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TRANSPORTATION RESEARCH BOARD

NCRRP

National Cooperative Rail Research Program

Summary of Published Reports

Updated as of April 11, 2016

NCRRP Summary and Presentation

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All previously funded NCRRP projects are complete: three full research reports and three Legal Research Digests have been published in final form, two final reports are available on line as pre-publication documents, the Strategic Plan has been published, and the remaining two final reports are in final stages of editing. While the NCRRP was reauthorized in the Fixing America's Surface Transportation (FAST) Act, no funding level was indicated and no funding was appropriated for FY 2016. Continuation of the NCRRP beyond previously funded projects is contingent on the provision of additional funding for the program.

<http://www.trb.org/NCRRP/Blurbs.aspx?fields=PublicationType|NCRRP>

I. NCRRP Report 1: Alternative Funding and Financing Mechanisms for Passenger and Freight Rail Projects

Prepared by CPCS, Ottawa, ON, Canada, with assistance from Herral Winner Thompson Sharp Kline, Inc.; Thompson, Galenson and Associates, LLC; First Class Partnerships Limited; and Portscape, Inc.

NCRRP Report 1: Alternative Funding and Financing Mechanisms for Passenger and Freight Rail Projects identifies alternative funding and financing tools that can be used to realize passenger and freight rail project development, including capital investments, operations, and maintenance. The report has two parts: a comprehensive guidebook for practitioners and a brief report summary geared to policymakers and decision-makers. Part 1 (Guidebook on Alternative Funding and Financing Mechanisms) provides an assessment of broad financing and funding requirements in the context of intercity passenger and freight rail systems, a detailed review of funding and financing options and associated considerations, and an in-depth assessment of implementation requirements for a broad spectrum of rail projects and services. Part 2 (Report Summary) highlights the significant issues that underlie consideration of how to pay for rail projects and services that have an identified funding gap, including the policy considerations that must be addressed to bridge that gap.

II. NCRRP Report 2: A Guide to Building and Retaining Workforce Capacity for the Railroad Industry

Prepared by QinetiQ North America, with assistance from Hile Group and the Department of Engineering Professional Development, University of Wisconsin.

NCRRP Report 2: Building and Retaining Workforce Capacity uses a comprehensive review and analysis of employee characteristics of the railroad industry, including an assessment of past trends and current forecasts and a detailed gap analysis of employee supply and demand, to formulate a series of competency models describing workforce requirements for the passenger and freight railroad industry. The report also presents a strategy for improving employee retention and develops recommendations for enhancing educational programs designed to attract new employees to the industry--employees that meet the demands of these competency requirements. The competency models presented in the report focus on performance needs rather than credentials, establishing criteria for exemplary rather than minimal characteristics. These models encompass the four major categories of employment within the industry as well as subcategories providing detail for each. This report serves as a guide to the industry on how to respond to the long-term need for building an effective workforce to support the growth of the rail industry, both passenger and freight, in a changing and evolving environment. Used as a guide, this report can assist the railroad industry as a whole, from management to human resource recruiters, in building a quality workforce for the future. It will also be useful to college and university educators as they formulate curricula and build training programs to attract new workers into the industry.

III. NCRRP Report 3: Comparison of Passenger Rail Energy Consumption with Competing Modes

Prepared by TranSys Research Ltd., with assistance from CPCS Transcom and Lawson Economics Research Inc.

NCRRP Report 3: Comparison of Passenger Rail Energy Consumption with Competing Modes provides a comprehensive model that allows the user to compare the energy consumption and greenhouse gas (GHG) emissions of intercity and commuter passenger rail with those of competing travel modes along a designated travel corridor. This report summarizes the research used to develop the model and presents a set of case study applications. A Technical Document and User Guide for the Multi-Modal Passenger Simulation Model (MMPASSIM) and the spreadsheet tool for using and customizing the model are provided as a CD attached to this report. The Technical Document and User Guide also are available online as NCRRP Web Only Document 1.

IV. NCRRP Report 4: Intercity Passenger Rail in the Context of Dynamic Travel Markets

Available in Pre-Publication Format

Prepared by RSG, Inc., in association with Matthew Coogan, and assistance from AECOM, Icek Ajzen, Chandra Bhat, Brian Lee, Megan Ryerson, and Joseph Schwieterman.

NCRRP Report 4: Intercity Passenger Rail in the Context of Dynamic Travel Markets develops an analytical framework or structural plan to improve understanding of how current or potential intercity

travelers make the choice to travel by rail—a choice that is often made in a competitive context that includes options to travel by air, rail, bus, or private automobile for the majority of their trip. This framework provides guidance for use by a diverse audience of practitioners and decision makers considering alternative planning, operating, financing, service, and capital investment strategies for intercity passenger rail service in existing and potential travel markets; and it allows users to evaluate how mode choice is affected by a variety of changing and evolving parameters. The framework developed through this research is based on an examination of fundamental values, preferences, and attitudes affecting travel mode choice. Identification of relevant parameters extracted from this analysis served as input to a comprehensive survey used to gather necessary data for developing an Integrated Choice/Latent Variable (ICLV) forecasting model. Building directly on the results calculated in this forecasting model is the Scenario Analysis Tool, a series of interconnected spreadsheets which make available to the analyst a wide variety of data and procedures needed in the application of quick-turn-around scenario testing. Together, the ICLV forecasting model and Scenario Analysis Tool provide a sophisticated analytical framework for analyzing intercity travel behavior.

V. NCRRP Report 5: Developing Multi-State Institutions to Implement Intercity Passenger Rail Programs

Available in Pre-Publication Format

Prepared by Michael Meyer and Crystal Cummings, WSP|Parsons Brinckerhoff with assistance from Shelly Brown, Shelly Brown Associates, LLC.

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 practitioner’s 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.

VI. Legal Research Digest 1: Buy America Requirements for Federally Funded Rail Projects

Prepared by Timothy R. Wyatt, Conner Gwyn Schenck PLLC.

This Legal Research Digest evaluates and analyzes the requirements of four existing Buy America programs applicable to passenger and freight rail systems, each of which present different regulatory and statutory requirements: FRA, FTA, FHWA, and Amtrak. The digest deals with this topic by addressing similarities and differences among the various programs and their applicability to freight and passenger rail environments. In this analysis, “passenger rail” encompasses high-speed, intercity passenger and commuter rail. The analysis also addresses recent agency changes and policy interpretations, including application of waivers. A critical concern involves those projects that are funded through multiple federal funding sources, potentially subject to different Buy America requirements. The digest presents strategies for resolving multiple, often confusing components.

VII. Legal Research Digest 2: Railroad Legal Issues and Resources

Prepared by Larry W. Thomas, The Thomas law Firm, Washington, D.C.

This legal research digest presents a detailed compilation and review of legal issues of importance that attorneys may encounter when representing both freight and passenger railroad owners and operators (commuter and intercity) and others (including government entities) involved in railroad-related transactions. This product includes 40 separate chapters evaluating individual issues ranging from abandonment and discontinuance to constitutional law, construction, contracts, interaction with regulatory agencies, safety-related issues, retirement, and numerous other subjects. The digest is presented in two parts:

1. A printed annotated index of the entire range of legal topics encompassed by review.
2. The electronic supporting documentation presenting detailed summaries of statutes, regulations, cases, and relevant articles as a fundamental resource for use in understanding the background and broad ramifications of railroad-related law reflected in each category.

VIII. Legal Research Digest 3: Issues that Emerge when Public Entities Acquire a Real Property Interest in Rail Lines

Prepared by Charles A. Spitulnik, Allison I. Fultz, and Christian L. Alexander, Kaplan Kirsch and Rockwell, LLP, Washington, D.C.

This legal research digest presents potential issues and solutions that may emerge when state and local governments seek to acquire real property interests from an operating railroad in active rail corridors. The discussion is presented in two parts:

1. An exposition of the issues and rationale that might arise in the planning for and implementation of a transaction that involves acquisition of real property in an active rail corridor.
2. An annotated term sheet template for pursuit of the transaction. The desire for acquisition usually grows out of recognition of the need to create a new or improved transit system along a

fixed guideway designed to alleviate increasing traffic congestion and improve deteriorating environmental conditions in the local and broader community. These real estate transactions, although they might appear to be routine, are not and involve dealing with complexities unique to property owned and used by operating railroads. The term sheet offers options for a variety of approaches to facilitate application in response to specific project characteristics. It also provides references and examples to illustrate real-world applications.

IX. A Potential Strategic Plan and Research Agenda for the National Cooperative Rail Research Program

Prepared by the Transportation Center at Northwestern University: Joseph L. Schofer, Breton L. Johnson, Norman Carlson, and Derek Kit Ho Cheah.

NCRRP is one of a number of active rail research programs, including work of the Federal Railroad Administration (FRA), the Association of American Railroads (AAR), individual railroads, their suppliers, and research institutions. While other rail research programs have been addressing technology, materials, and safety issues, NCRRP has focused on matters of policy, economics, and institutions. This report assumes that the focus going forward would continue to be primarily in these areas. That focus should not be interpreted to diminish the value of other rail research. The potential plan and agenda provided here are based on a review of recent rail research and primarily on the results of interviews with more than 60 railroad stakeholders who were asked to identify key opportunities and problems facing the industry. The plan identifies eight areas where rail research is both needed and expected to produce cost-effective results. These are:

1. Assuring safe and efficient management of railroad capacity, particularly in the case of shared rights-of-way;
2. Facilitating and accelerating railroad project delivery;
3. Developing the railroad workforce;
4. Promoting innovation in funding and financing rail projects and operations;
5. Growing ridership on regional and commuter passenger services;
6. Promoting and facilitating freight rail services to reduce highway congestion, save energy, and reduce environmental impacts;
7. Developing and deploying strategies and technologies for enhancing safety; and
8. Developing and deploying advanced methods and materials for railroad design, rehabilitation, and maintenance: faster, cheaper, and better methods.

In Final Review:

NCRRP Report No. 6: Intercity Passenger Rail Service and Development Guide

Prepared by Texas A&M Transportation Institute, Curtis Morgan and Jeffery Warner; with assistance from ESH Consult; David P. Simpson Consultants, LLC; Benjamin Sperry, Ph.D., The Ohio University; and Walter E. Zullig, Jr., Office of Walter E. Zullig, Jr., Esq.

NCRRP Report 6: Intercity Passenger Rail Service and Development Guide is a comprehensive guidebook describing the resources, strategies, analytical tools, and techniques used by public agencies and private entities to support planning and decision making in the development of intercity passenger rail service in the United States. This guidebook, describing existing resources and best practices regarding intercity passenger rail development, supports service planning and development by a variety of organizations across the United States at the state, regional, or multistate levels. Since various state and regional entities range greatly in historic roles, funding, and public support for intercity passenger rail service development, a one-size-fits-all approach was not appropriate in developing this report and conducting the research. Instead, the research team approached creation of this guidebook primarily as an effort to create a wide-ranging collection of existing resources related to intercity passenger rail service and development and limited new research performed to cover the most critical areas where existing written guidance did not exist. Gap area topics identified during the research are included in a series of targeted syntheses.

NCRRP Report No. 7: Inventory of State and Federal, Passenger and Freight Rail Programs

Prepared by Prime Focus, LLC; with assistance from The Beckett Group and David B. Clarke.

NCRRP Report 7: Inventory of State and Federal, Passenger and Freight Rail Programs combines an inventory of Federal and State programs along with an evaluation of objectives and components of existing rail programs. The inventory identifies program innovation based on interaction with industry experts as well as comprehensive program and report reviews. The inventory also uses case studies to highlight innovation in practice. Public outreach efforts were undertaken to gain insights from State and Federal Agencies and providers of freight and passenger rail. The first event was hosted at the 2013 AASHTO SCORT meeting. A survey was handed out and individual contacts were made with public agencies.