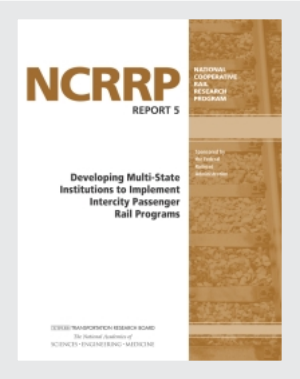


Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

DETAILS

134 pages | 8.5 x 11 | PAPERBACK
ISBN 978-0-309-43239-9 | DOI 10.17226/22073

AUTHORS

Michael Meyer, Crystal Cummings, and Shelly Brown; National Cooperative Railroad Research Program; Transportation Research Board; National Academies of Sciences, Engineering, and Medicine

NATIONAL COOPERATIVE RAIL RESEARCH PROGRAM

NCRRP REPORT 5

Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

Michael Meyer
Crystal Cummings
WSP|Parsons Brinckerhoff
Washington, DC

Shelly Brown
Shelly Brown Associates, LLC
Seattle, WA

Subscriber Categories
Administration and Management • Passenger Transportation • Railroads

Research sponsored by the Federal Railroad Administration

TRANSPORTATION RESEARCH BOARD

WASHINGTON, D.C.
2016
www.TRB.org

NATIONAL COOPERATIVE RAIL RESEARCH PROGRAM

The National Cooperative Rail Research Program (NCRRP) conducts applied research on problems important to freight, intercity, and commuter rail operators. Research is necessary to solve common operating problems, adapt appropriate new technologies from other industries, and introduce innovations into the rail industry. NCRRP carries out applied research on problems that are shared by freight, intercity, and commuter rail operating agencies and are not being adequately addressed by existing federal research programs. NCRRP undertakes research and other technical activities in various rail subject areas, including design, construction, maintenance, operations, safety, security, finance and economics, policy, planning, human resources, and administration.

NCRRP was authorized in October 2008 as part of the Passenger Rail Investment and Improvement Act of 2008 (PL 100-432, Division B). The Program is sponsored by the Federal Railroad Administration (FRA) and managed by the National Academies of Sciences, Engineering, and Medicine, acting through its Transportation Research Board (TRB), with program oversight provided by an independent governing board (the NCRRP Oversight Committee [ROC]) including representatives of rail operating agencies.

NCRRP carries out applied research on problems that address, among other matters, (1) intercity rail passenger and freight rail services, including existing rail passenger and freight technologies and speeds, incrementally enhanced rail systems and infrastructure, and new high-speed wheel-on-rail systems; (2) ways to expand the transportation of international trade traffic by rail, enhance the efficiency of intermodal interchange at ports and other intermodal terminals, and increase capacity and availability of rail service for seasonal freight needs; (3) the interconnectedness of commuter rail, passenger rail, freight rail, and other rail networks; and (4) regional concerns regarding rail passenger and freight transportation, including meeting research needs common to designated high-speed corridors, long-distance rail services, and regional intercity rail corridors, projects, and entities.

NCRRP considers research designed to (1) identify the unique aspects and attributes of rail passenger and freight service; (2) develop more accurate models for evaluating the impact of rail passenger and freight service, including the effects on highway, airport, and airway congestion, environmental quality, energy consumption, and local and regional economies; (3) develop a better understanding of modal choice as it affects rail passenger and freight transportation, including development of better models to predict utilization; (4) recommend priorities for technology demonstration and development; (5) meet additional priorities as determined by the advisory board; (6) explore improvements in management, financing, and institutional structures; (7) address rail capacity constraints that affect passenger and freight rail service through a wide variety of options, ranging from operating improvements to dedicated new infrastructure, taking into account the impact of such options on operations; (8) improve maintenance, operations, customer service, or other aspects of intercity rail passenger and freight service; (9) recommend objective methods for determining intercity passenger rail routes and services, including the establishment of new routes, the elimination of existing routes, and the contraction or expansion of services or frequencies over such routes; (10) review the impact of equipment and operational safety standards on the further development of high-speed passenger rail operations connected to or integrated with non-high-speed freight or passenger rail operations; (11) recommend any legislative or regulatory changes necessary to foster further development and implementation of high-speed passenger rail operations while ensuring the safety of such operations that are connected to or integrated with non-high-speed freight or passenger rail operations; (12) review rail crossing safety improvements, including improvements using new safety technology; and (13) review and develop technology designed to reduce train horn noise and its effect on communities, including broadband horn technology.

The primary participants in NCRRP are (1) an independent governing board, the ROC, appointed by the Secretary of the U.S. Department of Transportation with representation from freight, intercity, and commuter rail operating agencies, other stakeholders, and relevant industry organizations such as the Association of American Railroads (AAR), the American Association of State Highway and Transportation Officials (AASHTO), the American Public Transportation Association (APTA), and the National Association of Railroad Passengers (NARP) as vital links to the rail community; (2) TRB as program manager and secretariat for the governing board; and (3) the FRA as program sponsor. NCRRP benefits from the cooperation and participation of rail professionals, equipment and service suppliers, other rail users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort.

NCRRP REPORT 5

Project 07-02
ISSN 2376-9165
ISBN 978-0-309-37538-2
Library of Congress Control Number 2016937529

COPYRIGHT INFORMATION

NOTICE

The report was reviewed by the technical panel and accepted for publication according to procedures established and overseen by the Transportation Research Board and approved by the National Academies of Sciences, Engineering, and Medicine.

The opinions and conclusions expressed or implied in this report are those of the researchers who performed the research and are not necessarily those of the Transportation Research Board; the National Academies of Sciences, Engineering, and Medicine; or the program sponsors.

The Transportation Research Board; the National Academies of Sciences, Engineering, and Medicine; and the sponsors of the National Cooperative Rail Research Program do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the object of the report.

Published reports of the

NATIONAL COOPERATIVE RAIL RESEARCH PROGRAM

are available from

Transportation Research Board
Business Office
500 Fifth Street, NW
Washington, DC 20001

and can be ordered through the Internet by going to

http://www.national-academies.org

and then searching for TRB

Printed in the United States of America

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

The **National Academy of Sciences** was established in 1863 by an Act of Congress, signed by President Lincoln, as a private, non-governmental institution to advise the nation on issues related to science and technology. Members are elected by their peers for outstanding contributions to research. Dr. Ralph J. Cicerone is president.

The **National Academy of Engineering** was established in 1964 under the charter of the National Academy of Sciences to bring the practices of engineering to advising the nation. Members are elected by their peers for extraordinary contributions to engineering. Dr. C. D. Mote, Jr., is president.

The **National Academy of Medicine** (formerly the Institute of Medicine) was established in 1970 under the charter of the National Academy of Sciences to advise the nation on medical and health issues. Members are elected by their peers for distinguished contributions to medicine and health. Dr. Victor J. Dzau is president.

The three Academies work together as the **National Academies of Sciences, Engineering, and Medicine** to provide independent, objective analysis and advice to the nation and conduct other activities to solve complex problems and inform public policy decisions. The Academies also encourage education and research, recognize outstanding contributions to knowledge, and increase public understanding in matters of science, engineering, and medicine.

Learn more about the National Academies of Sciences, Engineering, and Medicine at **www.national-academies.org**.

The **Transportation Research Board** is one of seven major programs of the National Academies of Sciences, Engineering, and Medicine. The mission of the Transportation Research Board is to increase the benefits that transportation contributes to society by providing leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Board's varied committees, task forces, and panels annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

Learn more about the Transportation Research Board at **www.TRB.org**.

COOPERATIVE RESEARCH PROGRAMS

CRP STAFF FOR NCRRP REPORT 5

Christopher W. Jenks, *Director, Cooperative Research Programs*
Lawrence D. Goldstein, *Senior Program Officer*
Anthony P. Avery, *Senior Program Assistant*
Eileen P. Delaney, *Director of Publications*
Ellen M. Chafee, *Editor*

NCRRP PROJECT 07-02 PANEL
Field of Administration

Anne P. Canby, *OneRail Coalition, Wilmington, DE* (Chair)
Edward J. Bolden, *Amtrak Mechanical Department, Wilmington, DE*
Rod Diridon, Sr., *Mineta Transportation Institute, San Jose, CA*
Andrew J. Galloway, *Amtrak, Philadelphia, PA*
Eric O. Glick, *Nevada DOT, Carson City, NV*
Leslie A. McCarthy, *Villanova University, Villanova, PA*
Petra T. Messick, *Amtrak, New York, NY*
Allan Rutter, *Texas A&M Transportation Institute, Dallas, TX*
Meredith Slesinger, *NEC Commission, Washington, DC*
Beverley K. Swaim-Staley, *Union Station Redevelopment Corporation, Washington, DC*
Scott Babcock, *TRB Liaison*

AUTHOR ACKNOWLEDGMENTS

Study Advisors

WSP|Parsons Brinckerhoff:
- Peter J. "Jack" Basso
- David J. Carol
- Phillip G. Pasterak, PE

WSP|Parsons Brinckerhoff Independent Consultants:
- Mortimer Downey
- Gil Mallery

Research Support Team

WSP|Parsons Brinckerhoff:
- Joel D. Anders, EIT
- Tiffany Batac
- Ella Claney
- Julian J. Gonsalves, LEED AP, ENV SP
- Jared Gulbranson, AICP
- Stephanie R. Jackson
- Anna Lynn M. Smith, AICP
- Peter J. Denitz, AICP, PP
- Benjamin G. Perez, AICP
- Jennifer Thompson

WSP|Parsons Brinckerhoff Independent Consultant:
- James McQueen

Focus Group

Joe Arbona, Union Pacific Railroad
John Brennan, Union Pacific Railroad
Johnson Bridgwater, Oklahoma Department of Transportation
Tim Hoeffner, Michigan Department of Transportation
Michael Kies, Arizona Department of Transportation
D.J. Mitchell, BNSF
Jennifer Moczygemba, Hatch Mott MacDonald (formerly Texas Department of Transportation)
Kevin Page, Virginia Department of Rail and Public Transportation
Ron Pate, Washington State Department of Transportation
Jan Perschler, California Department of Transportation
Patricia Quinn, Northern New England Passenger Rail Authority
Bruce Roberts, California Department of Transportation
Joe Shacter, Illinois Department of Transportation
Mitch Warren, NEC Commission
Paul Worley, North Carolina Department of Transportation

FOREWORD

By Lawrence D. Goldstein
Staff Officer
Transportation Research Board

NCRRP Report 5: Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs presents practical models of multi-state institutional arrangements for planning, developing, and operating intercity passenger rail networks and services. These models are designed to function in the context of rail passenger service currently provided by Amtrak and in response to the primary goal of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) to provide more flexibility in developing and supporting intercity passenger rail operations in the United States. As a fundamental step in the process, *NCRRP Report 5* constructs a conceptual framework of the intercity passenger rail visioning, planning, and project development and operations process using key characteristics and components to formulate alternative institutional models. Building on this framework approach, the report offers eight models of possible institutional relationships and a practitioners' guide to help determine which model is more appropriate given the particular issues faced by those interested in establishing an intercity passenger rail service. Case studies of intercity passenger rail initiatives and non-transportation, multi-agency programs are summarized in this report and detailed in a companion volume available as *NCRRP Web-Only Document 3* on the TRB website. This document also includes background information on various regulations guiding formation of multi-jurisdictional institutions.

In nearly every circumstance, planned intercity passenger rail service improvements, including construction of new infrastructure, enhancement of existing infrastructure, and purchase of new rolling stock, involves more than a single state jurisdiction. Out of necessity, implementing these plans requires multi-state agreements on infrastructure funding and rail service operations to address highly complex issues affecting a multitude of jurisdictions and operating agencies. Currently, there is no adequately tested institutional framework on which to structure these agreements and implement programs despite the fact that a majority of existing and proposed intercity travel markets suitable for rail transportation cross through multiple states.

As presented in *NCRRP Report 5,* the challenges inherent in planning, designing, constructing, and operating multi-state passenger rail corridors are broad and often complex. This report offers options on how to deal with issues such as the following:

- Overuse and underfunding conflicts associated with allocating available track capacity;
- Infrastructure investments on a corridor that are concentrated disproportionately in one state, while the benefits of those investments accrue to multiple states along the corridor;
- The limited resources, capacity, and leverage of individual states in negotiating service agreements with infrastructure owners, most of whom have regional- or national-level market perspectives;

- The need for rail corridors within multi-state regions to function as a cohesive, integrated network, while federal and state investments tend to be evaluated and prioritized on a state-by-state basis; and
- The limited incentive for a "pass through" state to plan for or invest in a rail corridor between major origin and destination cities with few or no intermediate stops.

Creating institutional models responding to these challenges is critical to implementing improvements to both existing and expanded intercity rail passenger networks. The research team, led by WSP|Parsons Brinckerhoff, with Dr. Michael Meyer serving as Principal Investigator, has built a series of institutional models to address these challenges, providing a systematic approach designed to help multiple jurisdictions work cooperatively to plan, develop, construct, and operate intercity passenger rail service.

CONTENTS

CHAPTER 1

Introduction

1.1 Background

The evolution of the U.S. intercity passenger rail industry reflects the political mandates, economic market forces, and technology advancements that influence where and how such service is provided. The formation of the National Railroad Passenger Corporation, better known as Amtrak, authorized in 1970 with operations beginning in 1971, was one of the most important events in this history. The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) could also be considered an important benchmark in the ongoing structuring of intercity passenger rail in the United States. PRIIA initiated several efforts that have changed the institutional model for intercity passenger rail in the United States (FRA, 2009):

- FRA and Amtrak, in consultation with others, were to develop metrics and minimum standards for measuring the performance and service quality of intercity passenger train service (§207).
- Amtrak was required to evaluate and rank each of its long-distance trains according to its overall performance, then develop performance improvement plans for its long-distance passenger routes and implement those plans for the worst performing routes (§210).
- With respect to the Northeast Corridor (NEC), Amtrak had to prepare a capital spending plan for infrastructure projects needed to return the railroad right-of-way, facilities, stations, and equipment of the NEC main line to a state of good repair (§211).
- States were to establish or designate a state rail transportation authority that would develop statewide rail plans to set policy involving freight and passenger rail transportation within their boundaries, establish priorities and implementation strategies to enhance rail service in the public interest, and serve as the basis for federal and state rail investments within the state (§303).
- Amtrak, in consultation with U.S. DOT, the governors of each relevant state, and the Mayor of the District of Columbia (or entities representing those officials), was required to develop and implement a single, nationwide, standardized methodology for establishing and allocating the operating and capital costs of providing intercity rail passenger service among the states and Amtrak for trains operated on designated high-speed rail corridors (outside the NEC), short-distance corridors, or routes of not more than 750 miles, and services operated at the request of a state, a regional or local authority, or another person (§209).

These requirements, especially those found in Sections 207, 209, and 210, have raised important questions about how multi-jurisdictional cooperation and collaboration could occur to support intercity passenger rail in the context of PRIIA (see the "Reports and Documents" section on the Amtrak website for the reports that have been submitted in response to PRIIA requirements, https://www.amtrak.com/servlet/ContentServer?c=Page&pagename=am%2FLayout&cid=1241245669222).

One of the basic tenets of the effective implementation of any new initiative is having the institutional capability to initiate, manage, and nurture the proposed changes. "Institutional" in this sense means more than just a focus on organizations; it also includes procedures, financial arrangements, legal and regulatory requirements, and other components of any relationship among different organizations. The literature of organization theory and organizational behavior includes many studies and examples of different strategies and characteristics of effective institutional models, mostly involving private firms (examples of early studies include *Interorganizational Relations* [Evan, 1978] and *How Organizations Act Together: Interorganizational Coordination Theory and Practice* [Alexander, 1995]). Although this literature provides useful insights on the effectiveness of institutional models, very little research has occurred on the characteristics of successful multiple transportation agency action. Even less research has been undertaken on multi-state institutional models for developing and providing intercity passenger rail networks and services.

As noted in *Moving Beyond Boundaries: Organizations Governing Cross-Boundary Transport* (Crocker, 2009), most examples of successful intercity passenger rail infrastructure and corresponding services require some form of institutionalized cooperation among a variety of agencies. This observation was also one of the conclusions of a Government Accountability Office (GAO) report, which concluded that defining the roles of government agencies and other participants was one of the major challenges facing intercity passenger rail transportation services in the United States (GAO, 2009).

Many of the existing and proposed intercity rail passenger initiatives cross state boundaries (FRA, 2009; Hagler and Todorovich, 2009). Two-thirds of the FRA-funded investment plans cross state boundaries, and just over 75 percent of the corridors having the greatest market potential are multi-state corridors. It has been noted that in the context of national development patterns, in particular the evolution of megaregions, substantial challenges could be associated with providing intercity transportation services among states (Ross, 2009; Ankner and Meyer, 2009).

Different institutional models might have to be applied to a variety of service and infrastructure sectors that cross state boundaries. However, intercity passenger rail services that cross state lines have some unique challenges, including the following:

- Acquiring and managing shared infrastructure and equipment among multiple states.
- Reconciling distinct state-specific regulatory/legal requirements.
- Collaborating within the traditional federal framework.
- Sharing costs and funds across state lines.
- Working with stakeholders for multi-state intercity passenger rail projects that extend beyond partner states.

1.1.1 Acquiring and Managing Shared Infrastructure and Equipment Among Multiple States

Putting in place reliable infrastructure and providing compatible rolling stock to make the network operate effectively often requires multi-state agreements relating to a range of issues: responsibilities for the provision of infrastructure (including construction phasing that provides the most efficient network development), purchase of rolling stock, operations, maintenance, assumption of liability, joint decision-making authority, sharing of revenues, and representation to other agencies, to name a few. This particular challenge has led the FRA to set a goal of developing equipment ownership, maintenance, and management plans that ensure appropriate management and allocation of equipment across state lines and allow for adjustments in equipment deployment as passenger rail service demand changes over time.

1.1.2 Reconciling Distinct State-Specific Regulatory/ Legal Requirements

The nature of state governments and the constitutional and legal constraints under which they operate provide significant challenges. Some of these challenges include the following:

- Constitutional and other legal restrictions on the use of revenues for certain types of investments or for projects outside state boundaries;
- Political pressure about disproportionate burdens placed on the state's financial support compared to what other states are paying;
- Significant restrictions on the assumption of liability for services and operations provided by others;
- By themselves, states not having a market presence to negotiate appealing service arrangements with service providers; and
- Increasingly in recent years, serious constraints in the level of funding that can be allocated for most types of transportation investments.

Coordinating passenger rail service across state lines must address differing legal requirements and find regulatory consistency in the areas most critical to delivering projects. This was very much the case for the states of North Carolina and Virginia, as they collaborated to establish a bi-state compact, and these states continue to face challenges in trying to plan the Southeast High Speed Rail Program. A similar issue is found in the Cascades Corridor, where Washington and Oregon have found it difficult to shape a common program. Careful consideration must also be given to establishing governance mechanisms that have minimal overlapping responsibilities with state organizations already in practice.

1.1.3 Collaborating Within the Traditional Federal Framework

Putting such partnerships within a federal framework also limits collaborative action because federal investment is typically allocated on a state-by-state basis; seldom are federal funds provided to a multi-state compact or partnership. Even when this is done, there is no incentive for states granted funds to work together, and it is usually the responsibility of a lead state to accept and manage the federal funds. This latter arrangement is one that has been effective for advancing intercity passenger rail projects in the Midwest and New England. In the Midwest, the Illinois Department of Transportation (DOT) is designated as the lead agency in the Chicago-St. Louis project, and, in New England, Maine has lead responsibility for the Northern New England Passenger Rail Authority (NNEPRA), managing the budget, contracts, promotion, and customer services associated with the Downeaster passenger rail service, which links 10 communities in 3 states.

In cases where there is no clear lead state to accept and manage federal funds, existing multi-state governance models include federally chartered corporations and federal/state commissions. However, trade-offs usually have to be made in this type of arrangement, most often in the structure of the decision-making process.

1.1.4 Sharing Costs and Funds Across State Lines

In addition to the challenges associated with sharing federal funds across state lines, there are often concerns expressed by state and local politicians about spending state funds on services that benefit other states. There is also debate over whether state transportation funds should go to intercity passenger rail service (especially given the large costs/subsidies associated with it) or whether these funds should be used for other state transportation needs. The geographic location of investments in a corridor may be concentrated disproportionately in one state, while the

benefits of those investments may accrue to multiple states along the corridor. Additionally, a "pass-through" state between major origin and destination cities with few or no intermediate stops may have limited incentive to plan for or invest in that corridor.

For example, interviews conducted in this research with leaders of many of the regional rail initiatives revealed that in the absence of a formal governance mechanism, states tend to focus on investments that primarily benefit themselves. Corridors with benefits more broadly dispersed, and thus with more challenging cost-sharing arrangements, have been slower to develop. Even finding funds to travel across state lines to work with out-of-state partners presents a major challenge.

PRIIA recognized the challenges that the new policy environment might create by creating the Next Generation Equipment Committee that was to analyze the institutional issues and options associated with developing a multi-state passenger rail equipment pool.

1.1.5 Working with Stakeholders for Multi-State Intercity Passenger Rail Projects that Extend Beyond the Partner States

Further complicating the establishment of governance structures for a multi-state corridor is the inclusion of stakeholders additional to the state governments, such as Amtrak, freight railroads, corridor cities, and the public. Multi-state intercity passenger rail programs can be impeded by a failure to adequately answer such fundamental questions as "Who to work with?" "Who has authority?" and "Who is in charge?" It can be particularly challenging to find an appropriate role for all of the stakeholders.

The NEC Infrastructure and Operations Advisory Commission (NEC Commission) is a prime example of how a governance mechanism for intercity passenger rail services can encompass the full range of stakeholders. Created in 2008, the NEC Commission comprises 18 representatives from the U.S. DOT, Amtrak, the District of Columbia, and the eight states served by Amtrak along the NEC spine. Another five states, four freight railroads, and one commuter agency are represented on the Commission as non-voting representatives. While the NEC Commission is still a fairly new governance entity, it has already begun to provide a forum for state members, most of whom are state DOT secretaries or deputies, to more fully understand the dynamics of the NEC and play a role in addressing challenges and shaping the NEC's future. In cooperation with FRA, the NEC Commission is currently participating in the NEC FUTURE Study, a rail investment plan for the NEC. The program includes extensive dialogue with key cities along the corridor.

Creating institutional models for managing all of the issues discussed above will be increasingly important to implementing improvements to intercity rail passenger networks. In the absence of a formal governance mechanism, states will remain incentivized to make investments that primarily benefit themselves.

1.2 Research Objective

The objective of this research was to create practical models for the multi-state institutions needed to develop and provide intercity passenger rail networks and services. The issues addressed by this research were wide-ranging and include the following:

- Existing and evolving legal, financial, and administrative requirements;
- Competing federal, regional, state, and local responsibilities and interests;
- Potentially competing needs of intercity passenger, commuter, and freight rail in shared corridors;
- Eligibility and flexibility to receive and invest public and private funds;

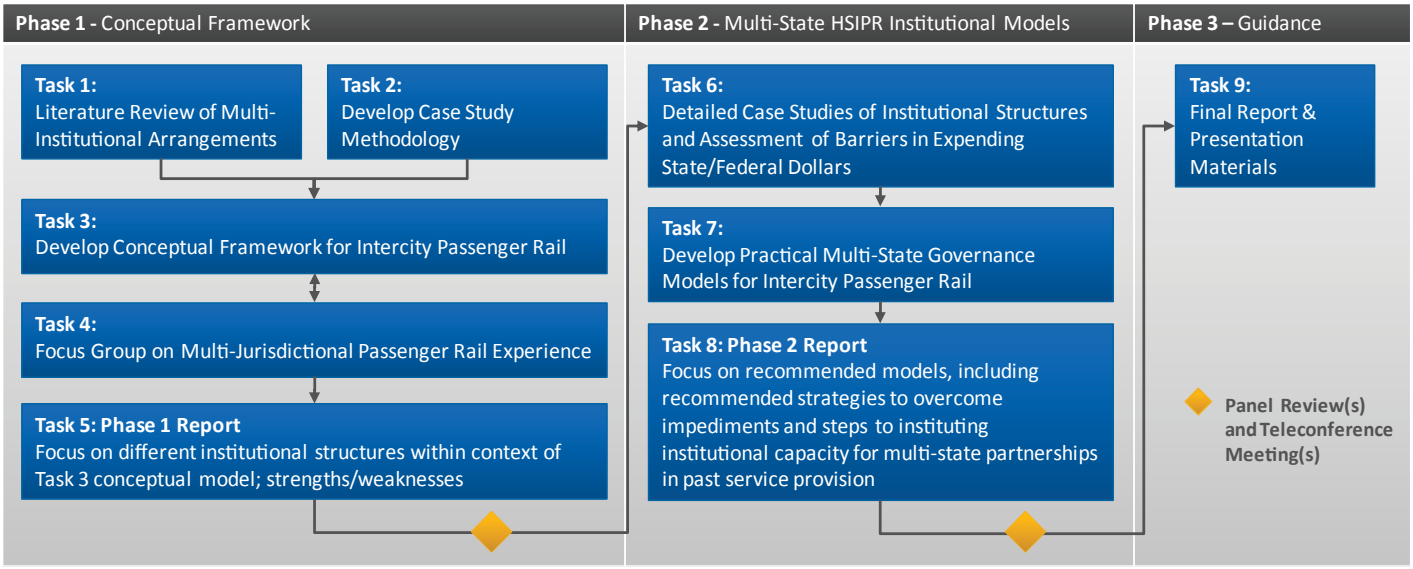
- Evaluating and sharing costs, benefits, and risks among multi-state institution participants;
- A framework for setting project priorities;
- Overall management responsibility for corridor operations and services and for facilitating project delivery;
- Enabling seamless connections to other modes; and
- Identifying and resolving jurisdictional overlaps among multi-state institutions and other affected entities.

1.3 Research Approach

The research approach for this project was divided into three phases (see Figure 1). Phase 1 involved obtaining background information on intercity passenger rail and establishing the state of the practice of multi-state institutional models for intercity rail passenger services. This was done primarily through an in-depth review of the literature and augmented by current work on intercity passenger rail institutional models. A conceptual framework was developed as a way of viewing multi-state institutional models, factors that are critical to consider when putting such models in place, and leverage points for assessing the effectiveness of institutional models. A focus group of leading practitioners experienced with multi-jurisdictional rail provided input and feedback on the conceptual framework. The primary purpose of the focus group was to provide practitioner input throughout the project. A methodology and protocol were developed for the case studies conducted in Phase 2.

Phase 2 was the primary information collection phase and consisted of conducting case studies of different institutional models. Conducting the case studies was the core of the research effort. Case study results were synthesized and assessed, with particular attention given to the barriers to implementing each type of institutional model, including those associated with the expenditure of federal and state dollars. The focus group established in Phase 1 provided input into the synthesis and assessment. Phase 2 also included recommending practical models for developing and providing multi-state intercity passenger rail programs.

In Phase 3, the final research report and a presentation on the research results were developed.



HSIPR = High-speed intercity passenger rail

Figure 1. Research approach.

1.4 Case Study Methodology

Case studies were the major means of collecting information on the different types of institutional relationships involved in efforts to deliver intercity passenger transportation and the advantages and disadvantages of each. The case study approach relied on two major sources, document reviews and interviews:

- For document reviews, the project team compiled and reviewed documentation of the various projects. Sources included environmental documentation and findings (e.g., Environmental Impact Statement [EIS] and Record of Decision [ROD]), industry papers and/or presentations on the project, and other relevant materials as appropriate. The document reviews were used as a starting point for answering the interview questions listed below. Findings were summarized and informed the questions posed during the phone interviews.
- Interviews were conducted via telephone in order to gather further information on each of the case studies. The research team identified the key participants in each case study and prepared a set of questions that formed the basis for telephone interviews.

Each participant was sent an introductory e-mail that outlined the purpose of the study and requested available times for a 20- to 30-minute interview. The interview questions focused on those aspects of multi-state arrangements providing the most relevant and credible input into the research, that is, challenges/barriers, topics/applications, strategies, and available data/information. For all of the case studies, a set of questions served as the basis for the interviews; other questions specific to each case study were asked depending on the circumstances of each case. The questions serving as the basis of the interviews were the following:

- Describe the institutional arrangements your agency participates in relating to intercity passenger rail services.
- What are the administrative, legal, and financial requirements associated with this arrangement? Who has overall management responsibility for corridor services? Planning? Project delivery? Procurement? Project priorities?
- Have you had to balance competing needs of intercity passenger, commuter, and freight interests in your particular case? If so, what strategies or policies did you adopt to provide such balance?
- What were the federal, regional, state, and local responsibilities that had to be faced in developing your institutional arrangement? What strategies were used to deal with these competing responsibilities?
- What have been some of the most important challenges in developing your institutional arrangement? Spending funds across state lines? Negotiating with the railroads? Legal constraints of individual states? Coordinating the timing of funding? The distribution of costs and benefits? Setting project priorities among different agencies?
- How has risk for different participants in the arrangement been identified and dealt with?
- To what extent has the issue of seamless connections to other modes been an issue?
- How have overlapping jurisdictional responsibilities been resolved?
- What lessons have been learned by your experience that would be of interest to others interested in establishing a multi-jurisdictional institutional arrangement for providing intercity passenger rail service?
- Are there reports or internal memoranda that we could obtain to provide more background on this project/arrangement?

A pilot case study was conducted on one of the recommended case studies to test the case study approach and to ensure that the methodology was sound and not confusing to those being interviewed. Both the pilot study and the focus group were used to pretest the interview questions.

1.5 Report Organization

The report is organized into six chapters. The next chapter describes the research approach followed in this project, as well as a description of the state of the practice. The major research tool for this study was the case study, and Chapter 3 describes the approach used for identifying potential case studies as well as the results of the case study analysis. Chapter 4 presents different decision-making models that emerged in the case study analysis and discusses the advantages and disadvantages of each. Chapter 5 offers a practitioners' guide that can be used to identify the institutional capacity that can be used in each step of the intercity rail passenger project development process. Chapter 6 presents research conclusions and recommendations for further research. A companion document, *NCRRP Web-Only Document 3: Documentation of Case Studies for NCRRP Project 07-02* (available on trb.org), presents all of the case studies conducted in this research.

CHAPTER 2

State of the Practice

2.1 Introduction

This chapter presents information found in the literature search for this project. Literature on multi-jurisdiction arrangements for service provision was examined in the transportation literature as well as in the literature of comparable sectors (such as the Appalachian Regional Commission). The literature is quite sparse when it comes to examining multi-state agreements and partnerships, especially with respect to transportation. The literature falls into two major categories: (1) the identification of theoretical concepts and frameworks and (2) the examination of existing multi-state arrangements and lessons learned.

2.2 Theoretical Concepts and Frameworks

Much of the academic literature on inter-organizational behavior focuses on private firms and the degree to which multiple-organization behavior makes sense from the perspective of economic markets. Thus, one sees numerous articles and books on the mergers, joint ventures, and buy-outs that characterize the private market. This literature is not particularly relevant to this research. The most relevant body of literature is in the field of public administration, where a substantial amount of work was published in the 1990s about coordinated and collaborative undertakings among multiple public agencies. Two works that are representative of the field are *How Organizations Act Together: Interorganizational Coordination Theory and Practice* (Alexander, 1995); and *Organizational Behavior* (Bowditch and Buono, 2005). In *How Organizations Act Together*, Alexander examines a variety of theories regarding the behavior of organizations in joint efforts and provides case studies to illustrate this behavior. He identifies factors that are often part of the thinking process when entering into multi-agency initiatives, such as perceived relationships of the needs, benefits, and rewards of joint action; administrative consensus on undertaking the effort; loss of organizational integrity and thus a perceived interdependence; history of relations among the partner organizations; and the presence of boundary-spanning roles in each of the organizations.

The most relevant discussion in Bowditch and Buono's work (2005) focuses on "boundary-spanning" roles and "inter-organizational alliances." Boundary-spanning roles are an attempt to position the organization so that organizational plans and actions can be more effectively coordinated and uncertainty reduced. Inter-organizational alliances, such as linkages between and among other agencies, are intended to "create unique advantages" to those organizations not in a position to implement an action individually. As noted, however, such linkages or relationships can often be fragile, with the following issues often becoming substantial challenges: clash of organizational cultures, "we-they" conflicts, different management styles and expectations, unrealistic expectations about outcomes, and ineffectual leadership.

"Investing in Megaregion Transportation Systems: Institutional Challenges and Opportunities" (Ankner and Meyer, 2009) and *Megaregions: Planning for Global Competitiveness* (Ross, 2009) examine the challenges faced by government agencies interested in establishing service or infrastructure partnerships with other agencies within megaregions. As Ankner and Meyer (2009) note, "organizational mission statements, study boundaries, problem definitions and most certainly funding allocations often stop at the border with neighboring jurisdictions. Trying to expand the scope of a transportation problem beyond the current mandate of a government agency (such as looking at a megaregion's transportation needs) would most likely face significant obstacles." The U.S. Interstate highway system was offered as a classic example of such cross-jurisdictional implementation and financing within a federal construct.

Anker and Meyer (2009) also offer other examples of such cross-jurisdictional implementation and financing within a federal construct, such as the U.S. DOT programs on the Corridors of National Significance and Corridors of the Future, the I-95 Corridor Coalition, and the European Union's (EU's) investment in major transportation corridors. Ankner and Meyer recommend that states (1) work with other states to advocate, lobby, and develop multi-state national programs aimed at megaregion transportation investment; (2) incorporate megaregion needs and respective roles of state agencies into the statewide transportation planning process; (3) develop strategic partnerships with other states that are part of the megaregion; (4) identify with their partners the transportation facilities and services that are significant from a megaregion perspective; (5) create megaregion-wide investment strategies and programs aimed at improving the economic integration and position of the megaregion; and (6) incorporate freight infrastructure needs and freight flows more strategically in statewide planning and investment.

2.3 Examination of Existing Multi-State Arrangements

Few studies have examined the institutional and organizational barriers to desired transportation infrastructure and services in corridors that cross jurisdictional boundaries and organizational responsibilities. In *Moving Beyond Boundaries: Organizations Governing Cross-Boundary Transport* Crocker (2009) examines a variety of multi-jurisdictional arrangements for major highways/bridges, transit facilities, and cross-border high-speed rail in the United States and Europe. He found in his analysis of 20 large-scale projects and service arrangements three major types of agreements: (1) a contractual agreement, (2) creation of a third-party entity, and (3) paying a fee for a desired transportation service. Crocker also noted that some of these arrangements were used more often when special circumstances dictated the relationship. The key message from this work was clear—the implementation of transportation infrastructure and services that out of necessity cross multiple jurisdictional boundaries will only be as successful as the efforts to develop partnerships and/or institutional models that guide such investment and operations.

Meyer et al. (2005) conducted case studies of 25 multi-jurisdictional projects and program implementation and developed guidance for those interested in fostering collaborative action. In this research, the major barriers to successful collaborative partnerships were found to be (1) organizational mission, (2) organizational motivation, (3) standardized practice or standard operating procedures, (4) organizational culture, (5) organizational inertia, (6) professional mindset, (7) language barriers, and (8) uneven "playing fields" in the institutional environment.

Rutzen and Walton (2011) reviewed how foreign governments have developed their railroad systems and identified key factors contributing to successful implementation. Factors such as organization structure, operation, administration, development, and type of funding were identified as being common to each of the projects and were used to identify potential locations and opportunities for high-speed rail projects in the U.S. Southwest region. The international case studies showed that strong government policies, regulation, and involvement were important

elements in the success of high-speed rail. Even newer programs that directly involved the private sector through commercial concessions had crucial participation from the government in terms of the sharing of risks and financial support.

In *Advancing High-Speed Rail Policy in the United States*, Ashiabor and Wei (2012) review international experience with high-speed rail projects and recommend a high-speed rail policy framework for the United States. The report examines the role of the EU in fostering cooperative and collaborative partnerships among member nations in developing a coherent passenger rail network. The report recommends that for projects spanning multiple states, one of the initial efforts must be to negotiate the level of financial responsibility each will bear. The report also recommends that the federal government designate a key lead agency and a dedicated funding source and develop regulations and specifications for high-speed rail design and construction. The report also notes, "States that embark on high-speed rail projects should start with formal legislation and put in place structures to ensure sustained political support throughout the planning and construction of the project."

2.4 Agency Studies

Most of the studies commissioned in recent years with respect to multi-state institutions have focused largely on freight investments and highways. Several types of multi-state institutional models have been documented in the literature, with voluntary coalitions and entities established through interstate compacts cited most frequently. Specific challenges noted in implementing multi-state institutions include establishing the role of the federal government, particularly as related to funding; securing dedicated external funding; establishing cost-sharing arrangements; and reconciling legal and other differences among participants. Sources providing specific guidance to practitioners on implementing multi-state institutions generally note the importance of clearly defining the purpose of the multi-state institution and the roles and responsibilities of the various parties.

With respect to applied research on passenger rail specifically, the GAO conducted a study of the effect of high-speed rail on the national transportation network (2009). The report examined three factors: the economic viability of high-speed rail, the challenges of developing and financing high-speed rail, and the federal role in developing high-speed rail networks. With respect to institutional relationships, the GAO noted that the lack of an established institutional framework in many corridors made decision-making among various stakeholders particularly difficult. The report identified interstate compacts and commissions as a means to formalize decision-making, but noted that implementation can be difficult and would involve dealing with issues such as deciding what type of service to provide, how to distribute financial contributions, and what happens if and when one or more states do not meet their financial or other responsibilities.

A study of the 11 federally designated high-speed rail corridors yielded a series of key findings on the factors inhibiting high-speed rail developments, the benefits of developing high-speed rail, the common elements necessary for high-speed rail corridors, and the overall lessons from those corridors most advanced in implementation (Amtrak, 2008). The study noted that the scale of high-speed rail projects can "strain the effectiveness" of typical multi-state institutional models such as compacts or multilateral agreements. In characterizing the progress made in the federally designated corridors, the study observed that one state generally takes the lead role, and, in many cases, while states share funding for planning efforts, they apply state resources only to capital projects within their respective state. The study emphasized the particular importance of federal involvement in multi-state corridors. It noted that future progress on multi-state corridors would require state and federal legislative and administrative acceptance of pooled state funds and state allocations of federal funds for use in projects outside any given state's

boundaries. The study also noted that federal laws, regulations, and customs needed to be flexible enough to accommodate and encourage various types of multi-state arrangements.

Appendix A presents a compendium of multi-state institutional models. The listing is not meant to be exhaustive, but rather a representative inventory of the type of multi-state arrangements that currently exist in various sectors. The inventory is organized by implementation mechanism including federal legislation, state legislation, multi-state agreement, voluntary partnership, and interstate compact.

2.5 International High-Speed Rail Efforts

Most of the high-speed rail projects in the world are focused within a country, with development spearheaded by the national government. However, some of these systems could provide relevant lessons for the United States. In Japan, for example, where the national government led development of the Shinkansen railway system, the construction costs of many lines were shared between the national government and the municipalities through which individual lines passed. In the United States, cost sharing is a challenge for multi-state arrangements.

In Europe, projects crossing national borders have often resulted in unique institutional relationships, often motivated by the Trans-European Transport Network (TEN-T) program of the EU. Funding, planning, and constructing projects across traditional national boundaries have been highlighted in interviews for NCRRP Project 07-02 as one of the most important challenges to completing the TEN-T program. The EU has turned in large part to public-private partnership ventures to finance the construction of the TEN-T with projects such as the Oresund Fixed Link between Denmark and Sweden, the new Brenner Rail Tunnel between Austria and Italy (part of a Berlin–Milan rail line), and the rail connection between France and Spain over the eastern Pyrenees. The EU is interested in using the European Investment Bank to increase the completion rate of the TEN-T projects; this has led to the development of specialized financial instruments such as the "TEN Investment Facility," specifically designed to strengthen development of the Trans-European Network and increase private-sector participation, although since most of those projects are cross-boundary projects, many of the new PPPs, particularly those involved in TEN-T projects, have faced cross-boundary challenges. High-speed rail corridors such as Eurostar, Réseau ferré de France (RRF), and Administrador de Infraestructuras Ferroviarias (Adif) provide a glimpse of the types of institutional relationships that are found in the EU and are discussed below.

Eurostar operates high-speed rail serving London, Paris, and Brussels. Trains use the Channel Tunnel between the United Kingdom and France, which is separately owned and operated by Eurotunnel, a private corporation founded to construct, finance, and operate the Channel Tunnel. Eurotunnel also operates freight service through the Channel Tunnel via its subsidiary, Europorte. Since 2010, Eurostar has been structured as a single corporate entity owned by London and Continental Rail, Societe Nationale des Chemins de Fer de France (SNCF, a French national rail company), and NMBS/SNCB (the Belgian national rail company). Prior to 2010, these companies jointly operated Eurostar. Eurostar service reaches speeds of 186 mph in the Channel Tunnel and shares services on the network with French and Belgian high-speed rail operators, TGV and Thalys, respectively.

RRF is a French state-owned company that owns the track for intercity passenger rail including high-speed rail. RRF was created in 1997 to comply with EU rules that separated national railway companies into operators and infrastructure managers. SNCF operates the passenger rail program. Different consortia, such as Eurostar and Thalys, in partnership with SNCF, operate international long-distance, high-speed rail services. High-speed rail first developed in France in 1981 with the opening of the TGV (synonymous with high-speed rail) line from Paris to Lyon

12 Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

Table 1. Institutional models for European infrastructure projects.

Institutional Model	Location
Third-party agency with board representing geographical area	• Oresund Bridge, Oresund Konsorteit • Channel Tunnel, Eurotunnel
Separate construction on territory	• Paris-Brussels Axis, SNCF, and Infrabel • Brussels-Amsterdam, Infrabel, and High Speed Alliance • Brussels-Cologne, Infrabel, and Deutsche Bahn (DB)
Distinct operation with shared funding	• PBKA Operations, Thalys • PBL Operations, Eurostar
Operations—Independent operator paying fees	• France-Brussels Service, TGV service by SNCF to Brussels • Germany-Brussels Service, ICE service by DB to Brussels • The Netherlands-Belgium Service, High Speed Alliance to Antwerp and Brussels • Channel Tunnel, Freight service in Channel Tunnel • Oresund Bridge, Sale of railway operation rights

Source: *Moving Beyond Boundaries: Organizations Governing Cross-Boundary Transport* (Crocker, 2009).

and has grown to 1,180 miles running at a top speed of 199 miles per hour. Until 2010, SNCF was the sole provider of high-speed rail service in France. Since 2010, France has opened up the market to allow public and private competitors to operate trains over RRF's lines.

Adif is a Spanish state-owned company under the purview of the Ministry of Public Works and Transport that manages the majority of the country's railway infrastructure, including the provision of high-speed rail. Together with Red Nacional de los Ferrocarriles Españoles (Renfe), the national passenger and freight rail operator, Adif has been administering high-speed rail in Spain since 1992 and provides service to 31 stations using 300 high-speed trains daily. Adif was created in 2005 due to the EU requirement to split national rail monopolies into rail operators and infrastructure managers. While Renfe handles rail operations, Adif administers track, stations, and freight terminals; manages rail traffic; distributes capacity to operators; and collects terminal fees. Spain has 438 km of high-speed performance line in operation, the most in Europe and second in the world to China.

Crocker (2009) found three main types of arrangements that are used in cross-border infrastructure construction in the EU. With regard to construction of high-speed rail infrastructure, each country is responsible for constructing and maintaining the infrastructure located on its territory, but has no responsibility for operations over the infrastructure. There are two types of operations over these pieces of infrastructure: (1) two or more national operators partner to create a third operational entity or (2) an operator maintains its identity and pays the infrastructure owner user charges for the use of its track. Table 1 shows the types of institutional models found for different types of facilities and services.

2.6 The Amtrak Model

The prevailing model for U.S. intercity passenger rail, the National Railroad Passenger Corporation (Amtrak), was authorized by Congress in 1971 as a government-owned corporation. While the advantages and disadvantages of the Amtrak model have been debated, the system remains the sole provider of intercity passenger rail service on a national scale and in many

regional markets. Amtrak operates a national rail network of approximately 21,000 route miles serving more than 500 locations across 46 states, the District of Columbia, and three Canadian provinces. In FY 2014, 30.9 million trips were made on Amtrak.

2.6.1 Early History of Amtrak

By the mid-1900s, passenger rail service in the United States was in a steep decline due largely to the increasing use of automobiles for intercity and commute trips and the emergence of affordable air travel. By the 1970s, many freight railroads (which had been running much of the passenger rail service) were experiencing financial difficulties, and some were entering bankruptcy. The U.S. government intervened with several key pieces of legislation intended to salvage passenger and freight rail operations.

The Rail Passenger Service Act of 1970 (RPSA) established the National Railroad Passenger Corporation (Amtrak) as a for-profit corporation under District of Columbia law, with oversight from a board appointed by the President and confirmed by the Senate. Amtrak was authorized to own, manage, operate, or contract for the operation of intercity passenger rail service and to carry mail and express freight. The RPSA also enabled Amtrak to conduct research and development related to its mission and to acquire by construction, purchase, use-contract, or gift, the physical facilities, equipment, and devices necessary to provide rail passenger operations. It was anticipated that after a startup period financed by a federal loan, the national passenger rail service would become financially self-sufficient (although many administration records and other period sources indicate that no one knowledgeable believed this to be true).

Upon its creation, Amtrak assumed the passenger service obligations of 20 private railroads, with 4 remaining railroads opting not to join Amtrak and continuing their own private passenger operations. By the mid-1980s, all four railroads either ceased passenger service or transferred the service to the Amtrak system. Amtrak began operations on May 1, 1971, with the first train operating in the NEC between Philadelphia and New York. The initial network encompassed 21 routes serving 43 states. Most of the routes provided direct connections to New York or Chicago from various cities across the country. Rail service was divided into short-haul and long-haul trains, a distinction that remains in place today. Short-haul trains run up to 300 miles between intercity terminals, and long-haul trains cover distances greater than 300 miles.

The RPSA authorized $40 million in federal grants and a federal loan guarantee of up to $100 million. The RPSA also required the railroads to contribute cash or equipment over a period of 3 years in return for being relieved of the obligation to provide passenger service.

Inheriting old and worn infrastructure and equipment from its predecessor railroads, Amtrak was immediately faced with the need to restore and refresh its capital investments while maintaining core services, particularly in the NEC. During its initial years, Amtrak was also faced with the organizational challenge of integrating the passenger services of 20 disparate railroads into one entity. Despite declining service quality, ridership was boosted as a result of the 1973 and 1978 to 1979 OPEC oil embargoes.

In Amtrak's first decade, numerous subsequent pieces of legislation further refined Amtrak's structure and operations and appropriated additional federal monies for capital and operating expenses. During this time, Amtrak also began to realize the benefits of the planned improvements, equipment acquisitions, and other initiatives, and ridership began to increase, spurred by the new equipment and faster schedules on the Washington, D.C.–New York Metroliner Service. Table 2 summarizes these early laws and their impacts on Amtrak.

As passenger rail service rebounded during the 1990s, some states began to provide financial support in order to add new rail service within their states under Section 403(b) of the RPSA.

Table 2. Chronology of federal legislation affecting Amtrak, 1971–1982.

Legislation	Provisions
RPSA of 1970	Authorized creation of the National Railroad Passenger Corporation (Amtrak).
Amtrak Improvement Act of 1973	Amended the RPSA to provide financial assistance to Amtrak.
Regional Rail Reorganization Act of 1973 (known as the 3R Act)	Authorized the United States Railway Association to take over the powers of the Interstate Commerce Commission with respect to allowing the bankrupt railroads to abandon unprofitable lines.
Railroad Revitalization and Regulatory Reform Act of 1976 (the 4R Act)	Established the basic outlines of regulatory reform in the railroad industry and authorized acquisition of the NEC tracks and facilities by Amtrak.
Amtrak Improvement Act of 1978	Authorized appropriation of $755M in federal funds for Amtrak's operating and capital expenses. The bill also authorized a study of Amtrak's basic route structure for railroad passenger service.
Amtrak Reorganization Act of 1979	Amended the RPSA to extend the authorization of appropriations for Amtrak for 2 additional years.
Staggers Rail Act of 1980	Deregulated the American rail industry to a significant extent and replaced the regulatory structure that had existed since the 1887 Interstate Commerce Act.
Northeast Rail Service Act of 1981 (NERSA)	Required Amtrak and Conrail to agree on terms and conditions for the transfer to Amtrak of all Conrail commuter service in the NEC except for services transferred directly to a commuter authority.
Rail Safety and Service Improvement Act of 1982	Made funds available for numerous projects on the main line of the NEC; amended the RPSA to transfer authority for the NEC coordination from the Board of Directors of Amtrak Commuter to the NEC Coordination Board. Amended the Northeast Rail Service Act of 1981 to revise certain bankruptcy provisions relating to the NEC.

These state routes have grown to be a substantial part of the Amtrak system. Improvements to the NEC also boosted ridership between Washington, D.C., and Boston. With completion of electrification in 1999 and inauguration of 150-mph Acela service in 2000, the NEC has become one of the most financially successful corridors in the world, generating over $350 million in above-the-rail net revenue in 2014.

In FY 2014, ridership on the NEC was 11.6 million, the highest to that point. At the same time, ridership on long-distance routes and state-supported services declined by 4.5 percent and 0.6 percent, respectively.

2.6.2 A Push for Amtrak Self-Sufficiency and the Amtrak Reform Council

Since the creation of Amtrak, Congress has emphasized its expectation that Amtrak eliminate its need for federal financial support. The effort for operational "self-sufficiency" was reaffirmed by the Amtrak Reform and Accountability Act (ARAA) of 1997, which repealed the RPSA. ARAA created the Amtrak Reform Council (the Council), an independent and bipartisan federal commission of 11 members with a statutory mandate to make recommendations to Amtrak to help it reach operational self-sufficiency. ARAA required the Council to report annually to Congress on performance in several areas, and, if Amtrak was found to be unable to achieve the goal of operational self-sufficiency (now extended to 2002), the Council was required to submit to Congress a plan for a rationalized and restructured national rail passenger system. If such a finding were made by the Council, Amtrak would submit a plan for Amtrak's liquidation to Congress.

In November 2001, the Council made a formal finding that Amtrak would not be able to achieve operational self-sufficiency by the December 2002 deadline. That finding, along with Amtrak's

worsening financial situation, led to a number of proposals for reform, ranging from letting Amtrak go bankrupt to boosting annual federal funding for passenger rail nearly tenfold. Some proposals would have kept Amtrak's corporate structure essentially intact, whereas others would have broken the company into separate components. The Council's own proposal was to split Amtrak into two companies (one to own and maintain tracks and facilities in the Northeast and the other to run trains) and to create a new organization that would oversee planning and financing for passenger rail.

In January 2002, the Council approved basic elements for Amtrak's restructuring plan, including a reorganization of Amtrak with train operations under one subsidiary and its real property infrastructure under another. It was intended that Amtrak introduce competition into the national rail passenger system by entering into contracts with other train-operating companies for the operation of a particular route or routes. It was also envisioned that Amtrak could exercise its franchise authority to operate passenger trains at the request of a state or an interstate compact.

The Council's plan met strong opposition in Congress, and financial support for Amtrak continued as before without implementing any of the Council's major recommendations. In 2005 and 2006, controversy over a plan proposed by the Bush Administration for splitting the NEC apart from the rest of Amtrak's network sparked a national debate on the future of America's passenger rail system. During this time, Amtrak's financial condition continued to worsen. It soon became clear that a new arrangement would be necessary to improve Amtrak's finances and operating performance; the result was PRIIA, passed in 2008.

PRIIA has had a substantial impact on Amtrak's operations through its reauthorization of Amtrak funding at increased levels and also through tasking Amtrak, U.S. DOT, FRA, states, and other stakeholders to improve service, operations, and facilities. These efforts have ranged from establishing performance improvement plans for Amtrak's long-distance routes and capital debt restructuring, to implementing performance measures and standards (performance measures and standards that were later invalidated by the U.S. Court of Appeals for the D.C. Circuit), to authorizing private entities to take over service on individual routes. Key elements of PRIIA set in motion processes requiring states to share any losses generated on short-distance routes and develop a methodology for sharing the cost of operating and maintaining the NEC.

Directly following the passage of PRIIA, the American Recovery and Reinvestment Act (ARRA) of 2009 appropriated $1.3 billion to Amtrak for capital investment, including $850 million to rebuild and modernize infrastructure, equipment, and business systems.

2.6.3 The Current Amtrak Model

The current Amtrak model for intercity passenger rail service includes a governance structure that is mandated by federal law and uses different means of providing passenger rail services in different markets in the United States.

Governance

Amtrak is governed by a board of directors. The Amtrak Board of Directors (the Board) oversees the management team and the strategic direction of the corporation. The Board is composed of nine members appointed by the President, by and with advice and consent from the Senate. The Secretary of Transportation and the President of Amtrak are members of the Board, and the other seven are to be individuals with "general business and financial experience, experience or qualifications in transportation, freight and passenger rail transportation, travel, hospitality, cruise line, or passenger air transportation businesses, or representatives of employees or users of passenger rail transportation or a state government" (49 U.S.C. 24302).

Actions or items requiring Board approval include approval of Amtrak's annual budget and strategic business plan, annual grant and legislative requests (which can be submitted without U.S. DOT review), operation of new routes or discontinuance of existing routes, sale or retirement of fixed assets (other than rolling stock/real estate) in excess of $1 million, revenue producing real estate transactions of $500,000 or more, and all development projects, among others.

While Amtrak once operated at some distance from federal oversight, Congress and the U.S. DOT now increasingly oversee Amtrak's stewardship of federal funds through grant agreements and appropriations provisions. Amtrak's Board communicates with the federal government through monthly and annual reports as well as business and strategic plans. Amtrak also maintains an independent Office of the Inspector General.

Amtrak's Role in Intercity Passenger Rail

While Amtrak has a central mandate for operating the national passenger rail network, its role in intercity passenger rail varies across markets. Amtrak has adopted three possible roles: (1) Amtrak as infrastructure owner and manager, (2) Amtrak as service provider, and (3) Amtrak as partner.

Amtrak as Infrastructure Owner and Manager. Most Amtrak routes—72 percent of miles traveled—are located on tracks owned by host railroads. Five of the six largest railroads hosting long-distance Amtrak service are Class I railroads. However, the majority of Amtrak's trains operate over trackage owned and maintained by Amtrak on the NEC. The 457-mile NEC—connecting Boston, New York, Philadelphia, and Washington, D.C.—supports both intercity trains and commuter rail service operated by eight commuter rail authorities across the region. Of the total mileage, 363 miles are owned by Amtrak. The additional 94 miles are owned by the states of Connecticut and Massachusetts and by Metro-North Railroad, a part of the New York Metropolitan Transportation Authority (MTA), with ownership and responsibilities as follows:

- The New Haven Line between New Rochelle and New Haven is owned by MTA and Connecticut and operated/maintained/dispatched by the Metro-North Railroad.
- The Main Line in Massachusetts is owned by the Massachusetts DOT and operated/maintained/dispatched by Amtrak.

In addition to significant portions of the NEC, Amtrak also owns the 60.5-mile Springfield line in Connecticut and Massachusetts, the Keystone Corridor in Pennsylvania between Philadelphia and Harrisburg, and a 96-mile segment of track in Michigan and Indiana (using the first high-speed positive train control system in revenue service outside of the NEC).

For long-distance services, Amtrak operates 15 trains on a national network of routes ranging in length from 764 to 2,438 miles. These trains provide service at nearly half of the approximately 500 stations in the Amtrak system and are the only Amtrak trains in 23 of the 46 states in the network. Amtrak is the only intercity passenger transportation service in an increasing number of communities, filling a growing gap as intercity bus and airline operators cease to provide service to small and mid-sized cities. In FY 2013, the 15 long-distance routes served 4.8 million passengers, the highest combined ridership in 20 years.

Amtrak-owned equipment includes 20 Acela Express High-Speed trainsets, two Talgo trainsets used in Eugene/Portland/Seattle Cascades service, and a fleet of passenger cars used in other services including Amfleet, Superliner, Viewliner, and other specialty cars totaling 1,292 cars plus 373 locomotives, 80 Auto Train vehicle carriers, and 64 baggage cars. Orders have been placed for 130 new long-distance, single-level cars, and 70 electric locomotives and a request for proposals has been issued for Tier III Next Generation High Speed Trainsets. Amtrak-operated, state-owned

equipment includes 104 railroad passenger cars, 23 locomotives, and five Northwest Service trainsets.

Station ownership varies across the country; in many cases Amtrak shares ownership of the station facility, parking lot, passenger platform, and train tracks with different entities. Amtrak owns heavy maintenance facilities in Wilmington, Delaware; Bear, Delaware; and Beech Grove, Indiana. Amtrak owns maintenance facilities as well in Washington, D.C.; New York City, New York; Rensselaer, New York; Niagara Falls, New York; Boston, Massachusetts; Hialeah, Florida; Chicago, Illinois; New Orleans, Louisiana; Los Angeles, California; Oakland, California; and Seattle, Washington.

Amtrak as Service Provider. Amtrak receives funding from 18 states under 19 operating agreements for support of 29 short-distance routes (less than 750 miles). Section 209 of PRIIA required Amtrak and its state partners to jointly develop a cost-sharing methodology to equitably charge states for state-supported intercity passenger rail service. The PRIIA Section 209 methodology became effective in October 2013. Continued operation of state-supported routes is subject to annual operating agreements and state legislative appropriations as per Section 209. According to Amtrak, state-supported routes posted their best ridership year ever in FY 2013, with 15.4 million passengers.

Amtrak currently provides either services and/or system access for 13 commuter agencies in the form of operational services, maintenance of way/dispatching, maintenance of equipment, and access to Amtrak right-of-way. In addition, eight states (Rhode Island, Connecticut, Delaware, Maryland, New Jersey, New York, Pennsylvania, and Virginia) make payments to Amtrak through transit agencies or state DOTs for commuter train use of Amtrak-owned NEC facilities.

Amtrak as Partner. Both within the territory it controls and in operations on right-of-way under the jurisdiction of others, Amtrak relies on partnership agreements to support its intercity rail mandate. These can take a variety of forms depending on the particular activity. Examples include the following:

- **Discrete projects.** Transit agencies and state DOTs often provide funding in the NEC for infrastructure and/or stations. Amtrak has agreements for access and/or maintenance where Amtrak trains operate over locally owned portions of the NEC in Connecticut, Massachusetts, and New York.
- **Project bundling.** The Gateway Program has the potential to be a comprehensive bundle of major infrastructure improvements from Newark, New Jersey, to New York City, including a dual portal bridge, new Hudson River tunnels, and station improvements in New York City. This program was expanded and accelerated in late 2010 when the Access to the Region's Core project was cancelled by the State of New Jersey.
- **Long-term lease agreements.** In December 2012, a long-term lease agreement between CSX Corporation and Amtrak enabled Amtrak to take full control of the Hudson Line between Schenectady and Poughkeepsie. The contract ensured that passenger rail service has scheduling priority and paves the way for four significant rail improvement projects, totaling $181 million, to reduce congestion along the Empire Corridor from New York City to Niagara Falls, New York, and improve travel times and reliability for passengers and freight.

It is important to recognize that the NEC is a critical part of Amtrak's service and has resulted in a unique set of institutional relationships. The complex ownership and operational structure of the NEC is a result of the history of passenger and freight operations in the Northeast, which includes historic consolidations, bankruptcies, creation of a variety of public transit agencies and Amtrak, and record-breaking ridership and service expansion. Outside the NEC, Amtrak operates over track owned by other entities under shared-use arrangements with host railroads, principally Class I freight railroads.

A critical benefit that Amtrak derives from the RPSA is the ability to operate on a host railroad at incremental cost. Host railroads typically charge those wanting to share its line the fully allocated cost of operating on the line, including dispatching, track maintenance, and recapitalization. Amtrak is charged for only the incremental cost of its operations, which typically is quite small. Amtrak also makes incentive payments to some freight railroads to enhance on-time performance. This benefit places Amtrak at an advantage over most other potential operators for service.

Amtrak's current strategic plan (FY 2014 through FY 2018) structures the organization around four business lines that focus on the overall performance of specific Amtrak products and services (Amtrak, 2014):

1. NEC Operations
2. Corporate Development
3. Long-Distance Services
4. State-Supported Services

The intent of these business lines is to better respond to the needs and expectations of customer markets and improve financial performance. The 5-year strategic plan was designed to make progress toward strategic goals that focused on three key themes:

1. Safety and Security Goal: Set the standard for safety and security in the transportation industry to ensure that every passenger and employee goes home injury-free every day.
2. Customer Focus Goal: To acquire and retain the most satisfied customers of any travel company in the world.
3. Financial Excellence Goal: To be profitable on an operating basis (as defined by our operating ratio) and be good stewards of capital in order to secure our long-term viability as a company.

2.6.4 Assessment of Amtrak's Current Model

Amtrak's longevity is a testament to its ability to provide a needed transportation service spanning many states in the United States. The growth in ridership, particularly in the NEC, indicates that intercity passenger rail is a desirable transportation choice for millions of riders. Despite instability in federal funding from year to year, Amtrak continues to provide service in a variety of passenger rail markets and has ambitious plans for growth in the NEC. Figure 2 shows Amtrak's

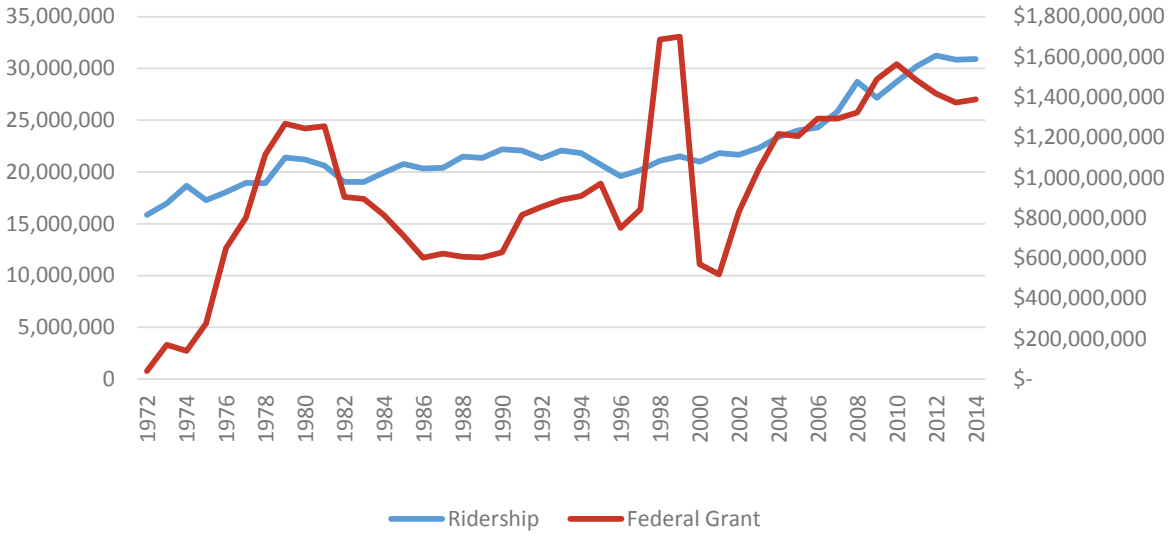


Figure 2. Amtrak ridership and federal financial support, FY 1972–2014.

ridership levels and federal appropriations from Amtrak's inception (1972) to FY 2014. As can be seen, Amtrak's ridership levels have seen a slow but steady growth, while federal appropriations for Amtrak have varied widely.

The passage of PRIIA and ARRA afforded Amtrak the opportunity to address a long list of needed capital improvements, although nowhere near the entire list of capital needs identified by Amtrak. The partnerships enabled by PRIIA and ARRA and a clear articulation of common cause have been a hallmark of these acts. The quality and substance of these partnerships cannot be underestimated as the basis for future cooperation and action.

The NEC Commission is an example of one such partnership. Authorized as part of PRIIA, the primary charge of the NEC Commission is to facilitate cooperation and integrated planning among the agencies and entities involved in intercity and commuter passenger rail service and freight use of the NEC.

Given shifting legislative initiatives, the future for federal passenger rail funding is uncertain. For example, initially introduced in 2014 and reintroduced in 2015 as H.R. 749, the Passenger Rail Reform and Investment Act (PRRIA) of 2015 builds on the improvements accomplished by PRIIA 2008 and further attempts to improve rail infrastructure, reduce costs, leverage private-sector resources, create greater accountability and transparency, and accelerate project delivery. The law reduced Amtrak's authorized funding by approximately 40 percent (but actually authorizes as much or more than recent appropriations), requires that Amtrak eliminate losses from food and beverage service, and mandates that Amtrak carry out a business case analysis for all major procurements. The legislation also allows for operating profits made on the NEC to be retained and reinvested in the NEC rather than supporting national intercity routes.

PRRIA has provided a new framework for the allocation of roles and responsibilities among the entities charged with providing or supporting passenger rail services. For Amtrak, it establishes a more predictable funding benchmark and budget transparency and provides substantial encouragement to leverage resources and encourage non-federal participation and partnerships in activities that complement Amtrak's core mission. PRRIA empowers states to have a greater role in managing routes and makes them more equal partners in providing and paying for rail services and facilities. It will enable a clearer organizational focus on NEC operations, as well as target investments and retain profits in the NEC and potentially provide incentives for increased corridor investments. Importantly, cost sharing with states is forcing a new transparency in the cost of providing passenger rail service. However, given the number of partnerships and interdependencies associated with Amtrak's budget, there is insufficient history with the law to determine which aspects are most effective and sustainable. The current business line focus is relatively new, with the first detailed Amtrak budget created in this alignment for FY 2015.

Despite the growth in Amtrak ridership, there continues to be political debate on whether, and how much, federal funding support should be provided. The lack of consistent, long-term federal funding has hindered Amtrak's ability to plan for a longer term quality of service, with a majority of its future planning efforts in the 5-year range. Amtrak is focusing its efforts on replacing its existing infrastructure and fleet to bring it to a state of good repair, with some opportunities for an increase in service on the NEC and other heavily traveled routes.

Funding uncertainty has also influenced Amtrak's ability to plan for high-speed rail service, with the FRA currently leading several planning studies to advance high-speed rail in several corridors, including the NEC. Some states and regions are undertaking their own efforts to advance high-speed rail corridors. Nevertheless, there are continued opportunities for Amtrak to forge partnerships with states and other entities to collectively improve service on particular rail corridors. For example, Section 209 of PRIIA required Amtrak to work with the states to develop and implement a single national methodology for establishing and allocating the costs of providing intercity rail service

on state-supported routes. The proposed PRRIA legislation requires Amtrak to provide accurate updated costs and service information to the states, including projections, to ensure that states can properly manage the services for which they pay.

The Amtrak model for national intercity passenger rail service offers the flexibility to provide service under a range of institutional models. Amtrak's ability to access host railroads at incremental cost provides an important benefit and competitive advantage. Amtrak plays a critical role as the owner and operator of rail service on the NEC. For a truly national intercity passenger rail network, Amtrak provides an important reference for how such a network can be put in place and operate.

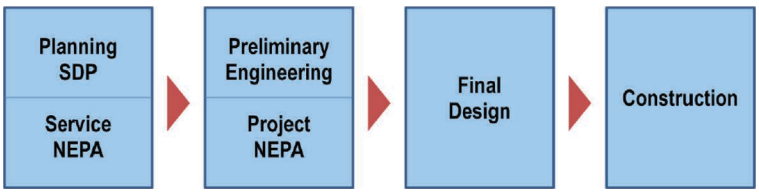
2.7 Overview of Relevant FRA Requirements for Rail Network Development

To advance the development of high-speed/intercity passenger rail projects, the FRA has established a series of requirements for passenger rail projects receiving federal funding. Projects are considered for funding through an application process, and selected projects enter into a cooperative agreement to develop a Passenger Rail Corridor Investment Plan (PRCIP) for the corridor.

2.7.1 Passenger Rail Corridor Investment Plan

The process of completing a PRCIP consists of the preparation of (1) a Service Development Plan (SDP), a detailed plan that defines the service improvements, transportation network, and operational and financial aspects for the passenger rail service alternative selected through the National Environmental Policy Act (NEPA) process, and (2) a NEPA environmental review in which the purpose of and need for the improvements are defined and alternatives are analyzed and compared based on their environmental, socioeconomic, and transportation impacts (see Figure 3).

FRA established the PRCIP as a key development threshold for implementation funding under the PRIIA. The PRCIP is a foundation for future project development, including engineering design, project environmental reviews, environmental permitting, and construction. Service development planning is the technical analysis of new or improved intercity passenger rail service alternatives that are consistent with and address the NEPA Purpose and Need Statement that results in a progressive narrowing of alternatives to a smaller set that can best meet those needs. Each stage of development is tied to the program's NEPA Purpose and Need Statement, and each development step reflects the available level of detail on alternatives from the supporting technical analysis. Service development planning involves the use of a number of technical tools to assess engineering feasibility, ridership, operational impacts, capital and operating costs, and public benefits. The level of technical scrutiny increases, and the tools become more detailed and sophisticated as the NEPA process advances to identification of a preferred investment program and after selection through the NEPA process.



Source: "Kansas City-Wichita-Oklahoma City-Fort Worth Corridor Passenger Rail Service Development Plan" (Parsons Brinckerhoff, November 2011).

Figure 3. FRA project development process.

2.7.2 Service Development Plan

The SDP identifies the different capital components of the project and describes how the rail project will operate. The SDP is an iterative document that becomes more detailed as work on the project advances. While the structure of the document is flexible, the following components are required:

- Corridor Development Program Rationale
- Service Plan
- Capital Investment Needs Assessment
- Financial Forecast
- Public Benefits Assessment
- Program Management Approach

The SDP also provides an opportunity to review the multitude of decisions involved with implementing high-speed/intercity rail programs with all project stakeholders. In that it addresses costs and financial results, the SDP helps facilitate decision-making on cost-sharing issues.

2.7.3 Service-Level Environmental Assessment

Following the SDP, typically the next step in the passenger rail development process is preparation of a Service-Level Environmental Assessment (Service NEPA), as defined by NEPA. The Service NEPA is an environmental review of the project as a system. It evaluates the effects on the environment of alternative routes and locations, the service being provided, the technologies being employed, ridership levels, and any significant infrastructure components. The Project NEPA is a more detailed examination of the environmental impacts at the infrastructure project level. Preliminary engineering is required to develop the information necessary for the Project NEPA. Final design takes place following the preliminary engineering and approval of the Project NEPA, after which construction can begin. In many instances, FRA has encouraged combining the Service NEPA and Project NEPA analyses to reduce development costs and time.

2.8 Summary

This chapter has described the current state of practice in intercity passenger rail service. Very few studies have examined different institutional models for providing such service, although the current model in the United States, Amtrak, does provide a point of reference for how such service can be provided. The evolution of Amtrak from its beginnings to today's market-oriented service illustrates the challenges that occur when trying to develop a truly national system. However, the Amtrak model of owner/manager, service provider, and partner, depending on the circumstances, is one that fits well with the institutional environment found in the United States. The following chapter examines in more detail some of the institutional models that characterize intercity passenger rail service.

CHAPTER 3

Case Studies

3.1 Introduction

Prior to conducting case studies on intercity passenger rail service, the NCRRP Project 07-02 research team developed a conceptual framework of the process for implementing intercity passenger rail service. This conceptual framework outlines the various roles and responsibilities necessary to complete all phases of project delivery from visioning through to operations and maintenance. This framework served as an important foundation for the case studies because it led to the identification of potential roles and responsibilities for developing and providing intercity passenger rail.

3.2 Conceptual Framework for Implementing Intercity Passenger Rail Service

The conceptual framework for implementing intercity passenger rail service is shown in Figure 4. The left side of the framework presents a simplified construct of an intercity passenger rail project development process. The four phases identified are visioning, planning, design and construction, and operations and maintenance. For each phase, the framework identifies six primary factors that generally must be addressed (at varying levels of detail) as a project advances through development. The six factors are the following:

- **System concepts**: how intercity passenger rail interfaces with other modes within the transportation network.
- **Network components**: the core infrastructure of the intercity passenger rail service, such as vehicles, tracks, and ancillary facilities.
- **Administrative structure**: how an intercity passenger rail service or program is managed.
- **Partnerships/stakeholders**: the parties involved in project planning and delivery.
- **Finance**: how capital and ongoing operating and maintenance costs are funded.
- **Governance concepts**: the structure for defining roles and responsibilities across the various stakeholders.

In addition to the detailed, project-specific questions that must be addressed as a project progresses through design, there are also broader questions to consider in establishing a realistic and implementable project. These are captured on the left side of Figure 4 as "Setting the Boundaries," "Creating the Reality," and "Realizing the Vision."

The right side of the graphic outlines specific issues that must be focused on as a project advances through the four phases of project development. These focus issues inform the selection of an appropriate institutional model for a multi-state passenger rail effort. Case studies were selected to illustrate lessons learned from as many of the focus issues as possible.

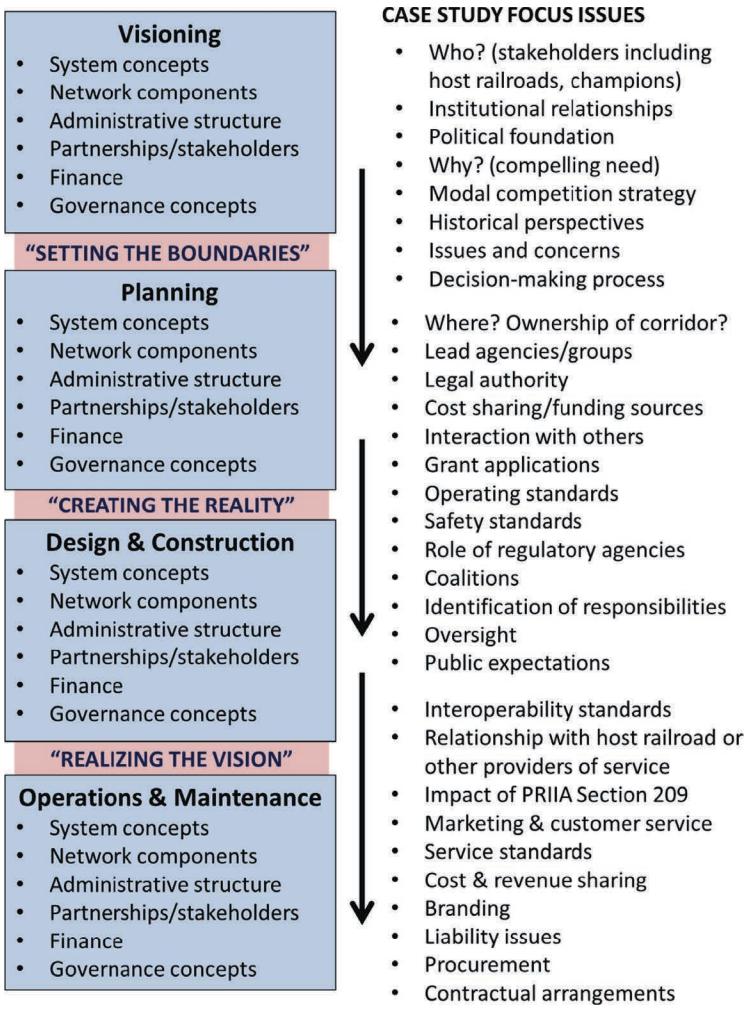


Figure 4. Conceptual framework for implementing intercity rail passenger service.

3.3 Selection of Case Studies

The purpose of the case studies was primarily to identify examples of best practice that might ultimately lead to recommendations that are supported with evidence from the field. Rigorous case study design requires a good sense of the overall approach (that is, how the pieces fit together), the criteria that will be used to select the case studies (which relate to the ultimate use of the case study results in the context of desired products), the approach to obtaining data and information from case study participants, and the means by which case study results will be generalized to broader applications.

3.3.1 Criteria for Case Studies

The literature review revealed several potential case studies for this research effort. The universe of options was narrowed to 10 case studies that represent the diversity of institutional model experiences needed to generalize across case-study-specific instances. The long list of options was narrowed based on input from the focus group. One of the case studies focused on instances in non-transportation sectors where the combination of strategies used or barriers faced were considered germane to this research.

The final list of recommended case studies was selected based on the following four criteria:

1. Demonstrated experience with case study focus issues identified in the conceptual framework for implementing intercity passenger rail programs, e.g., joint vehicle procurement and maintenance, joint service provision, cost sharing, etc. (which are part of the case study focus issues of contractual arrangements and procurement).
2. Availability of data/information on the implementation process and the lessons learned from the experience.
3. Degree of transferability of experience to other locations in the United States.
4. Diversity with respect to institutional models, project development status, and geographic distribution.

3.3.2 Case Study Selection

U.S. Passenger Rail Case Studies

For U.S. passenger rail case studies, the research team focused on identifying case studies that represented both regional efforts to plan and/or deliver passenger rail across multiple corridors as well as single intercity corridors that cross two or more states. All of the passenger rail efforts outlined in Table 3 were considered as potential case study candidates. For the purposes of case study selection (see Table 4), the passenger rail efforts were classified as "regional" or "corridor" based on the research team's understanding of the individual efforts, recognizing that this may be a simplified classification in some cases.

Criterion 1: Demonstrated Experience with Case Study Focus Issues. The research team sought to select case studies that could offer rich lessons learned, both positive and negative, across multiple focus areas. Table 4 highlights whether individual candidate case studies offer experience across the case study focus issues.

Table 3. Potential U.S. intercity passenger rail corridors for case study.

Corridor	Existing Arrangement	Role/Responsibility
Gulf Coast Corridor	• Southern High-Speed Rail Commission	Under interstate compact between Louisiana, Mississippi, and Alabama, develops and promotes plans for high-speed rail in Gulf states, promotes economic development, provides transportation choices, and facilitates alternative evacuation routes for region.
	• Amtrak	Federally chartered corporation operating existing passenger rail service.
Midwest (Chicago Hub Network)	• Midwestern Regional Rail Initiative	Voluntary working group of nine state DOTs that developed vision and implementation plan for integrated Chicago Hub regional rail system.
	• Midwest Interstate Passenger Rail Commission	Under interstate compact, elected officials of 12 states collaborate to promote, coordinate, and support regional passenger rail.
	• Midwest High-Speed Rail Steering Group	Under memorandum of understanding (MOU), eight states (led by governors) and the City of Chicago promote regional coordination in preparing federal grant applications, communicate the regional strategy in the federal government, and create opportunities for economic development in the Midwest.
	• Northern Indiana Commuter Transportation District	Owner/operator of passenger rail service between South Bend, Indiana and Chicago, Illinois.
	• Amtrak	Federally chartered corporation operating existing passenger rail service.
	• Chicago-St. Louis • Twin Cities-Milwaukee • Chicago-Detroit • Chicago-Quad Cities • Chicago-Omaha	Corridor-level agreements to advance high-speed and intercity passenger rail.

Table 3. (Continued).

Corridor	Existing Arrangement	Role/Responsibility
Northeast Corridor	• NEC Commission	Established by PRIIA to facilitate cooperation and planning among NEC stakeholders for intercity, passenger, and freight rail.
	• NEC Master Plan Working Group	Voluntary working group of 28 entities that developed the Amtrak Infrastructure Master Plan for the NEC.
	• Long Island Rail Road • Metro-North Railroad • New Jersey Transit • Southeastern Pennsylvania Transportation Authority • Massachusetts Bay Transportation Authority • Maryland Area Regional Commuter • Shore Line East	Operators of commuter rail service.
	• Amtrak	Federally chartered corporation operating existing passenger rail service.
Northern New England	• NNEPRA	Under state legislation in Maine, oversees operation of Amtrak's Downeaster passenger rail service between Portland, Maine and Boston, Massachusetts.
	• Amtrak	Federally chartered corporation operating existing passenger rail service.
Pacific Northwest	• Washington-Oregon Cascades Rail Corridor MOU	Joint operation of Washington and Oregon rail services as a single corridor and development of the Cascades Rail Corridor Management Workplan.
	• Washington-Oregon Cascades Rail Corridor On-Time Performance Task Force	Voluntary working group representing Washington, Oregon, British Columbia, Amtrak, Sound Transit, and two freight railroads tasked with improving on-time performance.
	• Amtrak	Federally chartered corporation operating existing passenger rail service.
South Central Corridor	• Amtrak	Federally chartered corporation operating existing passenger rail service.
Southeast High Speed Rail Corridor	• Southeast High Speed Rail Corridor Coalition	Voluntary coalition of seven states to plan, develop, and implement a high-speed line in the Southeast.
	• Virginia-North Carolina Environmental Studies MOU	Secure environmental approvals for high-speed rail segments in Virginia and North Carolina.
	• Virginia-North Carolina Interstate High-Speed Rail Compact	Examine and discuss strategies to advance multi-state high-speed rail initiatives, including advocating for federal funding.
	• Amtrak	Federally chartered corporation operating existing passenger rail service.
Southwest	• DesertXpress LLC	Private corporation established to construct, own, operate, and maintain high-speed rail between Victorville, California and Las Vegas, Nevada (XpressWest).
	• Southwest Multi-State Rail Planning Study Stakeholder Group	Voluntary working group to develop vision for high-speed and intercity passenger rail in the Southwest.
	• Amtrak	Federally chartered corporation operating existing passenger rail service.
Other	• Illinois (in cooperation with California, Michigan, Missouri, Iowa, Oregon, and Washington) Procurement of NextGen Locomotives	Multi-state procurement of new diesel-electric locomotives.
	• California and Illinois Procurement of NextGen Bi-Level Rail Cars	Joint procurement of 130 new bi-level rail cars built to "next generation" specifications.

Criterion 2: Data and Information Availability. Two measures were assessed to determine the level and availability of supporting materials to conduct the case studies. First, the research team conducted a cursory review of documented resources. Efforts with the most data and information availability were characterized by one or more of the following: an active, dedicated website; inclusion in a previous academic or applied research effort; or the existence of specific documentation of a formal multi-state structure (e.g., interstate compact or MOU). Second,

Table 4. Focus issues associated with candidate case studies.*

Candidate Case Studies	Why? (compelling need)	Identification of responsibilities	Cost and revenue sharing	Grant applications	Role of regulatory agencies	Public expectations	Relationship with host railroad or other service provider	Modal competition strategy	Procurement	Ownership of corridor and liability	Branding, marketing and customer service	Impact of PRIIA Section 209	Interoperability and/or safety standards
Regional Efforts													
Midwest	✓	✓		✓		✓	✓	✓	✓			✓	✓
Northeast	✓	✓			✓	✓	✓	✓				✓	
Southeast	✓					✓					✓		
Southwest	✓	✓			✓	✓	✓						
Gulf Coast	✓	✓				✓							
Corridor/Corridor Segment Efforts													
Chicago-St. Louis	✓	✓	✓	✓	✓	✓	✓			✓	✓		
Twin Cities-Milwaukee	✓	✓				✓							
Chicago-Detroit	✓	✓	✓	✓	✓	✓	✓						
Chicago-Quad Cities	✓	✓				✓							
Chicago-Omaha	✓	✓				✓							
Albany-Rutland	✓			✓	✓	✓							
Boston-Portland	✓	✓	✓			✓	✓						
New Orleans-Atlanta	✓					✓							
New Orleans-Mobile	✓					✓							
New Orleans-Houston	✓					✓							
Portland-Seattle	✓	✓	✓			✓	✓					✓	✓
Tulsa-Oklahoma City-South Texas	✓	✓				✓							
D.C.-Richmond-Raleigh-Charlotte	✓	✓				✓	✓			✓	✓		
Victorville-Las Vegas	✓				✓	✓	✓						

*Please note that in this table some heading columns include two case study focus issues.

the research team considered whether the study's strategic advisors or focus group participants were direct participants in the passenger rail effort and thus could provide direct institutional knowledge as well as connections to other appropriate individuals and resources not publicly accessible.

Criterion 3: Degree of Transferability. Each of the regional- and corridor-level efforts offer lessons learned that can be applied to other multi-state corridor efforts. Most corridors were assigned the same rating for transferability, but the Midwest and the NEC were rated slightly lower because these corridors present unique circumstances with respect to the planning and delivery of intercity passenger rail service. The NEC presents a diverse and complex array of owners and operators with a direct role in provision of intercity rail services, the maturity of existing intercity passenger rail service, and a greater propensity for intercity passenger rail service relative to other

regions. The Midwest has established Chicago as the clear hub for intercity passenger rail efforts. Providing connections to this hub is a driving factor behind many of the planning efforts to date. While this approach could be viable for other passenger rail efforts, reaching consensus on the central hub could be challenging and, in some cases, controversial. In the case of the Midwest, the importance of providing connections to Chicago builds on historical patterns of development.

Criterion 4: Diversity of Final Case Study List. The final list of case studies was selected to represent a reasonable distribution across institutional models, status of project development, and geographic location.

Table 5 summarizes how candidate case studies address the first three selection criteria. A rating was assigned for how well a candidate case study met each of the first three selection criteria. In

Table 5. Summary of how candidate case studies address the first three criteria.

Candidate Case Studies	Demonstrated experience with case study focus issues	Data/information availability	Degree of transferability	Overall contribution
Regional Efforts				
Midwest: Midwest Regional Rail Initiative, Midwest Interstate Passenger Rail Compact, Midwest High-Speed Rail Steering Group	+++++	+++++	++	12 – Tier 1
Northeast: NEC Commission, NEC Master Plan Working Group	++++	+++++	++	11 – Tier 1
Southeast: Southeast High Speed Rail Corridor Coalition	++	++++	+++	9 – Tier 2
Southwest: Southwest Multi-State Rail Planning Study Stakeholder Group	+++	+++	+++	9 – Tier 2
Gulf Coast: Southern High-Speed Rail Commission	++	+++	+++	8 – Tier 2
Corridor/Corridor Segment Efforts				
Chicago-St. Louis	+++++	++++	++	11 – Tier 1
Twin Cities-Milwaukee	++	+++	++	7 – Tier 2
Chicago-Detroit	++++	++	++	8 – Tier 2
Chicago-Quad Cities	++	++	++	6 – Tier 3
Chicago-Omaha	++	++	++	6 – Tier 3
Albany-Rutland	+++	++++	+++	10 – Tier 1
Boston-Portland (NNEPRA)	+++	+++++	+++	11 – Tier 1
New Orleans-Atlanta	+	++	+++	6 – Tier 3
New Orleans-Mobile	+	++	+++	6 – Tier 3
New Orleans-Houston	+	++	+++	6 – Tier 3
Portland-Seattle (Cascades)	++++	+++++	+++	12 – Tier 1
Tulsa-Oklahoma City-South Texas (South Central)	++	+++	+++	8 – Tier 2
D.C.-Richmond-Raleigh-Charlotte (Southeast High Speed Rail)	+++	+++++	+++	11 – Tier 1
Victorville-Las Vegas (XpressWest)	+++	++	+++	8 – Tier 2

(+++++ = strongest correspondence between case and criterion; + = weakest correspondence between case and criterion)

Table 5, these criteria are listed in the column heads. The number of marks in a particular cell indicates the degree to which a potential case study meets that criterion (with five marks indicating the strongest correspondence between a candidate case study and the criterion and fewer marks indicating a weaker correspondence). The resulting ratings are presented in tiers based on the total number of marks scored by each candidate case study. This approach was utilized because, in previous experience, the research team has found that most scoring systems have problems distinguishing between candidates when their scores are separated by a small amount. In the tiered system, for example, the Midwest Region and the NEC are both considered as recommended candidates even though the Midwest scores are slightly higher.

While a Tier 1 rating was a strong indicator that a candidate case study should be included in the final selection, the need to meet Criterion 4, diversity, and the limited number of case studies that could be included meant that some Tier 1 candidates were not chosen for the final list and some Tier 2 candidates were. The research team determined that the case studies representing the best overall contribution to the research objectives were the following:

- Midwest Regional Efforts
- Northeast Regional Efforts
- Chicago-Detroit Corridor
- Boston-Portland Corridor Segment
- Portland-Seattle Corridor Segment
- D.C./Richmond-Raleigh-Charlotte Corridor Segment
- Tulsa-Oklahoma City-South Texas Corridor

International Case Studies and Case Studies from Outside of the Intercity Passenger Rail Sector

The research also identified potential international case studies and case studies outside of the intercity passenger rail sector. The potential case studies were identified based on a review of the literature and input from the focus group and were the following:

- Trans-European Transport Network: the TEN-T rail component provides a range of institutional models for delivering high-speed rail.
- Washington Metropolitan Area Transit Authority (WMATA): this regional transit authority includes both the multi-state and federal participation.
- Appalachian Regional Commission (ARC): this federally established, multi-state agency provides an example of a model for delivering transportation infrastructure that crosses multiple states with the Appalachian Highway System.

Full documentation of the case studies developed for NCRRP Project 07-02 is presented in *NCRRP Web-Only Document 3*, which can be found at TRB.org. Each of the final case studies is summarized below.

3.4 Regional Studies

3.4.1 Midwest Passenger Rail Development

Background

Several states have been involved in the development of the Midwest passenger rail system over the last two decades. This case study focuses largely on what has become known as the "Chicago Hub Network." This network would have Chicago at the center of a hub-and-spoke system, with lines extending to and connecting some of the largest and most densely populated cities of the Midwest (see Figure 5).

Figure 5. Proposed Midwest Regional Rail System.

Beginning in 1996, nine state transportation agencies—Illinois DOT, Indiana DOT, Iowa DOT, Michigan DOT, Minnesota DOT, Missouri DOT, Nebraska Department of Roads, Ohio Rail Development Commission, and Wisconsin DOT—initiated the Midwest Regional Rail Initiative (MWRRI) to help meet future regional travel needs through improvements to the level and quality of regional passenger rail service. A secondary purpose of the MWRRI was to position and unify the states' interests to ensure that the region received a fair share of federal funding. The nine states collectively formed the MWRRI Steering Committee and, with support from Amtrak and consultants, developed a 2004 plan to create an integrated Chicago Hub regional rail system that would connect the nine partner states. The Midwest Regional Rail System (MWRRS) included $6.6 billion of infrastructure improvements along 3,000 route miles of existing rights-of-way shared with existing freight and commuter services.

The plan explored institutional models to provide system-level oversight, including creating ad hoc, multi-state committees; establishing committees by multi-state agreements; or creating a joint powers authority through legislative authority. As of the date of the case study, no consensus has been reached on a governance mechanism to provide system oversight. Still, under the vision

articulated by the MWRRI, each state retains sovereignty, and the ultimate implementation of the projects is the responsibility of the states.

In response to the potential for funds for high-speed rail from the ARRA of 2009, eight states and the mayor of Chicago signed an MOU where each signee agreed to

- Establish a high-level, multi-state steering group with a representative from each signatory to the MOU. The purpose of the Midwest Rail Steering Group will be to coordinate the region's applications and work associated with all ARRA applications to provide guidance, leadership, and a single advocacy voice in support of the region's collective high-speed rail priorities. The Steering Group shall identify a point of contact between MOU participants and the U.S. DOT.
- Coordinate and cooperate fully in support of each MOU participant's individual state applications for high-speed and intercity rail funding.
- Coordinate and negotiate with the major railroads to sign agreements for the development of high-speed rail corridors and the identified individual projects by stated priority.
- Be free to pursue individual memoranda of agreement or understanding among MOU participants related to specific projects involved in support of the overall application and vision for the Midwest corridor.
- Be separately responsible for any and all work taking place within their respective state boundaries.
- Allow other Midwestern or contiguous states the opportunity to join in this MOU at any time if they are willing to support all aspects of the agreement in place.

Nearly 50 studies have been completed in corridors throughout the Midwest since the development of the MWRRI in 1996. To better organize and prioritize project implementation efforts for the MWRRS, an SDP was published by the MWRRI in September 2009. The 2009 SDP proposed moving specific corridors forward in a phased approach, giving highest priority to corridors with greater ridership potential, who were most advanced in planning, and posed the lowest amount of risk. Phases were broken out as follows:

- Phase 1: Chicago-Madison (Wisconsin as lead state, who later withdrew), Chicago-St. Louis (Illinois as lead state), and Chicago-Detroit/Pontiac (Michigan as lead state)
- Phase 2: Chicago-Minneapolis/St. Paul (Minnesota as lead state)
- Phase 3: Chicago-Iowa City (Iowa as lead state)

Nature of the Partnership

Midwestern states wishing to partner with other states to advance passenger rail corridor projects employ various types of agreements to assign roles and responsibilities, handle financial commitments and procurement, and to manage other matters. The instruments most commonly used by states participating in the MWRRS to formalize their agreements were the following:

MOU/Memorandum of Agreement (MOA). These instruments are agreements between two or more people or organizations working toward a common objective. The use of an MOU/MOA is significant for two main reasons: (1) generally these agreements are not legally binding, and (2) they do not involve the exchange of money. MOUs have the advantage of formally defining roles and responsibilities without creating the legal obligations of a contract.

Agreement in Principle (AIP). Like an MOU, an AIP is not legally binding. An AIP is generally used between parties to come to agreement on specific terms that could form the foundation of a future contract. The AIP serves as a way to come to a basic understanding of contentious issues and develop a level of consensus between parties. An AIP between the Iowa DOT and the Illinois DOT was used to establish the two agencies' roles, responsibilities, risks, and other

important details of work needed to initiate the analysis of high-speed passenger rail between Chicago, Illinois, and Iowa City, Iowa. This AIP can be found in Appendix B. The AIP identifies all parties entering into the agreement, summarizes the scope of the project, and identifies a series of terms and definitions on which the parties mutually agree. In this example, the AIP defines Iowa DOT as the lead agency and FRA grant recipient, defines how future equipment costs will be shared between the states, details how cost overruns are to be managed for the project, and elaborates on several other critical issues.

Intergovernmental Agreement (IGA)/Interlocal Agreement (ILA). IGAs and ILAs, as their names imply, are agreements made exclusively between two or more governmental bodies. In the case of the MWRRS, IGAs have been used between state DOTs and communities where stations are to be located to come to agreement on construction and maintenance costs related to the community's planned passenger rail stations. (In most cases, local municipalities are responsible for the maintenance and operational costs of their stations.)

Service Outcome Agreement (SOA). To help mitigate risk to grantees, FRA requires long-term SOAs among the grantee, the service operator (in many cases Amtrak), and the host railroads on whose track intercity passenger or high-speed rail projects would operate. SOAs define the intended benefits of new or improved passenger rail service and demonstrate the rail-owning entity's commitment to the achievement of those benefits. Specifically, SOAs address passenger rail service frequency, schedule and trip time, and maximum delay minutes. SOAs are used to detail precisely what improvements will be made along the host railroad's right-of-way and how progressive phases of the passenger rail project will improve service in the project corridor.

In many cases, development of, and agreement on, an SOA can be challenging. Differences in agency goals can make the SOA negotiations complex and difficult. In Missouri's SOA with the Union Pacific Railroad, organizations other than the Union Pacific Railroad (Missouri DOT, Amtrak, and FRA) had different priorities and goals. For the FRA, travel time reduction for the total trip was paramount, whereas the Missouri DOT and Amtrak were focused on increasing the on-time performance percentage to make service more reliable. These different agency goals can make the agreement process more complicated and time-consuming.

Challenges and Barriers

- The Midwest currently does not have a single entity responsible for coordinating regional, ongoing, long-term technical planning or for ensuring that the political and educational functions necessary for future regional passenger rail implementation will be coordinated. In addition, a number of issues loom on the horizon that may be managed best by a new or expanded governance entity—including oversight and coordination of the Midwest's Next Generation equipment, better uniformity of Section 209 pricing, and priorities and cost sharing for major infrastructure improvements.
- Changing political goals and priorities make it difficult to move large capital projects forward that will be completed only in the long term. It is especially difficult to form and maintain the long-term multi-state agreements needed to see such projects through.
- Separation of political and technical bodies in development of the regional rail vision has resulted in uneven participation and support among stakeholders. Although a formal compact has been established between states (at the gubernatorial level) for the Midwest Interstate Passenger Rail Compact (MIPRC) with authority to oversee rail projects, the disparate development of corridor studies by separate partnerships of specific state DOTs limited the potential for the region to use the compact as mechanism to formalize buy-in for the regional vision.
- The lack of a committed, long-term, stable funding source for construction, operation, and maintenance of passenger rail systems can be challenging.

- Unlike the NEC, which is owned entirely by public entities, most of the railroad network in the Midwest is owned by private freight railroads whose primary concern is preservation and expansion of their freight service and not development of a robust and expansive passenger rail network.

Lessons Learned

- Developing agreements involves a great deal of time and effort. The detailed 234 (and counting) agreements that have been produced as part of the Chicago-St. Louis high-speed rail projects are evidence of the number of agreements required to implement passenger rail service. Agreements can directly impact the critical path of project implementation. Delays caused by agreements have the potential to drastically slow projects and put projects at financial risk if not given a high level of priority.
- Early, frequent, and open communications with all partners, particularly host railroads, FRA, and Amtrak, are essential to overall success.
- The long-term nature of such large-scale infrastructure projects poses a challenge to project leaders in terms of maintaining momentum and the priority of their projects with their state's elected leadership. Several project leaders contacted for this study expressed the need to be flexible and expect change as projects evolve.
- Formal guidance on what elements are to be included in SOAs and how agreements are to be structured would provide needed clarity for all parties involved. Project stakeholders found the SOA negotiation process to be a time-consuming process of trial and error in which multiple versions of agreements were rejected by other parties to the agreement.
- High-level state government involvement and consensus is essential, including at the governor level, as the lack of buy-in by new administrations can undermine decades of work to build agreements and a shared vision.

Correspondence to the Conceptual Framework

A summary of how the various multi-state arrangements in the Midwest correspond to the conceptual framework is presented in Table 6. Table 7 focuses on how one corridor-level effort (involving the Iowa and Illinois DOTs) corresponds to the conceptual framework.

3.4.2 Northeast Passenger Rail Development

Background

Extending across eight states (Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Pennsylvania, and Maryland) and the District of Columbia, the NEC is a critical part of U.S. transportation infrastructure. By a wide margin, the NEC is the busiest passenger rail corridor in the United States, serving approximately 750,000 people on more than 2,200 passenger trains daily. It is a strong economic driver, supporting more than $50 billion annually in the nation's economy. The spine of the NEC is a fully electrified railway line owned primarily by Amtrak from Boston, via New York and Philadelphia, to Washington, D.C., with several branches. This spine, which closely parallels Interstate 95 for most of its length, is the busiest passenger rail line in the United States in ridership and service frequency.

The NEC is unique in terms of its long history of providing passenger rail service and supporting regional growth in the United States—surviving two legacy owners and deeply competing interests, the near-collapse of the private systems and passenger rail in particular, and government assumption of control as the private entities stepped away. Fragmented ownership and decades of insufficient investment in the NEC's infrastructure have resulted in a large backlog of deferred capital needs that increasingly impact system reliability (see the discussion of Amtrak's history

(*text continues on p. 37*)

Table 6. How multi-state entities involved in passenger rail development in the Midwest address focus issues from the conceptual framework (visioning and planning phases).

Focus Issue	Multi-State Entities (Visioning and Planning Phases)		
	Midwest Interstate Passenger Rail Commission	**Midwest High-Speed Rail Steering Group (2009 MOU for Implementation of High-Speed Rail Passenger Service and Connections Involving Corridors Linking Cities in Partner States)**	**Midwest Regional Rail Initiative Steering Committee**
Stakeholders	States of Illinois, Indiana, Iowa, Kansas , Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.	States of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. City of Chicago.	States of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, Wisconsin. Amtrak, FRA.
Institutional Relationships	Established through the MIPRC.	Established through 2009 MOU entitled Implementation of High-Speed Rail Passenger Service and Connections Involving Corridors Linking Cities in Partner States (signed by eight Midwestern states and the City of Chicago).	Voluntary working group.
Identification of Responsibilities	MIPRC identifies responsibilities: advocate for funding and authorization necessary to make passenger rail improvements a reality for Midwest; seek to develop ways states can form partnerships with rail industry and labor to implement improved passenger rail; develop long-term interstate plan for high-speed passenger rail service; and cooperate with other agencies, regions, and entities to ensure Midwest adequately represented in national plans for passenger rail development.	MOU requires parties to cooperate to the maximum extent to ensure projects are developed in full compliance with federal and state requirements.	No formal agreement, but steering committee, composed of key staff from each state agency and Amtrak, provided oversight and direction to the consultant team retained to conduct the study. Wisconsin DOT served as Secretariat for the steering committee. Amtrak provided administrative support and administered contracts.
Role of Regulatory Agencies		MOU states partnering with FRA is key requirement.	FRA for oversight, environmental reviews, provide capital funding.
Political Foundation	Participation in MIPRC demonstrates support by state legislature.	Participation in MOU demonstrates support at gubernatorial level.	

(continued on next page)

Table 6. (Continued).

Focus Issue	Multi-State Entities (Visioning and Planning Phases)		
	Midwest Interstate Passenger Rail Commission	**Midwest High-Speed Rail Steering Group (2009 MOU for Implementation of High-Speed Rail Passenger Service and Connections Involving Corridors Linking Cities in Partner States)**	**Midwest Regional Rail Initiative Steering Committee**
Why? (Compelling Need)	MIPRC formed to help the Midwest advocate for federal funding for improved passenger rail in a unified and coordinated manner.	Coordinating and documenting individual applications to the FRA for funding from ARRA to develop the Chicago Hub High-Speed Rail Corridor.	Meet future regional travel needs through significant improvements to the level and quality of regional passenger rail service, reduction in travel times, and improve economic development in the region.
Modal Competition Strategy			MWRRS envisioned a network of feeder bus routes to connect smaller communities to high-speed rail lines in the Midwest.
Decision-Making Process	Commission members have equal voting rights. Commission to meet annually at minimum.		Steering committee members have equal voting rights. Motions approved by a two-thirds majority of committee members.
Corridor Ownership	Multiple Class I railroads.	Multiple Class I railroads.	Multiple Class I railroads.
Lead Agencies/Groups	The Commission annually elects from its membership a chair, vice-chair, and other offices to provide leadership.	The Midwest Rail Steering Group is defined as the coordinating group and point of contact between MOU participants and the U.S. DOT for ARRA applications.	The steering committee provided direction and oversight to consultants conducting planning for the Midwest Regional Rail System Plan, 1998.
Legal Authority	Authorized by U.S. Congress, enacted by state legislatures.	MOU was signed by the governors of each of the participating states as well as the Mayor of the City of Chicago.	
Cost Sharing	Member states of MIPRC split general operations cost of Commission equally.		Report was financed largely by Amtrak, with contributions from Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin, with limited funding from the FRA.

Table 6. (Continued).

Focus Issue	Multi-State Entities (Visioning and Planning Phases)		
	Midwest Interstate Passenger Rail Commission	**Midwest High-Speed Rail Steering Group (2009 MOU for Implementation of High-Speed Rail Passenger Service and Connections Involving Corridors Linking Cities in Partner States)**	**Midwest Regional Rail Initiative Steering Committee**
Funding Sources	State appropriations.		Largely Amtrak.
Interaction with Others	Commission is charged with interacting with other non-member states, local municipalities, and federal agency officials. Group makes assumptions for the involvement of private sector in assistance with project financing.		
Oversight	Each state has oversight authority for funds allocated to the Commission.	FRA.	
Relationship with Host Railroad or Other Providers of Service	The Steering Group expresses critical importance of working with host railroads for the successful implementation of the MWRRS.		
Liability Issues	If a compacting state is to withdraw from this compact, the withdrawing state is liable for any obligations which it had incurred prior to the effective date of withdrawal.		
Procurement			Procured consultant support for study, administered by Amtrak.
Contractual Arrangements	Legal agreement serves contract between the participating states and governing documentation for the Commission.		

Blank cells indicate no correspondence with the focus issue.

Table 7. How the 2010 AIP between the Iowa DOT and Illinois DOT addresses focus issues from the conceptual framework (visioning, planning, and design and construction phases).

Focus Issue	2010 AIP between the Iowa DOT and Illinois DOT (Visioning, Planning, and Design and Construction Phases)
Stakeholders	Iowa DOT and Illinois DOT.
Institutional Relationships	AIP signed August 5, 2010.
Identification of Responsibilities	AIP participants agree to submit joint HSIPR grant for passenger rail service between Chicago, IL, and Iowa City, IA; conduct environmental analysis and planning for rail service; share costs of equipment procurement and operations; share benefits and risks; and share cost overruns.
Role of Regulatory Agencies	While not expressly stated in the AIP, the HSIPR program through which the AIP is seeking funding would be overseen by the FRA and U.S. DOT for grant management and environmental review.
Political Foundation	Iowa Governor, Chet Culver, and Illinois Governor, Pat Quinn, signed an MOU on July 27, 2009, concerning the coordination of planning and implementation of passenger rail service between Chicago and Iowa City.
Why? (Compelling Need)	Benefits of new passenger rail service between Chicago and Iowa City are listed in the AIP as "mobility options, fuel savings, cleaner air, and economic development."
Lead Agencies/Groups	The Iowa DOT is defined as the lead agency for management of any grant funds awarded and would lead the overall project.
Legal Authority	AIP states that "The relationship between Iowa DOT and Illinois DOT is based on legislation established within both states which focuses on national principles of formal coordination."
Cost Sharing	• Equipment maintenance costs split: 73% Illinois/27% Iowa (based on mileage in each state). • Equipment purchase: 80%/20% federal/local split. Local funds to split 73%/27%. • Project cost overruns split: 73% Illinois/27% Iowa.
Funding Sources	The AIP is seeking grant funding through the HSIPR program. The exact source of local matching funds from each state is not specified (i.e., general revenue, fuel tax revenue, etc.).
Oversight	U.S. DOT and FRA.
Liability Issues	AIP states that "Liability issues with this project will be mutually handled by Iowa DOT and Illinois DOT."
Procurement	Costs of funding equipment procurement are to be split between the states based on track mileage percent in each state: 73% Illinois/27% Iowa.
Contractual Arrangements	• AIP in effect until early 2015. • Iowa and Illinois DOT agree to mutually resolve all conflicts and disputes. Agencies are jointly responsible for addressing and correcting substandard work. • Agencies can amend the AIP to develop any additional provisions that are determined necessary. • Iowa DOT and Illinois DOT agree to complete the project in full compliance with federal and state requirements.

(*Continued from p. 32*)
in Chapter 2). What was never resolved in this fragmented ownership and oversight was how to address conflict and share potential opportunities for improvements to intercity and commuter rail.

Nature of the Partnership

The complex structure of the NEC as it stands today is a byproduct of various legislative acts to salvage passenger rail and freight operations following the decline of the private railroad industry in the mid-20th century. The relationship among Amtrak, the states it serves in the Northeast, and the various commuter rail operators who operate on and off Amtrak track is also complex and varies by state. The NEC mainline tracks are owned primarily by Amtrak, with portions also owned by the states of Massachusetts and Connecticut and the New York MTA.

A large number of railroads operate on the NEC—including Amtrak, six commuter railroads, two Class I freight railroads, and one shortline railroad—resulting in high levels of activity on the NEC. On a daily basis, approximately 750,000 trips are made on the NEC, either on Amtrak or one of the commuter railroads. More than 2,100 passenger trains and 60 freight trains operate on some portion of the NEC every day. For the most part, Amtrak retains the responsibility for infrastructure maintenance and improvement. Figure 6 shows the different operating entities along the NEC.

Historically, each railroad on the NEC separately negotiated its infrastructure access and service agreements for use of NEC infrastructure with the infrastructure owner, with no standardized method for determining the pricing structure of these agreements. Over time, this has resulted in disparate arrangements throughout the corridor, and, according to those interviewed, this circumstance is one of several factors contributing to chronic underinvestment in NEC infrastructure.

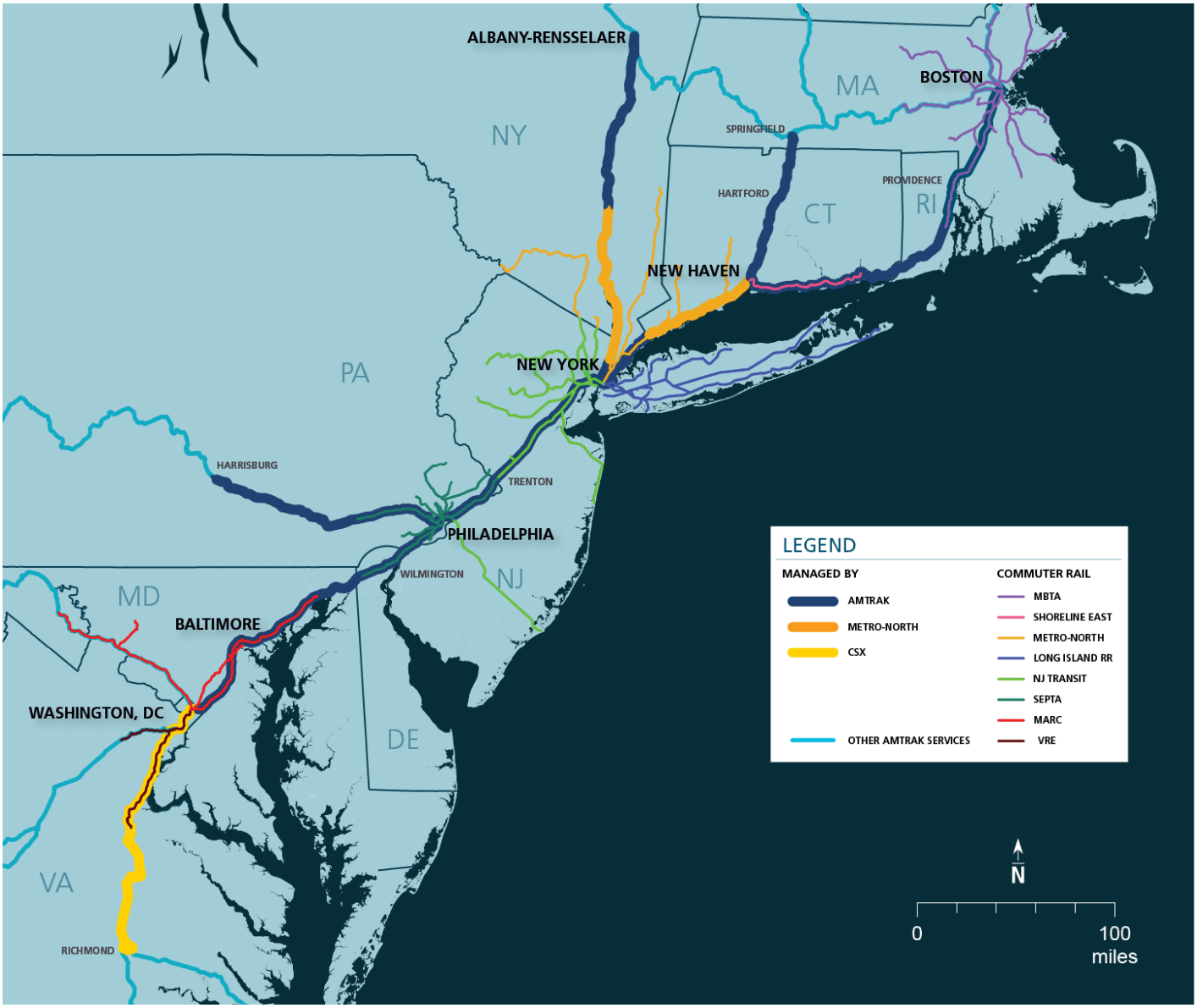
The following entities have access-to-infrastructure agreements with Amtrak to support commuter rail service that crosses state lines:

- New Jersey Transit (NJ TRANSIT)—to provide service between Trenton, New Jersey, and Pennsylvania Station in New York, New York, and service between the 30th Street Station in Philadelphia, Pennsylvania, and Atlantic City, New Jersey.
- Southeastern Pennsylvania Transportation Authority (SEPTA)—to provide service from 30th Street Station in Philadelphia, Pennsylvania, to Trenton, New Jersey (this agreement also covers SEPTA regional rail service on a portion of Amtrak's Keystone Line).
- Virginia Railway Express (VRE)—to provide service from Manassas and Fredericksburg, Virginia, to Union Station in Washington, D.C.
- Maryland Area Regional Commuter (MARC) train—to provide service on all three commuter lines from Perryville and Baltimore, Maryland, and Martinsburg, West Virginia, into Union Station in Washington, D.C.

These agreements address topics such as trackage rights, operating rights and windows, service levels and expansion, control of maintenance and dispatching, liability allocation, and construction coordination. In addition to agreements between commuter rail operators and Amtrak, the arrangements between various commuter rail operators and/or states add to the intricacy of operations on the NEC.

Challenges and Barriers

- Chronic underfunding of the current system on the NEC is combined with a countervailing imperative to expand the network to respond to growing demand.
- Lack of clear direction and priorities for investment of scarce funding leads to localized benefits from projects without consideration for corridor-wide impacts or needs.



Source: http://nec.amtrak.com/content/nec-and-connecting-corridors-map

Figure 6. Owners and operators in the NEC.

- Competing interests (given the multitude of commuter, intercity, and freight uses of the NEC spine) hinder stakeholders' ability to identify and reach consensus on key issues and have resulted in questions of equity and parity among these entities.
- Oversight relationships and requirements of various U.S. DOT entities result in confusion and inefficiencies for NEC owners and operators, with commuter and intercity rail treated differently under federal law.
- The history of the NEC ownership and operation contributes to the complexity of operations, interrelationship among the key participants, and federal reporting.
- Competing demands on the corridor as capacity constraints in many segments of the NEC limit the ability to expand all rail services and provide for an equitable balance among the various passenger services, as well as between passenger and freight movements in general.

- A complicated and intricate allocation of risk between owners and operators is often based on the provisions within historic agreements. Liability and indemnity obligations are two of the most contentious issues among parties operating jointly on rail lines.

Lessons Learned

- A common ground emphasizing shared interests, priorities, and vision should be established early among stakeholders.
- Consensus requires patience and relationship building.
- Some centralization is required to focus and facilitate decision-making.
- Independence and transparency are essential; the NEC Commission needs to be autonomous from Amtrak in order to be viewed as a truly fair broker over the longer term and to build trust for the effective investment of federal and state monies on the NEC.
- Funds generated by increased commuter railroad and Amtrak financial contributions cannot replace existing federal funding. Rather, a new approach is needed to leverage higher levels of federal, state, local, and private investment.
- Processes and requirements should be synchronized for advancement of projects.

Correspondence to the Conceptual Framework

Table 8 shows the entities that support the visioning and planning phases in the NEC; Table 9 focuses on multi-state agreements in the operations and maintenance phase.

Note that in addition to the stakeholders listed in Tables 8 and 9, two coalitions support the advancement of the NEC: the I-95 Corridor Coalition, a partnership of transportation agencies and related organizations located mainly in the 16 states traversed by I-95, along with affiliated members in adjacent Canadian provinces, and the Coalition of Northeast Governors (CONEG), a non-partisan association of governors from seven northeastern states that addresses a broad range of issues of regional importance.

3.5 Corridor/Segment Studies

3.5.1 Northern New England Passenger Rail Authority and Amtrak Downeaster Service

Background

The NNEPRA is a quasi-public entity created by the Maine state legislature that is responsible, along with partners, for rehabilitating the rail corridor between Boston, Massachusetts, and Portland, Maine; expanding service in Maine from Portland to Brunswick; and managing Amtrak's Downeaster rail service. The passenger service operates across 3 states and serves 12 stops, including its termini at Boston's Massachusetts Bay Transit Authority (MBTA) North Station and the Brunswick rail station in Maine. Massachusetts and New Hampshire are each home to three stops along the line, and Maine has six stops. The Downeaster is notable in that it is a reinstatement of passenger rail service that was provided between Boston and Portland for over a century, but was discontinued from the mid-1960s to 2001.

Despite the fact that service within Massachusetts and New Hampshire constitute half of the Downeaster's stops and that residents from both of these states accounted for 42 percent of all ridership in FY 2012, these states do not contribute funding to support the service. Additionally, the service does not have access to a dedicated source of funding. Since its inaugural run in December 2001, the Downeaster has provided service to over 4.5 million people, operated roughly 367 million passenger miles, and generated $64 million in ticket revenues. The service is operated by Amtrak and managed by NNEPRA.

(*text continues on p. 45*)

Table 8. How entities involved in NEC passenger rail service address focus issues from the conceptual framework (visioning and planning phases).

Focus Issue	Entities Involved in NEC Passenger Rail Service (Planning and Visioning Phases)		
	Amtrak NEC Infrastructure Master Plan Working Group (no longer in place)	**NEC Commission**	**FRA NEC FUTURE**
Stakeholders	Amtrak, 12 state DOTs and the District of Columbia, 7 commuter rail operators, 3 freight railroads, NNEPRA, CONEG, and FRA.	8 states and the District of Columbia, U.S. DOT, Amtrak, freight railroads, commuter rail operators.	FRA, NEC states, and District of Columbia; Amtrak, NEC commuter and freight railroads, federal and state environmental agencies.
Institutional Relationships	Voluntary partnership led by Amtrak.	Established by PRIIA.	Voluntary participation from stakeholders led by FRA.
Identification of Responsibilities	Not governed by any formal processes; rather, the states, stakeholders, and agencies were invited to contribute their own priorities and projects.	Charged under PRIIA to facilitate cooperation and integrated planning among the agencies and entities involved in intercity passenger and freight use of the NEC.	FRA-driven effort with coordination with other U.S. DOT modal administrators, quarterly meetings with resource agencies in the three project regions.
Role of Regulatory Agencies	FRA included in stakeholder group.	U.S. DOT has 5 of 18 voting members on board.	FRA is the lead agency for environmental study; regular meetings with involved state and federal resource and regulatory agencies.
Political Foundation		Established by Congress.	Funded through federal appropriation.
Why? (Compelling Need)	Creation of NEC master plan that for the first time would capture relevant policy and capital plans from each of the Northeast states and District of Columbia involving intercity, passenger, and freight project needs in one document.	Established to facilitate cooperation and integrate planning among the agencies and entities involved in passenger and freight use of the NEC.	Led by FRA, commenced in 2012 at the request of the states in the NEC to formulate a comprehensive, long-term vision and rail investment program through 2040.
Decision-Making Process		Meet at least 4 times per year, votes by voting members.	
Corridor Ownership	Majority of corridor owned by Amtrak; portions owned by New York, Connecticut, and Massachusetts.	Majority of corridor owned by Amtrak; portions owned by New York, Connecticut, and Massachusetts.	Majority of corridor owned by Amtrak; portions owned by New York, Connecticut, and Massachusetts.
Lead Agencies/Groups	Amtrak.	Board includes representation from 8 states, the District of Columbia, Amtrak, U.S. DOT, 4 freight railroads, states connecting to NEC, and 6 commuter rail operators.	FRA, FTA cooperating agency, close coordination with NEC Commission and railroad stakeholders.
Legal Authority	Under Amtrak's purview.	U.S. Code Title 49, Subtitle V, Part C, Chapter 249.	Under FRA's purview, NEPA.

Table 8. (Continued).

Focus Issue	Entities Involved in NEC Passenger Rail Service (Planning and Visioning Phases)		
	Amtrak NEC Infrastructure Master Plan Working Group (no longer in place)	**NEC Commission**	**FRA NEC FUTURE**
Cost Sharing		Members serve without pay, Cost-Allocation Committee developing policy for NEC overall.	
Funding Sources	Amtrak's budget.	Congressional appropriations.	Federally funded.
Interaction with Others	Participation and input from rail stakeholders to develop plan document.	Interaction with other stakeholders as part of ongoing NEC Commission meetings.	Extensive interaction with NEC Commission and its members and with federal and state resource agencies.
Oversight		U.S. DOT is voting member, Congress.	No official advisory group, large amount of coordination already taking place with NEC Commission and other stakeholders.
Interoperability Standards			Interoperability a key requirement of the purpose and need.
Relationship with Host Railroad or Other Providers of Service	Part of stakeholder group.	Collaborative involvement with Amtrak and other railroads with locally owned portions of the NEC in New York, Connecticut, and Massachusetts.	Part of stakeholder group.
Revenue Sharing		Cost-Allocation Committee developing formula to determine allocation of revenues for activities aside from operations.	
Liability Issues		Cost-Allocation Committee developing potential strategies.	
Procurement	Amtrak procured consultant support for production of deliverable.	Can directly contract for consultant support as needed.	FRA procured consultant support.
Contractual Arrangements		Non-disclosure agreements are anticipated, with the cost-allocation policy likely included as an amendment incorporated into existing access and service agreements.	

Blank cells indicate no correspondence with the focus issue.

Table 9. How multi-state agreements on the NEC address focus issues from the conceptual framework (operations and maintenance phase).

Focus Issue	NEC Multi-State Agreements (Operations and Maintenance Phase)		
	Metro-North Railroad Service on New Haven Line	**Metro-North Railroad Service West of the Hudson River**	**SEPTA Service to Wilmington/Newark, Delaware**
Stakeholders	Connecticut DOT, MTA, and Metro-North Railroad.	NJ TRANSIT and Metro-North Railroad.	SEPTA and Delaware Transit Corporation (DTC).
Institutional Relationships	Modification of legacy agreement from historical operation by Penn Central and Conrail.	New agreement with renewable term superseding prior agreement between the entities to provide service on the Port Jervis and Pascack Valley Lines.	Replaces prior agreements dating back to 1989.
Identification of Responsibilities	• Connecticut DOT: payment of operating deficits, acquisition of non-moveable capital assets and moveable capital assets. • MTA: payment of operating deficits, management of capital improvements and capital asset projects. • Metro-North Railroad: day-to-day operation of service, fare collection, annual budget process (lead). • All*:* capital asset acquisition, amendments to service schedule, consists, allocation and payment of capital costs (depending on state in which operated).	• NJ TRANSIT: operation of service, provision of vehicles, maintenance and cleaning of vehicles, emergency repairs of vehicles, recommendations to Metro-North Railroad for major overhauls/ remanufacture of equipment, equipment and facility maintenance, station maintenance, (including Suffern, NY), public address and visual information systems, and ticket vending machines at NY state stations. • Metro-North Railroad: requests for changes in service, maintenance of the right-of-way and facilities beyond the end of NJ TRANSIT ownership, maintenance and operation of other NY stations along the lines, fare policy. • Both: quarterly meetings to review operations, finances, and other matters related to service.	• SEPTA: coordination of operating plan and operating assumptions for additional rail service; management and operation of rail service; vehicle maintenance and storage; adjustment of frequency, consists, and schedules of trains operated. • DTC: access to and use of NEC, personal injury and property damage claims for which it is responsible, operation of at least one sales location in Delaware, coordination of bus operations to serve passenger rail stations to the extent possible. • Both: programmed adjustments to operations south of Marcus Hook, PA; mutual agreement that SEPTA is the operator of record for train service south into DE and that SEPTA is entitled to all federal funding attributable to train service between PA and Wilmington, DE.
Role of Regulatory Agencies	Subject to requirements of the FTA for financial and technical assistance; FRA enforces rail safety and consolidates government support for the rehabilitation of the NEC.	Subject to requirements of the FTA for financial and technical assistance; FRA enforces rail safety and consolidates government support for the rehabilitation of the NEC.	Subject to requirements of the FTA for financial and technical assistance; FRA enforces rail safety and consolidates government support for the rehabilitation of the NEC.

Table 9. (Continued).

Focus Issue	NEC Multi-State Agreements (Operations and Maintenance Phase)		
	Metro-North Railroad Service on New Haven Line	**Metro-North Railroad Service West of the Hudson River**	**SEPTA Service to Wilmington/Newark, Delaware**
Why? (Compelling Need)	Agreement established after divestiture of Conrail's service.	Metro-North Railroad assumed responsibility for operating services west of the Hudson and north of the New Jersey state line following divestiture of Conrail's services but contracted services to NJ TRANSIT because of physical connection to NJ TRANSIT lines.	Need to extend commuter rail service into Delaware.
Decision-Making Process	Joint among Connecticut DOT, MTA, and Metro-North Railroad depending on topic.	Joint between NJ TRANSIT and Metro-North Railroad depending on topic.	Joint between SEPTA and DTC depending on topic.
Corridor Ownership	Owned by New York (Metro-North Railroad) and Connecticut.	Norfolk Southern.	Amtrak.
Lead Agencies/Groups	State of Connecticut, MTA, and Metro-North Railroad.	NJ TRANSIT and Metro-North Railroad.	SEPTA and DTC.
Legal Authority	Service Agreement dated June 21, 1985.	Agreement for Operation dated July 27, 2005.	An agreement between SEPTA and DTC for the provision of Delaware regional rail service, November 1, 2002.
Cost Sharing	Costs borne by entities in reasonable proportion to the segment or asset located in each state.	Compensation paid via monthly service payment from Metro-North Railroad to NJ TRANSIT.	DTC responsible for all costs incurred in provision of service. SEPTA reimbursed by DTC for operating deficits resulting from actual services performed. DTC credited by SEPTA for the transport of passengers whose trips originate or terminate in DE.
Operating Standards	Joint one-time comprehensive review of the service in an effort to improve the efficiency of the service.	On-time performance.	SEPTA responsible for providing service in a manner and with equipment consistent with the same general standard utilized throughout its transportation system.
Oversight	FRA provides safety oversight, not specified in agreement.	FRA provides safety oversight, not specified in agreement.	FRA provides safety oversight, not specified in agreement.
Relationship with Host Railroad or Other Providers of Service		Metro-North Railroad maintains separate leasing agreement with Norfolk Southern for tracks.	DTC maintains an MOU with Amtrak to address access, rate structures, and indemnification, and approving SEPTA as DTC's operating contractor.

(continued on next page)

44 Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

Table 9. (Continued).

Focus Issue	NEC Multi-State Agreements (Operations and Maintenance Phase)		
	Metro-North Railroad Service on New Haven Line	**Metro-North Railroad Service West of the Hudson River**	**SEPTA Service to Wilmington/Newark, Delaware**
Marketing and Customer Service	Not explicitly stated in agreement, but Metro-North Railroad's purview as operator.	Not explicitly stated in agreement, but NJ TRANSIT's purview as operator.	Not explicitly stated in agreement, but SEPTA's purview as operator.
Service Standards		Condition of train restrooms, car interior cleanliness, car heating/air conditioning, consist management.	SEPTA responsible to provide service in a manner and with equipment consistent with the same general standard utilized throughout its transportation system.
Revenue Sharing	Metro-North Railroad maintains chart of accounts to reflect costs and revenues; discussion of service revenues, service costs, and operating deficits.	Metro-North Railroad payments to NJ TRANSIT for provision of service; additional contribution by Metro-North Railroad for capital improvements.	SEPTA charges DTC for service, with rates to be examined annually and adjusted based on the Association of American Railroads Annual Indexes of Charge Out Prices and Wage Rates East; DTC credited by SEPTA for the transport of passengers whose trips originate or terminate in DE.
Liability Issues	Liability of Metro-North governed by terms of agreements, if any, with the carrier, and the service shall bear its proportionate share of such liability as such costs are allocated to the service.	Liability and indemnification provisions for employee liability, passenger liability, and third-party liability applicable to operations specified in agreement.	DTC agrees to indemnify, defend, and save harmless SEPTA from and against any liability, loss, or expense for any loss or damage to SEPTA's property, arising out of or related to the provision of services by SEPTA as part of the agreement south of Marcus Hook, PA, and points within the states of DE and/or MD; SEPTA is extended the sovereign immunity of the state of DE and DTC.
Procurement	Connecticut DOT: acquisition of non-moveable capital assets and moveable capital assets.	NJ TRANSIT procures its own vehicles, not covered in agreement.	Separate agreement between SEPTA and DTC for purchase of 4 Silverliner V vehicles as part of contract option with manufacturer to provide additional service to DE, 2007.
Contractual Arrangements	Specified in service agreement through effective date, term, renewal, termination rights, and procedures upon termination.	Specified in service agreement through effective date, term, renewal, termination rights, and procedures upon termination.	Specified in service agreement through effective date, term, renewal, termination rights, and procedures upon termination.

Blank cells indicate no correspondence with the focus issue.

(*Continued from p. 39*)

Nature of the Partnership

Passenger rail service is facilitated through a series of cooperative agreements between NNEPRA, Amtrak, and the host railroads. No state or local governments are directly involved in the development or operation of the Downeaster. As each of the agreements is based on the execution of a specific work order, the delegation of responsibilities within the pacts varies considerably depending on the type of project being completed. As manager of the Downeaster, NNEPRA is a party to a specific agreement with the majority of the organizations that support the passenger service, but rarely contracts with any entity other than Amtrak to support operations. Some key agreements cover train operations and maintenance; access to trackage; track maintenance and inspection; and station operations, ownership, maintenance, and staffing. These agreements are briefly summarized below.

Train Operations and Maintenance. NNEPRA and Amtrak signed a 20-year operating agreement in 1996. This single agreement covers the operation of passenger rail service along the entire corridor (i.e., Amtrak does not hold separate agreements with the individual states). Under this agreement, NNEPRA reimburses Amtrak for the costs incurred by the operator in all three states related to provision and maintenance of train equipment, fuel, on-board staff, ticketing agents at the Portland station, and general reservations services that support the Downeaster. As part of its agreement with NNEPRA, Amtrak is responsible for maintaining all train equipment and has contracted with a company to maintain, clean, inspect, and repair all train equipment related to the Downeaster service. NNEPRA staff members have a strong working relationship with Amtrak and assist the operator in its development of schedules, revenue management strategies, capital projects, and service improvement programs.

Access to Trackage. In order to access the trackage, Amtrak makes payments to the host railroads and is reimbursed by NNEPRA via the annual service fee. NNEPRA is a party to all agreements between Amtrak and the host railroads and has served as a leader in facilitating negotiations for track access within the corridor. All trackage within the Commonwealth of Massachusetts is owned by the MBTA. NNEPRA and MBTA have reached an agreement that allows Amtrak to operate service along the MBTA commuter rail segments free of charge, with two caveats: (1) NNEPRA and Amtrak can operate only 10 one-way trips per day out of the MBTA North Station, and (2) only one Downeaster train is allowed in the station at any given point in time. Currently, five trains per day are operated out of North Station.

Track Maintenance and Inspection. The host railroads are responsible for ensuring that the track is sufficient for safe operations. Pan Am Railways (freight railroad) performs all track maintenance and inspection for the portion of the corridor within the states of Maine and New Hampshire (i.e., from the northern terminus in Brunswick, Maine, to the Massachusetts–New Hampshire state line), including the last mile in Brunswick that is owned by the Maine DOT. The MBTA, at no charge to NNEPRA, handles the same tasks for its portion—running from the Massachusetts–New Hampshire state line to the Downeaster's southern terminus at MBTA's North Station.

Station Operations, Ownership, Maintenance, and Staffing. In terms of station operations, liability insurance for all rail platforms in both Maine and New Hampshire is carried by NNEPRA. The three station communities in New Hampshire reimburse NNEPRA for their share of the annual insurance premiums. Insurance coverage for the Maine stations is included as part of NNEPRA's annual budget. In terms of station maintenance, the majority of communities have formed an agreement with Amtrak that allows the operator to access the facilities and perform any long-term construction or maintenance work that is necessary to support operating passenger service in and out of the station. However, the approach used to provide day-to-day maintenance for the stations varies across the municipalities.

46 Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

Challenges and Barriers

- Access and cost-sharing negotiations with freight railroad. Disputes between NNEPRA/Amtrak and one of the three host railroads resulted in years of delay in initiating the Downeaster service. After months of negotiations, the entities could not come to an agreement on distribution of liability, maintenance, capital improvement, and administrative and future incremental costs. While the involvement of the Surface Transportation Board (STB) ultimately pushed the project forward, the reliance on a third party to resolve the majority of disputes did not set a strong precedent for a collaborative working relationship.
- Lack of a dedicated funding source for capital improvements for the Downeaster service. The reliance on federal funding results in periods of activity for NNEPRA followed by substantial bouts of inactivity during which the agency is planning future improvements and simply waiting on the next grant cycle.
- Lack of dedicated operating funding for the Downeaster, which means that the service relies on discretionary state-level funding. Given the ever-shifting priorities of, and political maneuverings that occur within, state legislatures, the continued future of the Downeaster service is never a given.
- Rural station settings that hinder "last mile" connections. Depending on the presence of local bus service and the points of interest served by the route, passengers can be forced to either take a taxi or wait on a poorly timed transfer to a community circulator bus.

Lessons Learned

- Arbitration can push projects forward. While arbitration should never be the first line of defense for a future operator, the use of a third-party mediator to resolve disputes can be effective at mitigating project inertia in the early stages of corridor development and navigating later critical impasses.
- Contentious relationships can develop into partnerships with time and mutual benefits. By providing the owner of the corridor (Pan Am Railways) with free access to the capital needed to improve its infrastructure, NNEPRA finally established the trust necessary to produce a cooperative working arrangement.
- State DOT board membership promotes coordination. The Maine Commissioner of Transportation's active involvement with NNEPRA ensures that financial planning for both existing and future NNEPRA passenger operations, as well as service planning for potential Downeaster service expansions, is not done in isolation. The working arrangement between NNEPRA and the Maine DOT for the planning of passenger rail services in Maine promotes concurrency and provides for the development of a consensus related to future capital improvements for passenger rail in the state.
- Regional services can provide innovation. The Downeaster service is notable in that it has served as a hotbed for innovation in the provision of passenger rail. Under NNEPRA's management, it has been the site of many firsts for an Amtrak service, including the rollout of the first on-board Wi-Fi system, point-of-sale cash register system, and on-board café not directly operated by Amtrak.

Correspondence to the Conceptual Framework

Table 10 shows how this case study fits into the conceptual framework.

3.5.2 Pacific Northwest High-Speed Rail Corridor

Background

The Pacific Northwest High-Speed Rail Corridor (PNWRC) is one of five originally proposed high-speed passenger rail corridors designated by the U.S. DOT in 1992. The high-speed rail

Table 10. How Downeaster efforts address focus issues from the conceptual framework (planning, design and construction, and operations and maintenance phases).

Focus Issue	Downeaster (Planning, Design and Construction, and Operations and Maintenance Phases)
Stakeholders	NNEPRA, Maine DOT, Amtrak, Pan Am Railways, MBTA.
Institutional Relationships	NNEPRA established by 1995 Passenger Rail Service Act by the Maine Legislature; agreements between NNEPRA, Amtrak, and Pan Am Railways also govern relationships.
Identification of Responsibilities	NNEPRA to initiate, establish regularly scheduled passenger rail service between points within Maine and other states.
Role of Regulatory Agencies	FRA provides oversight of grant funding and reviews environmental documentation. STB served as third-party arbitrator between host railroad and Amtrak.
Political Foundation	Political and legislative support established through passage of 1991 and 1995 Passenger Rail Service Acts.
Why? (Compelling Need)	Need for increased economic development, improved freight service resulting from publicly funded right-of-way improvements within the operating corridor, and enhanced connections both within Maine and the New England region. Downeaster is reinstatement of passenger rail service that was provided between Boston and Portland for over a century, but was discontinued from the mid-1960s to 2001.
Corridor Ownership	Segments of the Downeaster's alignment are owned by the Maine DOT, MBTA, and Pan Am Railways.
Lead Agencies/Groups	NNEPRA is the lead agency for passenger rail service.
Legal Authority	1995 Passenger Rail Service Act.
Cost Sharing	Amtrak and the Maine DOT share costs for three-state operation of passenger rail service in the corridor. To provide operation subsidies for service, the Maine DOT provides funding through its State Transportation Aviation and Rail account.
Funding Sources	Ticket revenue, the Maine DOT, Amtrak, and FRA.
Interaction with Others	NNEPRA interacts with Amtrak, host railroads, MBTA, and local communities.
Operating Standards	Set by NNEPRA and Amtrak.
Safety Standards	Set by NNEPRA and Amtrak.
Oversight	Oversight provided by Maine's Legislative Council and Maine Commissioner of Transportation.
Relationship with Host Railroad or Other Providers of Service	NNEPRA had contentious relationship initially with Pan Am Railways, requiring STB arbitration to allow for passenger rail services on its tracks; relationship improved following joint infrastructure improvement project.
Impact of PRIIA Section 209	In response to changes made by Section 209, Maine committed to provide $8 million in operational funding and allow the service to use state's debt service over the course of 25 years up to $31.5 million.

(continued on next page)

Table 10. (Continued).

Focus Issue	Downeaster (Planning, Design and Construction, and Operations and Maintenance Phases)
Marketing and Customer Service	NNEPRA employs two staff members to direct marketing efforts for the Downeaster.
Service Standards	Set by NNEPRA and Amtrak.
Revenue Sharing	Revenues from ticket sales, advertising, and food sales support operational costs of service; any further subsidies are provided by the Maine DOT.
Branding	NNEPRA marketing manages branding.
Liability Issues	For station operations, liability insurance for all rail platforms in both Maine and New Hampshire is carried by NNEPRA.
Procurement	NNEPRA is empowered to contract for professional services and other third-party services such as food service on the Downeaster.
Contractual Arrangements	NNEPRA has service arrangement with Amtrak to provide passenger rail service.

program consists of a series of projects to increase service reliability in the Cascades Rail Corridor, with a goal to expand and improve Washington's Amtrak Cascades service between Eugene, Oregon, and Vancouver, British Columbia. Of the 467 total miles, 300 miles are in the state of Washington, 134 miles are in Oregon, and 33 miles are in British Columbia (see Figure 7).

Nature of the Partnership

Functional partnerships have played a critical role in the successful operation of passenger rail service between Eugene, Oregon, and Vancouver, British Columbia. Partnerships including public and private entities, railroads, train manufacturers, and international customs and border control agencies have occurred through continuous collaboration and regularly updated service agreements. Key participants in the corridor include Washington State DOT, Oregon DOT, British Columbia Ministry of Transportation and Infrastructure (BCMoTI), FRA, Amtrak, Talgo (Original Equipment Manufacturer), and rail line owners such as Union Pacific Railroad (UPRR) and BNSF Railway (BNSF). Although passenger service is provided almost seamlessly across three jurisdictions, the service has been managed separately by Washington State DOT and Oregon DOT. As a result, separate service agreements currently exist between Amtrak and the two states. Similarly, separate maintenance agreements also exist with Talgo.

Traditionally, as service has been managed separately, so have planning efforts, albeit with coordination among the government entities with a role in passenger rail. Washington State DOT submitted a Tier 1 Environmental Assessment (EA) to the FRA evaluating any potential impacts of the proposed railway improvement program on the Washington state segment, stretching about 300 miles on the BNSF north-south mainline from the Columbia River to the Canadian border. For the 125-mile segment in Oregon serving Portland and Eugene-Springfield, (also known as the Oregon Passenger Rail Project), Oregon DOT and FRA are now studying alternatives and preparing a Tier 1 EIS under NEPA. The region has also used state rail plans as a mechanism for coordination. The state rail plans provide a blueprint for meeting the current and future needs of passenger and freight rail in Oregon and Washington.

Figure 7. PNWRC.

Washington State DOT and Oregon DOT have committed to the concept of operating the Cascades service as a single corridor by signing an MOU. Following the MOU, a Cascades Rail Corridor Management Workplan was developed and signed by the two states in January 2013. The work plan provided an initial framework for how the two agencies would jointly manage intercity passenger rail service in the corridor and is currently being updated. Objectives for the single corridor operation include delivering consistently on customer expectations for fast, reliable, safe, and affordable higher speed rail; building revenue to cover the cost of operations; growing ridership to and from economic centers; providing a competitive transportation option; pooling resources for increased efficiencies; reducing costs; and ensuring partners share in revenues and costs.

In order to effectively define roles and responsibilities in the development of the single corridor, a Cascades Rail Corridor team has been created with participation from the three major governmental entities—Washington, Oregon, and British Columbia. Overall management responsibility for corridor services, however, is wholly sponsored by Oregon and Washington, and the two states jointly coordinate management- and service-related issues through a regular monthly corridor meeting. Further collaboration has taken place through the formation of the

Washington State Rail Caucus, involving representation from the state legislature to discuss issues and policy solutions such as the forthcoming station stops policy. Oregon is considering following suit, and, in the future, it is envisioned that a joint rail caucus will be formed with representation from both states.

Challenges and Barriers

- Responding to changes from PRIIA Section 209 and creating a financially self-sustaining passenger rail service in the Cascades Corridor post PRIIA implementation has been challenging. Previously, Washington State DOT and Oregon DOT jointly funded 80 percent of the Amtrak Cascades service's operating costs not covered by ticket revenue. Under the provisions of PRIIA, Washington State DOT and Oregon DOT must absorb the additional 20 percent of operating costs that had previously been paid by Amtrak.
- Although the rail service is wholly sponsored by Washington State DOT and Oregon DOT, there is a desire to bring British Columbia on as an active funding partner in the future. Cross-country border service provides additional complexities with respect to customs, security, and operations.

Lessons Learned

- The MOU and work plan as well as application of good program management skills have helped implement the vision, and the established communication platforms and procedures have played a key role in developing joint resolution when issues have arisen.
- Budget appropriations for the states and the federal government are not currently aligned, which complicates operational planning.
- Understanding the important role of railroads and of the underlying infrastructure owner can help to facilitate balancing of freight and passenger rail to meet service needs.
- An incremental approach to corridor improvements has worked well and kept the corridor team committed to achieving long-term goals while also demonstrating visible improvements and benefits to passengers, as shown through the increase in ridership over the years.

Correspondence to the Conceptual Framework

Table 11 shows how the Pacific Northwest high-speed rail efforts fit into the conceptual framework.

3.5.3 South Central High-Speed Rail Corridor

Background

In 2000, the South Central High-Speed Rail Corridor (SCHSRC) was officially designated as a feasible corridor for high-speed passenger rail under the Transportation Equity Act for the 21st Century (TEA-21). The SCHSRC is a nearly 900-mile network in Oklahoma, Arkansas, and Texas. This high-speed rail corridor would connect the cities of Tulsa and Oklahoma City in Oklahoma; Dallas/Fort Worth, Austin, and San Antonio in Texas; and Little Rock, Arkansas. The most studied portion of the SCHSRC is a 322-mile segment that currently comprises Amtrak's Heartland Flyer route between Oklahoma City, Oklahoma, and Fort Worth, Texas (see Figure 8). This portion of the corridor has been analyzed by the Kansas DOT, Oklahoma DOT, and Texas DOT in various arrangements and in different studies. The Texas DOT in partnership with the Oklahoma DOT is conducting the Texas-Oklahoma Passenger Rail Study (TOPRS) to further assess the needs and costs associated with increased and enhanced passenger rail service in this corridor.

Currently, Amtrak operates intercity passenger rail service in the SCHSRC via the Heartland Flyer (discussed above) and Texas Eagle routes. The Texas Eagle route provides service 3 days a

Table 11. How Pacific Northwest high-speed rail efforts address focus issues from the conceptual framework (planning and operations and maintenance phases).

Focus Issue	Washington State DOT/Oregon DOT MOU (Planning Phase)	Cascades Rail Corridor Management Workplan (Planning and Operations and Maintenance Phases)
Stakeholders	Washington State DOT, Oregon DOT.	Washington State DOT, Oregon DOT, BNSF, UPRR, Amtrak, Sound Transit, and Province of British Columbia.
Institutional Relationships	Established through MOU.	Established through Workplan.
Identification of Responsibilities	States agreed to jointly fund and oversee the improvement and expansion of passenger rail service in the PNWRC and develop a Corridor Management Plan to detail funding, planning, equipment, performance measurement, and other key issues.	Workplan defines how Oregon DOT and Washington State DOT will work together as joint managers of service on the corridor, along with milestones and an interim dispute-resolution procedure; outlines activities that will be explored collaboratively versus those that will be coordinated on but managed separately for 5-year period.
Role of Regulatory Agencies		Workplan acknowledges FRA's role in oversight of freight and passenger rail service.
Why? (Compelling Need)	Washington State DOT and Oregon DOT recognized need to establish agreement to govern development of their joint 5-year Workplan.	While the region had been able to advance some planning of corridor improvements, Washington State DOT and Oregon DOT recognized the need for a more structured partnership to establish joint funding and oversight responsibilities to move toward implementation of improvements, particularly in light of substantial ridership growth.
Decision-Making Process		The Workplan includes procedures such as dispute resolution and calls for highly structured meetings and correspondence to address any negotiations-, operations-, or service-related issues; also outlines clear organizational chart.
Corridor Ownership	BNSF and UPRR.	BNSF and UPRR.
Lead Agencies/Groups	Oregon DOT and Washington State DOT are joint leads.	Oregon DOT and Washington State DOT are joint leads.
Legal Authority	The Revised Code of Washington and the Oregon Revised Statute provided each state legal authority to enter an MOU.	
Cost Sharing	MOU called for creation of Corridor Director position to be funded 80% by Washington State DOT and 20% by Oregon DOT.	Partners agreed to continue executing separate agreements with Amtrak for operation of the Cascades route; cost shares are allocated based on estimated total route train miles traveled within the Oregon DOT and Washington State DOT service areas.

(continued on next page)

Table 11. (Continued).

Focus Issue	Washington State DOT/Oregon DOT MOU (Planning Phase)	Cascades Rail Corridor Management Workplan (Planning and Operations and Maintenance Phases)
Funding Sources	Funds from each partner state.	Funds from each partner state.
Interaction with Others	Partner agencies agreed in the MOU to work with host railroads, ports, transit agencies, and local governments in development of the Corridor Management Plan.	Communications Group plans and executes public information programs; Agreement Group responsible for negotiating and executing agreements.
Oversight	Oversight for the Corridor Management Plan development to be provided by Oregon DOT and Washington State DOT.	Washington State DOT/Oregon DOT Staff Leadership Team consisting of managers from Oregon DOT's Rail Division and Washington State DOT's Rail Office.
Relationship with Host Railroad or Other Providers of Service	BNSF and UPRR are recognized in the MOU.	BNSF and UPRR were important partners in development of the Corridor Management Plan; separate service agreements currently exist between Amtrak and the two states; similarly, separate maintenance agreements also exist with Talgo.
Impact of PRIIA Section 209	Major impetus for formalizing relationship.	Increased operating costs for Washington State DOT and Oregon DOT but also allows for stronger, more active role in management of service to control costs and increase revenue.
Marketing and Customer Service		Workplan assigns responsibility to interagency Communications Group.
Service Standards		Workplan does not explicitly address service standards but does establish functional working group responsible for data analysis and reporting.
Revenue Sharing		To be developed in the Corridor Management Plan.
Branding		Workplan does not explicitly address branding but could fall under purview of Communications Group if changes are explored.
Liability Issues	The MOU establishes that both partners will indemnify and hold harmless each other from any and all claims, suits, and liabilities which may occur in the collective effort.	
Procurement	Not explicitly addressed in MOU.	
Contractual Arrangements	MOU served as contract between the two states for development of Workplan (MOU expired on September 30, 2013).	Workplan serves as agreement governing corridor activities through 2017.

Blank cells indicate no correspondence with the focus issue.

Figure 8. Heartland Flyer route.

week from Chicago, Illinois, through Missouri, Arkansas, Texas, New Mexico, and Arizona, with its terminus in Los Angeles, California. The full route is approximately 1,305 miles in length. The Texas Eagle operates on rails owned by the Canadian National, Union Pacific, and BNSF railroads.

Nature of the Partnership

The major participants in the development of the SCHSRC include the Oklahoma DOT, Texas DOT, the Arkansas State Highway and Transportation Department, FRA, Amtrak, and the freight railroads currently operating in the region. Currently, there is no singular coordinated effort to analyze the entire SCHSRC as a cohesive high-speed rail passenger network integrated across Oklahoma, Texas, and Arkansas. Various portions of the SCHSRC have been studied or are presently under some level of evaluation for enhanced passenger rail alternatives.

Different segments that make up the SCHSRC have been under consideration or studied since the 1980s. The TOPRS, initiated in 2013, is the most recent study. Because much of the study area is within Texas and Texas supplied the matching funds, it was agreed that the Texas DOT would lead the TOPRS and manage consultant contracts with the Oklahoma DOT as a partnering agency. A map of the TOPRS study area is shown in Figure 9. The TOPRS will develop multiple alignments and service alternatives for each of the three sections of the 850-mile study area and then compare all alternatives to a no-build scenario. This information will inform the development of a Service-Level EIS Statement.

Supplementing the analysis underway in the TOPRS, a Corridor Investment Plan is under development for the portion of the SCHSRC alignment between Oklahoma City and Tulsa. A Tier 1 EA was completed in 2009 for this corridor. In 2010, the Oklahoma DOT received $2.4 million from FRA to complete the environmental process. Technical teams working for both the TOPRS and the Oklahoma City-Tulsa corridor study are coordinating their efforts to seek ways to integrate both planned services in the Oklahoma City area.

Challenges and Barriers

- Lack of cooperation by the host railroad in Arkansas has led to delays in work and increases in project cost for the Arkansas portion of the project.

54 Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

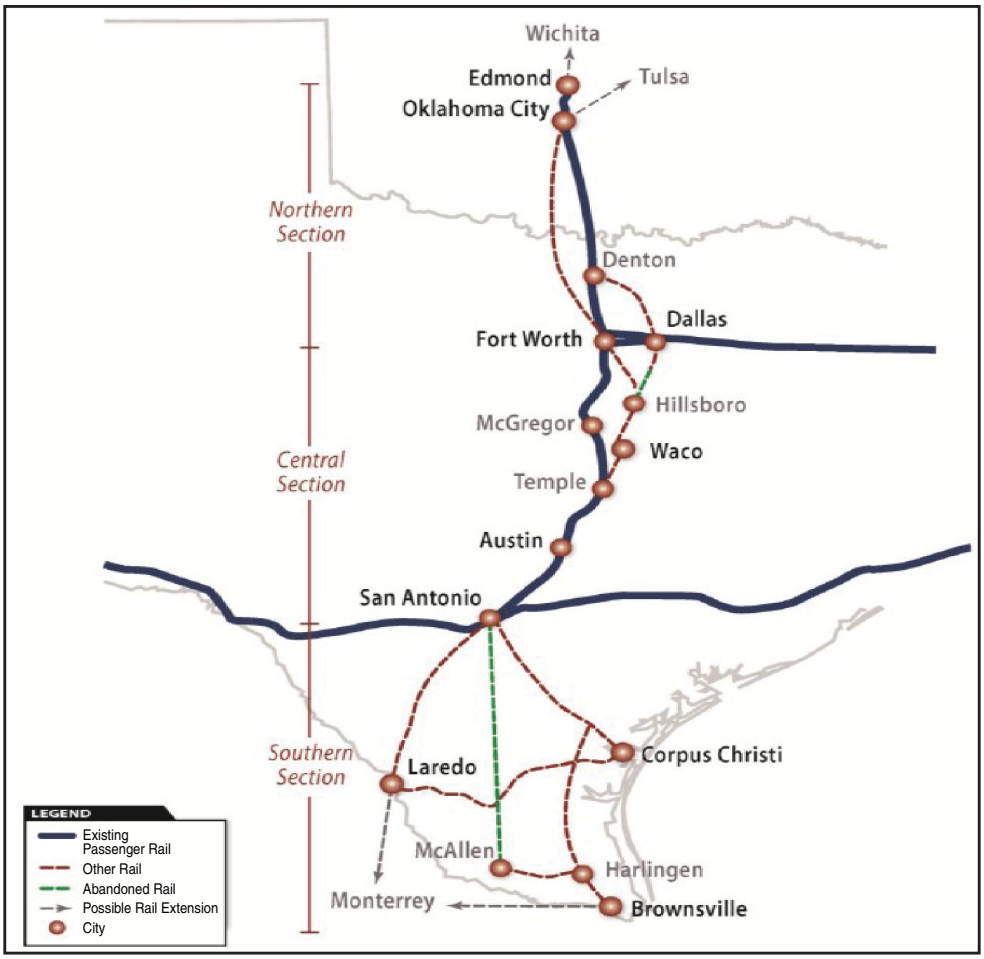


Figure 9. TOPRS study area.

- Garnering support for the project from public and elected officials has been challenging because many view the project as unrealistic due to its high capital costs.
- There is currently no political or business community champion for SCHSRC project development to offer direction and/or lobby for the project at the state, federal, or local levels (a result of the difficulty in attracting the support of public and elected officials).
- There is a need to identify stable, long-term capital and operating funding sources for implementation of higher speed passenger rail service.
- States appropriate funds on different cycles, making coordination of investments especially challenging.

Lessons Learned

- Absent a common vision and set of objectives as well as single coordinating body, individual segments of the overall SCHSRC have advanced in a fragmented and uneven manner.
- As seen in Arkansas, lack of a strong working relationship with the host railroad can impede progress in planning and analysis. Well-established relationships in Texas and Oklahoma have allowed for greater progress in project visioning and planning.

Correspondence to the Conceptual Framework

Table 12 shows how the SCHSRC efforts fit into the conceptual framework.

Table 12. How SCHSRC efforts address focus issues from the conceptual framework (visioning and planning phases).

Focus Issue	SCHSRC (Visioning and Planning Phases)
Stakeholders	Texas DOT, Oklahoma DOT; Arkansas not included in formal agreement but Arkansas State Highway and Transportation Department (AHTD) has recently initiated independent efforts.
Institutional Relationships	Established through agreement between Texas and Oklahoma to develop an SDP across state boundary lines.
Identification of Responsibilities	• Texas DOT: Project management and oversight, provide regular monthly updates and draft reports to Oklahoma DOT. • Oklahoma DOT: review of draft reports, provision of data. • AHTD conducting independent study.
Role of Regulatory Agencies	FRA review and approval of SDP and EIS analysis (not specified in TX/OK agreement).
Corridor Ownership	It is assumed at this early stage that BNSF and UPRR will maintain ownership of corridor for any planned projects.
Lead Agencies/Groups	State of Texas established as lead for study.
Legal Authority	• State of Texas: State Transportation Code §91.036 (authority to conduct rail planning studies); Texas Transportation Commission Minute Order Number 1125123 (authorized Texas to enter into agreements necessary to use FRA funds for corridor study). • State of Oklahoma: Title 66 OS §304 (authority to conduct rail planning studies); Title 69 OS §317 (authority to enter cooperative agreements with adjoining states).
Cost Sharing	Costs borne by states in reasonable proportion to the segment located in each state.
Funding Sources	• Texas DOT: FRA grant and Texas state funds, all public meetings and materials (in coordination with Oklahoma DOT for Oklahoma meetings). • Oklahoma DOT: in-kind services and data for portion of project in Oklahoma as outlined in attachment to agreement.
Oversight	FRA lead federal agency for NEPA.
Relationship with Host Railroad or Other Providers of Service	Within the Texas/Oklahoma portion of the SCHSRC, a strong working relationship exists with the host railroad; the weak relationship in Arkansas is slowing planning progress.
Liability Issues	Agreement establishes each state as subject to the provisions of their respective Government Tort Claims Acts and liable for any issues arising as a result of their respective employees, agents, or contractors.
Procurement	State of Texas secured consultant, as per agreement.
Contractual Arrangements	Legal agreement serves as a contract between the two states for study, effective as long as the project is utilizing a transportation development tool for benefit of the states; can only be terminated upon written mutual consent of both states.

3.5.4 Southeast High Speed Rail Corridor

Background

The Southeast High Speed Rail (SEHSR) Corridor links Washington, D.C., to Richmond and Petersburg in Virginia and to Raleigh and Charlotte in North Carolina. The enhanced rail connection would provide maximum speeds of 110 mph as part of a plan to extend high-speed rail service on the NEC between Boston and Washington to points in the Southeast. As shown in Figure 10, extensions have since been added to the SEHSR Corridor, including a segment linking Richmond with Hampton Roads in Virginia. An additional extension is also envisioned from Charlotte to Atlanta, by way of Spartanburg and Greenville, South Carolina, with onward connections to Macon and Savannah, Georgia, and ending in Jacksonville, Florida. A third extension would continue from Raleigh to Columbia, South Carolina, and then on to Savannah and Jacksonville.

The 500-mile segment from Washington, D.C., to Charlotte, North Carolina, is the most advanced, having been the subject of cooperative work between respective state agencies in Virginia and North Carolina. Both states collaborated on a Tier 1 EIS for this section of the SEHSR Corridor. Further work on this section is being approached in segments. As shown in Figure 11, the two states together are completing a Tier 2 EIS on the bi-state segment from Richmond to Raleigh. Virginia is leading the work to advance the Washington, D.C., to Richmond and Richmond to Hampton Roads segments, and North Carolina is advancing work on the Raleigh to Charlotte segment. Although the responsibilities for developing portions of the Washington,

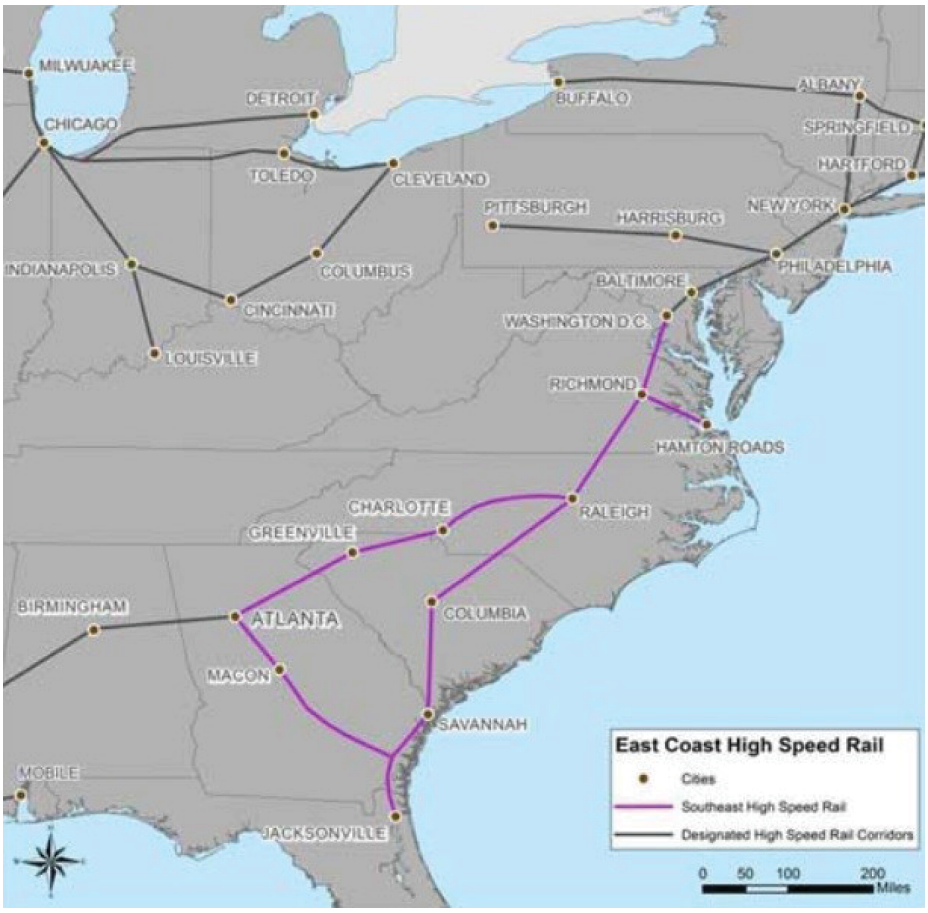


Figure 10. East coast high-speed rail network.

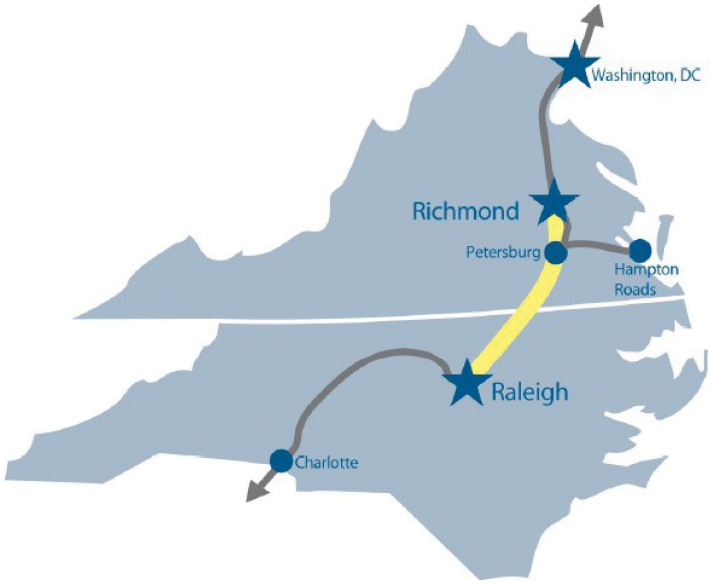


Figure 11. Richmond to Raleigh bi-state segment of the SEHSR network.

D.C., to Charlotte corridor have been assigned according to the work that falls within a particular state, there are important operational aspects of the proposed service that apply to all of the segments and that thus require close coordination for the implementation of the SEHSR Corridor within each state's borders.

The impetus for establishing a formal compact between the states came from key legislators and executive branch staff in Virginia and North Carolina who understood that having lawmakers from both states in leadership positions would enhance the ability of a compact to raise funds and show strong state-level legislative support in the event that federal funds were pursued. The bi-state Compact was authorized by Congress under Section 410 of Title 49, which grants consent for the two states to finance and develop the corridor project. The primary result of the legislation was the creation of the Virginia-North Carolina High-Speed Rail Compact Commission, which was "established as a regional instrumentality and a common agency of each signatory party" (North Carolina General Statutes).

As stated directly in Chapter 136, Article 18, Section 221 of the State of North Carolina statutes, the Compact Commission is charged with carrying out the following four functions:

1. Study, develop, and promote a plan for the design, construction, financing, and operation of interstate high-speed rail service through and between points in the Commonwealth of Virginia and the State of North Carolina, and adjacent states.
2. Coordinate efforts to establish high-speed rail service at the federal, state, and local governmental levels.
3. Advocate for federal funding to support the establishment of high-speed interstate rail service within and through Virginia and North Carolina and to receive federal funds made available for rail development.
4. Provide funding and resources to the Virginia-North Carolina High-Speed Rail Compact Commission from funds that are, or may become, available and are appropriated for that purpose.

The Commission consists of 10 members and each of the two states has equal representation with five seats. The body is headed by a chair, which serves a 1-year term and is selected by a

majority vote of the Commission. In order to promote equity between the states, the chair position is alternately held by each state.

While the states are equally represented on the Commission, the manner in which each state appoints its members varies. In Virginia, three members from the House of Delegates are appointed to the Commission by the Speaker of the House of Delegates, and two members from the Senate are appointed by the Senate Committee on Rules. In North Carolina, two members from the Senate are appointed to the Commission by the General Assembly, with recommendation from the President Pro Tempore of the Senate; two members from the House of Representatives are appointed by the General Assembly, with recommendation from the Speaker of the House of Representatives; and the fifth seat is directly appointed by the governor. Although both states appoint two members from their Senate and two from their House of Representatives, the fifth Commission member from North Carolina is not legally required to hold a public office while the fifth member from Virginia must come from the House of Delegates. Aside from the difference in origins, the key difference between the two states' representation models is the level of confirmation required to finalize an appointment. All Virginia seats simply require a nomination to be appointed, whereas four out of the five North Carolina seats are appointed but require confirmation from the General Assembly to be finalized.

The Compact allows for the Commission to make use of primary staff from both the Virginia Department of Rail and Public Transportation (DRPT) and the North Carolina DOT. To facilitate an information exchange between the states, the Commission is required to meet at least twice per year. In order to strengthen participation from both states and avoid geographic bias, the Commission must hold, at a minimum, one meeting in each state in any given year. As a means to inform those outside the Commission of its progress, the group is mandated to issue at least one report each year summarizing the body's activities. Despite being required to convene on a semi-annual basis, the Commission was inactive from its establishment in 2004 until 2010. During that time, members were appointed, but the Compact Commission itself did not convene. The Compact Commission has held regular meetings since 2010, but to date these have been informational in nature, with staff from DRPT, the North Carolina DOT Rail Division, Amtrak, and other organizations making presentations on different aspects of the planning and construction work underway in the SEHSR Corridor. The Compact Commission has yet to make policy decisions on actual implementation activities.

The SEHSR Corridor has been under consideration or study for 22 years. The visioning process intensified in 1994 when the DOTs from Virginia, North Carolina, South Carolina, Georgia, and Florida entered into an MOU to fund a study of the market potential of high-speed rail in the region. The intent of the study was to inform future planning and investment decisions that might lead to the provision of high-speed rail service in the Southeast. This initial study was administered by the North Carolina DOT on behalf of all of its partners. South Carolina and Virginia agreed to provide $50,000 in funding each, while Georgia and North Carolina provided $60,000. Florida contributed services in kind. When the scope of the project was extended to include a connection to Hampton Roads at the request of Virginia, the MOU was modified to have Virginia provide an additional $45,000 to support the work that continued to be administered by the North Carolina DOT.

The planning process for the SEHSR Corridor began in 1998 when DRPT, the North Carolina DOT Rail Division, FHWA, and FRA signed an MOU to develop environmental documentation for the SEHSR Corridor in Virginia and North Carolina. This MOU established cost-sharing parameters and guided the two states' collaboration from 1999 through 2002.

Delays in gaining environmental clearance for the bi-state segment of the SEHSR Corridor were caused in part by the ARRA high-speed rail program, which required that states compete for funding and caused both North Carolina and Virginia each to submit proposals for their

own state. This was further exacerbated by Section 209 of the PRIIA, which removed federal subsidies for intercity Amtrak services of fewer than 750 miles. This change meant that both North Carolina and Virginia needed to identify funding to pay for the operating costs and capital charges associated with existing Amtrak services in the two states; each state negotiated separate agreements with Amtrak.

As they have advanced the SEHSR Corridor over the past decade, DRPT and the North Carolina DOT Rail Division have developed a close working relationship. This has occurred as they have worked together on the Tier 1 and Tier 2 EIS documents and as they have advanced improvements within their own geographic boundaries along the SEHSR Corridor as cooperating partners. Recognizing the need to coordinate, particularly on challenging issues such as cost sharing, senior staff members from DRPT and the North Carolina DOT Rail Division have held regular "summits."

Challenges and Barriers

- Balancing the priorities of Virginia and North Carolina. Train service between Richmond and Washington, D.C., is at capacity currently and new slots can only be created by new investment in this section of the alignment. Virginia and Washington, D.C., are competing for these slots as access would expand Amtrak services to Washington, D.C., and points north for both of their states. However, neither state is well-positioned to fund the improvements. North Carolina is investing in the North Carolina portion of its service, and, from a state-oriented perspective, Virginia has seemingly little to gain from investing in a section of the alignment that builds capacity for trains from south of its border.
- Coordinating with host railroads. CSX owns and operates the rail corridor between Washington, D.C., and Selma, North Carolina, and decides whether Virginia and North Carolina are granted new train slots. The granting of new train slots can only be expected to happen if the states help to fund capacity improvements on CSX's tracks. In addition, CSX currently owns the abandoned S-line that Virginia and North Carolina plan to purchase together. Southwest of Selma, the railroad is owned by the North Carolina Railroad (NCRR); all of the stock of NCRR is owned by the state of North Carolina. Norfolk Southern operates on the line with the permission of the owner.
- Significant financial risk. As a megaproject supporting 13 new train services, with a current cost in excess of $4.0 billion, the SEHSR Corridor represents a significant financial risk. Initial financial forecasts indicate that the project should generate adequate revenues to cover operating costs, with little excess revenue beyond that. However, there is a risk that these forecasts could be overly optimistic and that the project may not be able to recover its operating costs.

Lessons Learned

- Establish agreement principles early on and stick to them. It is also essential to envision what the end product will be. Doing so forced Virginia and North Carolina to agree on the outcome of their joint effort. Once that occurred, they were able to identify the many steps needed to arrive at the end vision.
- Obtaining cooperation from the underlying infrastructure owners/railroads is essential, as they largely control the nature and extent of improvements on their infrastructure and the ultimate ability of the states to achieve their vision for passenger rail.
- State compacts can be useful instruments in institutionalizing a shared vision and working relationships, but they must have "teeth" if they are to play a role in defining and requiring implementation of the vision.

Correspondence to the Conceptual Framework

Table 13 shows how the SEHSR Corridor efforts fit into the conceptual framework.

Table 13. How SEHSR Corridor efforts address focus issues from the conceptual framework (visioning and planning phases).

Focus Issue	SEHSR Corridor (Visioning and Planning Phases)
Stakeholders	Commonwealth of Virginia; State of North Carolina.
Institutional Relationships	Established through bi-state compact between Commonwealth of Virginia and State of North Carolina.
Identification of Responsibilities	Virginia and North Carolina agree to study, develop, and promote a plan to design construct, finance, and operate a high-speed rail service through points in Virginia and North Carolina; the partners will advocate for federal funding and coordinate efforts to establish high-speed passenger rail service in the SEHSR Corridor.
Role of Regulatory Agencies	FRA review and approval of SDP and EIS analysis.
Political Foundation	Key legislators and executive branch leadership in both Virginia and North Carolina enacted the bi-state High-Speed Rail Compact to show the high level of support in each state.
Why? (Compelling Need)	Development of SEHSR would connect major cities in the Southeast United States as well as link with the highly utilized NEC at Washington, D.C.
Decision-Making Process	The Virginia-North Carolina Interstate High-Speed Rail Compact Commission is composed of 10 members, 5 from each state, and uses a simple majority of votes to make decisions; for the EIS, North Carolina DOT makes all decisions in close coordination with Virginia DRPT.
Corridor Ownership	CSX Transportation owns the right-of-way north of Selma and in the "shared" portion of the NC-VA segment of the SEHSR Corridor.
Lead Agencies/Groups	Commonwealth of Virginia; State of North Carolina (North Carolina DOT is official project sponsor for Tier II EIS).
Legal Authority	Authorized by U.S. Congress, interstate compacts.
Cost Sharing	Funding for the Tier II EIS was agreed upon in face-to-face meetings between DRPT and the North Carolina DOT Rail Division, with Virginia covering approximately 70% of the local match and North Carolina the remaining 30%.
Funding Sources	The Compact Commission is authorized to use for its operation and expenses funds appropriated by the legislatures of Virginia and North Carolina, or from federal sources.
Interaction with Others	The Compact Commission is to work with adjacent states such as South Carolina and Georgia to plan and develop high-speed passenger rail service.
Oversight	FRA lead federal agency for NEPA and SDP review.
Relationship with Host Railroad or Other Providers of Service	Virginia and North Carolina negotiate separate service agreements with Amtrak.
Procurement	The North Carolina DOT Rail Division and Virginia DRPT are directing study and environmental efforts and have authority to procure professional services.
Contractual Arrangements	Legal agreement serves as contract between the two states for study, effective as long as project is utilizing transportation development tool for benefit of the states.

3.5.5 Chicago-Detroit/Pontiac Corridor

Background

The Chicago-Detroit/Pontiac Corridor was one of five originally proposed high-speed passenger rail corridors designated by the U.S. DOT in 1992. It was part of a corridor defined as linking Chicago with Detroit, St. Louis, and Milwaukee.

The Chicago-Detroit/Pontiac Corridor extends from Union Station in downtown Chicago, approximately 300 miles east to a station terminal in Pontiac, Michigan. The area of analysis includes portions of Cook County in Illinois; Lake, Porter, and La Porte counties in Indiana; and Berrien, Van Buren, Cass, Kalamazoo, Calhoun, Jackson, Washtenaw, Wayne, and Oakland counties in Michigan. Amtrak currently operates the Wolverine passenger rail service along the Chicago-Detroit/Pontiac Corridor (see Figure 12). The Wolverine provides three daily round trips along the corridor and serves 16 stations. The Wolverine is the most highly utilized passenger rail route in Michigan.

Nature of the Partnership

The Chicago-Detroit/Pontiac Corridor is currently undergoing a Tier 1 EIS program that is evaluating the Amtrak Wolverine route as well as other possible route alternatives along current and former railroad alignments for the proposed high-speed rail service. Michigan, Indiana, and Illinois are the sponsors of the Chicago-Detroit/Pontiac Corridor project. The Michigan DOT is the lead state for this project, with the Indiana DOT and the Illinois DOT as major partners. The Michigan DOT will maintain a direct relationship with FRA throughout the project. Norfolk Southern participates as a member of the Project Advisory Committee. Additionally, the Michigan DOT has an agreement with Amtrak for passenger rail service along the corridor. Currently, there is no arrangement between the Illinois DOT and the Indiana DOT to participate in the Michigan DOT's service agreement with Amtrak for passenger rail services along the corridor.

Challenges and Barriers

- Executing a long-term, phased, implementation strategy. It is anticipated that the multibillion dollar project may not be realized until 2035. Due to this lengthy duration, much coordination will be needed with state DOT partners as well as host railroads operating in the corridor.
- Addressing freight rail capacity constraints between Chicago, Illinois, and Porter, Indiana, including the area known as "South of the Lake," one of the busiest freight rail corridors in the nation. The Michigan DOT is currently leading the passenger rail corridor investment planning

Figure 12. Chicago-Detroit/Pontiac passenger rail corridor.

work, but the congested South of the Lake segment is not in Michigan. Project partners must identify ways to address this challenge through a multi-state solution.

Lessons Learned

- FRA's requirements for high-speed and intercity passenger rail planning provided a critical framework and an opportunity to conduct the needed multi-state planning efforts.
- The time and effort needed for establishing agreements was greater than anticipated. For the Chicago-Detroit/Pontiac Corridor various issues relating to agreements, procurement, management, professional services, and so forth, required review from multiple agencies, slowing progress of the project. The development of multi-state agreements should take into consideration each individual state's procurement and planning processes and timelines.
- Early coordination and frequent communication were important. The project lead, the Michigan DOT, had built strong working relationships with Amtrak and other stakeholders. This helped to identify common goals and "deal breakers" for all partners in the project, avoiding major conflicts later in the project.

Correspondence to the Conceptual Framework

Table 14 shows how the Chicago-Detroit/Pontiac Corridor fits into the conceptual framework.

3.6 Case Studies from Outside of the Intercity Passenger Rail Sector

3.6.1 The Appalachian Regional Commission and the Appalachian Development Highway System

Background

During the 1950s, the Appalachian region of the eastern United States was lagging behind the rest of the nation in terms of education, income, health, and transportation infrastructure. This gap was primarily due to the presence of the Appalachian Mountains, which isolated the region from adjacent areas and commerce. Beginning in 1960, a coalition of governors from 10 states came together to lobby for federal assistance to reduce the region's isolation, while promoting economic development. In 1963, President Kennedy formed a federal-state committee called the President's Appalachian Regional Commission (PARC) and tasked the group with formulating a comprehensive plan to strengthen the region's economy.

The Appalachian Regional Development Act (ARDA), passed by Congress in 1965, created the ARC and charged its board with developing a system of rural highways throughout Appalachia that would provide internal circulation and connect to the surrounding Interstate highways. While the Appalachian region was initially defined as consisting of 10 states, 3 states (Mississippi, New York, and Ohio) were added in subsequent updates to the ARDA. Figure 13 shows the current geographical definition of Appalachia, which encompasses 205,000 square miles and includes portions of 12 states, the entire state of West Virginia, and 420 counties.

Nature of the Partnership

The decision-making body of the ARC, often referred to as simply "the Board," is composed of governors from each of the 13 states within the Appalachian region (Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, West Virginia, and Virginia), a federal co-chair who is appointed by the President and confirmed by the Senate, and a states' co-chair who is appointed by a majority vote of the governors. There

Table 14. How Chicago-Detroit/Pontiac Corridor efforts address focus issues from the conceptual framework (visioning and planning phases).

Focus Issue	Chicago-Detroit/Pontiac Corridor (Visioning and Planning Phases)
Stakeholders	Illinois, Indiana, Michigan, FRA, host railroads.
Institutional Relationships	State DOTs of Michigan, Indiana, and Illinois signed MOU for planning work and procurement of consultant services.
Identification of Responsibilities	Development of service alternatives, Tier I EIS, and SDP.
Role of Regulatory Agencies	MOU requires partnering with FRA and that parties are to cooperate to the maximum extent to ensure projects are developed in full compliance with federal and state requirements.
Political Foundation	2009 Midwest Governors' MOU was signed by the governors of each of the participating states as well as by the Mayor of the City of Chicago.
Why? (Compelling Need)	Provide improved intercity mobility by passenger rail that is competitive with auto and air travel between Chicago and Detroit.
Corridor Ownership	Portions of the corridor are owned by Canadian National, Norfolk Southern, CSX, and Amtrak.
Lead Agencies/Groups	Michigan DOT is leading the project, maintains direct relationship with FRA for project coordination.
Cost Sharing	Michigan DOT committed $400,000, Indiana DOT committed $200,000, and Illinois DOT committed $200,000 in local matching funds to match the $3.2 million FRA grant for the Passenger Rail Corridor Investment Plan.
Funding Sources	The MOU supports participants in making applications for funding from the ARRA of 2009, which made $8 billion available for the purpose of funding the Passenger Rail Investment Act of 2008.
Oversight	U.S. DOT and FRA.
Relationship with Host Railroad or Other Providers of Service	Norfolk Southern Railroad participates as a member of the Project Advisory Committee.
Contractual Arrangements	Michigan DOT has contractual arrangement with consultants to conduct planning and environmental analysis.

are only 2 votes in play: the federal co-chair has 1, and the 13 governors share the other vote, which is cast by the states' co-chair.

Thus, for all resolutions considered by the ARC Board, except for project approval, the federal government representative and a majority of the governors must approve.

In order to provide a degree of objectivity to this working arrangement, the Executive Director and the 48 staff members are not federal or state employees. The Executive Director is appointed by the ARC and serves as the chief executive, financial, and administrative officer for the ARC program. The ARC staff report to the Executive Director and are tasked with providing impartial technical and analytical support in the areas of finance, program management, administration, planning, research, and legal issues. Ultimately, it is the ARC staff members who are responsible for working with state agencies and local development districts (LDDs) to help implement the

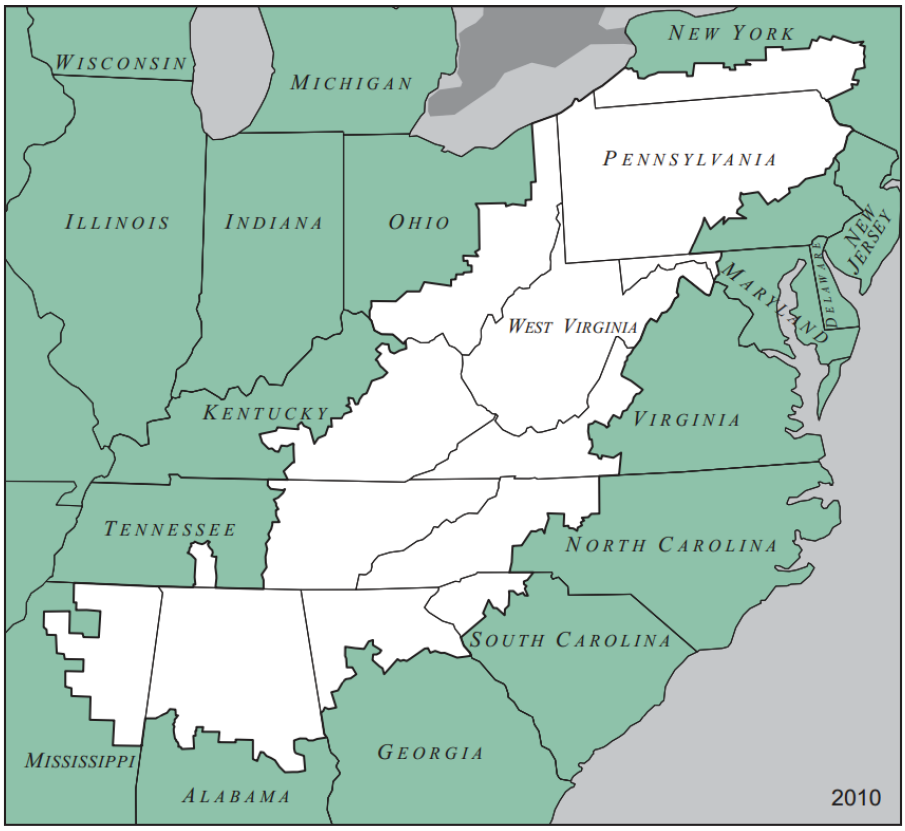


Figure 13. The Appalachian region as currently defined by ARC.

programs and policies adopted by the ARC Board. The federal and state government partners split equally the administrative costs of the program support provided by the Executive Director and staff of the ARC.

Given that the interests and priorities of the federal government, the ARC, the constituents, businesses within the partner states, and the individual Board members rarely converge and are often disjointed, consensus is reached with compromise. As an organization, ARC has very broad priorities relative to any of the individual proposals that it considers. Much of the compromise that occurs within the ARC is related to individual projects, not long-term visioning and policymaking. The compromise is usually between an individual governor and the federal co-chair who, as mentioned above, holds the authority to accept or reject a project's application for funding.

Challenges and Barriers

- The lack of prioritization for corridors has led to the development of a fragmented network, with all of the less complex and expensive segments being completed prior to the build out of the most expensive segments (e.g., bridge crossings, tunnels, etc.), which, from both an engineering and financial perspective, carry a greater share of the network's overall risk. Thus, while the network is 88 percent complete, there are still critical bottlenecks that tend to occur at either state lines or intercorridor crossings.
- MAP-21 restructured the process for funding ARC projects, shifting the funding program from a direct earmark for Appalachian Development Highway System (ADHS) projects to a

competitive opportunity pooled with other funding under the FHWA's Surface Transportation Program (STP). Despite the fact that ADHS projects no longer require a local funding match, projects must now compete with all other state roadway and transit projects for limited STP funding.
- Difficulty demonstrating a return on investment at the state level given the regional nature of ADHS corridors (e.g., benefits are distributed throughout Appalachia, not concentrated in a single area) and the fact that the remaining segments are the most expensive, any given ADHS project is likely to have a low return on investment relative to an internal project with the same cost. For ARC highway projects, each specific state in which a project is being constructed leads the project, and advocates anticipate challenges convincing state DOT officials that they should move money away from high-priority projects (i.e., bridge replacements, interstate crossings, etc.) that have been in planning for decades.
- A wide variety of potential environmental impacts continue to be a risk to completion of the ADHS as there are many federal regulations (i.e., Endangered Species Act, Section 4(f), etc.) and regulatory bodies that are more likely to apply, or become involved with, the implementation of ADHS projects. Further, public opposition surrounding these projects has been frequent, intense, and effective at delaying project delivery.

Lessons Learned

- Because the network is highly interdependent, decisions made regarding one corridor can fundamentally affect the potential universe of actions that could be taken relative to unbuilt corridors, as well as current and future operations within existing corridors. When a remaining segment is delayed and the state DOTs resort to ad hoc decision-making, the result may not be in the best interest of the overall network. The ARC Board has the power only to approve or deny the realignment of a corridor or use of new termini; there is no overarching body that has responsibility for coordinating operations along corridors that are impacted by a decision. Such uncoordinated decisions often create a suboptimal operating environment and can potentially undermine the purpose, need, and viability of the existing and planned corridors.
- Funding granted in perpetuity can be inefficient. Prior to MAP-21, funding for ADHS projects was provided through congressional earmarks. Although this mechanism contributed to extensive development of the ADHS network by limiting the use of the funds to one purpose, funding for the unbuilt segments of the network is not being used as efficiently as it could be. The granting of ADHS funds in perpetuity can result in large sums of money earmarked for a particular corridor going unused for decades instead of being put to immediate use in corridors that are ready to advance.
- The voting rules and board structure provide a system of checks and balances. The federal-state-local partnership model of ARC and its Board structure are effective at providing a network of oversight that serves to ensure the program and its funding pool are not abused.
- Independent researchers provide unbiased data supporting decision-making. One of the more unique features of the ARC's organizational structure is the presence of support staff and researchers who are neither federal nor state employees. These employees report directly to the Executive Director and are charged with producing quantitative measures and analyses that are used by the ARC Board and the co-chairs to assess the benefits and consequences of ARC's programs and proposals. That the employees are not directly governed by a party that has a particular leaning (e.g., one that is sympathetic to federal versus state interests), supports unbiased estimates of a program's value.

Correspondence to the Conceptual Framework

Table 15 shows how the ARC fits into the conceptual framework.

Table 15. How ARC efforts address focus issues from the conceptual framework (planning and design and construction phases).

Focus Issue	ARC (Planning and Design and Construction Phases)
Stakeholders	13 states of the Appalachian region (Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, West Virginia, and Virginia), federal government, local municipalities and counties, metropolitan planning organizations.
Institutional Relationships	Established through an act of the U.S. Congress.
Identification of Responsibilities	ARC and Board of Commissioners responsible for authorizing federal funds to develop a system of rural highways through Appalachia and other infrastructure and economic development projects throughout the Appalachian region.
Role of Regulatory Agencies	U.S. Office of Inspector General provides oversight to ARC; FHWA provides oversight of ADHS during and after implementation.
Political Foundation	Political support for ARC began under Presidents Kennedy and Johnson along with governors of the member states of the Appalachian region and the U.S. Congress.
Why? (Compelling Need)	Appalachian region had lagged behind the rest of the United States in terms of education, income, health, and transportation infrastructure. ARC's primary purpose was to provide a collaborative forum in which federal, state, and local government entities could work together to address the problems affecting the Appalachian region, including construction of the ADHS.
Decision-Making Process	ARC's Board of Commissioners is decision-making body, composed of governors from each of the 13 member states, a federal co-chair appointed by the President and confirmed by the Senate, and a states' co-chair appointed by a majority vote of the member governors. There are only two votes in Board decisions: federal co-chair has one vote and the 13 governors share the other vote, which is cast by the state co-chair.
Lead Agencies/Groups	ARC Board.
Legal Authority	United States Code Title 40 Subtitle IV – ARDA, 1965.
Cost Sharing	Depending on location and economic viability of specific area, differing levels of local match funding can be required for the expenditure of federal funds for ADHS projects.
Funding Sources	U.S. Congress appropriates funding for all ARC administrative costs and projects; local matching funds vary across projects.
Interaction with Others	ARC Board interacts with 73 LDDs (some are also the metropolitan planning organization), 420 counties, federal government agencies, and other agencies as needed.
Oversight	Oversight provided by U.S. Office of Inspector General.
Procurement	Authorized to enter contracts for services, leases, property, construction, etc.
Contractual Arrangements	Federal legislation is governing arrangement.

3.6.2 Washington Metropolitan Area Transit Authority

Background

WMATA, also known as Metro, provides rail (Metrorail), bus (Metrobus), and paratransit (MetroAccess) services to a 1,500-square mile area that includes the District of Columbia and surrounding jurisdictions in Maryland and Virginia. Creation of WMATA dates back to the early 1950s and 1960s when Congress mandated preparation of plans for the movement of people and goods in the District of Columbia region.

Nature of the Partnership

The breadth and depth of coordination and consensus building at the federal, state, and local levels to come to common ground on the multi-institution arrangement has yielded a highly complex governance structure for WMATA. The WMATA Compact is the defining document that details the roles, responsibilities, and powers of WMATA in conducting its mission of providing effective mass transportation to the Washington metropolitan area.

Challenges and Barriers

Funding is by far the greatest challenge facing the WMATA system. An estimated additional support of $25 million from each signatory jurisdiction has been provided as of 2015 as "seed money" while negotiations continue over the funding that is needed to implement WMATA's strategic plan (called "Momentum") and to sustain the system over the long term—an amount is estimated to be in the billions.

Lessons Learned

- Having a clear mission and vision at the outset aided representatives from all WMATA justifications to find common ground in agreeing to the multi-state WMATA Compact. WMATA's mission was clearly stated in the Compact. Finding common political ground among the various participating agencies of WMATA and recognizing the strength of regional coordination, as opposed to acting individually, played a key role in building consensus early on.
- WMATA has developed indicators to regularly assess performance to see if it meets Board-established service criteria. Establishing clear goals that are linked to specific performance measures helps in achievement of those goals and allows the WMATA partnership to continue moving forward as a region in its provision of quality transit services.
- Creating a congressionally supported multi-institutional compact is challenging but lasting. The federal-state-local partnership took over a decade to build consensus and create an agreement and legislation that all parties could sign. The WMATA Compact has proven durable over time.
- Early establishment of shared funding allocations can instill accountability and help to ensure a continued commitment by all parties to build and operate a regional system over the long haul. Consideration for how the multi-agency partnership will manage situations where one partner may have financial trouble is important, along with ensuring that resources are allocated appropriately to areas of most need when services may not be laid out the same way as costs.

Correspondence to the Conceptual Framework

Table 16 shows how WMATA fits into the conceptual framework.

Table 16. How the WMATA collaboration addresses focus issues from the conceptual framework (visioning, planning, and operations and maintenance phases).

Focus Issue	WMATA Collaboration (Visioning, Planning, and Operations and Maintenance Phases)
Stakeholders	Federal government; Commonwealth of Virginia; Northern Virginia Transportation Commission; State of Maryland; District of Columbia; Washington Suburban Transit Commission; Cities of Alexandria, Falls Church, and Fairfax and Counties of Arlington, Fairfax, and Loudon in Virginia; and Counties of Montgomery and Prince George's in Maryland.
Institutional Relationships	Established through WMATA Compact, agreed to by signatories 1965–1966.
Identification of Responsibilities	WMATA and Board of Directors empowered to establish a regional transit authority to plan, develop, finance, and operate a balanced regional system of transportation; other responsibilities cited in the Compact are to develop a regional mass transit plan, create sound financial policies to operate the system, and to develop and operate a transit police force, among many others.
Role of Regulatory Agencies	WMATA overseen by Board of Directors; representatives from the federal government report to the Government Services Administration; for financial oversight, WMATA Compact requires an annual audit by an independent third party; financial transactions of the Board are reviewed by U.S. Government Accountability Office.
Political Foundation	National Capital Transportation Act of 1960 & 1965. WMATA Compact agreed to by U.S. Congress: Public Law 86-794, 74 Stat. 1031), by Maryland (Ch. 869, Acts of General Assembly 1965), by Virginia (Ch. 2, 1966 Acts of Assembly).
Why? (Compelling Need)	The National Capital Transportation Act of 1960 and 1965 declared that a coordinated system of rail rapid transit, bus transportation service, and highways is essential in the National Capital Region for the satisfactory movement of people and goods, the alleviation of traffic congestion, economic vitality, and the effective performance of the functions of the U.S. Government.
Decision-Making Process	Various decision-making procedures are specified throughout the WMATA Compact; general actions of the Board are to be made only when a quorum is present and expressed by motion and resolution; other decision-making processes are detailed for issues such as adoption of a Mass Transit Plan, adjustments to service or fares, procurement of property or services, etc.
Corridor Ownership	Article XVI, Section 74 details WMATA's authorization related to rights-of-way; According to the Compact, the Board is authorized to locate, construct, and maintain any of its transit and related facilities in, upon, over, or across any streets, highways, freeways, bridges, and any other vehicular facilities.
Lead Agencies/Groups	WMATA Board of Directors.
Legal Authority	National Capital Transportation Act of 1960 & 1965. WMATA Compact agreed to by U.S. Congress: Public Law 86-794, 74 Stat. 1031), by Maryland (Ch. 869, Acts of General Assembly 1965), by Virginia (Ch. 2, 1966 Acts of Assembly).
Cost Sharing	Article VII enumerates financing policies for WMATA, and Section 18 details cost sharing of each of the signatory jurisdictions; the general policy states that "the payment of all costs shall be borne by the persons using or benefitting from the Authority's facilities and services and any remaining costs shall be equally shared among the federal, District of Columbia and participating local governments in the Zone."
Funding Sources	Funding sources are fares as well as financial participation from governments in the Transit Zone in Virginia, Maryland, and District of Columbia, and the federal government.

Table 16. (Continued).

Focus Issue	WMATA Collaboration (Visioning, Planning, and Operations and Maintenance Phases)
Operating Standards	Operating and service standards are the sole purview of the Board of Directors according to Article XIII, Section 61.
Oversight	Board of Directors provides oversight of WMATA; financial oversight provided by annual independent audit.
Relationship with Host Railroad or Other Providers of Service	Compact allows WMATA to contract with third-party private provider to operate transit services within the Transit Zone.
Marketing and Customer Service	WMATA manages marketing and customer service. Advertising sales managed by third party.
Revenue Sharing	The Board shall set rates and fares where resulting revenue will pay the operating expenses and provide for repairs, maintenance, and depreciation of the transit system owned or controlled by the Authority.
Branding	WMATA responsible for management of "Metro" brand and use for various modes, i.e., Metrobus, Metrorail, etc.
Liability Issues	The Board may self-insure, or purchase insurance against loss or damage to any of its properties, against liability for injury to persons or property, and against loss of revenue from any cause whatsoever.
Procurement	Procurement procedures are laid out in Article XVI, Section 73; generally all procurement of property, services, or construction must come through open competition; this section details the procurement process and does provide for exceptions to the open procurement procedures.
Contractual Arrangements	Legal agreement serves as contract between all signatories of the WMATA Transit Zone.

3.7 Key Findings

This section presents the key findings of the case studies by focus issue from the conceptual framework.

3.7.1 Stakeholders and Lead Agencies/Group

The stakeholders involved in the U.S. passenger rail cases studied generally included state DOTs, passenger and commuter rail operators, and freight railroads. The roles of federal agencies and elected officials varied. The NEC was the only corridor that presented active involvement of groups that would be classified as coalitions.

The two non-passenger rail cases involve more complex stakeholder arrangements. In the case of the ARC, the Board interacts with 73 LDDs, 420 counties, 13 states, and the federal government. WMATA has similar complexities as it must work with agencies in Virginia, Maryland, the District of Columbia, municipalities, counties, and the federal government.

State DOTs generally held lead roles in the U.S. passenger rail cases. Typically, two or more states formed partnerships related to a common passenger rail project. In these partnerships, one of the DOTs would be assigned the responsibility of leading the overall project, applying for and managing federal grant funds, procuring consultant services, and coordinating the partnering agencies. Rarely were states equal partners in the partnership. Multi-state planning and proposed

implementation of rail corridor improvements have tended to follow a pattern wherein the state benefitting most from the project takes the lead. This has proven to be an effective partnering method across the Midwest: several corridor-level projects are proceeding under this type of arrangement including the Chicago-Detroit/Pontiac Corridor. In the SCHSRC, the Texas DOT took the lead in its partnership with the Oklahoma DOT to conduct the TOPRS because a majority of the future alignment would be in Texas. The PNWRC case study presents an exception as the Washington DOT and the Oregon DOT share equal responsibility for advancing passenger rail efforts.

The example of high-speed rail service in Europe also shows how the participation of key agencies and stakeholders can evolve. Participants in the development and operation of the Brussels-Paris-London HSR Service have evolved dramatically since the three state-owned railroads (British Rail, SNCF, and SNCB) began planning in the 1980s. British Rail has been privatized and no longer exists. Pursuant to EU regulations (primarily EU Directive 91/440), both SNCF and SNCB have been reorganized into separate companies—one manages the infrastructure and provides track access, and the other operates trains.

3.7.2 Institutional Relationships and Contractual Arrangements

As shown in Table 17, nearly all of the case studies had a formal mechanism in place to define the institutional relationship among the state partners, including MOUs, agreements in principle, interstate compacts, and operating agreements. The specific mechanism generally defined the roles and responsibilities of partnering agencies, cost sharing, and liability and outlined the purpose of the project at a high level. The joint work plan was a unique mechanism employed by the Washington State DOT and the Oregon DOT for the Cascades Rail Corridor. The document outlines a 5-year framework for the states to jointly manage activities in the corridor and includes a distinct vision, goals, objectives, roles, and responsibilities. The joint work plan was preceded by an MOU that defined how the two DOTs would work together to develop the landmark document.

Voluntary partnerships were found only in the visioning and planning phases of the case studies, including NEC coalitions (CONEG and I-95 Coalition), Amtrak NEC Master Plan Working Group, NEC FUTURE, and the MWRRI Steering Committee. The NNEPRA/Downeaster case study was an exception, but it should be noted that NNEPRA was a newly created authority with a stated charge to manage operations and maintenance of a multi-state passenger rail service on behalf of other states.

As passenger rail projects examined in the case studies progressed from the visioning, planning, and design and construction phases into the operating and maintenance phase, arrangements between partnering agencies and stakeholders included greater levels of detail and specificity. In the NEC, the roles and responsibilities of the various stakeholders (State of Connecticut, MTA, NJ TRANSIT, SEPTA, and Delaware Transit Corporation [DTC]) are highly detailed. The documents define exactly what function each will perform individually (where overlapping areas of responsibility exist) and outline cost-sharing formulas or guidelines. In the case of WMATA, it took more than a decade for the congressionally supported federal-state-local partnership to build consensus and create an agreement and legislation that could be signed by the federal government, District of Columbia, State of Maryland, and Commonwealth of Virginia. However, this extensive and time-consuming effort has resulted in a compact that has proven durable and tough to break or even amend.

Interestingly, while nearly all of the corridors had formal agreements to govern passenger rail activities across state lines, many corridors lacked a centralized, coordinating body. This circumstance is cited as one of the key reasons that progress in the SCHSRC has lagged behind other regions. In the NEC, the need for this type of coordinating body was the impetus for the

Table 17. Institutional mechanisms used in intercity passenger rail case studies and an international example.

Case Study	Mechanism(s) to Define Institutional Relationship(s)
Midwest Passenger Rail	• Voluntary, No Agreement (*MWRRI Steering Committee*) • MOU (*Governor's Steering Group*) • Interstate Compact (*Midwest Interstate Passenger Rail Commission)*
Northeast Corridor	• Federal Legislation *(NEC Commission)* • Voluntary, No Agreement (*CONEG, I-95 Coalition, Amtrak Master Plan Working Group, NEC FUTURE*) • Various Operating Agreements
Northern New England Passenger Rail Authority and Amtrak Downeaster Service	• No Formal Interstate Agreement • Access and Operating Agreements (NNEPRA, Amtrak, host railroads)
Pacific Northwest High-Speed Rail Corridor	• MOU • Workplan
South Central High-Speed Rail Corridor	Legal Agreement
Southeast High Speed Rail Corridor (VA-NC Segment)	Bi-State Compact
Chicago/Detroit-Pontiac Corridor	MOU *(Governor's Steering Group)*
The ARC and the Appalachian Development Highway System	Federal Legislation
Washington Metropolitan Transit Authority	Interstate Compact
Brussels-Paris-London*	Eurostar (for-profit corporation emerging from a tri-country partnership)

*While no Brussels-Paris-London case study is included in this report, the research team includes this as an international example.

creation of the NEC Commission. Interviewees agreed that the NEC Commission has an appropriate mandate and provides an important forum and structure for facilitating decision-making and should be enabled to continue into the future. Having an entity with a professional staff that can speak with objectivity on multi-state projects is critical, as is making service goals known and applicable to the entire length of the NEC.

In the Midwest, the MIPRC and the MWRRI Steering Committee have worked closely over the years to advance passenger rail in the region and fill critical functions. Nonetheless, participants have identified a need for a single body with the ability to coordinate and fund regional, ongoing, long-term technical planning as well as to provide the political and educational functions necessary for future regional passenger rail implementation. Further, a number of issues loom on the horizon that may best be helped by a new or expanded governance entity; these issues include oversight and coordination of the Midwest's Next Generation equipment, better uniformity of Section 209 pricing, and priorities and cost sharing for major infrastructure improvements.

As previously noted, the legal mechanisms employed by the entities discussed in the case studies varied widely. Some entities relied on simple MOAs or MOUs, while others used detailed, multi-state contractual and operating agreements to establish various roles and responsibilities. Service operating agreements, required since 2008 by PRIIA, will bring a level of consistency to projects

that receive high-speed rail funds. For a comprehensive summary of legal issues related to intercity rail service, see *NCRRP Legal Research Digest 2: Railroad Legal Issues and Resources* (Thomas, 2015).

3.7.3 Corridor Ownership

In general, the corridors reviewed were owned primarily by freight railroads. The NEC was an exception in that NEC mainline tracks are owned by Amtrak, with portions also owned by the states of Massachusetts and Connecticut and the New York MTA. The unique ownership arrangement on the NEC eliminates much of the challenge related to balancing freight and passenger rail needs. However, the competition for scarce capacity on the NEC complicates efforts to reliably dispatch and operate intercity and commuter trains, particularly as Amtrak must navigate the 457-mile NEC through eight separate commuter operations. Because of the substantial capital costs and greater potential environmental impacts associated with establishing new rail rights-of-way, in all of the case studies use of the existing corridors was assumed rather than anticipating the establishment of new rights-of-way.

3.7.4 Role of Regulatory Agencies and Oversight

In most of the cases studied, particularly in the planning and environmental stages, the role of federal regulatory agencies was limited to environmental reviews and grant administration. The federal role expands to safety regulation enforcement as projects move toward operations and maintenance. Recently, FRA's requirement for SDPs and SOAs has expanded its purview to operations planning and service development. The federal roles that include the most direct oversight occur in cases where federal legislation has established specific entities, such as WMATA, ARC, and the NEC Commission.

A few of the corridors studied have formal governing boards, including the NEC Commission, ARC, and WMATA. If there was no governing board, state DOT leadership generally provided oversight. Formal oversight roles at the state level are outlined for the MIPRC (each state has oversight authority for funds allocated to the Commission), and the Cascades Rail Corridor Management Workplan (the role is filled by a Washington DOT/Oregon DOT staff leadership team consisting of managers from the Oregon DOT's Rail Division and Washington DOT's Rail Office). For NNEPRA, oversight is provided by Maine's Legislative Council and the Maine Commissioner of Transportation. One interviewee cited increased efficiency and effectiveness of the agency as an ancillary benefit of the involvement of the Maine Commissioner of Transportation because the state DOT has advocated for the corridor at the state level during critical periods of project development.

Although this report includes no case study of high-speed rail service in Europe, the Brussels-Paris-London service provides an international example of the role of regulatory agencies and oversight. Several entities provide oversight of the Brussels-Paris-London service both for infrastructure and operations across the three countries, and the EU provides some level of regulatory influence through policy directives.

3.7.5 Liability Issues

The challenge of determining how to allocate risk and liability among partners was raised in three case studies and is a significant issue in every effort to operate passenger rail operations over infrastructure owned by other entities. In the NEC, a complicated and intricate allocation of risk between owners and operators is often based on the provisions within historic agreements. Liability and indemnity obligations are two of the most contentious issues among parties operating jointly on rail lines. In the Midwest, mitigating, limiting, or eliminating risk is a goal for all parties that regularly must be addressed as corridor projects advance. And, as noted previously,

distribution of liability between Amtrak/NNEPRA and Pan Am Railways in the Boston-Portland corridor was a major sticking point in negotiations for reinstating Downeaster service and had to be mitigated with STB involvement.

At the planning and visioning phases of project development in the cases studied, agreements containing liability clauses generally made states liable for work and any incidents occurring within their respective boundaries. For example, in the bi-state MOU between Texas and Oklahoma in the SCHRSC, Article 20 deals with the limitation of liability as follows: "The States mutually agree that each is and may be held severally liable for any and all claims, demands and suits in law or equity of any nature whatsoever, paying damages or otherwise arising from any negligent performance of this Agreement" ("severally" means that the parties are only responsible for their share of the obligation). Similar general language was found in the 2009 Governor's MOU in the Midwest under which participants agreed to be responsible for all work taking place within their respective state boundaries, including management of risk and liability for any passenger rail projects. An exception to this was the liability clause in the Midwest AIP, which allows for liability issues with the project to be mutually handled by Iowa DOT and Illinois DOT. No specific incidents under which liability clauses had to be invoked were raised by interviewees.

As would be expected, the liability clauses in the operation and maintenance agreements were the most detailed and incorporated indemnity clauses for specific entities. For example, in the SEPTA and the DTC agreement, DTC agrees to indemnify, defend, and save harmless SEPTA from and against any liability, loss, or expense for any loss or damage to SEPTA's property, arising out of or related to the provision of services by SEPTA as part of the agreement, and SEPTA was extended the sovereign immunity of the state of Delaware and DTC.

3.7.6 Cost Sharing and Funding Sources

Most cost-sharing arrangements seen across the case studies were based on states contributing funding in proportion to the segment located within their state, as was seen in the Metro-North operating agreement with the Connecticut DOT and the working assumption for dividing future capital costs in the SCHSRC between Texas and Oklahoma. Similarly, in the Midwest, the MWRRI specified that at the corridor level states would generally be responsible for infrastructure within their respective states, with the exception of the Chicago Hub, where improvements would be a system responsibility.

Addressing funding-related challenges was found to be a linchpin of the coordination efforts across the case studies: the 2009 Governor's MOU in the Midwest was instituted to secure ARRA funding, a central charge of the NEC Commission is to address cost allocation across the NEC, and the impetus of the Washington State DOT's and the Oregon DOT's recent efforts to coordinate corridor management was PRIIA Section 209 changes in how state-supported services are funded. As noted previously, the rule of thumb for corridor projects in the Midwest is that states would generally be responsible for infrastructure within their respective states, with the exception of the Chicago Hub, where improvements would be a system responsibility. In situations where one state would benefit more than others on the corridor from an infrastructure improvement, determining the cost- and revenue-sharing formula was more complex. One interviewee cited the difficulty of coming to an agreement on how to approach these situations as an impediment to reaching consensus on a more formal governance structure to succeed the MWRRI effort.

Multiple case studies cited the need for a dedicated funding source at the state and, potentially, regional level for capital and operating investments. Similarly, for cases such as the SEHSR Corridor, which are still in the planning stage, it is a significant challenge to demonstrate return on investment and that the system would be self-sustaining. Responding to new cost-allocation guidelines under PRIIA Section 209 was also cited as a challenge in the case studies.

For corridors reliant on state appropriations for funding, several related issues were raised. First, it can be challenging to reconcile the differing approaches to funding projects among state partners. In the SCHSRC, for example, Texas appropriates funding for passenger rail on a biannual basis whereas the Oklahoma legislature established payments for operation of Amtrak service for several years into the future. Planning for future expansion of service or coordinated investments in capital improvements becomes especially challenging. Closely related is timing of appropriations, as noted in the PNWRC case study, where timing of budget preparations is not currently aligned among the states, Amtrak, and the federal government.

Relying on discretionary federal funding for capital improvements is also challenging. In NNEPRA's case, for instance, periods of activity are often followed by substantial bouts of inactivity during which the agency is planning future improvements and simply waiting for the next grant cycle. Interestingly, perhaps the two most successful multi-state efforts reviewed, ARC and WMATA, both benefit from dedicated annual federal appropriations, although ARC's funding was modified under MAP-21.

State contributions were generally from a variety of sources, such as general revenues, established state transportation or rail funds, vehicle regional fees, and gas tax proceeds. For an in-depth analysis of issues related to funding passenger and freight rail projects, see *NCRRP Report 1: Alternative Funding and Financing Mechanisms for Passenger and Freight Rail Projects* (CPCS et al., 2015).

3.7.7 Decision-Making Process

Many of the case studies did not outline a specific decision-making process. One common strategy, particularly for projects in the earlier stages of project development, was the designation of an agency to serve as project lead or administrator for a specific effort. The lead would then consult other states as needed in decision-making without being governed by specific procedures. This strategy was seen in the Midwest corridor-level agreements and the SCHSRC. An important function of the NEC Commission is to bring needed attention and analysis to the development and monitoring of capital programs and create a process for determining what is fair at the local/regional level and corridor wide.

The Cascades Rail Corridor Management Workplan calls for constant communications and includes dispute-resolution procedures and highly structured meetings and correspondence guidelines to address any negotiations, operations, or service-related issues. When issues have arisen, these communication platforms and procedures have played a key role in developing a joint resolution.

Cases that featured formal commissions or governing boards had documented meeting schedules and voting guidelines. Voting rules generally asserted that voting members each had one vote, with a simple majority required for decisions. The ARC case study showed a variation on this setup; the ARC's Board of Commissioners is composed of governors from each of the 13 states of the Appalachian region, a federal co-chair who is appointed by the President and confirmed by the Senate, and a states' co-chair who is appointed by a majority vote of the governors. The federal co-chair has one vote and the 13 Appalachian member states share one vote that is cast via the appointed state co-chair. ARC interviewees noted that this structure is effective at providing a network of oversight that ensures that the program and its funding pool are not abused. The federal government, through the federal co-chair, has the ultimate power of project approval. The federal co-chair can also deny the adoption of specific state documents that identify a state's needs, goals, and objectives for its ARC program if the federal co-chair does not believe the proposed plan or project addresses the goals and objectives of the ARC strategic plan. This serves as a federal check on state and local activities at both the planning and implementation level.

For operations and maintenance, the operating agreements in the NEC case study did not outline formal procedures for decision-making, but they did note that decision-making is held jointly among the agreement parties depending on the topic.

3.7.8 Political Foundation

What was clear from the case studies is that building and maintaining political support, regardless of the political party in office, is central to successful project development. The absence of a political champion for the SCHSRC, for example, has contributed to the relatively weak progression of the corridor because there is no entity to offer direction for the project, promote it, and lobby for it at the state, federal, or local level.

A recurring theme across the case studies was the risk inherent in changing political administrations at the state level. For such large-scale and long-term infrastructure projects it can be a challenge to maintain momentum and remain a priority with state elected leadership. As long-term passenger rail projects advance, shorter term political changes can shift priorities away from passenger rail development and can lead to cancellation of projects or indefinite delays. In the Midwest for example, following completion of the MWRRS, new political administrations and shifting political priorities made moving projects forward in accordance with the stated vision more difficult, especially forming and maintaining long-term multi-state agreements. As seen in Wisconsin in the period 2010–2011, several agreements that had committed the state to planning projects were rescinded and ARRA grant funds returned as a new governor took office. Similar circumstances occurred in Ohio and, to some degree, in Iowa, where new governors' legislative priorities did not include advancement of passenger rail services. One interviewee for the ARC case noted that advocating for ADHS projects at the state level has been challenging given that an ADHS project is likely to have a low return on investment relative to an internal project with the same cost due to the benefits being distributed throughout Appalachia. Several project leaders contacted for this study expressed the need to be flexible and expect change as projects evolve.

Shifting political priorities can also place passenger rail services that rely on state appropriations for operating expenses in a rather precarious position. For example, NNEPRA's executive director, as lead advocate for the Downeaster service, spends a substantial amount of time educating newly elected policymakers on the service and the value NNEPRA provides to the state and its citizens. NNEPRA's executive director must also constantly remind these decision-makers of the commitments that the organization has already made to its passengers.

3.7.9 Compelling Need

In nearly all the cases studied, an articulated need drove the use of a particular institutional model. For the AIP between the Iowa DOT and the Illinois DOT, for example, the need was to establish a rail service that conferred the following benefits: mobility options, fuel savings, cleaner air, and economic development. In some cases studied, challenges in securing funding were explicitly tied to difficulties garnering support for passenger rail efforts.

The case studies also revealed that articulating a need is a critical element for progression of intercity passenger rail efforts across state lines. In the case of the SCHSRC, for example, project participants have not been successful at articulating a compelling enough need to balance the perceived high capital costs of passenger rail investments. This situation has led many elected officials and potential key supporters to deem and ultimately dismiss the high-speed rail corridor as unrealistic and, as discussed in the preceding section, has left the project without a critical champion.

3.7.10 Relationship with Host Railroad or Other Providers of Service

All U.S. passenger rail efforts other than those on the NEC are currently utilizing, or anticipate primarily operating on, rights-of-way owned by private railroads. Thus, private railroads have a very important role in ensuring passenger rail project success, and, further, private railroads have an important role to play in the institutional model created to develop and implement projects. Failing to successfully negotiate with host railroads can severely impede project progress. In the SEHSR Corridor and Pacific Northwest Corridor case studies, for example, interviewees reported success in obtaining railroad support by demonstrating the benefit to the railroad of supporting the passenger rail effort (e.g., public support in upgrading track). For the Downeaster service, providing the Pan Am Railway with free access to the capital needed to improve its infrastructure helped NNEPRA finally establish the trust necessary to initiate a cooperative working arrangement. Pan Am Railway realized that the imposition of passenger service within its corridor could be good for business. However, subsequent disputes between NNEPRA/Amtrak and one of the three host railroads resulted in several years of delay in the implementation of passenger service from Boston to Portland.

In the Midwest case study, multiple interviewees noted that engaging the railroads to determine their goals and to identify deal breakers early in the planning stages was very useful for establishing trust and a foundation for strong communication. Well-established relationships in Texas and Oklahoma have enabled progress in project visioning and planning in the SCHSRC study. This is in direct contrast to Arkansas, where the lack of a strong working relationship with the host railroad has impeded progress in planning and analysis. Similarly, strong working relationships with regional FRA staff and Amtrak were seen as critical to the success of projects.

Rail network capacity constraints were cited as a barrier in the Northeast and Midwest. Capacity constraints in many segments of the NEC limit the ability to expand rail services or to provide for equitable balance among the various passenger services (each with a distinct operating profile, institutional model, and requirements), as well as between passenger and freight movements in general. Various overlapping jurisdictional responsibilities often exacerbate capacity constraints. For example, the rail corridor between Chicago, Illinois, and Porter, Indiana, including the area known as the South of the Lake, is one of the busiest freight rail corridors in the United States. The Michigan DOT is currently leading the passenger rail corridor investment planning work, yet this congested segment is outside of the state. Project partners must identify strategies to address this bottleneck in rail operations through a multi-state effort.

In the Southeast, both North Carolina and Virginia want more train slots in the segment of the corridor between Richmond, Virginia, and Washington D.C., but CSX owns the right-of-way and is linking the granting of new slots to the states investing in capacity improvement. In addition, CSX currently owns the abandoned S-line that Virginia and North Carolina plan to purchase together. While this segment lies within Virginia, the Commonwealth itself has relatively little to gain from investing in this section of the alignment, if viewed from a state-oriented perspective. North Carolina is currently focusing its limited funding on investments in high-speed improvements between Charlotte and Raleigh.

3.7.11 Impact of PRIIA Section 209

PRIIA required states and Amtrak to "develop and implement a single, nationwide standardized methodology for establishing and allocating the operating and capital costs among the States and Amtrak" related to trains that operate on corridors of 750 miles or less by October 2013. The intent of Section 209 of PRIIA is to ensure that Amtrak treats all states equally and to allocate to each route

a proportionate set of costs that reflect the route's relative use. The legislation effectively shifted costs previously paid by the federal government to states.

Longer term impacts of Section 209 were noted in three case studies. For NNEPRA, this change in federal policy has had the effect of doubling NNEPRA's costs related to using Amtrak's rolling stock. Maine has committed to providing $8 million in operational funding and allowing the service to use the state's debt service over the course of 25 years up to $31.5 million. This change has put NNEPRA in the difficult position of having to justify an increase in state-level subsidies in the absence of a corresponding increase in service, not an easy sell for politicians.

In the Pacific Northwest, Washington and Oregon's combined share for Amtrak's Cascades service increased from 80 percent to 100 percent of operating costs not covered by train revenues. From the perspective of the Washington DOT and the Oregon DOT, this change means that the states incur additional costs, but it also allows the states to take a stronger, more active role in management of the service to control costs and increase revenues. This change was the impetus for the states' recent effort to formalize joint management of the corridor.

3.7.12 Procurement

At the early planning stages, procurements are generally limited to consultant services. Agreements reviewed generally designated specific parties for securing consultant support. As projects progress through development, agreements begin to deal with procurement of physical assets. For example, in the AIP between Illinois and Iowa, state costs for funding equipment procurement are set to be split based on the percentage of track mileage in each state—73 percent for Illinois and 27 percent for Iowa. For Metro-North service, Connecticut and New York are jointly procuring 405 new M8 cars for operation on the New Haven Line (as well as Connecticut's Shore Line East service). The cost splits are based largely on terms specified in the service agreement. Connecticut paid approximately 65 percent of the purchase price and New York paid 35 percent. These percentages are based on each state's ridership levels. SEPTA and DTC executed a separate agreement for purchase of four Silverliner V vehicles as part of a contract option with the manufacturer in order to provide additional service to Delaware in 2007. Illinois, in cooperation with the states of California, Michigan, Missouri, Iowa, Oregon, and Washington, is leading a multi-state procurement of new diesel-electric locomotives.

3.7.13 Marketing, Customer Service, and Branding

In general, marketing, customer service, and branding were rarely discussed as significant challenges in multi-state rail planning. In the operations and maintenance phase, these areas were generally under the purview of the operator.

Unlike most other state-supported Amtrak services, NNEPRA retains responsibilities for marketing, customer service, and branding. NNEPRA has two staff positions reserved for managing the design and production of all media advertisements for the Downeaster service. It should be noted that because the service's sole source of operations funding comes through Maine, Massachusetts and New Hampshire have no decision-making power over marketing campaigns for the tri-state service. NNEPRA staff has been successful in communicating a consistent and localized message that is distinct from nationwide Amtrak advertising. Given the Downeaster service's lack of dedicated funding, the promotional efforts are important; they allow the service to reach new markets, thereby expanding its potential ridership base and increasing its revenue potential.

The Downeaster service relies on four methods to solicit customer feedback: on-board personnel, station attendants, the Amtrak support hotline, and the Downeaster service online customer comment form. NNEPRA coordinates with Amtrak to receive customer comments,

and NNEPRA's Manager of Passenger Services is charged with handling concerns internally (without Amtrak's involvement) to the extent possible.

3.7.14 Coalitions

The role of coalitions in passenger rail development also was not discussed by many of those interviewed. The NEC case study presented examples of coalitions, the I-95 Corridor Coalition and CONEG, which provide a forum to address multi-jurisdictional issues. The I-95 Corridor Coalition is a partnership of transportation agencies and related organizations located mainly in the 16 states traversed by I-95, along with affiliated members in adjacent Canadian provinces. The group has broadened its focus from just highways to examine other multi-jurisdictional transportation issues. Examples of I-95 Corridor Coalition projects involving the NEC include the Northeast Rail Operations Study (NEROps) and Mid-Atlantic Rail Operations Study (MAROps), which identified and analyzed the key bottlenecks and capacity issues in the rail corridors of the I-95 Corridor Coalition states. The study objective was to develop short-term rail investment programs to eliminate key rail bottlenecks for each region.

CONEG is a non-partisan association of governors from seven northeastern states that was formed in 1976 to address a broad range of issues of regional importance. In addition to transportation, CONEG programs, policies, and initiatives address regional issues in energy, environment, and economic development. CONEG's passenger rail vision includes enacting policies and making investments for safety and network development, improving the current regional network's capacity and reliability, and supporting continued federal funding for infrastructure projects. CONEG played a key role in advocating for the electrification of the NEC in the 1990s and in development and funding of the Acela high-speed rail program.

3.7.15 Safety Standards

Safety is not only a critical element of any passenger rail program, it is also a major concern for intercity passenger rail service. Most interviewees assumed that safety standards were a "given" in terms of both track and vehicles simply because any service would have to satisfy national safety regulations.

A European example shows the importance of having a comprehensive safety training program. A severe breakdown in service on the Brussels-Paris-London high-speed rail line in December 2009 called into question the consistency of training for personnel involved in this cross-border operation. An investigation of the incident found that a primary cause of the breakdown was uneven training in safety, maintenance, and emergency procedures. The failings were attributed to the "complex tri-national joint venture behind the train operator's structure in which personnel from country partners were contributed for Eurostar operations." In September 2010, the partners completed a restructuring of Eurostar as a stand-alone corporation which brought all employees under Eurostar International Limited Inc., the new stand-alone company. This examination of operation of high-speed rail service on the Brussels-Paris-London network demonstrates the importance of consistent safety, emergency procedures, and other training programs. Comprehensive and consistent safety and training programs should be a priority in the collaborative deliberations of partners in planning the operation of multi-state rail passenger services.

3.7.16 Other Characteristics Raised

Several characteristics emerged from the case studies that were not explicitly captured in the conceptual framework.

Prioritizing Investments

Prioritizing investments is a key underlying objective for NEC FUTURE. Establishing a long-term vision for the NEC alone will not ensure a coordinated implementation approach that nets the greatest benefit from federal and state investments. NEC FUTURE includes the development of integrated phasing plans that prioritize the growth of the NEC and ensure regional equity in the growth of commuter and intercity passenger rail services while ensuring that freight rail can continue to grow as well. The phasing plan will be handed off to the NEC Commission for further development and implementation. Prioritizing investments was also raised as an issue in the ARC case study with respect to the ADHS. The ARC fell short by failing to provide any sort of prioritization of the corridors and segments, leading to the development of an incomplete network, with all of the less complex and less expensive segments completed prior to the build out of the most expensive segments (e.g., bridge crossings, tunnels, etc.) that, from both engineering and financial perspectives, carry a greater share of the network's overall risk. Thus, while the network is substantially complete, there are still critical bottlenecks that tend to occur at either state lines or intercorridor crossings.

Navigating Environmental Impacts

While impacts to natural resources are not uncommon when implementing large-scale transportation projects, the wide variety of resource conflicts impacting the ADHS network was notable. The region is quite mountainous; contains many rivers and tributaries; and is home to several national parks, which serve as habitats for a number of endangered species. Thus, many federal laws, regulations (i.e., the Endangered Species Act, Section 4(f), etc.), and regulatory bodies have been part of the decision-making process. Public opposition to these projects because of environmental concerns has been frequent, intense, and effective at delaying project delivery.

"Last Mile" Connections

The rural setting in which many of the Downeaster service stations are situated makes the establishment and provision of connecting transportation services difficult. Although the MBTA North Station interfaces with the MBTA subway system and its commuter rail lines, passengers arriving to other stations along the corridor are generally not afforded such a wide variety of options. Some of the municipalities provide circulator bus service to the Downeaster service stations, but others do not. Depending on the presence of local bus service and the points of interest served by the routes, passengers are often forced to either take a taxi or wait on a poorly timed transfer to a community circulator bus.

International Coordination

Although the Pacific Northwest rail service is wholly sponsored by the Washington State DOT and the Oregon DOT, there is a desire to include British Columbia as an active funding partner in the future. Cross-country border service provides additional complexities with respect to customs, security, and operations. The experience of the Brussels-Paris-London high-speed rail line, as well as experience of other international high-speed rail programs, can provide useful lessons and precedents in these unique cases.

CHAPTER 4

Decision-Making Models for Intercity Passenger Rail

4.1 Introduction

An important theme that emerged from this research, and one that is not surprising, is that no single governance model has proven to be particularly effective for advancing passenger rail. However, the following models have proven successful in addressing one or more of the elements of an effective passenger rail program as represented in the conceptual framework:

- Coordinated state efforts
- Coalition/partnership
- Single state agency contracting with or on behalf of other states
- Public-private partnership
- Multi-state commission
- Multi-state special authority
- Federal-state commission
- Freight railroads

Table 18 summarizes these models, which are described in more detail in this chapter. Table 18 provides a definition of each model and examples of where the model has been applied. In addition, the table notes the applicable phases of development for each model as the individual models might be appropriate for consideration in different phases.

It should be noted that while this chapter presents each model as a stand-alone option, a multi-state passenger rail program is likely to employ a combination of these models depending on such factors as the phase of development and the legal authority of the state partners. A given corridor or project might progress through various governance models over its lifetime. In addition, Amtrak provides passenger rail service on many multi-state routes across the country under individual contracts with states. Such service was originally provided pursuant to Section 403(b) of the RPSA and is now provided under Section 209 of the PRIIA. Examples include the Vermonter, which operates off the NEC to Connecticut, Massachusetts, and Vermont and the Carolinian, which operates off the NEC to Virginia and North Carolina. Under PRIIA, any losses associated with the operation of a train are paid by the states. However, in this example, the states are not acting together, but rather contracting individually with Amtrak. The research team's analysis focuses on rail operations planned and/or implemented jointly by one or more states with an understanding that Amtrak is currently and will likely remain for some time the common denominator for the planning and operation of multi-state service in many corridors.

4.2 Coordinated State Efforts

In this model, two or more states agree to coordinate passenger rail efforts within their respective states. This model emerged from the PNWRC and the SCHSRC case studies. It is most effective

Table 18. Recommended decision-making models for multi-state intercity passenger rail.

Model	Definition	Phase of Development	Examples
Coordinated State Efforts	Where two or more states agree to coordinate passenger rail efforts within their respective states.	• Visioning • Planning	• Pacific Northwest Rail Corridor • SCHSRC
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	• Midwest High-Speed Rail Steering Group • I-95 Coalition • Coalition of Northeastern Governors • Midwest Regional Rail Initiative Steering Committee • Amtrak NEC Infrastructure Master Plan Working Group
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 • NNEPRA • Operating agreements in the NEC
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 • Indianapolis-Chicago Hoosier State Service
Multi-State Commission	Where two or more states coordinate multi-state interests through a formal agreement that establishes a governing commission body.	• Planning • Preliminary Design	• SEHSR Project: VA-NC • Midwest Interstate Passenger Rail Commission
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	• WMATA • Port Authority of New York and New Jersey
Federal-State Commission	Where a body of federal, state, and, sometimes, local leaders organize to address a critical need.	• Planning	• ARC • NEC Infrastructure Operations and Advisory Commission
Freight Railroads	Where freight railroads lead delivery of passenger rail services.	• Design • Construction • Operations and Maintenance	• No current examples

during the visioning and planning stages of project development. Often, one of the states is selected to lead grant applications or accepts other lead agency roles where necessary.

4.2.1 Mechanism for Implementation

The coordination between state partners may occur without establishing any formal agreement or mechanism. In some instances, however, states may find it advantageous to utilize some form of a multi-state agreement.

In the case of the PNWRC, for example, an MOU and, subsequently, a joint work plan was formed between the Washington State DOT and the Oregon DOT to provide a framework for how the agencies were to jointly manage intercity passenger rail service in the corridor with each responsible for the portion within their state boundaries. The MOU defined the parameters for establishing the work plan. The work plan defined the vision, goals, and objectives of the Cascades Rail Corridor and how the Oregon DOT and the Washington State DOT would work together, as well as milestones and an interim dispute-resolution procedure.

In the SCHSRC, Texas and Oklahoma established a legal agreement for conducting the ongoing TOPRS. The agreement designates Texas as the lead agency for the study and defines roles and responsibilities for both states, including Texas funding the cost of the study and Oklahoma providing in-kind services and data.

For the PNWRC and the SCHSRC, relationships between the state DOTs already existed through the operation of current Amtrak service. The existence of these relationships made the initiation of efforts to improve passenger rail in these corridors simpler. Within the SCHSRC, several studies over the last 10 years have been conducted by both Texas and Oklahoma (as well as by the Kansas DOT and Missouri DOT). Texas and Oklahoma also both financially support the operation of Amtrak's Heartland Flyer. These previous study efforts have made the adoption of the MOU for the TOPRS much simpler to develop and enact. The states of Washington and Oregon had already invested substantial money in infrastructure and equipment prior to their recent MOU and joint work plan. Further, the Washington State DOT and Oregon DOT have used development of their state rail plans to share knowledge and coordinate passenger and freight rail efforts in their states. Other states may want to follow this example.

4.2.2 Powers and Responsibilities

State partners operate within the authority granted by their respective states, and no new powers are explicitly granted under this model. The range of responsibilities is quite varied and flexible, and the model is most appropriate for application during the visioning and planning phases of project development. It can be used as an early catalyst for moving toward seamless and connected service within a single, multi-state corridor.

4.2.3 Governance Structure

This model does not require creation of a formal governance structure. However, oversight is usually provided by senior leadership from the respective state entities with lead roles in the project. In the SCHSRC, the agreement identifies Texas as having responsibility for oversight of the project with monthly updates and comment opportunities provided to Oklahoma.

4.2.4 Advantages

- This model can easily build upon existing efforts within states without requiring special actions to begin coordination.
- It does not require new legislation.
- Coordinated state efforts can work well for advocacy and knowledge sharing.

4.2.5 Disadvantages

- This model can make it difficult to ensure that state efforts proceed according to the same timeline.
- The model is generally limited to planning and policy issues.
- The model depends on continued commitment to the service by the states.
- Coordinated state efforts may not be as helpful in gaining commitments and engagement from state and federal decision-makers as other models with binding agreements in place.

4.3 Coalition/Partnership

This model provides a forum for multi-state partners to convene on a voluntary basis to carry out activities of common interest. The work of the coalition/partnership may also be carried out in coordination with a non-profit corporation that is often tax-exempt and eligible to

receive government funds and private contributions. Examples of this model, found in the NEC and Midwest case studies, were the I-95 Coalition, CONEG, the Amtrak Northeast Corridor Infrastructure Master Plan Working Group, the Midwest High-Speed Rail Steering Group, and the MWRRI Steering Committee. The coalition/partnership model differs in that coordinated multi-state action can be accomplished with agreements or other means of establishing lines of communication and authority for specific tasks. The coalition model assumes that the partners collaborate on a shared goal, but does not assume any formal relationship.

4.3.1 Mechanism of Implementation

A coalition can be established without any formal agreement or mechanism, but, in limited instances, may use a multi-state agreement. The Midwest High-Speed Rail Steering Group established an MOU to define each state's role in and responsibility for the implementation of high-speed and passenger rail services. The MOU demonstrated gubernatorial support for implementation of the passenger rail vision and committed the state partners to coordinating projects for a federal funding application.

4.3.2 Powers and Responsibilities

As the coalition/partnership may not create a formal entity, it generally does not have any powers. The responsibilities of a coalition/partnership generally encompass convening appropriate stakeholders to outline a vision, goals, and objectives and, potentially, oversee funded studies and research. The entity may be convened for a common purpose as was the case for the MWRRI Steering Committee. The MWRRI Steering Committee, which included key staff from each state agency engaged in the study and Amtrak, was responsible for directing early feasibility studies and leading planning coordination. The members of the coalition/partnership may agree to pool resources to support studies and other activities.

A coalition/partnership may also establish or closely coordinate with an existing non-profit entity that is organized as a distinct corporation, often with tax-exempt status and eligibility to directly receive certain government grants and tax-deductible contributions from the private sector. CONEG, for example, conducts program activities through the CONEG Policy Research Center, Inc., a non-profit organization that functions as the staffing arm for CONEG. It should be noted that CONEG also has other programs in addition to transportation, which have helped to keep the institution going over time.

4.3.3 Governance Structure

Decision-making for the coalition/partnership is based on a consensus of member agency representatives. Leadership may be selected on a rotating basis. As this model is recommended for visioning and early planning activities, it is recommended that the governance structure be kept relatively informal. The I-95 Coalition and CONEG provide examples of more formal structures for governance that should be considered if the scope of the organization includes expanding beyond visioning and early planning.

4.3.4 Advantages

- This model can work well for advocacy, knowledge sharing, and development of an overall vision with stakeholder buy-in.
- It is relatively easy to start, which means the coalition/partnership model might be a catalyst for a model with broader functions.

- A coalition/partnership model is highly flexible, making it easy to engage a large and diverse range of stakeholders, including local entities that may not otherwise be represented in decision-making bodies.

4.3.5 Disadvantages

- The coalition/partnership model is generally limited to planning and policy issues for which consensus can be reached.
- The model has no mechanism for settling disagreements or negotiating serious funding issues.
- If a coalition/partnership is created without formal agreement, there is less accountability and potentially less effectiveness due to lack of participation by some parties.
- This model does not include power to ensure that plans or policies are enacted and depends on continued commitment to the service by the states.
- The effectiveness of this model may be limited by a lack of a long-term funding, even in the limited sphere of policy and planning.
- This model may not be as helpful as models with binding agreements in place in gaining commitments and engagement from state and federal decision-makers.

4.4 Single State Agency Contracting with or on Behalf of Other States

This governance model features an existing or newly created entity within a single state that addresses multi-state interests, primarily through contractual arrangements with other states. This model is recommended for application during implementation of passenger rail efforts, including design, construction, and operations and maintenance phases. Examples of this model are found in the Chicago-Detroit/Pontiac Corridor and NNEPRA case studies, and various operating agreements in the NEC. In practice, the state that hosts the lead agency generally is the state that stands to benefit most from implementation of the project.

4.4.1 Mechanism of Implementation

This model may not require a direct 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. For example, NNEPRA, located in the State of Maine, manages Amtrak's Downeaster service between Boston, Massachusetts, and Brunswick, Maine, via New Hampshire. NNEPRA does not have any formal agreements in place with Massachusetts or New Hampshire, but has a series of cooperative agreements with Amtrak and the owners of the railroad right-of-way, which in most cases are Class I railroads, for the service.

However, depending on the nature and complexity of the activities to be undertaken, an agreement among the states may be needed and is recommended. Operating agreements in place throughout the NEC outline roles and responsibilities and address such areas as risk, liability, and cost and revenue sharing for intercity services. As an example, the commuter rail operating agreement between Metro-North Railroad and Connecticut covers service and operation, maintenance, allocation and payment of operating deficits, classification and acquisition of capital assets, allocation and payment of capital costs, service finances and the budget process, asset ownership and management, labor, productivity reviews, arbitration, claims, duration of the agreement, and other miscellaneous terms and conditions.

In the case of NNEPRA's operations, it should be noted that aside from ticket revenues, Maine is the only state that provides funding to support the development and operation of the

passenger rail service. To date, there has not been a prescribed need for an operations agreement among the state partners. However, NNEPRA and MBTA are currently developing an agreement for the MBTA Track Improvement Program, which entails capital improvements to track within Massachusetts. The MBTA provided the 20 percent local match for the FRA grant that will fund the project. The match was to be provided in the form of sections of track within the project area that have previously been constructed by MBTA's contractor. NNEPRA is the federal grantee and is serving as the primary administrator/manager for the project and will manage the construction of the remaining track improvements. The agreement will ensure that MBTA constructs the project as specified in the FRA grant.

4.4.2 Powers and Responsibilities

Powers can vary 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.

4.4.3 Governance Structure

Like powers, governance structure can vary 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. Formal oversight of NNEPRA, for example, is provided by the State of Maine's Legislative Council and Maine Commissioner of Transportation.

4.4.4 Advantages

- As demonstrated by the case studies, this model works particularly 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 the needs of the business side of the operation.
- This model might be especially beneficial in cases where there is one state that has a greater interest than the others.

4.4.5 Disadvantages

- This model is not appropriate for visioning or planning because it can be difficult to foster a collective vision or overarching planning for a multi-state regional network within its context.
- 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 one state that has responsibility for contracting, which could affect the actual model.
- This model requires that a state be able to spend money and/or use state assets in another state.
- 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.
- It can be difficult to identify a lead state when it is not clear which state stands to benefit more than the others.

4.5 Public-Private Partnership

FHWA's Office of Innovative Program Delivery defines public-private partnerships as "contractual agreements formed between a public agency and a private sector entity that allow for greater private-sector participation in the delivery and financing of transportation projects" (https://www.fhwa.dot.gov/ipd/p3/defined, accessed February 23, 2015). Under this model, a private entity can develop infrastructure and/or operate services on a for-profit, limited-liability basis in agreement with a public entity. The nature of the agreements can take various forms, including but not limited to a public-private partnership that includes the building of new infrastructure and operation of service under a single umbrella and one that allows for private operations on state-sponsored infrastructure. The private entity may be an existing company or a newly formed corporation managed by a consortium that includes for-profit investors. The private entity may be a recipient of a franchise or concession from a government to allow it to operate under certain constraints. Such models have been used successfully around the world for all types of infrastructure projects.

This model was not reviewed as part of the case studies, but did emerge as a recommended alternative to for-profit corporations. Efforts such as XpressWest demonstrate the value of for-profit corporations, but the limited success of the effort may indicate need for more of a partnership with public-sector entities rather than sole leadership by private entities. While the following are single state models, ongoing projects such as the California High-Speed Rail Project that will connect Los Angeles and San Francisco, the All Aboard Florida project connecting Miami and Orlando, and the Texas Central Railway between Dallas and Houston demonstrate a growing shift toward the use of public-private partnerships in passenger rail.

Public-private partnerships are generally recommended for project implementation (design, construction, and operations and maintenance).

4.5.1 Mechanism for Implementation

PRIIA implemented a number of provisions that provide federal authorization for, and perhaps ultimately encourage incorporation of, public-private partnerships for passenger rail. Important sections included Section 217, which allows state partners on state-supported routes to engage alternate providers, and Section 301, which authorizes competitive federal grants to assist in "financing the capital costs of facilities, infrastructure, and equipment necessary to provide or improve intercity passenger rail transportation" (PRIIA § 301[a], 49 U.S.C. § 24402[a][1]). These public-private partnerships have seen limited application in U.S. intercity passenger rail projects to date.

Notably, the State of Indiana wanted to enter into a public-private partnership agreement for the existing, Amtrak state-supported, Indianapolis-Chicago Hoosier State service. The Indiana DOT's intent was to find a contractor that "could overcome constant delays, run trains at more convenient times, provide amenities such as Wi-Fi, attract more riders and operate the train more cost effectively than Amtrak" (Vizza, 2014). Indiana selected Corridor Capitol as the vendor for the Indianapolis-Chicago Hoosier State service in June 2014, but contract negotiations subsequently fell apart amidst coordination issues between Corridor Capital and Amtrak as well as mounting uncertainty that Corridor Capital would be able to mobilize services by the agreed upon start date of February 1, 2015. The Indiana DOT worked with Amtrak to continue service to April 2015. The Washington State DOT and Oregon DOT have also collaborated on a Request for Information from passenger service vendors to explore additional cost and service efficiency improvements to the Cascades Intercity Passenger Rail Service.

Section 502 of PRIIA established a public-private partnership opportunity for high-speed rail development. In December 2008, FRA solicited proposals to finance, design, construct, operate,

and maintain a high-speed intercity passenger rail system within one of 11 specified corridors. FRA deemed 8 of the 100 expressions of interest substantive and credible. The momentum for this effort was lost, however, when the February 2009 ARRA (Public Law 111-5) was passed and included $8 billion for high-speed and intercity passenger rail programs, with no requirements for private-sector participation or non-federal matching funds.

Participating states must also have enabling public-private partnership legislation in place. At the time of this writing, FHWA's Office of Innovative Program Delivery reported that 33 states and the District of Columbia had such legislation (http://www.fhwa.dot.gov/ipd/p3/state_legislation/, accessed February 23, 2015).

4.5.2 Powers and Responsibilities

Public-private partnerships are distinguished from traditional government contracting in that the private sector is more integrated into project development and implementation. Further, this model is distinguished from full privatization as follows:

- Risk, sometimes including financial risk, is allocated between the private- and public-sector entities.
- At its core, the model is a partnership between the two parties.
- There is usually no irrevocable transfer of assets.
- Policy, service levels, and rates are set by the public sector as opposed to the public-sector role being limited to regulatory authority.
- 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.

4.5.3 Governance Structure

The public-private partnership governance structure is often defined by the agreement or contract signed by the concessionaire and the public agency. This agreement spells out funding responsibilities and financial requirements. In addition, the agreement identifies the performance and service requirements that must be met by the concessionaire, such as level of service, vehicle condition, and other services provided to the customer. Depending on the number of years granted to the concessionaire, the agreement will also define intermediate steps that must be taken to make sure that assets retain a state of good repair. The turn back requirements for the asset at the end of the concession are also stipulated. This form of governance is a much more robust structure than that found in other models.

4.5.4 Advantages

- In public-private partnerships, financial incentives are available for action and cost-effective investment decisions.
- In some cases, public-private partnerships can facilitate design, construction, and operations of a corridor.
- Public-private partnerships can help finance the delivery of projects or services through various debt and equity mechanisms.
- Sharing risks between government and private entities can—if done correctly—make it more palatable for both entities to "take the leap" in building a project with great benefits for society.
- This model may provide advantages in terms of speed, quality, or cost.

- This model permits flexible implementation structures.
- This model can convert upfront public-sector capital investment into a stream of payments over the project life.

4.5.5 Disadvantages

- In public-private partnerships it can be difficult to foster a collective vision or overarching planning for a multi-state regional network.
- This model can be very autonomous; public agencies generally are needed to lead efforts and promote public goals when a subsidy is required.
- Dividing the ownership or operations of multiple lines within a network among different firms has the potential to impose new challenges in ensuring that the system works as a cohesive whole.
- Public-private partnerships can be difficult to establish within existing legal constraints.
- Competition can lead to fragmentation of services and elimination of network efficiencies and economies of scale, which increase costs (Amtrak, March 11, 2011).
- This model can also trigger safety, maintenance, and customer service issues that may take time to resolve and increase public-sector cost (Amtrak, March 11, 2011).
- Because this model is market driven, it could be weak in poor markets unless subsidized.
- Amtrak's financial advantages, in terms of its ability to accept liability for accidents occurring in passenger rail service within statutory limits as well as its statutory right of access over freight rail lines, may be difficult for other operators to overcome. It will be particularly challenging to implement the public-private partnership model in corridors where Amtrak does not currently operate.

4.6 Multi-State Commission

Under a multi-state commission, two or more states coordinate the interests of multiple states through a formal agreement that establishes a governing commission body. The case studies that illustrate this model are the SEHSR project (Virginia to North Carolina) and the Midwest Interstate Passenger Rail Commission. This model is generally most appropriate for planning and, potentially, early design activities.

4.6.1 Mechanism for Implementation

While multi-state commissions do not include a direct role for the federal government, they will likely require some form of federal legislation. In both case studies where this model was applied, an interstate compact was established, which requires approval through federal legislation. Virginia and North Carolina enacted legislation establishing the Virginia-North Carolina Interstate High-Speed Rail Compact in order to oversee implementation of the SEHSR Corridor within their borders. The MIPRC was enacted to promote both current improvements and long-range plans for intercity passenger rail service in the Midwest, coordinate interaction among Midwestern state officials and between the public and private sector at all levels (federal, state, and local), and support current state efforts being conducted through state DOTs. Each of these compacts created a multi-state commission that would carry out stated provisions.

4.6.2 Powers and Responsibilities

A multi-state commission can have a range of powers and responsibilities as defined in the enabling legislation.

4.6.3 Governance Structure

The governing body is the commission, which has representation from the state partners. The commission 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, as is the case with the MIPRC.

4.6.4 Advantages

- A multi-state commission can be an effective model for multi-state planning and development of an overarching vision.
- This model provides the capability to address challenging policy issues such as cost sharing.
- This model will be viewed as having some standing as a federally created institution.
- This model requires enactment of legislation in each state legislature, which helps to promote broad support for the effort across the state.

4.6.5 Disadvantages

- Some federal intervention is likely to be required to establish a multi-state commission; although depending on 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.

4.7 Multi-State Special Authority

A multi-state special authority is an independent entity, often a distinct governmental body, which delivers a limited number of public services within defined boundaries across state lines and can exercise a broad range of typical governmental powers. A multi-state special authority is distinct from a single state agency contracting with, or on behalf of other states, in that the multi-state special authority is expressly established as a partnership between two states that provides services across state lines.

An example of a special authority from the case studies is WMATA. Other examples include the Louisville and Southern Indiana Bridges Authority (and Bi-State Management Team), the Port Authority of New York and New Jersey, the Transbay Joint Powers Authority, and the California High-Speed Rail Authority.

This model is most appropriate for project implementation (construction and operations and maintenance).

4.7.1 Mechanism of Implementation

Establishing a multi-state special authority generally will require an interstate compact that involves identical legislation in each participating state as well as approval through federal legislation.

4.7.2 Powers and Responsibilities

A multi-state special authority follows limits set in the interstate compact and, potentially, corresponding state legislation. Generally, multi-state special authorities have the ability to raise

and collect revenues in order to conduct the mission for which they have been tasked. Some can also exercise specified fiscal powers, such as issuance of bonds, imposition of special taxes, levying benefit assessments, and charging service fees such as fares and tolls.

WMATA, for example, has been responsible from its creation for the planning, construction, and operation of rail and bus transit services in the WMATA Transit Zone. WMATA also has the ability to raise relatively consistent streams of revenue along with their authorization to borrow and issue bonds to aid in financing long-term capital projects, for example.

4.7.3 Governance Structure

Special authorities are often governed by a board of directors appointed by or consisting of elected officials.

4.7.4 Advantages

- The purpose of a multi-state special authority is clearly defined in whatever form is used to establish the entity.
- 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 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. No one wants to lend money to a coalition.
- 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 (California High-Speed Rail Authority).

4.7.5 Disadvantages

- Multi-state special authorities are often difficult to implement as they generally require an interstate compact.
- It can be challenging to expand the functions of the authority or amend compacts.
- The difficulty in amending or refining compacts is due to the requisite action by the federal government, agreed to by the Congress and the President.

4.8 Federal-State Commission

A federal-state commission is a body of federal and state (and sometimes local) leaders organized to address a critical need, which often includes the distribution of federal funds among multiple states or coordination of multi-state investments. Examples from the case studies include the ARC and the NEC Commission. This model is most effective for project planning and, potentially, early design activities.

4.8.1 Mechanism for Implementation

Federal-state commissions are generally authorized through federal legislation that can take various forms. Examples include the ARDA, which authorized the ARC, and PRIIA, which authorized the NEC Commission.

4.8.2 Powers and Responsibilities

A federal-state commission can have a multitude of powers and responsibilities. It can often be empowered to issue funds in the form of grants to participating states.

The ARC is a regional economic development agency whose primary purpose is to provide a collaborative forum in which federal, state, and local government entities could work together to address the problems affecting the primarily rural areas linked by the Appalachian Mountains. The largest ARC program is the planning and construction of the ADHS, a network of highways and access roads to generate economic development in previously isolated areas of Appalachia and to supplement the Interstate system. The ADHS functions like the Interstate highway system in that each state has designated miles within a corridor and the FHWA provides federal oversight during and after implementation. ARC provides funding for construction of the unbuilt ADHS segments only and apportions funding to each state based on each state's share of the remaining cost to complete the ADHS network.

The NEC Commission is tasked with facilitating cooperation and planning among NEC stakeholders for intercity, passenger, and freight rail. The NEC Commission has extensive responsibilities involving setting corridor-wide policy goals and making recommendations that encompass passenger rail mobility, intermodal connections to highways and airports, energy consumption, air quality improvements, and local and regional economic development of the entire Northeast region. The NEC Commission is required to create a statement of goals concerning the future of NEC rail infrastructure and operations; develop recommendations for short-term and long-term capital investment needs for the NEC; and develop and implement a standardized formula for determining and allocating costs across states. Actions of the NEC Commission are not binding on its members, although the NEC Commission has the authority to take members before the STB for resolution of disputes.

4.8.3 Governance Structure

A federal-state commission is a governing body 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.

ARC, for example, is composed of governors from each of the 13 states within the Appalachian region (Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, West Virginia, and Virginia), a federal co-chair who is appointed by the President and confirmed by the Senate, and a states' co-chair who is appointed by a majority vote of the governors. There are only two votes in play—the federal co-chair has one, and the 13 governors share the other, which is cast by the states' co-chair. Thus, for all resolutions except for project approval, considered by the ARC Board, the federal government representative and the majority of the governors must approve.

The NEC Commission has 18 voting members. Each of the eight states along the NEC main line (Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, and Maryland) as well as the District of Columbia has one voting member appointed by its governor (this member is typically drawn from the state DOT). In addition, there are five voting members representing the U.S. DOT and four voting members representing Amtrak. Four freight railroads, states connecting to the NEC, and commuter rail operators who are not directly represented by a Commission member also sit on the NEC Commission as non-voting members. The Chairman of the NEC Commission is elected by the members. Certain actions of the NEC Commission require a majority vote, with formal recommendations to Congress requiring a two-thirds majority. Of note, the states that participate in the NEC Commission represent 50 percent of its membership, and a unanimous vote from the states

along with one member from Amtrak or the U.S. DOT could result in an affirmative action of the NEC Commission.

4.8.4 Advantages

- A federal-state commission can be effective for multi-state 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.

4.8.5 Disadvantages

- A federal-state commission can be viewed as a model that 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.

4.9 Freight Railroads

Under this model, freight railroads lead planning, design, construction, and operations and maintenance of an intercity passenger rail line. Passenger and freight services were owned and operated by single entities until changes in federal laws in the 1970s and 1980s ultimately moved passenger operations under the newly established Amtrak. PRIIA reestablishes the freight railroads' authority to operate passenger rail service and sets the stage for this new model to be considered.

This model might be most effective in the project implementation phases, although freight railroads might be considered partners in the planning stages as well. The degree to which freight railroads assume full control, in which case service is privatized, versus partnering with a government entity, as under the P3 model, should also be considered in applying this model.

4.9.1 Mechanism for Implementation

Two sections of PRIIA provide the foundation for freight railroads to be a model for delivering intercity passenger rail services across state lines. As noted in Section 4.5 of this report, Section 217 of PRIIA authorized states to select "an entity other than Amtrak to provide services required for the operation of an intercity passenger train route" (PRIIA § 217, 49 U.S.C. § 24702). Section 214 directed FRA to establish an Alternate Passenger Rail Service Pilot Program, under which "a rail carrier or rail carriers that own infrastructure over which Amtrak operates a[n] [intercity] passenger rail service route" may "petition the Administration to be considered as a passenger rail service provider over that route in lieu of Amtrak" and secure the ability to utilize Amtrak equipment and other assets (PRIIA § 214[a], 49 U.S.C. § 24711[a][1]).

The pilot program was to be limited to two routes with contract durations of no more than 5 years. Only rail carriers that own the infrastructure over which Amtrak operates (freight railroads and some states) were to be eligible to petition FRA to be considered a passenger rail service provider in lieu of Amtrak. FRA's final rule went into effect on February 13, 2012, and to date no proposals have been received.

4.9.2 Powers and Responsibilities

The powers and responsibilities of freight railroads can be broad and depend largely on the nature of the freight railroads involvement in the passenger rail service. Full privatization of a corridor results in the most power and responsibility, although these will be tempered through regulatory oversight and the desire or need for passengers to connect to other rail systems and/or share stations and facilities with other railroads or Amtrak.

4.9.3 Governance Structure

Freight railroads are generally managed as for-profit corporations. In this model, there would need to be some degree of public oversight, particularly through regulations.

4.9.4 Advantages

- Most existing railroad corridors are owned by freight railroads.
- With full control of all operations and proper incentives, freight railroads could manage sharing of railroad corridors by freight and passenger traffic.
- This model provides a financial incentive for action and cost-effective investment decisions.
- This model eliminates some of the conflicts between passenger and freight operations operating on the same tracks, potentially enhancing on-time performance and reliability.

4.9.5 Disadvantages

- There is no recent successful precedent of a freight railroad planning and/or delivering passenger rail service. The last railroad to operate passenger service was Southern Railway, which retained operation of the *Crescent*, which operates between New York, New York, and New Orleans, Louisiana, until 1978, when it was finally folded into the Amtrak system.
- Profitability from intercity passenger rail has proven to be a challenge.
- There is a concern that sharing would not operate to the benefit of passenger services.
- The financial risk associated with operating passenger rail service may prohibit freight railroads from participating, particularly given that the operating subsidy required by PRIIA Section 214 is not funded by Congress (Transportation Trades Department, AFL-CIO, November 7, 2011).
- Increased liability to freight carriers.
- There is a need to recognize the fundamental difference in engineering and design issues that distinguish freight rail design and the design parameters for passenger rail (especially for high-speed rail).
- It can be difficult for this model to lead development of a multi-state regional vision.
- This model can be very autonomous.
- There is a potential lack of connectivity with existing Amtrak operations, including ticketing and marketing.

4.10 Conclusion

It is important to note that federal action could really make multi-state cooperation more effective. This is particularly true for more active public-private partnerships and for global agreements to affect liability issues that impair non-Amtrak operators. The above discussion did not identify federal legislation or regulations that could have a beneficial effect on any of the models, but it is likely that as institutional models for intercity passenger rail provision continue to evolve, federal legislation and regulations will have either a beneficial or detrimental effect.

CHAPTER 5

Practitioners' Guidance

5.1 Introduction

This chapter provides a practitioners' guide for using the results of this research to understand the different types of decision models that can be applied to develop institutional capability for intercity passenger rail transportation. The guidance, in the form of a decision tree and a question template, is designed to allow transportation officials to find useful information no matter where in the process of developing institutional capacity they are with respect to intercity passenger service.

5.2 Decision Trees

A decision tree reflecting some of the key decisions that must be made in implementing intercity passenger rail services is the foundation for practitioner guidance. The research has identified primary, secondary, and tertiary questions that correspond to the decision tree levels. In other words, the primary questions occur at the beginning of the decision tree process and provide two possible paths through the decision tree. For example, Figure 14 shows a decision tree for the primary question of whether the institutional model is to be used for planning/visioning or for project implementation. Secondary questions then relate to the degree to which participants will jointly or individually benefit and whether there is likely to be a role for the federal government. A tertiary level of question is provided for distinguishing those states that have made progress internal to their own state. These questions are identified according to the case study focus issues presented in the conceptual framework for passenger rail (shown in Figure 4) and are derived based on findings from the case studies and the experience of the research team.

5.2.1 Primary Questions

- During what phase(s) of development is the model intended to be applied?
- How many states are involved in the passenger rail effort?
- What is the willingness of the private sector to participate in the service? Is the proposed effort favorably received?
- Can cooperation be achieved without the use of Amtrak's powers?

5.2.2 Secondary Questions

- What is the desired role for the federal government?
- Does one state clearly benefit more than others in the effort?
- Is there interest in establishing a formal entity and/or contractually binding agreement(s)?
- What amount of risk is each state partner willing to assume?
- Are there overall liability caps that would cover the service?

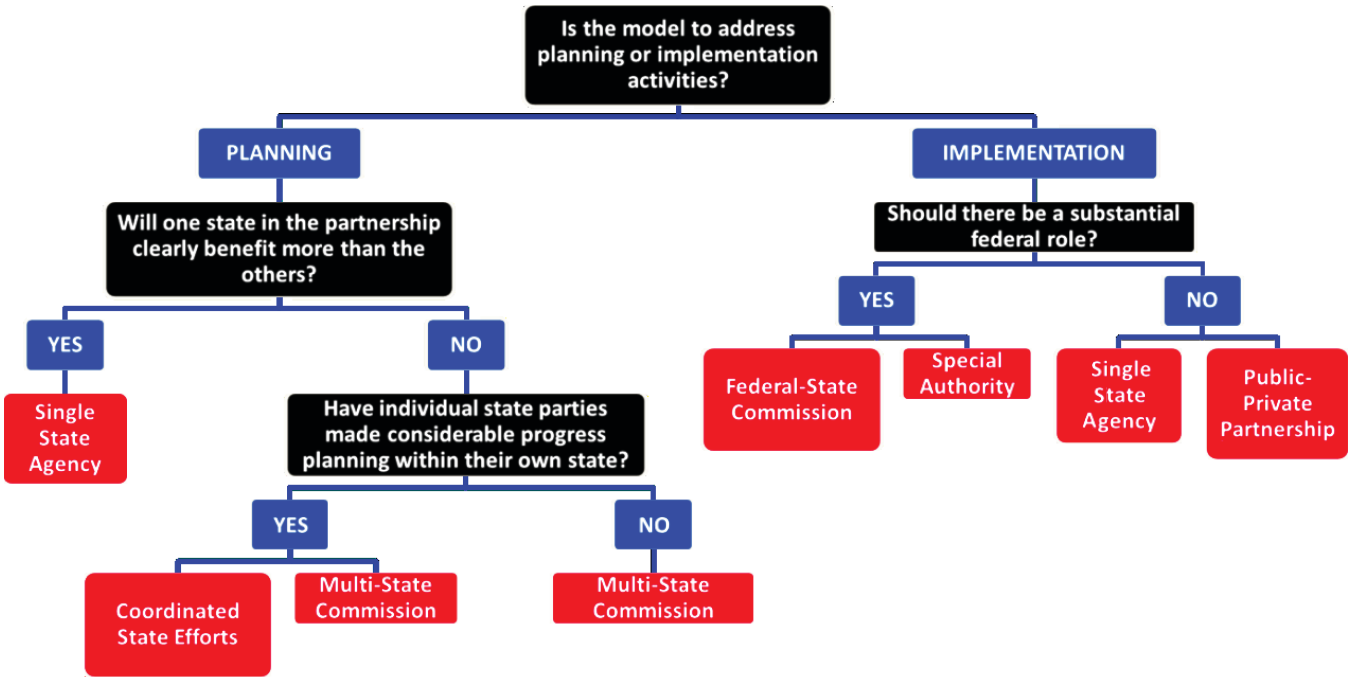


Figure 14. Decision tree for planning and implementation of decision-making.

- Will federal funding be sought?
- Do state partners have dedicated funding streams that could be utilized for the service?
- Do states have any restrictions on funding sources (e.g., appropriation cycles) that need to be reconciled?
- Can the state operate state-owned assets in another state? Can it own assets located in other states? Can it share ownership with other states?

5.2.3 Tertiary Questions

- What is the nature of current passenger rail operations (if any)?
- Do all state partners have the same level of interest and desire to participate?
- To what degree have state partners collaborated in the past? On passenger rail engagement, in particular?
- To what degree will entities at the local level need to be involved?
- Do the state partners have the authority to enter into legal agreement with other states for passenger rail planning and/or implementation? If not, would securing this authority be a non-starter?
- Is there interest/need in establishing a formal decision-making process?

Note that the level of question could vary according to the context of the institutional model. Thus, in some instances, the question "Will federal funding be sought?" would be a primary-level question, not a secondary one, as shown above. Figures 15 through 17 show some other decision trees using some of the questions listed above.

5.3 Question Template

Another way of organizing the questions that can help practitioners develop appropriate institutional models is by relating the questions directly to key elements of the conceptual framework. The following template could be used by practitioners both for thinking about the larger

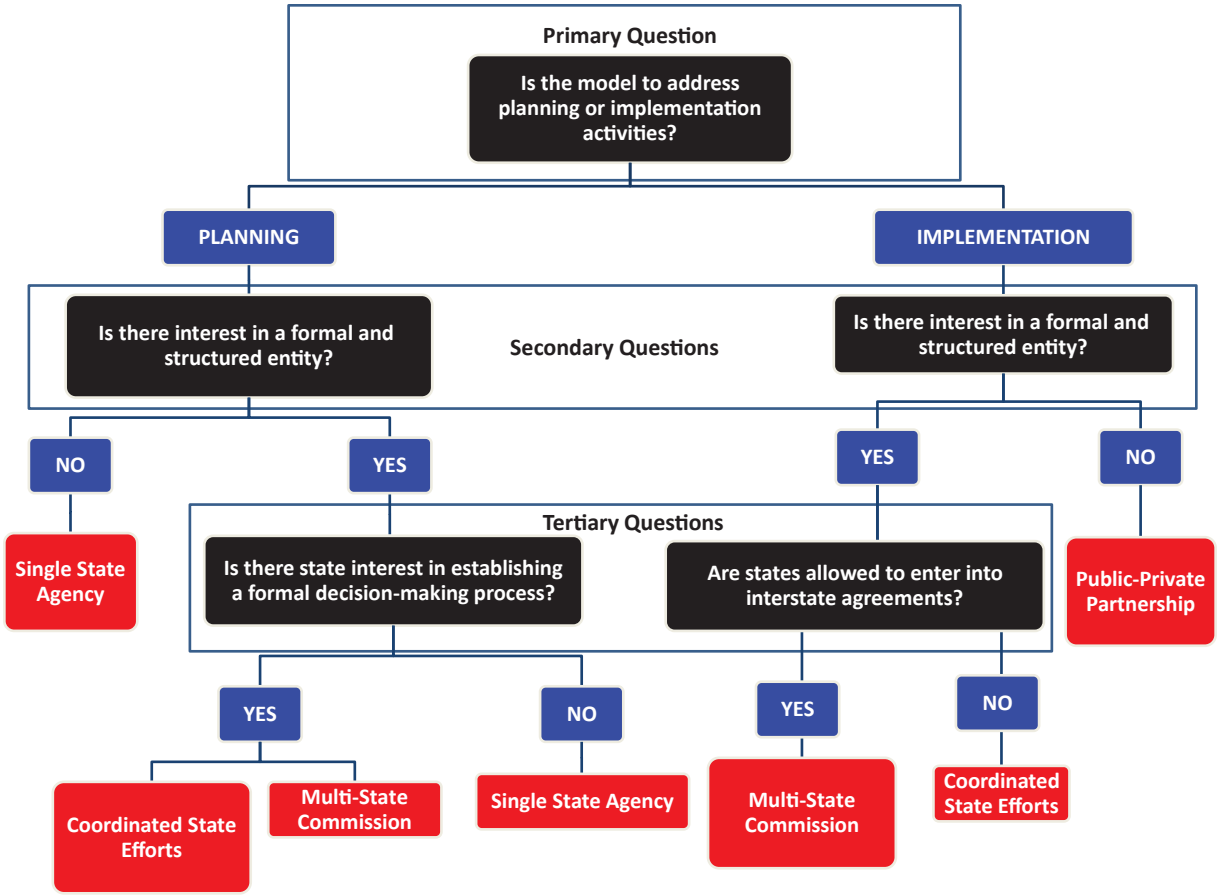


Figure 15. Decision tree for planning and implementation, formal decision-making structures.

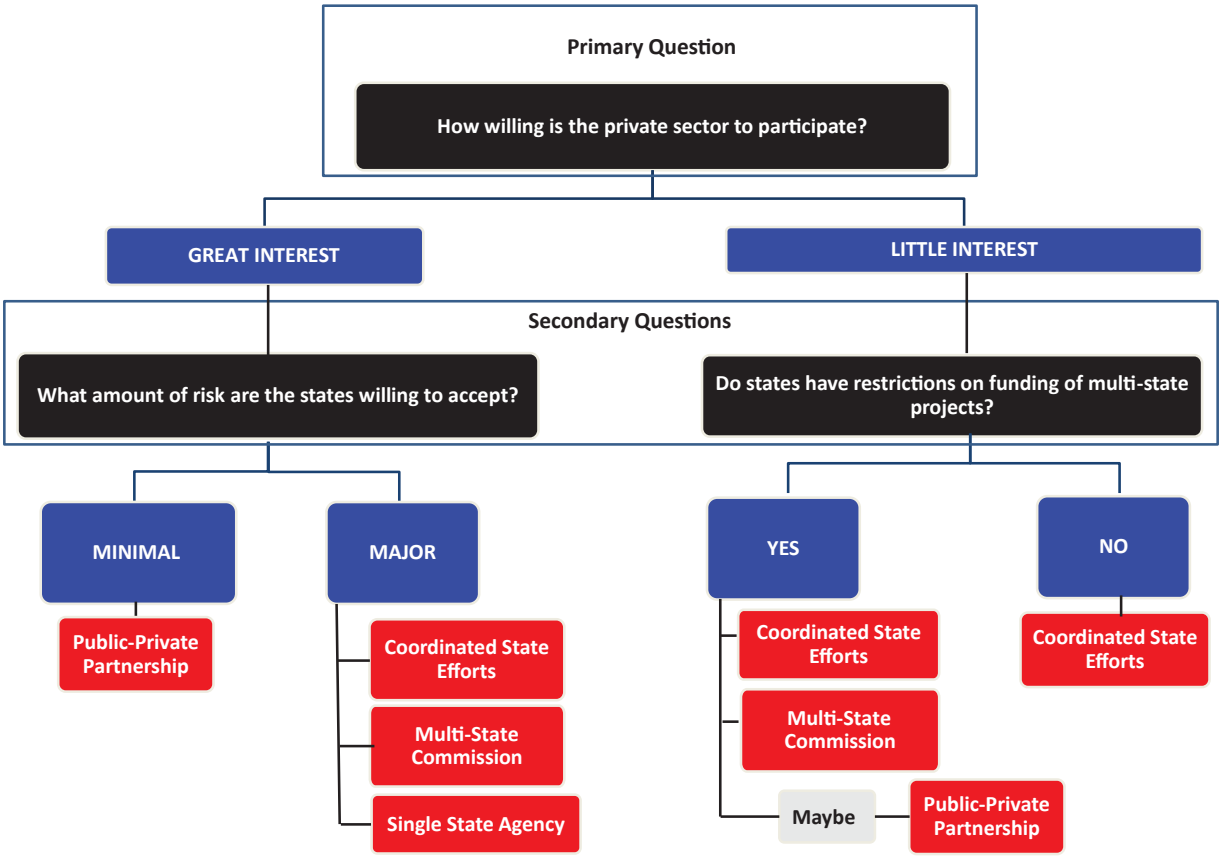


Figure 16. Decision tree for private-sector interest in intercity rail.

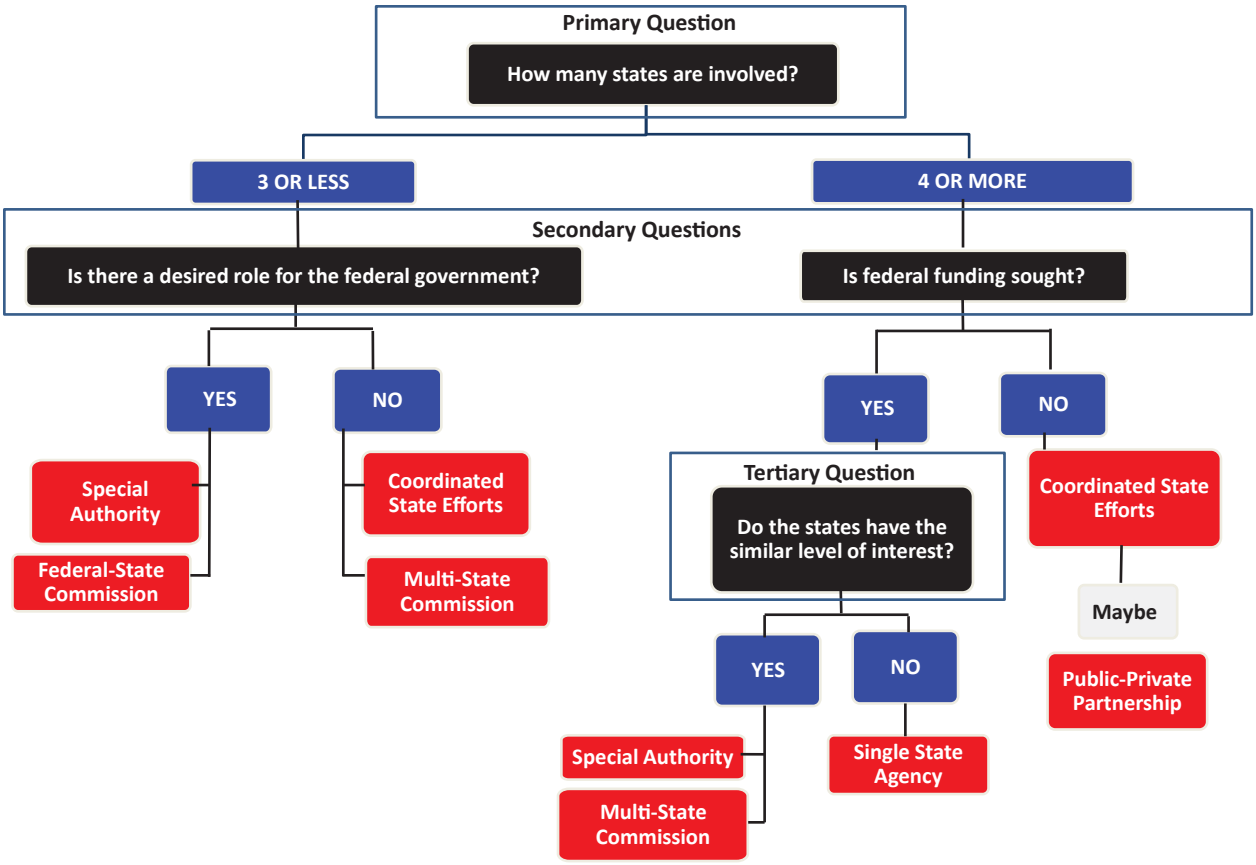


Figure 17. Decision tree for number of state participants and the federal role.

institutional model question and for "fine-tuning" the adopted institutional model. The template lists questions according to the following issues:

- General
- Stakeholders and lead agencies/group
- Institutional relationships and contractual arrangements
- Legal authority
- Corridor ownership and relationship with host railroad or other providers
- Role of regulatory agencies and oversight
- Liability issues
- Cost sharing and funding sources
- Decision-making process
- Political foundation
- Compelling need
- Marketing, customer service, branding, and safety standards
- Coalitions

The questions identified above for the decision tree analysis are indicated in bold in the template.

General Questions

- **During what phase(s) of development is the model intended to be applied?**
- What are the most challenging issues to be addressed?
- What is the nature of current passenger rail operations (if any)?

98 Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

Stakeholders and Lead Agencies/Group Questions

- **How many states are involved in the passenger rail effort?**
- **What is the desired role for the federal government?**
- **Does one state clearly benefit more than others in the effort?**
- Do all state partners have the same level of interest and desire to participate?
- To what degree have state partners collaborated in the past? On passenger rail engagement, in particular?
- **To what degree will entities at the local level need to be involved?**
- What is the willingness of the private sector to participate in the service? Is the proposed effort favorably received?

Institutional Relationships and Contractual Arrangements Questions

- What are the anticipated roles for each of the stakeholders?
- **Is there interest in establishing a formal entity and/or contractually binding agreement(s)?**

Legal Authority Questions

- **Do the state partners have the authority to enter into legal agreement with other states for passenger rail planning and/or implementation?**
- **If not, would securing this authority be a non-starter?**

Corridor Ownership and Relationship with Host Railroad or Other Providers Questions

- Is the right-of-way to be used for service within an existing rail corridor?
- How many host railroads are there in the corridor?
- Is (Are) the host railroad(s) willing to engage in development efforts?
- **Can cooperation be achieved without use of Amtrak's powers?**

Role of Regulatory Agencies and Oversight Questions

- What milestones under the FRA's project development process have been achieved?
- **Is there interest in establishing an oversight body? What state entities should be represented?**

Liability Issues Questions

- **What amount of risk is each state partner willing to assume?**
- Are there overall liability caps that would cover the service?
- How does state law impact the ability to indemnify the host railroad for damages?

Cost Sharing and Funding Sources Questions

- **Will federal funding be sought?**
- Do state partners have dedicated funding streams that could be utilized for the service?
- **Do states have any restrictions on funding sources (e.g., appropriation cycles) that need to be reconciled?**
- **Can the state operate state-owned assets in another state? Can it own assets located in other states? Can it share ownership with other states?**

Decision-Making Process Questions

- **Is there an interest in/need for establishing a formal decision-making process?**
- Is there a need to establish a conflict resolution policy or procedure?

Political Foundation

- What political support does the service currently have?
- Is there at least one recognized public champion for the service?
- Can the multi-state organizational structure withstand changes in political and executive leadership?

Compelling Need

- Has a strong need for the service been articulated?

Marketing, Customer Service, Branding, and Safety Standards

- Will these focus issues be addressed within the selected model?
- Does the service delivery strategy address FRA accountability for safety?

Coalitions

- Are there any coalitions that could influence development? Should they be engaged?

This guidance recognizes that every institutional model is going to be different and will most likely face a range of challenges. Although the decision tree and template processes suggest that one institutional model will surface from the analysis; in reality, variations of different models are likely to occur. However, this guidance does provide a foundation for looking at the strengths and weaknesses of different institutional models and determining which models do not make sense in terms of the service goals and vision.

5.4 Implementation Guidance

The case studies conducted for this research identified numerous strategies used by multi-state entities to enhance the chances of successful implementation of intercity passenger rail service. The following suggested action(s) should be considered when implementing multi-state intercity passenger rail efforts.

5.4.1 Provide Early and Continuous Coordination

A clear theme emerging from all of the case studies was the need for early and continuous coordination among all parties having a role in passenger rail development and finding a common and unifying ground. Establishing and agreeing upon areas of common interest early on can minimize confusion and misunderstanding as project development advances. For example, by establishing two-way communication from the beginning and engaging a range of stakeholders early in the visioning process, the ARC was able to secure buy-in from a range of stakeholders, especially those who could potentially experience negative impacts from ARC programs and projects. In the NEC, the process of building relationships among federal, state, regional, and local government agencies; Amtrak; and the commuter rail operators took some time. According to those interviewed, as the NEC Commission has continued its work, members have experienced a common learning curve, and the process has benefited from it.

In Virginia and North Carolina, the bi-state collaboration on the SEHSR Corridor has extended over a 20-year period and has evolved from a visioning effort to the implementation of four discrete project segments, one of which traverses the state line. Practitioners involved with the project agreed that the key lesson learned when two states collaborate on a project of this scope and scale is to establish agreement principles early on and stick to them. It is also essential to "get out ahead of yourself" and envision what the end product will be in order to encourage both states to agree on the outcome of their joint efforts. Once this occurs, they can begin to develop a roadmap that will allow them to achieve the vision.

5.4.2 Explore the Benefits of Centralized Coordination

A centralized coordinating and/or oversight body emerged as a critical institutional foundation for successful multi-state collaboration. This is most evident in the case of the NEC Commission, which represents a paradigm shift in visioning and planning across the entire NEC. Bringing

disparate and territory-focused organizations together through the NEC Commission is leading to successful collaborative outcomes. In addition, having a centralized authority has provided an easier process (according to those interviewed) for developing the cost-allocation policy. The NEC case also notes the importance of having a governance entity that is independent with a high degree of transparency and that is viewed as a fair broker of disagreements over the long term. A governance entity that builds trust among major participants is more likely to be perceived as trustworthy by major stakeholders, who will then be more likely to see support of the entity's projects as an effective investment of federal and state monies.

The importance of a central coordinating entity is also reinforced by experience abroad. In 2010, three separate operating companies in Belgium, France, and the United Kingdom were replaced by Eurostar International Limited Inc., which unified management and employees under a board of directors of a commercial corporation. All personnel were brought into the new stand-alone company. Ridership and revenues have continued to increase under the stand-alone corporation (although the direct linkage between the reorganization and ridership has not been proven), and operating costs have become more manageable. The experience with train operations on the Brussels-Paris-London network demonstrates the benefits of a unified governance, management, and personnel structure in the delivery of cross-border, intercity passenger service. Partner states have been encouraged to forego the temptation of controlling intra-state services and have been working collaboratively to ensure one multi-state passenger rail operation. Evidence suggests that multi-state passenger operations should have clear lines of authority and accountability reporting at both the management and board levels.

There are also examples of how a lack of centralized coordination authority has created problems in furthering service goals. The SCHSRC, for example, lacks a multi-state leadership group directing and coordinating the passenger rail development efforts, which was noted by some as a key reason why passenger rail systems have not really become a reality in the region. The absence of a common vision and a corresponding set of objectives have resulted in the investment in individual corridor segments that have advanced in a fragmented and uneven manner. The states involved in the effort to develop passenger rail in the Midwest also lack a central body with responsibility for coordinating regional and long-term technical planning and developing the political support and educational outreach necessary for future regional passenger rail implementation. The MIPRC and MWRRI have worked fairly closely over the years to advance passenger rail in the region, but they are two distinct entities with no formal ties.

Several policy initiatives in the intercity passenger rail policy environment will likely push some regional and corridor efforts to look more closely at a stronger centralized authority. A central coordinating entity will likely be needed for oversight and coordination of Next Generation equipment procurement, more uniformity in Section 209 pricing, and joint priority setting and cost sharing for major infrastructure improvements.

5.4.3 Share Funding Assumptions Early On

The WMATA case demonstrated the importance of a commitment for shared funding no matter which portion of the system is under development at a particular point in time. A situation in which one partner has financial trouble is also an important consideration for multi-agency partnerships. Establishing the ability of one state to make investments in another state is an ability that could enhance the success of multi-state partnerships. Reaching early agreement on funding formulas can lead to a level of fairness and a continued commitment by all parties to build and operate a regional system over the long haul. However, a cautionary note from the NNEPRA/Downeaster case study is to document the reasons for any negotiated cost-sharing arrangements

because it can be difficult to negotiate changes at a later point, particularly if one state requests more funds from partners at a later time.

5.4.4 Define Clear and Transparent Roles

Having a clear mission and vision at the outset allowed representatives from WMATA jurisdictions to find common ground in agreeing to the multi-state compact. WMATA's mission was clearly stated in its compact. Finding common political ground among the various participating agencies and recognizing the strength of regional coordination, as opposed to acting individually, played a key role in building a consensus that survived the early years of WMATA development.

The PNWRC case study is a good example of establishing clear and transparent roles in the development of enhanced passenger rail service. In 2013, the Washington State DOT and Oregon DOT established the Cascades Rail Corridor Management Workplan. Not only did the Workplan outline a vision, goals, objectives, and actions, it also described the roles and responsibilities of the various parties, and how they should work together in the corridor management team structure. Dispute-resolution procedures, highly structured meetings, and succinctly written correspondence were also developed to address negotiations-, operations-, or service-related issues. The Workplan also established several interagency "functional groups" focusing on specific subject areas. The Workplan also accounted for coordination with freight railroads.

5.4.5 Allow for Sufficient Time and Resources

In establishing agreements, sufficient time is needed to account for each state's policies and procedures and their potential impact in project development. For the Chicago-Detroit/Pontiac Corridor, various issues relating to agreements, procurement, management, professional services, and so forth required review from multiple agencies, slowing the project down. The importance of providing enough time in overall project schedules for developing and executing the agreements necessary to implement passenger rail should not be underestimated. In addition, one of the key issues raised in the case studies was the impact of individual state procurement, planning processes, and timelines. Delays caused by agreements have the potential to drastically slow project progress, possibly putting projects at financial risk. Sponsoring agencies should be aware of the time commitment and the staff expertise needed to draw up agreements and provide for sufficient legal reviews.

From the case studies, it was seen that as intercity passenger rail projects moved closer to construction and implementation, the number and complexity of agreements increased. State DOTs or other implementing agencies should have an understanding of the expertise needed (either in-house or hired) to complete the project.

5.4.6 Consider Various Institutional Models for Different Project Phases

The states involved in the development of the Midwest passenger rail system have worked since 1995 on developing a vision for regional travel that will be accomplished with regional passenger rail service. The creation of the MWRRI helped unify the states' interests to ensure that the region received a fair share of federal funding and laid the foundations for the corridor-level execution of various segments of the vision. Generally, in the planning and visioning stages of the passenger intercity rail development process, partner states create some structure or forum where issues can be resolved and common cause can be portrayed (such as when federal funding is being sought). As a project approaches actual implementation, the state benefitting most from

the project usually takes the lead. This development is troublesome, however, in the procurement process, where a state might be taking the lead in purchasing an asset (e.g., rail cars) that will be used outside the boundaries of the state.

5.4.7 Capitalize on Existing Federal Requirements as a Starting Point for Coordination

The Washington State DOT and Oregon DOT as well as the states involved in the development of the Midwest passenger rail system have made use of state rail plans as a means of coordinating long-term plans and investments across state lines. The case studies also demonstrate the value of FRA's requirements for funding and corridor planning in providing a helpful framework for coordination and for balancing the competing interests of various project stakeholders. Initiating work on Service Development Agreements for bi- or multi-state high-speed rail projects early in the planning process can aid in securing upfront buy-in on strategic issues, many of which will shape the definition of the project including the SDP and required through-put.

5.4.8 Obtain Cooperation from Railroads by Protecting Their Basic Needs

The case studies demonstrate that providing a clear benefit to freight railroads is a key to negotiating host railroad involvement in passenger rail. Freight railroads take a very long-term view of right-of-way requirements. This can be frustrating to those who want to add passenger rail service and tracks, but freight railroads have proven steadfast in their resolve to protect right-of-way and operations capacity for potential use in the future. Virtually no passenger rail service expansion in the United States in recent times has avoided the issue of preserving and protecting the ability of the freight railroad owner to grow at some unspecified time in the future.

Agreements with freight railroads for the creation of mixed-use corridors will likely be one of the most important factors in implementing intercity passenger rail services in the future. For example, of the three host railroads in the Downeaster service corridor, Pan Am Railways is the only entity that is paid by the operator for utilizing its infrastructure. Amtrak pays the trackage access costs in Maine and New Hampshire directly to Pan Am Railways and passes on these costs to NNEPRA via the annual service fee. Without the payment and other infrastructure improvements to Pan Am Railway's track infrastructure, Amtrak access may never have been granted.

5.4.9 Consider Use of a Mediator if Negotiations Are Going to Fail

Private railroads' primary goal is moving freight efficiently to maximize profitability. This goal can be at odds with state agencies who desire to safely, quickly, and reliably move passengers between cities. These differing and competing goals make negotiating with the railroads inherently complex. Passenger rail project sponsors in the Midwest all stated the importance of engaging with the railroads early, maintaining an open dialogue, and being clear about the project goals from the outset.

In cases where negotiations with freight railroads are deadlocked, as seen in the case of Amtrak/NNEPRA and Pan Am Railways, the use of a third-party mediator to resolve disputes can be effective in the early stages of corridor development and in navigating later critical impasses. The points of contention for NNEPRA included liability costs, maintenance expenses, capital expenditures, payment of on-time performance incentives, administrative costs, and future incremental costs. In this case, the STB served as the mediator between the host freight railroad

and Amtrak. Arbitration should never be the first option for a future operator. In the Midwest a key to reaching agreement with host railroads was to discover early in the project planning stages any "red flags" or "deal breakers" for the railroads.

5.4.10 Promote Opportunities for Agencies and Organizations that Provide "Last Mile" Services and Amenities to Participate in Service Planning

Successful intercity passenger rail service includes not only the line haul portion of the trip, but also getting passengers to and from stations. Connectivity to the local transportation system will often be the responsibility of many different agencies or organizations (e.g., transit agencies, state or local transportation agencies, and improvement districts). The institutional models examined in this research focused primarily on the higher level institutional models for providing intercity passenger service, but the need for safe and effective connections to intercity stations should be part of the decision tree analysis presented earlier. In such an analysis, questions might include the following:

- Which agencies and organizations have responsibility for providing connections to an intercity passenger station?
- Do these agencies have funding and a willingness to provide enhanced connectivity to these stations?
- What type of partnerships can be developed to implement improved last mile connectivity?

5.4.11 Consider an Incremental Approach to Implementation

Multiple case studies demonstrate the success of employing an incremental approach to developing projects. Service improvements for Amtrak's Cascades service, for example, have taken place in increments since the early 1990s. More recently, the corridor program was divided into three service blocks or groupings of specific projects that together provide incremental benefits, such as an increased number of trips between Seattle, Washington, and Portland, Oregon, and reduced travel time. This planning approach has worked well and has kept the corridor team committed to achieving long-term goals, while also demonstrating visible improvements and benefits to its service area, as shown through the increase in ridership over the years.

Incremental project delivery can also contribute to overall project success by building project momentum. Since the Downeaster service first began in 2001, NNEPRA has continued to make incremental improvements to the service and its infrastructure. This type of approach to corridor development has allowed the region to demonstrate its desire for passenger rail to the federal government, despite its lack of dedicated funding. The scale of the corridor improvements and the multibillion dollar capital cost also necessitates a phased implementation approach in the Chicago-Detroit/Pontiac Corridor. It is not anticipated that the envisioned service of 10 daily round trips will be fully realized until 2035.

5.4.12 Consider the Interdependency of Segments when Prioritizing Projects

Decisions made regarding one corridor can fundamentally affect the actions taken relative to unbuilt corridors, as well as current and future operations within existing corridors. From a network perspective, uncoordinated decisions often create a suboptimal operating environment and can potentially undermine the purpose, need, and viability of existing corridors, as well as those remaining to be developed. Interdependency of segments should be considered when prioritizing projects and establishing the most appropriate institutional models.

5.4.13 Be Aware that Direct Monetary Compensation Is Not Always Required

Whereas all other operating agreements in the Downeaster service involve an exchange in money, the MBTA, as an established transit agency with extensive infrastructure, participates in the partnership in exchange for non-monetary benefits, such as the ability to claim the passenger miles carried over its trackage and the opportunity to generate additional ridership at the MBTA stations served by the Downeaster. Over the long-term, the arrangement with NNEPRA allows the MBTA to better position itself to compete for federal capital improvement grants and operating subsidies, as seen in the partnership for the MBTA Track Improvement Project.

5.4.14 Consider Independent Researchers when Establishing Staff Arrangements

One of the unique features of the ARC's organizational structure is the presence of support staff and researchers who are neither federal nor state employees. These employees report directly to the Executive Director who is appointed by the ARC Board. The ARC staff is charged with producing quantitative measures and analyses that are then used by the ARC Board and the co-chairs to assess the benefits and consequences of ARC's programs and proposals. It is assumed that this structure, in which employees are not directly governed by a party that has a particular leaning (e.g., one that is sympathetic to federal versus state interests), provides estimates of a program's value that are as unbiased as possible. The NEC Commission staff is structured similarly.

5.4.15 Link Goals to Clear Performance Measures and Establish a Process for Assessing Progress Regularly

WMATA has developed indicators by which to regularly assess whether its performance meets Board-established service criteria. Establishing clear goals linked to specific performance measures helps WMATA achieve its goals and allows the WMATA partnership to continue in its provision of quality transit services. Establishing clear goals linked to specific performance measures can also help with transparency and demonstrating progress to a range of stakeholders. A related approach is that of the ARC, which regularly publishes a status report of the development highway network on its website.

5.4.16 Provide Guidance for Governing Boards

WMATA provides a helpful model for guidance to boards. Several recommendations based on the WMATA governing board experience should be considered and adapted if a governing board is to be established:

- Be clear on the roles and responsibilities of the board.
- Coordinate a process for appointing board members and a chair, including staggered terms and a uniform compensation policy.
- Conduct a regular self-assessment of the board's effectiveness.
- Improve the strategic planning process by actions such as increasing the board's involvement in the process and updating the agency's performance metrics.
- Develop an orientation process for board members.

CHAPTER 6

Conclusions and Future Research

6.1 Conclusions

This research has examined different institutional models for supporting intercity passenger rail service. Each model has its advantages and disadvantages depending on the circumstances being faced by those leading an intercity passenger rail initiative. For example, if the states involved in such an initiative have similar levels of interest in furthering project goals, some form of a multi-state commission or a more formally coordinated state action model would probably be most appropriate. If lines of authority and accountability are desired from a multi-state compact, a model that includes a federal role might be more appropriate.

While consideration of organizational structure is important, it is equally important to consider leadership skills. The success of multi-state collaborations for intercity passenger rail partnerships relies on pragmatic planning early in the process. The earlier that planning occurs, the more successful the operation of the final structure will be.

PRIIA has significantly changed the institutional model of intercity passenger rail provision by providing more transparency and flexibility in the arrangements that can be made to offer such service. States are in a better position to identify different service options that might be most effective given the type of service desired and the level of commitment from partner states. This flexibility necessarily raises questions regarding the types of institutional relationships that will be most effective given desired goals. A number of issues facing intercity passenger rail initiatives, such as Next Generation equipment purchase, more uniformity of Section 209 pricing, and priorities and cost sharing for major infrastructure improvements, also raise questions regarding how to establish institutional relationships that will lead to successful joint action.

Table 19 shows the different types of institutional models examined in this research. Not surprisingly, the majority of the intercity passenger rail institutional models aimed at developing new services rely on state participation. As seen in Table 19, this reliance on state participation results in either a single state taking a leadership role or the creation of some form of voluntary partnership. In situations where the aim of an institutional model is to support existing passenger rail service (as opposed to developing new service), Amtrak usually plays a significant role.

The case studies provide an interesting snapshot of how states are organizing themselves for intercity passenger rail services and the types of issues they face. For example, state DOTs generally held lead roles in all of the U.S. passenger rail cases. Typically, two or more states formed partnerships related to a common passenger rail project. In these partnerships, one of the DOTs would be assigned responsibility for leading the overall project, applying for and managing federal grant funds, procuring consultant services, and coordinating the partnering agencies. Rarely were states equal partners in the partnership.

Table 19. Institutional models found in the case studies.

Model	Working Definition	Case Study (Mechanism for Implementation)
Single State Agency Contracting with and on Behalf of Other States	Where an existing or newly created public agency of a single state addresses multi-state interests through contracts.	• Chicago-Detroit/Pontiac Corridor (MOU) • NNEPRA (single state legislation) • MTA Metro-North Services in CT and NJ (bi-state operating agreements) • SEPTA services to Wilmington/Newark, DE (bi-state operating agreement) • MBTA Service to Providence, Warwick, and Wickford Junction, RI (operating agreement)
Voluntary Coalition/ Partnership	Where stakeholders convene in a forum to collaborate for a common interest on a voluntary basis.	• Midwest High Speed Rail Steering Group (MOU) • I-95 Coalition (voluntary, no formal agreement) • CONEG (voluntary, CONEG Policy Research Center, Inc. is non-profit arm for program activities) • Midwest Regional Rail Initiative (MOU) • Amtrak Northeast Corridor Infrastructure Master Plan Working Group (voluntary, no formal agreement) • NEC Future (voluntary, no formal agreement among stakeholders)
Special Authority	Where an independent entity, often a distinct governmental body, delivers a limited number of public services within defined boundaries; services are generally provided within a single state or 2 to 3 states.	• WMATA (interstate compact)
For-Profit Corporations	Where a privately held company develops infrastructure or operates services on a for-profit, limited-liability basis.	• Brussels-Paris-London High-Speed Rail Network (Eurostar)*
Federally Chartered Corporations	Where a corporation is established by Congress to provide a public service; generally set up with federal subsidies at the outset but often intended to become financially self-sustaining over time.	• Amtrak (federal legislation)
Federal-State Commission	Where a body of federal, state, and, sometimes, local leaders organize to address a critical need, which often includes the distribution of federal funds among multiple states.	• ARC (federal legislation) • NEC Commission (federal legislation)
Multi-State Commission	Where 2 or more states establish a common agency to execute a specific function; does not include a direct role for the federal government.	• SEHSR Project – VA-NC (interstate compact) • Midwest Interstate Passenger Rail Commission (interstate compact)
Coordinated State Efforts	Where 2 or more states enter into an agreement to coordinate efforts within their respective states.	• Pacific Northwest Rail Corridor (MOU/Cascades Rail Corridor Management Workplan) • South Central: TOPRS (bi-state agreement)

*This example was not included as a case study for this report.

Nearly all of the case studies had some means of defining the institutional relationships among the state partners, including MOUs, AIPs, interstate compacts, and operating agreements. Service operating agreements, required since 2008 by PRIIA, are expected to bring a level of consistency to projects that receive high-speed rail funds. These agreements generally define the roles and responsibilities of partnering agencies, cost sharing, and liability and outline the purpose of the project. As passenger rail projects progress from visioning, planning, and design and construction phases into the operation and maintenance phase, the arrangements among partnering agencies and stakeholders includes greater levels of detail and specificity. Nearly all of the case studies note that the articulation of a transportation need for intercity passenger rail drove the development of a particular institutional model. The case studies also reveal that the articulation of a transportation need is a critical factor, especially for intercity passenger rail efforts that cross state lines.

Interestingly, while nearly all of the corridors examined had formal agreements governing passenger rail activities across state lines, those interviewed pointed to the lack of a centralized, coordinating body as a key constraint. This lack was cited as one of the key reasons that progress in some of the corridors has lagged behind progress in other regions. In addition, and particularly for projects in the planning phase, the role of federal regulatory agencies was primarily related to environmental reviews and grant administration. The federal role expands to safety regulation enforcement as projects move toward operations and maintenance. Recently, through FRA's requirement for SDPs and SOAs, its purview has expanded to operations planning and service development.

Most of the cases studies did not outline a specific decision-making process. As noted previously, usually a lead agency is designated to serve as project lead or administrator for a specific effort. The lead would then consult other states as needed in decision-making without being governed by specific procedures. The Midwest corridor-level agreements and the SCHSRC provide examples of the use of this kind of decision-making process. An important function of the NEC Commission is to bring needed attention and analysis to the development and monitoring of capital programs and to establish a formal structure for making investments at both the local/regional and corridor levels, with each investment decision following consistent guidelines.

Part of the decision-making process is garnering and maintaining political support for the project. The absence of a political champion in the SCHSR Corridor, for example, was pointed to as contributing to the relatively weak progression of the corridor as there is no entity to offer direction for the project or to promote and lobby for the project at the federal, state, or local levels. A recurring theme in the case studies was the risk inherent in state administration turnover. The long-term nature of large-scale infrastructure projects poses challenges to project leaders in maintaining momentum for the projects and keeping them a high priority for state elected leadership.

Identifying funding sources was found to be a linchpin of the coordination efforts described in the case studies. For example, the 2009 Governor's MOU in the Midwest was instituted to secure ARRA funding, a central charge of the NEC Commission is to address cost allocation across the NEC, and the impetus of recent efforts by the Washington State DOT and Oregon DOT to coordinate corridor management was PRIIA Section 209 changes in how state-supported services were to be funded.

Multiple case studies cited the need for a dedicated funding source at the state level and, potentially, the regional level for capital and operating investments. Similarly, for initiatives that are still in the planning stage, such as the SEHSR Corridor, demonstrating a return on investment and showing that a system could be self-sustaining is a significant challenge. In the cases studied, most cost-sharing arrangements were organized so that states contributed funding in proportion to the corridor segment located within their state, as was seen in the Metro-North operating

agreement with the Connecticut DOT and the working assumption for dividing future capital costs between Texas and Oklahoma in the SCHSRC.

Each of the passenger rail efforts showcased in the case studies (other than the one on the NEC) is currently utilizing or anticipates using rights-of-way owned by private railroads. Therefore, relationships with private railroads have a very important role to play in initiatives to provide passenger rail service and thus are a factor to be considered in the creation of institutional models to develop and implement projects. Failing to successfully negotiate with host railroads can severely impede project progress. One of the key issues in negotiations with host railroads is how to allocate risk and liability among partners. Liability and indemnity obligations are two of the most contentious issues among parties operating jointly on rail lines. In the NEC, a complicated and intricate allocation of risk between owners and operators is based on the provisions within historic agreements. In the Midwest, mitigating, limiting, or eliminating risk has been a goal for all of the participants, and mitigating or eliminating risk is a topic that is revisited each time the project advances. At the visioning and planning phases of project development, agreements containing liability clauses generally make states liable for work and any incidents occurring within their respective boundaries. As would be expected, the liability clauses in the operations and maintenance agreements are more detailed and incorporate indemnity clauses for specific entities.

Section 5.4 of this report suggests some actions to take as part of launching an intercity passenger rail effort to enhance the chances of its success. These suggestions include the following:

- Provide early and continuous coordination
- Explore the benefits of centralized coordination
- Share funding assumptions early on
- Define clear and transparent roles
- Allow for sufficient time and resources
- Consider varying institutional models for different project phases
- Capitalize on existing federal requirements as a starting point for coordination
- Obtain cooperation from railroads by protecting their basic needs
- Consider use of a mediator if negotiations are going to fail
- Promote opportunities for agencies and organizations that provide "last mile" services and amenities to participate in service planning
- Consider an incremental approach to implementation
- Consider the interdependency of segments when prioritizing projects
- Be aware that direct monetary compensation is not always required
- Consider independent researchers when establishing staff arrangements
- Link goals to clear performance measures and establish a process for assessing progress regularly
- Provide guidance for governing boards

With respect to selecting or creating an institutional model for supporting an intercity passenger rail project, Chapter 5 presented an approach for identifying the types of institutional models that might be most appropriate for a particular case based on its key factors. Thus, for example, if one is interested in creating an effective institutional model for a case where a federal role is desired or needed, the structure created will have to be different than one that would be created for a case where states want to have controlling authority. So many factors are involved in the creation of an effective institutional model that it is often difficult to identify the ones that are most critical to the development of a particular multi-state effort. However, the premise of the decision tree approach is that several key concerns can be identified that will lead to different ways of structuring the leadership, decision-making, and overall authority structure of a passenger rail development project. At the very least, the decision tree analysis allows a practitioner to determine which institutional models do not meet the key criteria.

Most of the cases studied included some level of Amtrak involvement. As noted in Chapter 2 of this report, Amtrak is the current model of a national intercity passenger rail network in the United States, although PRIIA has redefined how the relationship between the states and Amtrak is to occur. An important observation on the institutional models discussed herein is that Amtrak can be a part of all of them (except the freight railroad model). Whether as owner, service provider, or partner, Amtrak can have a role in each passenger rail effort presented herein. Amtrak's role will, of course, vary according to the agreements that dictate the roles of each participant. Given the national perspective that Amtrak brings to intercity passenger rail operations, it will need to be involved in every project anyway if for no other reason than to provide a reference on how new services relate to or integrate with existing national intercity service.

6.2 Future Research

This project examined current institutional models for delivery of intercity passenger rail services, many of which are in the early stages of visioning and planning. There were only a few examples of multiple states actually engaged in operating a service, thus the benefits of any particular institutional model have yet to be proven. However, this research has identified some key issues that deserve future research.

6.2.1 Long-Term Effects of PRIIA

PRIIA requirements (and those that might come from new legislation) are having a significant impact on the institutional relationships of those involved in intercity passenger rail services. With costs made more transparent and states given more flexibility in determining how they want to support rail services, the institutional framework for intercity passenger rail is in transition. It seems likely that within 2 to 3 years, common institutional models for service provision will become evident. Research should be conducted on these evolving institutional models to determine what factors were important in defining the arrangements and to assess the relative effectiveness and transferability of the results to other contexts. This evolution is particularly important for the NEC not only because of its role in the U.S. intercity rail network, but because of the multiple parties participating in all aspects of service provision. The NEC Commission provides a unique institutional model for bringing structure to the decision-making process in the corridor. It will be worth following the evolution of the NEC Commission's work and assessing whether a similar concept could be used elsewhere.

6.2.2 High-Speed Rail Institutional Models

Although high-speed rail projects were part of the research case studies, they were not highlighted as a separate type of intercity passenger rail context. In reality, institutional models for high-speed rail service will most likely be much more complex—not only will multiple states be involved (assuming the service crosses state lines), but also arrangements will need to be made with the cities and towns through which the service passes and those where stations are located. Further, given the likelihood that highways will be crossed as the rail line traverses a state, there will need to be state DOT involvement. It will be important to observe how institutional models are made in such high-speed rail projects as the one currently under development in California.

6.2.3 Procurement and Liability Issues

Although multi-state partnerships for intercity passenger rail face many challenges, two that seem to create the most difficulty are procurement processes (procuring products or services

that cross state lines) and liability. Many of the states involved in the cases studied struggled with these issues. In the absence of a federal presence that allows multi-state procurement, states have relied on special provisions and other legal permissions to provide the needed services. Use of these strategies becomes more complicated as the number of states involved in the agreement increases. There is a need for research that would provide a detailed examination of procurement and liability issues as they relate to intercity passenger rail investments. Such research would look at what has been done in those cases where intercity service currently exists, the legal foundation for such action, and the transferability of such actions to other jurisdictions. For other legal aspects of intercity passenger rail service, see *NCRRP Legal Research Digest 1* (Wyatt and Schenck, February 2015).

6.2.4 Role of Performance Measures in Guiding Institutional Changes

According to MAP-21 legislation, transportation planning and decision-making are to be performance based. The intent of performance measures is to provide decision-makers with the ability to monitor the progress being made on system performance and to adjust priorities where necessary. Performance measures can be used to guide intercity passenger rail efforts as well. Presumably, the metrics would vary by the stage of project development; however, it would be useful to have some research on how to change institutional models in response to declining performance. The research would look at examples from both the public sector and private industry to discover what changes have been made to improve system or network performance. Change strategies would be identified and highlighted for application in different intercity rail contexts.

References

Alexander, A. 1995. *How Organizations Act Together: Interorganizational Coordination Theory and Practice*. Taylor and Francis Publishers, Florence, KY.

Amtrak. 2008. *High-Speed Rail: A National Perspective: High-Speed Rail Experience in the United States*. Washington, D.C. http://www.camsys.com/pubs/Amtrak_Amtrak-High_Speed_Rail-A_National_Perspective.pdf. Accessed September 22, 2015.

Amtrak. 2014. "Amtrak Strategic Plan: FY2014–FY2018." Washington, D.C. http://www.amtrak.com/ccurl/261/227/StrategicPlan2014-2018_Lo0414.pdf. Accessed September 23, 2015.

Amtrak. March 11, 2011. "Amtrak Says Private Involvement in Passenger Rail Is Not a Silver Bullet that Ensures Success." News Release. https://www.amtrak.com/ccurl/825/35/ATK-11-029%20AmtrakPrivateInvolvementNotSilverBullet.pdf. Accessed February 23, 2015.

Ankner, W., and M. Meyer. 2009. "Investing in Megaregion Transportation Systems: Institutional Challenges and Opportunities." In *Megaregions: Planning for Global Competitiveness* (C.L. Ross, ed.). Island Press, Washington, D.C.

Ashiabor, S., and W. Wei. 2012. *Advancing High-Speed Rail Policy in the United States* (MTI Report 11-18). Mineta Transportation Institute, San Jose, CA.

Bowditch, J., and A. Buono. 2005. *Organizational Behavior*, 6th ed. Wiley Publishers, Hoboken, NJ.

CPCS; Harral Winner Thompson Sharp Klein, Inc.; Thompson, Galenson and Associates, LLC; First Class Partnerships Limited; and Portscape, Inc. 2015. *NCRRP Report 1: Alternative Funding and Financing Mechanisms for Passenger and Freight Rail Projects*. Transportation Research Board of the National Academies, Washington, D.C.

Crocker, J. 2009. *Moving Beyond Boundaries: Organizations Governing Cross-Boundary Transport*. VDM Verlag, Saarbrucken, Germany.

Evan, W. (ed.). 1978. *Interorganizational Relations*. University of Pennsylvania Press, Philadelphia, PA.

FRA. 2009. "Overview, Highlights and Summary of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA)." U.S. DOT, Washington, D.C. http://www.fra.dot.gov/eLib/details/L02692. Accessed May 11, 2015.

Government Accountability Office (GAO). 2009. *High Speed Passenger Rail: Future Development Will Depend on Addressing Financial and Other Challenges and Establishing a Clear Federal Role*. Washington, D.C.

Hagler, Y., and P. Todorovich. 2009. *Where High-Speed Rail Works Best*. America 2050. http://www.america2050.org/pdf/2050_Report_Where_HSR_Works_Best.pdf. Accessed September 15, 2015.

Meyer, M. D., S. Campbell, D. Leach, and M. Coogan. 2005. "Collaboration: The Key to Success in Transportation." *Transportation Research Record: Journal of the Transportation Research Board, No. 1924*. Transportation Research Board of the National Academies, Washington, D.C., pp. 153–162.

Parsons Brinckerhoff. November 2011. "Kansas City-Wichita-Oklahoma City-Fort Worth Corridor Passenger Rail Service Development Plan." Prepared for the Kansas Department of Transportation. http://www.ksdot.org/PDF_Files/PDF-Passenger-Rail-SDP.pdf.

Ross, C. 2009. *Megaregions: Planning for Global Competitiveness*. Island Press, Washington, D.C.

Rutzen, B., and C. M. Walton. 2011. *High-Speed Rail: A Study of International Best Practices and Identification of Opportunities in the U.S.*, Report SWUTC/11/476660-00071-1. University of Texas at Austin.

Thomas, L. W. 2015. *NCRRP Legal Research Digest 2: Railroad Legal Issues and Resources*. Transportation Research Board. The National Academies of Sciences, Engineering, and Medicine, Washington, D.C.

Transportation Trades Department, AFL-CIO (TTD). "Comments on Passenger Rail Privatizations, November 7, 2011." http://ttd.org/policy/federal-comments/comments-on-passenger-rail-privatization/. Accessed February 23, 2015.

Vizza, C. M. November 10, 2014. "State ends negotiations with Amtrak alternative." *Lafayette Journal & Courier*. http://www.jconline.com/story/news/local/indiana/2014/11/08/indot-ends-amtrak-negotiations/18734111/. Accessed February 25, 2015.

Wyatt, T. R., and C. G. Schenck. February 2015. *NCRRP Legal Research Digest 1: Buy America Requirements for Federally Funded Rail Projects*. Transportation Research Board of the National Academies, Washington, D.C.

Abbreviations, Acronyms, and Initialisms

ADHS	Appalachian Development Highway System
Adif	Administrador de Infraestructuras Ferroviarias
AHTD	Arkansas State Highway and Transportation Department
AIP	Agreement in principle
Amtrak	National Railroad Passenger Corporation
ARAA	Amtrak Reform and Accountability Act
ARC	Appalachian Regional Commission
ARDA	Appalachian Regional Development Act
ARRA	American Recovery and Reinvestment Act
BCMoTI	British Columbia Ministry of Transportation and Infrastructure
BNSF	BNSF Railway
CONEG	Coalition of Northeast Governors
DOT	Department of transportation
DRPT	Department of Rail and Public Transportation (Virginia)
DTC	Delaware Transit Corporation
EA	Environmental assessment
EIB	European Investment Bank
EIS	Environmental impact statement
EU	European Union
GAO	Government Accountability Office
HSIPR	High-speed intercity passenger rail
IGA	Intergovernmental agreement
ILA	Interlocal agreement
LDD	Local development district
MARC	Maryland Area Regional Commuter
MAROps	Mid-Atlantic Rail Operations Study
MBTA	Massachusetts Bay Transit Authority
MIPRC	Midwest Interstate Passenger Rail Compact
MOA	Memorandum of agreement
MOU	Memorandum of understanding
MTA	New York Metropolitan Transportation Authority
MWRRI	Midwest Regional Rail Initiative
MWRRS	Midwest Regional Rail System
NCRR	North Carolina Railroad
NEC	Northeast Corridor
NEC Commission	NEC Infrastructure and Operations Advisory Commission
NEPA	National Environmental Policy Act
NEROps	Northeast Rail Operations Study

NJ TRANSIT	New Jersey Transit
NNEPRA	Northern New England Passenger Rail Authority
O&M	Operations and maintenance
OPEC	Organization of Petroleum Exporting Countries
PARC	President's Appalachian Regional Commission
PNWRC	Pacific Northwest High-Speed Rail Corridor
PPP	Public-private partnership
PRCIP	Passenger Rail Corridor Investment Plan
PRIIA	Passenger Rail Investment and Improvement Act of 2008
PRRIA	Passenger Rail Reform and Investment Act of 2015
Renfe	Red Nacional de los Ferrocarriles Españoles
ROD	Record of decision
RPSA	Rail Passenger Service Act of 1970
RRF	Réseau ferré de France
SCHSRC	South Central High-Speed Rail Corridor
SDP	Service Development Plan
SEHSR	Southeast High Speed Rail
SEPTA	Southeastern Pennsylvania Transportation Authority
SNCF	Societe Nationale des Chemins de Fer de France
SOA	Service Outcome Agreement
STB	Surface Transportation Board
STP	Surface Transportation Program
TEN-T	Trans-European Transport Network
TOPRS	Texas-Oklahoma Passenger Rail Study
UPRR	Union Pacific Railroad
VRE	Virginia Railway Express
WMATA	Washington Metropolitan Area Transit Authority

APPENDIX A

Compendium of Multi-State Institutional Models

This appendix presents a compendium of multi-state institutional models. The listing is not meant to be exhaustive, but rather a representative inventory of the type of multi-state arrangements that currently exist in various sectors. This inventory informed selection of the candidate case studies for the NCRRP 07-02 research effort. The inventory is organized by implementation mechanism, including federal legislation, state legislation, multi-state agreement, voluntary partnership, and interstate compact.

Federal Legislation

The federal government has used legislation to establish entities that carry out specific functions across two or more states. The legislation will typically outline the mission, powers, obligations, and activities of the authority or organization created. These types of entities can take various forms including for-profit and non-profit corporations, departments or offices within federal agencies, or regional commissions. In some cases, the federal government has opted to dismantle or privatize a federally established entity once its purpose has been accomplished.

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Federal and Federally Approved Agencies					
Bureau of Reclamation	Water management agency within the Department of the Interior responsible for the construction of dams, power plants, and canals in 17 western states.	Department of the Interior	1902	Water and Power	http://www.usbr.gov/main/about/
EPA Chesapeake Bay Program Office	Established under the Clean Water Act to serve as the staff of the Chesapeake Executive Council, a collaborative body of the partners of the Chesapeake Bay Program. Also administers EPA grants and cooperated agreements.	DE, MD, NY, PA, VA, WV, DC, EPA, Chesapeake Bay Commission	1987	Water	http://www.epa.gov/region3/chesapeake/
Northwest Power and Conservation Council	Established to develop and maintain a regional power plan and fish and wildlife program to balance the Northwest's environment and energy needs.	ID, MT, WA, OR	1990	Power/ Environment	http://www.nwcouncil.org/about/
Ozone Transport Commission	Established under the Clean Air Act, the Commission advises EPA on transport issues and developing regional solutions to ground-level ozone problems in the Northeast and Mid-Atlantic regions.	CT, DE, DC, ME, MA, NH, NJ, NY, PA, RI, VT, VA	1990	Environment	http://www.otcair.org/index.asp

(Continued).

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
St. Lawrence Seaway Development Corporation	Non-profit government corporation established to construct, operate, and maintain the U.S. portion of the St. Lawrence Seaway between the Port of Montreal and Lake Erie. The St. Lawrence Seaway Management Corporation is the Canadian counterpart.	Federally chartered corporation. Governed by Advisory Board made up of research and private industries from St. Lawrence Seaway regional area.	1954	Transportation	http://www.greatlakes-seaway.com/en/management/slsdc/
Tennessee Valley Authority	Government-owned corporation created to plan, construct, and operate navigation, flood control, and electricity generation infrastructure, and promote economic development in the Tennessee Valley.	Federally chartered corporation governed by Board of Directors appointed by President and confirmed by Senate	1933	Power	http://www.tva.gov/
Passenger Rail and Freight Rail Corporations					
Amtrak (National Railroad Passenger Corporation)	Created as a for-profit corporate entity that operates passenger rail service on 21,200 miles of track in 46 contiguous states and 3 Canadian provinces.	Federally chartered corporation governed by Board of Directors appointed by President and confirmed by Senate with congressional oversight	1971	Transportation (Passenger Rail)	http://www.amtrak.com/about-amtrak
Conrail	Private corporation (with heavy government oversight) to reorganize the Northeastern and Midwestern railroads into a viable system. After becoming profitable, Conrail was sold to the private sector in 1987. In 1998, Norfolk Southern and CSX Transportation jointly purchased and restructured the organization.	Private corporation	1973 (legislation), 1976 (began operations)	Freight	http://www.conrail.com/history.htm
United States Railway Association	Government-owned non-profit organization created to reorganize railroads in the Northeast and Midwest into an economically viable system, primarily settling lawsuits involving seven bankrupt rail carriers that were consolidated into Conrail. Organizational powers and obligations were dismantled and transferred to Secretary of Transportation in 1987 upon completion of its objectives.	Board of Directors appointed by President and confirmed by Senate	1973	Freight	http://www.archives.gov/research/guide-fed-records/groups/464.html
Economic Development Commissions					
ARC	Regional economic development agency established by Congress as part of an intergovernmental partnership to address poverty and social distress in Appalachia.	Governors from following states: WV, AL, GA, KY, MD, MS, NY, NC, OH, PA, SC, TN, VA; Federal co-chairman appointed by President and confirmed by Senate.	1965	Economic Development	http://www.arc.gov/
Delta Regional Authority	Established to create programs that enhance economic development and improve quality of life for residents of 252 Delta counties and parishes across 8 states.	AL, AR, IL, KY, LA, MS, MO, TN; Federal co-chairman appointed by President and confirmed by the Senate.	2000	Economic Development	http://www.dra.gov/about-us/default.aspx
The Denali Commission	Independent federal agency created to provide critical utilities, infrastructure, and economic support to remote communities in Alaska.	AK	1998	Economic Development	http://www.denali.gov/
Northern Great Plains Regional Authority	Authority created under the 2002 Farm Bill to develop and execute programs and plans in the Northern Great Plains region to serve the needs of distressed counties and isolated areas of distress in the region.	SD, ND, NE, MN, IA, and Manitoba, Canada. Additionally the governing board includes a federal member and Chairperson of an Indian tribe appointed by the President and confirmed by the Senate.	2002	Economic Development	http://www.ngplains.org/articles/view/195

(continued on next page)

(Continued).

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
DOE Regional Power Commissions					
Bonneville Power Administration	Based in the Pacific Northwest, markets wholesale electric power from federal hydro projects in the Columbia River Basin, operates 3/4 of high-voltage transmission in the region and promotes energy efficiency, renewable resources, and new technology.	N/A; Service area: ID, OR, WA, western MT, small parts of CA, NV, UT, WY	1937	Power	http://www.bpa.gov/news/AboutUs/Pages/default.aspx
Southeastern Power Administration	Markets hydroelectric power and generation from U.S. Army Corps of Engineers reservoirs in the southeastern region.	N/A; Service area: GA, FL, AL, MS, TN, KY, VA, NC, SC, southern IL, WV	1950	Power	http://www.sepa.doe.gov/Overview/?c=2
Southwestern Power Administration	Markets energy from U.S. Army Corps of Engineers dams, as well as operates and maintains 1,380 miles of high-voltage transmission lines, substations, and a communications system.	N/A; Service area: AR, KS, LA, MO, OK, TX	1943	Power	http://www.swpa.gov/
Western Area Power Administration	Markets hydroelectric power from U.S. Army Corps of Engineers dams.	N/A; Service area: NE, AZ, NM, WY, MN, ND, SD, MT, CO, UT, parts of CA, TX, KS, NV	1977	Power	http://ww2.wapa.gov/SITES/WESTERN/ABOUT/Pages/default.aspx

State Legislation

Another mechanism that has been used to provide services across state lines is state legislation. States may establish a new entity that is authorized to provide services across state lines in its enabling legislation. These entities may require additional agreements with the coordinating states.

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
District of Columbia Water and Sewer Authority (D.C. Water)	Independent authority of the District of Columbia that distributes drinking water in D.C. and provides wastewater treatment services for D.C. and its suburbs in Maryland and Virginia. The Blue Plains Inter-municipal Agreement among D.C., Montgomery and Prince George's Counties, and Fairfax County governs the funding, operation, and management of D.C. Water's facilities.	District of Columbia Montgomery County,MD Prince George's County, MD Fairfax County, VA	1996 (D.C. Water) 1985 (Blue Plains Agreement)	Water	http://www.dcwater.com/about/history.cfm
Louisville and Southern Indiana Bridges Authority	Bi-state governmental agency created to finance and construct the Ohio River Bridges Project.	KY, IN	2009	Transportation (Highway)	http://www.bridgesauthority.com/
MTA Metro-North Railroad	Operates commuter rail service in the New York metropolitan area as a subsidiary of New York State's Metropolitan Transportation Authority. Connecticut DOT and New Jersey Transit contract with Metro-North Railroad for services to New Haven, CT, and points west of the Hudson River, respectively.	NY	1983	Transportation (Commuter Rail)	http://web.mta.info/mnr/html/generalinformation.html
NNEPRA	Established to oversee the operation of passenger rail service in Maine, specifically the Downeaster Amtrak line. Part of the Authority's duties is to support Amtrak service in the state through the provision of service fees and fuel costs to Amtrak for the maintenance and operation of the line.	ME	1995	Transportation (Passenger Rail)	http://www.nnepra.com/

Multi-State Agreement

States may also establish formal agreements, such as MOUs, for the provision of services across state lines and/or creation of a new entity. Multi-state agreements are sometimes established to deliver specific transportation corridor projects, such as the Columbia River Crossing project, a highway and transit project jointly owned by the Washington State DOT and Oregon DOT. Another type of multi-state agreement is an interstate compact.

ENTITY/PROJECT	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Mid-America Freight Coalition (formerly Mississippi Valley Coalition)	Regional organization that collaborates on the planning, operation, preservation, and improvement of transportation infrastructure common to Midwestern states. Member states share key interstate corridors, inland waterways, and the Great Lakes.	IL,IN, IA, KS, KY, MI, MN, MO, OH, WI	2006	Freight	http://midamericafreight.org/
New Woodrow Wilson Bridge Construction	Agreement assigns roles and responsibilities for the ownership, operation, inspection, maintenance, and rehabilitation of the Woodrow Wilson Memorial Bridge that connects MD and VA over the Potomac River, crossing over the southern tip of D.C. FHWA owns the original bridge; MD and VA have joint ownership and title to the completed work upon completion and final acceptance. All costs are split equally among MD and VA.	FHWA, MD, VA, DC	2001	Transportation (Highway)	N/A

Voluntary Partnership

States have also elected to collaborate for a common interest without establishing a formal contractual relationship. In some cases, voluntary partnerships have established a distinct non-profit organization that is often tax-exempt and eligible to receive federal funds and private contributions.

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Advantage I-75 Mainline Automatic Clearance System	Established to facilitate the Advantage ITS project along the I-75 border (from Detroit to Miami, including a connection to Toronto). The partnership is made up of private stakeholders along the corridor and local and federal public officials from the United States and Canada.	FHWA, FL, GA, TN, KY, OH, MI, Government of Ontario, Canadian Ministry of Transport, U.S. and Canada national trucking associations and trucking companies.	1990	Freight/ Transportation	http://www.ktc.uky.edu/files/2013/03/Advantage-I-75-Mainline-Automated-Clearance-System-Evaluation.pdf
Canamex Corridor Coalition	Established to develop and implement the Canamex Corridor plan, an effort among the states on the Canada-U.S.-Mexico trade corridor to stimulate investment and economic growth as well as enhance the safety and efficiency of the corridor.	Alberta, Canada, MT, ID, UT, NV, AZ, Sonora, Mexico	1995	Transportation	http://www.canamex.org/
Coalition of Northeastern Governors	Non-partisan regional intergovernmental organization created to address regional issues and provide a forum for intergovernmental cooperation related to regional issues in transportation, energy, environment, and economic development.	CT, ME, MA,NH, NY, RI, VT	1976	Transportation	http://www.coneg.org/

(continued on next page)

(Continued).

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Governors' Wind Energy Coalition	Bipartisan group of governors dedicated to development of the nation's wind energy resources. The Coalition aims to support legislation, programs, and investment that increase the availability of affordable wind energy.	AR, CA, CO, DE, HI, IL, IA, KS, KY, MD, MA, MI, MN, MT, NM, NY, ND, OK, OR, PA, RI, SD, WA	2010	Power	http://www.governorswindenergycoalition.org/
International Mobility and Trade Corridor	Coalition of government and business entities that promote improvements to mobility and security at the four border crossings that connect Whatcom County, WA, and the Lower Mainland of British Columbia, also known as the Cascade Gateway.	Led by Whatcom Council of Governments; participating agencies are transportation agencies, inspection agencies, border municipalities, local and federal government agencies, NGOs and private industries in the corridor.	1997	Trade	http://theimtc.com/about/
I-81 Corridor Coalition	Volunteer partnership of transportation agencies, toll authorities, state and local government interested in coordinated transportation planning along the I-81 corridor. Supports efficient, multimodal, environmentally sensitive freight and passenger movement in the region.	DOTs and transportation authorities along the I-81 corridor, federal agencies (see full list on website)	2007	Transportation	http://www.i-81coalition.org/index/
I-95 Corridor Coalition	Volunteer partnership of transportation agencies, toll authorities, and related organizations that provides a forum to discuss programmatic transportation improvement across multiple jurisdictions and all modes along the I-95 corridor.	DOTs and transportation authorities along the I-95 corridor, federal agencies (see full list on website)	1993	Transportation	http://www.i95coalition.org/i95/Default.aspx
Interstate Mining Compact Commission	Established to represent the natural resource and related environmental protection interests of member states. Governors of each member state serve on the Commission.	AL, AK, AR, IL, IN, KY, LA, MD, MO, NY, NC, ND, OH, OK, PA, SC, TN, TX, UT, VA, WV; Associate members: CO, NV, NM, WY	1970	Conservation/ Environment	http://www.imcc.isa.us/Do.htm
Multi-State Salinity Coalition	Established by local and regional water agencies to meet the need for safe, sustainable, and affordable water supplies. The Coalition fosters dialogue and policy related to desalination and salinity management issues.	Members are representatives from local water utilities, governments, research organizations and private industry (see website for specific members).	2001	Water/ Conservation	http://www.multi-statesalinitycoalition.com/
National I-10 Freight Corridor Coalition	Created to facilitate multi-state planning and make the case for additional federal funds to support the corridor.	CA, AZ, NM, TX, LA, MS, AL, FL; 12 technical experts	2001	Freight	N/A
North America Super Corridor Coalition (NASCO)	Established to maximize economic development and transportation investment along the North American international trade corridor (I-35, I-29, I-80, I-94). NASCO also incorporates work done to develop the I-69 corridor, running from Ontario, Canada, to the Lower Rio Grande Valley.	State and local governments from TX, OK, KS, MO, IA, SD, province of Manitoba, Canada, transportation authorities, chambers of commerce, private industry along the corridor	1993	Transportation	N/A
West Coast Corridor Coalition	Established by transportation policy leaders in member states to address the challenge of goods movement in the Pacific states.	CA, OR, WA, AK; private and public organizations involved in west coast freight corridor	2001	Freight	http://westcoastcorridors.org/index.html

Interstate Compact

Interstate compacts are one of the most commonly employed mechanisms for establishing multi-state arrangements. Compacts are negotiated by states and enacted in identical forms by each state that is part of the compact. In most cases, interstate compacts must also be approved by Congress. The terms of compacts vary by institution as they are a result of negotiation and agreement among the parties. Some compacts create an organization with operational functions while others provide agreements on how states will cooperate with one another. Metropolitan planning organizations, port authorities, and river basin commissions are common types of organizations established by interstate compact.

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Atlantic States Marine Fisheries Commission	Forum for states established to coordinate conservation and management of marine fisheries in Atlantic states.	ME, NH, MA, RI, CT, NY, NJ, PA, DE, MD, VA, NC, SC, GA, FL	1942	Conservation/ Environment	http://www.asmfc.org/
Breaks Interstate Park Compact	Created for the purpose of creating, developing, and operating Breaks Interstate Park.	VA, KY	1953	Parks and Recreation	http://www.gpo.gov/fdsys/pkg/STATUTE-68/pdf/STATUTE-68-Pg571.pdf http://www.breakspark.com/index.php?option=com_content&view=article&id=4&Itemid=5
Columbia River Gorge Commission	Established to enhance and protect the resources of the Columbia River Gorge and to support the regional economy by encouraging growth in urban areas and fostering economic development consistent with resource protection.	OR, WA, U.S. Forest Service, Native American Treaty Tribes	1986	Conservation/ Environment	http://www.gorgecommission.org/aboutus.cfm
Cumbres and Toltec Scenic Railroad Commission	Established to develop the operation and management of Cumbres and Toltec Scenic Railroad and create economic development opportunities for the nearby areas of Antonito and Chama.	NM, CO	1977	Parks and Recreation	http://www.cumbrestoltec.com/about-us/cts-commission
Great Lakes Commission	Established to promote the integrated and comprehensive development, use, and conservation of water and natural resources in the Great Lakes Basin and St. Lawrence River area.	IL, IN, MI, MN, NY, OH, PA, WI, Ontario and Quebec are associate members	1955 (state action), 1968 (congressional consent)	Conservation/ Environment	http://www.glc.org/
Interstate Industrialized Building Commission	Established to promote and assure reciprocal recognition of states' industrialized building programs and implement standardized rules and regulations.	NJ, MN, RI, ND, and representative from industrialized buildings industry	1991	Construction/ Safety	http://interstateibc.org/about.htm
Interstate Oil and Gas Compact Commission	Originally established to advocate for the state regulation of oil production and combat energy waste. Current mission is to advocate for environmentally sound ways to increase supply of U.S.-sourced energy.	All states are members or associate members except for MN, IA, WI, ME, NH, VT, MA, NJ, CT, RI	1935	Power/ Environment	http://www.iogcc.state.ok.us/about-us

(continued on next page)

(Continued).

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Maine-New Hampshire Interstate Bridge Authority	Created to oversee and manage the Sarah Mildred Long Bridge between Portsmouth, NH, and Kittery, ME. Reinstated in 2010 to include the I-95 High Level Bridges. A task force was created with the reinstatement of the Authority to source financing of improvements for three bridge projects.	ME, NH	1937, 2010	Transportation	http://www.maine.gov/mdot/docs/bistatebridgefinalreport1.pdf
Metropolitan Washington Airports Authority	Responsible for operations and capital improvements at Washington Dulles International and Ronald Reagan Washington National Airports, as well as the Dulles Toll Road and the expansion of Metrorail to Dulles Airport and Loudoun County.	N/A, DC and VA transferred operations of assets to MWAA	1987	Transportation	http://www.metwashairports.com/
Missouri-Illinois Bi-State Compact (Bi-State Development Agency)	Created to develop and implement a metropolitan district between Missouri and Illinois, including transportation and water and wastewater plans. In the 1960s the Bi-State Development Agency took operations of public transit facilities purchased from private firms and currently operates and maintains the regional Metro Transit in St. Louis.	MO, IL	1949	Transportation	http://www.metrostlouis.org/About/Overview.aspx
Multi-State Tax Commission	Intergovernmental tax agency working on behalf of states and taxpayers to administer tax laws that apply to multi-state and multinational enterprises.	All states except for NV and VA have some level of membership (compact, sovereignty, associate and project members)	1967	Taxation	http://www.mtc.gov/
Potomac Highlands Airport Authority	Established to allow local governments in MD and WV to coordinate the provision of air transportation facilities and service at a regional level. The Authority specifically deals with Cumberland Regional Airport.	MD, WV	1976, 1990	Transportation (Aviation)	http://msa.maryland.gov/msa/mdmanual/38inters/html/17poth.html
Southern States Energy Board	Established to enhance economic development and quality of life through energy innovation and environmental policies, programs, and technologies in the southern United States.	AL, AR, FL, GA, KY, LA, MD, MS, MO, NC, OK, SC, TN, TX, VA, WV, Puerto Rico, U.S. Virgin Islands, federal representative appointed by President confirmed by Senate and Southern Legislative Conference Energy and Environment Committee Chair	1960	Economic Development/ Energy	http://www.sseb.org/

(Continued).

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Tahoe Regional Planning Compact	Established a regional planning agency with power to adopt and enforce a regional plan of resource conservation and development and to exercise various environmental controls over the Tahoe Basin.	CA, NV	1968, 1970 (date of organization)	Conservation/ Environment	http://www.trpa.org/about-trpa/
WMATA	Established an authority to plan, develop, operate, construct, acquire, and improve mass transit facilities in the Washington transit zone (DC, MD, VA), and to operate such facilities.	MD, DC, VA	1965, 1966	Transportation	http://www.wmata.com/about_metro/?forcedesktop=1
Washington Metropolitan Area Transit Commission	Established a commission for the regulation of passenger transportation by any privately owned carrier between any points in D.C.and adjacent portions of MD and VA, excepting transportation solely within VA.	MD, VA, DC	1960	Transportation	http://www.wmatc.gov/
Multi-State Regional Planning Entities/MPOs					
Augusta-Richmond County Planning Commission	Planning commission responsible for regulating subdivision of land, zoning, and orderly growth and development of Augusta-Richmond region.	GA, SC	1965	Transportation	http://www.augustaga.gov/index.aspx?NID=305
Bi-State Regional Commission	Metropolitan planning organization (MPO) for the five-county area in western Illinois and eastern Iowa, incorporating the Quad Cities (Davenport, IA; Rock Island and Moline, IL) urbanized region.	IL, IA	1966	Transportation	http://www.bistateonline.org/abo/age.shtml
Bristol Urban Area MPO	MPO includes Bluff City, Bristol, and part of Sullivan County in TN, and Bristol and Washington County in VA.	TN, VA	1982	Transportation	http://www.bristoltn.org/transportation.cfm
Delaware Valley Regional Planning Commission	Established to foster regional cooperation in the nine-county, Greater Philadelphia region.	NJ, PA	1965, 1974	Transportation & Regional Planning	http://www.dvrpc.org/
Duluth-Superior Metropolitan Interstate Council	MPO covers the counties of St. Louis in MN and Douglas in WI.	MN, WI	1975	Transportation	http://www.dsmic.org/
Lewis-Clark Valley MPO	Established to provide a regional approach to transportation planning.	WA, ID	2003	Transportation	http://www.lewisclarkmpo.org/
National Capital Regional Transportation Planning Board	MPO for the Washington, D.C., region.	WMATA, MWAA, local governments and transportation agencies, MD and VA General Assemblies	1965	Transportation	http://www.mwcog.org/transportation/tpb/
Ohio-Kentucky-Indiana Regional Council of Governments	MPO for Greater Cincinnati region.	OK, KY, IN	1964	Transportation & Regional Planning	http://www.oki.org/
Wilmington Area Planning Council	Regional transportation planning agency representing New Castle County in Delaware and Cecil County in Maryland.	DE, MD	1996	Transportation	http://www.wilmapco.org/

(continued on next page)

(Continued).

ENTITY	PURPOSE	PARTIES	DATE ESTABLISHED	SECTOR	LINKS
Port Authorities					
Delaware River Port Authority	Commission to construct bridges, develop port facilities shared in common by both states, enhance economic development, promote commerce in the port district, development and maintain a rapid transit system and unify the port of Philadelphia and Camden.	NJ, PA	1931 (states), 1932 (fed.), 1952 (date of organization)	Transportation	http://www.drpa.org/
Port Authority of New York & New Jersey	Establishes port district in the New York City-New Jersey metropolitan area and a joint agency to provide transportation, terminal, and other facilities of commerce and trade.	NY, NJ	1921	Transportation	http://www.panynj.gov/
River Basin Commissions					
Chesapeake Bay Commission	Established to coordinate across state lines and provide policy leadership in the restoration of the Chesapeake Bay including issues such as managing resources, conserving land, and protecting water quality.	VA, MD, PA	1980	Water	http://www.chesbay.us/
Delaware River Basin Commission	Established to coordinate water resource efforts among the agencies within the state boundaries of the Basin.	NY, NJ, DE, PA, and federal government	1961	Water	http://www.state.nj.us/drbc/
Interstate Commission on the Potomac River Basin	Established to enhance, protect, and conserve water and associated land resources of the Potomac River and its tributaries through regional and interstate cooperation.	MD, PA, VA, WV, DC, and the federal government	1940	Water	http://www.potomacriver.org/
Mississippi River Commission	Established to develop plans to improve the conditions of the Mississippi River and tributaries, foster navigation, promote commerce, and prevent flooding. Currently provides water resource engineering direction and policy guidance to the Administration, Congress, and Army.	N/A	1879	Water	http://www.mvd.usace.army.mil/About/MississippiRiverCommission%28MRC%29.aspx
Susquehanna River Basin Commission	Established to coordinate the water resource efforts of the Basin among three states and the federal government.	NY, PA, MD, federal government (U.S. Army Corps of Engineers representative)	1970	Water	http://www.srbc.net/

APPENDIX B

2010 Iowa DOT and Illinois DOT Agreement in Principle

AGREEMENT IN PRINCIPLE
Between
Iowa Department of Transportation and
Illinois Department of Transportation
for
The Implementation of Passenger Rail Service Between Chicago and Iowa City, via the Quad Cities

This Agreement in Principle (hereinafter, "AIP") is entered into this 5th day of August, 2010, by and between the Iowa Department of Transportation (Iowa DOT) and the Illinois Department of Transportation (Illinois DOT), (collectively, the "Agencies"), for the purpose of coordinating and documenting each agency's responsibilities in implementing actions relating to the establishment of passenger rail service through funding from the Federal Railroad Administration's High-Speed Intercity Passenger Rail (HSIPR) Program.

WHEREAS, the Iowa DOT and Illinois DOT will be submitting a joint HSIPR Program grant application.

WHEREAS, the HSIPR grant application is for new and enhanced passenger rail services between Chicago, Illinois to Iowa City, Iowa via the Quad Cities.

WHEREAS, the HSIPR funding would be used to support continued environmental impact analyses, and projects including track infrastructure construction and upgrading improvements, layover facility construction, and station improvements to implement service between Chicago and Iowa City.

WHEREAS, Iowa Governor Chet Culver and Illinois Governor Pat Quinn have signed a Memorandum of Understanding, dated July 27, 2009, concerning the coordination of planning and implementation of passenger rail service between Chicago and Iowa City.

NOW, THEREFORE, be it resolved that Iowa DOT and Illinois DOT agree to execute this AIP under the terms and conditions as follows:

a. EQUIPMENT: Iowa and Illinois will share the cost of maintaining equipment based on the mileage percentage—73% (158.6 miles) in Illinois and 27% (59.3 miles) in Iowa. However the original cost for procuring the equipment will funded by HSIPR Program funds at a level of 80% federal funding and 20% state funding. The 20% state funding will be split 73% Illinois and 27% Iowa.

b. ADMINISTRATION OF HSIPR PROGRAM FUNDS: Iowa is the lead state for the application for passenger rail between Chicago and Iowa City. Iowa DOT will be the responsible agency for receiving and disbursing any and all HSIPR Program funds which become available through this application. Iowa DOT will be responsible for accounting records and payments. The environmental impact analyses, track infrastructure construction and upgrading improvements, layover facility construction, and station improvements shall be funded with HSIPR Program funds.

c. COST OVERRUNS: Cost overruns are defined as costs over and above the amount funded with HSIPR Program funds. Iowa DOT and Illinois DOT will each be responsible for cost overruns based upon the mileage percentage within each state--73% (158.6 miles) in Illinois and 27% (59.3 miles) in Iowa.

d. TIER 2 PROJECT ADMINISTRATION: Iowa DOT will be responsible for all administration involving the three (3) Tier 2 environmental assessments of the projects located within Iowa. Illinois DOT will be responsible for all administration involving the seven (7) Tier 2 environmental assessments of the projects located within Illinois.

e. FINAL DESIGN AND CONSTRUCTION: Iowa DOT will be responsible for the final design and construction of the three (3) projects located within Iowa. Illinois DOT will be responsible for the final design and construction of the three (3) projects located within Illinois. Iowa DOT and Illinois DOT will also be responsible for that portion of mainline design and upgrade work located within each state.

f. DURATION OF AGREEMENT: This AIP will be in effect until early 2015, or until the projects are complete, whichever is earlier, at which time all environmental, design, construction, and upgrading work is scheduled to be completed.

g. GOVERANCE ARRANGEMENTS: Iowa DOT and Illinois DOT will operate their respective agencies following all applicable governing policies and laws. The relationship between Iowa and Illinois is based on legislation established within both states which focuses on national principles of formal coordination. The accountability (technical knowledge and economic efficiency) and transparency of Iowa DOT and Illinois DOT employees and actions will be ensured by department leaders.

h. COMMITMENT OF AGENCIES: The states of Iowa and Illinois, Iowa DOT, and Illinois DOT confirm their full commitment to implementing all aspects of projects outlined in the HSIPR Program grant application.

i. LEVEL OF SERVICE PER AGENCY: Iowa DOT and Illinois DOT will assign whatever level of employees is needed to adequately and timely complete the HSIPR Program project as outlined in the grant application.

j. SERVICES TO BE PROVIDED BY STATE: Iowa DOT and Illinois DOT will adhere to the above responsibilities concerning equipment, Tier 2 environmental work, final design and construction. This may include obtaining consultant services to accomplish various aspects of the overall project. Iowa DOT and Illinois DOT mutually agree to complete this project on time and within budget.

k. LIABILITIES: Liability issues associated with this project will be mutually handled by Iowa DOT and Illinois DOT.

l. SHARING RISKS AND BENEFITS: The success and benefits (mobility options, fuel savings, cleaner air, and economic development opportunities) of passenger rail service between Chicago and Iowa City will be shared by the citizens of both states. The risks associated with this project will also be shared and mitigated by both states; this may involve, but is not limited to, changing the plan to eliminate the risk or its impacts to the project; changing the plan to reduce the likelihood

and/or consequences of the risk; allocating the financial impact of the risk to the Agencies best able to manage it; sharing the financial impact of the risk, when appropriate; or recognizing and absorbing the risk.

m. DISPUTE RESOLUTION: Iowa DOT and Illinois DOT will mutually resolve all conflicts and disputes.

n. SUBSTANDARD PERFORMANCE: Iowa DOT and Illinois DOT will be jointly responsible for addressing and correcting any substandard work conducted as part of this project.

o. TERMINATION OF CONTRACTS: Iowa DOT and Illinois DOT will be mutually responsible for termination of any contracts that result in unacceptable work as part of this project.

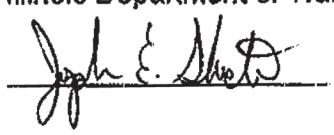
BE IT FURTHER RESOLVED that the Agencies may mutually agree in writing to amend this AIP and to develop such additional provisions and procedures as they determine to be necessary in order to pursue the implementation of passenger rail service between Chicago and Iowa City.

AND FINALLY BE IT RESOLVED THAT the undersigned understand and accept the roles and responsibilities assigned to each agency. The Agencies agree to ensure that the goal of new passenger rail service between Chicago and Iowa City is implemented in cooperation to the maximum extent possible; to ensure that the project is developed in full compliance with Federal and State requirements; and to ensure that there is maximum communication and minimum duplication of effort.

Iowa Department of Transportation

Nancy J. Richardson
Director, Iowa Department of Transportation

Illinois Department of Transportation



Joseph E. Shacter
Director – Division of Public and Intermodal Transportation,
Illinois Department of Transportation

Abbreviations and acronyms used without definitions in TRB publications:

A4A	Airlines for America
AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation Act (2015)
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TDC	Transit Development Corporation
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

The nation turns to the National Academies of Sciences, Engineering, and Medicine for independent, objective advice on issues that affect people's lives worldwide.
www.national-academies.org

ISBN 978-0-309-37538-2
90000
9 780309 375382

TRANSPORTATION RESEARCH BOARD
500 Fifth Street, NW
Washington, DC 20001

ADDRESS SERVICE REQUESTED

NON-PROFIT ORG.
U.S. POSTAGE
PAID
COLUMBIA, MD
PERMIT NO. 88