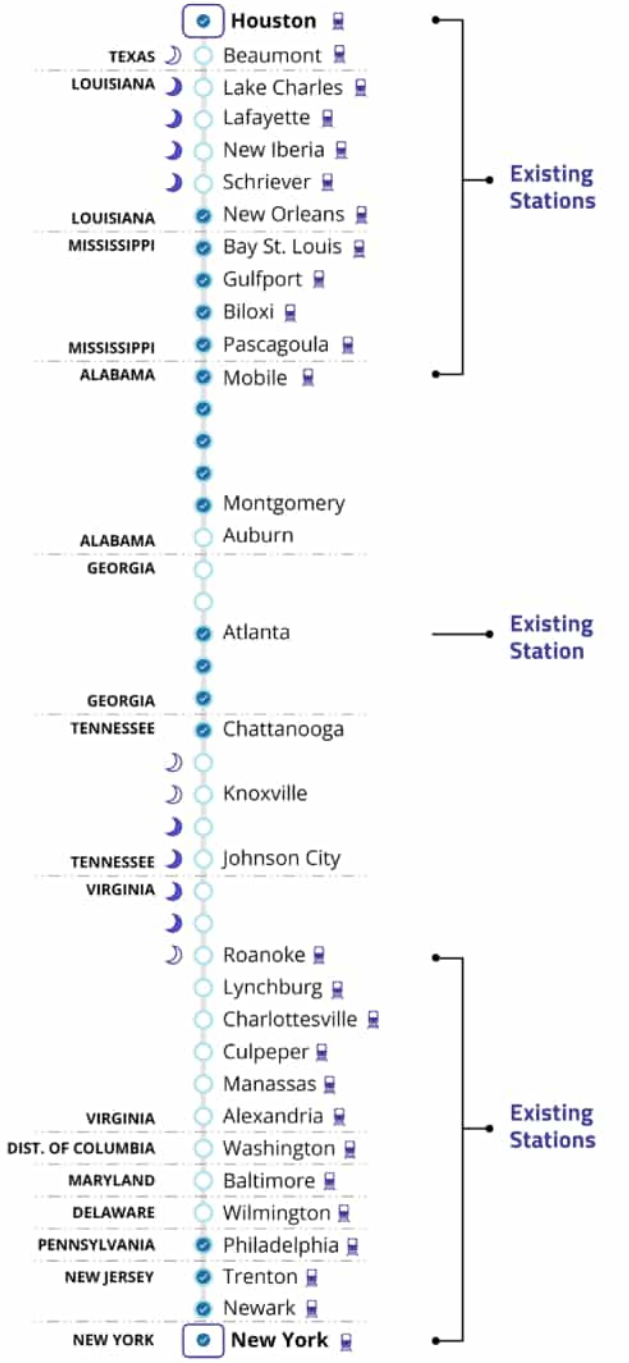
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Seattle – Denver

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 40 hours
Route length	average of both directions	1,647 miles
Seattle, Washington departure time	local time	early morning
Denver, Colorado arrival time	local time	late evening[+1]
Denver, Colorado departure time	local time	late evening
Seattle, Washington arrival time	local time	midday[+2]
Average travel time improvements	hours	18
ROUTE STATIONS		
Total number of stations	count of stations	29
Stations in small communities	count of stations	8
Existing stations adding new service	count of stations	16

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

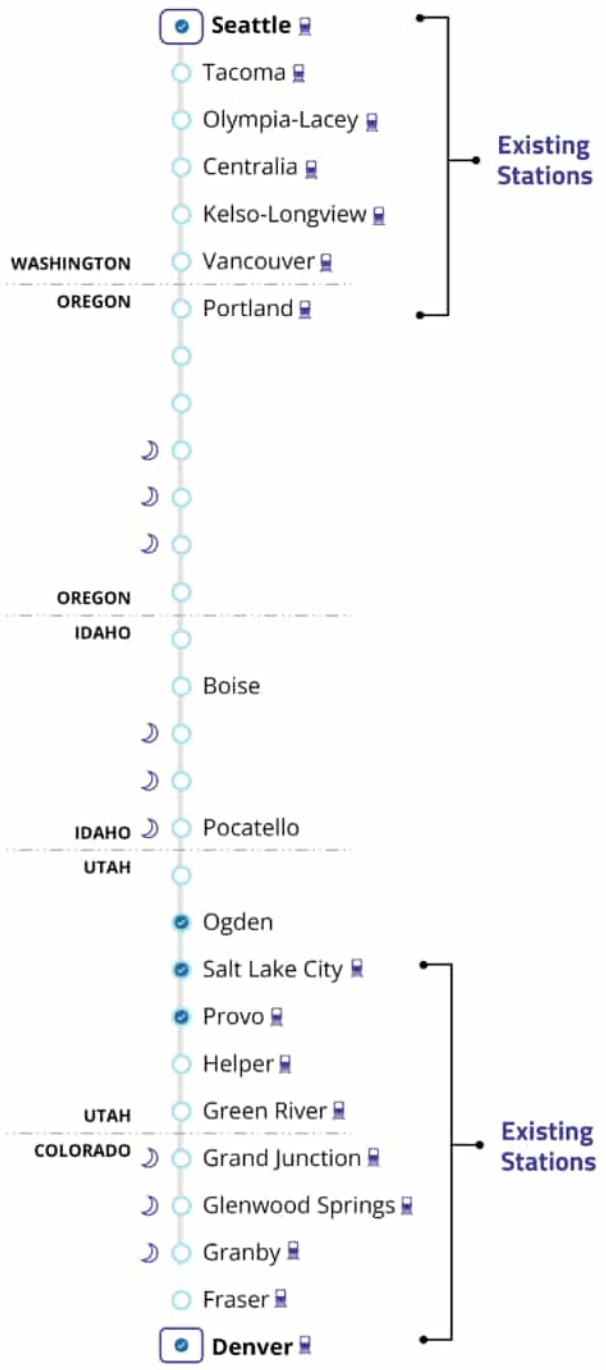
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

San Antonio – Minneapolis/St. Paul

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 32 hours
Route length	average of both directions	1,292 miles
San Antonio, Texas departure time	local time	late morning
St. Paul, Minneapolis arrival time	local time	late afternoon[+1]
St. Paul, Minneapolis departure time	local time	midday
San Antonio, Texas arrival time	local time	early evening[+1]
Average travel time improvements	hours	5
ROUTE STATIONS		
Total number of stations	count of stations	28
Stations in small communities	count of stations	11
Existing stations adding new service	count of stations	10

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

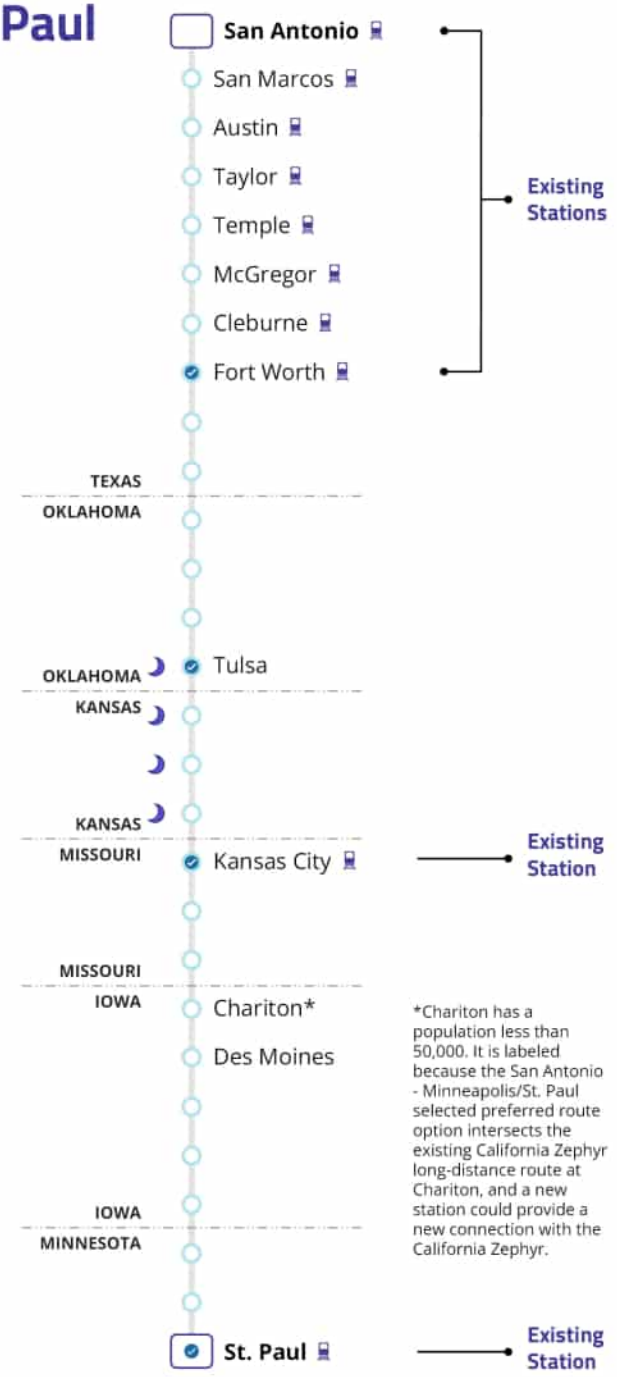
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

San Francisco – Dallas/Fort Worth

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 42 hours
Route length	average of both directions	1,906 miles
Emeryville, California departure time	local time	midday
Dallas, Texas arrival time	local time	early morning[+2]
Dallas, Texas departure time	local time	early morning
Emeryville, California arrival time	local time	late evening[+1]
Average travel time improvements	hours	14
ROUTE STATIONS		
Total number of stations	count of stations	29
Stations in small communities	count of stations	5
Existing stations adding new service	count of stations	16

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

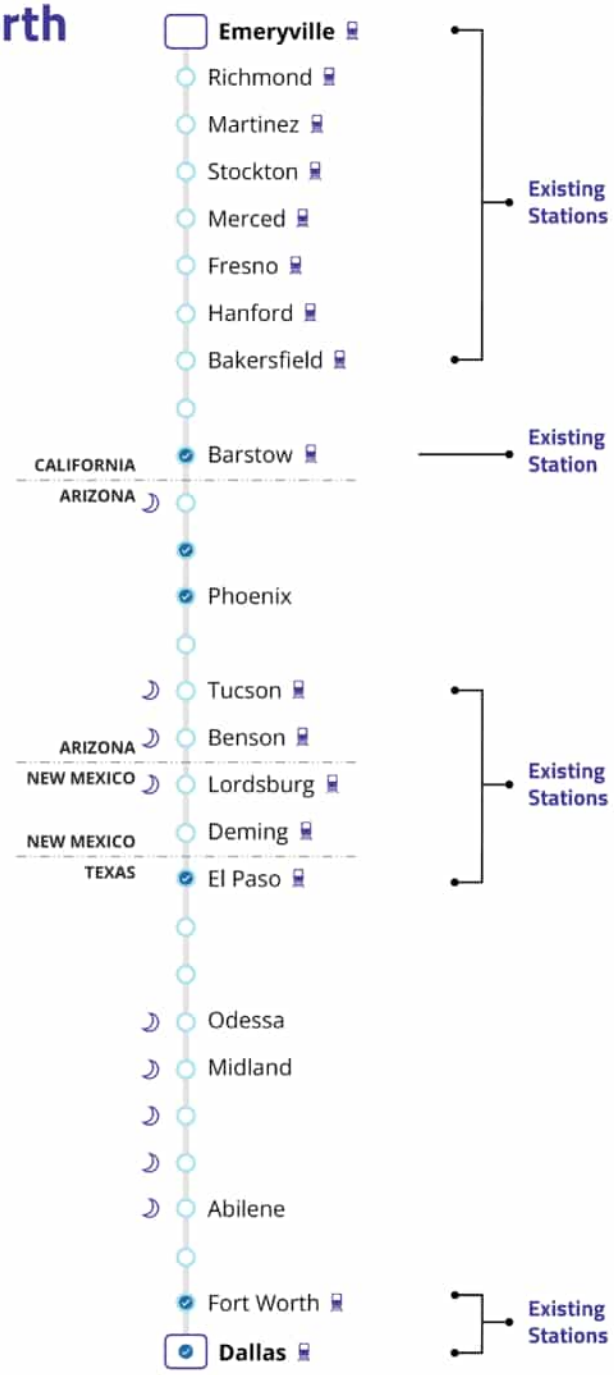
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Detroit – New Orleans

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 29 hours
Route length	average of both directions	1,244 miles
Detroit, Michigan departure time	local time	early morning
New Orleans, Louisiana arrival time	local time	late morning[+1]
New Orleans, Louisiana departure time	local time	early morning
Detroit, Michigan arrival time	local time	midday[+1]
Average travel time improvements	hours	11
ROUTE STATIONS		
Total number of stations	count of stations	30
Stations in small communities	count of stations	7
Existing stations adding new service	count of stations	10

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

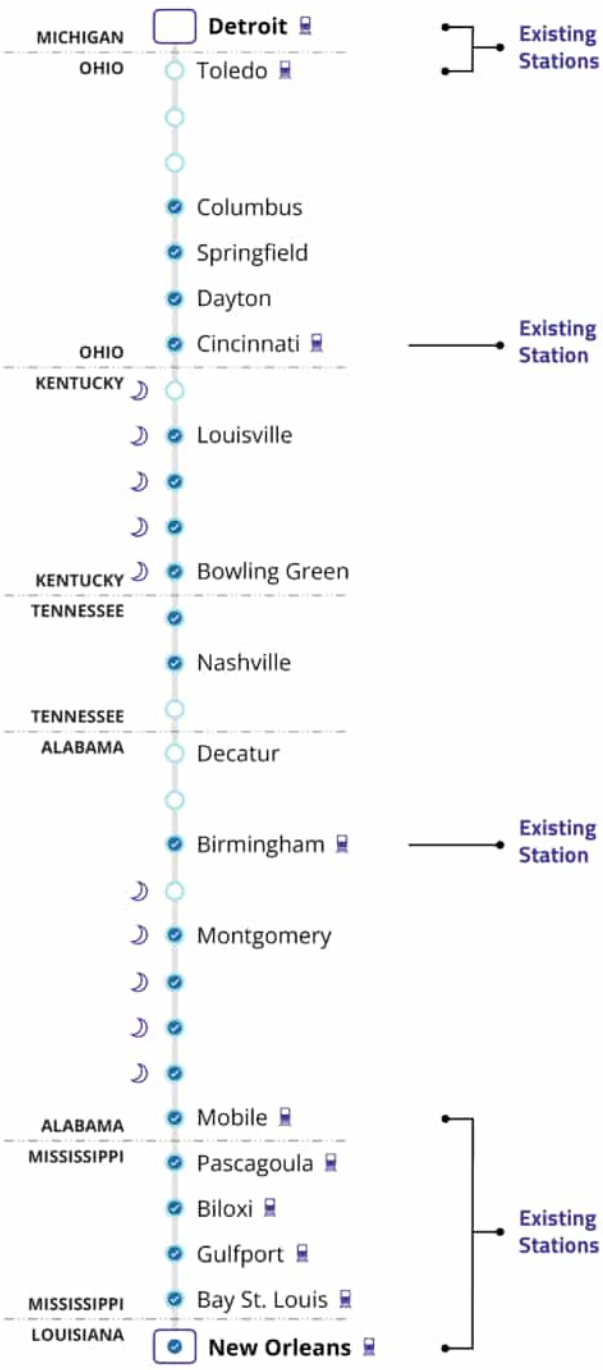
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Denver – Minneapolis/St. Paul

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 26 hours
Route length	average of both directions	1,143 miles
Denver, Colorado departure time	local time	midday
St. Paul, Minneapolis arrival time	local time	early afternoon[+1]
St. Paul, Minneapolis departure time	local time	early evening
Denver, Colorado arrival time	local time	early evening[+1]
Average travel time improvements	hours	15.5
ROUTE STATIONS		
Total number of stations	count of stations	20
Stations in small communities	count of stations	11
Existing stations adding new service	count of stations	2

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

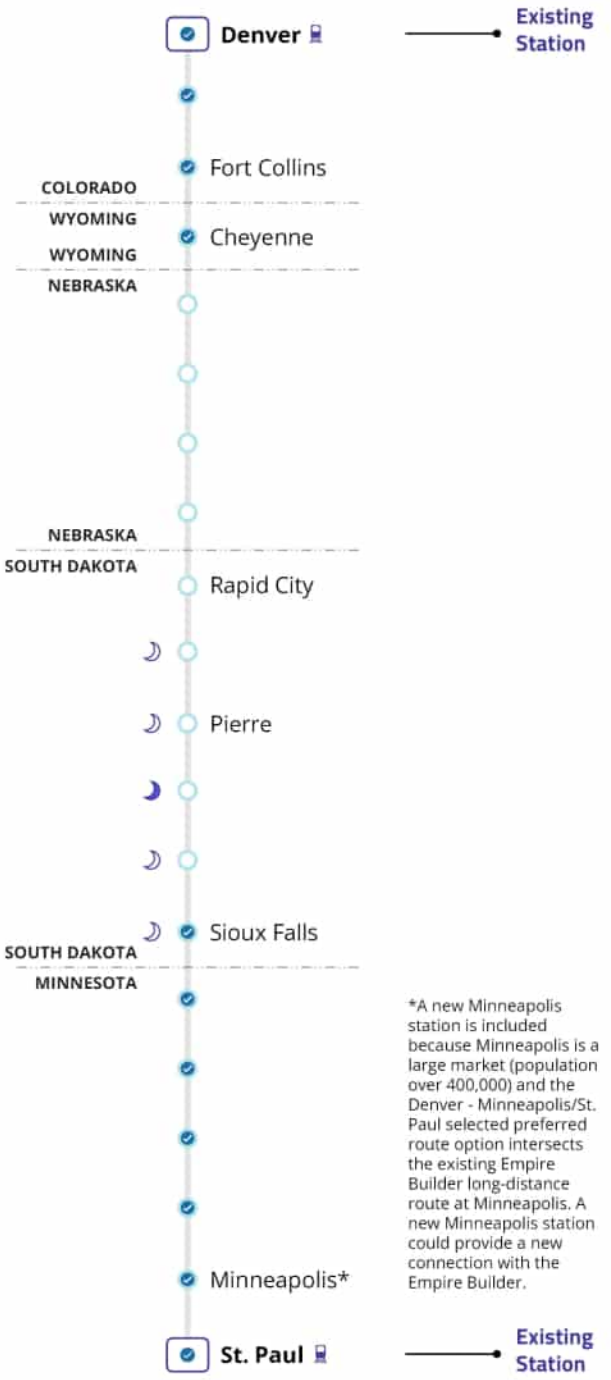
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



*A new Minneapolis station is included because Minneapolis is a large market (population over 400,000) and the Denver - Minneapolis/St. Paul selected preferred route option intersects the existing Empire Builder long-distance route at Minneapolis. A new Minneapolis station could provide a new connection with the Empire Builder.

Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Seattle – Chicago

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 50 hours
Route length	average of both directions	2,314 miles
Seattle, Washington departure time	local time	early afternoon
Chicago, Illinois arrival time	local time	late afternoon[+2]
Chicago, Illinois departure time	local time	early morning
Seattle, Washington arrival time	local time	nighttime[+2]
Average travel time improvements	hours	4.5
ROUTE STATIONS		
Total number of stations	count of stations	34
Stations in small communities	count of stations	11
Existing stations adding new service	count of stations	19

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

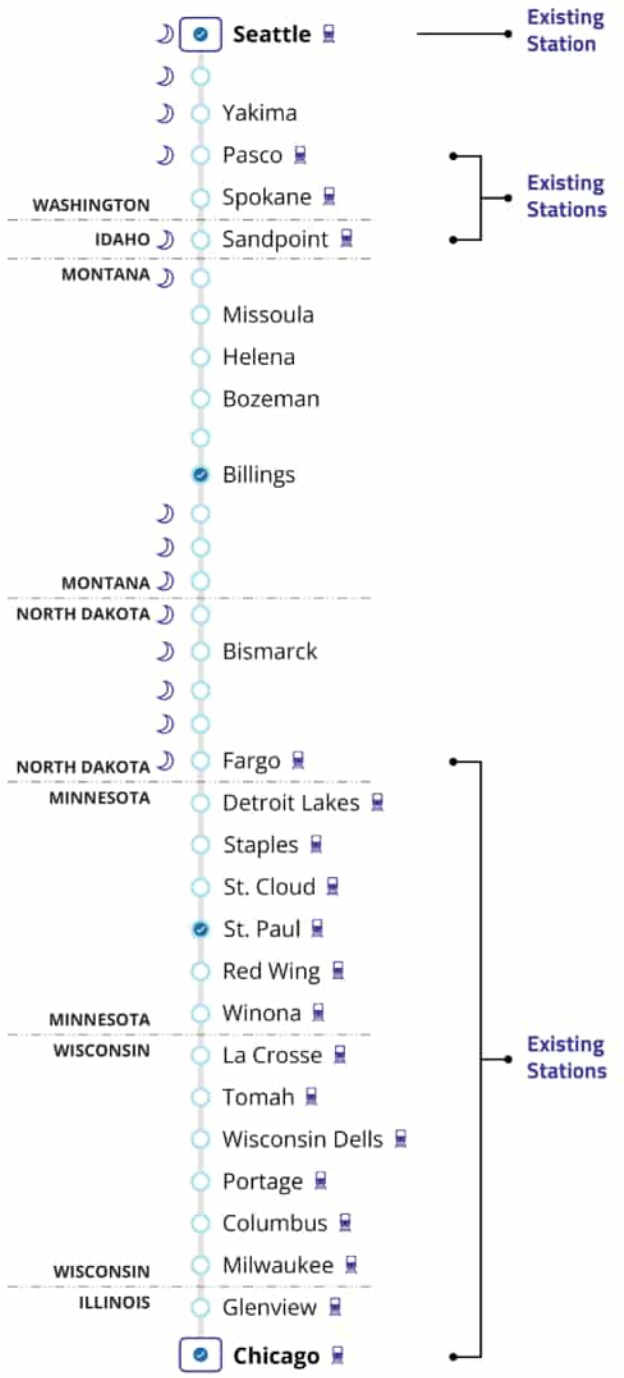
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

Dallas/Fort Worth – Atlanta

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 22 hours
Route length	average of both directions	855 miles
Fort Worth, Texas departure time	local time	early morning
Atlanta, Georgia arrival time	local time	early morning[+1]
Atlanta, Georgia departure time	local time	early evening
Fort Worth, Texas arrival time	local time	early afternoon[+1]
Average travel time improvements	hours	18
ROUTE STATIONS		
Total number of stations	count of stations	15
Stations in small communities	count of stations	2
Existing stations adding new service	count of stations	11

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

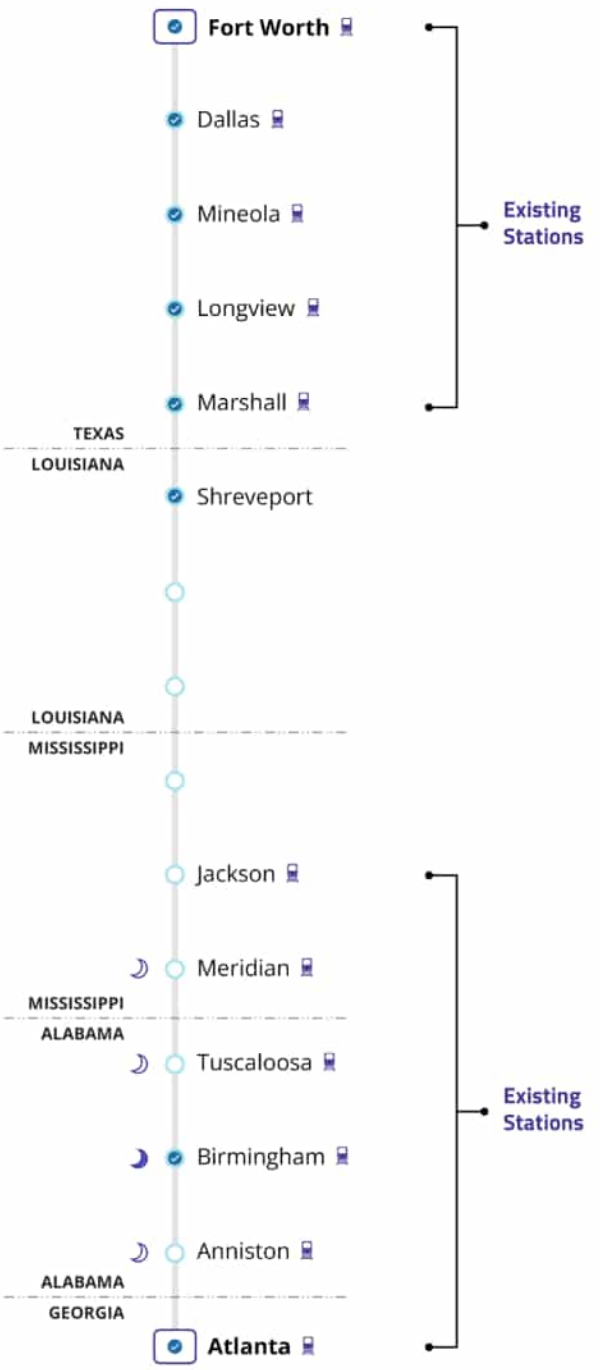
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

El Paso – Billings

Conceptual Service Overview

Not an FRA proposal for service

ROUTE SERVICE METRICS		
Scheduled run time	average of both directions	approximately 31 hours
Route length	average of both directions	1,390 miles
El Paso, Texas departure time	local time	late afternoon
Billings, Montana arrival time	local time	late evening[+1]
Billings, Montana departure time	local time	early morning
El Paso, Texas arrival time	local time	midday[+1]
Average travel time improvements	hours	23.5
ROUTE STATIONS		
Total number of stations	count of stations	23
Stations in small communities	count of stations	6
Existing stations adding new service	count of stations	7

Average travel time improvements are for existing origin-destination pairs when using a selected preferred route option compared to an existing route

+1 = one travel day +2 = two travel days

Service Hours:

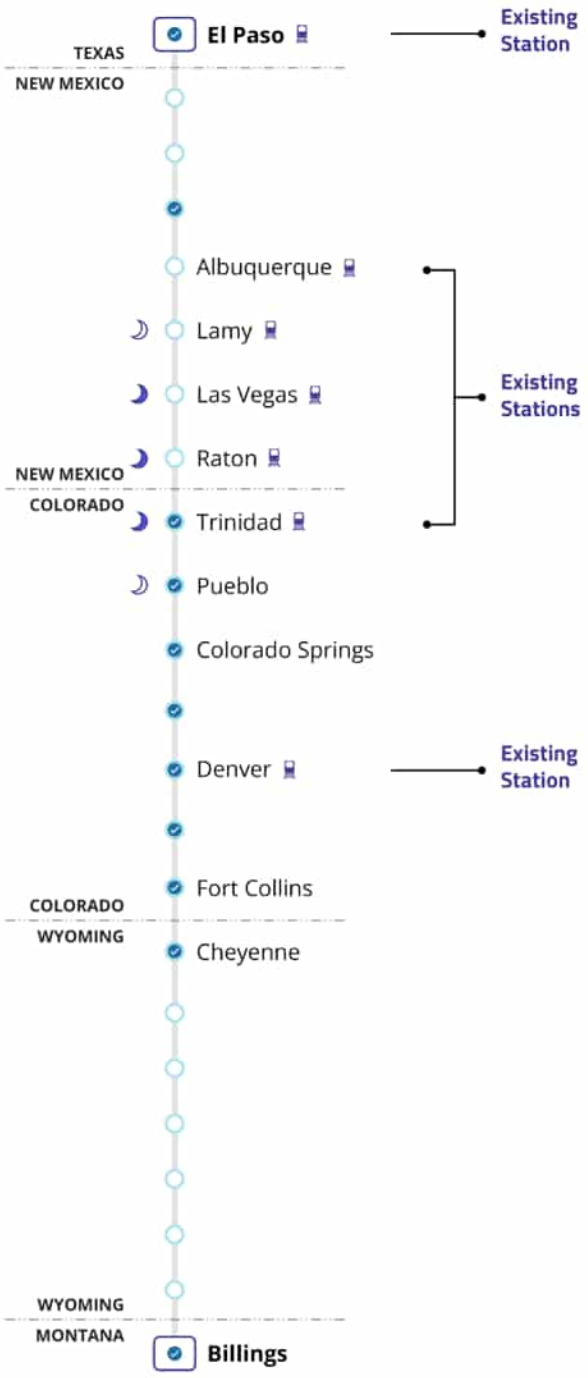
Daytime = 5:00 a.m. - 10:59 p.m.

5 a.m. - 7:59 a.m. early morning
8 a.m. - 10:59 a.m. late morning
11 a.m. - 12:59 p.m. midday
1 p.m. - 3:59 p.m. early afternoon
4 p.m. - 5:59 p.m. late afternoon
6 p.m. - 8:59 p.m. early evening
9 p.m. - 10:59 p.m. late evening

Nighttime = 11 p.m. - 4:59 a.m.

These conceptual schedules are not FRA proposals for service. This Study selected conceptual departure times to maximize daytime service for highest population market pairs on a preferred route option.

Further analysis and identification of funding after completion of this Study would be necessary to advance the selected preferred route options through project planning and project development activities, including detailed schedule development.



Legend

- Some arrivals at night
- All arrivals at night
- Station
- Terminal
- Connecting Existing Amtrak Rail Service
- Connecting to another Selected Preferred Route Option

Some arrivals at night depending on direction.

All existing stations and new stations in cities with over 50,000 people are labeled.

5.5 Advantages of the Network of Selected Preferred Route Options

The network of selected preferred route options could increase connectivity and link and serve more communities throughout the contiguous United States than the baseline network. To support the analysis of the people and places connected and served by the selected preferred route options, FRA identified ***catchment areas*** around each station for the selected preferred route options. ***Catchment area*** sizes were validated with Amtrak by comparing the population included within ***catchment areas*** with data provided by Amtrak on travel distances for Amtrak customers accessing Amtrak stations at 190 existing long-distance stations. For this analysis, potential stations in MSAs have a 30-mile radius, and potential stations in non-MSA areas have a 50-mile radius. The network of selected preferred route options was compared to the baseline network of routes to evaluate how the network of selected preferred route options could compare to the baseline network, considering:

- Connectivity, measured as the number of people with access to the passenger rail network and geographic coverage.
- Linking and serving ***large and small communities***, measured as the increase in passenger rail connections to stations in ***large and small communities***.
- Service, measured as the number of ***OD pairs*** accessible in the passenger rail network, improvements to passenger rail travel times, and service improvements at new passenger rail hubs.

The economic and social well-being of ***rural areas*** (measured in terms of access to rural populations, disadvantaged populations, access for people living on ***tribal lands***, and access to health and educational services) is described in Chapter 7.

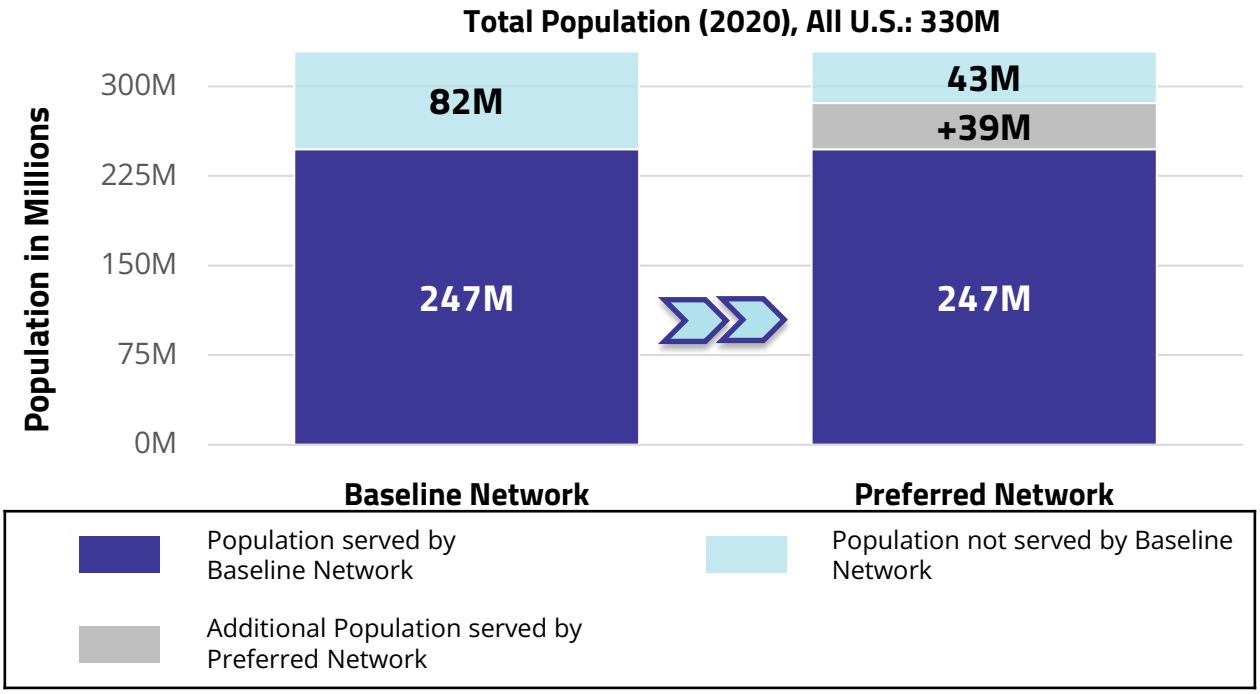
5.5.1 Connectivity

The baseline network provided passenger rail access to 247 million of the roughly 330 million people in 2020 (U.S. Census Bureau 2020), leaving approximately 83 million people out of reach of the network. The network of selected preferred route options could provide access to an additional 39 million people, a 16 percent increase over the baseline network, serving 47 percent of the previously unserved population (Figure 5-6).

Geographic coverage could be improved by the network of selected preferred route options (Figure 5-7). With the network of selected preferred route options, 48 states, as well as Washington, DC, could have access to passenger rail. Additionally, 431 Congressional Districts could have access to passenger rail, a 6 percent increase over the baseline network. Overall, the network of selected preferred route options could add 23,200 long-distance route miles, including:

- 6,200 route miles that overlap with the baseline network (such as with an existing NEC, state-supported, or long-distance route).
- 5,900 route miles of restored discontinued long-distance routes.
- 11,100 route miles of new segments where no passenger rail service operates today.

Figure 5-6. Population with Access to Passenger Rail Service for Baseline and Network of Selected Preferred Route Options



Note: The preferred network is the network of selected preferred route options. Analysis is based on potential station locations for selected preferred route options. The locations of new stations are conceptual and require additional planning and analysis prior to implementation as part of future studies.

Figure 5-7. Improved Passenger Rail Geographic Coverage

46 States + **2** New States = **48** would have access to passenger rail

407 Congressional Districts + **24** Additional Districts (6%) = **431** would have access to passenger rail

Baseline Network » **Preferred Network**

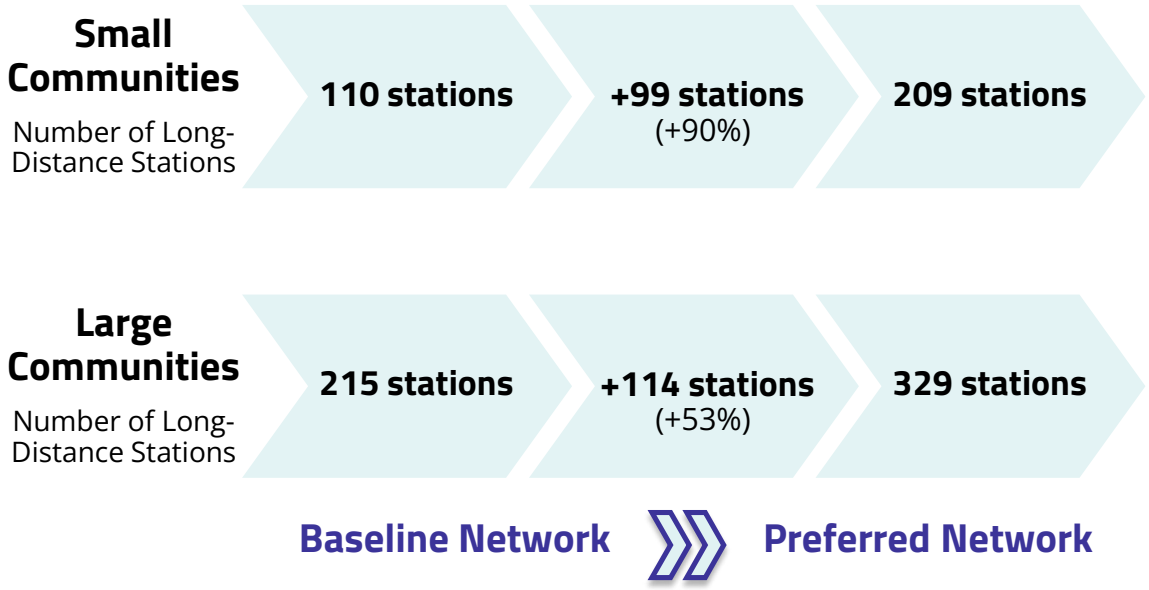
Source: U.S. Census Bureau. State and Congressional District boundary shapefiles (U.S. Census Bureau 2022)

Note: The preferred network is the network of selected preferred route options. State boundaries and congressional districts containing a segment in the baseline network or network of selected preferred route options; does not include District of Columbia.

5.5.2 Linking Large and Small Communities

In ***small communities***, the number of long-distance rail stations could nearly double in the network of selected preferred route options. The number of long-distance stations in ***large communities*** could increase by over 50 percent, growing from 215 to 329 (Figure 5-8).

Figure 5-8. Comparison of Additional Market Areas Served by Stations on the Baseline Network and Network of Selected Preferred Route Options



Note: The preferred network is the network of selected preferred route options. ***Large community*** is a community located inside a ***Metropolitan Statistical Area***. ***Small community*** is a community located outside a ***Metropolitan Statistical Area***. Analysis is based on potential station locations for selected preferred route options. The locations of new stations are conceptual and require additional planning and analysis prior to implementation as part of future studies.

5.5.3 Service Improvements

Using the conceptual service for the selected preferred route options, FRA analyzed the network of selected preferred route options to understand the potential service improvements. The conceptual stations, routes, and services of the network of selected preferred route options were compared to the stations, routes, and services of the existing network. The comparison showed the potential improvements offered by the network of selected preferred route options, including an increase in the number of ***OD pairs***, potential passenger rail travel time improvements for existing OD pairs, and service improvements at new hub locations. The analysis used the 2022 Amtrak timetable for existing service and the conceptual services for the selected preferred route options (Amtrak 2022e).

5.5.3.1 Origin-Destination Pairs

The analysis considered all ***OD pairs*** requiring two or fewer transfers (with each transfer greater than 1 hour and less than 12 hours). The growth in OD pairs accessible by the network of selected preferred route options was further organized by region to highlight the unique benefits to each area.

The network of selected preferred route options could provide an 87 percent increase in possible ***OD pairs*** (an increase of 157,600 OD pairs) compared to the existing network. In terms of total OD pairs served, the network of selected preferred route options could double the reach of the existing passenger rail network, benefiting every region in the contiguous United States.

+87%

The network of selected preferred route options could provide an 87 percent increase in possible OD pairs **(an increase of 157,600 pairs)** compared to the existing network.

5.5.3.2 Passenger Rail Travel Time Improvements

An estimated 32,000 existing ***OD pairs*** accessible on the passenger rail network could have shorter passenger rail travel times if the network of selected preferred route options was implemented. The average improvement in travel time for the 32,000 OD pairs could be approximately 11 hours. Average travel time improvements are for existing OD pairs when using a selected preferred route option compared to an existing passenger rail route, and do not include non-rail modes of travel. This highlights the improvements the network of selected preferred route options could provide to existing Amtrak services. Many existing OD pairs (e.g., Detroit, Michigan, to New Orleans, Louisiana) could see travel time improvements of over 10 hours.

5.5.3.3 Service Improvements at Existing and New Hubs

The network of selected preferred route options could create new passenger hubs and increase connectivity at existing passenger hubs. For the Study, existing hubs are defined as stations that have over 100 direct connections today – New York, New York; Chicago, Illinois; and Los Angeles, California. For the Study, new hubs are defined as stations in the existing network that are (1) served by at most one daily long-distance route, (2) could be served by at least three selected preferred route options, and (3) provide over 100 unique direct connections when existing and selected preferred route option connections are combined. Table 5-2 provides information on increased service at existing and new hub stations, as well as other markets with potential ***enhanced connectivity***.

Direct Connections

- One-seat ride
- No transfers required to connect the station pairs

Indirect Connections

- Two- or three-seat ride, connecting to another Amtrak passenger rail service
- Transfer times between 1 and 12 hours
- Supports an analysis of both connections between long-distance and state-supported service

The three existing hubs that could have ***enhanced connectivity*** and service under the network of selected preferred route options include Los Angeles, California (39 percent); Chicago, Illinois (40 percent); and New York, New York (35 percent). New hubs that could have ***enhanced connectivity*** and service under the network of

selected preferred route options include Denver, Colorado (62 percent); Dallas, Texas (78 percent); St. Paul, Minnesota (78 percent); and Atlanta, Georgia (48 percent). Other markets with potential ***enhanced connectivity*** and service include Seattle, Washington (43 percent); New Orleans, Louisiana (46 percent); and Miami, Florida (51 percent). This includes the number of routes served and direct and indirect connections.

Table 5-2. Increase in Service at Station Hubs

Station	Hub Type	Total Number of Routes Served	Existing Network Direct/Indirect Connections	Network of Selected Preferred Route Options - Additional Direct/Indirect Connections	Increase in Connections
Los Angeles, California	Existing	6	507	199	39%
Chicago, Illinois	Existing	18	502	202	40%
New York, New York	Existing	23	520	183	35%
Denver, Colorado	New	6	426	266	62%
Dallas, Texas	New	6	394	307	78%
St. Paul, Minnesota	New	6	330	257	78%
Atlanta, Georgia	New	4	402	193	48%
Seattle, Washington	Enhanced Market	5	448	193	43%
New Orleans, Louisiana	Enhanced Market	6	471	216	46%
Miami, Florida	Enhanced Market	4	425	215	51%

6. Cost Estimates

FRA estimated order-of-magnitude capital and O&M costs associated with implementation of the selected preferred route options for projects and other actions required to restore, enhance, or expand long-distance service, consistent with IIJA Section 22214. These are high-level cost estimates, which could be further refined during subsequent stages of project planning and development, but they are appropriate to support a systems planning phase. These costs were used as inputs into the estimated public benefits (Chapter 7) and implementation (Chapter 9) discussions.

6.1 Capital Cost Estimates

Passenger rail capital projects can cover a variety of project types. Based on the scope and scale of the Study and after feedback from stakeholders, FRA identified a subset of capital projects needed for passenger service on the selected preferred route options (such as track upgrades to meet passenger service requirements, stations, and fleet) – but not the full range of capital projects that may be needed, including potentially significant projects related to track capacity and grade crossing improvements. These complex, time-intensive projects would be determined based on future studies and analysis.

The cost estimates presented here represent a high-level order-of-magnitude cost range for selected types of passenger service-required capital projects. The estimates include a 35 percent contingency to address project risks related to unknown factors such as site conditions, environmental considerations, and other factors. More planning and analysis would be required for further development and refinement of accurate total cost estimates. Figure 6-1 provides an overview of the Study's capital cost estimating for selected passenger service-required capital projects.

$

Capital cost estimates for the Study do not include capacity improvement projects to accommodate existing or future traffic, structural improvements, grade crossing improvements, or freight railroad onboard positive train control improvement projects.

Capital cost estimates for selected passenger service-required projects include:

- Track upgrades, signalization, and positive train control (PTC)
- Stations and maintenance facilities
- Vehicles

Figure 6-1. Capital Cost Estimating for Selected Passenger Service-Required Projects

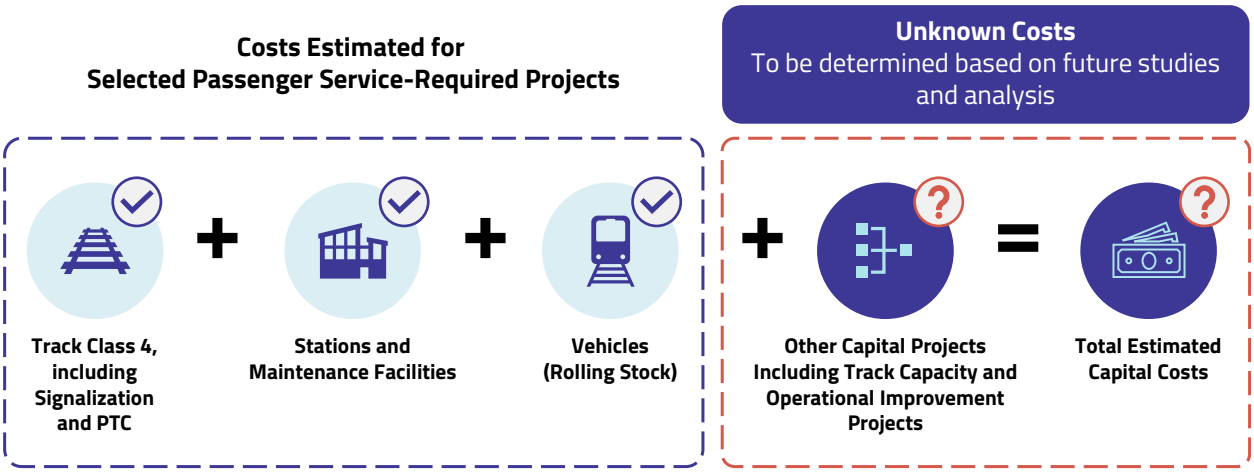


Table 6-1 provides a summary of the estimated capital costs for the selected preferred route options by category of cost: vehicle, station and maintenance facilities, and selected passenger rail route infrastructure identified by the Study. **These cost estimates, presented by selected preferred route option, cannot be summed to determine the total capital cost estimates by selected preferred route option, or for the entire network of selected preferred route options. They are a snapshot of selected passenger service-required capital cost estimates identified by the Study. They do not represent the full range of capital projects that may be needed to implement a selected preferred route option, including potentially significant projects related to track capacity and other operational improvement projects.** These complex, time-intensive projects would be determined based on future studies and analysis.

Table 6-1. Range of Selected Capital Cost Estimates by Selected Preferred Route Option

Selected Preferred Route Option	Vehicle Cost Estimate Range (millions FY 2025 dollars)	Station and Maintenance Facility Cost Estimate Range (millions FY 2025 dollars)	Selected Passenger Rail Route Infrastructure Cost Estimate Range (Track Class 4, signalization, and positive train control upgrades) (millions FY 2025 dollars)
Chicago - Miami	$650 - $840	$1,140 - $1,490	$950 - $1,240
Dallas/Fort Worth - Miami	$550 - $710	$1,230 - $1,590	$1,760 - $2,290
Denver - Houston	$440 - $570	$1,210 - $1,570	$350 - $450
Los Angeles - Denver	$550 - $710	$1,140 - $1,480	$550 - $720
Phoenix - Minneapolis/St. Paul	$850 - $1,100	$1,560 - $2,020	$1,210 - $1,570
Dallas/Fort Worth - New York	$740 - $960	$1,120 - $1,450	$2,710 - $3,520
Houston - New York	$740 - $960	$1,520 - $1,980	$1,580 - $2,050
Seattle - Denver	$650 - $840	$1,090 - $1,410	$350 - $450
San Antonio - Minneapolis/St. Paul	$550 - $710	$1,160 - $1,510	$700 - $910
San Francisco - Dallas/Fort Worth	$850 - $1,100	$1,300 - $1,700	$630 - $820
Detroit - New Orleans	$440 - $570	$1,290 - $1,680	$1,450 - $1,890
Denver - Minneapolis/St. Paul	$440 - $570	$1,290 - $1,680	$4,490 - $5,830
Seattle - Chicago	$850 - $1,100	$1,340 - $1,740	$720 - $930
Dallas/Fort Worth - Atlanta	$440 - $570	$940 - $1,220	$100 - $130
El Paso - Billings	$550 - $710	$1,110 - $1,440	$400 - $520

Note: FRA Track Class 4 is the minimum track class required for passenger rail service, with a maximum operating speed of 80 miles per hour. The capital cost estimates include upgrading Track Class 1, 2, or 3 to Track Class 4. These costs do not represent the full range of capital projects that may be needed to implement a selected preferred route option, including potentially significant projects related to track capacity and other operational improvement projects.

6.2 Operating and Maintenance Cost Estimates

The O&M cost estimates developed for daily service on selected preferred route options represent high-level cost estimate ranges to support systems planning. More planning and analysis would be required for further development and refinement of accurate O&M cost estimates, including net operating results. For context, in FY 2019 all long-distance routes had operating expenses that exceeded operating revenue, requiring significant federal subsidy for operations, and any increase or expansion of long-distance services may

increase the amount of annual appropriations needed as a recurring cost to provide these services in the future. O&M costs for passenger rail services include:

- Labor
- Fuel, vehicle maintenance, and turnaround (to prepare the train for its next run)
- Station operations

O&M cost estimates for selected preferred route options are based on FY 2019 costs and service characteristics for existing Amtrak long-distance routes. FRA identified unit costs associated with over 100 operating statistics for existing long-distance routes, including statistics associated with labor hours, vehicle trips, passenger boardings, station shifts, train miles, locomotive use, and more (Amtrak 2019b). For the Study, back-office administrative costs would not substantially increase with the potential addition of the selected preferred route options, so those costs were not included in the O&M estimates presented here. Table 6-2 summarizes the annual O&M cost estimates in FY 2025 dollars. The O&M cost estimates are based on the conceptual services. A low and high range is provided to account for uncertainty in cost estimates, recognizing that the average O&M costs from existing long-distance routes may vary in utility when applied to the selected preferred route options.

Table 6-2. Range of Annual O&M Cost Estimates by Selected Preferred Route Option

Selected Preferred Route Option	Annual Operating and Maintenance Cost Estimates **Low-High Range** (millions FY 2025 dollars)
Chicago - Miami	$78 - $110
Dallas/Fort Worth - Miami	$72 - $103
Denver - Houston	$59 - $83
Los Angeles - Denver	$68 - $97
Phoenix - Minneapolis/St. Paul	$95 - $135
Dallas/Fort Worth - New York	$98 - $138
Houston - New York	$100 - $141
Seattle - Denver	$75 - $106
San Antonio - Minneapolis/St. Paul	$64 - $91
San Francisco - Dallas/Fort Worth	$92 - $130
Detroit - New Orleans	$62 - $88
Denver - Minneapolis/St. Paul	$56 - $80
Seattle - Chicago	$96 - $136
Dallas/Fort Worth - Atlanta	$55 - $78
El Paso - Billings	$63 - $89

7. Public Benefits

FRA estimated public benefits of restoring or enhancing intercity passenger rail transportation for each selected preferred route option. Public benefits considered in the Study include jobs and earnings, equity, rail accessibility, and safety benefits.

7.1 Approach

FRA based its approach to the public benefits analysis on guidance provided for State Rail Plans, which identify the term public benefit to include benefits accrued to the public such as enhanced mobility of people or goods, enhanced trade and economic development, more efficient energy use, enhanced public safety or security, and others (49 U.S.C. 22705(b)).

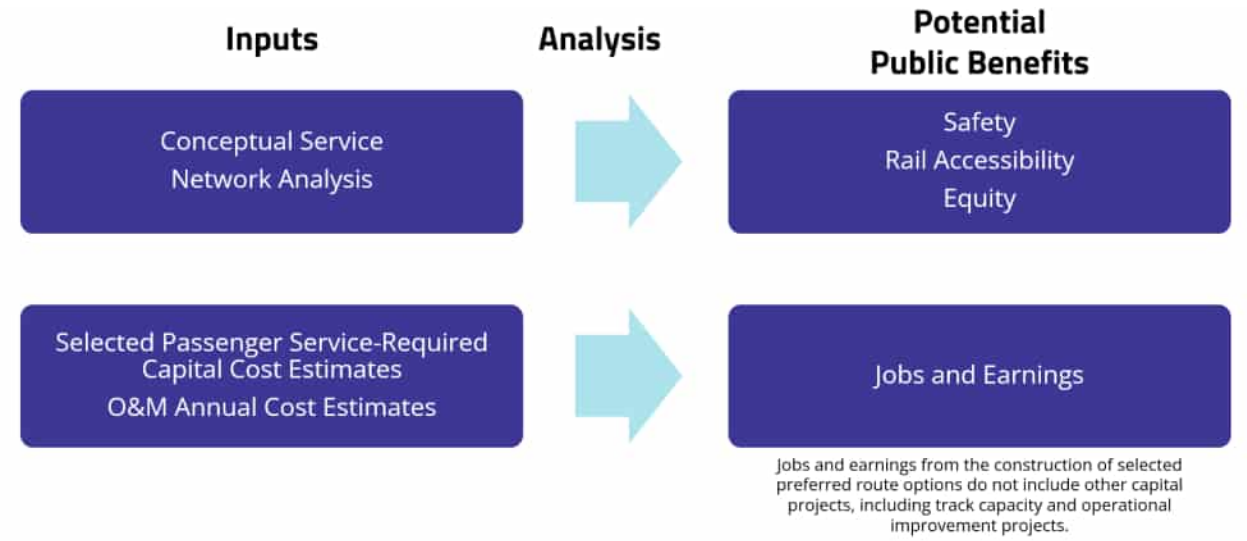
A public benefit analysis is not the same as a benefit-cost analysis. Benefit-cost analyses are commonly used by DOT for regulatory impact analysis, policy analysis, and infrastructure project evaluation. However, the level of detail needed to support a benefit-cost analysis has not been completed for the selected preferred route options as part of this Study.

The Study identified potential benefits resulting from the construction, operation, availability, and use of the network of selected preferred route options in the following categories:

- **Jobs and Earnings**. The potential number of jobs and amount of earnings from constructing and operating each selected preferred route option.
- **Equity**. The potential change in access to long-distance passenger rail service if the selected preferred route options were implemented, based on station ***catchment areas*** (30 miles around station areas in ***metropolitan statistical areas***; 50 miles around state areas outside of ***metropolitan statistical areas***).
- **Rail Accessibility**. The potential change in access to institutions such as universities, hospitals, and parks from long-distance passenger rail service if the selected preferred route options were implemented, based on station catchment areas.
- **Safety Benefits**. The potential number of crashes avoided by shifting passengers from automobile and bus to rail if the selected preferred route options were implemented.

Figure 7-1 provides the inputs used to estimate potential public benefits.

Figure 7-1. Public Benefits Analysis Methodology



7.2 Jobs and Earnings

FRA considered the potential number of jobs and earnings that could result from constructing and operating the selected preferred route options. To estimate these benefits, FRA analyzed:

- Jobs and earnings generated by constructing the selected passenger service-required capital projects of each selected preferred route option.
- Jobs and earnings generated by operating the selected preferred route option.

Passenger rail capital projects can cover a variety of project types. Based on the scope and scale of the Study, and after feedback from stakeholders, FRA identified only a subset of capital projects needed for passenger service on selected preferred route options (such as track upgrades to meet passenger service requirements, stations, and fleet) – but not the full range of capital projects that may be needed, including potentially significant projects related to track capacity and grade crossing improvements. As a result, the construction benefits associated with the selected preferred route options in the public benefits analysis do not account for the full range of capital costs likely needed to implement a selected preferred route option. More information on capital cost estimates can be found in Section 6.1.

The Study used RIMS II multipliers from the U.S. Bureau of Economic Analysis to help estimate potential jobs and earnings associated with the selected preferred route options (U.S. Bureau of Economic Analysis 2023).

Construction associated with the subset of capital projects and cost estimates identified for the selected preferred route options could support between 531,000 and 690,000 job-years (a job year is employment for one person for one year) and $36 billion to $46 billion

in earnings. Annual operation of all the selected preferred route options could support between 21,000 and 28,600 jobs and between $1.0 and $1.5 billion in annual earnings associated with those jobs. The jobs and earnings are the combined ***direct impacts***, ***indirect impacts***, and ***induced impacts*** from the construction and annual operation of the selected preferred route options.

7.3 Equity

Implementation of the selected preferred route options could support increased equity by providing passenger rail access to populations that may not have access today, including rural populations, people living on ***tribal lands***, and residents of ***areas of persistent poverty***, or communities identified by the ***Justice40 Initiative***, including ***transportation-disadvantaged*** and ***health-disadvantaged communities***. The Study analyzed those populations within the ***catchment areas*** of a selected preferred route option and identified additional people that could be served by the network of selected preferred route options, beyond the baseline network.

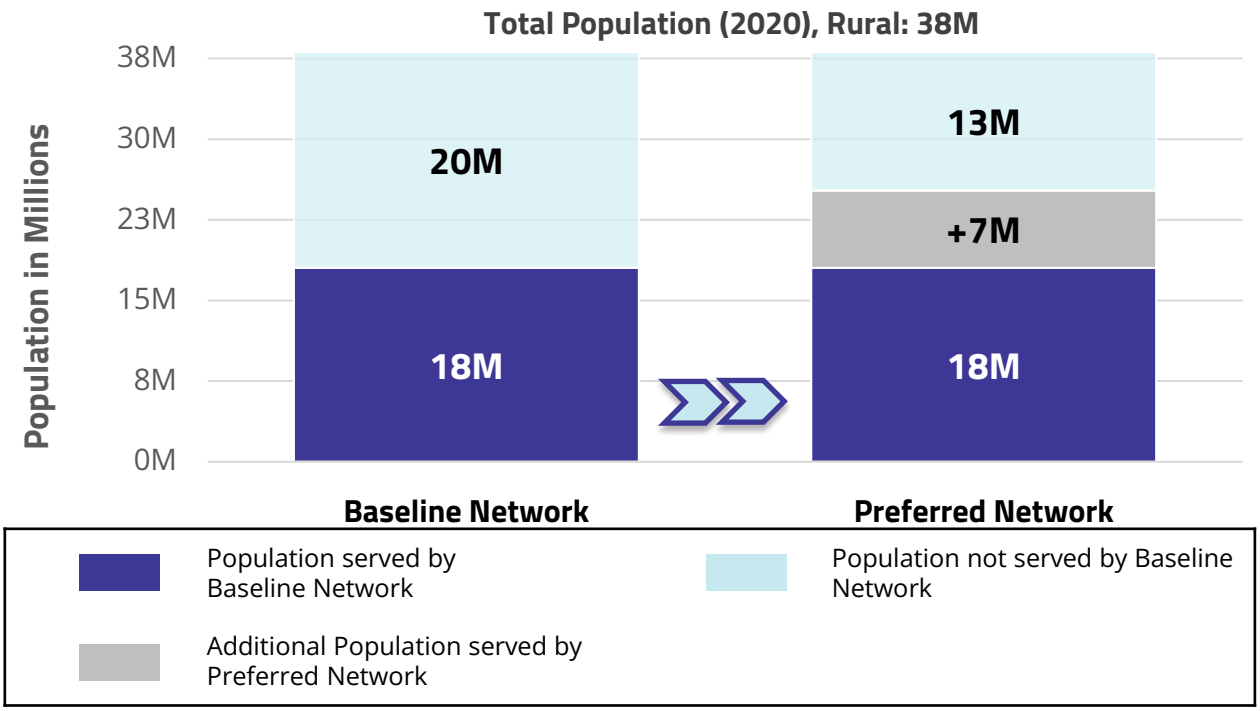
7.3.1 Rural Areas

For the Study, the population living in ***rural areas*** are those outside of urbanized areas (not in a ***Metropolitan Statistical Area*** or a ***Micropolitan Statistical Area***). The network of selected preferred route options could result in approximately 66 percent of the total U.S. rural population having access to the passenger rail network, an increase of approximately 39 percent over the baseline network.

Photo courtesy of Amtrak

Figure 7-2 shows the comparison of the total rural population served by the baseline and network of selected preferred route options.

Figure 7-2. U.S. Population Outside Urbanized Areas (i.e., Rural)



Note: The preferred network is the network of selected preferred route options. Analysis is based on potential station locations for selected preferred route options. The locations of new stations are conceptual and require additional planning and analysis prior to implementation as part of future studies.

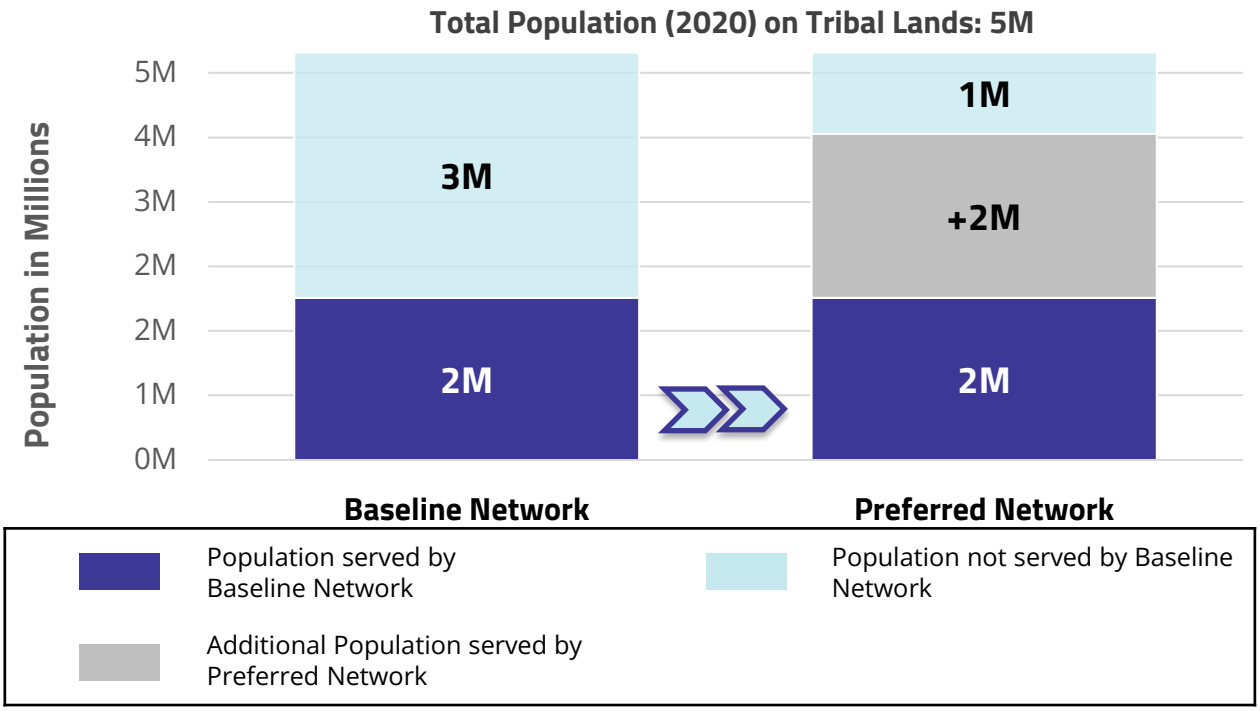
7.3.2 Population Not Served by an Interstate Highway or an Airport

Rural areas with few other transportation options could benefit from the selected preferred route options. An expanded passenger rail network can provide access to ***rural areas*** that lack interstate highway and airport access. Communities were defined as being served by interstate highway based on the absence or presence of an interstate highway in counties within the 30- or 50-mile radius ***catchment areas*** around stations of the selected preferred route options. Similarly, communities within the same ***catchment areas*** of stations of the selected preferred route options were defined as being served by an airport if they were located within 75 miles of a large airport or within 25 miles of a small airport. Among people living in ***rural areas*** not served by an interstate highway nor an airport, the population with access to passenger rail could rise from just under 30 percent with the baseline network to nearly 48 percent under the network of selected preferred route options.

7.3.3 Tribal Lands

As shown on Figure 7-3, the network of selected preferred route options could reach approximately 4 million individuals living on ***tribal lands***, compared to approximately 2 million under the baseline network, doubling the population living on ***tribal lands*** with access to passenger rail.

Figure 7-3. Population on U.S. Tribal Lands



Note: The preferred network is the network of selected preferred route options. Analysis is based on potential station locations for selected preferred route options. The locations of new stations are conceptual and require additional planning and analysis prior to implementation as part of future studies.

7.3.4 Areas of Persistent Poverty and Historically Disadvantaged Communities

The network of selected preferred route options could increase access to millions of people, including those in ***areas of persistent poverty*** and ***historically disadvantaged communities***.

- An additional 11.7 million residents of ***areas of persistent poverty*** could gain access with the network of selected preferred route options, raising the overall share of covered residents within those areas from 71 percent to 87 percent.
- An additional 12.7 million residents of ***historically disadvantaged areas*** could gain access, raising the overall share with access to long-distance rail from 77 percent to 90 percent.

Access to ***transportation-disadvantaged communities*** could improve under the network of selected preferred route options.

- 9 out of 10 residents in ***historically disadvantaged communities*** could have access to passenger rail.
- 49 percent of the previously unserved people living in ***transportation-disadvantaged communities*** could be served.
- 44 percent of previously unserved people living in ***health-disadvantaged communities*** could be served.

- An additional 6 million people living in rural ***transportation-disadvantaged communities*** could have access, a 43 percent increase relative to 2019.
- An additional 5 million people living in rural ***health-disadvantaged communities*** could gain access, a 66 percent increase relative to 2019.

7.4 Rail Accessibility

The network of selected preferred route options could improve rail accessibility by increasing access from passenger rail service to a greater number of key destinations and services, such as ***medical centers***, ***higher education institutions***, and ***National Park Service lands*** (Figure 7-4). Among the additional 495 higher education institutions that would be accessible with the network of selected preferred route options are 23 historically black colleges and universities and 6 tribal colleges and universities. An additional 137 ***military installations*** would also be accessible with the implementation of the network of selected preferred route options (U.S. DHS 2023). Overall, an additional 38.6 million people could have access to passenger rail service, meaning that about 86 percent of the U.S. population could have access to this mode.

The selected preferred route options could provide additional travel options to communities, especially when other modes of transportation are compromised due to weather or other challenges. The selected preferred route options would add 168 new stations in the network of selected preferred route options where the selected preferred route option provides a new option to access the passenger rail network where none exists in the baseline network.

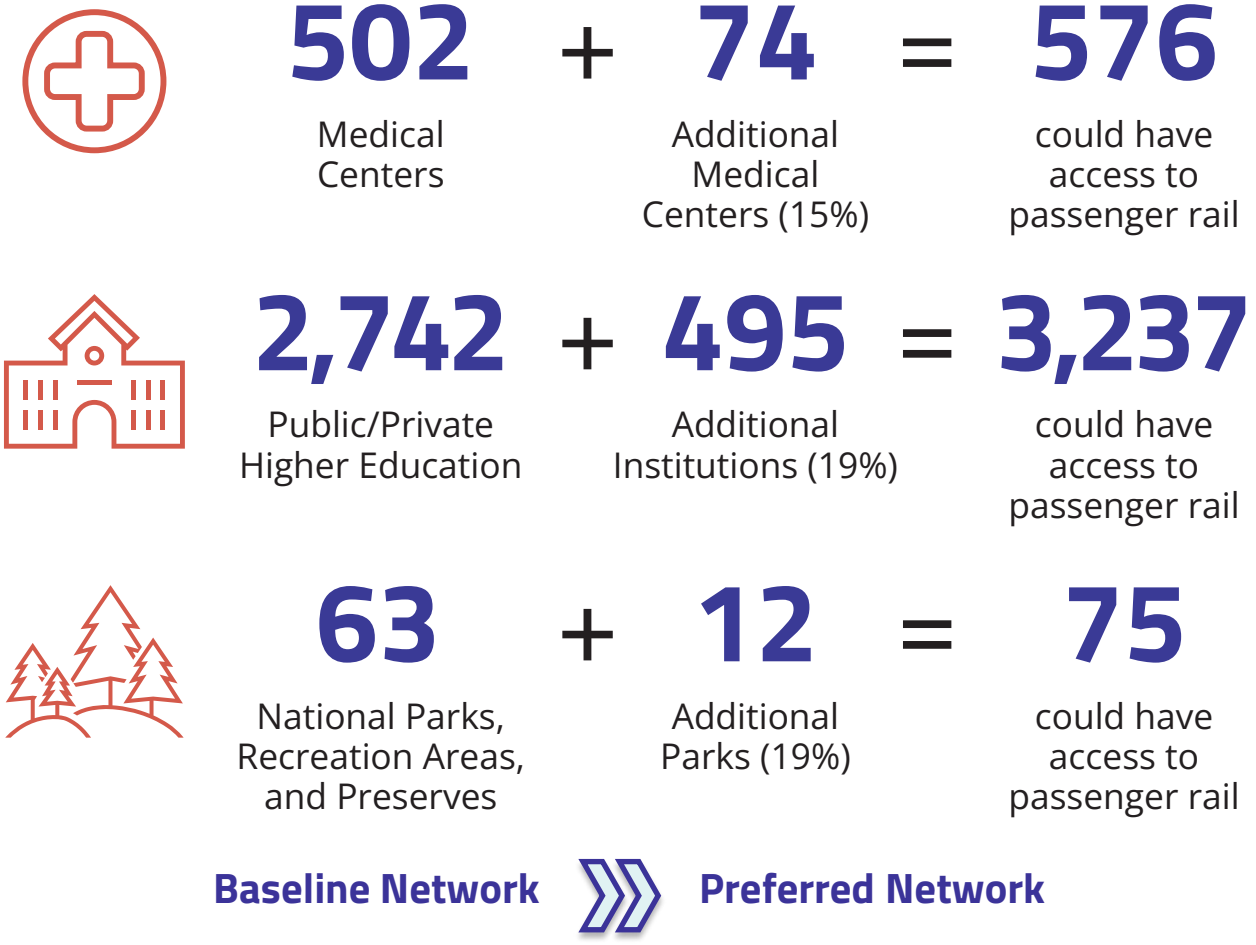
AT A GLANCE

+23
historically black colleges and universities would be accessible

+6
tribal colleges and universities would be accessible

+137
military installations would be accessible

Figure 7-4. Increased Access to Key Destinations



Note: The preferred network is the network of selected preferred route options. There are many types of national park units, and future studies may expand the types of national park units reviewed beyond the three used in the Study. Analysis is based on potential station locations for selected preferred route options. The locations of new stations are conceptual and require additional planning and analysis prior to implementation as part of future studies.

7.5 Safety

The Study identified the potential to reduce crashes by shifting passengers from automobile and bus to rail, if the network of selected preferred route options were implemented. The diversion of travelers from highway to rail could result in a reduction of about 886 crashes per year based on 2023 crash rates (BTS 2023b). This crash mitigation could save about 6 lives and 261 injury crashes annually. The analysis cannot identify the location of avoided crashes, just the topline reduction in risk associated with the shift in travel mode from automobile/bus to rail. As a result, there could be some overlap in the number of crashes avoided among the selected preferred route options.

8. Federal and Non-Federal Funding Sources

FRA reviewed potential federal and non-federal funding sources required to restore or enhance Amtrak long-distance service, consistent with IIJA Section 22214. This chapter provides an overview of current intercity passenger rail funding and identifies potential considerations for future resources to support development and operation of the selected preferred route options.

8.1 Current Federal Passenger Rail Funding

8.1.1 Introduction

Federal funding for intercity passenger rail in the United States is structured differently than highway or transit funding. Available federal funding for intercity passenger rail typically changes year-to-year based on Congressional appropriations. Highway and transit programs are largely funded through the Highway Trust Fund, with some funds automatically allocated to states and other designated recipients via established funding formulas. This creates reliable highway and transit funding for planning and construction (Congressional Research Service 2023).

This section focuses on federal funding of Amtrak, which operates almost all intercity passenger rail services currently in operation in the continental United States and is the only operator of long-distance passenger rail in the continental United States. The primary funding program for annual long-distance passenger rail operating funds, besides passenger ticket revenue, is the Amtrak Annual Grant (Section 8.1.3). The annual grant, in addition to providing funds for certain capital costs, provides federal subsidy to cover operating losses for existing long-distance services, and the long-distance service line requires more funds for annual operating support than the other service lines. States do not provide any operating funds for long-distance routes. Unlike state-supported services, states do not participate in any cost-sharing for long-distance routes.

Long-distance passenger rail will benefit from the IIJA supplemental advance appropriation for Amtrak, which provides funds for new passenger rolling stock to replace obsolete passenger equipment used in Amtrak's long-distance and state-supported services (Section 8.1.4). No capital grants are established specifically just for long-distance service capital projects or expansion, although some long-distance capital projects may be eligible as part of other, more broadly focused grant programs (Section 8.1.5). Overall, current federal passenger rail funding for long-distance rail service is targeted toward operations of existing Amtrak long-distance services. Certain FRA discretionary grants and

departmental grant programs with varying eligibilities are also potentially available for selected types of targeted capital projects.

Current passenger rail discretionary funding programs provide critical access to capital for planning and construction related to some new or enhanced passenger rail routes, as well as time-limited funding assistance for new or enhanced short-distance passenger rail service (Section 8.1.5). However, most of these programs were established with the assumption that the financial sponsor of new or enhanced passenger rail service would be a state or regional entity, or Amtrak – not the federal government.

Additional regular funding would be needed to support the planning and costs associated with fully implementing many of the selected preferred route options. Even with the unprecedented federal funding for rail improvement projects provided by IIJA (Section 8.1.4), FRA's intercity passenger rail competitive grant programs are oversubscribed. There is significant interest and excitement across the country for enhanced existing passenger rail, as well as new passenger rail opportunities.

Chapter 10 lists potential opportunities and ideas to plan a more integrated, cohesive vision for intercity passenger rail service that could further prioritize future investments in connecting rural and urban communities.

8.1.2 Amtrak Service Lines

A high-level overview of funding sources for the current Amtrak intercity passenger rail network – NEC, state-supported, and long-distance service lines – is in Table 8-1. Despite differences in governance and funding, from the customer perspective these service lines operate as a single network under the Amtrak brand.

Photo courtesy of Amtrak

Table 8-1. Amtrak Service Lines and Significant Sources of Funds

Service Line	Service Characteristics	Significant Sources of Funds
Northeast Corridor (NEC)	Routes on the NEC between Washington, DC, and Boston, Massachusetts (track owned primarily by Amtrak). Relatively high-frequency daily service; high-speed service on Acela. Directly serves eight states and the District of Columbia.	**Operating Costs** ▪ Ticket revenue **Capital Costs (including fleet)** ▪ Ticket revenue ▪ Federal grants (Annual directed grant to Amtrak; discretionary grants; IIJA supplemental funds) ▪ NEC state cost-sharing ▪ Build America Bureau loans
State-Supported	30 different routes under 750 miles; states / agencies have contracts with Amtrak to operate service. Service frequency varies by state and route. Typically operate on privately owned freight railroad tracks. Directly serves 22 states and the District of Columbia.	**Operating Costs** ▪ Ticket revenue ▪ State sponsors (sponsors pay for most operating costs not covered by ticket revenue) ▪ Federal grants (Annual directed grant to Amtrak to cover certain federal costs) **Capital Costs (including fleet)** ▪ State sponsors ▪ Federal grants (Annual directed grant to Amtrak, discretionary grants, IIJA supplemental funds)
Long-Distance	15 routes over 750 miles; typically operate once per day in each direction. Typically operate on privately owned freight railroad tracks. Directly serves 39 states and the District of Columbia.	**Operating Costs** ▪ Ticket revenue ▪ Federal grants (Annual directed grant to Amtrak) **Capital Costs (including fleet)** ▪ Federal grants (Annual directed grant to Amtrak, IIJA supplemental funds)

8.1.3 Amtrak Annual Grant

8.1.3.1 Operating Funds

Long-distance service operating costs and a portion of state-supported service operating costs are partially funded by annual Congressional appropriations through the Amtrak Annual Grant (Amtrak 2022d). The Amtrak Annual Grant is a directed grant program, administered by FRA; Amtrak is the only eligible recipient, although it is required to apply for the funds each year through a process outlined in federal statute (49 U.S.C. 24101). Amtrak can use the funds for selected capital expenses and debt service payments, as well as operating expenses itemized by route (49 U.S.C. 24319). The Amtrak Annual Grant is administered by FRA through two grant agreements; one for the NEC, and one for the National Network (which includes both state-supported and long-distance funds).

Amtrak's long-distance services typically use funds from the National Network grant to cover long-distance operating expenses not covered by passenger revenue and other sources of revenue. Funding for the operations of Amtrak state-supported service comes from a combination of passenger ticket revenue and state sponsor support; however, some operating costs for these routes are also paid for by the federal government. Lastly, outside of emergency situations, such as the COVID-19 pandemic, Amtrak does not typically use federal grant funds to cover operating costs on the NEC (Table 8-2).

8.1.3.2 Capital Funds

The Amtrak Annual Grants also fund some capital expenses on both the National Network and NEC, from state-of-good-repair projects to specific improvements or strategic initiative projects.

8.1.4 IIJA Amtrak Advance Appropriations

IIJA provides unprecedented federal funding for rail improvement projects. This includes $66 billion in advance appropriations for FRA grant programs from FY 2022 to FY 2026, including discretionary grant programs listed in Table 8-2.

The advance appropriations for FRA include a total of $22 billion for two directed grants to Amtrak – $6 billion for the NEC, and $16 billion for the National Network – for specific project types. The advance appropriations do not include operating or other capital funds, which are supported by the annual appropriations for Amtrak. The National Network advance appropriations include funding for a list of eligible projects, which are primarily focused on upgrading or replacing existing assets, as follows:

- New passenger rolling stock to replace obsolete passenger equipment used in Amtrak's long-distance and state-supported services, and associated rehabilitation, upgrade, or expansion of facilities used to maintain and store such equipment (as of August 2024, Amtrak is engaged in a procurement process for new passenger rolling stock to replace obsolete passenger equipment used in existing long-distance services);
- Bringing Amtrak-served stations to full compliance with the Americans with Disabilities Act;
- Eliminating the backlog of deferred capital work on Amtrak-owned railroad assets not located on the NEC; and
- Projects to eliminate the backlog of obsolete assets associated with Amtrak's national passenger rail network, such as systems for reservations, security, training centers, and technology.

The IIJA advance appropriations for FY 2022 to FY 2026 represent a new (albeit temporary) approach for intercity passenger rail, which typically relies on annual appropriations for funding. Unlike annual appropriations, the advance appropriations provide a predictable funding stream that facilitates multi-year capital planning and programming, both for the NEC and the National Network.

8.1.5 Competitive Grants

Long-distance services are eligible for some elements of certain intercity passenger rail discretionary grant programs and other departmental discretionary grant programs with varying eligibilities, and IIJA included some types of long-distance routes in its Corridor ID Program. Table 8-2 provides a summary of those discretionary grant programs.

Several discretionary grants have been awarded for long-distance routes in recent years:

- Since 2014, DOT has awarded three Transportation Investment Generating Economic Recovery (TIGER) grants, two Consolidated Rail Infrastructure and Safety (CRISI) grants, and one Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant for improvements to Amtrak's long-distance Southwest Chief route in Kansas, Colorado, and New Mexico. These grants helped fund capital investments on track used by the Southwest Chief, owned by a host railroad, but used for limited operations or not in use by that host railroad. Grant sponsors for these improvements included Amtrak, municipalities, counties, and state DOTs.
- In December 2023, Amtrak was selected to receive up to $14.9 million from the Federal-State Partnership for Intercity Passenger Rail grant program for operational improvements on BNSF's tracks in the Malta, Montana, area and at the Malta Amtrak station, where the Amtrak Empire Builder long-distance service operates (FRA 2023b).
- Three long-distance routes identified in this Study were selected into the Corridor ID Program in December 2023, independent of the Study process: Cardinal (increasing service frequency to daily), Sunset Limited (increasing service frequency to daily), and restoration of the North Coast Hiawatha, a discontinued Amtrak route that previously operated between Chicago, Illinois, and Seattle, Washington, via southern Montana.

Photo courtesy of Amtrak

Table 8-2. Select Federal Intercity Passenger Rail Discretionary Grant Programs

Program	Purpose	Advance Appropriations (FY 2022-FY 2026)
Consolidated Rail Infrastructure and Safety Improvements (CRISI)	To fund projects that improve the safety, efficiency, or reliability of intercity passenger and freight rail.	$5 billion ($1 billion annually)
Railroad Crossing Elimination (New under IIJA)	To promote highway-rail or pathway-rail grade crossing improvement projects that focus on improving the safety and mobility of people and goods.	$3 billion ($600 million annually)
Federal-State Partnership for Intercity Passenger Rail (Significantly changed under IIJA)	To fund capital projects that reduce the state of good repair backlog, improve performance, or expand or establish new intercity passenger rail service, including privately operated intercity passenger rail service if an eligible applicant is involved. For projects not on the Northeast Corridor, preference is given to eligible projects identified and developed through the Corridor ID Program.	$36 billion ($7.2 billion annually)
Restoration & Enhancement	To provide operating assistance to routes to initiate, restore, or enhance intercity passenger rail service.	$250 million ($50 million annually from Amtrak National Network Advance Appropriations)
Interstate Rail Compacts (New under IIJA)	To provide funding for interstate rail compacts' administrative costs and railroad systems planning, promotion of intercity passenger rail operations, and the preparation of grant applications.	$15 million ($3 million annually from Amtrak National Network Advance Appropriations)

8.1.5.1 Corridor Identification and Development Program

IIJA required the establishment of a new intercity passenger rail corridor planning program to help guide intercity passenger rail development throughout the country, referred to as the Corridor ID Program (49 U.S.C. 25101(a)). As part of the program, FRA works with corridor sponsors to prepare a service development plan for each selected corridor and advance capital projects identified in those plans to ready them for final design and construction. Corridors eligible under the Corridor ID Program include new passenger rail routes of less than 750 miles; the enhancement of existing passenger rail routes under 750 miles; the restoration of service overall or portions of a passenger rail route formerly operated by Amtrak; or the increase of service frequency of a long-distance passenger rail route (49 U.S.C. 25101(h)).

IIJA Section 22037 authorized FRA to use up to 5 percent of the funding made available from the Federal-State Partnership-National grant program to conduct planning and development activities, including the Corridor ID Program. IIJA provided advance

appropriations for FY 2022 to FY 2026 of $36 billion to the Federal-State Partnership-National grant program, meaning the total appropriated for 5 years available for the Corridor ID Program is up to $1.8 billion (about $6 per person in the United States) (IIJA Section 22307(k)).

Selection into the Corridor ID Program reflects FRA's decision to fund planning and potentially project development activities in up to three program steps. In Step 1, the corridor sponsor will develop the scope, schedule, and budget for preparing a new service development plan or updating an existing service development plan. In Step 2, the corridor sponsor will complete the service development plan, which includes a corridor project inventory that identifies the capital projects necessary to achieve the proposed service. Following Step 2, FRA may advance individual capital projects or discrete phases of the corridor to Step 3, where the corridor sponsor will complete project development, which includes preliminary engineering, environmental review, and other elements necessary for successful project implementation (e.g., final design and construction). When determining whether to fund Step 3 activities, FRA will ensure the projects or corridor implementation phases meet readiness criteria consistent with FRA's Guidance on Development and Implementation of Railroad Capital Projects (FRA 2023a). The Corridor ID Program does not provide funding for final design and construction activities.

On December 8, 2023, FRA announced the selection of 69 corridors into the Corridor ID Program. The 67 corridors entering Step 1 of the program are eligible to receive up to $500,000 for development of the scope, schedule, and budget for preparing the service development plan. Three long-distance routes identified in this Study were selected into the Corridor ID Program in December 2023, independent of the Study process: Cardinal (increasing service frequency to daily), Sunset Limited (increasing service frequency to daily), and restoration of the North Coast Hiawatha, a discontinued Amtrak route that previously operated between Chicago, Illinois, and Seattle, Washington, via southern Montana. These routes have access to funding to support project planning and potentially project development activities, although there will still be significant future funding needs to advance these routes further in the FRA project lifecycle (refer to Section 1.4 for more information on the FRA project lifecycle).

Long-distance routes accepted in the Corridor ID Program, if implemented, would likely require substantial ongoing operating support in the form of annual appropriations. Projects that are identified and fully developed through the program will benefit from a selection preference for future Federal-State Partnership-National (https://railroads.dot.gov/federal-state-partnership-intercity-passenger) funding opportunities.

The Corridor ID Program is anticipated to have future solicitations, subject to the availability of funds, to allow for additional corridors to be admitted into the program, although the program eligibility for long-distance corridors is limited to the restoration or enhancement of a route formally operated by Amtrak or the increase of service frequencies (49 U.S.C. 25101(h)).

8.2 Potential State and Local Funding Opportunities

States and localities do not currently provide funding for the operating costs of long-distance services, unlike state-supported services. Long-distance operating costs are primarily covered by passenger ticket revenue and funds from the Amtrak Annual Grant, and selected capital costs can be covered by host railroads, the Annual Grant, and some federal discretionary grants. However, ownership and operation of stations and passenger facilities vary widely across the long-distance passenger rail network. Some stations are owned by Amtrak, others by states, other by host railroads, and many others by local communities. These ownership structures, in turn, influence how those local facilities can be funded.

There are opportunities for state and local jurisdictions to make localized investments in stations and station areas that support the provision of long-distance passenger rail service. In the capital costs estimated for the selected preferred route options (Chapter 6), station costs account for 14 percent of the estimated capital cost for the network of selected preferred route options. Table 8-3 summarizes some of the ways state and local communities could fund intercity rail station facilities.

Table 8-3. Potential State and Local Funding Opportunities

Source	Description
Public-Private Partnerships	▪ Public-private partnerships have been used effectively in large local rail station investments. ▪ Public owners gain value by transferring risk and minimizing public subsidies. ▪ The private equity funding component can provide a critical funding boost or serve as local match for federal funding.
Various Tax Sources	▪ Local and state tax revenues can be applied to direct capital funding or long-term capital financing of rail projects.
State Discretionary Grant Programs	▪ Some states have created discretionary grant programs for which rail investments are eligible. ▪ Grants are typically focused on capital investments.
Value Capture Options	▪ Highly utilized passenger rail hubs and stations can increase adjacent property values. Value capture applies a tax to the property value uplift associated with the station's development. ▪ These funds are typically used to fund and maintain the local rail property, allowing the rail development agency to capitalize on some of the value that it has created. ▪ Value capture techniques can take a variety of forms and include business or special assessment districts, tax increment financing, development impact fees, negotiated exactions, joint development, land value tax, air rights development, and others.

9. Implementation and Initial Prioritization

As part of the Study, IIJA directed FRA to provide a prioritized inventory of projects required to restore or enhance long-distance service.

9.1 Limitations to Developing a Prioritized Inventory of Capital Projects

Although IIJA Section 22214 required FRA to develop a prioritized inventory of capital projects for the selected preferred route options, there were several limitations the Study faced in developing the detailed inventory. As noted in prior chapters, the Study is consistent with FRA's approach to systems planning and the initial project planning process for capital projects, such as the initial identification of passenger service-required capital projects. Based on the scope and scale of the Study, and after feedback from stakeholders, FRA identified a subset of capital projects needed for passenger service on selected preferred route options (such as track upgrades to meet passenger service requirements, stations, and fleet), but not the full range of capital projects that could be needed, including potentially significant projects related to track capacity and grade crossing improvements. The full range of capital projects needed to implement the selected preferred route options would be refined and further evaluated through more detailed project planning prior to implementation.

As the identification of capital projects was limited, any potential changes in funding, governance, or policies, as well as more detailed project planning analysis, may yield different implementation results identified in this chapter for the selected preferred route options.

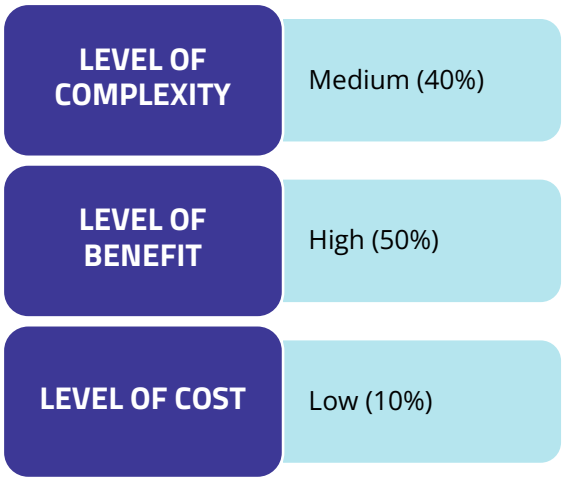
9.2 Initial Prioritization of Selected Preferred Route Options

FRA rated the selected preferred route options to inform prioritization for the next phase of project planning. Ratings were based on:

- Level of complexity of implementing a selected preferred route option due to the number of users on the railroad and the amount of selected passenger service-required capital projects;
- Potential public benefits from constructing and operating a selected preferred route option; and
- Estimated cost of operating a selected preferred route option.

The capital cost estimates were not included in the evaluation, as only selected passenger service-required capital project costs were identified. FRA rated each category using a 1-5 scale (Figure 9-1) and weighted the results based on stakeholder input. The ratings were summed to form a combined weighted rating for each selected preferred route option to indicate the level of priority.

Figure 9-1. Approach to Rating the Selected Preferred Route Options



Rated the Metrics 1-5 (Worst to Best)

- Level of Complexity: most to least complex
- Level of Benefits: least to most benefits
- Level of Costs: most to least costs
- Combined the metrics to form a composite score for each category
- Weighting categories based on stakeholder input

Note: Weighting is based on stakeholder input.

The minimum possible weighted rating is 3, indicating the lowest level of priority. The maximum possible weighted rating is 15, the highest priority. As presented in Table 9-1, the highest rated selected preferred route options are Houston - New York, Chicago - Miami, Dallas/Fort Worth - New York, Detroit - New Orleans, and Phoenix - Minneapolis/St. Paul. The Seattle-Chicago route and daily service on the Cardinal and Sunset Limited will continue to advance through project planning and project development activities as a result of being selected in the Corridor ID Program. The next step for the selected preferred route options that are not selected in the Corridor ID Program is to initiate project planning. Currently, there is no sustained financial support or program to construct or operate the selected preferred route options identified in the Final Report, although some of them may be eligible for additional planning funds through FRA's Corridor ID Program. The weighted results can provide guidance on future priorities for project planning. However, the prioritization results from the Study are just one input into the potential decision making about implementing the selected preferred route options.

Weighted results may provide guidance on future priorities regarding the next phase of project planning; these ratings do not reflect prioritization for implementation funding.

Table 9-1. Initial Weighted Rating by Selected Preferred Route Option

Selected Preferred Route Option	Rating (Weighted)
Houston - New York	14
Chicago - Miami	11
Dallas/Fort Worth - New York	10
Detroit - New Orleans	10
Phoenix - Minneapolis/St. Paul	10
Denver - Houston	9
Dallas/Fort Worth - Atlanta	8
Dallas/Fort Worth - Miami	8
Denver - Minneapolis/St. Paul	8
Los Angeles - Denver	8
San Antonio - Minneapolis/St. Paul	8
San Francisco - Dallas/Fort Worth	8
Seattle - Denver	7
El Paso - Billings	6
Seattle - Chicago (Big Sky North Coast Corridor) [a]	not applicable
Daily Cardinal [a]	not applicable
Daily Sunset Limited [a]	not applicable

[a] Selected in the Corridor ID Program

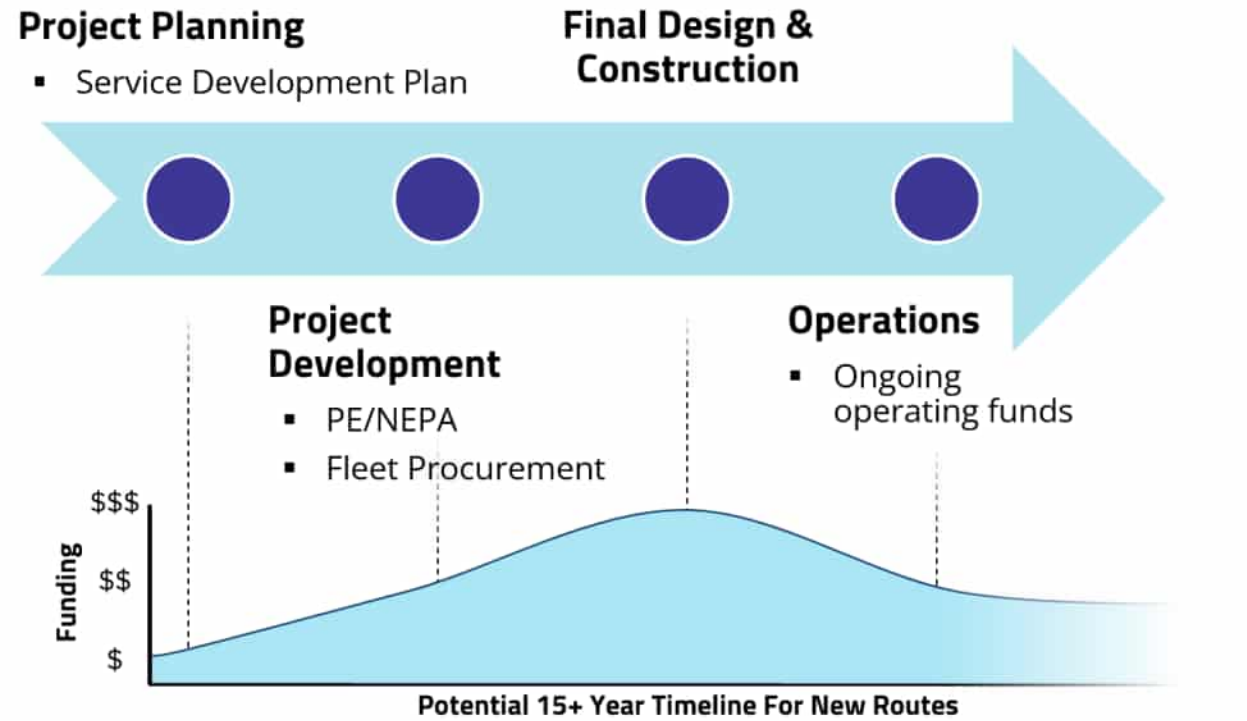
9.3 Key Considerations for Implementation

Developing new passenger rail services takes time and requires a rigorous process. The Study is an initial step in a comprehensive process to identify the actions needed to enhance long-distance service. Recommendations made as part of the Study require much more planning, analysis, resources, and time in the development stages. The next step for the selected preferred route options is to initiate project planning activities. Selected preferred route options could take fifteen or more years to advance from project planning to operations as illustrated on Figure 9-2.

Key Considerations for Implementation

- Funding and preparation of a service development plan
- Industry capacity to plan and implement a new long-distance route
- Coordinating and agreement with the host railroads and passenger rail service operators
- Funding and acquisition of fleet
- Funding for construction
- Sustained funding for operations

Figure 9-2. Implementation Timeline Considerations



Note: PE/NEPA includes Preliminary Engineering (PE) and National Environmental Policy Act (NEPA) review process.

10. Working with Communities

FRA developed recommendations for methods by which Amtrak could work with local communities and organizations to develop activities and programs to continuously improve public use of intercity passenger rail service along each selected preferred route option.

10.1 Background

10.1.1 Federal Role

Amtrak is a corporation established and authorized by federal law. It is operated and managed as a for-profit corporation – it is not a department or agency of the U.S. government. However, Amtrak's mission and goals are also detailed in federal law (49 U.S.C. 24101), and Amtrak receives funds to operate and manage its services from a variety of sources, including passenger ticket revenue, cost-sharing agreements with state partners, and the federal government. Section 1.2.2 describes federal funding and IIJA provisions related to Amtrak long-distance service, as well as its importance to rural communities.

Through financial support for long-distance service operations, along with the specific directions and requirements imposed by federal law on Amtrak's services and purpose, the federal government is positioned as a sponsor of Amtrak's long-distance service line.

10.1.2 Challenges and Opportunities

Whether or not the selected preferred route options identified in this Study are implemented, Amtrak will continue to operate its current network of 15 long-distance routes that link and serve ***large and small communities*** across the country. These existing routes – along with any potential expansions or changes to the long-distance network – experience challenges related to on-time performance, delays, fleet availability, and other operational issues, as well as challenges related to planning, funding, and governance (refer to Section 1.5 for details). The methods by which Amtrak could work with local communities and organizations presented here cannot address all of these challenges, but they do consider the opportunities associated with a coordinated vision and planning process to maintain and create critical transportation connections between and among rural and urban areas.

The recommendations here do not directly address funding sources for intercity passenger rail; as noted above, federal funds for intercity passenger rail typically depend on annual Congressional appropriations, which can change substantially from year to year. However,

some of the existing funding programs identified in Chapter 8 could potentially be targeted to provide increased opportunities for long-distance passenger rail, with funds potentially linked to the development of projects in the planning efforts identified in Section 10.2.

10.2 Recommendations for Further Consideration

Although the Study focused on the restoration of discontinued long-distance service and overall expansion of long-distance service, FRA received significant stakeholder feedback related to the existing long-distance network as well as on other intercity passenger rail expansion efforts. This feedback and interest highlight an opportunity to develop a broader intercity passenger rail vision that assesses potential market and service needs through an integrated national network. In response, FRA has identified opportunities to enhance and strengthen intercity passenger rail services and other transportation connections between and among rural and urban areas across the United States, creating an integrated, cohesive vision for intercity passenger rail service. These opportunities could integrate findings and analysis from the Study into larger, most holistic efforts to plan a more effective transportation network. Those efforts could include:

- Development of a **National Rail Vision** that identifies how to best link and serve large and small communities as part of an intercity passenger rail network; examines the roles, characteristics, and relationship between shorter-distance corridor services (state-supported routes) and long-distance services; identifies opportunities to enhance transportation options to communities currently served by long-distance trains, including expanding or introducing new state-supported corridors to improve the passenger experience; and assesses appropriate metrics for measuring operational performance of intercity passenger rail services that receive federal funds, as well as the public benefits of those services. This vision, which could apply to future FRA-led regional rail planning efforts or other more detailed planning efforts, would be developed in coordination with key stakeholders, including FRA, Amtrak, state DOTs, and host railroad carriers.
- Development of a **Long-Distance Network Planning framework** that integrates the needs and opportunities of the existing long-distance rail network with prioritized investments for new or enhanced long-distance service. More details on a potential long-distance network planning process are in Section 10.2.1.
- Creation of a **Long-Distance Stakeholder Engagement Committee** comprised of key stakeholders across the country (including states and communities served by Amtrak long-distance routes) that could serve as a forum for ongoing feedback for current Amtrak long-distance service – including improving public use of intercity passenger rail along each route – and provide feedback on proposed plans and policies. More details on this potential engagement committee are in Section 10.2.2.
- Development of a **Multimodal Interregional Rural Transportation Plan** that takes a recurring, holistic view of significant needs and opportunities related to connecting rural and small urban areas with each other, and with other urban areas. This plan would likely require cooperation across DOT modes and other

stakeholders across the country, and could make recommendations related to priority funding and programs that could better connect rural and small urban areas with economic and social opportunities. Modes considered could include intercity passenger rail, Amtrak Thruway bus services, intercity bus, passenger air service (including DOT's Essential Air Service), ferries, pedestrian infrastructure, personal vehicles and shared ride services, bicycling infrastructure, and others.

10.2.1 Long-Distance Network Planning Framework

FRA heard significant support for enhanced long-distance network planning during regional working group meetings held in 2023 and 2024. Unlike states with state-sponsored Amtrak routes, the federal government is not actively involved in coordinating or participating in ongoing high-level planning related to the existing long-distance network and potential future long-distance network changes.

While federal statute (49 U.S.C. 24706) prohibits Amtrak from discontinuing or substantially altering existing long-distance routes, there is not a framework for ongoing planning to identify:

- Priority investments needed to maintain reliable long-distance service on the current network;
- Potential changes to existing long-distance service that may more efficiently and effectively link ***small and large communities***; and/or
- Potential new long-distance routes that should be further analyzed through a service development plan process.

The establishment of a recurring, high-level long-distance planning process, potentially updated approximately every 5 years, could document:

- Existing long-distance network needs to maintain reliable service, estimated costs, and status of ongoing projects and planning efforts.
- Recommended long-distance passenger rail programs and investments for future service development plans, which could be used to populate a long-distance project pipeline.

This process, led by FRA, in coordination with Amtrak, could be similar to State Rail Plans or other comparable transportation investment plans, focusing on the status and needs of current service, as well as potential network enhancement opportunities. Any new planning process could involve significant stakeholder engagement, including from states and communities along current long-distance routes, as well as those that may be considered for future service development plans for new service. This planning process could also be coordinated with a Multimodal Interregional Rural Transportation Plan to ensure discussions and planning related to Amtrak long-distance routes complement other transportation modes, including intercity and local bus, Essential Air Service, and other local and regional forms of transportation.

Photo courtesy of Amtrak

10.2.2 Long-Distance Route Stakeholder Engagement

FRA heard significant support for enhanced long-distance stakeholder engagement during regional working group meetings held in 2023 and 2024. DOT has a role in several Congressionally established organizations that provide additional oversight of and direction to Amtrak, including the Northeast Corridor Commission (which focuses on the NEC) and the State-Amtrak Intercity Passenger Rail Committee (which focuses on state-supported service). Both the Northeast Corridor Commission and the State-Amtrak Intercity Passenger Rail Committee provide a forum for stakeholders, including states, to discuss feedback and ideas related to their respective service lines. Unlike NEC and state-supported services, long-distance service does not have a committee to serve as a forum for stakeholders to engage with Amtrak, the federal government, and each other. Such a Congressionally established committee for long-distance services could be a forum for stakeholders from across the country (including host railroads, states and communities served by long-distance routes, Amtrak, and the federal government) to provide feedback for the purpose of improving Amtrak long-distance service, including opportunities for planning and service efficiencies.

11. Conclusion

In this Final Report to Congress, FRA selected preferred route options for restoring, enhancing to daily, or expanding long-distance service, and described cost estimates, potential public benefits, capital investments, and recommendations for Amtrak to work with local communities and stakeholders. Although the Study focused on potential long-distance service restoration, enhancement, and expansion, it was also the federal government's first network-wide review of Amtrak long-distance service in several decades. FRA also identified opportunities for the Study to be part of a larger effort to evaluate transportation connections between and among rural and urban areas, including those provided by intercity passenger rail and other modes (refer to Chapter 10 for more details). Transportation modes may have different funding sources, but people don't travel based on funding source – they travel to get where they need to go, on the transportation network that is most accessible and attractive to them.

Although this Study focused on potential long-distance service restoration, enhancement, and expansion, it was also the federal government's first network-wide review of Amtrak long-distance service in several decades.

The Study showed the substantial potential benefits of expanded long-distance passenger rail service, including increased access for millions of Americans, thousands of jobs related to construction and operations, and increased transportation access and options for millions who live in ***rural areas***. It also showed the critical role that passenger rail can play in connecting communities and providing access to education, healthcare, and other services (refer to Chapter 5 and Chapter 7 for more details).

But planning and implementing new passenger rail services takes time and requires a rigorous process. Additional regular funding is needed to support the planning and costs associated with fully implementing many of the selected preferred route options identified in the Study (refer to Chapter 6 for selected cost estimates associated with selected preferred route options). Even with unprecedented federal funding for rail improvement projects provided by IIJA, FRA's current intercity passenger rail competitive grant programs are oversubscribed. There is significant interest and excitement across the country for enhanced existing passenger rail, as well as new passenger rail opportunities.

Whether or not the selected preferred route options identified in the Study are implemented, Amtrak will continue to operate its current network of 15 long-distance routes that link and serve ***large and small communities*** across the country (refer to Chapter 4 for recommended daily service on the existing Cardinal and Sunset Limited routes).

The recommendations in Chapter 10 for enhanced long-distance planning could identify priority investments needed to maintain reliable long-distance service on the current network and identify priority opportunity for service changes and expansion.

FRA is building the foundation for a long-term rail program, bringing world-class passenger rail service to regions across the country and growing a safer, cleaner, and more equitable rail system. Long-distance services are an important component of these goals, but they are only one piece of an integrated and enhanced passenger rail system. Along with other passenger rail programs and efforts, including those established in IIJA, there are more opportunities to develop passenger rail than ever before, including opportunities to grow essential connections to heavily populated areas, and opportunities to strengthen connections with ***small communities*** and ***rural areas*** that have borne the burden of past passenger rail service reductions.

The work presented in the Study is a crucial early step in moving away from the trend of the past 50 years of reducing service, and instead provides the initial framework for an expanded and interconnected long-distance passenger rail network.

Photo courtesy of Amtrak

References

- Alan, David Peter. 2023. "FRA L-D Study Suggests Restored Routes." *Railway Age*. February 21, 2024. https://www.railwayage.com/freight/fra-l-d-study-suggests-restored-routes/.
- Amtrak. 2019a. Amtrak FY 2019 Long-Distance Rider Connections Data. Business confidential information provided by Amtrak.
- Amtrak. 2019b. *Monthly Performance Report: FY 2019*. November 2019. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2019/Amtrak-Monthly-Performance-Report-September-2019.pdf.
- Amtrak. 2020. Route Performance Report: Year-to-Date September FY 2019. February 2020. Business confidential information provided by Amtrak.
- Amtrak. 2021. Route Performance Report: Year-to-Date September FY 2021. December 2021. Business confidential information provided by Amtrak. Includes previous year FY 2020.
- Amtrak. 2022a. Amtrak Long-Distance Customer New Return Survey. Business confidential information provided by Amtrak.
- Amtrak. 2022b. Amtrak Route and Station Geospatial Data. Business confidential information provided by Amtrak.
- Amtrak. 2022c. *Amtrak Station Planning and Development Guidelines*. January 2022.
- Amtrak. 2022d. Annual Grant Program Fact Sheet. https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://railroads.dot.gov/sites/fra.dot.gov/files/2022-04/Amtrak%2520Annual%2520Grants%2520fact%2520sheet_April%252020222.pdf&ved=2ahUKEwiSgrLvmJuGAxUkGFkFHflVCP0QFnoECBUQAQ&usg=AOvVaw2UBNi534UQxuhKhy_ckJeT.
- Amtrak. 2022e. Latest Available Amtrak Schedule Skeletons. Business confidential information provided by Amtrak.
- Amtrak. 2023a. Amtrak FY 2019 Route-Level Rail Ridership Data for Trip Table Development. Business confidential information provided by Amtrak.
- Amtrak. 2023b. Amtrak FY 2022 average train consist data. Business confidential information provided by Amtrak.
- Amtrak. 2023c. Amtrak Performance Tracking Monthly Detail – September 2019. Business confidential information provided by Amtrak.

- Amtrak. 2023d. Host Railroad Report Amtrak Train Performance on Host Railroads. Data through September 2023. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/HostRailroadReports/September-2023-Amtrak-Host-Railroad-Report.pdf.
- Amtrak. 2023e. Monthly Performance Report: Year-to-Date September FY 2023. October 2023. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2023/Amtrak-Monthly-Performance-Report-September-2023.pdf.
- Amtrak. 2023f. Route Performance Report: Year-to-Date September FY 2022. January 2023. Business confidential information provided by Amtrak.
- Amtrak. 2024a. Amtrak Monthly Performance Report. Year-to-Date September FY 2024. December 2024. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/monthlyperformancereports/2024/Amtrak-Monthly-Performance-Report-September-2024.pdf.
- Amtrak. 2024b. *General and Legislative Annual Report and Fiscal Year 2025 Grant Request*. March 14, 2024. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/reports/Amtrak-General-Legislative-Annual-Report-FY2025-Grant-Request.pdf.
- Amtrak. 2024c. Route Performance Report: Year-to-Date September FY 2023. December 2024. Business confidential information provided by Amtrak.
- Amtrak. 2024d. Schedules. https://www.amtrak.com/train-schedules-timetables.
- BTS. 2021. National Transportation Statistics 2021, 50th Anniversary Edition. Bureau of Transportation Statistics. https://www.bts.dot.gov/sites/bts.dot.gov/files/2021-12/NTS-50th-complete-11-30-2021.pdf.
- BTS. 2022. Amtrak Ridership. Bureau of Transportation Statistics. September 20, 2022. https://data.bts.gov/dataset/Amtrak-Ridership/4mdc-2kn7.
- BTS. 2023a. DB1B Market 2019 Air Passenger Data. Bureau of Transportation Statistics. Accessed March 2023. https://www.transtats.bts.gov/TableInfo.asp?gnoyr_VQ=FHK&QO_fu146_anzr=b4vtv0%20n0q%20Qr56v0n6v10%20f748rB&V0s1_b0yB=D.
- BTS. 2023b. "Transportation Fatalities by Mode." Bureau of Transportation Statistics. https://www.bts.gov/content/transportation-fatalities-mode.
- BTS. 2024. "North American Rail Network Nodes." Bureau of Transportation Statistics. https://data-usdot.opendata.arcgis.com/datasets/usdot::north-american-rail-network-nodes/about.

- CEQ. 2022. Climate and Economic Justice Screening Tool. https://screeningtool.geoplatform.gov/en/about#3/33.47/-97.5.
- CEQ, CPO, and OMB. 2023. "Addendum to the Interim Implementation Guidance for the Justice40 Initiative, M-21-28, on using the Climate and Economic Justice Screening Tool." January 27, 2023. https://www.whitehouse.gov/wp-content/uploads/2023/01/M-23-09_Signed_CEQ_CPO.pdf.
- Congressional Research Service. 2023. Funding and Financing Highways and Public Transportation Under the Infrastructure Investment and Jobs Act (IIJA). May 24, 2023. https://crsreports.congress.gov/product/pdf/R/R47573.
- DOT. 1979. Final Report to Congress on the Amtrak Route System. https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/2743/Final%20Report%20to%20Congress%20on%20the%20Amtrak%20Route%20System%20As%20Required%20by%20the%20Amtrak%20Improvement%20Act%20of%201978.pdf.
- DOT. 2023. Areas of Persistent Poverty Project (APP) and Historically Disadvantaged Community (HDC) List. U.S. Department of Transportation. https://datahub.transportation.gov/stories/s/tsyd-k6ij.
- DOT. 2024a. Areas of Persistent Poverty & Historically Disadvantaged Communities. https://www.transportation.gov/grants/mpdg-areas-persistent-poverty-and-historically-disadvantaged-communities.
- DOT. 2024b. Justice40 Initiative. https://www.transportation.gov/equity-Justice40.
- FHWA. 2023. NextGen NHTS OD Data Portal. Federal Highway Administration. https://nhts.ornl.gov/od/downloads.
- FRA. 2023a. *FRA Guidance on Development and Implementation of Railroad Capital Projects*. Federal Railroad Administration. January 1, 2023. https://railroads.dot.gov/sites/fra.dot.gov/files/2023-01/FRA%20Guidance%20on%20Development%20and%20Implementation%20of%20Railroad%20Capital%20Projects.pdf.
- FRA. 2023b. *FY22-23 Federal-State Partnership for Intercity Passenger Rail Program (National) Selections*. Federal Railroad Administration. https://railroads.dot.gov/elibrary/fy22-23-FSP-National-rail-program-selections.
- Indian Affairs Bureau. 2023. Indian Entities Recognized by and Eligible To Receive Services From the United States Bureau of Indian Affairs. January 12, 2023. https://www.federalregister.gov/documents/2023/01/12/2023-00504/indian-entities-recognized-by-and-eligible-to-receive-services-from-the-united-states-bureau-of.
- Johnston, Bob. 2024. "FRA releases long-distance study interim report, invites comments." *Trains*. February 19, 2024. https://www.trains.com/trn/news-reviews/news-wire/fra-releases-long-distance-study-interim-report-invites-comments/.

- Lawler, Opheli Garcia. 2023. "A New Map Shows What the Future of U.S. Train Travel Could Look Like." August 3, 2023. https://www.thrillist.com/news/nation/amtrak-train-expansion-federal-railroad-administration-map.
- Moody's Analytics. 2023. U.S. County-Level Population, Employment, and Income Forecasts. Business confidential information provided by Moody's Analytics.
- National Park Service. 2019. Boundaries, National Parks Service (NPS), Land Resources Division. Last updated April 23, 2024. https://public-nps.opendata.arcgis.com/datasets/nps::nps-boundary-4/about.
- OASD. 2022. Military Bases, from the Office of the Assistant Secretary of Defense (OASD), part of the DOT/BTS National Transportation Database. Last updated September 20, 2023. https://geodata.bts.gov/datasets/usdot::military-bases/about.
- STB. 2024. Economic Data. Surface Transportation Board. https://www.stb.gov/reports-data/economic-data/.
- Streamliner Schedules. 2023a. "Project 1971." Accessed August 2023. http://www.streamlinerschedules.com/project1971.html.
- Streamliner Schedules. 2023b. "Streamliners Across America." Accessed August 2023. http://www.streamlinerschedules.com/extras/streamliners_across_america.pdf.
- U.S. Bureau of Economic Analysis. 2023. "RIMS II Multipliers based off the Benchmark Input-Output Table for the Nation." https://apps.bea.gov/regional/rims/rimsii/.
- U.S. Census Bureau. 2020. *Decennial Census (2020)*. https://data.census.gov/.
- U.S. Census Bureau. 2022. *TIGER/Line Shapefiles*. https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2022.html#list-tab-790442341.
- U.S. Census Bureau. 2023. Glossary. Page Last Revised June 23, 2023. https://www.census.gov/programs-surveys/metro-micro/about/glossary.html#:~:text=15%20or%20more.-,Core%20Based%20Statistical%20Areas%20(CBSAs),as%20measured%20through%20commuting%20ties.
- U.S. Congress. 1970. *Rail Passenger Service Act of 1970,* H.R. 17849 (Public Law 91-518), 91st Congress (1970). Introduced May 27, 1970, enacted October 30, 1970.
- U.S. Congress. 2008. Passenger Rail Investment and Improvement Act (PRIIA), H.R. 6003 Title II (H. Rept. 110-690), 110th Congress (2007-2008). Introduced May 8, 2008.

- U.S. Congress. 2015. Fixing America's Surface Transportation (FAST) Act, H.R. 22 (Public Law 114-94), 114th Congress (2015-2016). Introduced January 6, 2015.
- U.S. DHS. 2023. Homeland Infrastructure Foundation-Level Data (HIFLD) Geoplatform. Data provided by the Geospatial Management Office.
- Volpe. 1971. *Final Report on the Basic National Rail Passenger System*. In accordance with Public Law 91-518, 91st Congress. https://railroads.dot.gov/elibrary/final-report-basic-national-rail-passenger-system.