Midwest Regional Rail Plan

Final Report

October 2021

Acknowledgments

DEDICATION

The Midwest Regional Rail Plan is dedicated to the memory of Peter Denitz, dear friend and colleague, who spent a lifetime working for equitable mobility in communities.

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Acronyms and Abbreviations

CBSA ..... Core-Based Statistical Areas
CIP ..... Corridor Improvement Project
CONNECT ..... CONceptual NETwork Connections Tool
CRISI ..... Consolidated Rail Infrastructure and Safety Improvement
DOT ..... Department of Transportation
EIS ..... Environmental Impact Statement
FAA ..... Federal Aviation Administration
FACT ..... Future Airport Capacity Task
FRA ..... Federal Railroad Administration
HSIPR ..... High-Speed and Intercity Passenger Rail
IDOT ..... Iowa Department of Transportation
INDOT ..... Indiana Department of Transportation
INFRA ..... Infrastructure for Rebuilding America
KDOT ..... Kansas Department of Transportation
LRTP ..... Long-Range Transportation Plan
MDOT ..... Michigan Department of Transportation
MIPRC ..... Midwest Interstate Passenger Rail Commission
MnDOT ..... Minnesota Department of Transportation
MoDOT ..... Missouri Department of Transportation
MPO ..... Metropolitan Planning Organization
MWRRI ..... Midwest Regional Rail Initiative
MWRRP ..... Midwest Regional Rail Planning Study
NCRRP ..... National Cooperative Rail Research Program
NEPA ..... National Environmental Policy Act
NHS ..... National Highway System
NICTD ..... Northern Indiana Commuter Transportation District
O&M ..... Operations and Maintenance
ODOT ..... Ohio Department of Transportation
ORDC ..... Ohio Rail Development Commission
RTA ..... Regional Transit Authority of Southeast Michigan
SDP ..... Service Development Plan
SOGR Program ..... State of Good Repair Program
SPG ..... Stakeholder Planning Group
TIGER ..... Transportation Investment Generating Economic Recovery
TRB ..... Transportation Research Board
USDOT ..... U.S. Department of Transportation
WisDOT ..... Wisconsin Department of Transportation

Executive Summary

The Midwest Regional Rail Planning Study (MWRRP) is an intercity passenger rail network planning study led by the Federal Railroad Administration (FRA), in partnership with stakeholders from across the Midwest. The MWRRP sets forth a strategic forty-year vision for the Midwest's passenger rail network, addressing topics including network configuration, service levels, financing, and governance. The study is the third in the FRA's national rail planning effort and follows the studies in the Southwest and Southeast regions of the U.S. These regional rail planning efforts are intended to support existing state rail plans and long-range transportation plans (LRTP).

The Midwest is a geographically large and economically significant region. The Midwest is also home to the most complex rail network in the nation and a rich heritage of railroading. The MWRRP evaluated developing rail plans within the context of this regional outlook, which included a current network of passenger, commuter and freight rail.

Stakeholders in the Midwest are clear in the understanding that a strong regional rail plan must do the following:

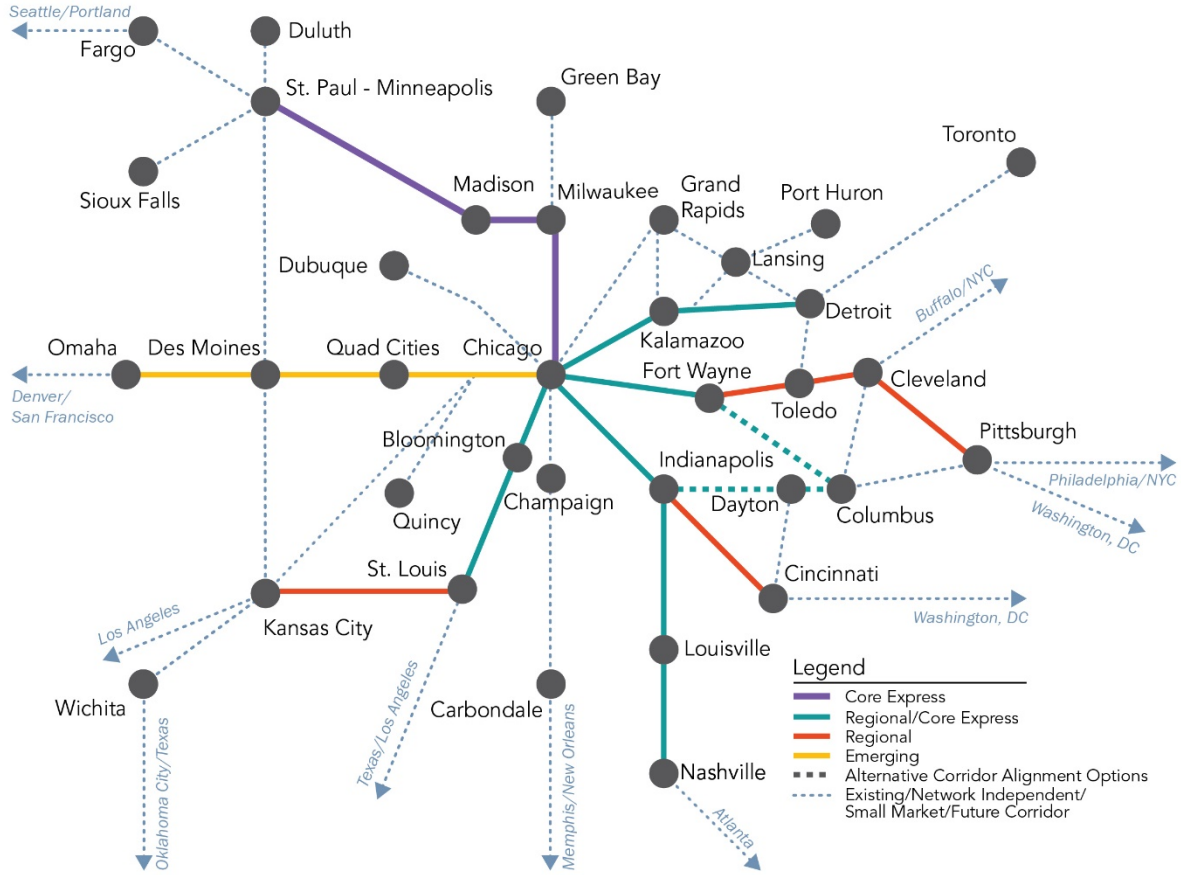
- Integrate rail projects with other transportation modes.
- Promote greater involvement by many stakeholders to build consensus.
- Identify priorities that support both the logical sequencing of developing networks and the efficient use of limited funding.
- Yield cost-effective investments.

MIDWEST REGIONAL RAIL PLAN NETWORK

The MWRRP is the result of a rigorous analysis using the FRA's CONceptual NEtwork Connections Tool (CONNECT), which modeled existing and future baseline conditions to support a future Midwest regional passenger rail network. This analysis was refined through a robust stakeholder engagement process. The modeling assessed ridership, operating and maintenance costs, capital costs, cost-recovery ratios, and other key performance indicators for potential corridors. This resulted in detailed data on route performance, network interactions, and potential service levels. It also determined hubs to aggregate service, appropriate service tiers for each corridor, and crucial network interactions. This holistic approach resulted in recommendations for a full network compared to standalone corridors.

Overall, it led to a vision for a recommended regional intercity passenger rail network. Figure 1 depicts the recommended Midwest regional intercity passenger rail network.

Figure 1. FRA Midwest Regional Rail Plan Network



As shown in Figure 1, the analyses demonstrated that the strongest corridors for prioritized development connect to Chicago. The MWRRP work explored several options beyond the hub-and-spoke connections to other large metropolitan areas. However, the strength of Chicago's rail hub cannot be ignored.

Subregional interconnectivity proved optimal as a first step. Connections to small- and mid-sized cities from the subregional hubs was demonstrated to improve the viability of these "pillar corridors." Pillar corridor connections to existing bus, commuter rail, and air service are strong and population growth is expected within them.

The four pillar corridors and the initial service tier recommendations are:

- Chicago–Minneapolis–St. Paul: Core Express
- Chicago–St. Louis: Regional/Core Express
- Chicago–Indianapolis: Regional/Core Express
- Chicago–Detroit: Regional/Core Express

Additionally, if the stakeholder states individually and collectively decided to advance an intercity passenger rail network with a greater emphasis on higher speed lines, there could be a case to build even more of the corridors at the Regional/Core Express level. Furthermore, if an interregional passenger rail

study were completed in the future including the Midwest (e.g., connecting the Midwest and Southeast or the Midwest and Northeast), there may be significant enough ridership between some interregional markets to justify Core Express service over Regional service on some corridors.

PLANNING AND ANALYSIS APPROACH

The FRA study team hosted intensive stakeholder workshops and led a research and analysis process over a 24-month period. Lead stakeholders in the process included 12 state departments of transportation and the Midwest Interstate Passenger Rail Commission (MIPRC). Additional stakeholders included Amtrak, freight railroads, transit organizations, councils of government, metropolitan planning organizations (MPO), chambers of commerce, regional railroads and advocacy groups. During this time, the FRA study team and stakeholders:

- Summarized existing rail and transportation plans.
- Assessed existing and potential future passenger travel demand.
- Analyzed the performance of each corridor as a standalone investment and as part of a potential network.
- Developed phasing principles and considerations for future prioritization of Midwest corridors.
- Proposed a Midwest governance structure building on MIPRC's efforts to date.
- Assembled a comprehensive list of common funding sources currently available for intercity passenger rail programs.
- Identified lessons learned to aid in developing comprehensive regional rail planning guidance.

An extensive 12-state market assessment was conducted to evaluate the current travel market and demand to understand travel patterns by mode between major markets. The study area encompasses the states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin. Geography, economy, infrastructure, and population indicators were used in the evaluation.

The technical analysis and development of a representative network utilized CONNECT as a basis for analyzing the corridors and networks. Assessing existing market data and calibration/validation of the CONNECT model came together during an iterative "building block" analytic process. The building block analysis resulted in data on the ridership and financial performance of individual corridors and network segments under various sets of assumptions about service tier, train routing, service frequency, network configuration, and connectivity.

The Midwest region was broken into five subregions for detailed analysis of capital costs, annual ridership, annual ticket revenue, annual operation and maintenance costs, and operating cost recovery ratios. Subnetworks within each subregion were evaluated through data sets and key questions around level of service, travel demand and market strengths to inform the development of the Midwest Regional Network vision, which includes market potential and network interactions.

"Pivot testing" was conducted following the analysis and prior to defining the elements of the draft network. The pivots tested potential network configurations against each other and compared network impacts based on ridership, capital costs, and other data points.

Additional analysis included the following:

- Examining how the service tier level of the pillar corridors is impacted by fare assumptions with the CONNECT model.
- Modifying right-of-way cost assumptions for high-frequency regional service to more accurately capture the need for additional infrastructure.
- Conducting a Chicago-focused sub-analysis to understand how the draft network would impact Chicago terminal capacity issues.

Once these additional analyses and adjustments were complete, the draft network was developed based on the recommended elements from the building block analyses, pivot testing, and service tier analysis.

The MWRRP also includes phasing recommendations that prioritize regional rail investment from the full Midwest perspective. The phasing considerations are important because of the need to prioritize regional rail investment from a full Midwest network perspective. The suggested phasing timeline identified Phase 1 to include Regional and Core Express service to all the major markets and Chicago.

Phasing of projects was analyzed with the following objectives:

- Ensure reasonable incremental progress toward the full-network vision.
- Evaluate quantitative and qualitative performance metrics, such as network ridership, benefits, capital costs and operating financial performance.
- Account for other factors such as geographic equity.
- Demonstrate how early-phase actions dovetail with existing plans and programs.
- Provide context and guidance for corridor- and location-specific project planning.

With four pillar corridors and initial service tier recommendations in place, evaluating governance structures was the final step in developing the MWRRP. The FRA led governance discussions with the goals of verifying successful governance models, identifying gaps, and understanding state priorities.

RECOMMENDED GOVERNANCE

The implementation of a regional rail plan for the Midwest will require extensive coordination among the participating states and stakeholders. Unlike many other regions, the Midwest already has an established governance structure supporting passenger rail development. The Midwest Interstate Passenger Rail Commission (MIPRC) has served and will continue to serve the region as an effective advocacy and governance organization to advance the recommendations of the MWRRP and other regional-level planning studies. The FRA will continue to work closely with the MIPRC and Midwest states to advance and elevate the MIPRC as a governance structure with the clear authority, responsibility and mandate for overseeing and implementing the outcomes of the Midwest's intercity rail planning initiative. Recognition

of the MIPRC's effectiveness notwithstanding, challenges to expanding governance include protecting state's sovereignty and interests, creating a more robust structure without predictable funding streams, and addressing approaches to complex capital and operating cost allocation issues and multi-state roles and responsibilities.

Future governance structures will need to address complex issues related to planning and implementation, funding schemes, prioritized investments and service operations and system maintenance within the context of state and host railroad policy, financial, and regulatory approaches.

CONCLUSION

With the intention of advancing regional rail planning in the Midwest, the full MWRRP report provides a detailed explanation of the study process and recommendations. Additional planning efforts from regional stakeholders will further expand this 40-year framework for the Midwest passenger rail network to include a refined prioritization of corridors and investment projects, an enhanced governance structure, and a focused funding strategy.

1. Introduction

The Midwest Regional Rail Planning Study (MWRRP) is a multi-state network planning study for intercity passenger rail in the Midwest region of the United States. Led by the Federal Railroad Administration (FRA) in partnership with stakeholders from across the Midwest, the MWRRP presents a long-term vision for intercity passenger rail in the region. The study is part of the FRA's national rail planning effort to develop a national toolkit for the conceptual planning of intercity passenger rail networks at the multi-state and megaregion level. The MWRRP examines the potential for intercity passenger rail and creates a framework for developing intercity passenger rail connections over the next 40 years. This study builds on established Midwest rail initiatives as well as other ongoing state planning efforts.

The Southeast Regional Rail Planning Study and the MWRRP are the most recent studies following the initial Southwest Multi-State Rail Planning Study (2014). The analysis efforts for each study were based on the use of the CONceptual NEtwork Connections Tool (CONNECT), which was used to analyze intercity passenger rail corridors and networks. These regional rail planning efforts are intended to support existing statewide and regional processes, such as state rail plans and long-range transportation plans (LRTP).

This final report provides an overview of the MWRRP study, explains the study process—including stakeholder input and technical analysis—and documents study findings and recommendations. The report concludes with potential governance considerations, and recommended action items and next steps for the advancement of the regional rail network in the Midwest.

1.1 IMPLICATIONS OF COVID-19

The MWRRP was completed during the coronavirus (COVID-19) pandemic. COVID-19 has had and will continue to have significant impacts on travel and intercity passenger rail, resulting in reduced intercity train frequencies across the United States and in some cases temporary cancelations of service. These impacts will need to be fully analyzed as the pandemic subsides and travel patterns resume to fully understand the effects. The MWRRP focuses on a long-term vision for intercity passenger rail and assumes that intercity travel behaviors will resume in the long term with a growth rate similar to pre-pandemic ridership levels.

1.2 STUDY OVERVIEW

Encompassing 12 states in the Midwest, the MWRRP provides further inputs for the FRA's national rail planning effort. The purpose of the study was to advance regional rail planning and to produce a 40-year framework for the Midwest passenger rail network. The framework includes a high-level prioritization of corridors and investment projects, proposed enhancements for a governance structure, and funding strategies for consideration. With a long-term planning horizon of 2055, the study focused on conceptual-level planning for intercity passenger rail, with the goal of facilitating future rail planning and streamlining implementation of projects. Throughout the effort, recommendations from stakeholders were sought and incorporated, resulting in the proposed Midwest passenger rail network.

During the study period, the project team undertook the following efforts to develop this document:

- Summarized existing rail and transportation plans.
- Assessed existing and potential future passenger travel demand.
- Analyzed the performance of each corridor as a standalone investment and as part of a potential network.
- Developed phasing principles and considerations for future prioritization of Midwest corridors.
- Proposed a Midwest governance structure that builds upon the MIPRC efforts to date.
- Assembled a comprehensive list of common funding sources available for intercity passenger rail programs.
- Identified lessons learned to provide comprehensive regional rail planning guidance.

The result of these efforts is the recommended Midwest passenger rail network outlined in this document.

1.3 WHAT IS A REGIONAL RAIL PLAN?

Under FRA's intercity passenger rail planning framework, a regional rail plan identifies a potential long-term vision for a multi-state intercity passenger rail network. A regional rail plan study process analyzes existing conditions, projections of future travel demand, and the optimal role of passenger rail service within a multimodal transportation context. The study process is intended to serve as a visioning exercise for stakeholders to lay the groundwork for future intercity passenger rail development efforts.

Many recent federal and state passenger rail planning activities have focused on either (1) individual corridors between major cities or (2) comprehensive rail planning within individual states. However, as the MWRRP demonstrates, developing rail plans within the context of a broader regional outlook provides several benefits:

- Better integrates rail projects with other transportation modes.
- Promotes greater involvement by stakeholders and builds consensus.
- Ensures consistency and minimizes potential conflicts between the development of individual corridors within a region
- Identifies priorities that support both the logical sequencing of developing networks and the efficient use of limited funding.
- Yields more cost-effective investments.

A regional rail plan contains two primary components:

- A network plan that identifies a potential regional network of "candidate corridors" for further study
- Governance strategies to identify challenges and opportunities related to the development and delivery of the regional network

The FRA recommends that regional rail plans include the following information for the purposes of identifying multi-state corridors for future evaluation, planning and implementation:

- Demographic trends
- Travel patterns and market analysis
- Transportation network conditions and connectivity
- Conceptual estimates of rail network costs, ridership, and financial performance
- Institutional and governance challenges and opportunities

Consistent with the sketch-level network planning that is undertaken in developing regional rail plans, the conclusions presented in these plans are limited to those that can be reasonably supported by that relatively high level of analysis. As such, regional rail plans focus, first and foremost, on ruling out those options for a region's future intercity passenger rail network that the analysis demonstrates would be particularly disadvantageous, and only presents more precise conclusions where they can be reasonably supported by that analysis. In keeping with these objectives, the network planning undertaken in developing regional rail plans focuses on the following goals:

- Define the corridors within the future regional network in terms of the geographic markets the analysis shows must be served for the corridor to fulfill its full potential (i.e. the "corridor-defining markets")
- Define the appropriate level(s) of service on each corridor in terms of generalized categories reflecting sets general service characteristics (i.e. "service tier")[1]

Likewise, regional rail plans are not intended to result in more detailed conclusions of the type that cannot be reasonably supported by sketch planning level analysis. As such, regional rail plans do not:

- Define the specific alignment or rights-of-way (including existing or abandoned rail lines) that would be traversed by each corridor
- Define the specific intermediate geographic markets (i.e. those beyond the "corridor-defining markets") that would be served by each corridor
- Define the specific service characteristics (e.g. frequency, trip times, fares, train capacity, etc.) for each corridor

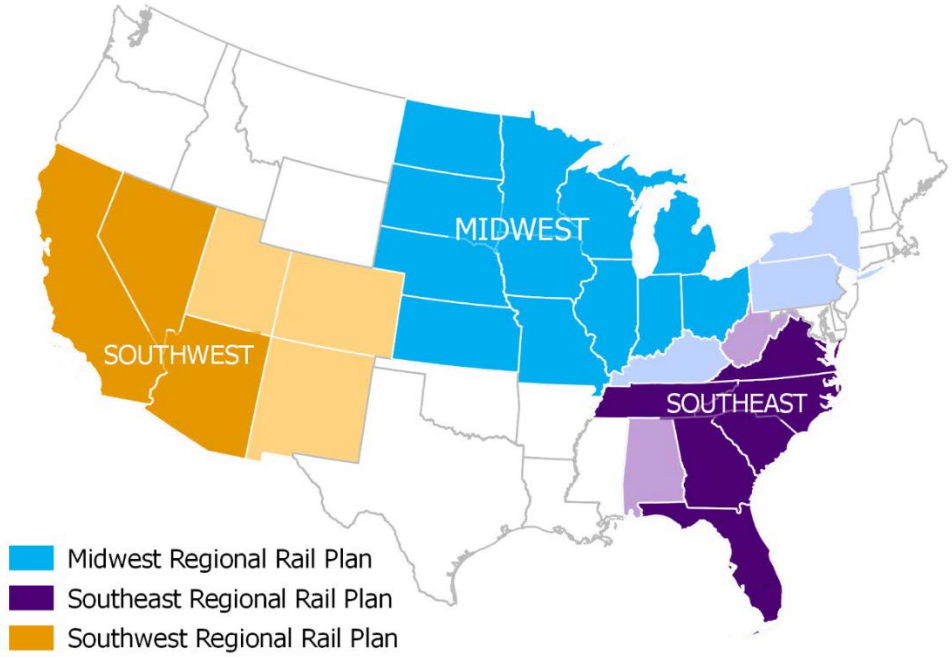
While the regional rail planning network analysis necessarily makes certain assumptions regarding these more specific network characteristics in order to allow for the generation of useful outputs, these assumptions are intended to be "illustrative" or "representative," rather than recommendations for a precise set of network characteristics.

Chapters 1 and 2 of this regional rail plan provide an overview of the planning scope, process, and data. Chapters 3 and 4 describe the network planning approach and findings, while Chapter 5 outlines governance considerations. Chapter 6 explores action items and next steps for states in the Midwest study area and the FRA.

[1] See Section 3.1 below.

Conducted in parallel with the MWRRP, the FRA led a regional planning process in the Southeast which is outlined in the Southeast Regional Rail Planning Study.[2] These two efforts have further developed and refined the principles contained in FRA's first multi-state regional rail plan (the Southwest Multi-State Rail Planning Study)[3] published in 2014. See Figure 2 for regional rail planning study areas.

Figure 2. FRA Regional Rail Planning Study Areas



The FRA encourages states to participate in developing regional rail plans to coordinate planning for facilities and services that cross, or someday may cross, state boundaries. As described in Chapter 6, a regional rail plan complements individual state rail plans and prioritizes corridors that cross state lines for additional study and implementation. However, a regional rail plan will not reach the depth and breadth of detailed corridor analyses, and further analysis beyond the scope of a regional rail plan is required before project implementation.

1.4 SIGNIFICANCE OF THE MIDWEST REGION

Many of the Midwest states have long been active proponents for advancing passenger rail. In 1996, the Midwest states of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin, in partnership with the FRA, undertook the Midwest Regional Rail Initiative (MWRRI). The MWRRI is a cooperative, multi-agency initiative advancing a robust Midwest passenger rail system based on a hub-and-spoke network operating at 110 mph across the Midwest. The MWRRI plan focuses on offering

[2] Southeast Regional Rail Planning Study. Federal Railroad Administration. https://www.southeastcorridor-commission.org/copy-of-commission-reports-1

[3] Southwest Multi-State Rail Planning Study. 2014. Federal Railroad Administration. https://www.fra.dot.gov/eLib/Details/L16013

business and leisure travelers shorter travel times, additional train frequencies, and connections between urban centers and smaller communities.

In addition to the MWRRI, leaders from the Midwest states formed MIPRC. Formed by a compact agreement in 2000, MIPRC brings together state leaders from across the region to advocate for passenger rail improvements. Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, North Dakota and Wisconsin are the MIRPC's current members. The main purposes of the compact are to promote, coordinate, and support regional improvements to passenger rail service. The MIPRC worked closely with the MWRRI steering committee to advance the Midwestern states' passenger rail plans.

While the combined efforts of the MWRRI, MIPRC, and the FRA have significantly advanced passenger rail in the Midwest during the last two decades, the Midwest is at a critical juncture for rail project advancement. Strengthening the current coordinated, multi-state approach to planning, construction, operations, and governance of the rail system is urgently needed to realize a fully integrated passenger rail network that links communities throughout the region.

1.5 GEOGRAPHIC SCOPE OF STUDY

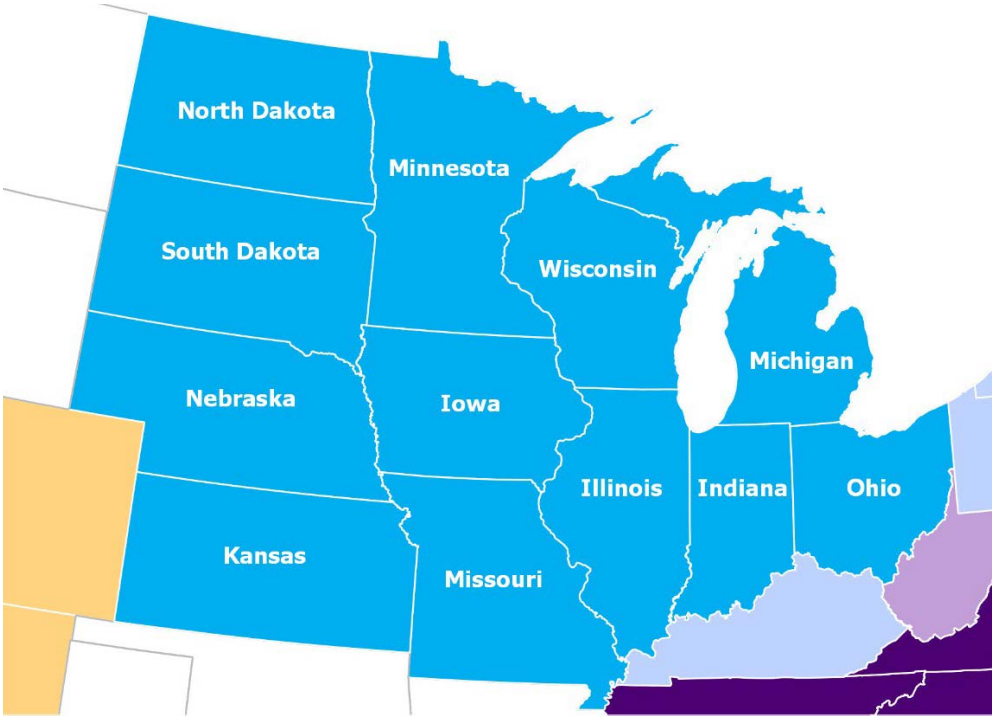
The Midwest is a geographically expansive region and represents the most complex rail network in the nation with a rich heritage and network of passenger, commuter, and freight rail. In this study, the Midwest study area is defined as encompassing 12 states (Figure 3).

Planning for passenger rail development has varied from state to state throughout the Midwest. For example, Illinois, Indiana, Michigan, Missouri, and Wisconsin have demonstrated substantial support for passenger rail by funding studies, completing corridor improvements, and coordinating the implementation of new and expanded service. Minnesota and Iowa are engaged in planning to expand state and regional passenger rail service in the Midwest but have not financially supported passenger rail service. Several Midwest states—including Nebraska, North Dakota, Ohio and South Dakota—have generally not engaged in planning passenger rail services for various reasons. Five states that border the Midwest—Kentucky, New York, Pennsylvania, Tennessee and West Virginia[4]—have minimal passenger rail service connecting to the Midwest but were considered complementary jurisdictions for planning and developing the regional rail network. The province of Ontario, Canada, is also considered a complementary jurisdiction given its proximity to several Midwestern states and ongoing intercity passenger rail efforts.[5]

[4] Pennsylvania and New York have extensive service in the eastern parts of their respective states and are fully engaged in planning, funding and service on the Keystone Line east of Harrisburg, PA, and the Empire Line between New York City, Albany, and Buffalo, NY.

[5] Several states/provinces that were not part of the lead stakeholder group—but who had potentially complementary service or jurisdictional connections to the network examined in this study—were collectively referenced as "complementary jurisdictions" and received study communications as other interested parties.

Figure 3. Midwest Regional Rail Plan States



1.6 STUDY PROCESS

1.6.1 Stakeholder Engagement

Multiple stakeholder groups are associated with the Midwest passenger rail network, encompassing the U.S. Department of Transportation (USDOT), state DOTs, host and operating railroads, municipal governments and advocacy groups dedicated to advancing passenger rail in the Midwest. The FRA established the following outreach objectives to guide stakeholder involvement for this study:

- Work directly with states implementing passenger rail service through the planning process.
- Engage advocates and regional partners in the planning process at key points.
- Coordinate with implementing and jurisdictional partners.
- Inform interested parties of project study milestones, study progress and results.
- Create an avenue for all parties to provide input through in-person meetings, webinars, or the project website.

With these objectives in mind, the FRA established a Stakeholder Planning Group (SPG) to provide technical feedback, policy guidance, and ongoing support of the necessary institutional arrangements to fulfill the future vision of the plan. The SPG consisted of over 40 participants representing a diverse array of entities with an interest in an intercity passenger rail network in the Midwest, including state DOTs, metropolitan planning organizations (MPO), councils of government, transit agencies, Amtrak, freight railroads, and passenger rail advocacy groups. The SPG consisted of four main groups:

- FRA – MWRRP study lead and sponsor.

- Lead stakeholders – Representatives of the 12 state DOTs and MIPRC.
- Additional stakeholders – Thirty additional stakeholders, representing chambers of commerce, regional railroads, advocacy groups and others, nominated by state DOT representatives and selected by the FRA to achieve geographic and subject-matter diversity.
- Interested parties – The FRA invited participation from interested parties who were kept informed about the purpose and progress of the study and were invited to listen in and provide comments during the SPG meetings.

Figure 4 depicts these entities and their relative involvement in the study. Appendix A provides a full list of stakeholders.

The MWRRP study took place during two phases:

- Phase I in 2017 completed market assessments and established an initial network concept.
- Phase II in 2020 updated the previous work with refinements made to the CONNECT model.

The SPG offered feedback and guidance to the network planning process in both Phase I and Phase II. Four SPG meetings were held during the Phase I study process, with an additional five meetings in the Phase II study process (each held virtually and of shorter duration than the Phase I meetings due to the effects of the COVID-19 pandemic). The meetings were structured as facilitated workshops where the SPG could provide feedback to the study team. Table 1 presents summary-level details for each of these workshops.

A study website provided a primary source for materials as they were developed and solicited comments and feedback throughout the process.

Figure 4. Stakeholder Planning Group

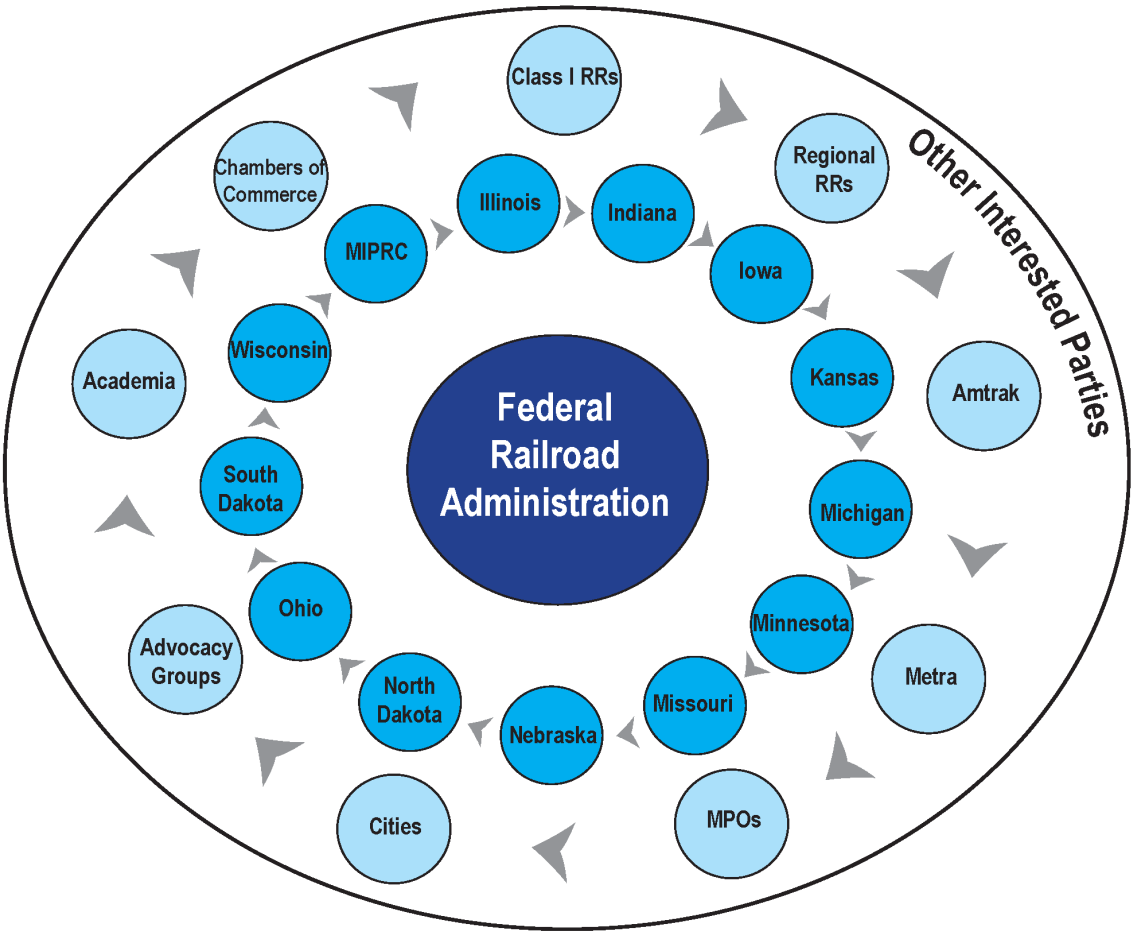


Table 1. Stakeholder Workshops

WORK-SHOP	DATE	LOCATION	PRINCIPAL TOPICS	ADDITIONAL TOPICS
1	Phase I March 8, 2017	Chicago, IL	▪ Regional transportation assessment workshop	▪ FRA's project goals ▪ Lessons learned from previous study ▪ Discuss guiding principles ▪ Identify existing plans, challenges and gaps ▪ Introduce CONNECT ▪ Governance overview discussion
2	Phase I June 7, 2017	St. Paul, MN	▪ CONNECT Model In-depth	▪ Provide detailed review of CONNECT model process ▪ Share and review first level CONNECT model results ▪ Present results of Lead Stakeholders Governance workshop 1
3	Phase I September 13, 2017	Detroit, MI	▪ Discuss building blocks and obtain guidance on selected network elements	▪ Breakout groups discuss network element results ▪ Present results of Lead Stakeholders Governance workshop 2
4	Phase I December 6, 2017	Chicago, IL	▪ Presentation of draft prioritized regional rail network, Phase I	▪ Discuss results and receive input ▪ Present results of additional technical analysis ▪ Outline governance recommendations ▪ Discuss actions and next steps
5	Phase II March 17, 2020	Web Meeting	▪ Present CONNECT updates and Phase II purpose	▪ Project purpose, goals, and principles ▪ Review Phase I Draft Network ▪ Present CONNECT database and model updates ▪ Define Phase II study purpose ▪ Re-assessment of baseline conditions with updated CONNECT database
6	Phase II April 21, 2020	Web Meeting	▪ "State of the States"	▪ Presentations and discussions by stakeholder states and MIPRC updating the SPG on rail issues within their jurisdictions
7	Phase II September 15, 2020	Web Meeting	▪ Phase II adjustments and exploring alternative networks	▪ Comparison of network performance in Phase I and Phase II ▪ Discussing optimization goals and metrics for Phase II network refinement ▪ Exploration of potential network adjustments ▪ Discussion on network performance priorities
8	Phase II September 22, 2020	Web Meeting	▪ Small group and full group discussions	▪ Review feedback and questions from Sept 15, 2020, meeting ▪ Small breakout groups discuss network priorities and preferences ▪ Full group discussion
9	Phase II October 27, 2020	Web Meeting	▪ Presentation of draft prioritized regional rail network, Phase II	▪ Review feedback from September 2020 meetings ▪ Present additional analyses and findings ▪ Introduce proposed draft network for Phase II ▪ Full group discussion and additional feedback on network

1.6.2 Introduction to CONNECT

A key component to the analysis efforts for the study was the use of the CONNECT, a sketch planning tool that estimates the overall performance of intercity passenger rail corridors and networks. The Excel-based tool assesses the performance of a proposed intercity passenger rail corridor as part of a larger network. Originally developed as part of the FRA's Southwest Multi-State Rail Planning Study, CONNECT analyzes corridors between Core-Based Statistical Areas (CBSAs) and is intended for use at the outset of the study process, before detailed corridor studies are undertaken. The U.S. Office of Management and Budget defines CBSAs as geographic regions consisting of counties or equivalent entities associated with at least one urbanized cluster with a population of at least 10,000, plus adjacent counties having a high degree of social and economic integration measured through commuting to work. [6]

CONNECT was used in the Midwest to build a draft intercity passenger rail network, including associated service plans, operational data, and the estimated financial and operational performance of the network. CONNECT produces a range of ridership, revenue, cost, and public-benefit estimates that provide an analytic basis for the decision-making process and a basis for relative comparisons between corridors and networks with various configurations and service options. CONNECT also provides an ability to assess the relative importance of network connectivity.

With Midwest rail networks established in previous planning efforts, the CONNECT model identified the most compelling corridors within the context of a robust regional network, important connected markets and service levels and CBSAs, or urban clusters/areas of at least 10,000 people, that would perform best in the context of an overall rail network.

CONNECT is not a substitute for detailed corridor and project planning and does not produce investment-grade results. The model does not account for intermediate- or smaller-city potential stations between CBSAs on a corridor. Furthermore, the ridership, revenue, capital cost, operations and maintenance (O&M) cost, and public-benefit outputs represent only order-of-magnitude estimates of potential corridor and network performance.

CONNECT facilitates testing of intercity passenger rail networks by allowing user-defined inputs, which the model then uses to calculate estimates of financial and operational performance of a network. CONNECT can help illustrate the importance of connecting markets and their potential impact on corridor and network performance. As described in Section 3, the MWRRP team utilized CONNECT to inform network planning and analysis. Section 3.2 provides more detailed information about CONNECT, including intended uses and limitations.

[6] Core-Based Statistical Areas definition based on Office of Management and Budget (2015). Metropolitan and Micropolitan Statistical Areas. https://www.census.gov/geo/reference/gtc/gtc_cbsa.html

1.6.3 Guiding Principles for Midwest Regional Rail Network Planning

The following series of guiding principles for the MWRRP emerged during the first stakeholder workshop and were ranked in order of importance by the SPG:

1. Maximize the utility of capital investment across the full range of potential markets and passenger types.
2. Improve regional and intercity rail connections between small- and mid-sized cities and large metropolitan areas and among mid-sized cities within the Midwest.
3. Advance corridors that maximize ridership.
4. Build toward the maximum viable service tier for corridors in the network.
5. Encourage short-term capital investment consistent with state plans and the long-term network vision.
6. Support improvements that are mutually beneficial to passenger and freight rail.
7. Minimize the friction of passenger transfers.
8. Advocate for regional networks that support national and urban needs.
9. Maximize economic opportunities from passenger rail corridor development.
10. Consider regional and intercity rail connections to major airports within the region.

These principles were instrumental throughout the planning process, in particular during the iterative analysis efforts preceding the development of the draft rail network.

Beyond the technical elements of the service network planning, several additional recommendations were identified by the SPG as important to consider during the planning process:

- Broaden the focus beyond Chicago as the sole hub and consider other large metro regions.
- Consider whether it is more important to focus on faster travel times or increased service frequency.
- Include overall mobility improvement (e.g., multiple modes, seamless transfers).
- Consider short- and mid-term plan recommendations from states and others, not just 40-year plans.
- Identify mutual benefits to passengers and the freight industry.
- Bring the states together continuously throughout the process.
- Provide rural- and small-area service as part of a national network.

2. Planning Context

Population, travel demand, and economic activity shape the transportation planning context in the Midwest. All three of these planning factors influence the success of intercity passenger rail. As part of defining this context and the current baseline conditions, a market assessment was conducted to evaluate the current travel market and demand to understand travel patterns by mode between major markets. Understanding these dynamics is critical to planning for rail service designed to meet the needs of travelers and to compete with other travel modes. Future population growth projections were also evaluated to assess where population growth could occur over time and how that growth could affect travel patterns. This chapter examines these three key planning factors for the Midwest study area and focuses on data relevant to assessing the appropriate approach for intercity passenger rail development in the 12-state Midwest study area. This high-level information informed the identification of corridors that could be included in a multi-state network.

2.1 STUDY AREA OVERVIEW

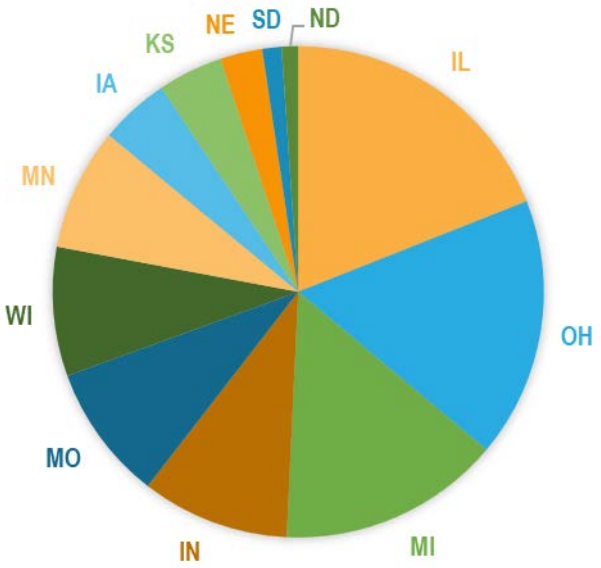
The 12 states of the Midwest encompass over 820,000 square miles and include Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Complementary jurisdictions from some bordering states and Canada were also included in analyses for key markets that were within 500 miles of Chicago.

2.1.1 Population

The total estimated population of the Midwest in 2016 was 67,676,480 and accounted for roughly 21% of the entire U.S. population.[7] In 2016, Illinois, Michigan, and Ohio were the top three most populous Midwest states and accounted for more than half of the region's population (Figure 5). Eleven of the study area states experienced population growth between the 2000 census and 2016. Michigan was the lone exception with a 0.3% drop. Besides North Dakota with a 14.6% growth, none of the states grew faster than the national average of 13%.

[7] 2016 U.S. Census American Community Survey 5-year estimate. Note: This study concluded before the updated 2020 Census figures were made available.

Figure 5. Population Distribution of Midwest States



Source: U.S. Census Bureau, 2016 ACS 5-Year Estimate

According to 2017 U.S. Census records (Table 2), Chicago was by far the most populous of the Midwest cities with over 9.5 million people, followed by Detroit (4.3 million), and Minneapolis–St. Paul (3.6 million).

Table 2. Midwest Metropolitan Area Population Growth

CITY	2017 POPULATION	CHANGE SINCE 2010	PERCENTAGE CHANGE
Chicago	9,533,040	71,499	0.8%
Detroit	4,313,002	16,685	0.4%
Minneapolis–St. Paul	3,600,618	251,760	7.5%
St. Louis	2,807,338	19,575	0.7%
Cincinnati	2,179,082	64,396	3.0%
Kansas City, Missouri	2,128,912	119,574	6.0%
Columbus, Ohio	2,078,725	176,724	9.3%
Cleveland	2,058,844	-18,427	-0.9%
Indianapolis	2,028,614	140,524	7.4%
Milwaukee	1,576,236	20,282	1.3%

Source: U.S. Census Bureau

Many cities in the Midwest have experienced population growth since 2010, consistent with trends across the country and global migration to urban centers. From 2010 to 2017, for example, Columbus, Ohio's population increased over 9%, adding 176,724 residents, followed by population increases in Minneapolis–St. Paul (8%), and Indianapolis (7%). Chicago, Detroit, and St. Louis experienced more modest population gains of under 1% since 2010 (Table 2).

Population Use in CONNECT Analysis

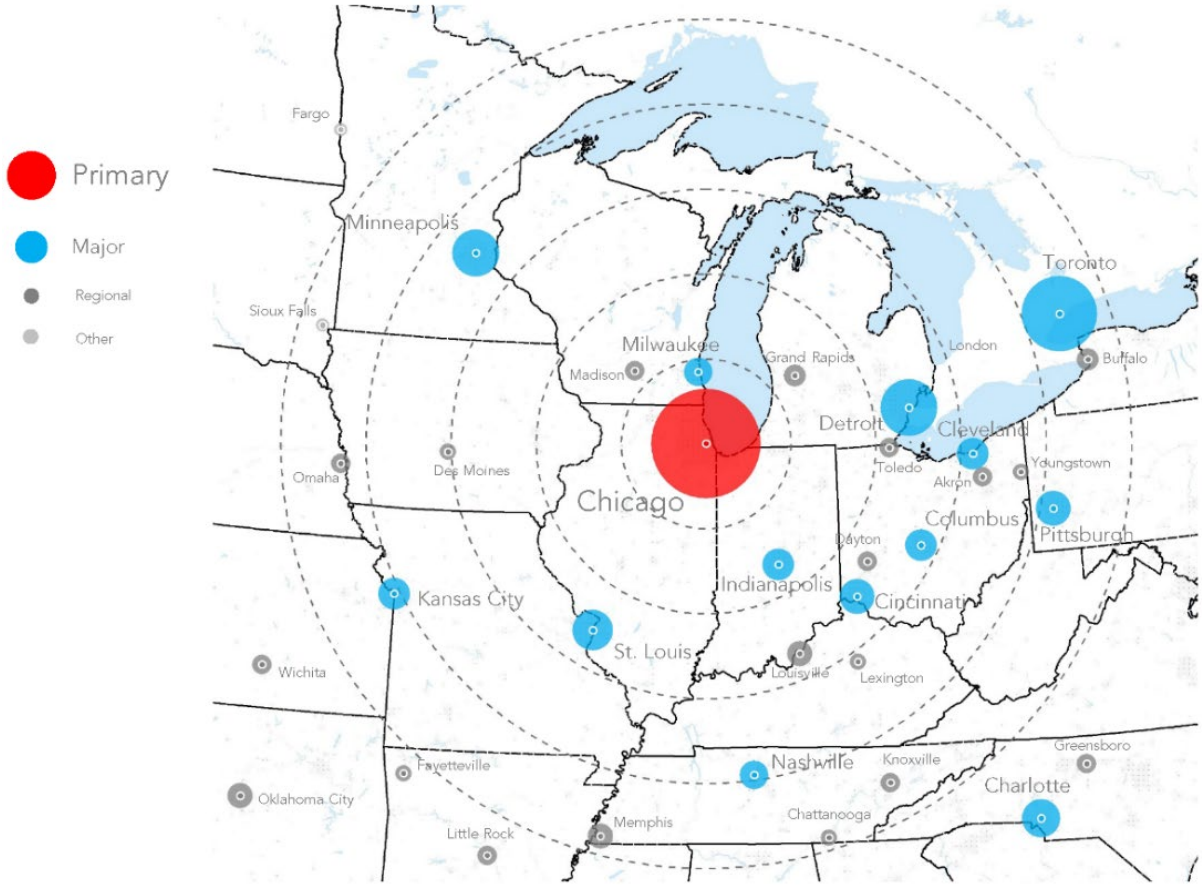
For purposes of the analysis efforts in CONNECT, the baseline conditions and market assessment were conducted using data from the CONNECT model, which uses data aggregated to the CBSA. CBSAs are generally subdivided into two smaller geographic units: Metropolitan Statistical Areas (which contain at least one urbanized area with a population of 50,000 or more) and Micropolitan Statistical Areas (which contain an urban core with a population between 10,000 and 50,000). U.S. Office of Management and Budget defines CBSAs to provide a nationally consistent set of geographic entities for use in tabulating and presenting statistical data related to the nation's demographics.

Twenty-eight specific CBSAs in the study area (including "complementary jurisdictions") within 500 miles of Chicago were identified for a detailed market analysis and divided into four categories:

- Primary city: largest CBSA in the Midwest
- Major cities: CBSA population greater than 1.5 million
- Regional cities: CBSA population greater than 500,000
- Other cities: largest city in their respective state, but the CBSA population is less than 500,000

Figure 6 shows the CBSAs identified for analysis by category. Chicago is by far the largest CBSA in terms of population and is considered a primary city. Within 500 miles of Chicago, 12 CBSAs are categorized as major cities, 13 as regional cities, and 2 as other cities.

Figure 6. Midwest Core-Based Statistical Areas



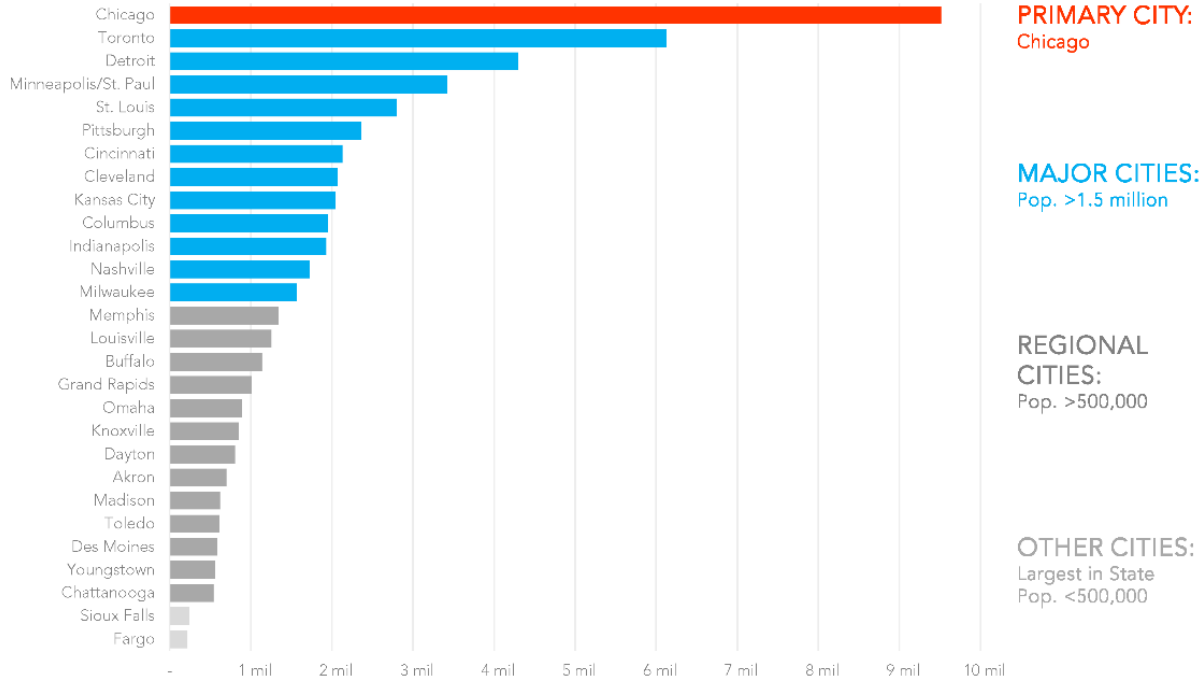
Source: U.S. Census Bureau

The initial selection of these CBSAs demonstrates the geographic differences in the locations of the cities throughout the Midwest. For example, the eastern portion of the study area has more major cities—clustered in Indiana, Michigan, and Ohio—than the western portion of the study area. These types of geographic variances were reflected in the technical process and the subsequent draft network described in later chapters of this document.

With a population of approximately 9.5 million people, Chicago is much larger than any other CBSA in the Midwest. The next largest, although outside the United States, is Toronto at just over 6 million people.[8] However, the Midwest boasts a significant number of CBSAs with populations greater than 1.5 million, suggesting that there could be travel demand for improved rail connections between these markets. Figure 7 shows the CBSAs ranked by their population.

[8] Zones in Canada are Census Metropolitan Areas as defined by Statistics Canada.

Figure 7. Midwest Core-Based Statistical Areas in the Midwest by Population

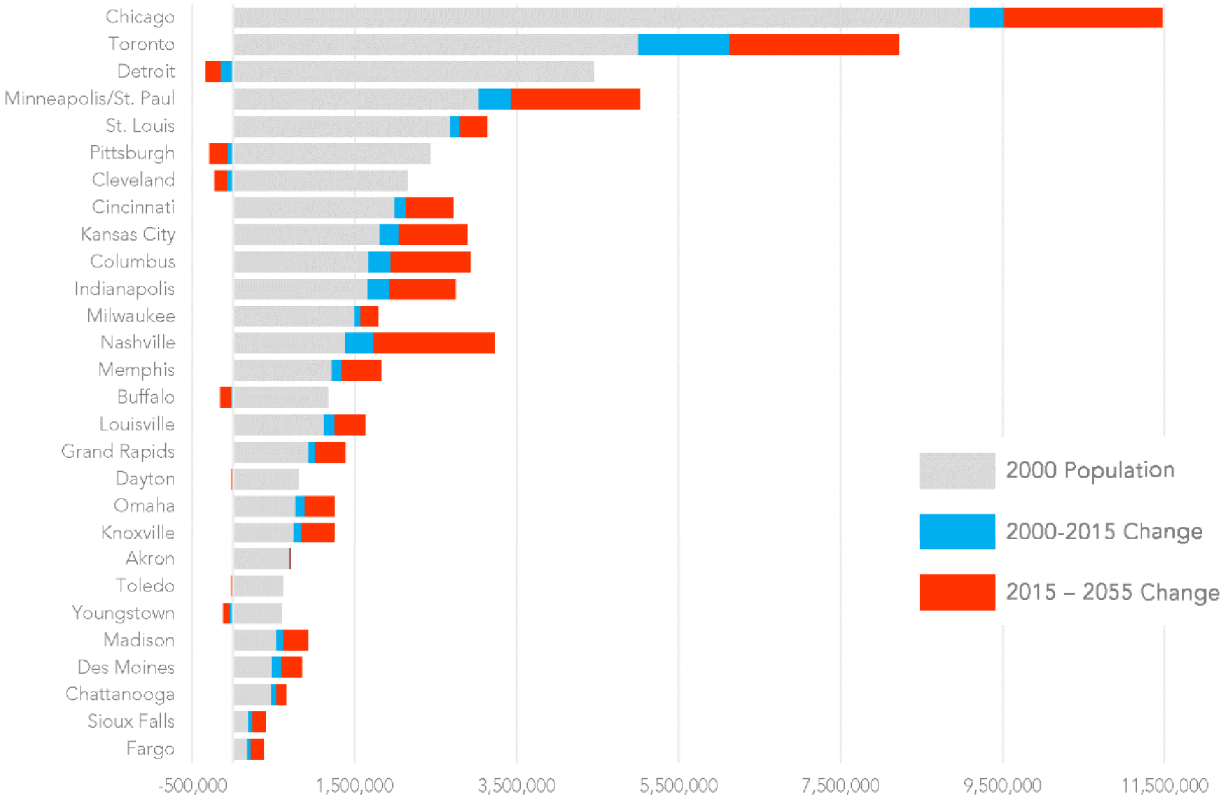


Source: U.S. Census Bureau

CONNECT includes population estimates for 2000 and 2015 for each CBSA, as well as population projections out to year 2055.[9] As shown in Figure 8, population in most of the CBSAs grew from 2000 to 2015, but some grew more significantly than others. These estimates predict that Chicago will still be the largest CBSA in terms of population in 2055. However, many major cities show similar or greater absolute growth values, underscoring the economic strength and importance of these other metropolitan areas (e.g., Minneapolis-St. Paul, Nashville, and Toronto).

[9] Population estimates and projections from CONNECT are derived from Woods and Poole Economics, Inc., data.

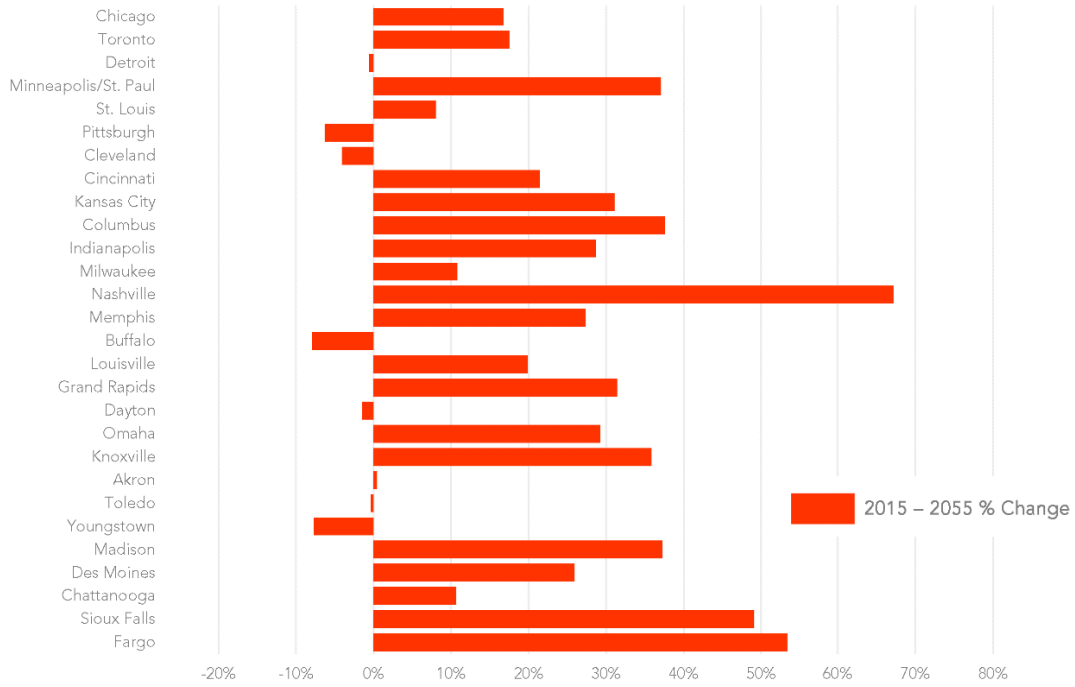
Figure 8. Population Projection to 2055 by Midwest Core-Based Statistical Areas



Source: U.S. Census Bureau and Woods and Poole Economics, Inc.

In terms of growth rate estimates, many major and regional cities (such as Columbus, Indianapolis, Madison, Nashville, and Minneapolis-St. Paul) are projected to grow more quickly than Chicago (Figure 9). Notably, these estimates also show declining populations for Buffalo, Cleveland, Dayton, Detroit, Pittsburgh, Toledo, and Youngstown through 2055. Many of these cities are in Michigan or Ohio, which showed no growth and low growth, respectively, in state population from 2000 to 2015.

Figure 9. Population Growth Rate for Midwest Core-Based Statistical Areas (2015–2055)



Source: U.S. Census

2.1.2 Economy

The Midwest has a strong agricultural and manufacturing economy. These industries not only supply jobs to residents, they also helped build the rail infrastructure in many Midwestern states whose agricultural and manufacturing goods are shipped via rail. Understanding the Midwestern economy and its relationship to rail and the transportation system is important context for this planning effort.

The Midwest is a goods-producing region. Common nicknames such as "America's Breadbasket," and "Industrial Heartland" are synonymous with the 12-state region. The states' combined gross domestic product totaled $3.766 trillion in 2016—20% of the nation's whole.[10]

According to the 2012 USDA Census of Agriculture, the Midwest's 8.77 billion bushels of corn accounted for 85% of the country's total corn production, its 2.35 billion bushels of soybeans represented 80% of the country's total soybean production, and its 1.06 billion bushels of wheat was just under half of the country's total wheat production. The region's other agricultural industry highlights include Iowa and Minnesota's 25.75 and 8.86 million hogs, respectively (30 and 10% of the U.S. total), the 2.39 and 1.39 million heads of cattle in Kansas and Nebraska (32 and 18%), and Wisconsin's $4.95 billion of milk sales (14% of the U.S. total).

The Midwest region accounted for $622.3 billion worth of manufactured goods and 3.7 million manufacturing employees in 2016. These figures equated to 28.5% of the nation's manufactured products and one-third of the nation's manufacturing employees.

Manufacturing and agriculture have been strong economies in the Midwest. Historically, these economies have contributed to the need for the movement of goods via rail. Rail in the Midwest is an important link in the transportation logistics and supply chain industry which benefits and affects passenger movement because many passenger lines also interact with or use freight rail lines for service.

2.2 TRANSPORTATION NETWORK AND TRAVEL DEMAND

The transportation system serving the Midwest study area is diverse in modes and the markets served. Congestion on the transportation network reduces reliability, increases costs, and decreases safety, threatening economic growth, environment sustainability, and community livability. As auto and air travel continue to grow, demands for alternative mobility solutions will likely grow.

This section summarizes the Midwest study area's existing transportation system, including rail, highway, air, intercity bus, and ports. This section also provides an overview of the planned improvements that could affect the capacity of each mode and influence the viability of a regional rail network.

2.2.1 Rail Network

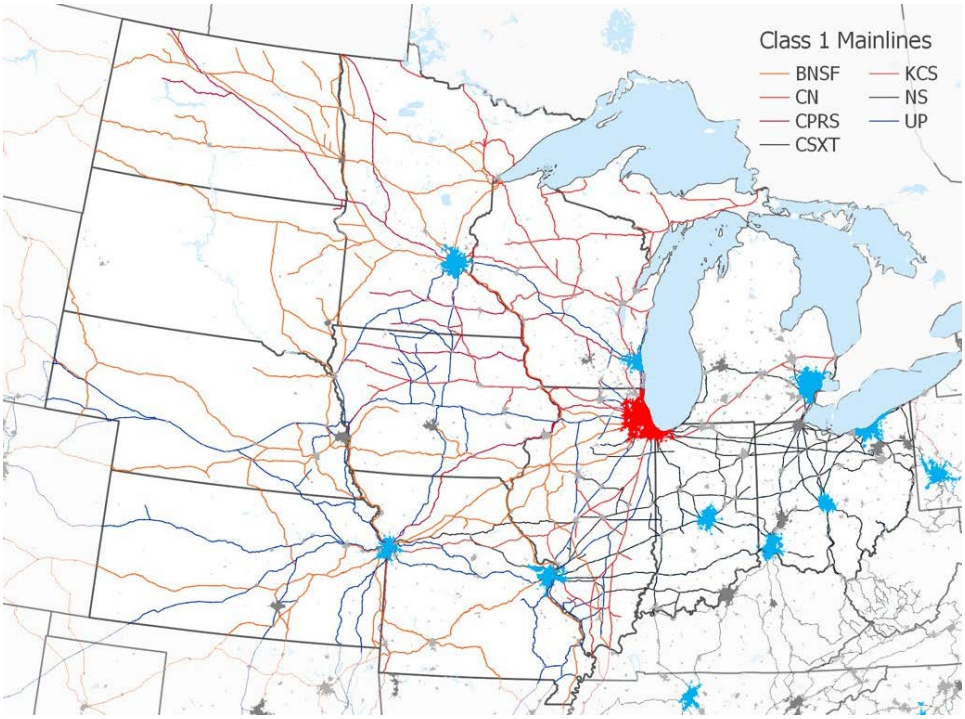
The Midwest has an extensive rail network with Chicago as the hub. All eight Class I rail carriers which operate in the United States operate in the region.[11] Amtrak provides passenger rail service to 11 of the 12 Midwest study area states. Commuter rail systems can be found in Chicago and Minneapolis.

Freight Rail

Freight railroads operated a total of 47,801 rail miles in the region in 2017, with 33,184 belonging to Class I rail freight carriers (Figure 10). The 12-state Midwest study area's total rail route-miles accounted for 35% of the nation's total and its 69,293 employees represent about 38% of all rail employees in the country. Figure 10 depicts the Class I rail freight carrier mainlines in the Midwest.

[11] Class I rail carriers are defined by the Surface Transportation Board (STB) to be any carrier that has annual operating revenues greater than $250 million indexed to 1991-level dollars.

Figure 10. Midwest Class 1 Rail Network



Source: National Transportation Atlas Database

All seven Class I freight railroads which operate in the United States operated in Illinois in 2017, six in Missouri, five in Indiana and Iowa, four in Kansas, Michigan, Minnesota, Ohio and Wisconsin, and the states of Nebraska, North Dakota, and South Dakota each have two (Table 3).

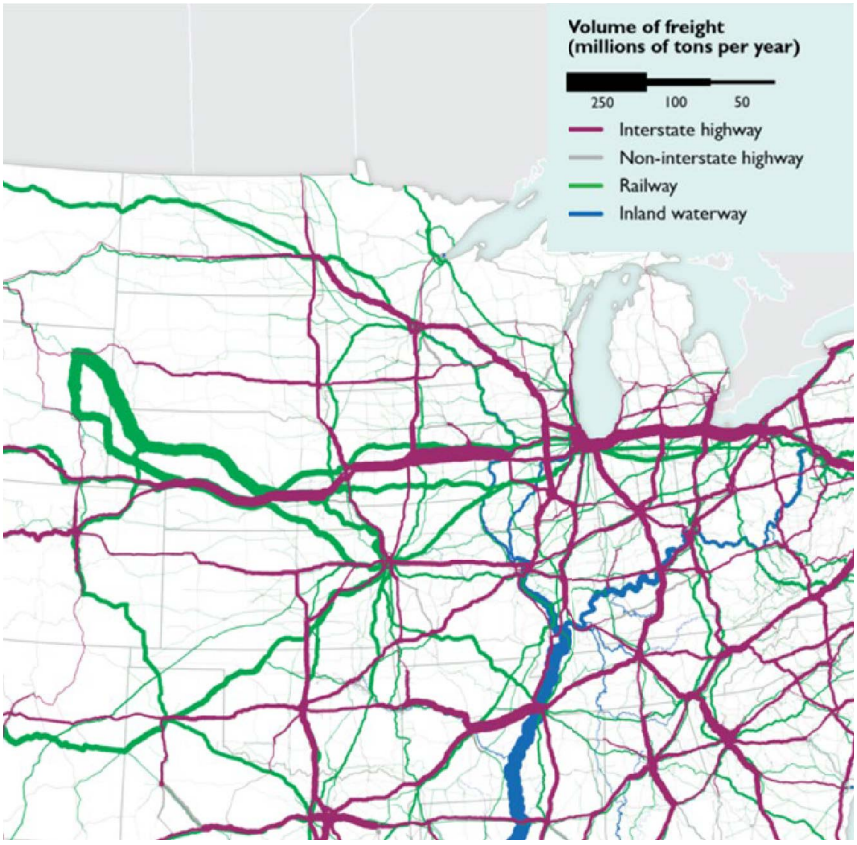
Table 3. Class I Rail Carrier Operations by State

State	Rail Carriers
IL	BNSF, CN, CP, CSX, KCS, NS, UP
IN	CN, CP, CSX, NS, UP
IA	BNSF, CN, CP, NS, UP
KS	BNSF, KCS, NS, UP
MI	CN, CP, CSX, NS
MN	BNSF, CN, CP, UP
MO	BNSF, CP, CSX, KCS, NS, UP
NE	BNSF, UP
ND	BNSF, CP
OH	CN, CP, CSX, NS
SD	BNSF, CP
WI	BNSF, CN, CP, UP

Source: Association of American Railroads, State Freight Railroad Industry Snapshots
Rail Carriers: BNSF Railway (BNSF); Canadian National Railway (CN), Canadian Pacific Railway (CP), CSX Transportation (CSX), Kansas City Southern Railway (KSC), Norfolk Southern Railway (NS), and Union Pacific Railroad (UP).

As illustrated in Figure 11, the highest volume freight railroad traffic lanes originate in the Powder River Basin of northeast Wyoming and travel southeast to Kansas City. Several rail traffic lanes extend into and out of Chicago connecting the nation's rail hub to other major freight rail regions including the West Coast (California and the Pacific Northwest), St. Louis, Omaha, Texas, the Gulf Coast, and the East Coast.

Figure 11. Freight Density in the Midwest (2017)



Source: U.S. Department of Transportation, Federal Highway Administration Freight Facts and Figures, 2017

Intercity Passenger Rail

Amtrak operates intercity passenger rail service on 17 routes throughout the Midwest with connections to major population centers throughout the country (Table 4), all of which operate, in whole or in part, over rail lines owned by other rail carriers (referred to in this context as "Host Railroads").

Table 4. Amtrak Routes in the Midwest

ROUTE	MAJOR CONNECTIONS FROM CHICAGO	DAILY ROUND TRIPS	ROUTE LENGTH (MI)	TERMINALS	HOST RAILROAD(S)
Blue Water*	East Lansing, Port Huron	1	319	Chicago Port Huron, MI	CN, NS
California Zephyr	Denver, Glenwood Springs, Salt Lake City, Emeryville (San Francisco)	1	2,438	Chicago Emeryville, CA	BNSF, UP
Capitol Limited	Cleveland, Pittsburgh, Washington D.C.	1	780	Chicago Washington, D.C.	CSX, NS
Cardinal	Indianapolis, Cincinnati, Washington D.C., New York City	1	1,147	Chicago New York City	CSX, NS
City of New Orleans	Memphis, New Orleans	1	934	Chicago New Orleans, LA	CN
Empire Builder	Minneapolis–St. Paul, Spokane, Portland/Seattle	1	2,205	Chicago Seattle, WA	Metra, CP, BNSF
Hiawatha*	Milwaukee	7	86	Chicago Milwaukee, WI	Metra, CP
Hoosier State*+	Indianapolis	1	196	Chicago Indianapolis, IN	CSX
Illini/Saluki*	Carbondale	2	309	Chicago Carbondale, IL	CN
Illinois Zephyr & Carl Sandburg*	Quincy	2	258	Chicago Quincy, IL	BNSF
Lake Shore Limited	Albany, New York/Boston	1	959	Chicago New York City/ Boston, MA	CSX, NS
Lincoln Service*	St. Louis	4	284	Chicago St. Louis, MO	CN, UP
Missouri River Runner*	St. Louis, Jefferson City, Kansas City	2	283	St. Louis, MO Kansas City, MO	UP
Pere Marquette*	Grand Rapids	1	176	Chicago Grand Rapids, MI	CSX, NS
Southwest Chief	Kansas City, Albuquerque, Flagstaff, Los Angeles	1	2,265	Chicago Los Angeles, CA	BNSF
Texas Eagle	St. Louis, Dallas, San Antonio	1	2,728	Chicago Los Angeles, CA	BNSF, CN, UP
Wolverine*	Ann Arbor, Detroit, Pontiac	3	304	Chicago Pontiac, MI	CN, NS

Source: Amtrak
* State sponsored
+ Service ended June 30, 2019

Chicago serves as the hub for these Amtrak routes and in 2019, Chicago Union Station was the nation's fourth-busiest station with 3,331,513 passengers.[12] Milwaukee's Intermodal Station was the only other station ranked in the top 25 with 639,713 passengers. [13]

In 2019, the Hiawatha service connecting Chicago and Milwaukee was the most utilized service in the region, carrying approximately 882,000 passengers.[14] The Lincoln Service between Chicago and St. Louis was the second most utilized service in 2019 with roughly 628,000 passengers. The other Amtrak routes in the top five by passenger counts in 2019 included the Wolverine with approximately 501,000 passengers connecting Chicago with Ann Arbor, Detroit, and Pontiac; the Illini/Saluki between Chicago and Carbondale with approximately 267,000 passengers; and the Illinois Zephyr/Carl Sandburg between Chicago and Quincy with approximately 193,000 passengers. In addition, Chicago serves as the hub for Amtrak's national network of long-distance trains, which carry significant passenger volumes both within the region and between the region and the rest of the country.

Commuter Rail

Table 5 provides statistics for the three commuter rail services in the region. Two commuter rail providers offer service in the Chicago region: Metra and the South Shore Line. Metra trains serve more than 100 communities across Cook, DuPage, Will, Lake, Kane, and McHenry Counties with 241 stations along 11 lines emanating from downtown Chicago. In 2018, Metra averaged nearly 290,000 passenger trips each weekday.[15] The South Shore Line is operated by the Northern Indiana Commuter Transportation District (NICTD). Between the South Bend Airport in South Bend and the Millennium Station in Chicago the commuter rail line serves 17 stations and has an average daily ridership of approximately 11,500.[16] In Minnesota, the Northstar Line provides commuter rail service between Minneapolis and Big Lake with stations in Elk River, Ramsey, Anoka, Coon Rapids and Fridley. Nearly 794,000 rides were provided on this service in 2017.[17]

[12] Amtrak Fact Sheet – State of Illinois. March 22, 2021. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/statefactsheets/ILLINOIS19.pdf

[13] Amtrak Corporate Profile. March 22, 2021. https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/nationalfactsheets/Amtrak-Corporate-Profile-FY2019-033120.pdf

[14] Amtrak FY19 Ridership. March 22, 2021. http://media.amtrak.com/wp-content/uploads/2019/11/FY19-Year-End-Ridership.pdf

[15] https://metrarail.com/sites/default/files/assets/2019_fact_book.pdf

[16] https://www.apta.com/wp-content/uploads/2019-Q2-Ridership-APTA.pdf

[17] https://www.metrotransit.org/rail-lines-set-records-as-metro-transit-ridership-tops-819-million-in-2017

Table 5. Commuter Rail Routes in the Midwest

STATE	SYSTEM NAME	OPERATOR	SERVICE AREA	AVERAGE DAILY RIDERSHIP	SYSTEM LENGTH (ROUTE MILES)	NUMBER OF STATIONS
IL	Metra[18]	Metra, BNSF, Union Pacific	Chicago Metro Area	290,000	487.5	242
IL, IN	South Shore Line	Northern Indiana Commuter Transportation District	South Bend, IN to Chicago	11,500[19]	90	19
MN	Northstar	Metropolitan Council*	Minneapolis to Big Lake, MN	2,900[19]	40	7

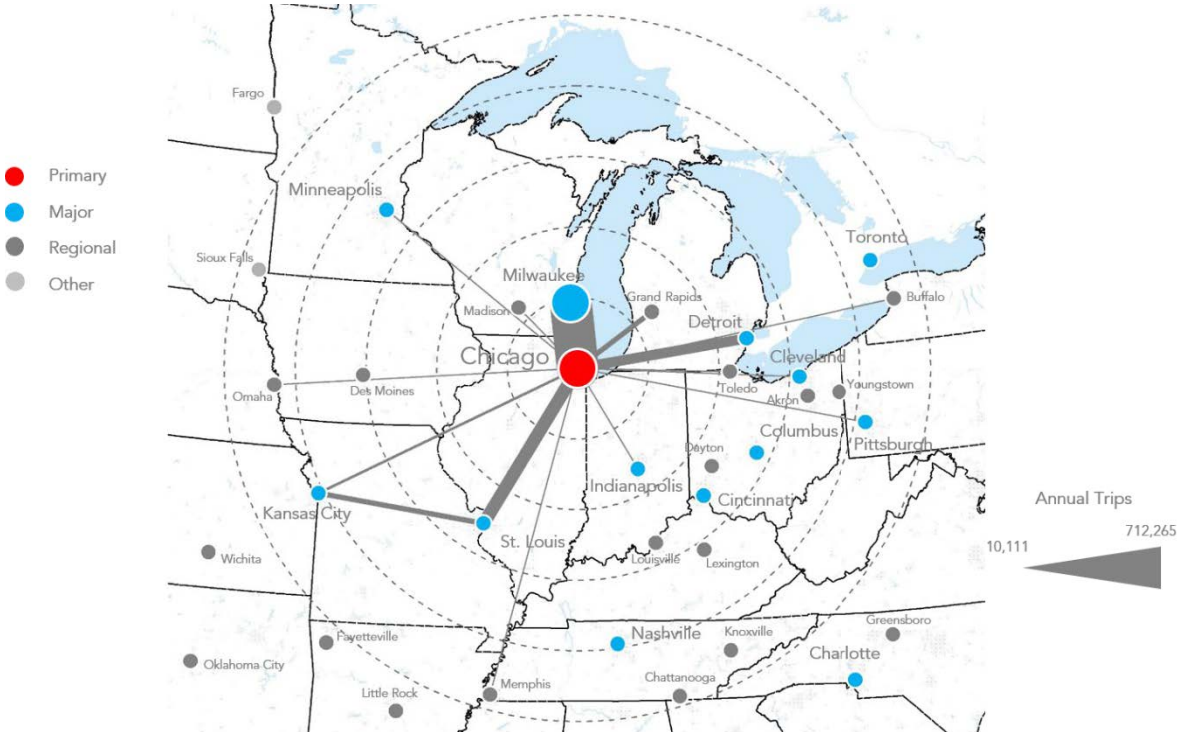
Sources: Metra Factbook 2019, American Public Transportation Association 2019 Q2 Ridership Report
* BNSF is the host railroad

Rail Network Trips

Rail is the third most-used mode for passenger trips within the region. The existing rail network has Chicago as its hub, so it is expected that Chicago would dominate as an origin and a destination. As reflected in data incorporated into CONNECT,[20] all of the top 15 CBSA-pairs for rail involve Chicago, except for the Kansas City–St. Louis trip, which is the fourth most traveled CBSA-pair (Figure 13). Kansas City–St. Louis is notable because it is a popular rail route despite having limited service (only two round trips per day) and a relatively long travel time (5 hours 40 minutes). Chicago to Milwaukee is the most traveled rail route (see Figure 13).

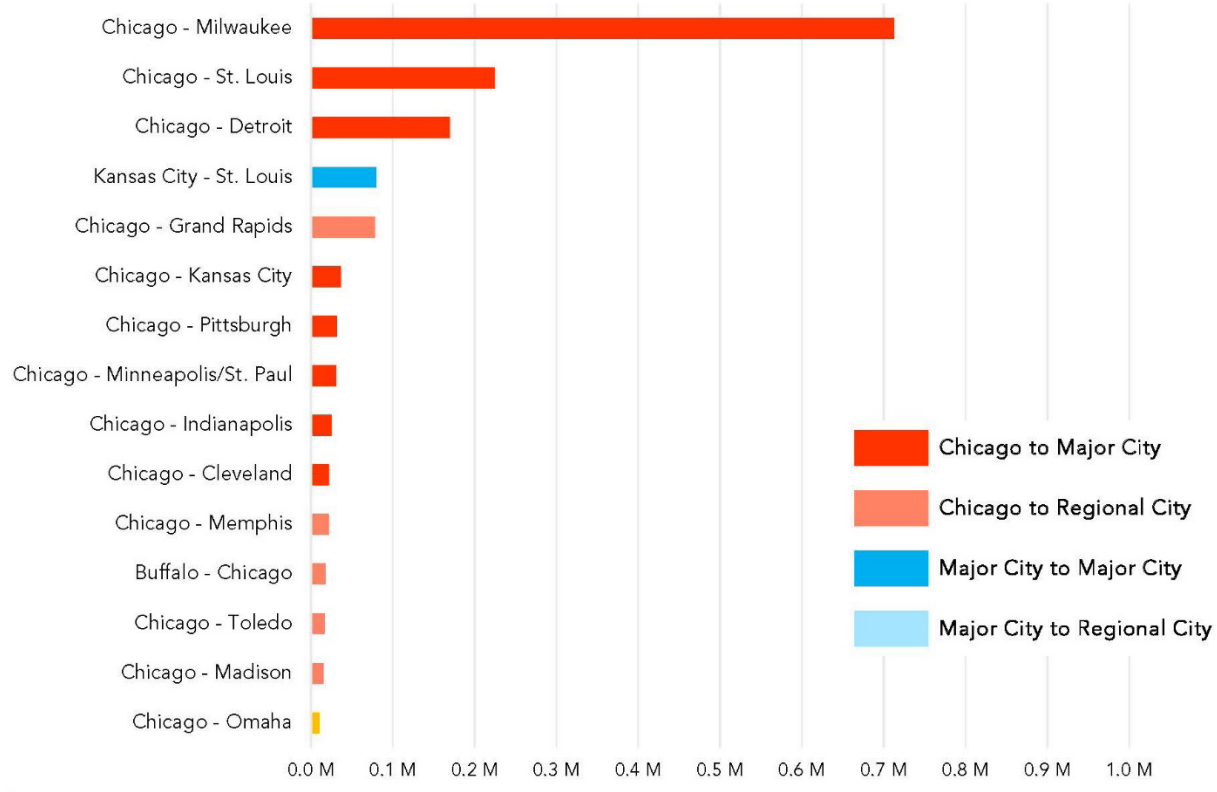
[18] https://metrarail.com/sites/default/files/assets/2019_fact_book.pdf
[19] https://www.apta.com/wp-content/uploads/2019-Q2-Ridership-APTA.pdf
[20] Within CONNECT, existing rail ridership is Amtrak ridership data from FY2015.

Figure 12. Map of Top 15 Core-Based Statistical Area Pairs for Rail Trips (2015)



Note: This map represents origin-destination volumes between city pairs and does not reflect the geography of the existing rail network.

Figure 13. Chart of Top 15 Core-Based Statistical Area Pairs for Rail Trips (2015)



2.2.2 Air Network

The Midwest was home to 5,221 airports in 2019.[21] However, only 165 of these airports recorded commercial passengers, 128 airports recorded freight and mail movements, and 47 are used for military operations. Air customs is available at 132 locations. Roughly three-quarters of the airports (3,934) are privately owned, 1,358 are publicly owned, and the military owns 26 (15 Army and 11 Air Force).

Chicago O'Hare International had more than 81.8 million passengers in 2019, which was more than double the number of passengers for the region's second-busiest airport, Minneapolis-St. Paul International, which had a total of nearly 38.4 million passengers in 2019. Detroit Metropolitan Wayne County was the third busiest airport with 36.3 million passengers. Chicago Midway International ranked fourth in the Midwest with 20.2 million passengers, meaning the two major Chicago airports accounted for over 100 million passengers in 2019. St. Louis Lambert International and Kansas City International both totaled over 10 million passengers with 15.5 and 11.5 million. respectively. Figure 14 shows the busiest passenger airports in the Midwest.

Figure 14. Important Midwest Region Airports for Air Passengers (2019)

Source: U.S. BTS T-100 Market Data, National Transportation Atlas Database

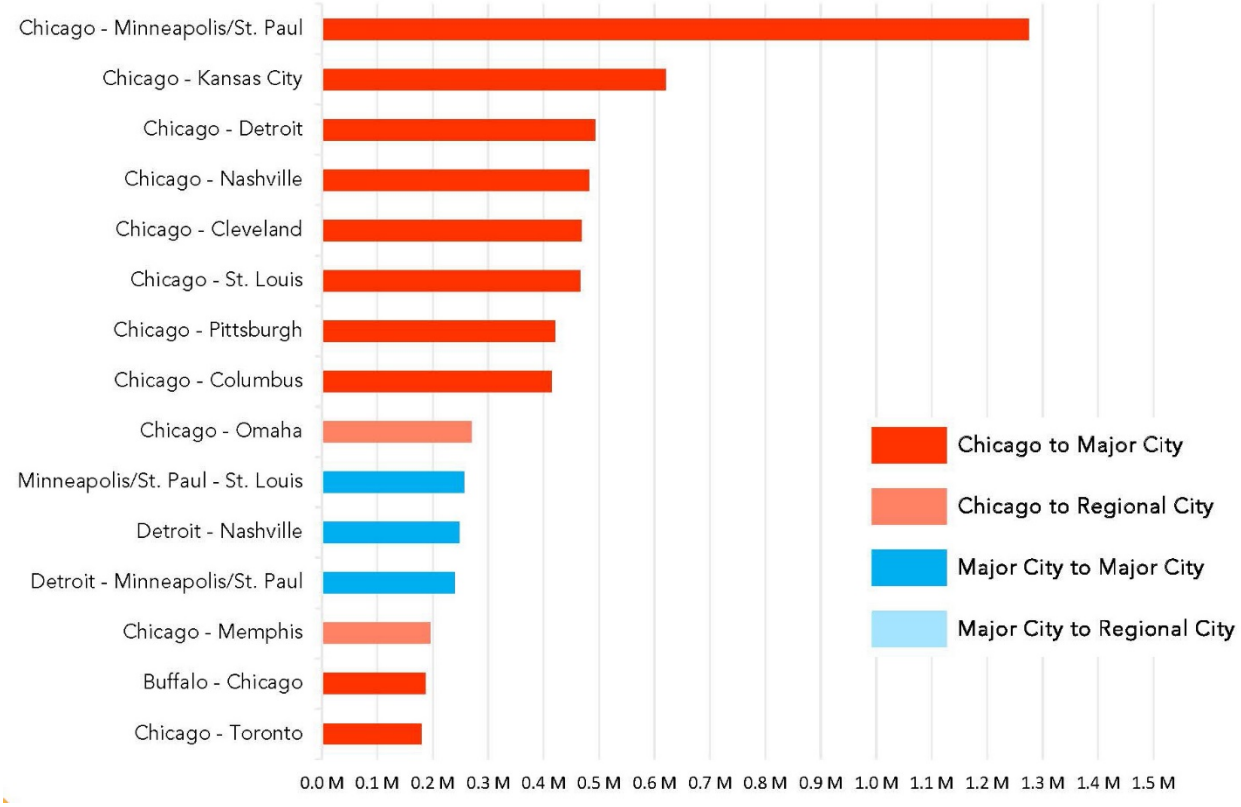
[21] National Transportation Atlas Database

Air Trips

Air travel is the second most utilized mode in the Midwest after auto travel but includes far fewer passenger trips because trips are restricted to cities with commercial air service.

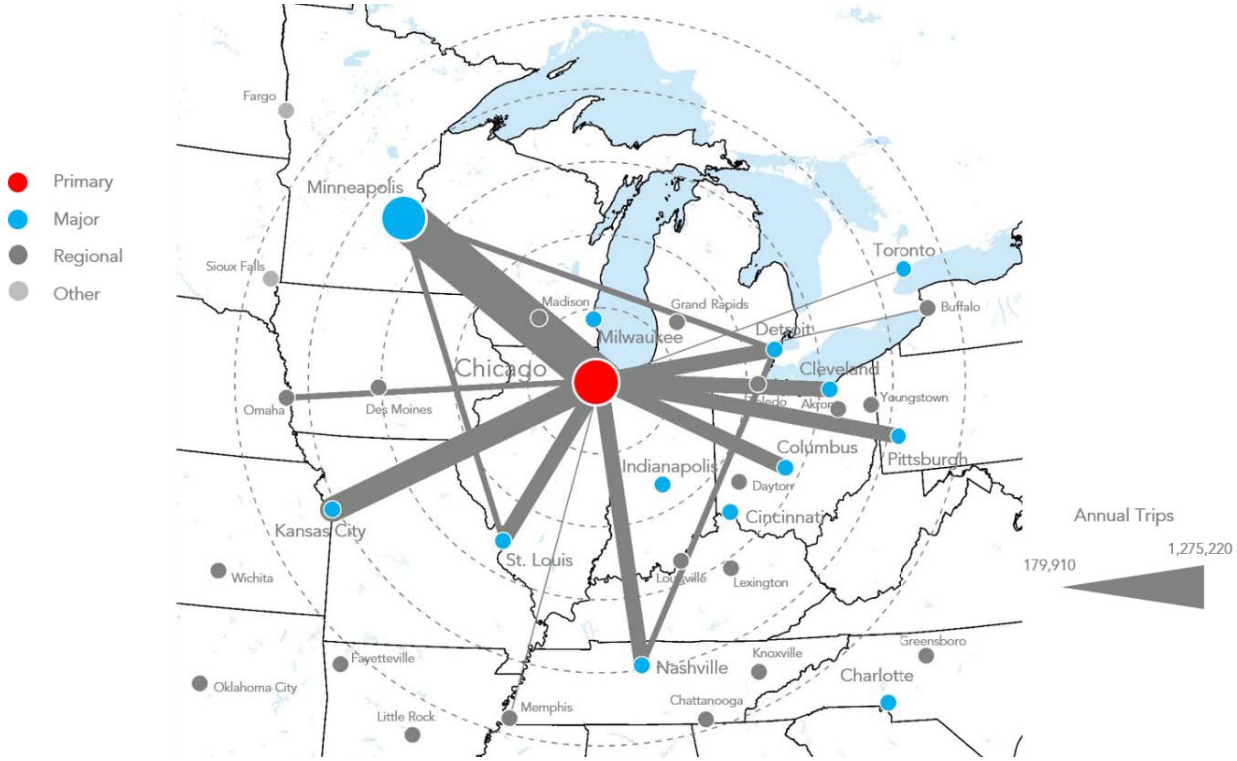
Based on data incorporated into CONNECT,[22] the Midwest's highest volume air CBSA-pairs are those with major airports: Chicago–Minneapolis–St. Paul, Chicago–Kansas City, and Chicago–Detroit. Chicago is on one end of 12 of the top 15 air pairs (Figure 15). Detroit, Minneapolis/St. Paul, and Nashville are the airports in the top non-Chicago CBSA-pairs. Most of the air trips are between markets over 200 miles apart (Figure 16).

Figure 15. Chart of Top 15 Core-Based Statistical Area Pairs for Air Trips (2015)



[22] CONNECT air trip volumes are based on 2015 data from the USDOT's DB1B 10% ticket sample.

Figure 16. Map of Top 15 Core-Based Statistical Area Pairs for Air Trips (2015)



2.2.3 Roadway and Highway Network

The Midwest region is home to roughly 64,400 miles of the national highway system (NHS), 12,600 miles of interstate roadways, 37,600 miles of U.S. highways, and 13,200 miles of the national freight network—all representing over a quarter of the nation's total. Of the 607,751 bridges in the national bridge inventory, over a third (210,439) are in the Midwest.[23] In addition, the 12 Midwest study area states maintain more than 64,000 of state highway. Figure 17 shows the interstates throughout the Midwest study area.

[23] National Bridge Inventory. 2017. Federal Highway Administration.

Figure 17. Interstates within the Midwest Study Area

Source: Federal Highway Administration, FAF4

2.2.4 Automobile Trips

Based on estimates incorporated into CONNECT, of the top 15 CBSA-pairs for auto trips, Chicago is one end of the top four pairs with connections to Detroit, Indianapolis, Milwaukee, and St. Louis.[24] Notably, Chicago - Milwaukee is the greatest auto CBSA-pair with almost twice as many trips as the second most traveled auto route of Chicago - St. Louis. Eight of the next eleven auto CBSA-pairs do not involve Chicago. Most of these are trips within Ohio and between Detroit and other major and regional cities (Figure 18). Most of the auto trips also occur in distances under 300 miles (Figure 19).

[24] Auto trip volumes are estimated using a set of direct-demand models that was estimated based on intercity auto travel data available from a number of state-wide travel demand models and previous rail forecasting studies. The auto direct-demand models predict the demand for intercity auto travel between two CBSAs based on factors such as population and distance. The same direct-demand models are used to forecast current and future auto trips, with future years depending on future estimates of the model inputs.

Figure 18. Chart of Top 15 CBSA-Pairs for Auto Trips (2015)

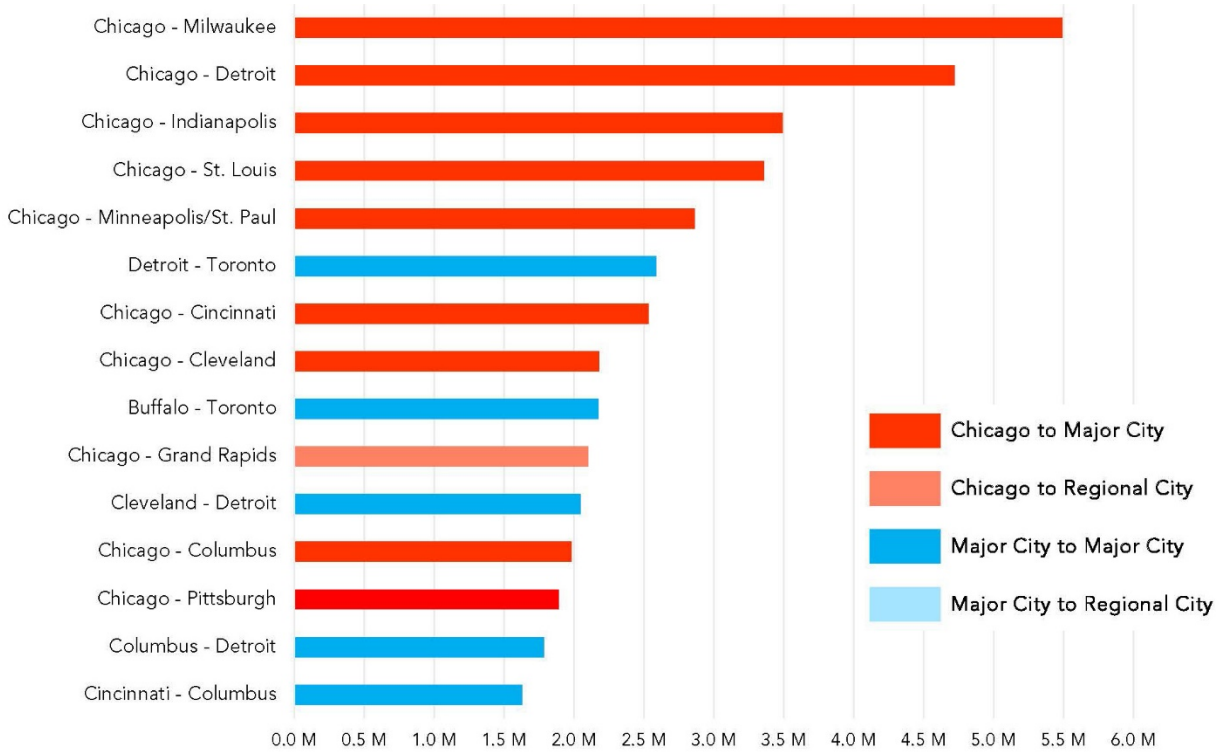
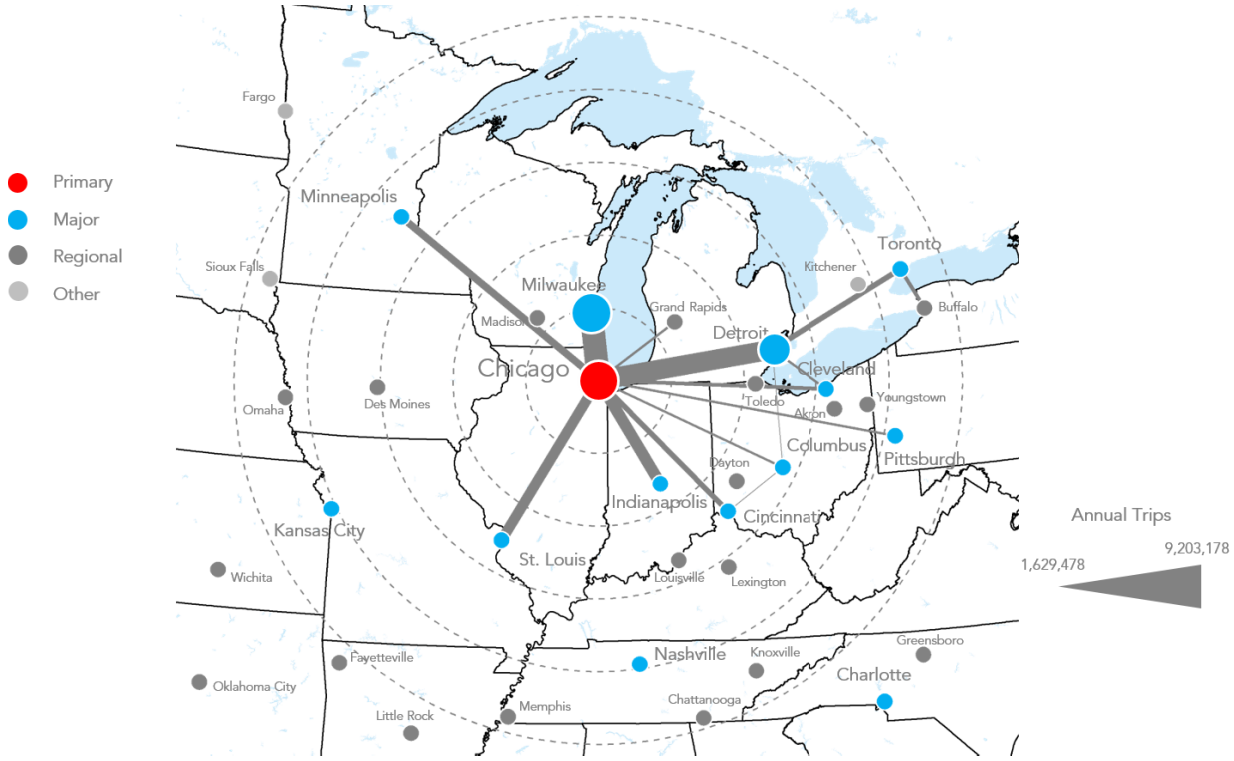


Figure 19. Map of Top 15 CBSA-Pairs for Auto Trips (2015)



2.2.5 Intercity Bus Service

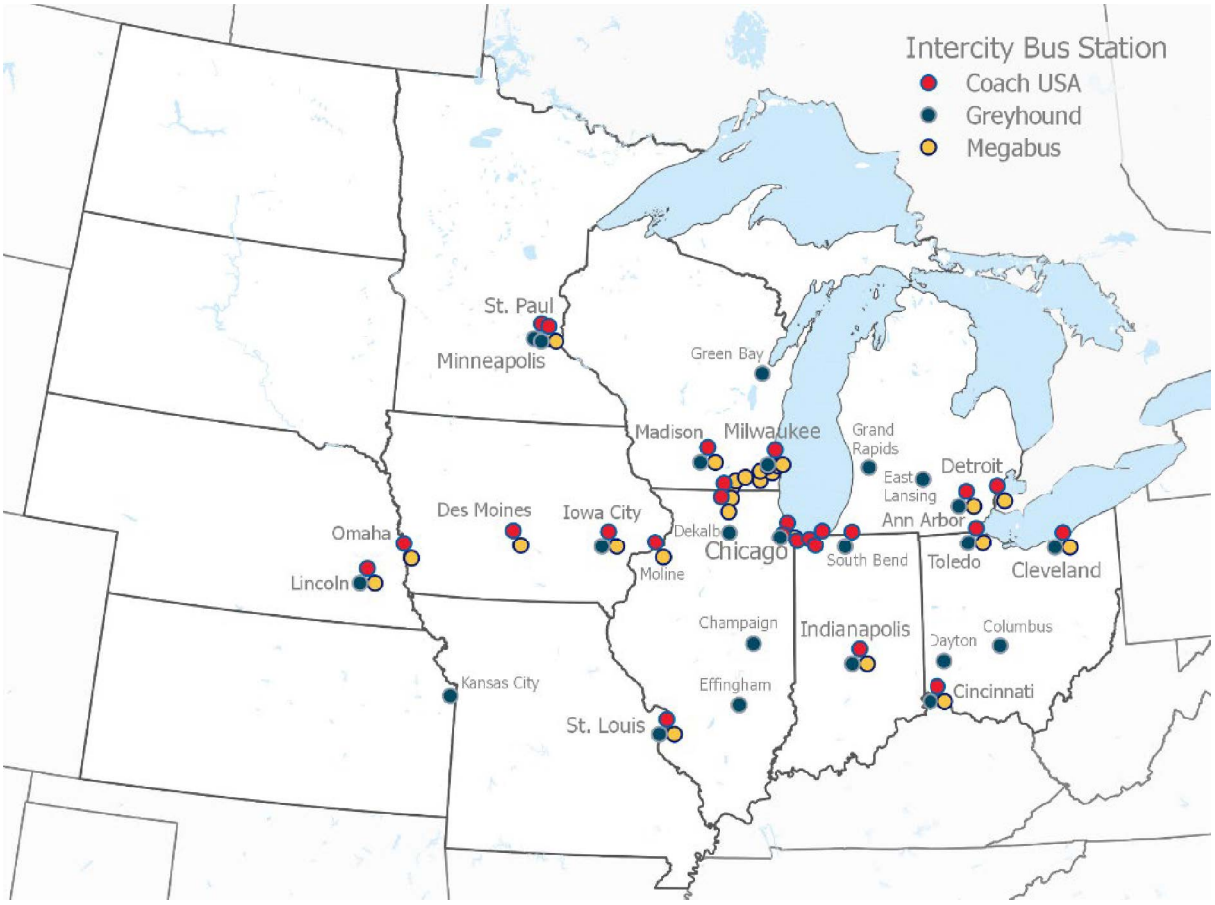
Megabus, Greyhound, and Coach USA provide intercity bus service to many large urban areas in the Midwest. Intercity bus companies Jefferson Lines, Burlington Trailways, Indian Trails, Our Bus, and Baron's Bus Lines also provide regional service to Midwest communities beyond the major population centers.

Megabus provides service to 28 communities in the region. A good portion of these communities are found within southwest Wisconsin and northwest Illinois, providing connections between smaller cities and Madison, Milwaukee, and Chicago. Other services connect Chicago with population centers in Iowa and Nebraska along the I-80 corridor, Chicago with Minneapolis-St. Paul, Chicago with St. Louis, Chicago with Indianapolis and Cincinnati, and Chicago with Ann Arbor, Detroit, and Cleveland via Toledo. Greyhound has stations in 23 locations across nine states in the Midwest region. Coach USA's services largely overlap those of Megabus and Greyhound (Figure 20).

Jefferson Lines has service in over 70 communities in Minnesota as well as 19 in South Dakota and Wisconsin, 13 in Iowa, six in North Dakota, three in Kansas, and one in Omaha, NE. Burlington Trailways makes regional connections between communities in Illinois, Indiana, Iowa, Missouri and Nebraska while Baron's Bus Lines focuses services in Ohio and major population centers in the Chicago region, Indiana, and Michigan. Indian Trails connects over 70 communities in Michigan, while also providing intercity bus service to Chicago, Duluth/Superior, Green Bay, and Milwaukee.

A few intercity bus companies—such as Badger Bus and Wisconsin Coach Lines in Wisconsin, GoBus in Ohio, and Peoria Charter in Illinois—focus on providing service connections in a single state. Suburban Express connects Chicago and multiple college campuses in Illinois, Indiana, and Iowa.

Figure 20. Midwest Cities Serviced by Megabus, Greyhound, and Coach USA

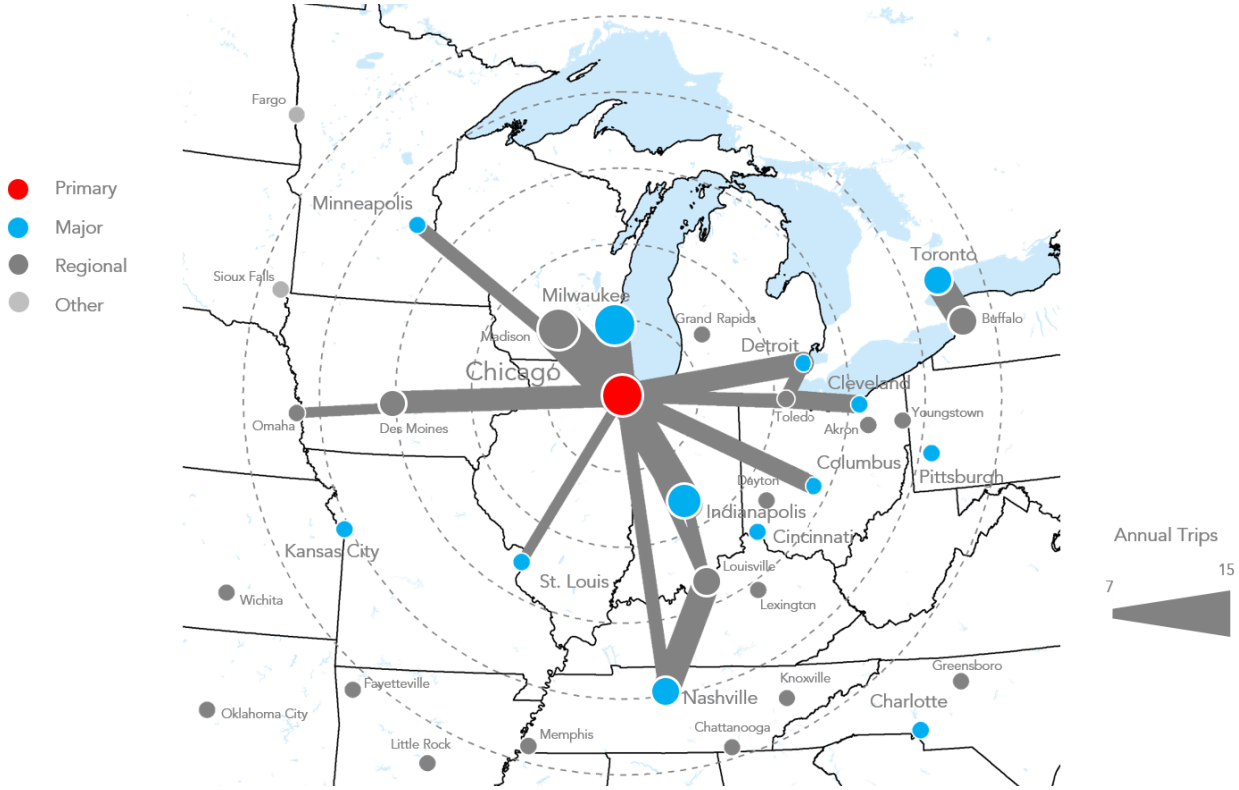


Source: Megabus, Coach USA, Greyhound

Intercity Bus Trips

CONNECT does not include bus trip data for all the selected CBSAs. As a proxy, data on scheduled daily round trips for intercity bus operators were collected. Since these operators dynamically adjust their schedules to demand and price seats so they fill, the number of daily round trips is representative of demand for travel between markets. These do not represent ridership numbers, and at a region-wide level, actual ridership numbers are very small compared to the other three modes. Similar to auto and rail, most bus trips are under 300 miles (Figure 21). However, bus travel reveals different demand patterns with new market pairs appearing. For example, Chicago-Madison and Nashville-Louisville are significant bus markets. Many intercity buses serve college markets whose riders may be more price sensitive than riders of other modes.

Figure 21. Top 15 Intercity Bus CBSA-Pairs in the Midwest



2.3 RECENT AND ONGOING PASSENGER RAIL DEVELOPMENT EFFORTS

As was discussed in Section 1.2, the Midwest states have long been active proponents for the advancement of passenger rail. For the last several decades the states have been at the forefront of building and growing state-supported passenger rail services in this region. States continue to be the most important stakeholder group for advancing and developing intercity passenger rail development in the Midwest.

2.3.1 Midwest Regional Rail Initiative

In 2009, FRA's High-Speed Intercity Passenger Rail (HSIPR) Program provided an opportunity to implement several state-supported corridors identified in the Midwest Regional Rail System. MWRRI issued the Midwest Regional Rail System Service Development Plan—a service development plan (SDP) for the full Midwest Regional Rail System supporting the creation of individual SDPs for each corridor. Eight Midwestern states and the City of Chicago entered into a memorandum of understanding in July 2009, for the purpose of coordinating individual applications to FRA for funding established by the American Recovery and Reinvestment Act of 2009 to develop the Chicago Hub/Midwest High-Speed Rail Corridor. Figure 22 shows the proposed system map of MWRRI in 2004.

Figure 22. Midwest Regional Rail Initiative

Source: Midwest Interstate Passenger Rail Commission

In addition to these collective efforts, individual states or smaller groups of states have advanced a variety of rail corridor studies, feasibility studies, environmental impact statements (EIS), SDPs, and economic benefit studies. Additional efforts have been advanced by groups including MPOs and state and national rail advocacy groups. The remainder of this chapter provides details on the various rail initiatives in the Midwest states.

2.3.2 Illinois

A statewide $45 billion capital plan for infrastructure, state facilities, education, and environmental projects was passed and signed into law in June 2019. The plan contains dollars for rail projects including $100 million for improvements to the Chicago-Carbondale corridor, $122 million for the 10th Street Improvement Project in Springfield, $400 million for the Chicago CREATE program to modernize rail, and other projects discussed below.

Illinois High-Speed Railway Commission

On August 6, 2021, Illinois Governor J. B. Pritzker signed a bill authorizing the formation of the Illinois High-Speed Railway Commission. The Commission has been tasked with creating a statewide plan for a high-speed network connecting Chicago to St. Louis, MO, and will conduct a ridership study and publish results and recommendations about governance, frequency of service, and implementation of the plan. The

new transportation body will consist of the Governor, state legislators, the state Secretary of Transportation, the Mayor of Chicago, and other state and City of Chicago transportation and commerce leaders.

Chicago Union Station

Amtrak, in cooperation with the City of Chicago and other partners, has recently undertaken a series of studies to modernize and improve the layout and passenger flow at Chicago's Union Station, the terminal point for over 50 daily Amtrak trains and 6 of Metra's 11 commuter routes.

Chicago Terminal Planning Study

FRA selected the Chicago Terminal Study for award of grant funding. The purpose of the study is to identify infrastructure investments for improved intercity passenger rail service, long-distance Amtrak trains, and Metra commuter rail services south of the approach into Chicago Union Station.

Chicago to St. Louis

The Chicago–St. Louis High-Speed Rail Corridor is an existing Amtrak corridor. Improvements to this corridor will allow Amtrak's Lincoln Service trains to run between Chicago and St. Louis, MO, at up to 110 miles per hour, cutting approximately one hour from the current travel time. This corridor's improvements cost $1.95 billion, of which $1.5 billion are federal funds (primarily HSIPR Program funds).

Chicago to Detroit/Pontiac

The FRA in partnership with MDOT, INDOT, and Illinois DOT initiated a study to evaluate passenger rail improvements for the Chicago–Detroit/Pontiac Corridor. In 2014, FRA approved and published an Alternatives Analysis for the Project. The goal of the project is to expand service in the corridor to ten daily round trips by 2035 and to reduce delays. The next steps to continue the Project would be a Project level Tier 2 environmental study and Service Development Plan looking at a dedicated passenger track in the corridor segment from south Chicago through Northern Indiana building on previously funded improvements significantly reducing trip time savings and enhancing passenger experience.

Chicago to Dubuque

Recent efforts have been underway to restore passenger rail services between Chicago and Rockford. This project received $275 million from the 2019 Rebuild Illinois capital program, and as of early 2021, has begun preliminary engineering activities. Potential expansion concepts for the corridor between Rockford and Dubuque will continue to be studied.

Chicago to Quad Cities

Illinois DOT is working with Iowa Interstate Railroad and BNSF Railway to reinstate two daily round trips between Chicago and Moline, IL. Improvements on the BNSF were constructed, and Illinois DOT is working to complete design between Wyanet and Moline, IL. The proposed service would begin at Chicago Union Station and terminate at the proposed Moline Multimodal Station and operate at up to 79 miles per hour along the 160-mile corridor.

75th Street Corridor Improvement Project

The largest project to date under the CREATE Program, the 75th Street Corridor Improvement Project (CIP), intends to improve mobility for rail passengers, freight trains, and motorists. This project will eliminate the most congested rail chokepoint in the region where 30 Metra and 90 freight trains cross each other's paths each day. The USDOT awarded $132 million for the 75th Street CIP and Argo Connections in June 2018 for the first phase of construction. [25]

BNSF Connection (Western Avenue Corridor Project)

The BNSF Connection, another CREATE project, completed in May 2019, eliminates train delays by adding new tracks and creating a new direct connection between BNSF's Corwith and Cicero Yards.

Metra Infrastructure Investment Program

In 2017, Metra and its partner railroads launched a $216 million construction program that included major bridge replacements on the Union Pacific North and Milwaukee West Lines, as well as new track segments on the Union Pacific West Line. The program also included improvements to 29 rail stations, replacing 57,000 rail ties and improvements to the signal system.

2.3.3 Indiana

The state-supported Hoosier State intercity passenger rail route was terminated effective June 30, 2019. Indiana's Local TRAX rail overpass program—which is intended to eliminate railroad crossings, increase commuter safety, and improve fluidity in Indiana's communities—awarded $121 million in state funds to 12 cities and counties for projects in 2018 throughout the state.

Chicago to Fort Wayne/Columbus

The Northern Indiana Passenger Rail Association (NIPRA) and the Mid-Ohio Regional Planning Council (MORPC) are seeking to reestablish passenger rail service between Chicago and Pittsburgh via Fort Wayne, IN, and Columbus, OH. They are working on establishing passenger service utilizing existing railroad tracks, reestablishing historical train stations, and operating under a public-private partnership. Initial studies considered trains traveling at a maximum speed of approximately 79 miles per hour and eventually up to 110 miles per hour. NIPRA contracted for a feasibility study for the Indiana portions of the route, which was completed in 2013, and MORPC contracted for pre-NEPA planning activities for the Ohio section of the corridor. MORPC is undertaking further work on the route under its Ohio Rapid Speed Transportation Initiative (see section 2.3.9 Ohio).

Northern Indiana Commuter Transportation District (NICTD)

The NICTD provides commuter service between Chicago's Millennium Station and the South Bend International Airport over the South Shore Line. Construction is expected to start May 2021 to double track the portion of the South Shore Line between Gary and Michigan City. The West Lake Corridor is a proposed eight-mile extension of the South Shore line from Hammond to Dyer, IN.

[25] http://www.createprogram.org/

2.3.4 Iowa

Recent projects to improve existing intercity services include those undertaken on the BNSF's southern tier route across Iowa, over which Amtrak's California Zephyr service operates. These recently completed improvements include the Burlington Bridge Replacement over the Mississippi River at Burlington, IA, and the Ottumwa Subdivision Crossover Improvement Project between Burlington and Creston, IA. The ongoing implementation of positive train control on the BNSF network, including on the southern tier route across Iowa, will have positive impacts to Amtrak services in the state.[26]

Chicago to Council Bluffs, Iowa, and Omaha, Nebraska

Iowa has proposed to expand intercity passenger rail service from Chicago to Council Bluffs, IA, and Omaha, NE. The service vision for this corridor is to provide five round trips per day between Chicago and Omaha, and seven between Chicago and Des Moines, operating at a maximum speed of 110 miles per hour, and was the subject of a Tier 1 Record of Decision in 2013.

Chicago to Iowa City

Iowa received HSIPR funds from FRA to study intercity rail service between Moline, IL, and Iowa City, IA. The Quad Cities – Iowa City Expansion Program would extend Illinois's Chicago to Quad Cities intercity passenger rail service from Moline, IL to Iowa City, IA, with two daily roundtrips at up to 79 miles per hour.

2.3.5 Kansas

Kansas is directly served by one just one long-distance Amtrak train, the Southwest Chief which stops at six stations in the state. Work began on Colfax County's (New Mexico) TIGER IX project in Ingalls, KS, in September 2020 with rail replacement, crossing improvements, and turnout improvements. Project construction in Kansas, Colorado, and New Mexico are expected to continue through 2021. KDOT will begin work in 2021 on a positive train control project between Dodge City, KS, and Las Animas, CO.

Kansas City-Oklahoma City-Fort Worth Corridor

In 2011, KDOT and the Oklahoma DOT initiated a Kansas City-Wichita-Oklahoma City-Fort Worth Passenger Rail Service Development Plan. The route would be an extension of the current state-supported Heartland Flyer service between Fort Worth and Oklahoma City, bringing passenger rail service to Wichita, Kansas, and connecting with the Southwest Chief long-distance route in Newton and the Missouri River Runner service in Kansas City. The proposed state-supported service would use conventional passenger rail equipment and operate at top speeds of 79 miles per hour under an agreement with BNSF.

Amtrak began bus service between Oklahoma City, Wichita and Newton in 2016. Based on the popularity of this service, and local support, there is renewed interest in replacing the bus service with an extension of the Heartland Flyer.

[26] Iowa State Rail Plan. February 2017. Iowa Department of Transportation.

2.3.6 Michigan

Michigan has advanced intercity passenger rail services through more than $511 million in federal funding to promote Michigan's Accelerated Rail Program under FRA's HSIPR Program. Over the past few years, MDOT has leveraged state funds with federal grants to make SOGR improvements to the rail networks within the state.

Chicago to Detroit/Pontiac

MDOT led a multi-state effort in cooperation with Illinois DOT and INDOT to complete a Corridor Investment Plan for the Chicago–Detroit/Pontiac corridor. This has included work on a Tier 1 EIS and project development effort undertaken from 2014 to 2016. A Notice of Intent to prepare an EIS was rescinded by FRA in November 2018 due to the unavailability of funding. However, project-level work will continue in the Corridor as defined in the SDP and approved alternatives analysis.

Enhancements to improve speeds in the corridor up to 110 miles per hour were completed for the segment between Porter, IN, and Kalamazoo, MI, in 2012. Current efforts are focusing on improvements in the Kalamazoo to Dearborn, MI, segment as well as addressing rail congestion between Porter, IN, and Chicago that is causing train delays within Michigan.

Ann Arbor to Detroit

After route and service alternatives were analyzed for the Ann Arbor to Detroit corridor as part of a draft EIS, implementation of regional passenger rail in the corridor is currently being led by the Regional Transit Authority of Southeast Michigan (RTA).

Holland to Detroit

Independently of MDOT, the Michigan Environmental Council published a pre-feasibility study in 2016 examining the possibility for operating passenger rail to connect Holland to Detroit. The study concluded with a recommendation to pursue further investigation of the route via Lansing/Jackson, which had the highest estimated ridership, and via Howell/Ann Arbor, which had the best financial forecasts. However, there is no identified funding for any future work related to this service.

2.3.7 Minnesota

Twin Cities to Milwaukee to Chicago

WisDOT and MnDOT have been pursuing a second daily train between the Twin Cities, Milwaukee, and Chicago on Amtrak's existing Empire Builder route. Final design and construction, as well as initial operations, were selected for funding by FRA under the Consolidated Rail Infrastructure and Safety Improvements (CRISI) and the Restoration and Enhancement (R&E) grant programs. In June 2021, the Minnesota state legislature approved the provision of state matching funds toward the capital improvements necessary to initiate this second daily round-trip service. This important milestone represents the first financial commitment by the state of Minnesota to state-supported intercity passenger rail service in nearly thirty years.

Minneapolis to Duluth/Superior

The Northern Lights Express is a project proposed by MnDOT for intercity passenger rail service between Target Field Station in Minneapolis and the Depot in Duluth. The proposed service would make four round trips per day while operating on an approximately 152-mile corridor owned by the BNSF Railway. The project cleared environmental review in February 2018, when the FRA gave it a "Finding of No Significant Impact" on its Tier 2 Project Level Environmental Review.

2.3.8 Missouri

St. Louis to Kansas City

Missouri was awarded $31 million for high-speed rail projects under the American Recovery and Reinvestment Act. In 2011, MoDOT received federal discretionary funding for nine rail crossing hazard elimination projects in high-speed rail corridors.

2.3.9 Ohio

Rapid Speed Transportation Initiative

In 2018, the Mid-Ohio Regional Planning Commission announced a Rapid Speed Transportation Initiative to analyze the feasibility of passenger rail in the Chicago-Ft. Wayne-Columbus-Pittsburgh corridor. The effort considered two different technologies: passenger rail and hyperloop. The passenger rail component builds on the work of the Northern Indiana Passenger Rail Association, which completed a feasibility study of the Chicago-Ft. Wayne-Columbus corridor in 2013. In 2019, MORPC completed an environmental study that included the first components of a Tier I environmental impact statement (EIS), including an existing conditions analysis to examine if there is a need for passenger rail service along the proposed route, and a route alternatives analysis along the existing rail corridors to establish baseline information for a future, complete Tier I EIS. MORPC's next steps for the route development include securing funding for a Service Alternatives Report, Infrastructure Investment Report, and additional public involvement (as required by the FRA to approve and potentially fund the implementation of this service route).

2.3.10 Wisconsin

Chicago to Milwaukee

WisDOT and IDOT are pursuing service improvements on the Hiawatha which include reducing travel times and increasing daily frequencies from 7 to 10 round trips.

Twin Cities to Milwaukee to Chicago

As noted in Section 2.3.7, WisDOT and MnDOT are pursuing a second daily train between the Twin Cities and Milwaukee and Chicago on Amtrak's existing Empire Builder route. Final design and construction, as well as initial operations, were selected for funding by FRA under the Consolidated Rail Infrastructure and Safety Investment (CRISI) grant program and the Restoration and Enhancement (R&E) grant programs. WisDOT is the lead agency and grant recipient.

3. Network Analysis Approach

As introduced in Chapter 1, the basis of the technical analysis and development of a representative network utilized the FRA's CONNECT tool. With elements including travel demand, O&M, and capital cost estimates, the analysis resulted in a long-term plan for regional rail service in the Midwest. The results are at a high or "sketch" level of detail and evaluate an integrated network as a whole, identifying key markets for inclusion on specific routes as well as estimating the magnitude of potential costs.

3.1 INTERCITY PASSENGER RAIL SERVICE TIERS

In 2009, the FRA established classifications for the intercity passenger rail services contemplated in regional rail plans. This framework describes the stages of development of intercity passenger rail corridors and provides consistent definitions of intercity passenger rail service levels.[27] The framework classifies intercity passenger rail corridors into three distinct service and infrastructure tiers—Core Express, Regional, and Emerging/Feeder. The network vision presented in a regional rail plan defines each corridor in terms of these service tiers. Defining features of the tiers include maximum speeds, presence of dedicated or shared infrastructure, population served, service frequency, and minimum reliability targets based upon on-time performance parameters. Table 6 provides the definitions for each of these tiers.

Table 6. CONNECT Service Tier Definitions

SERVICE TIER	TOP SPEEDS (MPH)	OTHER COMMON CHARACTERISTICS	PRIMARY MARKETS SERVED	MINIMUM RELIABILITY TARGET (ON-TIME PERFORMANCE)
Core Express	Over 125	Frequent service; dedicated tracks, except in terminal areas; electric-powered	Serving major metropolitan centers	99%
Regional	90–125	Frequent service; dedicated and shared tracks; electric- and diesel-powered	Connecting mid-sized urban areas with each other or with larger metropolitan areas	95%
Emerging / Feeder	Up to 90	Tracks shared by passenger and freight trains	Connecting mid-sized and smaller urban areas with each other or with larger metropolitan areas	85%*

* On-time performance target might increase in the future

3.2 ANALYTICAL METHODS AND THE CONNECT PLANNING TOOL

As introduced in Section 1.6.2, CONNECT is a high-level, sketch planning tool that estimates the performance of user-defined intercity passenger rail corridors and networks. The MWRRP used CONNECT as the primary analytical tool to test and compare the effects of network performance. This

[27] High-Speed Rail in America, High-Speed Rail Strategic Plan. April 2009. Federal Railroad Administration. http://www.fra.dot.gov/eLib/Details/L02833

section provides an overview of the CONNECT planning tool, limitations of the tool, and a summary of the analysis process.

3.2.1 CONNECT Overview

FRA developed CONNECT to provide an analytical tool to evaluate the performance of intercity passenger rail corridors in the context of multi-corridor rail networks. CONNECT allows users to define service assumptions and facilitates the analysis of service tiers and network configurations to identify a range of appropriate service characteristics for each corridor within a regional rail network context. At a sketch level, the tool enables users to develop and generate a baseline rail network, service parameters, network performance data, and capital and operational cost estimates. CONNECT results can be used to provide a coarse-level screening to inform the decision-making process in the early stages of corridor and network rail planning, and thus can be used in regions that have minimal experience or analysis in assessing intercity passenger rail corridors.

CONNECT uses CBSAs to define corridor configurations and as the catchment areas for corridor and network populations. CONNECT relies on a national trip table of CBSA-to-CBSA travel demand data for CBSA-pairs between 50 to 800 miles of each other. The CBSA-based geography provides flexibility for high-level sketch planning and enables CONNECT to account for ridership and cost, independent from specific station locations, alignment alternatives, and short-distance trips (trips less than 50 miles) that would not be typical markets for intercity passenger rail systems. Long-distance intercity passenger rail services (over 800 miles) are excluded because trips exceeding this distance typically default to air travel as the most convenient mode of transportation.

CONNECT provides high-level forecasts informed by assumptions for the service tier, proposed train frequencies, and CBSAs served. The tool produces order-of-magnitude estimates for ridership, revenue, capital and O&M costs, and other performance outputs that enable the user to understand relative differences in service and frequency options for various corridor and network configurations. Capital cost calculations consist of a simplified costing model, and O&M costs calculations are based on a simplified service plan defined in terms of daily frequencies and average speeds.

Used in the early stages of the planning process, the CONNECT tool acts as a "coarse screen" and helps stakeholders identify the most compelling options from a wide range of configurations before proceeding to more in-depth and detailed analysis on specific alignments.

CONNECT can supplement ongoing corridor analyses within regions, such as the Midwest, that have corridors undergoing various stages of more detailed planning and project development, but where potential markets outside of a corridor-specific study area have not been evaluated. In such a case,

CONNECT can help the user better understand the potential implications of connecting travel markets and the potential impact of these markets on the future network.

CONNECT Update

During the first phase of the MWRRP and Southeast Regional Rail Plan, which occurred concurrently, FRA identified necessary updates to the trip table database and CONNECT model to improve the accuracy of model assumptions and results—updates related primarily to auto trip volumes and their calculations. Based on the CONNECT updates, the proposed Midwest rail network was reevaluated with an updated model to confirm network performance and necessary adjustments in the second phase of the study.

3.2.2 CONNECT Limitations

CONNECT is designed to allow users to define and assess a number of rail networks options, but is not a substitute for detailed network planning, location-specific demand modeling and revenue forecasting, or more detailed corridor planning and environmental studies. CONNECT produces order-of-magnitude estimates applicable to regional planning including estimates of ridership, revenue, capital and O&M costs, and other performance indicators, but not investment or construction grade results. Nevertheless, these estimates empower the user to conceptualize and compare the potential performance of a defined network.

CONNECT uses generalized calculations rather than corridor-specific outputs and does not reflect the same level of accuracy as a detailed, corridor level study in determining the ridership, revenue, or capital and operational costs of existing corridors. CONNECT results are acceptable in comparing similar corridor and network configurations to determine general feasibility. Furthermore, CONNECT data is generalized at the CBSA level, which limits the ability to analyze corridor and network performance to a CBSA-to-CBSA basis. For example, identifying multiple station stops in one CBSA will not alter the ridership results directly (i.e., additional stops do not increase catchment areas or travel time access), but it will increase travel time due to an additional station stop and dwell, which affects ridership results.

Importantly, the capital cost calculations are derived by a simplified costing model that uses unit costs derived from domestic and international averages that can be modified by the user. In addition, the cost of capital (debt service), for example, is not included in these calculations. For this reason, the model may underestimate total capital costs over time. To calculate O&M costs, CONNECT applies a simplified service plan consisting of daily frequencies and average speeds to drive the cost estimates and similar to the capital cost calculations, uses domestic and international averages.

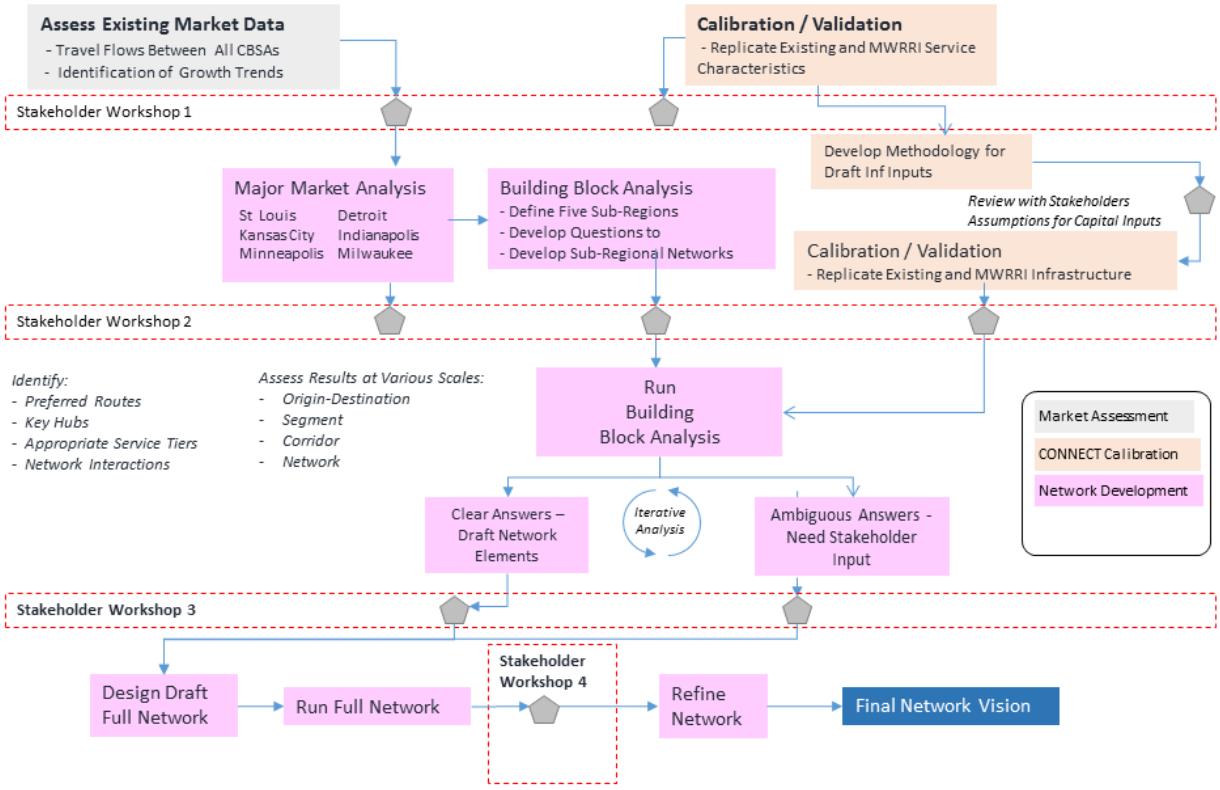
In terms of revenue, CONNECT looks at only projected fare revenue. Ancillary revenues such as real estate development, commercial leases, value capture, and tax increment financing, are all location specific and are not included in this model. For that reason, this model may underestimate a corridor or network's revenue potential.

3.2.3 Summary of Analysis Process

Assessing existing market data and calibration/validation of the CONNECT model came together in a single effort during an iterative process to analyze network building blocks as part of the network planning

phase of the project. Figure 23 identifies the process including the four stakeholder workshops during Phase I of the study[28].

Figure 23. Technical Analysis Flow Chart



3.3 CORRIDOR IDENTIFICATION PROCESS

The technical analysis began with an assessment of existing market data–comparing the existing travel flows on all modes between all CBSAs in the Midwest. In this step, the underlying growth projections for the CBSAs were analyzed along with the projected growth in travel between them. The results of this analysis were presented to stakeholders in the first workshop in March 2017 and used to identify six major markets to test in the first round of network planning efforts.

In parallel with assessing existing market data, a calibration/validation exercise was performed to assess how accurately CONNECT was modeling the existing and future baseline corridors in the Midwest. The initial step of this validation exercise focused exclusively on the ridership module, and those results were shared with stakeholders in the first workshop.

[28] As noted above, Phase II of the study was undertaken in order to incorporate refinements to the CONNECT model, and included additional stakeholder workshops that followed a similar, but not identical process as that depicted in Figure 33.

The main network planning task began with the identification and analysis of the six major city pairs that dominate automobile and air travel in the region. This step identified the size of each of these markets and assessed the potential for intercity rail to capture market share from the automobile and air modes, based on improving rail-trip time and service frequency in these markets.

The next step in the process was to examine relatively small geographic sections of the Midwest region to examine which combinations of service tier, route, frequency and network connectivity generated the best potential ridership performance at acceptable levels of capital cost and operating cost recovery. The major market analysis findings helped define network building blocks structured within five subregions organized around six major markets. Within each of these subregions, a set of network planning questions was developed. These questions addressed the potential main line routes, network interactions and appropriate service levels for the corridors included in the subregion. The building blocks, in turn, consisted of various network configurations developed to test and respond to these questions.

At the second stakeholder workshop in June 2017, the major market analysis results, draft network questions and building block configurations were presented for stakeholder review and input.

Following the second workshop and based on stakeholder feedback, the questions and building blocks were revised. An iterative process advanced of running the building block models, assessing the data against the questions, refining the model inputs, and then running CONNECT again. These refined results were used to continue to work through the issues and address the defined questions.

3.3.1 Existing Market Assessment

The existing market assessment was completed using the underlying travel data within CONNECT for year 2015. Automobiles are the predominant mode for intercity travel in the Midwest (Figure 24). [29] In 2015, the 135.0 million auto trips in the Midwest dwarfed the combined trips of all other modes: 12.2 million trips by air, and 1.5 million trips by rail, and 1.4 million trips by bus.

Figure 24. Mode Share for Intercity Travel in the Midwest, 2015

The most common intercity auto trips are between cities fewer than 300 miles apart. The most popular rail trips are similarly between cities fewer than 300 miles apart. The top two auto market pairs are in the top three rail market pairs with Chicago–Milwaukee the top pair for both modes (Table 7). In the top rail markets, rail is competing primarily with automobile travel. The top air markets are different from the top auto and top rail markets, except for Chicago–Detroit and Chicago–St. Louis. The travel market between Chicago–Detroit is the second most traveled auto market pair, and the third most traveled for air and rail, underscoring the high travel demand between those two cities. Three of the top air market pairs are greater than 300 miles apart, while Chicago–Detroit is separated by over 200 miles. If rail were to compete with these air markets, it may need to deploy a different product and service than in the top auto markets. For

[29] This analysis was based on travel data for the primary, major, regional, and other markets within the study area, as defined in the baseline conditions assessment.

example, investment may need to focus on high-speed rail infrastructure rather than incremental improvements to existing service.

Overall, Chicago is the dominant travel demand center in the Midwest, with it being the most common destination from other major markets by any mode. (Table 8)

Table 7. Top 5 Core-Based Statistical Area Pairs by Mode

RANK	AUTO	AIR	RAIL
1	Chicago–Milwaukee	Chicago–Minneapolis–St. Paul	Chicago–Milwaukee
2	Chicago–Detroit	Chicago–Kansas City	Chicago–St. Louis
3	Chicago–Indianapolis	Chicago–Detroit	Chicago–Detroit
4	Chicago–St. Louis	Chicago–St. Louis	Kansas City–St. Louis
5	Chicago-Minneapolis/St. Paul	Chicago–Nashville	Chicago–Grand Rapids

Table 8. Top CBSA Pairs by Mode for Primary and Major Cities

PRIMARY/MAJOR CBSA	TOP TRAVEL PAIR – AUTO	TOP TRAVEL PAIR – AIR	TOP TRAVEL PAIR – RAIL
Chicago	Milwaukee	Minneapolis/St. Paul	Milwaukee
Toronto	Detroit	Chicago	Chicago
Detroit	Chicago	Chicago	Chicago
Minneapolis/St. Paul	Chicago	Chicago	Chicago
St. Louis	Chicago	Chicago	Chicago
Pittsburgh	Chicago	Chicago	Chicago
Cincinnati	Chicago	Chicago	Chicago
Cleveland	Chicago	Chicago	Chicago
Kansas City	Chicago	Chicago	St. Louis
Columbus	Chicago	Chicago	Chicago
Indianapolis	Chicago	Minneapolis/St. Paul	Chicago
Nashville	Chicago	Chicago	Chicago
Milwaukee	Chicago	Minneapolis/St. Paul	Chicago

Note: The primary city (Chicago) is in red and major cities (with CBSA population greater than 1.5 million in 2015) are indicated in blue.

4. Technical Process – Building Blocks

The building block analysis was an iterative analytic process designed to elicit data on the ridership and financial performance of individual corridors and network segments under various sets of assumptions about service tier, train routing, service frequency, and network configuration and connectivity. The data were used to draw interim conclusions about the best performing service assumptions and network connections for the various elements of the network. The analysis narrowed the field of alternatives and informed the development of a limited set of high-performing full-network alternatives. The building block analysis was framed in the context of several specific questions pertaining to portions of the network. These questions were answered individually, with input from the study's stakeholders, and the resulting data used in a later step to combine corridors and routes into alternative networks for further evaluation.

This process is unlike a traditional alternatives analysis that initially identifies an exhaustive list of potential alternatives, performs an initial screening of alternatives to reduce the list to a manageable size, and only then undertakes a full quantitative analysis of the reduced list of alternatives. The building block approach was developed to facilitate the early generation of quantitative data, allowing the analysts and stakeholders to learn from the early performance results and steer subsequent rounds of analysis to those alternative network and service configurations that show the most promise. From this process, the draft recommended network emerged at the back end of a sequential process of testing and refining to discover the network configuration that had the potential to generate the best overall ridership and financial performance.

The purpose of the building block analysis was to identify preferred routes through the network, key hubs where service can be efficiently aggregated, appropriate service tier, and key network interactions that will drive network configuration decisions. Data were assessed across a range of scales, from origin-destination data and segment data, to corridor and network data depending on the issue addressed. This process resulted in a set of elements recommended for inclusion in a network vision, as well as a range of options and trade-offs where the analyses did not clearly identify a preferred solution.

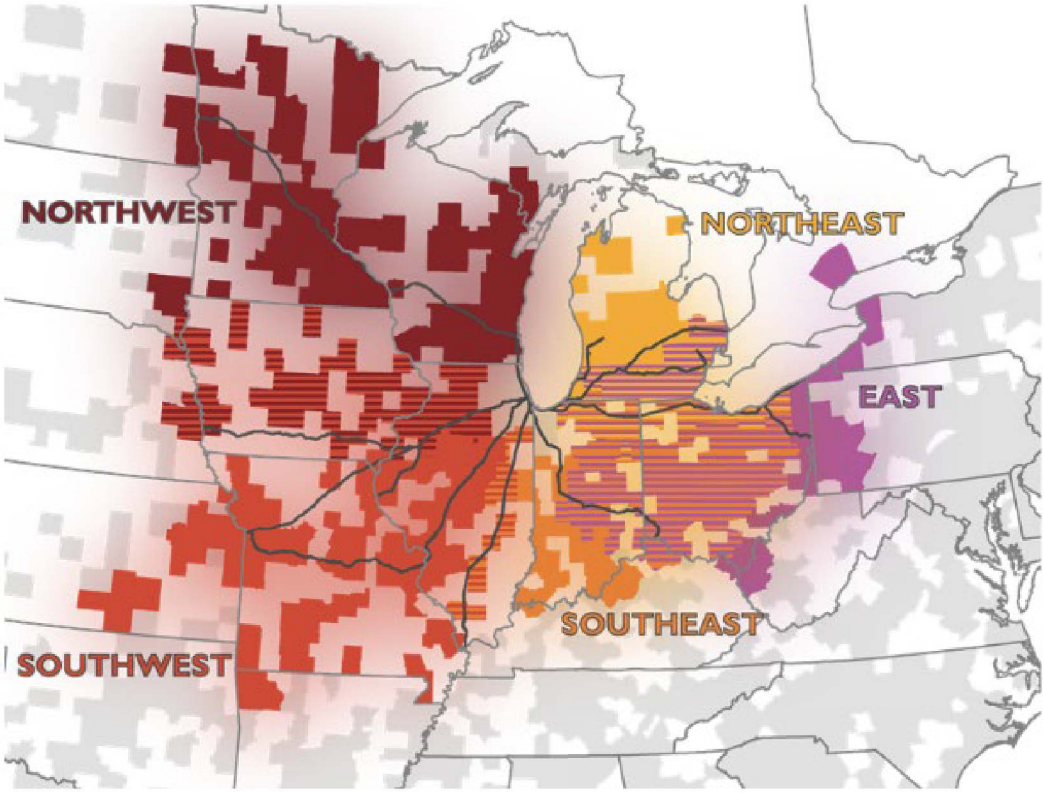
The recommended Midwest passenger rail network elements as well as the options and trade-offs were shared at the third stakeholder workshop in September 2017. Stakeholder feedback on these issues was used to develop a draft final network for analysis. In the final analytic step of the study process, the draft final network was run in CONNECT to assess ridership, operation and maintenance costs, capital costs, and cost-recovery and benefit-cost ratios. The results of the full-network analysis were presented in the fourth and final workshop in December 2017. Stakeholder feedback from that workshop was used to inform the refinement and development of the final network vision. That final network vision was subject to further refinement in Phase II of the study, in order to incorporate improvement to the CONNECT model.

The study area was divided into four geographies for the building block analysis:

- Northwest
- Southwest
- Northeast
- Southeast/East[30]

In this round of analysis, the building blocks were tested within these geographies (Figure 25). In later rounds of analysis, the implications and results from these partial networks were used to assemble a reduced set of alternative unified networks for further analysis and evaluation.

Figure 25. Building Block Geographies



Corridors tested within CONNECT were analyzed with service characteristics that correspond to one or more of the three service tiers as defined by the FRA: Core Express, Regional or Emerging. Within the building block analysis, the model's baseline was made with a number of representative assumptions regarding service tier and service frequency:

- Emerging service offers eight trains per day.
- Regional service offers 16 trains per day.
- Core Express service offers 24 trains per day.

[30] The East geography significantly overlaps with the Northeast and the Southeast geographies. In this analysis, East geography results were grouped with the Southeast geography. In the subsequent phases of the study, issues to do with the East geography were captured in either the Northeast or Southeast geographies.

This provided a basis for an initial assessment of service tier performance in each corridor, as well as an even-handed comparison of corridors with each other. The representative service frequency assumptions were refined in later rounds of analysis to improve the balance among ridership demand, service capacity, and cost.

Based on the building block process, another category of corridors was identified as network independent. These network independent corridors showed potential to become part of the network in the future but did not enhance overall network performance significantly enough to be included in the proposed network at a Regional, Emerging, or Core Express level. Such corridors could act as supplemental links in the network and can be developed independently from the high-performance network.

While the building block analysis resulted in a set of initial conclusions regarding the preferred network configuration in each of the four subregional geographies, many of those conclusions were revisited and modified based on both further analysis performed as part of assembling the subregional networks into a region-wide Midwest network, and a result of the additional analysis undertaken during Phase II of the study.[31]

4.1.1 Northwest

Five corridor configurations connecting Chicago to Minneapolis-St. Paul were tested at the Core Express tier in the Northwest geography. Two of the five corridors configurations were advanced due to higher ridership performance. From this assessments, Milwaukee and Madison were determined to be significant markets critical to the operational viability of a Core Express corridor between Chicago and Minneapolis-St. Paul and should be included on any mainline route alignment. Rochester is also a major market and could be considered either as an intermediate market on the mainline route or as a market to and from Minneapolis-St. Paul with connections to the mainline route to Milwaukee and Chicago at Minneapolis-St. Paul. Further analysis beyond this study is required to determine which of these corridors is most appropriate, and both options should be carried forward for more detailed planning.

The three Emerging, Regional and Core Express service tiers were all tested on an assumed corridor between Chicago and Minneapolis-St. Paul. There was strong ridership growth at each incremental service tier, with huge gains (for the corridor, and between the Minneapolis-St. Paul/Chicago CBSA-pair) moving to the Core Express tier. Based on this analysis, Core Express service is warranted between Chicago and Minneapolis-St. Paul based on the significant ridership gains at that level.

Several additional cities were tested as part of the analysis for the Northwest geography building block, including the ridership benefit of using Milwaukee as a hub for service to Green Bay, Madison, and Minneapolis-St. Paul. Green Bay was also tested for demand to Chicago and between Green Bay and other markets. Madison was tested as a branch service to Milwaukee and Rockford, as well as on the mainline to Minneapolis-St. Paul. The analysis found that the configuration with the highest network ridership for Madison and for the network was to route the Core Express mainline between Milwaukee and

[31] See Chapter 5.

Minneapolis-St. Paul via Madison. The strength of the Rochester market as a branch connection to Minneapolis-St. Paul versus as a station on the main line service south to Milwaukee and Chicago was also tested.

Service from Minneapolis-St. Paul was tested as a potential hub for service to markets such as Duluth, Fargo, and Sioux Falls. Strong ridership demand to Duluth was noted, warranting Emerging service. Fargo and Sioux Falls had much lower travel demand. For all three, investment decisions in providing service can be made independent of the rest of the network.

Based on the building block analysis and stakeholder feedback, the initial preferred configuration for the Northwest geography of the network is summarized in Figure 26 and Table 9.

Figure 26. Proposed Northwest Network Elements

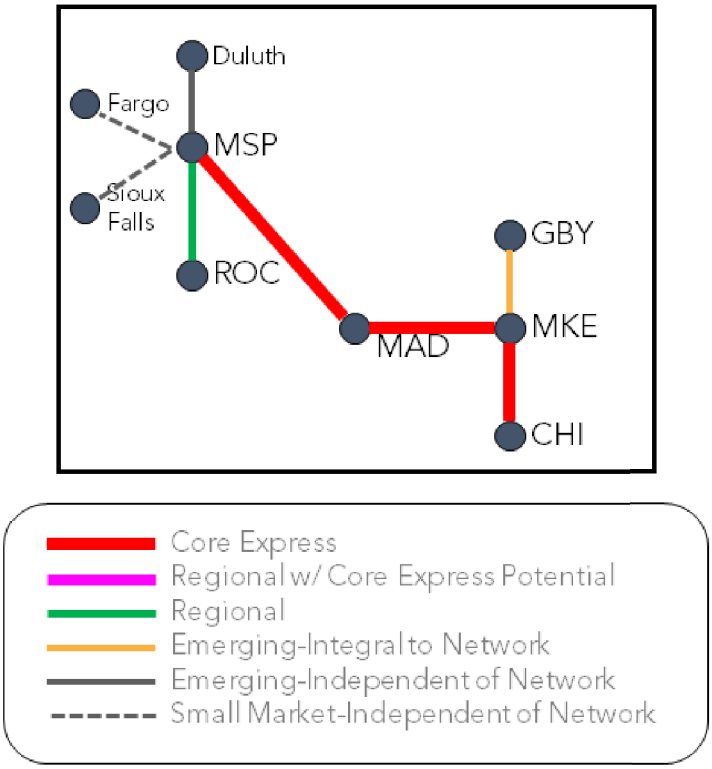


Table 9. Northwest Proposed Network: Recommendations and Outstanding Issues

RECOMMENDED CONFIGURATION
▪ Service Tier Minneapolis-St. Paul - Chicago Core Express ▪ Route via Milwaukee, Madison ▪ Green Bay as Emerging from Milwaukee ▪ Service to markets between Madison and Minneapolis-St. Paul on main line subject to follow up route-specific analysis ▪ Markets beyond Minneapolis-St. Paul (Sioux Falls, Fargo, Duluth) independent decisions
OUTSTANDING ISSUES
▪ None

4.1.2 Southwest

Two corridor configurations connecting Chicago to St. Louis were tested at the Core Express tier in the Southwest geography. A configuration via Champaign was eliminated from further consideration because it had higher capital costs and did not offer significant network ridership benefits. The route via Champaign also created longer trips for riders traveling from Kansas City to Chicago, and it generated lower volumes of transfer passengers from a circumferential route connecting Champaign, Bloomington, Peoria, and Davenport.

A second corridor analysis of two routes between Kansas City and Chicago was also performed to understand which route maximizes the total corridor and off-corridor ridership. A Kansas City–Chicago direct route had relatively low ridership compared to other Core Express corridors into Chicago that were examined as part of the study. Because of the relatively small size of the Kansas City market, the significant distance from Chicago, and the lack of any major destination between Kansas City and Chicago, a direct high-speed connection was determined as not cost-effective relative to the other major markets and therefore was not carried forward as part of subsequent analyses.

The three service tiers were tested between Kansas City and St. Louis. There was ridership growth at each increase in service tier, but overall demand was limited. Regional service unlocked ridership between Kansas City and St. Louis, but Kansas City to Chicago ridership sees significant gains only once there is Core Express service on the Kansas City–St. Louis corridor (and the Chicago–St. Louis corridor). However, this Core Express service did not significantly affect Kansas City–St. Louis CBSA-pair ridership. Regional service therefore appeared to provide an appropriate level of performance for the Kansas City–St. Louis corridor and was carried forward for further analysis.

Service to Wichita and Topeka was assessed for the effect on performance of the corridor between Kansas City and St. Louis. The building block analysis also examined whether services to Omaha and Dubuque would benefit from being aggregated onto a single corridor through Rockford or whether they were better served on separate alignments.

The building block analysis also examined the value of a new circumferential route connecting Davenport, Galesburg, Peoria, and Champaign with a hub at Bloomington. Finally, the demand for new markets beyond Carbondale (e.g., implications of extending the Chicago - Carbondale corridor to Memphis and a direct connection from St. Louis to Memphis) were examined.

Based on the building block analysis and stakeholder feedback for the Southwest geography, the initial preferred network configuration for the Southwest geography is summarized in Figure 27 and Table 10.

Figure 27. Proposed Southwest Network Elements

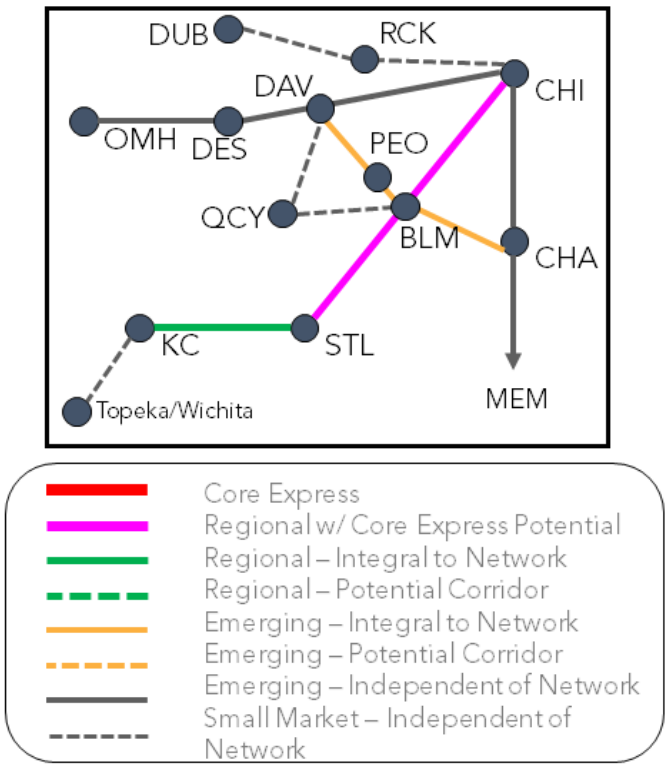


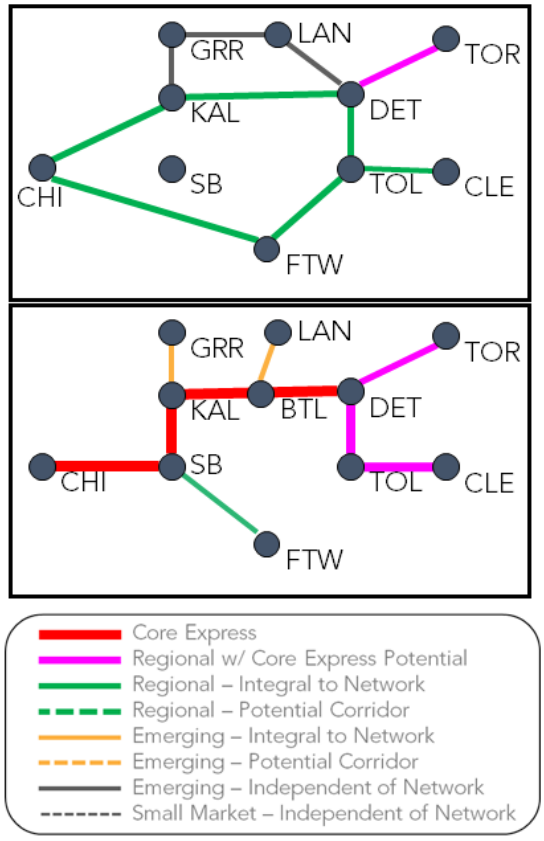
Table 10. Southwest Proposed Network: Recommendations and Outstanding Issues

RECOMMENDED CONFIGURATION
▪ St. Louis-Chicago Route via Bloomington ▪ Regional service St Louis to Kansas City; Kansas City - Chicago service via St Louis ▪ Emerging circumferential route once mainline is built out ▪ Other corridors recommended as Emerging and somewhat independent of other network considerations (Carbondale, Quincy, Dubuque, Iowa/Omaha) ▪ Quincy connection to either Davenport or Bloomington.
OUTSTANDING ISSUES
▪ Service Tier St Louis - Chicago: Regional or Core Express

4.1.3 Northeast

Two corridor configurations connecting Chicago to Detroit were tested at the Core Express tier in the Northeast geography. Figure 28 shows these corridors and ridership in standalone and network contexts in 2055. The three service tiers were tested on the corridor between Chicago and Detroit. The Chicago–Detroit corridor saw significant ridership gains moving from Emerging to Regional service with more modest ridership gains moving from Regional to Core Express service.

Figure 28. Proposed Northeast Network Elements



The building block analysis examined several other permutations for rail service between Chicago and Michigan.

- Potential benefits to routing the mainline corridor through South Bend and the potential for Emerging, Regional, and Core Express services from Detroit to Toronto
- Serving Lansing and Grand Rapids markets with a direct connection to Detroit on a coast-to-coast route or with branch connections to the mainline
- Identifying any benefit to making Ann Arbor a service hub in the Northeast geography, as a strong intermediate market on the Chicago - Detroit main line
- Determining whether Fort Wayne was best served by a direct connection to Chicago or by connecting to Core Express service in South Bend

For the corridor between Cleveland and Toledo, three different options were examined:

- Direct Core Express service via South Bend
- Direct Regional service via Fort Wayne
- Service via Detroit connecting to a Core Express mainline

The building block analysis ultimately suggested two possible network configurations for the Northeast geography: one based around Regional mainline service that follows the existing route from Chicago to Detroit and another one based around a Core Express mainline from Chicago to South Bend to Detroit. Figure 28 illustrates these two configurations.

Based on stakeholder feedback, a network with Regional corridor service from Chicago to Detroit along the existing route was carried forward into another round of analysis. Given the incremental ridership potential associated with Core Express service in this market, a second alternative configuration assuming Core Express service on a new high-speed route via South Bend was also carried forward.

Assuming a mainline from Chicago to Detroit along the existing corridor, Table 11 summarizes recommended elements based on the building block analysis and outstanding issues to be examined in future studies.

Table 11. Northeast Proposed Network: Recommendations and Outstanding Issues

RECOMMENDED CONFIGURATION
▪ Chicago - Detroit via existing intermediate markets ▪ Regional service to Toronto ▪ Regional service Cleveland and Toledo via Fort Wayne
OUTSTANDING ISSUES
▪ Service Tier Chicago - Detroit Regional or Core Express ▪ Columbus to Chicago via Fort Wayne or Indianapolis ▪ Michigan network configuration (e.g., coast-to-coast versus perpendicular connections to mainline)

4.1.4 Southeast

Two corridor configurations connecting Chicago to Indianapolis were tested at the Core Express tier in the Southeast geography. Emerging and Regional services were tested on a representative route from Indianapolis to Cincinnati. Emerging and Regional services were also tested to Louisville and extending on to Nashville.

The building block analysis evaluated three different configurations to serve Columbus:

- Via a Core Express connection to Indianapolis (Columbus-Dayton-Indianapolis)
- Via a Core Express connection to South Bend (Columbus-Fort Wayne-South Bend)
- Via a direct Regional route to Chicago (Columbus-Fort Wayne-Chicago)

The building block analysis suggested two possible configurations for the Southeast geography: one with a direct Regional connection from Chicago through Fort Wayne to Columbus and another with Columbus served by a Regional connection to Indianapolis. Figure 29 illustrates these two configurations. Both were carried forward into an additional round of analysis.

Figure 29. Proposed Southeast Network Elements

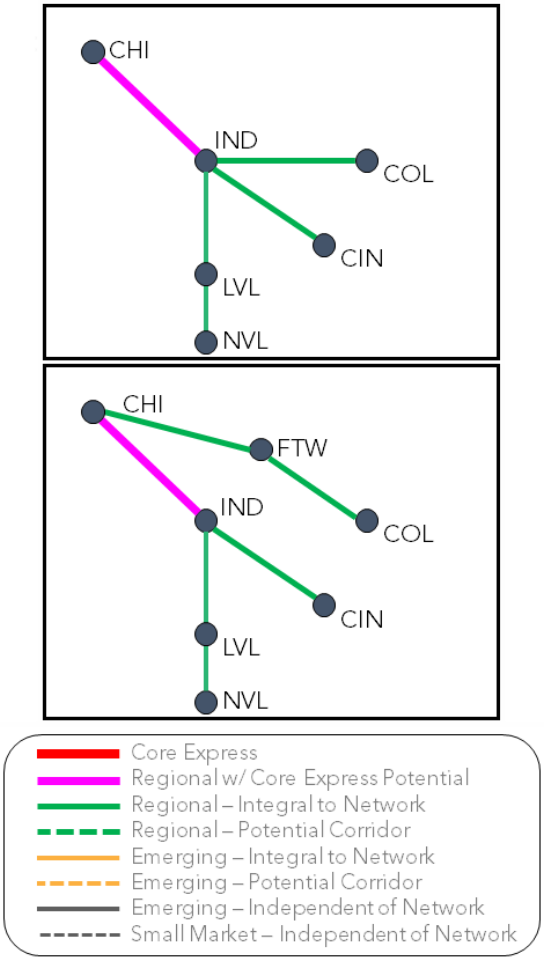


Table 12 summarizes recommended elements based on the building block analysis and outstanding issues to be examined in subsequent phases of the study.

Table 12. Southeast Proposed Network: Recommendations and Outstanding Issues

RECOMMENDED CONFIGURATION
▪ Regional service Indianapolis - Cincinnati and Indianapolis to Nashville ▪ Regional 3C Corridor ▪ Regional service Cleveland - Pittsburgh
OUTSTANDING ISSUES
▪ Service Tier Chicago - Indianapolis Regional / Core Express ▪ Columbus to Chicago via Fort Wayne or Indianapolis

Additional building block analyses were tested in the Southeast geography:

- Emerging and Regional service connecting Cincinnati, Dayton, Columbus, and Cleveland
- Emerging connection from Cleveland to Buffalo
- Emerging and Regional connections between Cleveland and Pittsburgh
- Detroit - Indianapolis connection via a direct route

The building block analysis shed light on the relative merits of a wide range of network configurations and routing and service tier choices, enabling the definition of a limited set of full-network scenarios for further analysis that reasonably maximize the ridership and financial performance of the network elements in each of the four geographies of the region. This early analysis identified several corridors where the ultimate recommendation for the full network is relatively clear. These elements were then fixed and carried forward in all subsequent alternatives, narrowing the field of possible combinations to be analyzed. However, within a few of the geographies there remained trade-offs between different configurations and other issues that needed further study before definitive conclusions could be drawn. The subsequent efforts of the study, which examine potential full-network alternatives, further analyzed these issues, allowed for trade-offs to be made, and final recommendations to be developed.

5. Midwest Regional Network Vision

This chapter summarizes the recommended Midwest Regional Network vision. The vision includes recommendations for high-performance, intercity passenger rail network in the Midwest through 2055 and phasing considerations for future detailed studies.

5.1 FROM BUILDING BLOCKS TO DRAFT NETWORK

An integral part of the network analysis approach outlined in Chapter 3 was the incorporation of feedback received through individual discussions with the lead stakeholders to address ongoing state and regional planning efforts. Additionally, coordination was conducted with the Southeast Regional Rail Planning Study to consider connectivity from the Southeast region of the U.S. Following review of the building block analysis at the third stakeholder meeting in September 2017, the following issues were identified that needed additional analysis and/or modification in the CONNECT model prior to defining the elements of the draft network:

- Conducting pivot testing on outstanding issues from the building block analyses to make a configuration recommendation
- Examining how the service tier level (of the pillar corridors) is affected by fare assumptions with the CONNECT model
- Modifying right-of-way cost assumptions for high-frequency Regional service to more accurately capture the need for additional infrastructure
- Conducting a Chicago-focused sub-analysis to understand how the draft network would affect Chicago terminal capacity issues

These outstanding issues were examined via different "pivots." The pivots tested potential network configurations against each other and compared network impacts based on ridership, capital costs, and other data points.

The pivot testing examined the following issues:

- Service to Columbus from Chicago
- Service to Grand Rapids and Lansing
- Circumferential route variations

Once these additional analyses and adjustments were complete, the initial draft network was developed.

5.1.1 Phase II Adjustments

Phase II of the study assessed the impact of the updated underlying trip table within the CONNECT model on the Phase I network planning process. As a result of the update, some of the building block findings were adjusted. The changes to the recommended configurations are summarized below:

- Green Bay to Milwaukee is a network independent corridor.
- The circumferential route in the Southeast geography was removed from network consideration.
- Detroit to Toronto service is a network independent corridor.
- Indianapolis to Nashville is a Regional corridor with Core Express potential.
- The 3C Corridor is a network independent corridor.

5.2 RECOMMENDED MIDWEST PASSENGER RAIL NETWORK

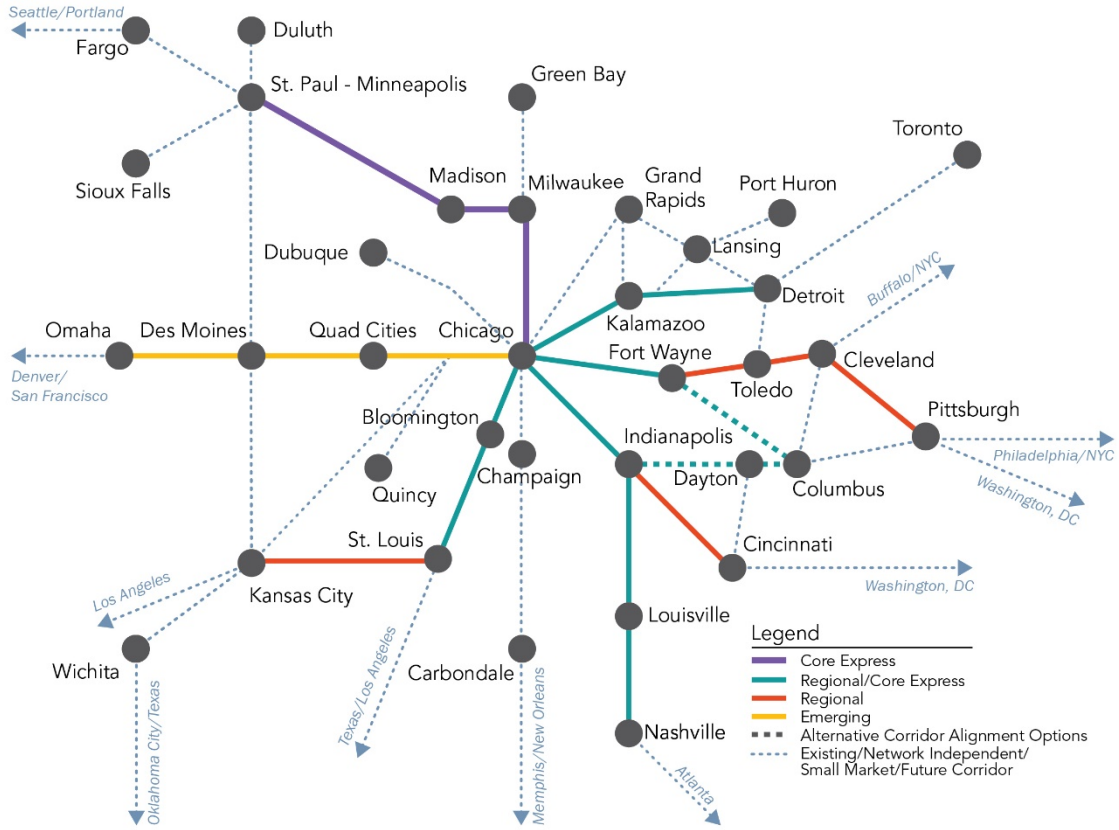
5.2.1 Proposed Rail Network

Figure 30 shows the Midwest's proposed rail network. Corridors integral to the network are shown with defined service tiers. Corridors integral to the network are those that significantly influence ridership on the other corridors, and their service tier should be determined with consideration of other network decisions. The integral corridors are shown with recommended service tiers of either Core Express, Regional/Core Express, Regional, or Emerging. Regional/Core Express is proposed on three of the four pillar corridors (Chicago–St. Louis, Chicago–Indianapolis, and Chicago–Detroit), indicating that these corridors should have a minimum of high-frequency Regional service with the potential for Core Express service.

If the stakeholder states individually and collectively decided to advance an intercity passenger rail network with a greater emphasis on higher speed lines, there could be a case to build even more of the corridors at the Regional/Core Express level than those depicted in Figure 30. Furthermore, if an interregional passenger rail study were completed in the future including the Midwest (e.g., connecting the Midwest and Southeast or the Midwest and Northeast), there may be significant enough ridership between some interregional markets to justify Core Express service over Regional service on some corridors.

The proposed network also includes corridors defined as network independent, small market, or future corridors. Network independent corridors do not significantly add ridership to connecting corridors (nor receive significant connecting ridership) in the network. However, they may be important for local transportation needs or may have potential to be developed to meet those needs. These network independent corridors were included in the proposed network but were not included in the network testing within the CONNECT model.

Figure 30. Proposed Network for the Midwest Regional Rail Plan



5.2.2 Basic Performance (Key Performance Indicators)

The proposed base network was tested in CONNECT to determine estimates of ridership, capital costs, O&M costs, and operating cost recovery ratios. However, stakeholders understood during this process that the CONNECT analyses should be considered with several important caveats, mainly that CONNECT intentionally applies approximate and simplified methods for estimating values and is not a substitute for detailed corridor and network planning.

One of the advantages of CONNECT is the allowance for analyzing and planning rail service at the network level instead of an individual corridor level. A rail network enhances the performance of individual corridors by fostering connections to other corridors and enabling more travel options for passengers. Network planning also illustrates how investments in one corridor can create benefits in disparate corridors, underscoring the need for multi-state participation and stakeholder engagement.

There are many benefits for the Midwest to planning and investing in rail service at a network level. When considering corridors in the draft base network in a standalone context (i.e. with each corridor considered independently of all others), connections are provided between 189 CBSA-pairs. In a network context, which allow for connections that span up to two corridors[32], the number more than quintuples to nearly

[32] CONNECT limits the number of possible inter-corridor transfers to one, based on the assumption that travelers would be unlikely to make a rail trip that requires two or more transfers.

1,100 CBSA-pairs. Intercity ridership increases by 41% from 12 million annual trips in the standalone context to 17 million annual trips in the network context. Revenue increases 59% moving from the standalone context to the network context. Moreover, these gains in market pairs, ridership and revenue coincide with modest declines in operation and maintenance costs and capital costs (Table 13).

Table 13. Benefits to Connectivity of Network Compared to Standalone Corridors[1]

	MARKETS SERVED[2]	INTERCITY RIDERSHIP[3]	REVENUE	O&M COST	CAPITAL COST
Sum of Standalone	189	12 M	$0.9 B	$1.6 B	$120 B
Network	1,088	17 M	$1.5 B	$1.5 B	$116 B
Percentage Difference	476%	41%	59%	-2.5%	-3.3%

[1] Performance outputs for the primarily Regional version of the network
[2] Total number of market pairs on network with maximum of one transfer
[3] Year 2055 intercity demand

Overall, the sketch-level analysis undertaken using the CONNECT tool showed that the recommended Midwest passenger rail network would serve a substantial number of riders and would have the ability to generate sufficient revenue to cover its operating costs. The full proposed network includes close to 3,100 route miles, would carry 17 to 33 million annual trips in 2055, and generates $1.5 billion to $1.9 billion in annual revenue (Table 14). The network nearly covers its operating costs.

Table 14. Network Key Performance Indicators (2055)

	ROUTE MILES	ANNUAL RIDERSHIP (IN M)[1]	ANNUAL REVENUE (IN B $S)	ANNUAL O&M COST (IN B $S)	INITIAL CAPITAL COST (IN B $S)
Full Network[2]	3,100	17 – 33	$1.5 – $1.9	$1.5 – $1.9	$116 – $162

[1] Range shown represents outputs from the Regional and Core Express networks
[2] Total linked trips for network ridership

Through the full study process, a number of key findings emerged:

- Chicago remains the core driver of intercity ridership throughout the network accounting for nearly 30% of all trips in 2055. Minneapolis/St. Paul is the second largest market with over 11% of trips originating or ending there.
- In 2055, the Core Express corridor between Chicago and Minneapolis-St. Paul would serve over 35% of all network riders for at least one segment of their trip.
- The network leverages the strength of the Chicago market to provide key through-connections (e.g. Milwaukee - St Louis, Indianapolis - Minneapolis) that otherwise would not have the volumes required to justify the frequencies or investments in travel time.
- Core Express service between Nashville, Indianapolis, and Chicago could improve the performance of connecting corridors, such as to Cincinnati and to Columbus, as well as provide a gateway connection to Atlanta.
- When at the Core Express service tier, the corridors from Chicago to Minneapolis, St. Louis, Detroit, Indianapolis/Nashville, and Columbus all have an operating cost recovery ratio of greater than one.

- The Midwest passenger rail network provides important gateway connections to other regional rail networks in the East, Southeast, Texas, Southwest, and West regions of the U.S.
- Within the Midwest passenger rail network, several markets have the potential to operate as hubs, connecting different regional, long-distance, and local rail services, such as St. Paul-Minneapolis, Indianapolis, Detroit, Cleveland, St. Louis, and Kansas City.

5.2.3 Transportation Network Considerations

Investing in a higher quality, higher speed intercity rail system has potential implications for the larger transportation network. These types of benefits are important for communicating the vision to a broader audience.

A significant benefit of investing in a higher speed intercity rail system is a reduction in travel time between markets. Figure 31 shows the number of market pairs and their travel times for the existing intercity network,[33] a "Regional base network" (which assumes the portions of the recommended network designated as "Regional/Core Expressed" are implemented at the Regional service tier), and a "Core Express base network" (which assumes those same portions of the recommended network designated are instead implemented at the Core Express service tier). On the existing network, relatively few market pairs are served in fewer than two hours. The number of market pairs gradually grows as travel time increases, reaching a modest peak in the 7- to 8-hour travel band. Generally, ridership falls after 4 hours, and 6 hours is a long trip for most intercity passengers.

In the current Midwest intercity passenger system about 18% of possible travel pairs are less than 4 hours apart and about one-quarter of them are less than 5 hours apart (see Table 15). However, the Regional base network significantly improves on this with close to 30% of all possible travel pairs less than 4 hours apart and 42% of travel pairs less than 5 hours apart. In the Core Express base network, almost half of the possible travel pairs are less than 4 hours apart and more than 60% of the possible travel pairs are less than 5 hours apart. The proposed Midwest network offers access to more markets with shorter travel times.

[33] The existing intercity network includes nine state-supported routes operating in 2020: Chicago-Milwaukee, Chicago-St. Louis, Chicago-Detroit, Chicago-Carbondale, Chicago-Quincy, Chicago-Port Huron, Kansas City-St. Louis, and Chicago-Grand Rapids. This does not include the Amtrak Hoosier service from Chicago to Indianapolis which was suspended in 2019.

Figure 31. Midwest Network Market Pair Travel Times

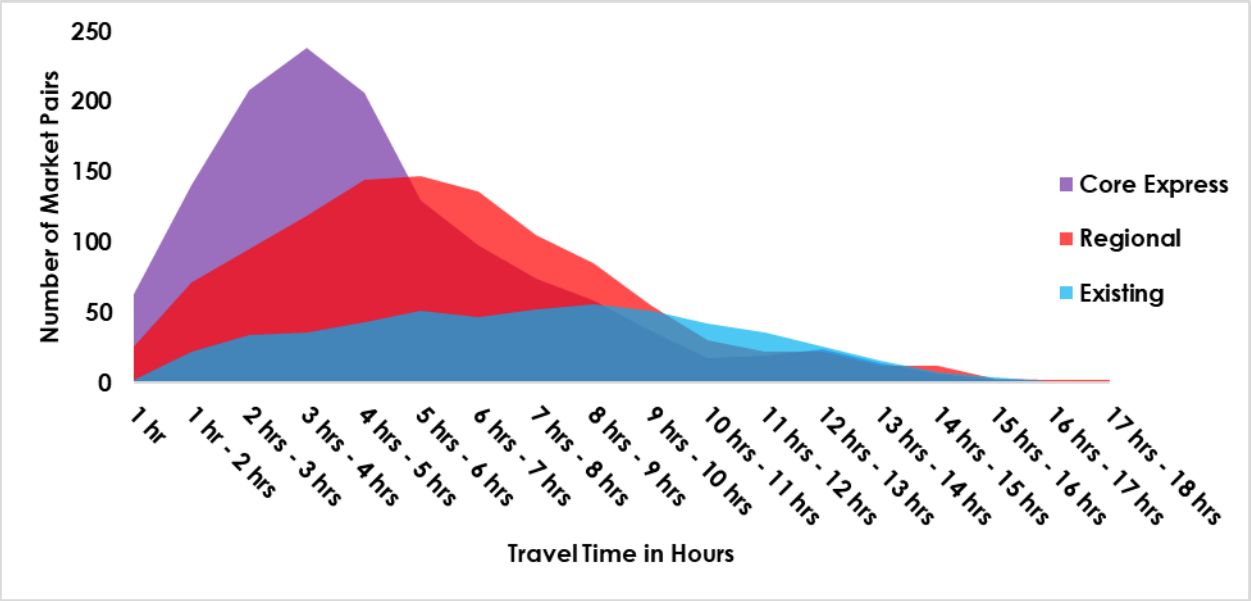


Table 15. Percentage of Network Market Pairs by Travel Time

TRAVEL TIME	EXISTING NETWORK	REGIONAL NETWORK	CORE EXPRESS NETWORK
< 1 Hour	0%	2%	5%
< 2 Hours	5%	9%	15%
< 3 Hours	11%	18%	31%
< 4 Hours	18%	29%	49%
< 5 Hours	26%	42%	64%

Another benefit to examine is the "total addressable market" (i.e. trips across all modes, or total travel demand potential, for the CBSA-pairs that would be served by the recommended network) in relation to the rail-trip time. For the existing network, close to 35% of estimated addressable market travel demand in 2055 occurs with trips shorter than 4 hours. With the Regional base network, 39% of total trips are within a 4-hour rail trip, and on the Core Express base network over 60% of the total addressable market is within a 4-hour rail trip (Figure 32 and Table 16).

Figure 32. Total Travel Market (Trips for All Modes) by Rail Travel Time (2055)

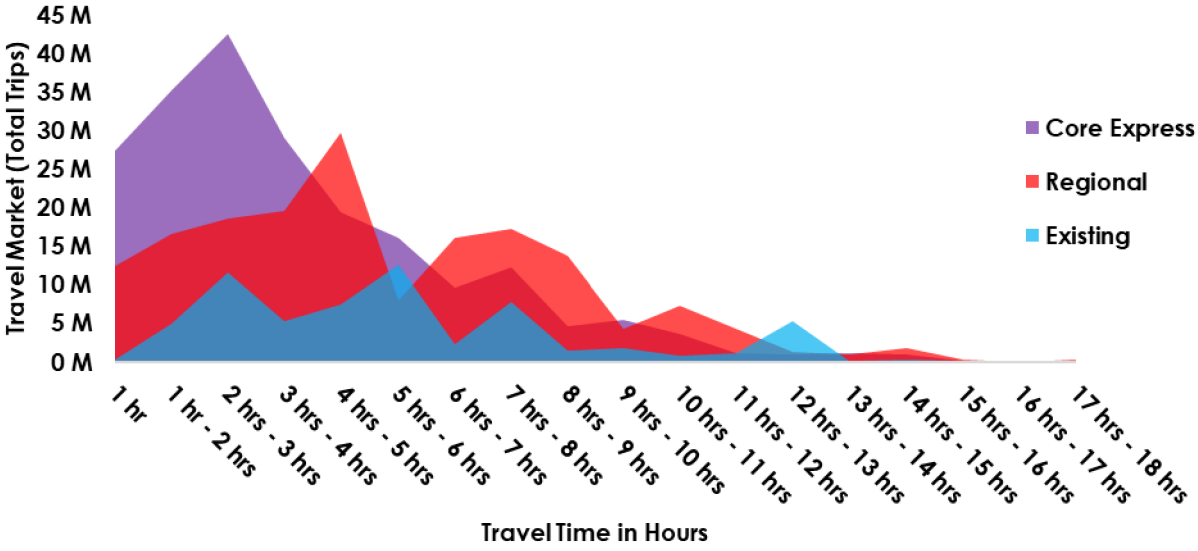


Table 16. Total Addressable Market by Rail-Trip Time (2055)

TRAVEL TIME	EXISTING NETWORK	REGIONAL NETWORK	CORE EXPRESS NETWORK
< 1 Hour	0.2 M	12 M	27 M
< 2 Hours	5 M	29 M	63 M
< 3 Hours	17 M	48 M	105 M
< 4 Hours	22 M	67 M	134 M
< 5 Hours	29 M	97 M	154 M

Fare levels are also an important consideration. The proposed rail network was developed using a set of fare assumptions targeted to reach an operating recovery of one, meaning annual revenue covered annual operating expenses. However, it is possible that alternatives with higher fare levels, while reducing overall ridership, are able to generate a substantial operating surplus.

5.3 PHASING CONSIDERATIONS

Phasing considerations are important because of the need to prioritize regional rail investment from the full Midwest network perspective. Identified phasing objectives include the following:

- Ensure reasonable incremental progress toward the full-network vision.
- Evaluate based on quantitative and qualitative performance metrics, such as network ridership, benefits, capital costs, and operating financial performance.
- Account for other factors such as geographic equity.
- Demonstrate how early-phase actions dovetail with existing plans and programs.
- Provide context and guidance for corridor- and location-specific project planning.

Nine phasing principles were identified to guide future infrastructure investment in and development of rail in the Midwest.

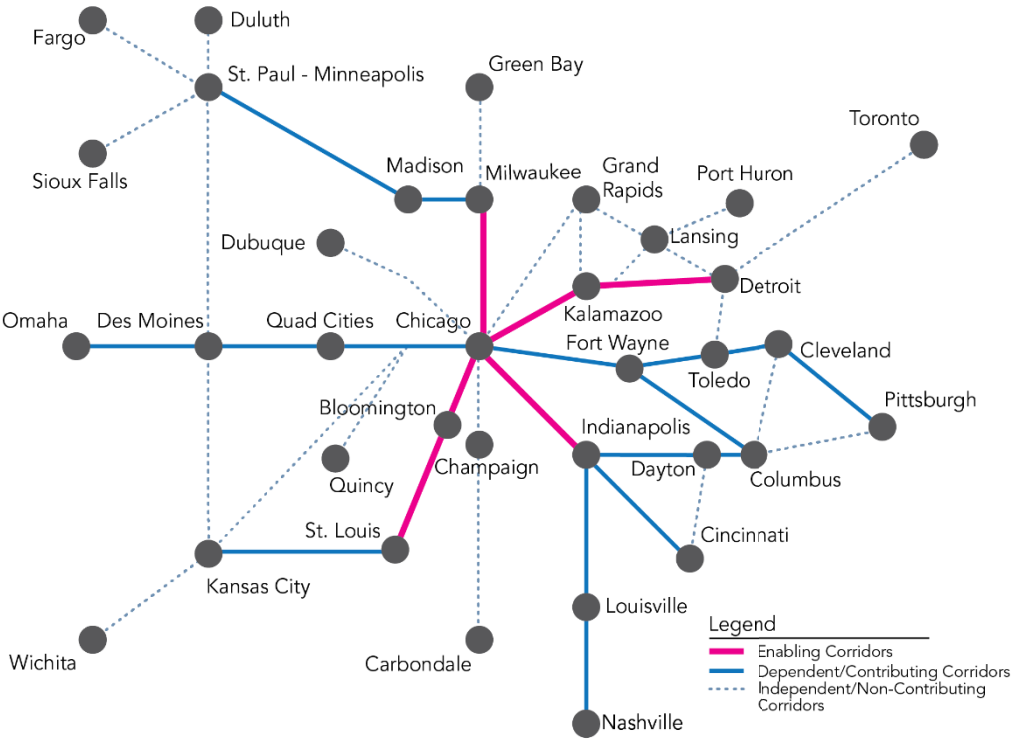
1. **Respect state and local priorities.** Corridors with significant project development completed and political support should be considered for early-phase investment if they do not conflict with the vision. Political, institutional, and public preferences should be considered when making investment and phasing decisions. Prioritization based on state and local priorities should be commensurate with state and local funding contributions.

2. **Begin by implementing the most cost-effective initiatives.** The implementation order of corridors should be driven by merit-based performance. The corridors should be evaluated based on benefits, costs and valuation of risk. These quantitative measures are based on scenarios and risk assessment. Performance for different corridors and segments should be compared. After establishing merit-based prioritization, the subsequent phasing criteria principles should be considered to develop a feasible phasing and implementation plan.

3. **Develop "enabling corridors" ahead of "dependent/contributing corridors."** It is important to understand the extent to which a corridor depends on other corridors in the network to reach its ridership potential or enables significant network ridership on other corridors. "Enabling corridors" are essential links for overall network connectivity and provide connections to "dependent/contributing corridors." Dependent/contributing corridors rely upon enabling corridors/segments for connectivity, primarily into Chicago. They contribute significant incremental ridership to associated enabling corridors, improving network performance. A third category is independent/non-contributing corridors. These corridors do not depend upon enabling segments for connectivity, and they do not contribute significant ridership to enabling corridor segments. The performance of these corridors is independent of the network. Figure 31 identifies enabling, dependent, and independent corridors in the recommended Midwest passenger rail network.

   As an example, a minor corridor with a terminus at a connection point to a high-capacity corridor may be a highly dependent/contributing corridor if a significant percentage of its ridership is transferring to major markets served by that high-capacity corridor. Its ridership in a network context would be significantly higher than in a standalone context. An enabling corridor would be the main line in this case that allows for the additional ridership on dependent corridors. A corridor in which the performance is roughly the same in a standalone and network context is neither a dependent nor enabling corridor. This would be an independent corridor, and the decision to invest would then likely be independent of other network decisions. In terms of phasing, enabling corridors should be supported before the dependent corridor.

Figure 42. Enabling, Dependent, and Independent Corridors



4. **Build upon current plans and programs.** Many states have invested time and money identifying and advancing near-term rail projects prior to developing this shared regional vision. These near-term improvements could be interim steps to implementing the full vision plan for a much larger investment or a final configuration. The network phasing plan should consider plans and projects already initiated while also ensuring that future programs support the MWRRP's vision.

   This criterion indicates that current projects should proceed. Subsequent phases of current plans and programs should be synchronized with the MWRRP vision. Common elements between current plans and the MWRRP should proceed and differing elements can be reconciled on a case-by-case basis. Future options should be preserved to the maximum extent possible.

5. **Protect future service tier and routing choices.** The phasing plan should preserve flexibility for future-decision-making and for adaptations necessary due to changes in future travel demand. Robust investments should occur in early implementation phases ahead of investments that foreclose future options or force decisions prior to full commitment. Additional analysis, evaluation, and decision-making are required in corridors where there is not a clear recommended service tier or route in the draft network. Analysis of these corridors should occur in early phases to enable service tier and route decision-making before options are limited by the nature of the network and affiliated infrastructure.

6. **Maintain geographic equity.** Building a regional rail network is a multi-decade commitment requiring sustained support from multiple states over a long period. If earlier criteria result in a phasing plan in which parts of the region are ignored for a significant period, the phasing plan should be adjusted to

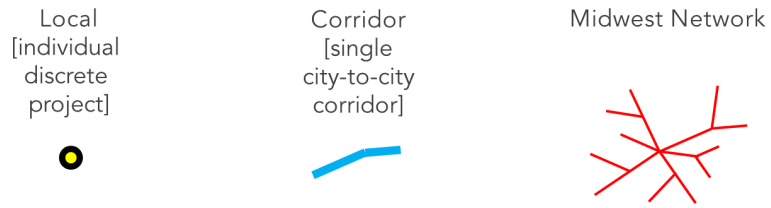
introduce an appropriate degree of geographic equity. Investments should be spread throughout the region and all participating states should realize service benefits in early phases.

7. **Maintain capacity-demand balance.** The network should be built in a way that balances capacity and demand. Capacity and performance should be improved incrementally, in line with projected future demand. Network investments should reflect anticipated growth rather than react to growth.
8. **Maintain acceptable operating performance.** Phasing and implementation of the full-network build-out should optimize the operating cost-recovery ratio and infrastructure utilization. Network construction should avoid phasing that significantly lowers operating cost recovery ratio or creates underutilized corridors.
9. **Maintain balanced pace of investment.** Network phasing should occur in way where annual capital investment is in line with funding and delivery resources. Short-term projects can be based on current/planned resources while long-term projects can be based on anticipated/required resources, which can be challenging given the difficulty in forecasting future available resources. Ideally, phasing should occur in a way that maintains a relatively balanced pace of investment over the expected implementation period to avoid front- or back-loading projects as well as wide annual fluctuations in capital costs.

When considering regional coordination and governance (further discussed in Chapter 5), investment phasing decisions can be made using three geographic scales (Figure 33).

- Local: individual, discrete projects
- Corridor: single, city-to-city corridor
- Midwest network: impacting multiple projects and corridors

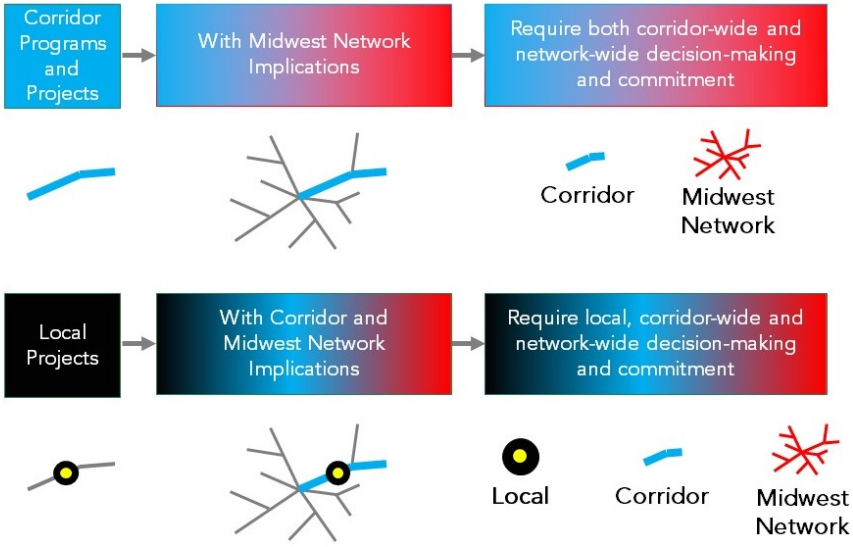
Figure 33. Geographic Scales of Phasing Decisions



In addition, three main factors were used to determine the most appropriate scale for decision-making. This included analyzing where benefits would be realized along with where trade-offs or consequences would be felt. Finally, where funding commitments would be needed was also an important consideration.

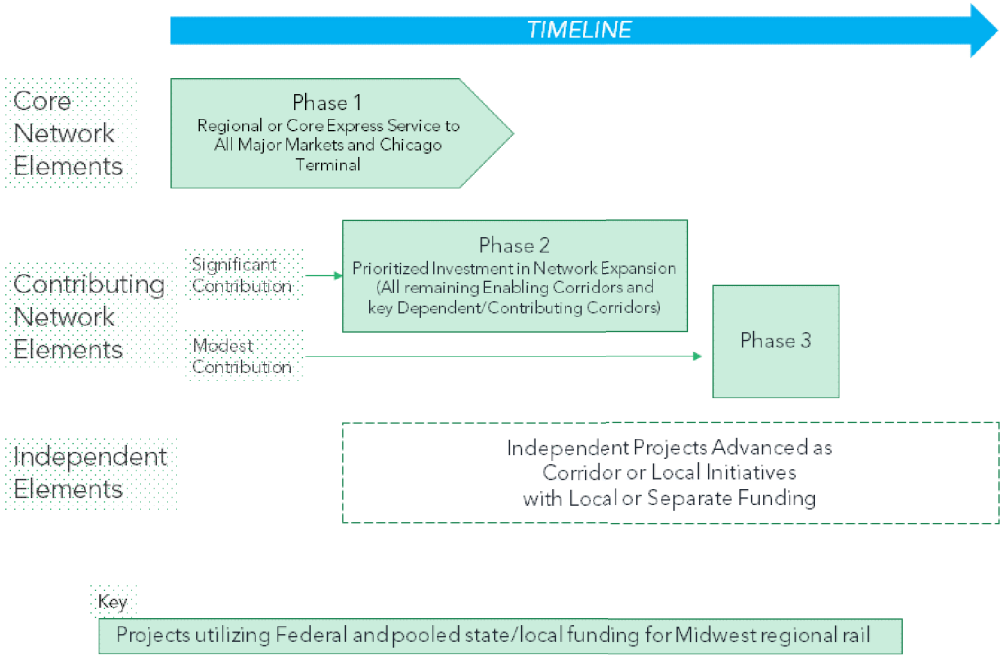
Layered geographies may be used for phasing decisions. At present time, investment and phasing decisions are made at the local and corridor scales. However, a new framework is needed to reflect the MWRRI perspectives and priorities, including leveraging and acting on the ridership benefits of network connectivity as well as geographic equity of investment and network development. Federal, state, metropolitan area and rail carrier interests need to be represented collectively at the decision-making scale of the region (Figure 35).

Figure 34. Geographic Scales of Phasing Considerations



A suggested phasing timeline would implement core network elements first. Thus, Phase 1 would include Regional and Core Express service to all the major markets and Chicago. Phase 2 would prioritize investment in corridors that significantly affect network ridership and connectivity. Phase 3 would implement corridors that modestly contribute to network performance. The phasing of independent/non-contributing projects (i.e., corridors with limited network implications) can be determined at the corridor or local scale, depending on local initiatives and funding (Figure 35).

Figure 35. Suggested Phasing Timeline



5.4 NETWORK IMPLEMENTATION CONSIDERATIONS

Developing and implementing a regional rail network is a complex and difficult process. The involvement of multiple government agencies acting at different levels and across different jurisdictions, as well as private rail operators and owners, necessitates an interstate governance structure. Unlike many other regions of the United States, the Midwest has an established governance structure, MIPRC, which is largely responsible for leading the effort to advance the MWRRP. The governance component of this study evaluates the future needs and role of a governance structure moving forward. However, MIPRC will play an important role in the phased development of the Midwest regional rail network by working to advance passenger rail programs, projects, and priorities that are the outcome of the MWRRP.

6. Governance

The multi-state 40-year framework developed for the MWRRP includes a prioritization of corridors and investment projects, a funding strategy, and a governance structure. A successful implementation of this regional rail plan will require extensive coordination among the participating states and other involved stakeholders.

Passenger rail projects are often complicated by a mix of private and public owners and operators of infrastructure and rolling stock, as well as a legacy of more than 40 years of federal law, regulation, and commercial negotiations among the affected parties. Coordination among these entities must address complex issues from corridor planning to implementation efforts. At the same time, coordination must also consider each state's regulatory, financial, political, and institutional framework along with host and operating railroads' policies and perspectives.

Regional governance structures can provide direction and advance a unified vision, as well as provide the platform to support multi-state planning and legislative initiatives. Ultimately these can lead to longer-term investments to implement multi-state corridor improvements and new demand-oriented passenger rail services.

The development of this chapter reflects extensive input from the lead stakeholders and summarizes FRA's approach, analysis, and conclusions related to governance to move multi-state rail projects forward in the Midwest.

6.1 EXISTING REGIONAL COORDINATION EFFORTS IN THE MIDWEST

One of the FRA's objectives for the governance task in the MWRRP was to remain consistent in the approach with other previous and ongoing studies. In all the regional rail plans conducted to date, the FRA's focus has been on convening stakeholders to explore the formation of a governance framework that can be used to advance the outcomes of the plan. In the Southwest and Southeast regions of the U.S., where the FRA also led regional rail plans, neither region had an existing functional governance structure. In contrast, the Midwest has a long-standing governance structure in MIPRC. Formed by compact agreement in 2000, MIPRC brings together state leaders from across the region to advocate for passenger rail improvements. Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, and Wisconsin are MIPRC's current member states. Further described in Chapter 2, the main purposes of the compact are to promote, coordinate, and support regional improvements to passenger rail service in the Midwest.

Even prior to the formation of MIPRC, the Midwest was active in advancing passenger rail. Also described in detail in Chapter 2, the MWRRI launched in 1996 with nine states and the FRA as a cooperative, multi-agency initiative focused on developing a 21st century passenger rail system in the Midwest centered on Chicago. The MWRRI focused on offering business and leisure travelers shorter travel times, additional train frequencies, and connections between urban centers and smaller communities.

The Midwest region is larger and more geographically complex than the Southwest and Southeast regions, has several established intercity passenger rail corridors, and can draw upon decade's worth of experience of states working together to undertake planning and capital investments required to advance and improve service. The coordinated efforts of the MWRRI, MIPRC, and the FRA have significantly advanced intercity passenger rail in the Midwest during the last two decades and serve as the foundation for the examination of governance in the Midwest. Some large-scale highlight achievements for passenger rail in the Midwest follow.

When FRA's HSIPR Program launched in 2009, the Midwest states were well-positioned to undertake significant improvements to their state-sponsored corridors. Since 2010, Illinois has led the nation's third-largest portfolio of investments in intercity passenger rail. The Chicago to St. Louis High-Speed Rail Corridor Program is a $1.6 billion investment that includes major improvements to track, signal systems, stations, and equipment to increase passenger and freight performance and improve safety across the nearly 284-mile corridor.

While major programs were each led by a single state, they often required close coordination between adjacent states and always required some form of agreement with the host and / or other tenant railroads. Lessons learned from these state-led programs informed the FRA's examination of governance structures. Additionally, Midwestern states have worked together to undertake multiple corridor-specific planning efforts.

The most significant undertaking from a governance perspective in the Midwest has been the delivery of the Midwest fleet of locomotives. Funded by an FRA grant to the Midwest states to replace aging locomotives with modern equipment capable of high-speed operations along eight state-supported routes in the region, the Midwest states participating in the locomotive pool of equipment formed a governance structure—using authority derived from MIPRC—to own, operate, maintain, and potentially procure additional locomotives. This recent undertaking in multi-state governance was closely examined as part of the governance portion of the MWRRP.

In recognition of the Midwest's established governance structure, its complexity, and the Midwest states' history of successfully implementing large programs, the FRA's approach to governance in the Midwest differed from other regional rail planning studies. The FRA's objectives in terms of governance for the Midwest were modest. Through the MWRRP, the FRA sought the following:

- Verify what was working in terms of the existing governance structure.
- Identify any existing gaps.
- Understand the states' priorities in terms of advancing and elevating their existing governance structure.
- Make recommendations on how to advance projects in the Midwest in a manner that is consistent with the outcomes of the MWRRP.

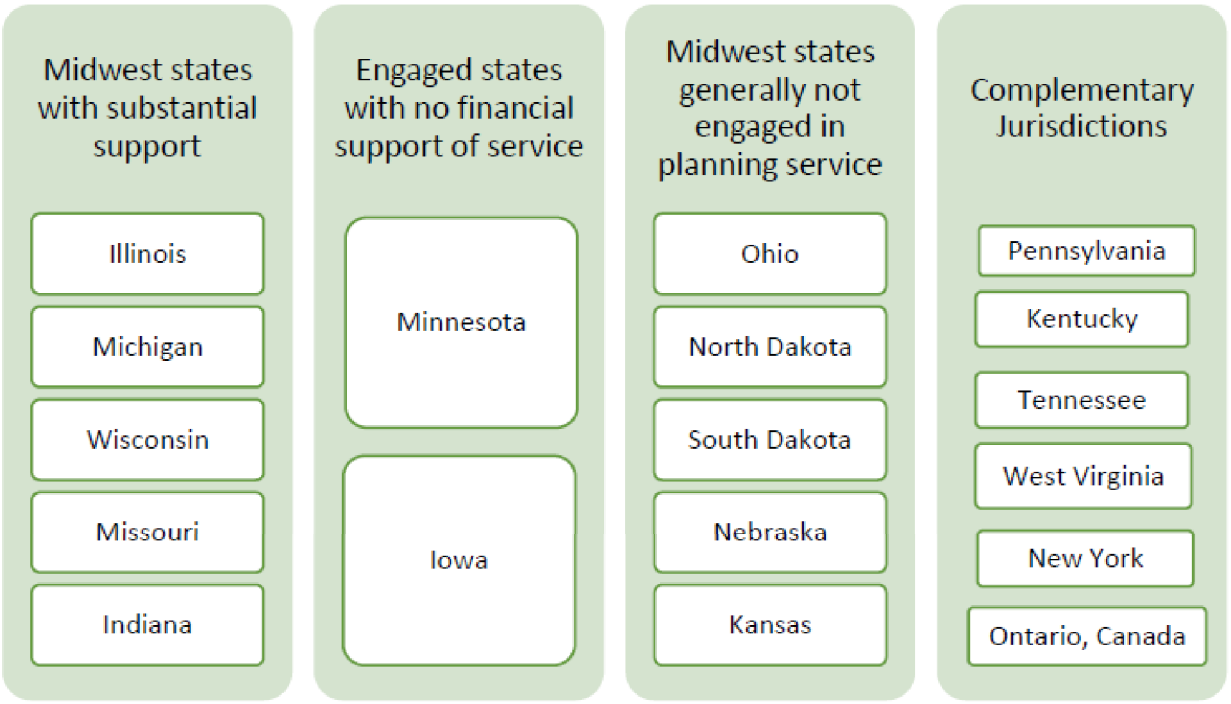
The remainder of this chapter outlines existing efforts for governance in the Midwest and the FRA's approach to realizing the objectives of the MWRRP. It concludes with recommendations for governance as it relates to the strategic prioritization, advancement, investment and funding of corridors and projects.

6.2 MIDWEST GOVERNANCE STAKEHOLDERS

The FRA's approach to governance first focused on classifying these parties into several distinct categories, each of which were subject to a different level and type of engagement relative to the examination of governance in the Midwest.

The FRA led the MWRRP governance discussions. Representatives of state DOTs in the Midwest region and MIPRC were the lead stakeholders and primary participants in discussions related to governance. The states were categorized by their level of support for passenger rail and/or their proximity to the Midwest as shown in Figure 36. The FRA facilitated three governance-specific workshops during the study with the lead stakeholders. These workshops were held preceding the MWRRP SPG meetings.

Figure 36. Current (2018) Understanding of State-by-State Status

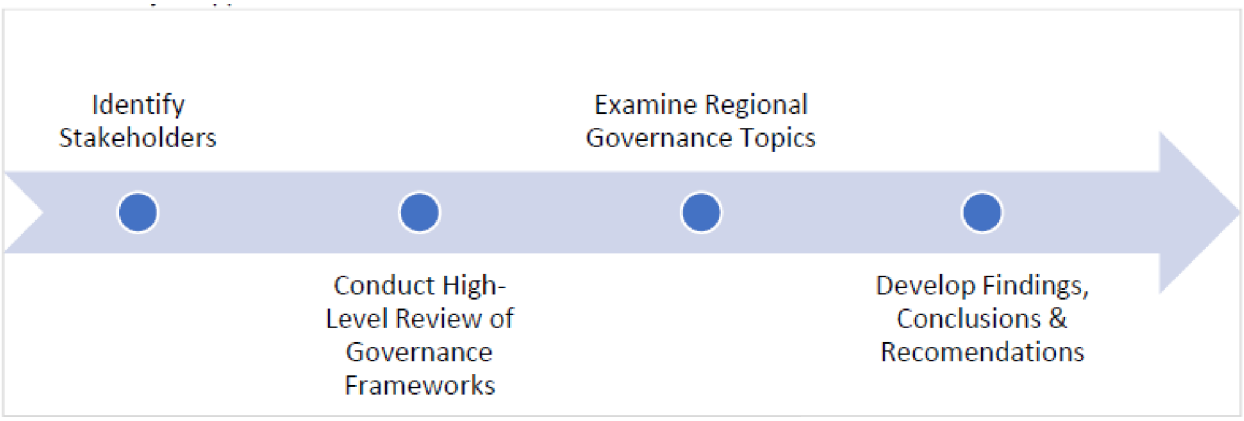


Additional stakeholders, comprising representatives of other groups with an interest and a relationship to governance as potential partners in undertaking projects such as host railroads, local municipalities and MPOs, received regular updates on governance discussion topics and considerations during the SPG meetings.

6.3 GOVERNANCE APPROACH AND INSTITUTIONAL CONSIDERATIONS

The FRA started its examination of governance in the Midwest by identifying and classifying stakeholders as they related to the MWRRP (described in Section 1.5). This step was critical in determining which stakeholder groups would be subject to which kind of engagement in terms of governance. Next, the FRA conducted a high-level review of governance frameworks that might apply to projects that result from the MWRRP. The FRA engaged the lead stakeholders in a series of workshops to examine and understand a variety of topics related to governance on a regional scale before developing findings and conclusions. Figure 37 summarizes this process.

Figure 37. Project Approach



6.3.1 High-Level Review of Governance Frameworks

The FRA spent the first several weeks of the MWRRP examining relevant governance frameworks applicable to the development of Midwest intercity passenger rail programs. These frameworks are found in the Regional Rail Planning Governance Structures White Paper in Appendix B.

The FRA drew from two main sources for governance frameworks related to passenger rail programs. The first is the report from the FRA's Southwest Multi-State Rail Planning Study from September 2014. In this document, the FRA describes the approach taken by the Southwest states to work through their governance and institutional issues, receive input from stakeholders, consider various governance models, and ultimately report on the stakeholders' governance findings and recommendations.

The second document, *Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs*, is a Transportation Research Board (TRB) research paper, from the National Cooperative Rail Research Program (NCRRP) released in September 2016. The TRB research paper summarizes conclusions from literature research and case studies from existing rail and other multi-state institutional models and is complemented by focus group discussions. A critical review and assessment of the data resulted in the recommendation of eight governance models. However, the study also states that "no single governance model has proven to be particularly effective for advancing passenger rail" partly because no model was applied for the complete lifecycle of a program that begins at planning and ends at O&M.

The FRA identified the role of a governance framework, types of organizations typically involved in governance, and challenges implementing an effective governance structure. Table 17 summarizes the eight types of governance models that are generally applicable in intercity passenger rail programs.

Table 17. Alternative Multi-State Governance Models

NO.		MODEL	DEFINITION	PHASE OF DEVELOPMENT	EXAMPLES
1		Coordinated State Efforts	Where two or more states agree to coordinate passenger rail efforts within their respective states.	▪ Visioning ▪ Planning	▪ Pacific Northwest Rail Corridor ▪ South Central High-Speed Rail Corridor
2		Coalition/ Partnership	Where multi-state partners convene on a voluntary basis to carry out activities of common interest. May also be carried out in coordination with a non-profit corporation.	▪ Visioning ▪ Planning	▪ I-95 Coalition ▪ Coalition of Northeastern Governors ▪ Midwest Regional Rail Initiative ▪ Amtrak Northeast Corridor Infrastructure Master Plan Working Group
3		Single State Agency Contracting with or on Behalf of Other States	Where an existing or newly created entity within a single state addresses multi-state interests, primarily through contractual arrangements with other states.	▪ Design ▪ Construction ▪ Operations and Maintenance	▪ Chicago–Detroit/Pontiac Corridor Investment Plan ▪ Chicago to Quad Cities ▪ Chicago to Milwaukee Hiawatha SDP for Three Additional Frequencies ▪ Chicago to Milwaukee to Twin Cities EIS and Additional Frequency to the Empire Builder ▪ Northern New England Passenger Rail Authority ▪
4		Public-Private Partnership	Where the government and the private sector enter into an arrangement that allows for greater private-sector participation in the delivery of transportation projects.	▪ Design ▪ Construction ▪ Operations and Maintenance	▪ All Aboard Florida ▪ Texas Central Railway ▪ Amtrak Hoosier State Service ▪ CREATE
5		Multi-State Commission	Where two or more states coordinate multi-state interests through a formal agreement that establishes a governing body.	▪ Planning ▪ Preliminary Design	▪ Midwest Interstate Passenger Rail Commission ▪ Southeast High-Speed Rail Corridor Project: Virginia-North Carolina

NO.		MODEL	DEFINITION	PHASE OF DEVELOPMENT	EXAMPLES
6		Multi-State Special Authority	Where an independent entity, often a distinct governmental body, delivers a limited number of public services within defined boundaries across state lines and can exercise a broad range of typical governmental powers.	▪ Design ▪ Construction ▪ Operations and Maintenance	▪ Washington Metropolitan Area Transit Authority ▪ Port Authority of New York and New Jersey
7		Federal-State Commission	Where a body of federal, state, and, sometimes, local leaders organize to address a critical need.	▪ Planning	▪ Appalachian Regional Commission ▪ Northeast Corridor Infrastructure Operations and Advisory Commission
8		Freight Railroads	Where freight railroads lead delivery of passenger rail services.	▪ Design ▪ Construction ▪ Operations and Maintenance	▪ No current examples for intercity service

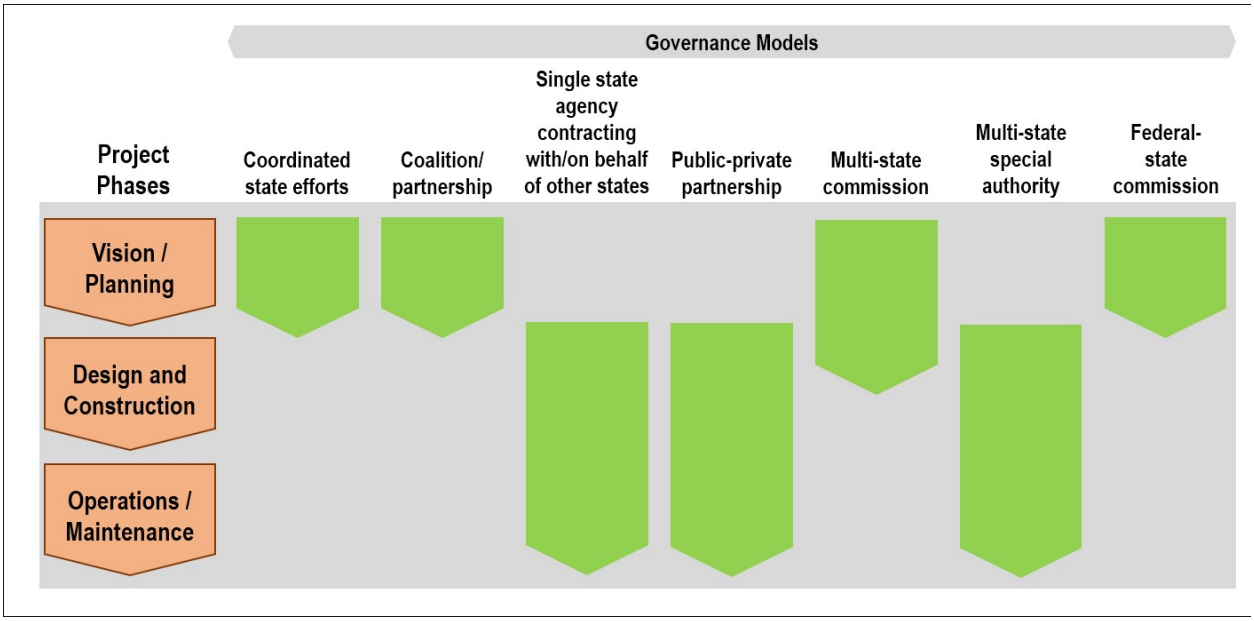
Source: National Cooperative Rail Research Program

The eight governance models were discussed in more detail with state DOT representatives throughout the duration of the MWRRP.

The FRA recognized the need for a governance structure that can be tailored based on the phase or stage of the program or project. Not all states within a region will have a role in advancing specific corridor programs or projects, and as programs and projects of regional significance are advanced, funded, designed, and constructed, the various stakeholders' responsibilities change over time depending on the nature of the program. Transitions in stakeholders' responsibilities may occur in parallel as different segments within the network are prioritized and implemented. To account for these changing responsibilities, states require the ability to develop and implement additional governance models that provide the needed structure, processes, and decision-making models specific to the program or project.

Figure 38 shows the NCRRP study's recommendation for which models are most applicable to the main project phases.

Figure 38. Governance Models' Applicability to Project Phases



Source: National Cooperative Rail Research Program

Over time, a governance structure may transition to a model better suited to specific project phases. The stakeholders can also refine and tailor the model to specific needs as the project progresses and changes to scope and objectives occur. An overall parent governance structure can form sub-structures for specific purposes. Some of these sub-structures can become permanent groups, while others may be limited until their assignments are completed.

In summary, various multi-stakeholder governance models have been implemented for many different purposes. For regional rail planning and implementation, there is no "one model fits it all" framework that spans from the initial vision through managing day-to-day O&M.

6.3.2 Regional Governance Stakeholder Workshops

Lead stakeholders were engaged in a series of discussions regarding the advantages and disadvantages of the various models from both an individual state and a regional perspective. These discussions were facilitated by the FRA as part of the states-only workshops with state DOT representatives and MIPRC.

- Lead Stakeholder Governance Workshop #1: St. Paul, Minnesota. During this workshop, the FRA discussed how a functioning governance framework is needed to advance the findings of the MWRRP. The FRA and the states discussed some of the challenges the states face in implementing a functioning governance framework. The FRA reviewed the governance model white paper with the state DOTs. Following the discussions, each state DOT representative answered a series of questions on legal limitations, capabilities, applicable governance frameworks, and successes and gaps related to existing arrangements.
- Lead Stakeholder Governance Workshop #2: Detroit, Michigan. The FRA reviewed the previous governance discussion before presenting a case study focused on the governance aspects of a major

capital investment program. The Chicago–Detroit/Pontiac Passenger Rail Corridor Investment Program was selected as the example. The FRA and states discussed the role of governance in optimizing Midwest operations through an operational council. The discussion concluded with ways to elevate the status and standing of MIPRC.

- Lead Stakeholder Governance Workshop #3: Chicago, Illinois. The states and the FRA built on the previous discussion on elevating the status of MIPRC. The group discussed MIPRC's 2018 action plan and advocacy strategy. The group discussed what the FRA and USDOT can do from a federal perspective to assist MIPRC in advancing its goals and how MIPRC can advance/support the phased network development approach that is the outcome of the MWRRP. The workshop concluded with a discussion on how MIPRC can engage (or be engaged by) non-state or nonmember entities to advance the prioritized development of the network.

6.4 REGIONAL COORDINATION CHALLENGES

As with any multi-party agreement, regional rail plan stakeholders may be confronted with conflicting interests and goals, limited available resources, legal and regulatory frameworks, or conflicts with existing agreements. Stakeholder interviews and governance model workshop discussions revealed several potential challenges that a governance model will need to address and proactively manage. A governance model must address and proactively manage a number of challenges:

- Lack of or limited political support
- Limited resources
- Conflicting or divergent levels of interest
- Conflicting or competing objectives for prioritizing projects in an unpredictable and constrained funding environment
- Slow decision-making process within federal, state, local and railroad organizations
- Equitable stakeholder representation relative to role within the region
- Difficulty determining sustainable cost-sharing commitments
- Difficulty maintaining transparency and providing an open process for stakeholder participation and engagement
- Competing or conflicting federal, regional, state, and local laws, regulations, and responsibilities
- Difficulty in communicating the public benefits of a singular project to the broader region

Despite these challenges, successful regional governance models exist. Further, the FRA recognizes that a variety of multi-stakeholder governance models have been implemented for many different purposes. For regional rail planning and implementation, it is unlikely that only one governance model framework will be used from the initial vision through day-to-day O&M. The models presented provide an overview of what has been successfully used in the intercity passenger rail environment, but ultimately the lead stakeholders need to jointly discuss and develop a tailored approach that best meets each entity's needs,

accounting for individual limitations, while achieving the goal of advancing regional rail planning outcomes.

6.5 GOVERNANCE FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

The MWRRP verified what is working in existing governance structures, identified gaps, and defined state priorities in terms of advancing and elevating current governance structure. This section summarizes the FRA's findings and makes recommendations on how to advance projects in the Midwest in a manner that is consistent with the outcomes of the MWRRP.

1. **The Midwest is unusual in that it already has an established governance structure—MIPRC.** Unlike other regions where the FRA is conducting similar studies, the Midwest has been unique in that it had an established region-wide governance structure prior to the initiation of the study, which required a different study and evaluation focus from other regional studies.
2. **MIPRC is an effective organization with strong support among the Midwest states to continue as the region's governing body.** MIPRC will be used as a governance structure to advance the outcomes of the MWRRP and other regional-level planning studies. It is a priority of the Midwest states to expand MIPRC's relevancy but doing so must be balanced with protecting the sovereignty and individual interests of the states. The Midwest states seek to increase federal support of MIPRC and request that the FRA work closely with MIPRC to identify ways to include MIPRC at the federal level and to elevate MIPRC's profile. MIPRC will play a role in the phased network development that is an outcome of the MWRRP, and MIPRC will continue to examine ways to expand its ability to represent nonmember interests.
3. **The lack of a predictable funding stream results in reduced incentives for states to work together beyond the existing governance framework.** If funding for regional rail development becomes available, the Midwest states will have to act immediately. This necessitates a need for them to address the many governance issues related to developing and delivering a complex rail program across Midwest state lines now.
4. **Governance frameworks beyond MIPRC will be required to address the complex issues of delivering a major network development program, and the more robust the governance structure, the more competitive and successful this effort will be.** Future governance structures will need to address complex issues such as assignments of roles and responsibilities and approaches to complex cost allocation issues, particularly in situations where the benefits of investment are disproportionately distributed across a corridor, and several other issues.

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7. Action Items and Next Steps

The MWRRP network would provide a coordinated multi-state vision for the optimal role of regional intercity passenger rail service in the multimodal transportation context. This integrated vision for a regional rail network considers how linkages with other modes could create an integrated transportation system to carry travelers from origin to destination throughout the region in a cost-effective manner. This chapter describes recommended actions and next steps to advance the Midwest regional rail network.

7.1 NATIONAL RAIL PLAN

The Passenger Rail Investment and Improvement Act of 2008 directed the FRA to lead the development of a long-range national rail plan consistent with approved state rail plans and national mobility needs to "promote an integrated, cohesive, efficient, and optimized national rail system for the movement of goods and people[.]"[34] Early planning efforts included the development of a Preliminary National Rail Plan (October 2009), which provides a springboard for developing a long-range plan by illustrating the role that rail plays in meeting strategic goals and identifying policies to improve rail mobility within the transportation system.[35] With this policy context, the FRA has continued to engage in regional rail planning efforts in partnership with the Midwest region stakeholders in this study and other multi-state planning studies.

7.2 POSSIBLE INTERREGIONAL PLANNING

A potential future study that examines connections between the Midwest and other regions has been identified as an opportunity to further integrate the MWRRP into a larger interregional and national rail network. As described in Chapter 1, the MWRRP's primary analysis encompassed developing a regional network for the 12-state Midwest study area. Although not the focus of the study, connections to significant travel markets outside of the Midwest region were considered, such as connections to Texas, Atlanta, Washington, D.C. Philadelphia, and New York City. As noted in Chapter 1, the Southeast region and the FRA conducted the Southeast Rail Planning Study simultaneously to identify a vision for a high-performance, multi-state intercity passenger rail network in Florida, Georgia, North Carolina, South Carolina, Tennessee, Virginia, and Washington, D.C.

7.3 INCORPORATION INTO STATE RAIL PLANS AND OTHER TRANSPORTATION SYSTEM PLANS

The MWRRP network would support rail planning objectives and existing statewide processes, including development of state rail plans and LRTP efforts, and would facilitate future project-specific planning

[34] Overview, Highlights and Summary of the Passenger Rail Investment and Improvement Act of 2008. March 10, 2009. Federal Railroad Administration. https://railroads.dot.gov/elibrary/overview-highlights-and-summary-passenger-rail-investment-and-improvement-act-2008-priia

[35] Preliminary National Rail Plan. October 2009. Federal Railroad Administration. https://railroads.dot.gov/elibrary/preliminiary-national-rail-plan

efforts such as corridor studies. The MWRRP is a vision for enhanced regional rail connectivity that is intended to complement MPO long-range plans, state rail plans, and multi-state rail planning efforts in prioritizing additional studies and implementation strategies to enhance passenger and freight rail services. This long-term vision and consensus approach for planning and implementation will help establish a unified platform for developing passenger rail in this region.

Throughout the development of the MWRRP, the Stakeholder Planning Group (see Chapter 1) provided background information for ongoing state rail planning efforts and initiatives to be considered during development of the regional rail network. Additionally, the lead stakeholders provided feedback at key milestones during the planning study, which resulted in a collaborative vision for the future high-performance passenger rail network in the Midwest. The recommendations within this report provide opportunities for future development of high-performance passenger rail connectivity based on the conceptual planning efforts conducted at the regional (multi-state) level. Due to the conceptual-level planning, this regional rail plan is not intended to replace the need for detailed project-specific corridor planning and environmental studies that would be required prior to project implementation.

7.4 FOLLOW-ON DETAILED STUDIES

The Midwest has a well-established history of advancing passenger rail planning both in individual states as well as via regional efforts encompassing multiple states. As the Midwest continues to progress with projects identified in state rail plans and other planning documents, it is anticipated that the outcomes from many of these projects will affect the MWRRP network.

7.4.1 Corridor Specific

The greatest number of follow-on studies to the MWRRP will be corridor specific. These could be efforts that further advance development of corridors already established, such as the Chicago to Detroit/Pontiac corridor in Michigan and Illinois, or that evaluate corridors where there is a choice to be made for specific alignments, similar to the pivot testing described in Chapter 4 to identify recommended configurations for the various corridors.

It is anticipated that these studies could be led by state DOTs and potentially others in support of further refining the MWRRP vision. Efforts could consist of further refinements of potential network configuration options to compare impacts on different corridor alignments based on ridership, capital costs, and other evaluation criteria. These studies can also serve to formally advance passenger rail segments that were identified as network independent, small markets, or future corridors on the map for the MWRRP network.

These refinements would serve to further inform the MWRRP network and facilitate study sponsors further advancing their project through the federal planning process.

Current state rail plans identify many of these efforts with potential next steps including:

- Chicago to Detroit/Pontiac Passenger Rail Corridor
- Chicago to Dubuque Passenger Rail

- Chicago to Quad Cities and Iowa City Passenger Rail
- Chicago CREATE Program
- Chicago to Indianapolis Service Improvements
- Chicago-Fort Wayne-Lima, OH NEPA
- Chicago to Council Bluffs, Iowa and Omaha Nebraska Tier 2 EIS
- Kansas City-Wichita-Oklahoma City-Fort Worth Corridor Preliminary Engineering and Project NEPA
- Ann Arbor to Detroit FEIS
- Twin Cities to Milwaukee to Chicago SDP and NEPA (second daily round trip on Amtrak's Empire Builder)
- Minneapolis to Duluth/Superior (Northern Lights Express) Preliminary Engineering
- Lima, OH-Columbus-Pittsburgh NEPA
- Milwaukee to Chicago increase Amtrak's Hiawatha service to 10 daily roundtrips

Details on each of these initiatives are provided in Section 2.2.3 Rail Network.

7.4.2 Chicago Union Station

Amtrak, Metra, the Chicago Department of Transportation, the Illinois DOT, and the Regional Transportation Authority are working with a master developer to advance the next phase of improvements at Chicago Union Station. Most improvements are for pedestrian and vehicular access, Americans with Disabilities Act compliance, and customer amenities such as restaurants and services in the station's Great Hall. Other improvements to the area include enhancing public green space, replacing a parking structure with a new office tower one block south of the station, and renovating the fourth through eighth floors of the Headhouse with a ninth-story addition for two hotels. Construction on these efforts began in late 2019. However, the service volumes into Chicago Union Station envisioned under the MWRRP are far greater than those assumed under these recent planning efforts, and follow-on planning work will be needed to determine how those higher service volumes may be accommodated in the long-term.

7.4.3 Chicago Access

Illinois DOT is advancing a Chicago Terminal Planning Study. This project will define the priorities for future investment in rail infrastructure in the Chicago area, identifying the operational feasibility, financial feasibility, and benefits of improved passenger rail service through the Chicago Terminal Area. This effort builds on and complements recent efforts completed and underway for the Chicago–St. Louis High-Speed Rail Corridor, the CREATE Program, and Chicago–Detroit/Pontiac Tier I EIS and SDP. The effort is identifying potential alternatives for Metra and Amtrak trains, to evaluate the trade-offs associated with intercity passenger rail travel time and reliability, freight and transit enhancement opportunities and operational impacts, network redundancy, degree of public corridor ownership, economic development, and life cycle cost. However, the service volumes operating into Chicago are far greater under the network

envisioned under the MWRRP than what is being considered under the Chicago Terminal Planning Study. As such, follow-on planning work will be to determine the exact routes these corridors will traverse to access Chicago, and what improvements will be needed along those routes to accommodate the anticipated service volumes.

7.5 GOVERNANCE

As summarized in Chapter 6, implementing a regional rail plan requires extensive coordination among the participating states and various other involved stakeholders. While MIPRC has served and will continue to serve the Midwest states as a means to advocate for and advance passenger rail programs that are the outcome of the MWRRP, future governance bodies in the Midwest will be required to address a myriad of highly complex issues related to planning and implementation efforts, costs, benefits, funding, prioritized infrastructure investments, service operations and system maintenance, while considering each state's regulatory, financial, political, and institutional requirements as well as host and operating railroads' policies and perspectives. The FRA will continue to work closely with MIPRC and Midwest states to advance and elevate MIPRC as a governance structure with the clear authority, responsibility and mandate for overseeing and implementing the outcomes of the Midwest's regional planning initiative in order to coordinate and implement rail improvement projects across multiple jurisdictions.

8. Appendices

APPENDIX A – STAKEHOLDER LIST

APPENDIX B – GOVERNANCE FINAL REPORT

Appendix A:
Stakeholder List – March 2021

Name		Organization
Dick	Rogers	Amtrak
Patricia	Casler	BNSF Railway
Jeff	Sriver	Chicago Department of Transportation
Erin	Aleman	Chicago Metropolitan Agency for Planning
David J.	Berger	City of Lima, Ohio
Susan	Crotty	City of Lima, Ohio
Scott	Kuxmann	CN
J. Mark	Howell	Conexus Indiana
Mark	Fisher	Council of Great Lakes Region
Marco	Turra	CSX
Kevin	Brubaker	Environmental Law and Policy Center
Andrea	Woodard	Greater Des Moines Partnership
Rick	Harnish	High Speed Rail Alliance
Todd	Popish	Illinois Department of Transportation
Venetta	Keefe	Indiana Department of Transportation
Kristin	Brier	Indiana Department of Transportation
Bridgett	Hail	Indiana Department of Transportation
Amanda	Martin	Iowa Department of Transportation
John	Maddox	Kansas Department of Transportation
Peter	Fletcher	La Crosse Area Planning Committee
Greg	Youell	Metropolitan Area Planning Agency - Council Bluffs/Omaha
David	Kralik	Metra
Steve	Baas	Metropolitan Milwaukee Association of Commerce
Sara	Moore	Michigan Department of Transportation
Jeff	Martin	Michigan Department of Transportation
David	Warm	Mid-America Regional Council
Ron	Achelpohl, PE	Mid-America Regional Council
Laura	Kliewer	Midwest Interstate Passenger Rail Commission
Dan	Krom	Minnesota Department of Transportation
Frank	Loetterle	Minnesota Department of Transportation
Troy	Hughes	Missouri Department of Transportation
Brad	Neumann	Metropolitan Planning Organization of Johnson County
Craig	Wacker	Nebraska Department of Transportation
John	Edwards	Norfolk Southern
Scott	Zainhofsky	North Dakota Department of Transportation
Jim	Styron	North Dakota Department of Transportation
Rebecca	Geyer	North Dakota Department of Transportation
Joseph L.	Schofer PhD	Northwestern University
Matt	Dietrich	Ohio Rail Development Commission
Megan	McClory	Ohio Rail Development Commission

Name		Organization
Jim	Mathews	Rail Passengers Association
Sean	Jeans-Gail	Rail Passengers Association
Lynne	Keller Forbes	Sioux Falls Metropolitan Planning Organization
Joel	Jundt	South Dakota Department of Transportation
Jack	Dokken	South Dakota Department of Transportation
Kathleen	Lomako	Southeast Michigan Council of Governments
Mike	McCarthy	Terminal Railroad Association of St. Louis
Mark	Bristol	Union Pacific Railroad
Christopher P.L.	Barkan	University of Illinois - RailTEC
Denver	Tolliver PhD	Upper Great Plains Transportation Institute at North Dakota State University
Phil	Nelson	Wichita Area Metropolitan Planning Organization
Arun	Rao	Wisconsin Department of Transportation
Crystal	DuPont	Wisconsin Department of Transportation
Diane	Paoni	Wisconsin Department of Transportation

Appendix B

Midwest Regional Rail Plan Governance Final Report

Contents

Appendices

Executive Summary

The implementation of a regional rail plan requires extensive coordination among the participating states and other involved stakeholders. Coordination must address a myriad of highly complex issues related to planning and implementation, such as:

- What is the process for prioritizing investments across the network?
- What are the investment, operating and maintenance costs? And, how will costs be shared?
- To whom will the benefits accrue?
- Once projects are implemented, who will be responsible for operations and maintenance?
- Will different governance structures be required as projects/services evolve from planning and implementation, to operation and maintenance?

Addressing these questions must also take into account each state's regulatory, financial, political, and institutional requirements as well as host and operating railroads' policies and perspectives. A core part of any Federal Railroad Administration-led regional rail plan includes the examination of regional governance frameworks. A governance structure with the clear authority, responsibility, and mandate for overseeing and implementing the outcomes of a regional planning initiative can facilitate the coordination and implementation of rail improvement projects across multiple jurisdictions.

Unlike other regions where FRA is conducting similar studies, ***the Midwest is unique in that it has an established governance structure, the Midwest Interstate Passenger Rail Commission (MIPRC).*** Because of the existence of MIPRC, FRA treated governance in the Midwest differently than other regional rail planning efforts where there is no governing body and the focus is on the potential options for establishing one. FRA's governance efforts in the Midwest Regional Rail Plan (MWRRP) focused instead on validating the ability of MIPRC to advance regional rail planning efforts and explored ways to elevate the standing of MIPRC. Through the MWRRP, FRA found that ***there is clear consensus among the states that MIPRC is working and strong support for the continuation of the governing body as an advocate for passenger rail well as a desire to expand MIPRC's relevancy and responsibilities as a governing body in the Midwest.***

Despite the success of MIPRC as a regional governance framework relative to other regions in the US, the MWRRP also concluded that ***the lack of a predictable funding stream creates a paradoxical situation for advancing future governance frameworks that will inevitably be required to implement major corridor programs.*** There is little incentive for states to strengthen the existing governance framework to advance subsequent phases of programs when there is no certainty that funding will ever be made available to justify additional authorities. Yet, when funding does become available, the states may not have addressed the needed governance issues related to developing and delivering a complex rail program across state lines.

While MIPRC has proven to be an adequate framework for advancing planning studies on a regional scale over the last two decades, and several Midwest states have successfully undertaken several planning efforts for improvements to services that span multiple states, ***advancing passenger rail programs beyond the planning phase will require additional governance frameworks to address the complex issues of delivering a major***

corridor improvement program. Furthermore those program of projects that are governed by a strong and experienced structure will be more competitive for federal funding opportunities. Roles and responsibilities, cost allocation, right-of-way acquisition and ownership are just a few of the complicated issues states will need to resolve. Finally, ***MIPRC will play an important role in the phased development of the Midwest regional rail network by working to advance passenger rail programs, projects and priorities that are the outcome of the MWRRP.***

Introduction

The Midwest Regional Rail Plan (MWRRP) is a collaborative, multi-state effort to produce a 40-year framework for the Midwest intercity passenger rail network, including a prioritization of corridors and investment projects, a funding strategy, and a governance structure. This document summarizes FRA's approach, analysis and conclusions related to governance in the MWRRP.

One of FRA's objectives for the governance task in the MWRRP is to remain consistent with other previous and on-going studies. In all the regional rail plans conducted to date, FRA's focus has been on bringing stakeholders together to explore the potential to form a governance framework that can be used to advance the outcomes of the plan. In the Southwest and Southeast regions, where FRA also led regional rail plans, neither region had an existing functional governance structure. In contrast, the Midwest has a long-standing governance structure, MIPRC. Formed by compact agreement in 2000, MIPRC brings together state leaders from across the region to advocate for passenger rail improvements. MIPRC's current member states are Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota and Wisconsin. The main purposes of the compact are to promote, coordinate and support regional improvements to passenger rail service.

Furthermore, the Midwest region is larger and far more complex than the other two regions and currently has several, established intercity passenger rail corridors and decades' worth of experience of states working together to undertake planning and capital investments required to advance and improve intercity passenger rail service.

In recognition of the Midwest's established governance structure, its complexity and the Midwest states' history of successfully implementing large programs FRA's approach differed to other regional rail planning studies. FRA's objectives in terms of governance were modest. Through the MWRRP, FRA sought to:

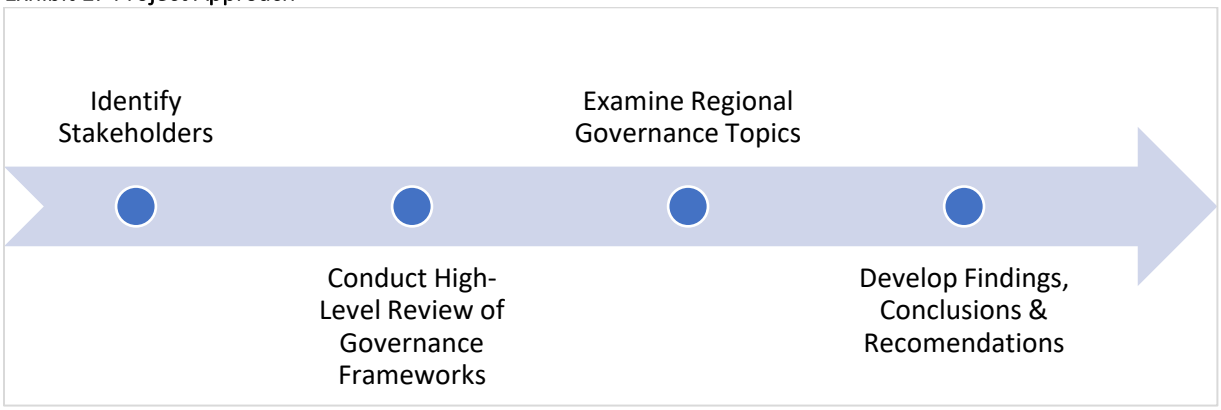
- Verify what was working in terms of the existing governance structure
- Identify any existing gaps
- Understand the state's priorities in terms of advancing and elevating their existing governance structure
- Make recommendations on how to advance projects in the Midwest in a manner that is consistent with the outcomes of the MWRRP

The remainder of this document outlines FRA's approach to realizing these objectives. It includes FRA's conclusions and recommendations for governance as it relates to advancing the prioritization of corridors and investing in projects as well as funding strategy that collectively comprise the MWRRP.

Approach

FRA started its examination of governance in the Midwest by identifying and classifying stakeholders as they related to the MWRRP. This step was critical in determining which stakeholder groups would be subject to which kind of engagement in terms of governance. Next, FRA conducted a high-level review of governance frameworks that might apply to projects that result from the MWRRP. FRA then engaged the lead stakeholders in a series of workshops to examine and understand a variety of topics related to governance on a regional scale. FRA then developed findings and conclusions that are summarized in the Executive Summary and at the end of this document.

Exhibit 1: Project Approach



Step 1: Identify Governance Stakeholders

Geographically the Midwest is an expansive region and represents the most complex rail network in the nation with a rich heritage and network of intercity passenger, commuter, and freight rail. There are multiple stakeholder groups associated with the Midwest passenger rail network, encompassing the US DOT, state DOTs, host and operating railroads, municipal governments and advocacy groups dedicated to advancing passenger rail in the Midwest. Because of this large universe of parties, FRA's approach to governance first focused on classifying these parties into several distinct categories, each of which were subject to a different level and type of engagement relative to the examination of governance in the Midwest:

- **FRA** was the project sponsor and is the federal agency responsible for the development of the nation's intercity passenger rail system. FRA led the MWRRP governance discussions.
- **Lead Stakeholders** were representatives of the State DOTs in the Midwest region and MIPRC. These representatives were the primary participants in discussions related to governance.
- **Additional Stakeholders** were representatives of other groups with an interest and a relationship to governance as potential partners in undertaking projects such has host railroads, local municipalities, and Metropolitan Planning Organizations (MPOs). These representatives received regular updates on governance discussion topics during the MWRRP workshops.

Federal Railroad Administration (FRA)

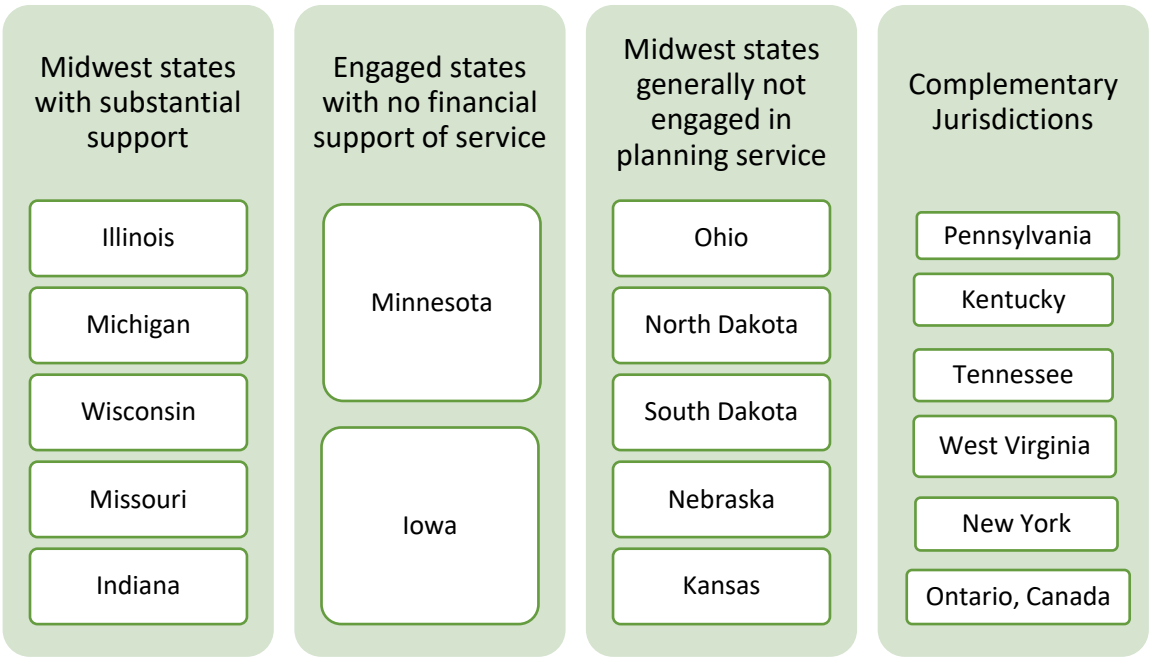
Formed in 1967, the FRA is the federal agency responsible for the development of the nation's intercity passenger rail system. FRA informs and implements Administration policy regarding the nation's intercity passenger rail systems and sponsors passenger rail improvements and services. The Passenger Rail Investment and Improvement Act of 2008 (PRIIA), which created new railroad investment programs and reauthorized Amtrak for five years, affirms federal involvement in developing the nation's intercity passenger rail system. The FRA provides financial assistance, quantitative analysis, environmental research, project reviews, research and development, technical assistance, and supports development of intercity passenger rail policy. In addition, the FRA studies potential high-speed rail corridors and regions across the country, such as this study.

Under FRA's discretionary funding programs, FRA evaluates potential intercity passenger rail programs and projects on a variety of factors. A major evaluation criteria for complex, multistate corridor programs is the adequacy of the proposed governance framework. Additionally, FRA is responsible for monitoring and overseeing federally funded programs as they advance through the implementation stages, and FRA's ability to efficiently interact with the established governance structure is critical to the success and continued funding of the program.

State Departments of Transportation

For the last several decades, states have been at the forefront of building and growing state-supported passenger rail service. As the primary recipient of federal funding for such programs, and as the primary investor in state-supported services, states are by far the most important stakeholder group responsible for advancing passenger rail in the Midwest. The chart below depicts the Midwest states' level of involvement on planning for and advancing passenger rail in the Midwest.

Exhibit 2: Current Understanding of State by State Status on Planning for Regional Passenger Rail Service



The Midwest has long been an active proponent for the advancement of passenger rail, and has a history of undertaking successful governance frameworks for the advancement of both passenger and freight rail programs. In 1996, the nine Midwest states of Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin, in partnership with the FRA, undertook the Midwest Regional Rail Initiative (MWRRI), a cooperative, multi-agency initiative to advance a robust, Midwest passenger rail system based on a hub and spoke network operating at 110 mph across the Midwest (see Exhibit 3). The plan focused on offering business and leisure travelers shorter travel times, additional train frequencies, and connections between urban centers and smaller communities.

Exhibit 3: MWRRI Vison for Midwest Passenger Rail Network

Source: Midwest Regional Rail Initiative

When the federal High Speed Intercity Passenger Rail (HSIPR) program launched in 2009, the Midwest was well-positioned to undertake significant improvements to their state-sponsored corridors. Since 2010, Illinois has led the nation's third largest portfolio of investments in intercity passenger rail. The Chicago to St. Louis corridor improvement program (CIP), is a $1.6 billion investment that includes major improvements to track, signal systems, stations, and equipment to increase passenger and freight performance and improve safety across the nearly 284-mile corridor. The $126 million Englewood Flyover Project in Chicago grade separated two of the most heavily traversed passenger and freight corridors in the Midwest. Further east, Michigan led the multi-million-dollar purchase of a 130-mile segment of the Chicago to Detroit (CHI-DET) corridor, and is currently overseeing infrastructure improvements to modernize the signal system and rehabilitate the track to maximize

speeds and reduce travel times. On the same corridor, Indiana is overseeing a $72 million infrastructure improvement project in northern Indiana that will increase operational flexibility for both passenger and freight trains. While these major programs are each led by a single state, they often required close coordination between adjacent states and always required some form of agreement with the host and / or other tenant railroads. Lessons learned from these state-led programs informed the FRA's examination of governance structures. Additionally, Midwestern states have also worked together to undertake multiple corridor-wide planning efforts. These planning efforts require agreements and close coordination between states and the experiences and lessons learned through these studies also informed FRA's governance analysis.

Midwest Interstate Passenger Rail Commission

Formed by compact agreement in 2000, MIPRC brings together state leaders from across the region to advocate for passenger rail improvements. Current member states are Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota and Wisconsin. The main purposes of the compact are to promote, coordinate and support regional improvements to passenger rail service. The combined efforts of MWRRI, MIPRC and FRA have significantly advanced intercity passenger rail in the Midwest during the last two decades and serve as the foundation for the examination of governance in the Midwest.

The most significant undertaking from a governance perspective in the Midwest has been the delivery of the Midwest fleet of locomotives. Funded by a grant to the Midwest states to replace aging locomotives with modern equipment capable of high-speed operations along eight state-supported routes in the region, the Midwest states participating in the locomotive pool of equipment formed a governance structure, using authority derived from MIPRC, to own, operate, maintain and potentially procure additional locomotives. This recent undertaking in multi-state governance was closely examined as part of the governance portion of the MWRRP.

Additional Stakeholders

Given the broad range of the MWRRP, the state DOT representatives were asked to contribute names of individuals who should be considered as "Additional Stakeholders" that compromise the remainder of the Stakeholder Planning Group. With the goal of achieving a good balance of geographic and subject-matter diversity, the state DOT representatives nominated and FRA selected approximately 30 "additional stakeholders", representing the following groups:

- Intercity and commuter rail operators
- All Class 1 and selected other host railroads
- Local governments
- Metropolitan Planning Organizations
- Business / Freight interests (chambers of commerce, business associations)
- Academia (University Transportation Centers, and rail specific research centers)
- Passenger rail advocacy groups (state/city or corridor associations)
- Other advocacy groups (environmental, safety, etc.)

These additional stakeholders were provided regular updates on the status and progress of FRA's examination of governance throughout the study. The MWRRP Public Involvement Plan provides more information on the make-up of the stakeholder planning group and the process used to determine membership.

Step 2: Conduct High-Level Review of Governance Frameworks

FRA spent the first several weeks of the MWRRP examining governance frameworks that were relevant and applicable to the development of Midwest intercity passenger rail programs, and ultimately produced a white paper, titled, *"Regional Rail Planning Governance Structures White Paper"*, which can be found in Appendix 1.

FRA drew from two main sources for governance frameworks related to passenger rail programs. The first is the report from FRA's Southwest Multi-State Rail Planning Study, September 2014. In this document, FRA describes the approach taken by the Southwest states to work through their governance and institutional issues, receive input from stakeholders, consider various governance models, and ultimately report on the stakeholders' governance findings and recommendations. The second document "Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs" is a Transportation Research Board (TRB) research paper, from the National Cooperative Rail Research Program (NCRRP) which was released in September 2016. The TRB research paper summarized conclusions from literature research and case studies from existing rail and other multi-state institutional models, complemented by focus group discussions with experienced practitioners. A critical review and assessment of these models resulted in the recommendation of eight (8) governance models as preferred options. However, the study also states that "no single governance model has proven to be particularly effective for advancing passenger rail" partly because no model was applied for the complete lifecycle of a program from planning to operations/maintenance.

The whitepaper discussed the role of a governance framework, what types of organizations are typically involved in governance, and explored many of the challenges with implementing an effective governance structure. The paper then described in greater detail the eight types of governance models that are generally applicable in intercity passenger rail programs:

Exhibit 4. Description of Alternative Multi-State Governance Models from "Regional Rail Planning Governance Structures White Paper"

No.	Model	Definition	Phase of Development	Examples
1	Coordinated State Efforts	Where two or more states agree to coordinate passenger rail efforts within their respective states.	• Visioning • Planning	• Pacific Northwest Rail Corridor • South Central High-Speed Rail Corridor (SCHSRC)
2	Coalition/ Partnership	Where multi-state partners convene on a voluntary basis to carry out activities of common interest. May also be carried out in coordination with a non-profit corporation.	• Visioning • Planning	• I-95 Coalition • Coalition of Northeastern Governors • Midwest Regional Rail Initiative (MWRRI)

Exhibit 4. Description of Alternative Multi-State Governance Models from "Regional Rail Planning Governance Structures White Paper"

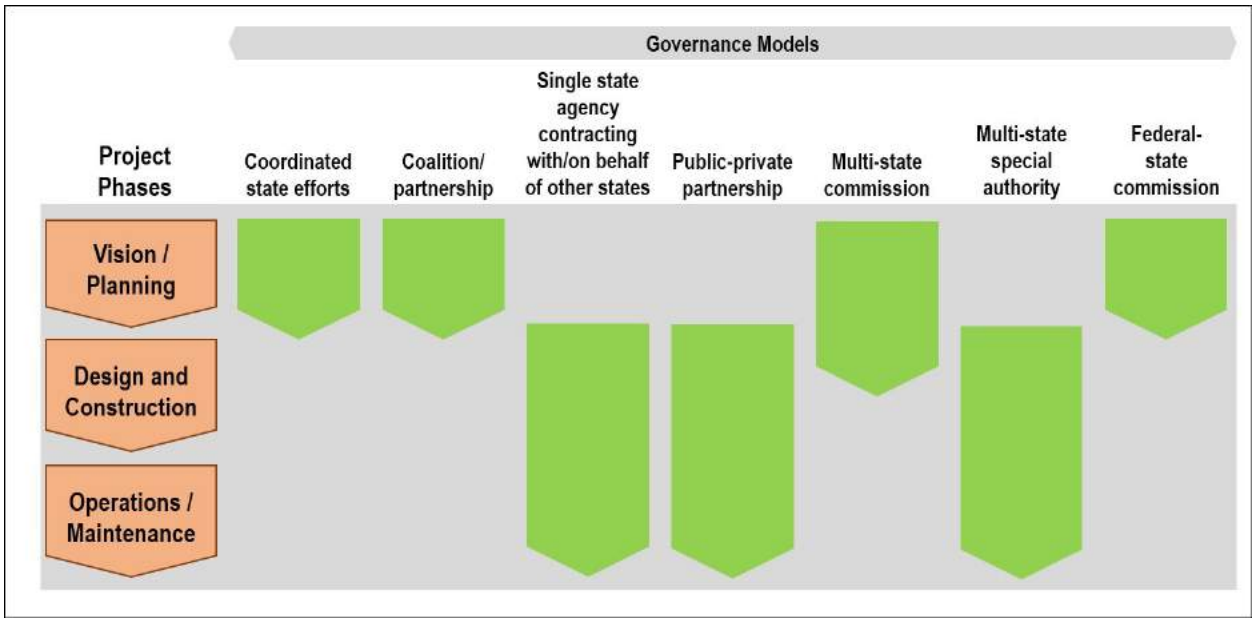
No.	Model	Definition	Phase of Development	Examples
				• Amtrak Northeast Corridor (NEC) Infrastructure Master Plan Working Group
3	Single State Agency Contracting with or on Behalf of Other States	Where an existing or newly created entity within a single state addresses multi-state interests, primarily through contractual arrangements with other states.	• Design • Construction • Operations and Maintenance	• Chicago-Detroit/Pontiac Corridor Investment Plan • Chicago to Quad Cities • Chicago to Milwaukee Hiawatha SDP for Three Additional Frequencies • Chicago to Milwaukee to Twin Cities EIS and Additional Frequency to the Empire Builder • Northern New England Passenger Rail Authority (NNEPRA)
4	Public-Private Partnership	Where the government and the private sector enter into an arrangement that allows for greater private-sector participation in the delivery of transportation projects.	• Design • Construction • Operations and Maintenance	• All Aboard Florida (AAF) • Texas Central Railway • Indianapolis-Chicago Hoosier State Service • CREATE
5	Multi-State Commission	Where two or more states coordinate multistate interests through a formal agreement that establishes a governing body.	• Planning • Preliminary Design	• Midwest Interstate Passenger Rail Commission (MIPRC) • Southeast High Speed Rail Corridor (SEHSR) Project: Virginia-North Carolina
6	Multi-State Special Authority	Where an independent entity, often a distinct governmental body, delivers a limited number of public services within defined boundaries across state lines and can exercise a broad range of typical governmental powers.	• Design • Construction • Operations and Maintenance	• Washington Metropolitan Area Transit Authority (WMATA) • Port Authority of New York and New Jersey
7	Federal-State Commission	Where a body of federal, state, and, sometimes, local leaders organize to address a critical need.	• Planning	• Appalachian Regional Commission (ARC) • NEC Infrastructure Operations and Advisory Commission
8	Freight Railroads	Where freight railroads lead delivery of passenger rail services.	• Design • Construction • Operations and Maintenance	• No current examples for intercity service

The eight governance models were discussed in more detail with the state DOT representatives throughout the duration of the MWRRP.

In the whitepaper, FRA also recognized the need for governance structure(s) that can be tailored based on the phase or stage of the program or project. Not all states within a region will have a role in advancing specific corridor programs or projects, and as programs and projects of regional significance are advanced, funded, designed, and constructed, the various stakeholders' responsibilities change over time depending on the nature of the program. Transitions in stakeholders' responsibilities may occur in parallel as different segments within the network are prioritized and implemented. To account for these changing responsibilities, states require the ability to develop and implement additional governance models that provide the needed structure, processes, and decision-making models specific to the program or project.

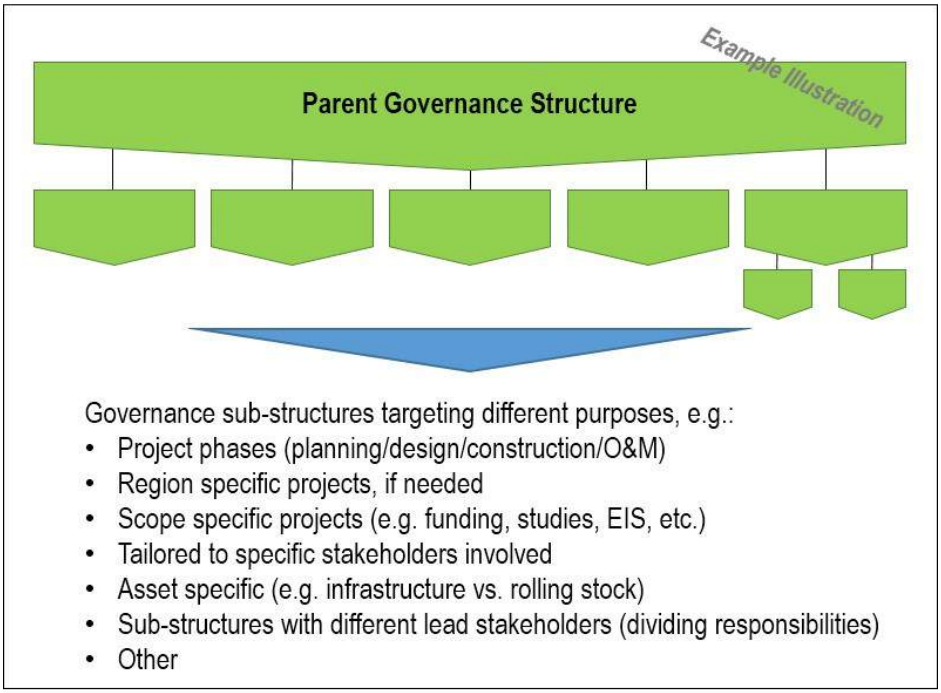
The illustration below shows the NCRRP study's recommendation for which models are most applicable to the main project phases.

Exhibit 5. Governance Models' Applicability to Project Phases



Over time, a governance structure may not only transition to other models better suited to specific project phases. The stakeholders can also refine and tailor the model to specific needs as the project progresses and changes to scope and objectives occur. The illustration below shows how an overall parent governance structure can form sub-structures for specific purposes. Some of these sub-structures can become permanent groups, while others may be limited until their assignments are completed.

Exhibit 6. Governance Organization and Division into Sub-structures



FRA concluded in the whitepaper that various multi-stakeholder governance models have been implemented for many different purposes. For regional rail planning and implementation, there is no "one model fits it all" framework that spans from the initial vision through managing day-to-day operations and maintenance. The models presented provide an overview of what has been successfully used in the intercity passenger rail environment, but ultimately the Lead Stakeholders need to jointly discuss and develop a tailored approach that best meets each entity's needs, taking into account individual limitations, while also achieving the goal of advancing regional rail planning outcomes.

Step 3: Examine Regional Governance Topics

The whitepaper was used as a tool to engage the Lead Stakeholders in a discussion on the advantages and disadvantages of the various models from both an individual state and a regional perspective. FRA facilitated three states-only workshops with the state DOT representatives and MIPRC. The presentations used by FRA to guide these discussions can be found in Appendix 2 and detailed meeting notes can be found in Appendix 3.

States-Only Governance Workshop #1: St. Paul, Minnesota

The Lead Stakeholder workshop was hosted on June 6, 2017 in St. Paul, Minnesota. The full presentation used to guide this discussion can be found in Appendix 2.1. During this workshop, FRA discussed how a functioning governance framework is needed to advance the findings of the MWRRP. FRA and the states also discussed some of the challenges the states face in implementing a functioning governance framework. FRA then reviewed the whitepaper with the state DOTs. Several key points were highlighted during this discussion.

Notably, that states have a relatively easy time making capital investments with state and federal funding, but funding on-going operations is difficult for some states, and that each requires a different form of governance structure. There was some skepticism about the effectiveness of Public Private Partnerships (P3). They are viewed as more of a delivery mechanism than a governance model, and there are downsides to P3s when the private partner runs out of funding or decides the partnership is no longer going to be profitable, as one state recently experienced with an intercity passenger rail partnership. There was a recognition that intercity passenger rail investment in the Midwest is predominantly on privately-owned freight right-of-way and this is an additional complexity not faced by other modes of transportation. Other issues related to governance discussed by the group were the challenge of creating a framework that can withstand political shifts and changes and the governance framework's ability to create, generate and expend revenue. There was some discussion about the limits of a commission like MIPRC to raise revenue, unlike an authority where there is a specific statutory authority to do so. Throughout the discussion of the whitepaper there were multiple comments that MIPRC served the Midwest well in advancing for both planning and the recent Midwest equipment procurement.

After the group discussed the whitepaper, each state representative was asked to answer a series of questions, summarized below.

Legal Limitations, Capabilities and Applicable Governance Frameworks

The first discussion topic the states' representatives discussed were the legal limitations, capabilities and applicable governance structures. The group expressed several common themes, summarized below:

- Many states receive funding for rail projects through a general appropriation, but most states did not have a dedicated funding source for passenger rail projects and several states were strictly prohibited from spending transportation-generated revenue (gas taxes) on rail projects.
- Several states have active and successful loan programs for rail projects within their states, mainly for private and industry-related projects but some financed projects also benefit intercity passenger rail.
- The three states with the most state-supported rail programs—Illinois, Michigan and Wisconsin—also appear to be the states with the most flexibility and experience in terms of funding and supporting multi-state projects.
- While many states could participate and fund planning studies that spanned outside of their state, most states were prohibited from spending design and construction funding outside of state jurisdictions.
- While most states were prohibited from spending construction dollars outside of their state, several states cited examples—mostly bridge projects—where two states successfully collaborated on a major infrastructure project, evidence that "where there is a will, there is a way" regarding the ability of states to execute multi-state capital program.
- A state's sovereign immunity adds additional complexity when considering partnering with other states to undertake multi-state infrastructure investments.
- Several states noted that their continued participation in MIPRC was evidence of their state's support for advocating for intercity passenger rail.

During the same timeframe as the Lead Stakeholder workshop #1, a summary review of the legal authority by state to invest in intercity passenger rail programs and services at the 2017 MIPRC annual meeting. This presentation has been included for reference as Appendix 4 to this paper.

Successes and Gaps Related to the Existing Arrangements

Next the states' representatives were asked to discuss what is working well, what are the significant gaps in the current applicable governance structures and what, if any, would be the states' priority focus for advancing a governance structure under the MWRRP. Below are the highlights from this discussion.

- The use of MIPRC's authority in the recent locomotive procurement is an example of successfully implementing a multi-state governance structure. The participating states had recently leveraged the authority vested through their state's MIPRC legislation to implement a governance structure that allowed the states to own, operate, maintain and potentially procure additional rolling stock. By all accounts from the participating states, the use of MIPRC's "umbrella" was a success because it enabled participating states to more quickly to create a simple governance structure for the ownership, operations and maintenance of the fleet. The Compact gave legal constitutional authority to come together as states, and the states were able to implement an agreement much more quickly. Without MIPRC's authority, the equipment fleet governance would have been significantly more complicated. The lessons learned from this recent initiative could be applied to a corridor investment case study.
- Despite the many successes of the advocacy group, there remains a gap in the level of influence MIPRC is able to command. MIPRC doesn't have the same level of clout as other, similar governance structures, such as the Northeast Corridor Commission, and the perspective of the Midwest states is that other rail projects get more attention from US Congress and US DOT. Furthermore, when FRA, USDOT, and Amtrak focus on passenger rails in the Midwest, it appears that including or collaborating with MIPRC is an afterthought. The Midwest states and FRA should consider ways to elevate and raise the political profile of MIPRC.
- Working with host railroads can be a very complicated and frustrating process, and often agreements with host railroads make advancement in passenger rail programs cost prohibitive because the host railroad asks for so much up-front investment.
- There is a desire among the Midwest states for FRA to better support MIPRC to help advance rail priorities and enable states to work together to optimize their interactions with Amtrak and host railroads and therefore identify opportunities to improve Midwest operations.
- Another example of successful collaboration among states has been through corridor planning studies. Over the last decade, FRA and the Midwest states have invested in a number of corridor investment plans, which are ready to be implemented. A corridor approach to these plans was necessary in order to drill down to the level of detail required by the National Environmental Policy Act (NEPA) so that the FRA and state partners could adequately examine the level of investment in each corridor. To varying degrees, these plans outline investments required to advance specific corridors. The upcoming Chicago Terminal study will examine the optimal configuration of several intercity passenger rail corridors converging on Chicago. These studies have provided an opportunity for state rail teams to gain technical experience and build relationships with their counterparts in other states. Such studies also provide an opportunity for the states to engage directly with the host railroad to discuss investments

required to improve service, as typically the relationship with the host railroads is predominantly through Amtrak. Multi-state coordination provides an advantage when working with host railroads in presenting a "common voice" from the passenger rail perspective.

- Over the last several decades, every state has evolved in terms of intercity rail. Changing political priorities have impacted on-going rail programs. Building technical expertise at the staff level has been key to continuing momentum through changing political priorities. The more the state rail teams gain direct experience and build relationships with their counterparts in other states, the more the states will continue to weather changing political tides and continue to optimize shared operations in the Midwest.
- The American Recovery and Reinvestment Act (ARRA) and the FRA-administered High Speed Intercity Passenger Rail (HSIPR) program resulted in a fundamental shift away from viewing the Midwest as a network through the work of MWRRI and MIPRC. HSIPR instead invested in projects on primarily a state-by-state basis. Midwest states have successfully invested billions of dollars in the Midwest network though this approach, but the network perspective fostered through MWRRI and MIPRC was lost in the predominantly state-focused HSIPR program. However, the Midwest equipment procurement provided an opportunity for the Midwest states and FRA to re-adopt a more network-focused perspective.
- There is a desire among several Midwest states to explore opportunities to contract with other operators besides Amtrak, but the cost of procuring liability insurance across state lines for a contract operator is prohibitive. Furthermore, from the Midwest state's perspective, FRA has enabled Amtrak to make it even more prohibitive for states to work with any operator besides Amtrak because the FRA Office of Safety does not require Amtrak to provide same level of safety certification as if a state hired a contractor to operate the same service.
- It is FRA's role to provide capital funding, but in the current fiscally constrained environment, there is not enough money to fund all worthy investments. Furthermore, the lack of a predictable funding stream makes it difficult for states to support a project that may benefit the network but not the state, because there is no confidence that there will be other opportunities for funding. The states' willingness to subject themselves to a regional governance framework that prioritizes investment in terms of the network, rather than the current situation of each state pursuing its own projects and program would assist the Midwest in advancing priority projects that focus on optimizing the network.

Lead Stakeholder Governance Workshop #2: Detroit, Michigan

The second states-only workshop was hosted on September 13, 2017 in Detroit, Michigan. During this workshop, FRA reviewed the previous governance discussion and then presented a case study focused on the governance aspects of a major capital investment program. FRA and the states then discussed the role of governance in optimizing Midwest operations, and concluded the discussion with ways to evolve and elevate the status and standing of MIPRC. The full presentation developed to support this discussion can be found in Appendix 2.2. Each of these topics is summarized below.

Topic 1: Case Study Governance: Chicago - Detroit/Pontiac Passenger Rail Corridor Investment Program

The FRA presented a case study based on the Chicago - Detroit/Pontiac Passenger Rail Corridor Investment Program (CHI-DET CIP) and examined what type of governance structure would be required for implementation. The CHI-DET route encompass the physical infrastructure, track, and right-of-way between Chicago and Pontiac, Michigan and the CHI-DET CIP focuses on constructing the infrastructure needed to accommodate an interim phase of six Daily Round Trips (DRTs) by the year 2025 and then construct the remaining infrastructure to complete full build-out of the program by the year 2035. The program assumes express travel time between Chicago and Detroit of 3 hours and 46 minutes, and provides a dedicated passenger corridor that would accommodate two continuous main tracks between Chicago Union Station and Porter, IN, and beyond Porter, existing infrastructure will be upgraded to accommodate higher-speed passenger rail service.

An immediate next step for the CHI-DET CIP is the completion of the Final Tier 1 Environmental Impact Statement (EIS) EIS and FRA's Record of Decision (ROD) on the recommended service and routing alternative. Following completion of the Tier 1 EIS and ROD, the area studied will be broken into subareas and a Tier 2 environmental analyses and preliminary engineering (PE) will be conducted that identify the exact locations of where program-related actions will take place.

This program presents a particular challenge related to the distribution of capital costs relative to benefits among the states and other potential beneficiaries (such as existing host railroads), and to undertake Tier 2 environmental analyses and PE, and to continue to advance the CIP into the subsequent phases of program implementation, the sponsor states will need to develop a governance structure. The case study examined what would such a governance structure look like.

The FRA concluded that a relevant starting point for consideration is the Midwest Equipment Fleet Ownership Agreement. Because of the recent success of the Midwest Equipment Procurement and the use of the authority vested in MIPRC to execute this agreement, there were several relevant aspects of this agreement that would be applicable to an agreement / governance structure for the CHI-DEP CIP, including:

- Legitimate, legally-binding agreement
- Establishes a process to oversee and fulfill agreement
- Establishes an entity to represent involved states; vests decision-making authority with the entity
- Assigns roles and responsibilities
- Defines the intent of the program
- Describes the methodology for determining cost allocation
- Defines a dispute resolution process
- Requires annual financial planning process
- Addresses activities in non-participating states

- Addresses defaults on payments and withdrawal of parties
- Addresses indemnification

However, there were several areas that would require further development in order to implement the robust governance structure required to oversee a major corridor improvement program. These areas include but are not limited to:

- Much more detail required on the roles and responsibilities of the states' oversight entity
- More robust cost allocation methodology required
- Assignment of responsibilities for oversight of design and environmental work
- Determination of which state's procurement process should be used
- Assignment of responsibilities for overseeing or performing land acquisition and ownership of ROW
- Determination of which state's procurement process is used
- Process for how to interact with host, tenant or adjacent railroads and ROW owners
- Assignment of roles and responsibilities for operations planning and station planning
- Process for how to interact with Amtrak and the Midwest Fleet Manager

The case study discussion concluded with the recognition that, from the states' perspective, US DOT and states have done similar programs for decades, and several states cited the interstate highway system and major bridge programs between two states as examples. However, the lack of a dedicated and predictable funding source is the primary reason states have not advanced governance structures for corridor programs. This is a paradoxical situation, there is little incentive for states to work together when there is no certainty that funding will ever be made available, yet, when funding is available, the states will not have addressed the many governance issues related to developing and delivering a complex rail program across state lines.

Topic 2: Governance and Optimizing Midwest Operations through a Midwest Services Operational Council

The next discussion topic was exploring ways to optimize operations in the Midwest through existing or improved governance structures such as MIPRC. Through the Midwest Equipment Procurement, the implementation of the Passenger Rail Improvement and Investment Act (PRIIA) Section 209, which requires Amtrak and states to allocate costs for state-supported Amtrak routes, the Midwest states have been increasingly successful in coordinating as a collective unit with Amtrak. Working together can consolidate the states' influence with Amtrak, and provide more focus on key issues that are important to more than one state. There is the ability to recognize and present economies of scale, and there are opportunities to better optimize efficiencies within the network operationally. The Midwest states have expressed a strong desire to brand the Midwest service as a geographically-distinctive offering.

FRA suggested the states consider the creation of a Midwest Services Operational Council. Under MIPRC, similar to the Midwest Fleet Ownership Agreement, this would establish the ability for the Midwest States (presumably those with state-supported service) to hire an operations manager that would function like a Joint Powers Authority (JPA) for regional services and create an executive director of the Operations Council. The counsel would be responsible for developing and implementing a cohesive brand, optimized timetables, and other service efficiencies. This type of arrangement could also support each state's negotiation of PRIIA Section 209 costs and work closely with Amtrak on all issues related to regional services. The cost allocation could be derived through a similar methodology as the Midwest Fleet Ownership.

In response, the states explained that they are already doing many of these activities informally and with increasing regularity, and expressed concerns over giving up sovereignty. They also expressed an inability to spend additional time or resources creating an intermediary to represent states. While FRA would have supported developing a draft agreement for a Midwest Operations Council under the governance task of the MWRRP, the states were not interested in pursuing this concept, as that this type of arrangement also hinges on reliable funding which the states don't currently have which you mention in other places.

Topic: 3: Elevating the Role of MIPRC

The last part of this working session included a brief discussion on exploring ways to elevate MIPRC's standing and status. FRA noted that one way to increase the prominance of MIPRC is to bestow more responsibility and authority as the Midwest has already done in developing the framework for owning, operating and maintaining the Midwest equipment fleet. FRA suggested using and expanding MIPRC's role when advancing future corridor improvement programs like the previouysly discussed case study, and / or establishing an Operations Council and making the executive director possibly an employee of MIPRC.

The states then discussed other ideas for raising MIPRC's profiles and ways to evolve MIPRC to reach the same level of recognition as other governance structures like the NEC Commission. The group agreed to continue this discussion as the main topic for the next and final workshop, discussed below.

Lead Stakeholders Governance Workshop #3: Chicago, Illinois

The final governance session was held in Chicago, Illinois on December 5, 2017. At this meeting, the states and FRA built on the previous discussion on how to elevate the status of MIPRC. The group discussed MIPRC's action plan and advocacy strategy for 2018. The group also discussed what FRA and US DOT can do from a federal perspective that will assist MIPRC in advancing its goals, and how MIPRC can advance/support the phased network development approach that is the outcome of the MWRRP. The group also discussed how MIPRC can engage (or be engaged by) non-state or non-member entities to advance the prioritized development of the network.

Step 4: Develop Findings, Conclusions & Recommendations

The governance task for the MWRRP focused on verifying what's working in terms of the existing governance structure, identifying any existing gaps, and understanding the state's priorities in terms of advancing and elevating its existing governance structure. This section summarizes the FRA's findings and makes

recommendations on how to advance projects in the Midwest in a manner that is consistent with the outcomes of the MWRRP.

Finding #1: The Midwest is unique in that it already has an established governance structure, MIPRC. Unlike other regions where FRA is conducting similar studies, the Midwest is unique in that it has an established governance structure, which required a different focus than other, similar studies.

Finding #2: MIPRC is an effective organization and there is strong support among the Midwest states for the continuation of this governing body. MIPRC will be used as a governance structure to advance the outcomes of the MWRRP and other regional-level planning studies. It is a priority of the Midwest states to expand MIPRC's relevancy, but doing so must be balanced with protecting the sovereignty and individual interests of the states. There is also a clear desire from the Midwest states to increase federal support of MIPRC, and the Midwest states requested FRA to work closely with MIPRC in the future to identify ways to include MIPRC at the federal level and to elevate MIPRC's profile**. MIPRC will play a role the phased network development that is an outcome of the MWRRP**, and MIPRC will continue to examine ways to expand its ability to represent non-member interests.

Finding #3: The lack of a predictable funding stream results in reduced incentives for states to work together beyond the existing governance framework. However if funding does become available, the states will need to be prepared immediately. This necessitates a need for them to address the many governance issues related to developing and delivering a complex rail program across state lines now.

Finding #4: Additional governance frameworks beyond MIPRC will be required to address the complex issues of delivering a major corridor improvement program, and the more robust the governance structure, the more competitive the program of projects will be. Future governance structures will need to address complex issues such as assignments of roles and responsibilities, approaches to complex cost allocation issues, particularly in situations where the benefits of investment are disproportionately distributed across a corridor, and a number of other issues.

In conclusion, the implementation of a regional rail plan requires extensive coordination among the participating states and various other involved stakeholders. While MIPRC has served and will continue to serve the Midwest states as a means to advocate for and advance passenger rail programs that are the outcome of the MWRRP, future governance bodies in the Midwest will be required to address a myriad of highly complex issues related to planning and implementation efforts, costs, benefits, funding, prioritized infrastructure investments, service operations, and system maintenance, while taking into consideration each state's regulatory, financial, political, and institutional requirements as well as host and operating railroads' policies and perspectives. FRA will continue to work closely with MIPRC and the Midwest states to advance and elevate MIPRC as a governance structure with the clear authority, responsibility, and mandate for overseeing and implementing the outcomes of the Midwest's regional planning initiative in order to facilitate the coordination and implementation of rail improvement projects across multiple jurisdictions.

Appendix 1: Governance Whitepaper

Regional Rail Planning
Governance Structures
White Paper

DRAFT

Contents

Introduction

The goal of a Federal Railroad Administration (FRA) Regional Rail Plan is to produce a 40-year long-term framework for a high-performance regional passenger rail network, to include a prioritization of corridors and investment projects supported by a governance structure and a funding strategy. The governance framework created through regional rail planning can serve as the nexus through which singular state and local activities are coordinated, prioritized, and advocated for on a multi-state basis. A regional governance structure, if properly designed and implemented, can provide clarity and advance the rationale for undertaking near-term investments identified and prioritized as part of the regional planning process. The regional governance structure will also build the platform to support multi-state, long-term investments to implement multi-state corridor upgrades and ultimately new demand-oriented passenger rail services.

FRA recognizes that the present condition of and future vision for regional transportation networks vary among regions. The purpose of this document is to present different regional, multi-state, and public-private governance models for consideration in order to successfully advance regional rail planning efforts.

The Importance of a Regional Governance Framework

The implementation of a regional rail plan requires extensive coordination among the participating states and various other involved stakeholders. Coordination must address a myriad of highly complex issues related to planning and implementation efforts, costs, benefits, funding, prioritized infrastructure investments, service operations, and system maintenance, while taking into consideration each state's individual regulatory, financial, political, and institutional requirements as well as host and operating railroads' policies and perspectives. A governance structure with the clear authority, responsibility, and mandate for overseeing and implementing the outcomes of a regional planning initiative can facilitate the coordination and implementation of rail improvement projects across multiple jurisdictions. A review of governance models across the spectrum indicates that no single arrangement is appropriate for all phases of planning, funding, procurement, construction and operations. While identifying and developing a governance framework that will best advance the outcomes of the regional rail plan is one of the underlying goals of FRA's regional rail planning process, it is also important to consider frameworks that offer the flexibility to accommodate the various phases and levels of rail development.

The Role of a Governance Framework

A governance framework provides a structure to formalize roles and responsibilities, develop protocols and decision-making procedures, establish accountability and oversight, and represent individual states' and other stakeholders' needs. Ideally, a regional governance model will:

- Prioritize and advance near-term projects across the region
- Lead to the creation of, advocacy for and implementation of a visionary regional investment strategy for a long-term regional rail network
- Coordinate continued regional planning and communication

- Identify the rail network's investment needs and its role in the future economic growth and development of the region
- Help to define subsequent institutional arrangements that will be required for follow-on phases of the program

A functioning governance framework can sustain the momentum of the regional plan.

Governance Framework Members

The following organizations could all play a role in developing a regional governance framework:

- **Federal Government**: The FRA is the primary agency responsible for distributing federal funds for intercity passenger rail initiatives. As a primary federal funding partner, FRA seeks to advance a broader regional, multi-state framework that can yield significant benefits.
- **State Governments**: For the last several decades, states have been at the forefront of building and growing state-supported passenger rail service. Due to the nature by which federal funding programs are legislatively structured, state departments of transportation will continue to be a primary conduit by which the federal government funds intercity rail programs. Currently, states are the key stakeholder group responsible for advancing publicly funded intercity rail initiatives in the U.S.
- **Local/Regional Organizations**: Other entities also play a critical role in advocating for and supporting the advancement of regionally significant intercity rail initiatives, such as metropolitan planning organizations (MPOs), city and county governments, and local entity representatives, particularly in the development and implementation of passenger rail stations, which serve as the local community's gateway into the intercity passenger rail network.
- **Public-Private Partnerships**: Partnerships between public agencies and private entities—particularly railroads—are also important to advance projects of regional and national significance.
- **Rail Operators**. Amtrak plays a critical role in advancing intercity passenger rail efforts in every major region in the US. Additionally, in many regions, commuter railroads play a role in advocating for and advancing projects that have benefit to both intercity and commuter services.

Challenges for Regional, Multi-state Governance Models

As with any multi-party agreement, regional rail plan stakeholders may be confronted with conflicting interests and goals, limited available resources, legal and regulatory frameworks, or conflicts with existing agreements. Some of the potential challenges that a governance model will need to address and proactively manage include the following:

- Lack of or limited political support
- Limited resources
- Conflicting or divergent levels of interest

- Conflicting or competing objectives for prioritizing projects in an unpredictable and constrained funding environment
- Slow decision making process within federal, state, local, and railroad organizations
- Equitable stakeholder representation relative to role within the region
- Difficulty determining sustainable cost-sharing commitments
- Difficulty maintaining transparency and providing an open process for stakeholder participation and engagement
- Competing or conflicting federal, regional, state, and local laws, regulations, and responsibilities
- Difficulty in communicating the public benefits of a singular project to the broader region

Despite these challenges, successful regional governance models have and do exist. The next section of this document explores the various governance models and their appropriate use.

Description of Governance Models

This document uses two main sources for governance frameworks related to passenger rail programs. The first is the report from FRA's *Southwest Multi-State Rail Planning Study*, September 2014. In this document, FRA describes the approach taken by the Southwest states to work through their governance and institutional issues, receive input from stakeholders, consider various governance models, and ultimately report on the stakeholders' governance findings and recommendations.[1]

The second document *"Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs"* is a Transportation Research Board (TRB) research paper, from the National Cooperative Rail Research Program (NCRRP) which was released in September 2016.[2] The TRB research paper summarized conclusions from literature research and case studies from existing rail and other multi-state institutional models, complemented by focus group discussions with experienced practitioners. A critical review and assessment of these models resulted in the recommendation of eight (8) governance models as preferred options. However, the study also states that *"no single governance model has proven to be particularly effective for advancing passenger rail"* partly because no model was applied for the complete lifecycle of a program from planning to operations/maintenance.

The study's recommended models are the following:

[1] The summary report and its more detailed background report can be found here: https://www.fra.dot.gov/Page/P0723.

[2] This paper can be found here: http://www.trb.org/Publications/Blurbs/173823.aspx.

Exhibit 1. Overview of Alternative Multi-State Governance Models

No.	Governance Models
1	Coordinated State Efforts
2	Coalition/Partners
3	Single State Agency Contracting with or on Behalf of Other States
4	Public-private partnership (PPP)
5	Multi-State Commission
6	Multi-State Special Authority
7	Federal-State Commission
8	Freight Railroads (this model is not further discussed as it does not appear as a practical model for passenger rail)[3]

The below exhibit provides an overview of the models, a brief definition and examples where the model was applied. The table also indicates what program phases these models were implemented.

Exhibit 2. Description of Alternative Multi-State Governance Models

No.	Model	Definition	Phase of Development	Examples
1	Coordinated State Efforts	Where two or more states agree to coordinate passenger rail efforts within their respective states.	• Visioning • Planning	• Pacific Northwest Rail Corridor • South Central High-Speed Rail Corridor (SCHSRC)
2	Coalition/ Partnership	Where multi-state partners convene on a voluntary basis to carry out activities of common interest. May also be carried out in coordination with a non-profit corporation.	• Visioning • Planning	• I-95 Coalition • Coalition of Northeastern Governors • Midwest Regional Rail Initiative (MWRRI) • Amtrak Northeast Corridor (NEC) Infrastructure Master Plan Working Group
3	Single State Agency Contracting with or on Behalf of Other States	Where an existing or newly created entity within a single state addresses multi-state interests, primarily through contractual arrangements with other states.	• Design • Construction • Operations and Maintenance	• Chicago-Detroit/Pontiac Corridor Investment Plan • Chicago to Quad Cities

[3] In this model, freight railroads lead the delivery of passenger rail services. Because currently no governance model is known to follow this approach and it is not anticipated that freight railroads would consider this alternative, it is not further discussed.

Exhibit 2. Description of Alternative Multi-State Governance Models

No.	Model	Definition	Phase of Development	Examples
				• Chicago to Milwaukee Hiawatha SDP for Three Additional Frequencies • Chicago to Milwaukee to Twin Cities EIS and Additional Frequency to the Empire Builder • Northern New England Passenger Rail Authority (NNEPRA)
4	Public-Private Partnership	Where the government and the private sector enter into an arrangement that allows for greater private-sector participation in the delivery of transportation projects.	• Design • Construction • Operations and Maintenance	• All Aboard Florida (AAF) • Texas Central Railway • Indianapolis-Chicago Hoosier State Service • CREATE
5	Multi-State Commission	Where two or more states coordinate multistate interests through a formal agreement that establishes a governing body.	• Planning • Preliminary Design	• Midwest Interstate Passenger Rail Commission (MIPRC) • Southeast High Speed Rail Corridor (SEHSR) Project: Virginia-North Carolina
6	Multi-State Special Authority	Where an independent entity, often a distinct governmental body, delivers a limited number of public services within defined boundaries across state lines and can exercise a broad range of typical governmental powers.	• Design • Construction • Operations and Maintenance	• Washington Metropolitan Area Transit Authority (WMATA) • Port Authority of New York and New Jersey
7	Federal-State Commission	Where a body of federal, state, and, sometimes, local leaders organize to address a critical need.	• Planning	• Appalachian Regional Commission (ARC) • NEC Infrastructure Operations and Advisory Commission
8	Freight Railroads	Where freight railroads lead delivery of passenger rail services.	• Design • Construction • Operations and Maintenance	• No current examples for intercity service

The following pages present the various models in more detail, describing the models' implementation, powers and responsibility, and governance structures as well as a list of key advantages and disadvantages. The basis for this comparison is the NCRRP study referenced above.

Model	Mechanism for Implementation	Powers and Responsibilities	Governance Structures	Advantages	Disadvantages
1. Coordinated state efforts	• Can be established without a formal agreement or mechanism • Some form of a multi-state agreement (MOU, multi-state agreement)	• State partners operate within the authority granted by their respective states • No new powers are explicitly granted	• No formal governance structure • Oversight through senior leadership from the respective state entities in lead roles	• Very little effort and short period to implement (relative to other models) • Does not require legislation • Coordinated state efforts can work well for advocacy and knowledge sharing	• Generally limited to planning and policy issues • Depends on continued commitment to the program by the states • May not be as helpful in gaining commitments and engagement from state and federal decision-makers as other models with binding agreements in place
2. Coalition/ partnership	• Can be established without a formal agreement or mechanism • Some form of a multi-state agreement (MOU, multi-state agreement)	• May not create a formal entity, model generally does not have powers • Responsibilities of a coalition/partnership include convening appropriate stakeholders to outline a vision, goals, and objectives and potentially oversee funded studies and research • May agree to pool resources to support studies and other activities	• Decision-making for the coalition/ partnership is based on a consensus of member agency representatives • Leadership may be selected on a rotating basis • Governance structure may be kept relatively informal, as this model is recommended for visioning and early	• Works well for advocacy, knowledge sharing, and development of an overall vision with stakeholder buy-in • Easy to start, which means this model might be a catalyst for a model with broader functions • Highly flexible, making it easy to engage a large and diverse range of	• Generally limited to planning and policy issues for which consensus can be reached • No mechanism for settling disagreements or negotiating serious funding issues • Potential for less accountability and potentially less effectiveness due to lack of participation by some parties

Model	Mechanism for Implementation	Powers and Responsibilities	Governance Structures	Advantages	Disadvantages
			planning activities	stakeholders, including local entities that may not otherwise be represented in decision making bodies	• May be limited by a lack of a long-term funding, even in the limited sphere of policy and planning • Not as strong as models with binding agreements
3. Single state agency contracting with or on behalf of other states	• May not require a formal agreement between state partners, but may include cooperative or operating agreements between the lead single state agency and such entities as host railroads, FRA, and Amtrak • The more complex the activities undertaken in this model, the more a formal agreement may be advisable	• Varies depending on the type of entity established (i.e., authority, agency, or corporation) and the degree to which the managing agency and the other states can enter into contracts among themselves and with third parties	• Varies depending on the type of entity established • Ultimate accountability rests with the single state agency, but oversight and safety responsibilities, in some cases, may extend to partner states	• Works well for implementation of a pre-established vision in the design, construction, and operations phases of development • This model provides a clear accountability structure • In some cases, the model can work within existing legal frameworks • The use of a single state agency minimizes contracting and overhead expenses • A separate agency with a focused responsibility can act more nimbly and be more responsive to	• Not appropriate for visioning or planning because it can be difficult to foster a collective vision or overarching planning • The model is contract specific, and agreements depend upon periodic renegotiation of the contract • The complexity of the model is substantially increased when more than two states are involved • Continued effectiveness of the model is dependent on continued good relationships among states • State legislation and/or policy can change in

Model	Mechanism for Implementation	Powers and Responsibilities	Governance Structures	Advantages	Disadvantages
				the needs of the business side of the operation • This model might be beneficial in cases where there is one state that has a greater interest than the others • Provides a single point of contact for the federal government if federal action / decision is contemplated	one state that has responsibility for contracting, which could affect the model • This model requires that a state be able to spend money and/or use state assets in another state or the agreement must account for this restriction • The institutional allegiance of the arrangement will be to the state that is establishing the entity • This model is likely to have more limited risk allocation • Identifying a lead state can be difficult when it is not clear which state stands to benefit more than the others
4. Public-private partnership (PPP)	• Generally recommended for project implementation (design, construction, and operations	• Public-private partnerships are distinguished from traditional government contracting because the private sector is	• Often defined by the agreement or contract signed by the private sector partner	• Financial incentives are available for action and cost-effective	• May take longer to implement • Can be difficult to foster a collective vision

Model	Mechanism for Implementation	Powers and Responsibilities	Governance Structures	Advantages	Disadvantages
	and maintenance) • Passenger Rail Investment and Improvement Act (PRIIA)/ Fixing America's Surface Transportation Act (FAST) implemented a number of provisions that provide federal authorization for, and perhaps ultimately encourage incorporation of, public-private partnerships for passenger rail	more integrated into project development and implementation • At its core, the model is a partnership between the two parties • Mechanisms are put in place to ensure that service decisions are shared by the public and private entities • The powers, responsibilities, and risks shared by the government and private-sector entity can vary	and the public agency • Agreement spells out funding responsibilities and financial requirements • In addition, the agreement identifies the performance and service requirements that must be met by the private sector partner • Governance is a much more robust structure than that found in other models	investment decisions • Can help finance the delivery of projects or services through various debt and equity mechanisms • Risk sharing between government and private entities • Provide advantages in terms of speed, quality, or cost • Allows flexible implementation structures • Can convert upfront public-sector capital investment into a stream of payments over the project life	or overarching planning • Can be difficult to establish within existing legal constraints • Can also trigger safety, maintenance, and customer service issues that may take time to resolve and increase public-sector cost • Private investor requires a return for its investment • Because this model is market driven, it could be weak in poor markets unless subsidized, particularly challenging to implement the public-private partnership model in corridors where Amtrak does not currently operate
5. Multi-state commission	• Multi-state commissions will likely require some form of legislation, e.g. Interstate Compacts require	• Range of powers and responsibilities as defined in the enabling legislation	• Governing body is the commission, which has representation from the state partners	• Can be an effective model for multi-state planning and development of an overarching vision	• Some federal intervention is likely to be required to establish a multi-state commission; although depending on

Model	Mechanism for Implementation	Powers and Responsibilities	Governance Structures	Advantages	Disadvantages
	approval through federal legislation		• May be supported by a small staff that can be funded by one or more of the states participating in the partnership • Each state may have oversight authority for the funds allocated to the commission	• Provides the capability to address challenging policy issues, such as cost sharing • This model will be viewed as having some standing as a legislatively created institution • Requires enactment of legislation in each state legislature, which helps to promote broad support for the effort across the state	agreement type, it can be potentially less challenging than interstate compacts • A multi-state commission often takes time to establish, especially if congressional approval is necessary • Depending on the commission membership, there is the potential for members to focus on their jurisdiction's needs and desires rather than a broader vision
6. Multi-state special authority	• Establishing a multi-state special authority generally requires an interstate compact that involves identical legislation in each participating state as well as approval through federal legislation	• Special authority follows limits set in the interstate compact and, potentially, corresponding state legislation	• Special authorities are often governed by a board of directors appointed by or consisting of elected officials	• A multi-state special authority is functionally capable of planning as well as delivering transportation projects and services • In some cases, a multi-state special authority can work more flexibly than an entity that must function	• Multi-state special authorities are often difficult to implement as they generally require an interstate compact • This model can be challenging to expand the functions of the authority or amend compacts • The difficulty in amending or refining

Model	Mechanism for Implementation	Powers and Responsibilities	Governance Structures	Advantages	Disadvantages
				under the constraints of each state's respective legal framework • The nature of a multi-state special authority makes it more attractive to investors that issue debt; therefore, special financing devices are more available to this model. Establishment as a special authority is seen as more of an assurance that the entity will endure over time • Special authorities have generally proven effective in planning and delivery of transportation services across state lines and in the planning and design of high-speed rail within one state	compacts is due to the requisite action by the federal government, agreed to by the Congress and the President
7. Federal-state commission	• Federal-state commissions are generally authorized	• A federal-state commission can have a multitude of powers and	• A federal-state commission is a governing body	• A federal-state commission can be effective for multi-state	• A federal-state commission can be viewed as a model that

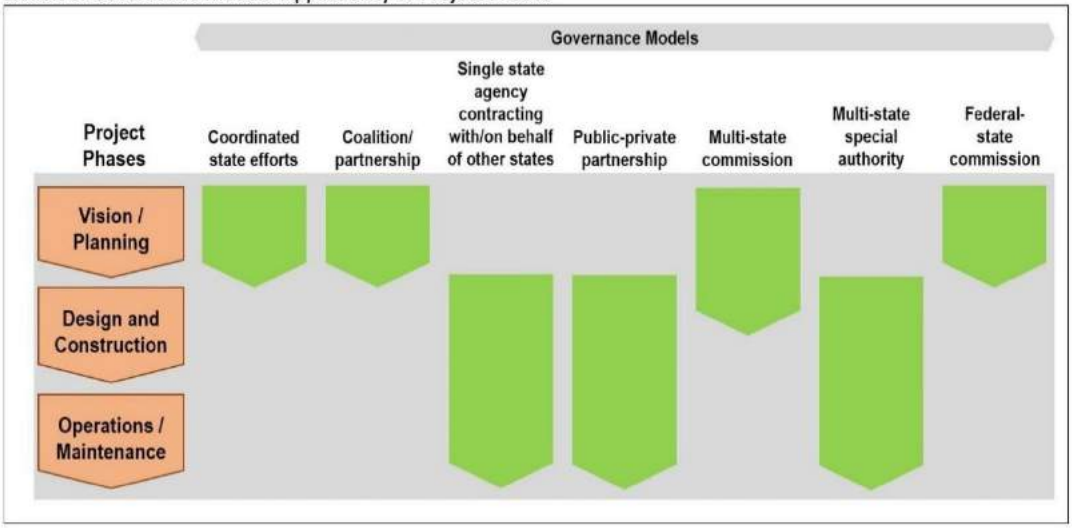
Model	Mechanism for Implementation	Powers and Responsibilities	Governance Structures	Advantages	Disadvantages
	through federal legislation that can take various forms	responsibilities. It can often be empowered to issue funds in the form of grants to participating states	comprised of both federal and state representation with oversight typically provided by Congress. The commission is typically supported by a small staff to carry out daily activities	planning and development of an overarching vision • This model is capable of addressing challenging policy issues such as cost sharing • This model engages federal government with states/regions and can be a strong candidate for attracting federal funds • This model provides a platform for discussion and consensus among regional stakeholders	limits state power, although potentially less so than a federally chartered corporation or federal project office • This model must be established by federal legislation, although this is potentially less challenging than establishing interstate compacts • This model has a traditional funding structure that relies on annual federal appropriations

"One Model" vs. "Evolving Models"

The overarching goal for governance within the regional rail planning effort is to create and implement a framework that will allow for the continued advancement of the regional plan. This includes a governance structure that can be tailored based on the phase or stage of the program or project. Not all states within a region will have a role in advancing specific corridor programs or projects, and as programs and projects of regional significance are advanced, funded, designed, and constructed, the various stakeholders' responsibilities change over time depending on the nature of the program. Transitions in stakeholders' responsibilities may occur in parallel as different segments within the network are prioritized and implemented. To account for these changing responsibilities, states require the ability to develop and implement additional governance models that provide the needed structure, processes, and decision-making models specific to the program or project.

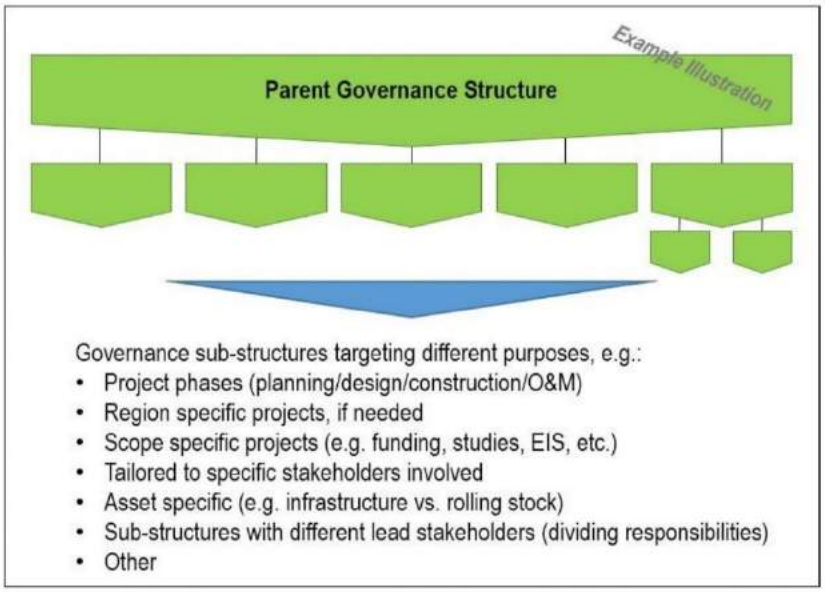
The illustration below shows the NCRRP study's recommendation for which models are most applicable to the main project phases.

Exhibit 3. Governance Models' Applicability to Project Phases



Over time, a governance structure may not only transition to other models better suited to specific project phases, but the stakeholders can also refine and tailor the model to specific needs as the project progresses and changes to scope and objectives occur. The below illustration shows how an overall parent governance structure can form sub-structures for specific purposes. Some of these sub-structures can become permanent groups, while others may be limited until their assignments are completed.

Exhibit 4. Governance Organization and Division into Sub-structures



Next Steps to Evaluate Possible Models and Conclusion

Based on above description of various governance models and potentially already established structures within a region, FRA will engage the Lead Stakeholders in a discussion on the advantages and disadvantages of the various models from an individual state and a regional perspective. The below criteria are provided as a starting point to help evaluate and prioritize the models and narrow down the preferred options:

- Stakeholder ability to establish governance structure
- The structure's ability/need to transition to meet future rail development phases, including adding additional stakeholders at later stages
- Time and resources required to implement structure
- Cost of maintaining structure's day-to-day operations
- Funding availability, including state, federal, local, and private funding sources
- Representation and inclusion of internal and external stakeholders
- Ability to fund and manage administration staff
- Ability to manage stakeholder conflicts and their resolutions
- Risk sharing ability across stakeholders

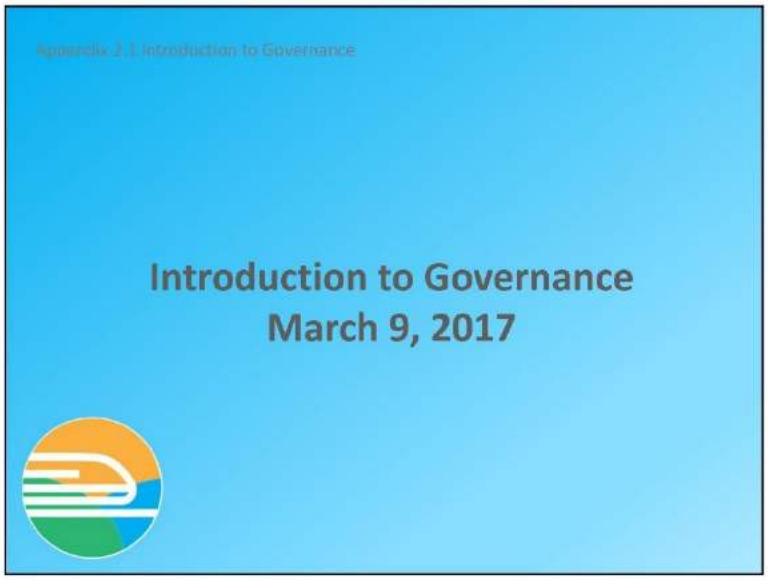
In conclusion, various multi-stakeholder governance models have been implemented for many different purposes. For regional rail planning and implementation, there is no "one model fits it all"-framework that spans

from the initial vision through managing day-to-day operations and maintenance. The models presented provide an overview of what has been successfully used in the intercity passenger rail environment, but ultimately the Lead Stakeholders need to jointly discuss and develop a tailored approach that best meets each entity's needs, taking into account individual limitations, while also achieving the goal of advancing regional rail planning outcomes.

Appendix 2: Governance Workshop Presentations

Below are the slide presentations used to guide the discussions for each of the governance sessions.

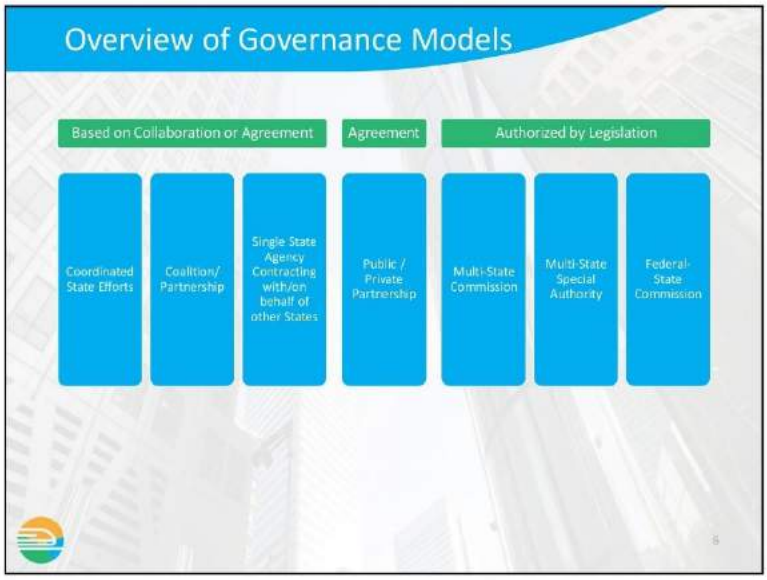
Appendix 2.1 Introduction to Governance, MWRRP Workshop, Chicago, IL presented on March 9, 2017

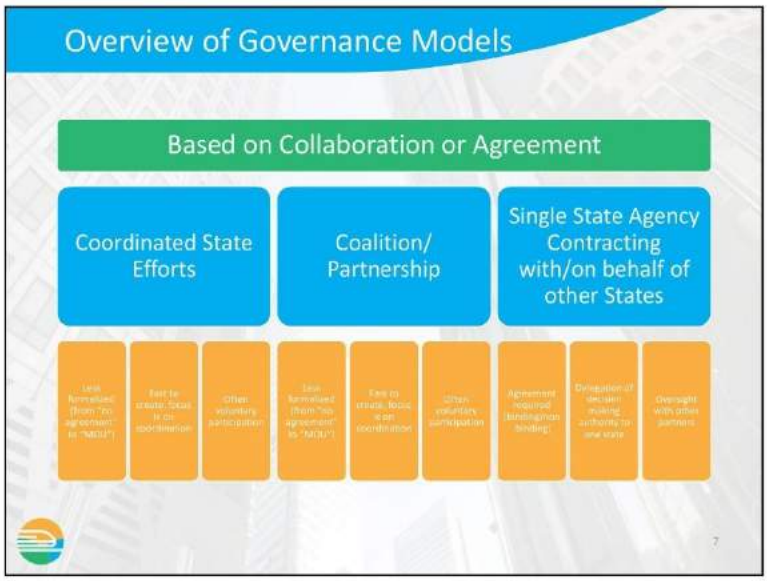



Why is Governance Important?
• The implementation of a Regional Rail Plan requires extensive coordination
• A governance structure can facilitate the coordination and implementation of the plan and its projects across multiple jurisdictions
• Formalize roles and responsibilities
• Develop protocols and decision-making procedures
• Establish accountability and oversight
• Represent individual states' and other stakeholders' objectives
• A functioning governance framework can sustain the momentum of the regional plan


Challenges to Implementing a Functioning Governance Framework
• Lack of or limited political support
• Limited resources
• Conflicting or divergent levels of interest
• Conflicting or competing objectives in an constrained funding environment
• Equitable stakeholder representation relative to role within the region
• Difficulty determining sustainable cost-sharing commitments
• Difficulty maintaining transparency and providing an open process for stakeholder participation and engagement
• Competing or conflicting federal, regional, state, and local laws, regulations, and responsibilities
• Difficulty in communicating the public benefits of a singular project to the broader region
• Slow decision making at the federal, state, local, and railroad levels


A Functioning Governance Framework
• Lead to the creation and implementation of a visionary regional investment strategy for a long-term regional rail network
• Coordinate continued regional planning and communication
• Identify the rail network's investment needs and its role in the future economic growth and development of the region
• Prioritize and advance near-term projects across the region
• Help to define subsequent institutional arrangements that will be required for follow-on phases of the program


Overview of Governance Models
Based on Collaboration or Agreement
Agreement
Authorized by Legislation
Coordinated State Efforts
Coalition/ Partnership
Single State Agency Contracting with/on behalf of other States
Public / Private Partnership
Multi-State Commission
Multi-State Special Authority
Federal-State Commission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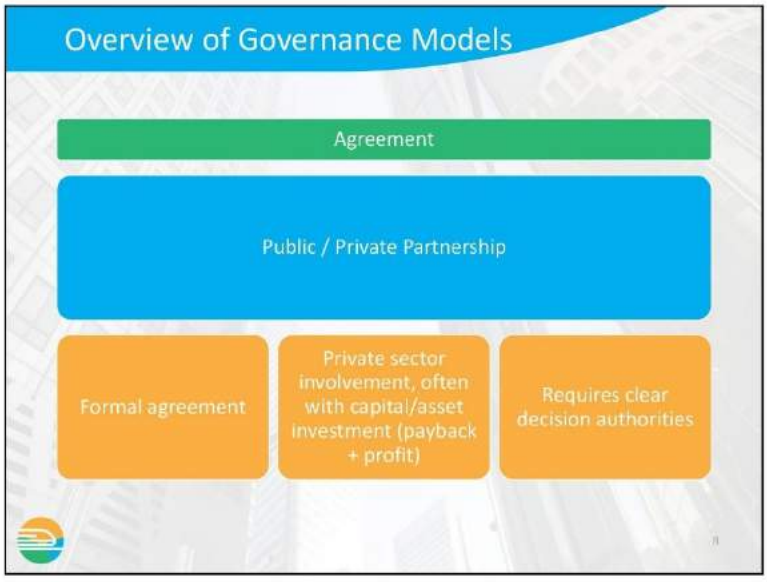
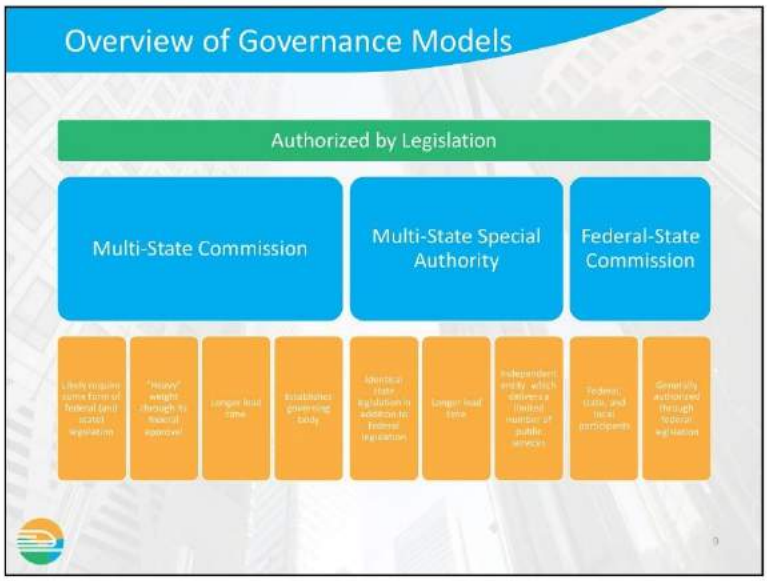

Overview of Governance Models
Agreement
Public / Private Partnership
Formal agreement
Private sector involvement, often with capital/asset investment (payback + profit)
Requires clear decision authorities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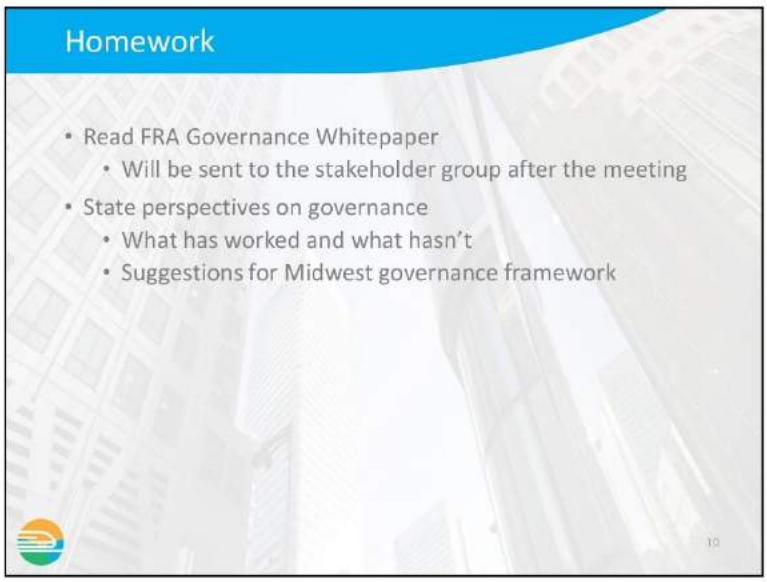
Multi-State Commission
Multi-State Special Authority
Federal-State Commission

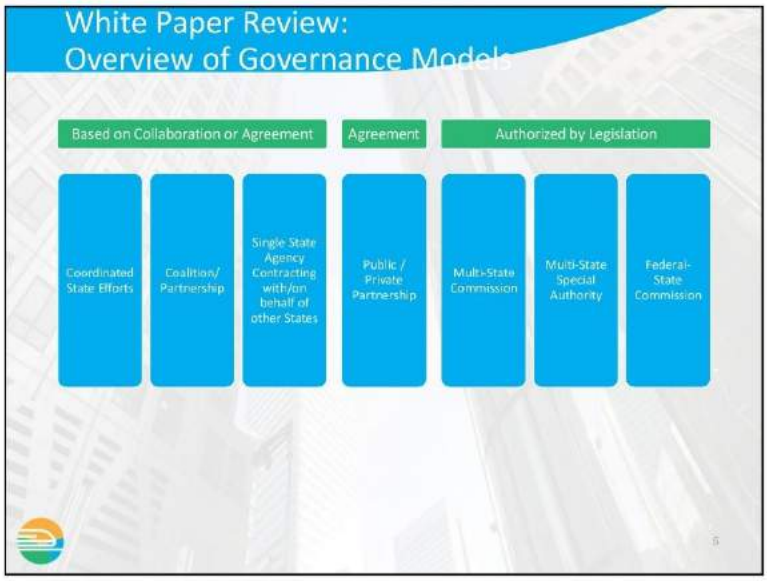

Homework
• Read FRA Governance Whitepaper
• Will be sent to the stakeholder group after the meeting
• State perspectives on governance
• What has worked and what hasn't
• Suggestions for Midwest governance framework

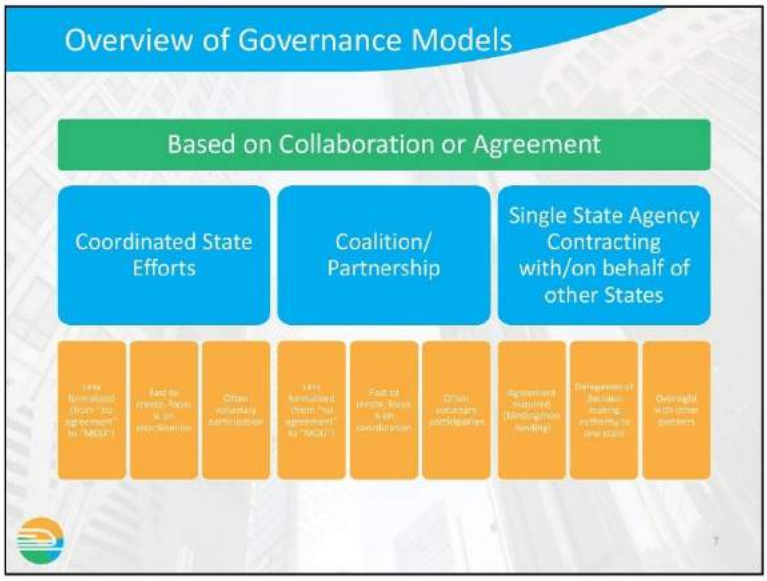
Appendix 2.2 Governance Workshop: St. Paul, MN presented on June 6, 2017


FRA Objectives for Governance
• Remain consistent with other regional rail planning studies
• Recognition that Midwest is larger, more complex and more advanced than other regions
• Modest objectives
• Identification of what's working
• Gaps
• Priorities
• Set the stage for advancing projects in the Midwest


Challenges to Implementing a Functioning Governance Framework
• Lack of or limited political support
• Limited resources
• Conflicting or divergent levels of interest
• Conflicting or competing objectives in an constrained funding environment
• Equitable stakeholder representation relative to role within the region
• Difficulty determining sustainable cost-sharing commitments
• Difficulty maintaining transparency and providing an open process for stakeholder participation and engagement
• Competing or conflicting federal, regional, state, and local laws, regulations, and responsibilities
• Difficulty in communicating the public benefits of a singular project to the broader region
• Slow decision making at the federal, state, local, and railroad levels


A Functioning Governance Framework
• Lead to the creation and implementation of a visionary regional investment strategy for a long-term regional rail network
• Coordinate continued regional planning and communication
• Identify the rail network's investment needs and its role in the future economic growth and development of the region
• Prioritize and advance near-term projects across the region
• Help to define subsequent institutional arrangements that will be required for follow-on phases of the program


White Paper Review:
Overview of Governance Models
Based on Collaboration or Agreement
Agreement
Authorized by Legislation
Coordinated State Efforts
Coalition/ Partnership
Single State Agency Contracting with/on behalf of other States
Public / Private Partnership
Multi-State Commission
Multi-State Special Authority
Federal-State Commission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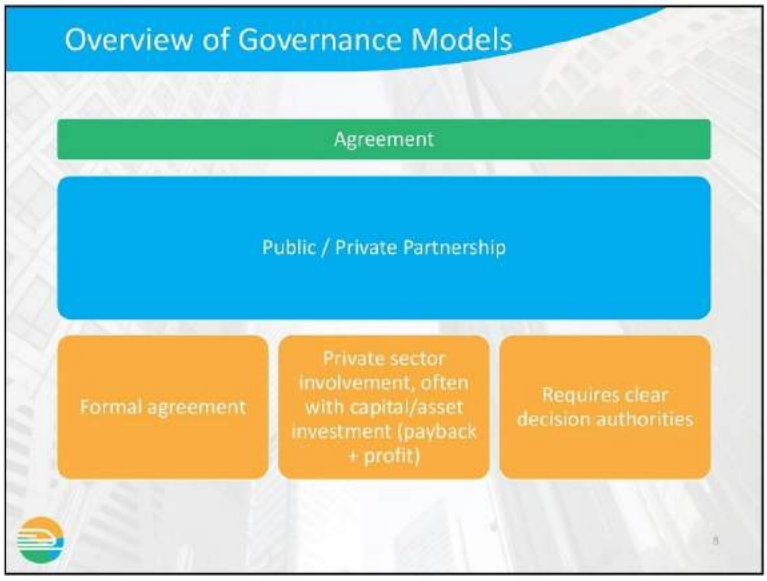
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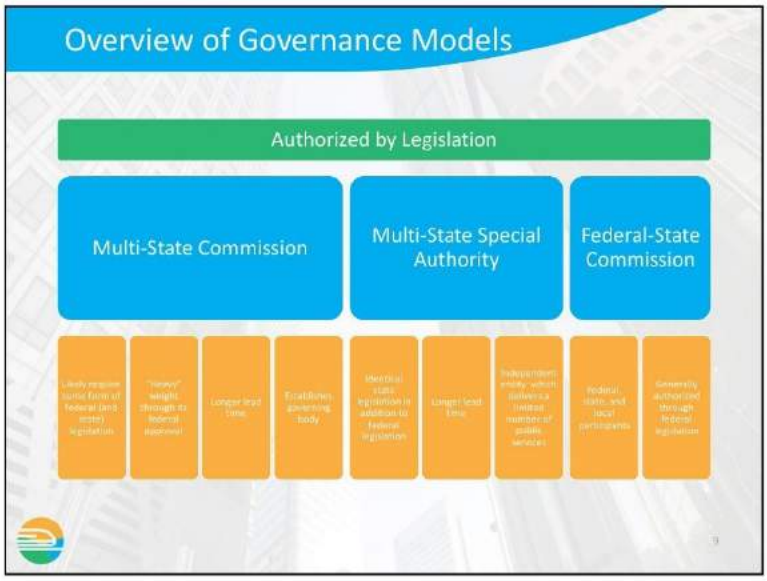

Overview of Governance Models
Authorized by Legislation
Multi-State Commission
Multi-State Special Authority
Federal-State Commission


Governance Session Questions
1. Are there any legal limitations and / or capabilities your state has regarding engaging in a governance framework?
2. Can you provide an example of an applicable governance structure from your state that has worked well and why?
3. What has worked well with the existing arrangements?
4. Where are the significant gaps with the existing structure and what is your state's priority focus?


Legal Limitations / Capabilities
11


Applicable Governance Structures
Working Well / Why
12

Appendix 2.3 Governance Workshop: Detroit, MI presented on September 12, 2017

Recap Governance Session Workshop #2

- *FRA objectives for governance discussion for the Midwest Regional Rail Planning Study*
- *Reviewed and discussed whitepaper*
- *Roundtable Discussion Summary:*
  - States have **limited flexibility** among state lines, but.... **where there's a will, there's a way** and **creative solutions exist** when the political will is present
  - **Clear consensus** among states that **MIPRC is working** (locomotive procurement often cited as evidence)
  - Potential for **case study** to examine **governance structures** for **implementing major capital improvement programs** across state lines
  - States have been increasingly successful in coordinating interactions with Amtrak; desire to explore **governance frameworks** to **optimize Midwest operations**
  - Strong support for exploring **ways to elevate MIPRC's standing** and status and **evolving** Midwest governance

3

Case Study

Chicago - Detroit/Pontiac Passenger Rail Corridor Program

Governance Session Workshop #3

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

- What is the **Chicago - Detroit/Pontiac Passenger Rail Corridor Program (CHI-DET CIP)** and what type of governance structure would be required for implementation?

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

- The CHI-DET route encompass the **physical infrastructure, track, and right of way between Chicago and Pontiac, Michigan.**
- **Construct the infrastructure** needed to accommodate the interim phase of **six Daily Round Trips (DRTs) by the year 2025** and then construct the remaining infrastructure to complete **full build-out of the Program by the year 2035.**
- Express travel time between **Chicago and Detroit 3 hours and 46 minutes.**
- Provides a **dedicated passenger corridor that would accommodate two continuous main tracks between Chicago Union Station and Porter, IN.**
- Beyond Porter, **existing infrastructure would be upgraded** to accommodate higher-speed passenger rail service.
- **Particular challenge related to the distribution of capital costs** relative to benefits among the states and other potential beneficiaries (such as existing host railroads).

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

- Immediate next step is the completion of the Final EIS and **FRA's Record of Decision (ROD)** on the recommended service and routing alternative.
- Following completion of the Tier 1 EIS and ROD, the area studied will be broken into subareas and **Tier 2 environmental analyses and preliminary engineering (PE)** will be conducted that identify the exact locations of where Program-related actions will take place.
- To undertake Tier 2 environmental analyses and PE, and to continue to advance the CIP into the subsequent phases of program implementation, the sponsor states will **need to develop a governance structure**.
- **What would such a governance structure look like?**

7

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

Reviewed the recently negotiated **Midwest Fleet Ownership Agreement** for relevant content

8

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

Structure of the Agreement:

Recitals
- Cites **authority** to enter into the agreement through MIPRC
- Provides **history and background** on the Program
- **Describes other agreements** necessary including by-laws

Section 1: Definitions

Section 2: Midwest Fleet Ownership
- Expresses the intent of all parties to establish a **Fleet Manager**
- Requires **indemnification** by a Fleet Manager
- Addresses the use of equipment in a **non-owning state**
- Defines **joint ownership**
- Allows for **transfer and reallocation** of ownership

9

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

Section 3: Cost Allocation
- Describes the methodology for determining **cost allocation** for equipment and fleet manager, fleet maintainer, insurance, maintenance facilities
- Requires each party to provide evidence of **ability to pay**
- Addresses **defaults on payments** and forfeiture of ownership
- Requires **annual financial planning**

Section 4: Revenue Sharing
- Requires **distribution of revenue** to the satisfaction of all parties

Section 5: Facilities
- Defines the multiple **facilities** that will be required as part of the Midwest Fleet

10

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

Section 6: Fleet Manager
- Expresses the intent of all parties to hire a contractor to serve as the **Fleet Manager**
- Assigns responsibility for **procuring / hiring** the Fleet Manager

Section 7: Fleet Maintainer
- Expresses the intent of all parties to hire a contractor to serve as the **Fleet Maintainer**
- Assigns responsibility for **procuring / hiring** the Fleet Manager

Section 8: Dispute Resolution
- Describes the **dispute resolution process** at multiple levels

Section 9: Governing Laws
Section 10: Effective Date, Term and Termination
Section 11: Entire Agreement

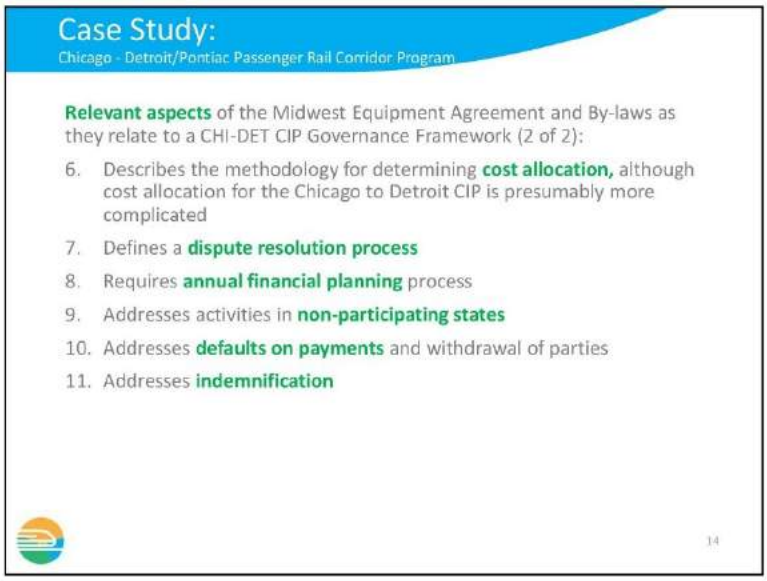
11

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

Midwest Fleet Pool Board – Bylaws
1. Purpose, Functions and Bylaws
2. Membership
3. Officers
4. Meetings of the Board
5. Public Statements
6. Payment to Contractors
7. Compensation
8. Committees
9. Adoption, Amendment, and Suspension of Bylaws

12


Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program
Relevant aspects of the Midwest Equipment Agreement and By-laws as they relate to a CHI-DET CIP Governance Framework (1 of 2):
1. Legitimate, legally binding agreement that allows states to act collectively to implement a rail program
2. Bylaws establishes a process (Board) to oversee and fulfill agreement
3. Establishes an entity (Corridor Program Manager—CPM) to oversee and manage the work on behalf of all involved states; vests decision-making authority with the entity
4. Assigns of roles and responsibilities
5. Defines the intent of the program
13


Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program
Relevant aspects of the Midwest Equipment Agreement and By-laws as they relate to a CHI-DET CIP Governance Framework (2 of 2):
6. Describes the methodology for determining cost allocation, although cost allocation for the Chicago to Detroit CIP is presumably more complicated
7. Defines a dispute resolution process
8. Requires annual financial planning process
9. Addresses activities in non-participating states
10. Addresses defaults on payments and withdrawal of parties
11. Addresses indemnification
14

Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

What **areas require further development** for a CHI-DET CIP Governance Framework (1 of 2):

- Much more detail required on the **roles and responsibilities** of the Corridor Program Manager (CPM) (equivalent to Fleet Manager)
- What **cost allocation methodology makes sense**?
- Is the CPM overseeing or performing **design / environmental work**?
- If the former, using which state's **procurement process**?
- Overseeing or performing **permitting process**?
- Overseeing or performing **land acquisition**? Who owns ROW?
- Overseeing **construction activities**, which state's procurement process is used?

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Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program

What **areas require further development** for a CHI-DET CIP Governance Framework (2 of 2):

- How will CPM interact with **host, tenant or adjacent railroads** or ROW owners?
- What will be the roles, responsibilities and expectations for **operations planning**?
- **Station planning**?
- Interacting with **Amtrak**?
- Interacting with **Midwest Fleet Manager**?

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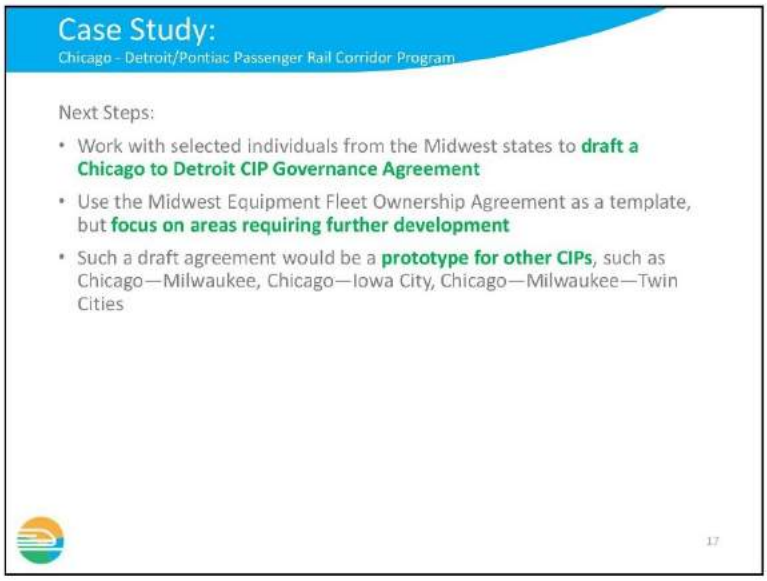
Case Study:
Chicago - Detroit/Pontiac Passenger Rail Corridor Program
Next Steps:
• Work with selected individuals from the Midwest states to draft a Chicago to Detroit CIP Governance Agreement
• Use the Midwest Equipment Fleet Ownership Agreement as a template, but focus on areas requiring further development
• Such a draft agreement would be a prototype for other CIPs, such as Chicago—Milwaukee, Chicago—Iowa City, Chicago—Milwaukee—Twin Cities
17


Optimizing Midwest Operations
Governance Session Workshop #3

Midwest Operations

- Through the Midwest Equipment Procurement and other multi-state efforts, Midwest states have been increasingly successful in **coordinating as a collective** unit with Amtrak
- There is a desire to explore governance frameworks to **optimize Midwest operations**

Midwest Operations

Benefits of working together include:

- Collective, consolidated influence is greater, **carries more authority** with Amtrak
- Collective activity can provide **better focus on key issues**
- Ability to recognize and present **economies of scale**
- Ability to better **optimize efficiencies** within the network operationally
- Ability to brand the Midwest service as a **geographically distinctive offering**


Midwest Operations
Consider the creation of a Midwest Services Operational Council
Under MIPRC, similar to the Midwest Fleet Ownership Agreement, create the ability for the Midwest States (presumably those with state-supported service) to hire an operations manager
Would function like a JPA for regional services
Would allow for an executive director of the Operations Council
Responsible for developing a cohesive brand
Responsible for developing and implementing optimized timetables
Responsible for developing and implementing other service efficiencies
Will support each state's negotiation of PRIIA Section 209 costs
Work closely with Amtrak on all issues related to regional services
Cost allocation to be derived through a similar methodology as the Midwest Fleet Ownership
21


Midwest Operations
Next Steps:
Work with states to draft agreement for Midwest Services Operations Council
22

Elevating the Role of MIPRC

- Expressed desire to explore ways to **elevate MIPRC's standing** and status
- One of the best ways is to **bestow to MIPRC more responsibility and authority**
  - Midwest Fleet Ownership
  - MIPRC's role on advancing future corridor improvement programs like the case study
  - Operations Council Executive Director possibly an employee of MIPRC
- Other ideas for **raising MIPRC's profile?**
- Other ideas to evolve MIPRC to reach the **same level of recognition as NEC Commission?**

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Next Steps

- Work with selected individuals from the Midwest states to **draft a Chicago to Detroit CIP Governance Agreement**
- Work with states to **draft agreement for Midwest Services Operations Council**
- What is the **group's preference** for meeting prior to **Workshop #4 on Tuesday, December 5th?**
- Workshop #4 topic: Presenting to larger stakeholder group **draft governance agreements**
- Workshop #4 topic: **Executive summary of Governance Report**
- Workshop #4 topic: Potential **working session focused on governance and prioritization of corridors**
- **Other governance topics**?

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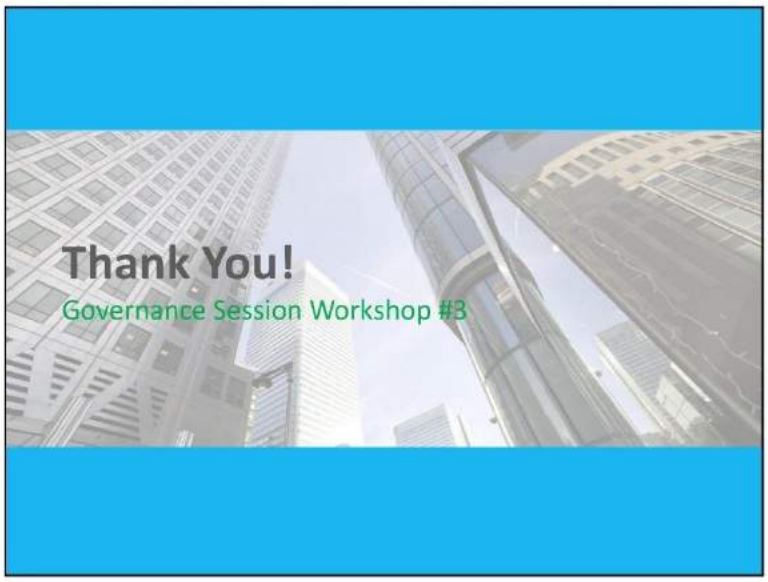
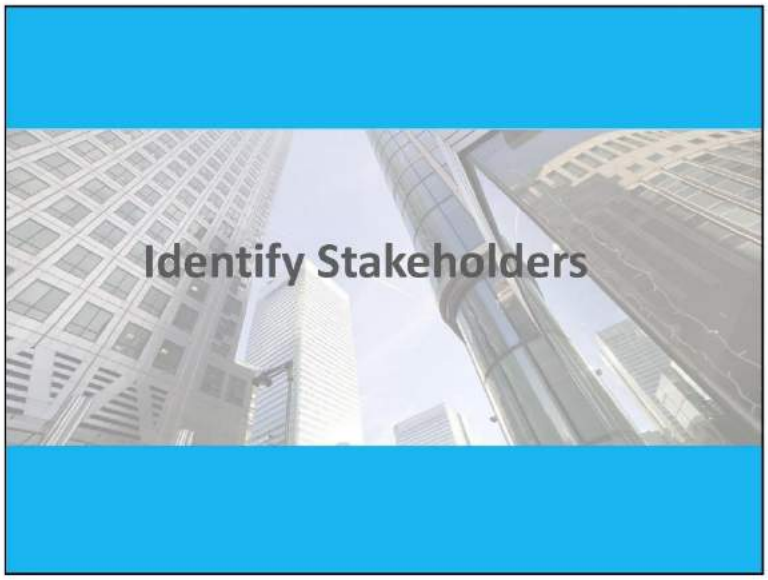

Thank You!
Governance Session Workshop #3

Appendix 2.4 Review of Governance: Chicago, IL presented on December 6, 2017

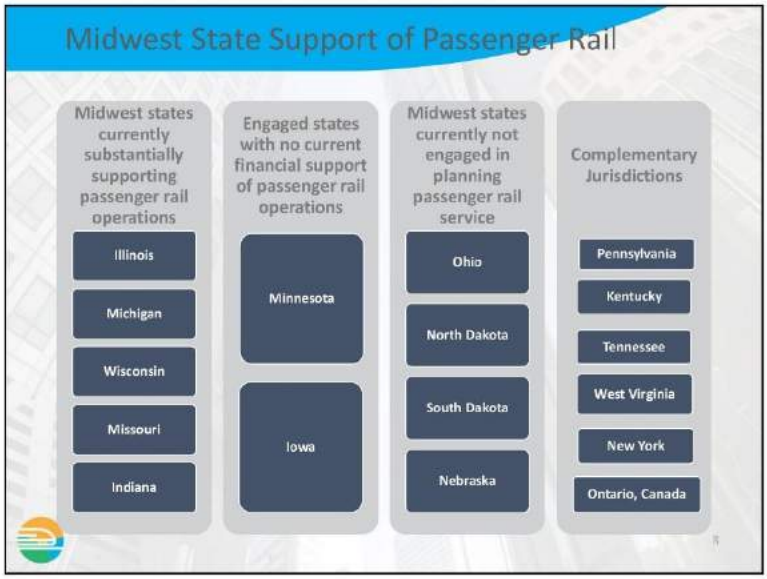

FRA Objectives for Governance
• Consistency with other studies
• Midwest is larger, more complex
• Midwest already has a governance structure
• Verify what's working
• Identify existing gaps
• Understand priorities
• Make recommendations


Approach
Identify Stakeholders
Conduct High-Level Review of Governance Frameworks
Examine Regional Governance Topics
Develop Findings, Conclusions & Recommendations


Identify Stakeholders


Federal Railroad Administration
• Lead federal agency for implementing Administration's policy for rail
• Provides financial assistance, oversight, technical assistance
• Evaluates potential intercity passenger rail programs and projects on a variety of factors
• Important evaluation criteria is the adequacy of the proposed governance framework
• Responsible for monitoring and overseeing federally funded programs
• A functioning governance structure is critical to the success and continued funding of the program
FRA


State Departments of Transportation
• Forefront of building and growing state-supported passenger rail service
• Primary recipient of federal funding for such programs
• Primary investor in state-supported services
NDDOT
North Dakota Department of Transportati
MDOT
Michigan Department of Transportation
DOT
Illinois Department of Transportation
WISCONSIN DEPARTMENT OF TRANSPORTATION
IOWA DOT
SMARTER | SIMPLER | CUSTOMER DRIVEN
NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION
Kansas
Department of Transportation
MoDOT
INDIANA DEPARTMENT OF TRANSPORTATION


Midwest State Support of Passenger Rail
Midwest states currently substantially supporting passenger rail operations
Illinois
Michigan
Wisconsin
Missouri
Indiana
Engaged states with no current financial support of passenger rail operations
Minnesota
Iowa
Midwest states currently not engaged in planning passenger rail service
Ohio
North Dakota
South Dakota
Nebraska
Complementary Jurisdictions
Pennsylvania
Kentucky
Tennessee
West Virginia
New York
Ontario, Canada

Midwest Regional Rail Initiative

- 1996, Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin, in partnership with the FRA, undertook the Midwest Regional Rail Initiative (MWRRI)
- Cooperative, multi-agency initiative to advance a robust, Midwest passenger rail system based on a hub and spoke network operating at 110 mph
- Plan focused on offering business and leisure travelers shorter travel times, additional train frequencies, and connections between urban centers and smaller communities
- Largely responsible for positioning the Midwest for federal funding infusion resulting from ARRA

Midwest Interstate Passenger Rail Compact

- Promotes, coordinates and supports regional improvements to passenger rail service
- Advocate for passenger rail improvements across the Midwest
- Current member states are Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota and Wisconsin
- The combined efforts of MWRRI, MIPRC and FRA have significantly advanced intercity passenger rail in the Midwest
- Foundation for the examination of governance in the Midwest
- Midwest locomotive procurement

MIPRC
Midwest Interstate Passenger Rail Commission

10


Additional Stakeholders
• Intercity and commuter rail operators
• All Class 1 and selected other host railroads
• Local Governments
• Metropolitan Planning Organizations
• Business / Freight interests (chambers of commerce, business associations)
• Academia (University Transportation Centers, and rail specific research centers)
• Passenger rail advocacy groups (state/city or corridor associations)
• Other advocacy groups (environmental, safety, etc.)
11


Examine Governance Frameworks

Governance Whitepaper

- Produced a document entitled "Regional Rail Planning Governance Structures White Paper"
- Two main sources:
  - Report from FRA's Southwest Multi-State Rail Planning Study
  - Transportation Research Board (TRB) research paper, "Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs"
- "No single governance model has proven to be particularly effective for advancing passenger rail"
- Role of a governance framework
- Types of organizations typically involved in governance
- Challenges with implementing an effective governance structure
- Eight types of governance models generally applicable in intercity passenger rail programs

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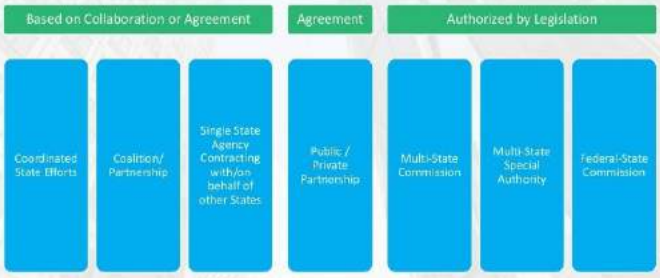
Overview of Governance Models



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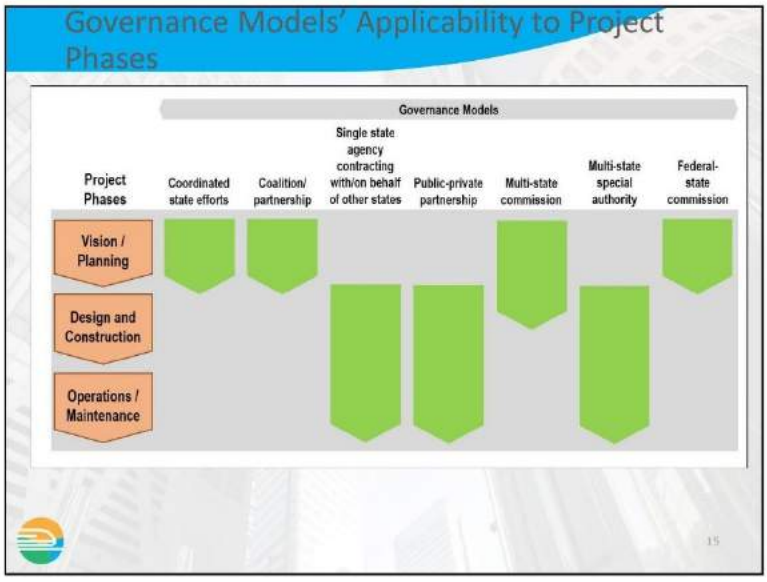
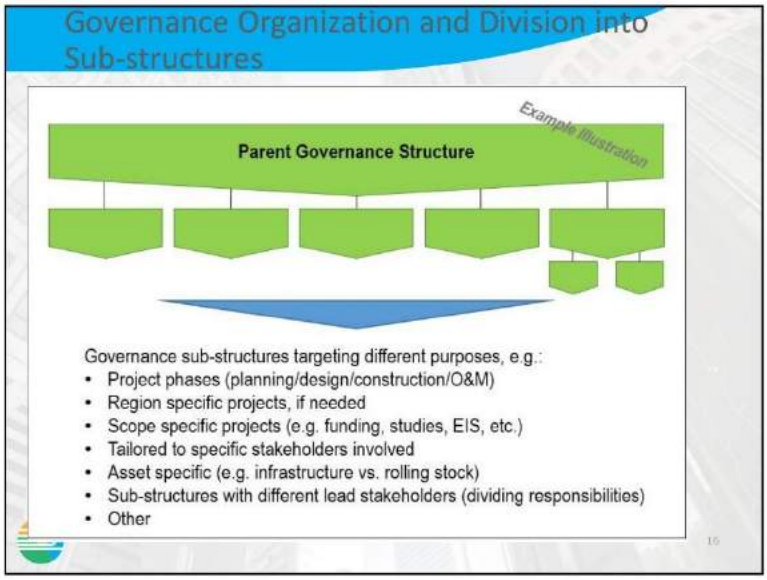

Governance Models' Applicability to Project Phases
Governance Models
Project Phases
Coordinated state efforts
Coalition/ partnership
Single state agency contracting with/on behalf of other states
Public-private partnership
Multi-state commission
Multi-state special authority
Federal-state commission
Vision / Planning
Design and Construction
Operations / Maintenance


Governance Organization and Division into Sub-structures
Example illustration
Parent Governance Structure
Governance sub-structures targeting different purposes, e.g.:
• Project phases (planning/design/construction/O&M)
• Region specific projects, if needed
• Scope specific projects (e.g. funding, studies, EIS, etc.)
• Tailored to specific stakeholders involved
• Asset specific (e.g. infrastructure vs. rolling stock)
• Sub-structures with different lead stakeholders (dividing responsibilities)
• Other


Examine Regional
Governance Topics


Legal Limitations,
Capabilities and
Applicable Governance

Legal Limitations, Capabilities and Applicable Governance Frameworks (1 of 2)

- Funding received through general appropriation
- Lack of dedicated funding source for passenger rail projects
- Some prohibitions from spending transportation-generated revenue
- Loan programs exist, mainly for private and industry-related projects but some benefit intercity passenger rail
- The states with the most active passenger rail program also have the most flexibility and experience in terms of funding and supporting multistate rail projects

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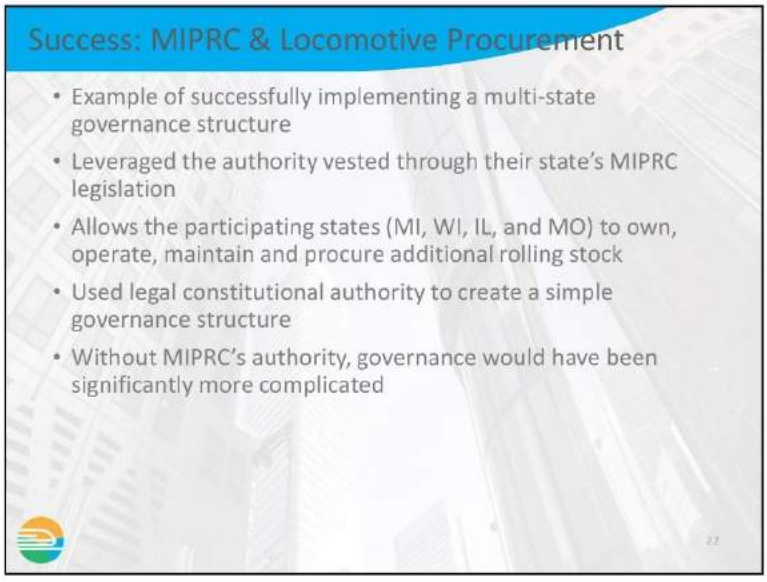
Legal Limitations, Capabilities and Applicable Governance Frameworks (2 of 2)

- Participate in planning studies outside of their state
- Mostly prohibited from spending construction funding outside of state lines
- A state's sovereign immunity adds additional complexity
- Several examples where two states successfully collaborated on a major infrastructure project
- Evidence that "where there is a will, there is a way" to execute multi-state capital program
- Continued participation in MIPRC was evidence of their state's support for advocating for intercity passenger rail

20


Successes, Gaps and Priorities


Success: MIPRC & Locomotive Procurement
• Example of successfully implementing a multi-state governance structure
• Leveraged the authority vested through their state's MIPRC legislation
• Allows the participating states (MI, WI, IL, and MO) to own, operate, maintain and procure additional rolling stock
• Used legal constitutional authority to create a simple governance structure
• Without MIPRC's authority, governance would have been significantly more complicated

Success: Multi-state Planning Studies

- Over the last decade, FRA and the Midwest states have invested in a number of corridor investment plans, which are ready to be implemented
- To varying degrees, plans outline investments required to advance specific corridors
- Chicago Terminal will examine the optimal configuration of intercity rail corridors converging on Chicago
- Opportunity for state rail teams to gain technical experience and build relationships with their counterparts
- Opportunity for the states to engage directly with the host railroad to discuss investments required to improve service

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Success: Evolution of State Capacity

- Over the last decade, every state has evolved in terms of intercity rail
- Changing political priorities have impacted on-going rail programs
- Building technical expertise at the staff level has been key to continuing momentum through changing political priorities
- Direct experience and strong relationships with state counterparts allows states to withstand changing political tides
- Continued optimization of shared operations in the Midwest

24

Priority: Elevation of MIPRC Status

- Clear support for MIPRC
- Desire to improve the level of influence MIPRC is able to command
- Not the same level of clout as other, similar governance structures
- Perspective that other rail projects get more federal attention, and MIPRC is not a primary source or contact
- Examine ways to raise the political profile of MIPRC
- How can FRA better support MIPRC
- How can MIPRC optimize their interactions with Amtrak and host railroads

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Federal Investment Focus on States and Individual Corridors

- Recent federal funding programs have shifted focus from viewing the Midwest as a network
- Invested in projects on primarily a state-by-state basis
- Allowed for the successful investment of billions of dollars
- Midwest equipment procurement provided an opportunity for the Midwest states and FRA to re-adopt a more network-focused perspective

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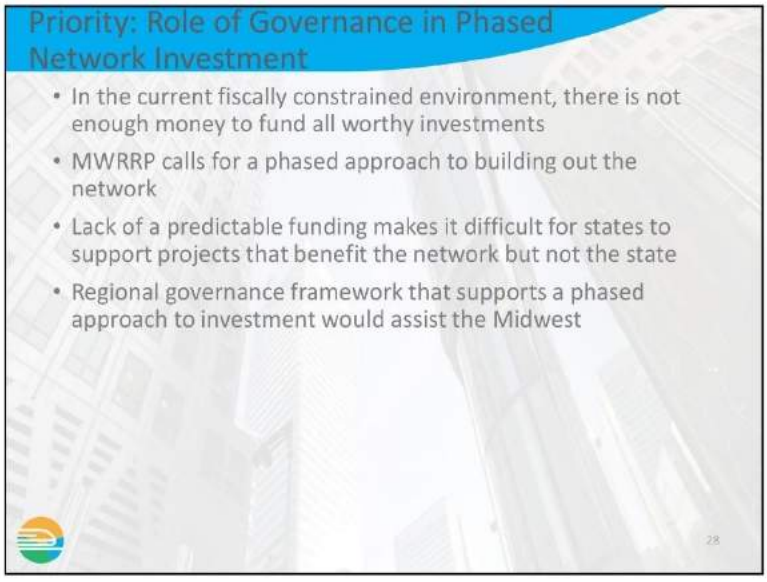
Priority: Options for Operators
• There is a desire among several Midwest states to explore opportunities to contract with other operators
• How can MIPRC and FRA assist with this effort
27


Priority: Role of Governance in Phased Network Investment
• In the current fiscally constrained environment, there is not enough money to fund all worthy investments
• MWRRP calls for a phased approach to building out the network
• Lack of a predictable funding makes it difficult for states to support projects that benefit the network but not the state
• Regional governance framework that supports a phased approach to investment would assist the Midwest
28


Case Study: Governance for Multistate Corridor Improvement Program


Chicago to Detroit/Pontiac Corridor Improvement Plan
Reviewed the Chicago - Detroit/Pontiac Passenger Rail Corridor Program (CHI-DET CIP) and the type of governance structures that would be required for implementation.
MICHIGAN
ILLINOIS
INDIANA
OHIO
Tier 2 NEPA & PE
FD, Land Acquisition, & Permitting
Construction
Service Initiation
Ongoing Operations & Maintenance

Relevant Aspects of Fleet Ownership Agreement

Reviewed the recently negotiated Midwest Fleet Ownership Agreement for relevant content

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Relevant aspects of the Midwest Equipment Agreement

- Legitimate, legally binding agreement
- Establishes a process to oversee and fulfill agreement
- Establishes an entity to represent involved states; vests decision-making authority with the entity
- Assigns of roles and responsibilities
- Defines the intent of the program
- Describes the methodology for determining cost allocation
- Defines a dispute resolution process
- Requires annual financial planning process
- Addresses activities in non-participating states
- Addresses defaults on payments and withdrawal of parties
- Addresses indemnification

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Areas Requiring Further Development

- Much more detail required on the roles and responsibilities of the states' oversight entity
- More robust cost allocation methodology required
- Oversight of design / environmental work?
- Which state's procurement process should be used?
- Which state is responsible for overseeing or performing land acquisition? Who owns the ROW?
- Overseeing construction activities, which state's procurement process is used?
- How to interact with host, tenant or adjacent railroads or ROW owners?
- What will be the roles, responsibilities and expectations for operations planning? Station planning?
- Who is the lead for interacting with Amtrak? The Midwest Fleet Manager?

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Case Study: Discussion Summary

- US DOT has successfully undertaken such projects for decades
- Lack of a dedicated and predictable funding source is the primary reason states have not advanced governance structures for corridor programs
- Paradoxical situation—
- Little incentive for states to work together when there is no certainty that funding will ever be made available
- Yet, when funding is available, the states will not have addressed the many governance issues related to developing and delivering a complex rail program across state lines

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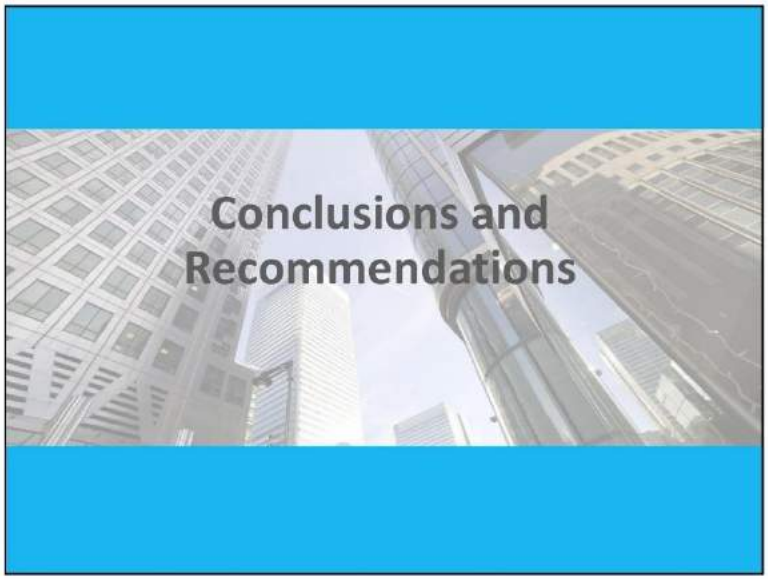
Governance in Midwest Operations

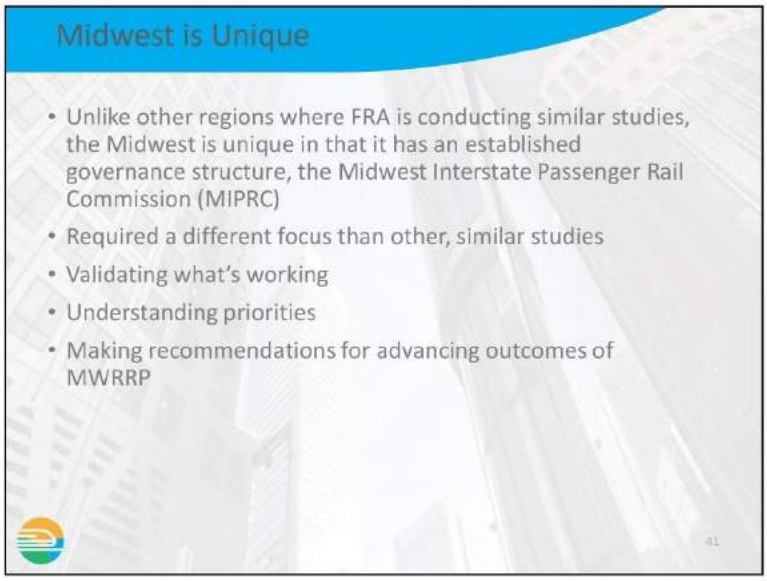

Optimizing Midwest Operations
• Midwest states have been increasingly successful in coordinating as a collective unit with Amtrak
Benefits of working together include:
• Collective, consolidated influence is greater, carries more authority with Amtrak
• Collective activity can provide better focus on key issues
• Ability to recognize and present economies of scale
• Ability to better optimize efficiencies within the network operationally
• Ability to brand the Midwest service as a geographically distinctive offering

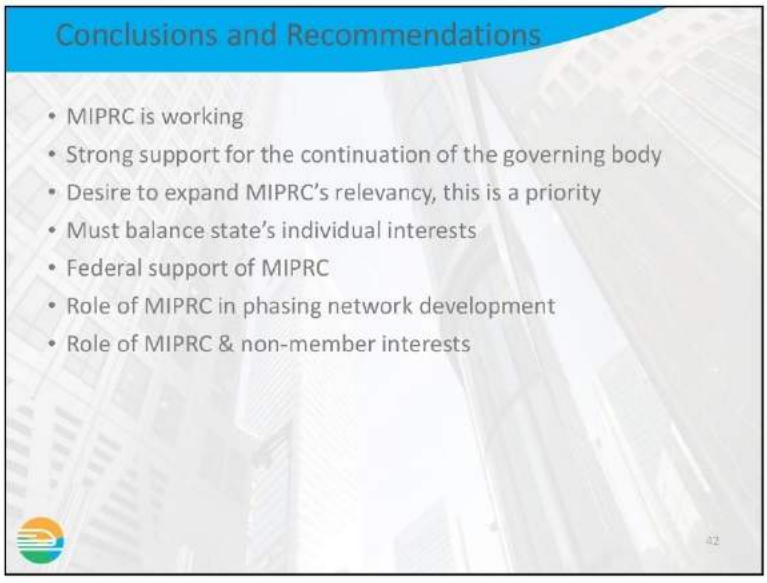

Midwest Operations: Discussion Summary
• Discussed the concept of a Midwest Services Operational Council
• Already doing many of these activities informally and with increasing regularity
• Concern over giving up sovereignty
• No appetite for spending additional time or resources creating an intermediary to represent states


Elevating the Role of MIPRC


Elevating the Role of MIPRC
• Discussed ways to elevate MIPRC's standing and status
• Discussed several ways FRA can assist with elevating MIPRC
• Discussed the role of MIPRC in supporting the phased investment in the network
• Discussed ways MIPRC can engage and be engaged by non-member entities

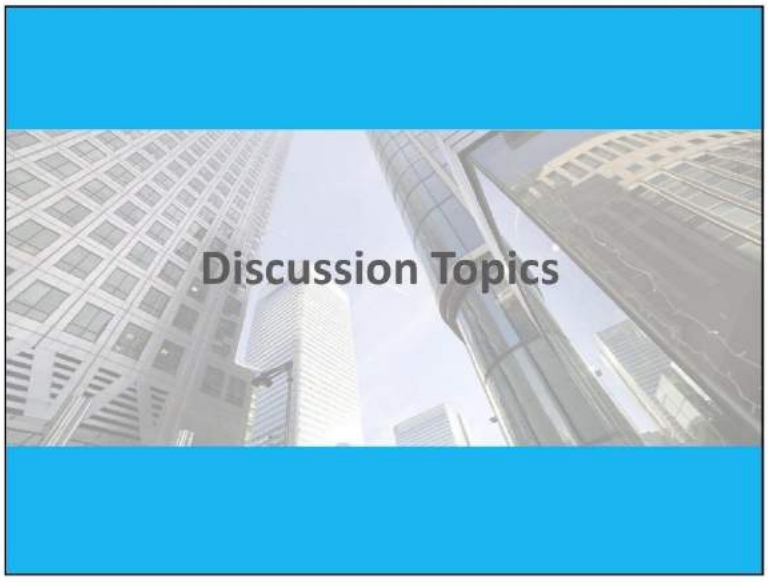

Conclusions and Recommendations


Midwest is Unique
• Unlike other regions where FRA is conducting similar studies, the Midwest is unique in that it has an established governance structure, the Midwest Interstate Passenger Rail Commission (MIPRC)
• Required a different focus than other, similar studies
• Validating what's working
• Understanding priorities
• Making recommendations for advancing outcomes of MWRRP
41

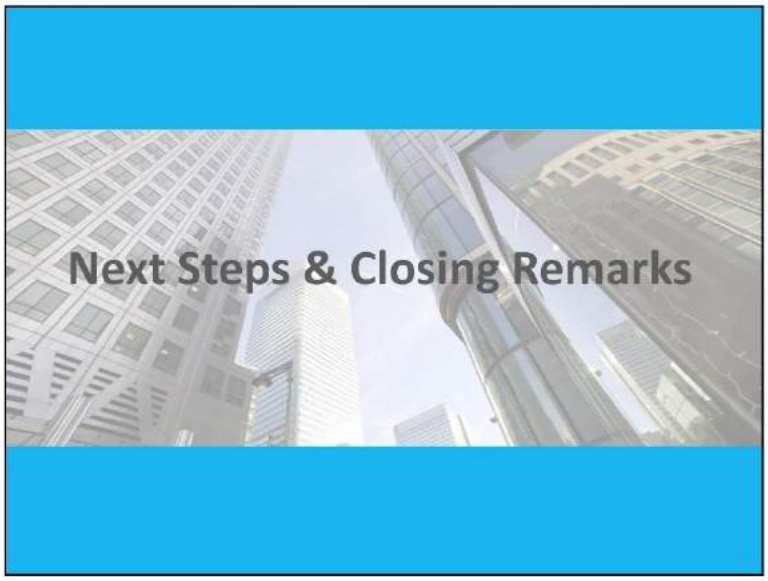

Conclusions and Recommendations
• MIPRC is working
• Strong support for the continuation of the governing body
• Desire to expand MIPRC's relevancy, this is a priority
• Must balance state's individual interests
• Federal support of MIPRC
• Role of MIPRC in phasing network development
• Role of MIPRC & non-member interests
42


Conclusions and Recommendations
• Additional governance frameworks are required to address the complex issues of delivering a major corridor improvement program
• Roles and responsibilities
• Cost allocation
• Right-of-way acquisition
• Ownership
• The more robust the governance structure, the more competitive the program
43


Conclusions and Recommendations
• The lack of a predictable funding stream creates a paradoxical situation
• Uncertain funding = little incentive for states to work together beyond the existing governance framework
• Yet, when funding does become available, the states will not have addressed the many governance issues related to developing and delivering a complex rail program across state lines
44


Discussion Topics


Discussion Topics
• Role of MIPRC in phasing network development
• Role of MIPRC & non-member interests


Next Steps & Closing Remarks

Appendix 3: Summary of Governance Discussions

FRA hosted three governance sessions throughout the duration of the MWRRP. These meetings focused on examining governance topics relevant to the Midwest. The pertinent information derived from these meetings is summarized in Chapter 3 of this document. This appendix provides a more detailed record of the wide-ranging discussions that occurred during these meetings.

Legal Limitations, Capabilities and Applicable Governance Frameworks

During the state's-only session on June 6, 2017 in St. Paul, MN, the state representatives discussed the legal limitations, capabilities and applicable governance structures. Below is a summary of this discussion topic.

- **Minnesota**. From a policy perspective, the state of Minnesota has vested broad authority in the county rail commissions' to plan, design and implement rail projects and programs in coordination with the federal government. Although 15% of the gas tax can be used towards transit projects, Minnesota can't use gas tax towards passenger rail. The only source of funding for passenger rail is through the annual appropriation from the state's general fund. The only capital funding available is through general obligation bonds, and this funding cannot be used outside the states. The Minnesota rail team recognizes that a dedicated funding source for intercity passenger rail is needed, and there needs to be a way of conducting joint procurements. However, the state is not likely to spend money on construction in other states.
- **Ohio** expressed a background with having a very good experience with Public Private Partnerships (P3). The Ohio representative views P3s to be active in Ohio, provide very flexible contracting mechanisms, and can allow for investment across state lines.
- **Illinois**. Representatives from Illinois notes that this state has very limited statutory authority and resources and no funding sources. In 2016, Illinois voted to amend the constitution to require all transportation taxes and fees be spent exclusively on transportation projects, and at the time of the stakeholder session it was still unclear how this would apply ton intercity passenger rail projects. Illinois uses other fees, and all together, around $50M was used for intercity passenger rail this year. A lot of clarification, questions, cooperation.
- **Indiana**. Passenger rail in Indiana is still in its infancy, and the state has a lot of work to do in terms of developing funding sources. There is a great degree of concern over where the money will come from. Indiana is a member of MIPRC and participated in the Chicago—Detroit—Pontiac study both as a study partner and a monetary contribution. Indiana views its participation in the study as a success. Indiana also cited the Ohio River Bridges project with neighboring state Kentucky as another example where interstate projects have been successful and included significant involvement by the Indiana governor. In Indiana, for bridge procurements, the state can only fund improvements for within the state. The successful execution of this project involved amending the constitution of each participating state to include specifying roles and responsibilities, and then each state conducted its own procurement. Although this project was entirely a highway initiative, it is a good example of undertaking a bi-state

program through the execution of the state law. The structure is there, albeit for a different mode. Indiana also noted restrictions on spending any state funding on construction in other states.

- **Iowa**. The state of Iowa has political and financial hurdles to overcome in order to advance intercity passenger rail programs beyond the planning stages. Iowa is not part of MIPRC – the state's withdrawal from MIPRC was a political decision. Over the last several years, Iowa has successfully participated in a number of regional studies, and have undertaken other, non-passenger rail projects and programs across state lines or within the region and noted that "where there's a will, there's a way" when a state is supportive of multistate programs. Iowa can spend money on studies across state lines, but like several other states, is prohibited from spending state funds on construction outside of the state.
- **South Dakota**. While the state owns or leases over 500 miles of rail throughout the state, South Dakota does not have passenger rail. The State has successfully provided rail loans to private entities. Within the state, highway funding can only to be utilized for highways and road bridges. State funding is not eligible for rail projects. The state is able to pool funding for studies, and can participate with surrounding states on bridges for river crossings, but even this type of undertaking is a challenge. The state is technically allowed to spend funds for improvements in other states.
- **North Dakota**. Passenger rail in North Dakota is very much in its infancy. The state has legal limitations and the state is not allowed to enter into P3s. The state has an active rail loan program, which funds some projects that benefit intercity passenger rail. The state doesn't have a complex legal framework in place. On the highway side, the state has implemented projects with railroads like Canadian National. The state does not have authority to spend funds in other states, but has funded rail projects that are on or near the border.
- **Michigan**. The state of Michigan has dedicated funding though a comprehensive transportation fund for non-highway, non-aviation projects. The state is allowed to use up to 10% of fuel tax, as well as a portion of sales tax generated from auto-related sales (e.g., AutoZone) on non-highway programs. These funds are used for marine, rail and public transit. Funding is appropriated to specific programs and modes within the comprehensive transportation fund. Michigan can also use a portion of registration fees towards rail projects. This can be a rather complicated funding source whereby there are occasionally limitations on this type of funding and sometimes such funding is appropriated to rail projects but then taken away from them. Michigan currently has an active rail program, and the state can also own and operate rail infrastructure and equipment, to include owning and operating equipment or infrastructure in other states. Michigan has successfully delivered several multistate projects, and has worked closely with Canada on a number of international border projects. The Michigan representative cited a successful project with Wisconsin, where Wisconsin led the project and Michigan funded the project. Michigan provided some oversight for this project, Michigan reimbursed Wisconsin's consultants on a limited basis, but Wisconsin was entirely responsible for the delivery of the project. There was some discussion about a state's government immunity not extending across borders, and therefore construction oversight must be the responsibility of the state where the work is being accomplished in order to ensure indemnity. A complexity related to interstate projects is the inability

require partner states to forego their state's rights, and employees of one state can't be required to sign liability waivers for another state. Also, Michigan noted that the state has the ability to fund projects in other states.

- **Wisconsin**. The state of Wisconsin has taken advantage of a number of opportunities to support projects across state lines. The state can operate, collaborate on projects, own equipment, and continues to participate in MIPRC. The Wisconsin representative confirmed that the state can own equipment, and there is no limitation on expending funding in other states. Funding comes to the state department of transportation in one big pot, and is not separated by mode.

Successes and Gaps Related to the Existing Arrangements

During the state's-only session on June 6, 2017 in St. Paul, MN, the state representatives discussed what is working well, what are the significant gaps in the current applicable governance structures and what, if any, would be the state's priority focus for advancing a governance structure under the MWRRP. Below are the more comprehensive comments from the discussion.

- Changing political priorities sometimes impact on-going rail programs that are being implemented at the staff level.
- There are a number of non-rail examples within the state of Iowa where the state has successfully entered into bi-state agreements. Iowa has also successfully worked with Illinois and Nebraska to advance planning and some preliminary design work for the Chicago—Iowa City—Omaha intercity passenger rail corridor.
- It was noted the importance of developing and maintaining relationships with counterparts in other states. These relationships are very helpful to maintaining momentum and will be helpful in working through network issues in the future.
- The group discussed the success of the Hiawatha Line and how over the years of Illinois and Wisconsin supporting this service, the two states have developed a number of different tools to administer the corridor.
- The group discussed the success of the recent locomotive procurement and all of the various lessons learned through this undertaking. The locomotive procurement working group was currently working through governance structures on how to own, operate, maintain and possibly procure additional locomotives.
- The states were also working through a very complicated lease agreement with Amtrak. It was noted that multi-state agreements, councils, legislation all add additional layers of complication to multi-state initiatives, not to mention the additional complexity of dealing with host and operating railroads.
- It was noted that while there have been challenges with multistate agreements and governance framework for the equipment procurement, compared to other models explored the framework being developed for the Midwest locomotive fleet was a success. The use of the MIPRC "umbrella" has

enabled the several states to more quickly to create a simple governance structure for the ownership, operations and maintenance of the fleet. Without the authority vested in the states through the MIPRC legislation, the equipment fleet governance would have been significantly more complicated. The Compact gave legal constitutional authority to come together as states, and the states were able to implement an agreement much more quickly.

- Another successful example has been the states coming together for corridor planning studies. This coordination has provided an advantage when working with host railroads. There was a suggestion to work to formalize this type of activity where states approach a host railroad or Amtrak as a collective group to achieve better results and cost efficiencies. States are doing things as a group – an advantage in working with host railroads. It was noted that currently the relationship with the host railroads is almost predominantly through Amtrak.
- The group discussed opportunities to gain efficiency through a network approach to dealing with Amtrak. From an FRA perspective, it appears that each state works independently to optimize their state-supported service, and there is the potential for a more collective, regional approach to operating the services could be beneficial in order to maximize utility and efficiency.
- One state representative noted that such interactions with Amtrak are already trending this way. Examples like the Hiawatha line show that three decades of two states working together and building close working relationships has resulted in an increasingly successful service.
- Over the last several decades, every state has evolved, particularly in the face of changing political priorities in terms of intercity rail. One representative noted that technical work and organizational ability are key – the more the state rail teams get to know each other and are able to communicate on a routine basis, the more the states will continue to optimize shared operations in the Midwest.
- Much of the current situation of state-led programs is a result of how federal funding from the American Recovery and Reinvestment Act (ARRA) were implemented. ARRA and the resulting FRA funding programs were a total “game changer” for the Midwest. For decades the Midwest has organized and advanced planning around a “network” model through MWRRI and MIPRC, but because of the way the ARRA funding was distributed to individual states, the focus was on state-by-state basis. The Midwest has successfully followed this “corridor development” approach to implement billions of dollars in investment throughout the Midwest, but the equipment fleet procurement forced the Midwest states and FRA to re-adopt a more network-focused perspective. Through the equipment procurement, states are working together and because the equipment ownership is shifting from the operator to the states, the main point of friction is not among states, but between the collective states procuring the equipment and Amtrak.
- Under the current agreements with Amtrak, once equipment costs are removed from the current structure, some states could see fare box recovery ratios that are much more reasonable. It is the intent of these states to invest any excess revenue into additional equipment which will result in additional savings of not having to lease equipment from Amtrak.

- It was noted that there is a fundamental shift occurring in the Midwest so that rail is on a level playing field with sister modes.
- The group discussed gaps regarding MIPRC – when activities occur, MIPRC doesn't appear to have the same level of clout as other, similar governance structures like the Northeast Corridor Commission (NEC Commission). Other rail projects get more attention from US Congress and US DOT, the example of the re-establishment of Gulf Coast service was cited (an FRA representative noted that this effort was not an applicable example for a number of reasons). When FRA, USDOT, and Amtrak do something in the Midwest, it appears that MIPRC is an afterthought. Another example cited was the Oklahoma City to Kansas City operational study, where FRA coordinated directly with individual states instead of MIPRC. It was suggested that the group and FRA consider ways to elevate and raise the political profile of MIPRC. It was noted that MIPRC has spoken before Congress, but it doesn't appear that US lawmakers view MIPRC as a constituent, they often go to individual states for information instead.
- There is a desire among the Midwest states for FRA to better support MIPRC to help advance rail priorities and enable states to work together to optimize their interactions with Amtrak and host railroads. There was some discussion that working with host railroads can be a very complicated and frustrating process, and often agreements with host railroads make advancement in passenger rail programs cost prohibitive because the host railroad asks for so much up-front investment. As long as Amtrak is the only railroad with host preference agreements, unless a state outright acquires the railroad, it will be difficult to advance service improvements without Amtrak. Some states expressed better results by negotiating directly with the host railroad for special trains or other similar situations where working with Amtrak has been historically difficult.
- There was some discussion about liability and how, from the Midwest state's perspective, FRA has enabled Amtrak to make it prohibitive for states to work with any operator besides Amtrak. FRA Office of Safety does not require Amtrak to provide same level of safety certification as if a state hired Herzog to operate the same service. However, some states that have tried to hire an operator other than Amtrak have seen significant costs associated with selecting a third party operator, in that they continually add on fees.
- There was additional discussion about treating the Midwest like a network verses a series of corridors. As noted previously, over the last decade a number of corridor investment plans have been completed and are ready to be implemented. To varying degrees, these plans outline investments required to advance specific corridors, and there is a least one upcoming study—the Chicago Terminal Study— being undertaken by the states with support from FRA to understand the optimal configuration of networks where corridors converge. FRA noted that a corridor approach was necessary in order to drill down to the level of detail required by the National Environmental Policy Act (NEPA) in order to adequately examine the level of investment in each corridor.
- It was suggested to view the Midwest as an assembly of corridors, but to do so through a network lens operationally. For example, analyze running through trains from Milwaukee to Chicago to Grand Rapids

and also reduce travel times. What does this connection mean from a network perspective? Or, examine Champaign to Detroit. In other words, view the network in a non-traditional manner. There are more efficient way to operate a network than as a system of spokes that hub on Chicago. The goal of the Midwest states should be to develop a logical short-term process to optimize the network for the Midwest.

- There was some discussion about working with Amtrak and how individual state interactions with Amtrak could be improved if they were more informed by what's going on between Amtrak and other states.
- There was some discussion about FRA's role to provide capital funding, but in the current constrained environment there is not enough money to fund everything. If the Midwest states were willing to subject themselves to a regional governance framework that prioritized what was best for the network in terms of investment, rather than the current situation of each state pursuing its own projects and program, such a governance structure could assist the entire Midwest in advancing projects that truly build out the network. The Mid America Association of State Transportation Officials (MAASTO) has acted in this role to prioritize FASTLANE grant applications, and the Chicago Region Environmental and Transportation Efficiency Program (CREATE) has been a successful partnership that effectively prioritizes and leverages federal dollars.
- There was some closing discussion of how to best develop and implement a prioritized list of corridors.
- The group also expressed an interest in examining what would be required from a governance perspective for a multi-state corridor like the Chicago to Detroit corridor in terms of next steps are to examine what would be required from a governance perspective to advance Tier 2 environmental documents and preliminary engineering, final design, land acquisition, construction and operations.

Appendix 4: MIPRC Presentation on Legal Authorizations by State

MIPRC hosted its 2017 annual meeting on October 9-10 in Wichita, Kansas. As part of the agenda, MIPRC presented the following material, which provides an overview of each states legal authority.

MIPRC
Midwest Interstate Passenger Rail Commission

Working to implement a 21st century passenger rail system by adding the Midwest Regional Rail Initiative network and additional state-supported corridors to the region's existing passenger rail infrastructure.

MIPRC
Midwest Interstate Passenger Rail Commission

MIPRC 2017 Annual Meeting
October 9-11, 2017
Wichita, Kansas

Limitations of States in Multistate Passenger Rail Development

Illinois: 20 ILCS 2705-440

- For the purposes of providing intercity railroad passenger service within this State (*or as part of service to cities in adjacent states*), the Department is authorized to enter into agreements with units of local government, the Commuter Rail Division of the Regional Transportation Authority (or a public corporation on behalf of that Division), architecture or engineering firms, the National Railroad Passenger Corporation, any carrier, *any adjacent state (or political subdivision, corporation, or agency of an adjacent state), or any individual, corporation, partnership, or public or private entity*. The cost related to such services shall be borne in such proportion as, by agreement or contract the parties may desire. (Emphasis added)

Indiana: IC 8-3-1.5-12

- The department may cooperate with other states in connection with the purchase of any rail properties within this State. *The department may also acquire trackage rights in other States and rail properties lying in other States in order to carry out the intentions and purposes of this chapter*. In carrying out the authority conferred by this section, the department may enter into general contractual arrangements, *including joint purchasing and leasing of rail properties, with other States.* (Emphasis added)

Iowa: Iowa Code 327J.3.2 (Administration)

- 2. The director may enter into agreements with AMTRAK, other rail operators, local jurisdictions, and other states for the purpose of developing passenger rail service serving Iowa. The agreements may include any of the following:
  - a. Cost-sharing agreements associated with initiating service, capital costs, operating subsidies, and other costs necessary to develop and maintain service.
  - b. Joint powers agreements and other institutional arrangements associated with the administration, management, and operation of passenger rail service.

Kansas: KSA 75-5089

- DOT secretary may
- (1) Enter into agreements with Amtrak, other rail operators, local jurisdictions and other states for the purpose of developing passenger rail service, serving Kansas and other states interconnected and positioned on a current or proposed route. The agreements *may include* any of the following provisions:
  - (A) *Cost-sharing agreements associated with initiating service, capital costs, operating subsidies and other costs necessary to develop and maintain service*; or
  - (B) *joint powers agreements and other institutional arrangements associated with the administration, management and operation of passenger rail service.*
- (2) Provide assistance and enter into agreements with local jurisdictions along the proposed route of a Midwest regional rail system development or other passenger rail service operations serving Kansas
- (Emphasis added)

Kansas: KSA 75-5089

- Section 5(f) specifies that "As used in this section 'passenger rail service' means long-distance, intercity and commuter passenger transportation, *including the Midwest regional rail system development* which is provided on railroad tracks." (Emphasis added)

Michigan: Act 295 of 1976 (474.56)

- Sec. 6.
- (1) The department, as sole agent for the state, may acquire by purchase or through the procedures set forth in the staggers rail act of 1980, Public Law 96-448, 94 Stat. 1895, and the northeast rail service act of 1981, subtitle E title XI, Public Law 97-35, 95 Stat. 643, a portion or portions of the property of a railroad company, including, but not limited to, the tracks and ties, rights of way, land, buildings, appurtenances, other facilities, **rolling stock, and equipment,** whether or not necessary for the operation of a railroad, for the preservation of a railroad line, or for commuter trail use. In addition, the department may acquire by purchase or otherwise other property owned by an entity other than a railroad company which is found by the department to be necessary for the present or future operation of a railroad.
- (2) The department may acquire through condemnation only those segments of a railroad which has been abandoned. Acquisition through condemnation shall be limited to right of way, track, ties, bridges, and culverts which are necessary for the operation of a railroad. The action shall be undertaken pursuant to Act No. 149 of the Public Acts of 1911, being sections 213.21 to 213.25 of the Michigan Compiled Laws, and Act No. 87 of the Public Acts of 1980, being sections 213.51 to 213.77 of the Michigan Compiled Laws.

OHIO: ORC 4981

- Establishes the Rail Development Commission
- Requires the commission to "plan for the construction and operation of an intercity conventional or high speed passenger transportation system in this state" to be built and operated by the commission.
- Requires plans to be based on existing studies, and an initial route connecting Cleveland, Columbus, and Cincinnati and any points in between those cities determined by the authority.

Wisconsin: Chapter 85.06 (Excerpts)

- The department shall administer a rail passenger service assistance and promotion program and may do any of the following:
- (c) *Consult with other states and with local governmental units regarding service levels for additional rail passenger service in this state.*
- (d) Monitor the quality of rail passenger service in this state.
- (e) Conduct or contract for marketing studies and promotional activities to increase rail passenger service ridership in this state, to identify potential riders and to educate the public about the availability and advantages of rail passenger service.
- (f) Apply for and accept federal funds for rail passenger service.
- (g) Acquire equipment or facilities for the purpose of providing rail passenger service or support services for rail passenger service.
- (h) *Enter into agreements with other states to assist or promote rail passenger service.* (Emphasis added)

Wisconsin: Chapter 85.061(3)(a)(3)

- Authorizes the department to fund development of capital improvements in support of existing service in the Milwaukee–Chicago corridor or new service in the Milwaukee–Madison and Milwaukee–Green Bay corridors.

Response Summary: Legal Limitations?

- (Note: By definition, MIPRC member states do not have such legal limitations regarding engaging in a passenger rail governance framework, at least within the framework of the compact.)

- Iowa: Yes (not a MIPRC state)
  Nebraska: Although a MIPRC state, statutory authorization would be necessary to enter governance agreements.
  Ohio: Uncertain
  South Dakota: Uncertain

Response Summary: Funding? Dedicated?

- Illinois, Indiana, Missouri, Wisconsin: General funds (not dedicated)
  Iowa, Nebraska, South Dakota: None
  Michigan: Up to 10 percent of sales taxes; portion of registration fees and other taxes
  Minnesota: None (General funds for office; G.O. bonds for specific projects)
  Ohio: Uncertain
  North Dakota: Rail loan program (not dedicated, but passenger rail is eligible), no P3s

Response Summary: Out-state spending?

- YES
  Illinois (adjacent states only), Indiana (if codified), Iowa (planning studies only), Michigan, Missouri, North Dakota (on or near state borders only), South Dakota (limited), Wisconsin
- NO
  Kansas, Minnesota, Nebraska
- Uncertain
  Indiana, Ohio


Thank you.
Questions?