Research Digest

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Item 1

Web-based screening tool for shared-use rail corridors

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

NCFRP Report 27 • 2014

"NCFRP Report 27... describes the research that was conducted to develop a practical tool to perform preliminary feasibility screening of proposed shared-use passenger and freight rail corridor projects as defined in the Federal Railroad Administration (FRA) publication, Rail Corridor Transportation Plans, A Guidance Manual. Given the limited resources available to states for passenger rail service plans and projects, it is important that public agencies have a screening tool that will identify projects that warrant further detailed investigation utilizing more rigorous analytic tools." --Foreword
(71 pages)

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This report is available for free download (13.2 MB):
http://onlinepubs.trb.org/onlinepubs/ncfrp/ncfrp_rpt_027.pdf

Item 2

Making U.S. ports resilient as part of extended intermodal supply chains

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

NCFRP Report 30 • 2014

"NCFRP Report 30... builds on NCHRP Report 732: Methodologies to Estimate the Economic Impacts of Disruptions to the Goods Movement System to provide a set of high-level guidelines, illustrated by two case studies, that will help seaport authorities (as well as state DOTs in which such ports are located) to minimize lost throughput capacity resulting from a major disruption. The report focuses on identifying and elaborating on the steps needed to coordinate freight movements through ports in times of severe stress on existing operating infrastructures and services whether being stressed because of damage to port facilities, to the highway, rail, and waterway routes leading into and out of the port, or because of the need to handle additional cargo volumes due to port disruptions elsewhere. The catchall term used for such efforts is port resiliency—the ability of a port to withstand and bounce back from a serious threat to its ability to process freight in an efficient, cost-effective manner." --Foreword
(99 pages)

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This report is available for free download (6.1 MB):
http://onlinepubs.trb.org/onlinepubs/ncfrp/ncfrp_rpt_030.pdf

Item 3

Incorporating Truck Analysis into the Highway Capacity Manual

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

NCFRP Report 31 • 2014

"This report presents capacity and level-of-service techniques that (1) improve transportation agencies' abilities to plan, design, manage, and operate streets and highways to serve trucks and (2) better evaluate the effects of trucks on other modes of transportation and vice versa. These techniques are being incorporated into the Highway Capacity Manual, but will be immediately useful to planners and designers working on projects with significant truck traffic." --Foreword
(145 pages)

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This report is available for free download (Main report, appendices):
http://onlinepubs.trb.org/onlinepubs/ncfrp/ncfrp_rpt_031.pdf
http://onlinepubs.trb.org/onlinepubs/ncfrp/docs/NCFRPReport31Appendices.pdf

Item 4

Estimating bicycling and walking for planning and project development: a guidebook

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

NCHRP Report 770 • 2014

"NCHRP Report 770...contains methods and tools for practitioners to estimate bicycling and walking demand as part of regional-, corridor-, or project-level analyses. The products of the research include a guidebook for practitioners on a range of methods for estimating bicycling and walking activity and a CD-ROM containing a GIS Walk Accessibility Model, spreadsheets, and the contractor's final report, which documents the research and tools that operationalize the methods described in the guidebook."--Publisher description.
(151 pages)

• Accompanying CD-ROM "Supplemental Materials to NCHRP Report 770, NCHRP Project 08-78" contains "GIS Walk Accessibility Tool," "Contractor's Final Report (Including Appendixes)", and a tour-based model spreadsheet in Microsoft Excel format.

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This report is available for free download (website includes report and CD-ROM downloads):
http://www.trb.org/Publications/Blurbs/171138.aspx

Item 5

Capacity modeling guidebook for shared-use passenger and freight rail operations

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Report 773 • 2014

"TRB's National Cooperative Highway Research Program (NCHRP) Report 773: Capacity Modeling Guidebook for Shared-Use Passenger and Freight Rail Operations provides state departments of transportation with technical guidance to aid in their understanding of the methods host railroads use to calibrate and apply capacity models. The guidebook examines the modeling processes and results that are used to define, measure, simulate, and evaluate railroad capacity. These models may help determine if adequate capacity exists to support new or increased passenger rail service or if infrastructure improvements may be necessary."--Publisher's description.
(94 pages)

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This report is available for free download (6.3 MB):
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_773.pdf

Item 6

A debris management handbook for state and local DOTs and departments of public works

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Report 781 • 2014

"TRB's National Cooperative Highway Research Program (NCHRP) Report 781: A Debris Management Handbook for State and Local DOTs and Departments of Public Works provides debris management practices for local, tribal, and state departments of transportation and for public works agencies. A PowerPoint presentation and a final report describing the methodology of the project are available online."--Publisher description.
(125 pages)

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This report is available for free download (11.8 MB):
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_781.pdf

Item 7

Proposed Guideline for Reliability-Based Bridge Inspection Practices

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Report 782 • 2014

"This report presents a proposed Guideline for reliability-based bridge inspection practices and provides two case studies of the application of the proposed Guideline. The Guideline describes a methodology to develop a risk-based approach for determining the bridge inspection interval according to the requirements in the “Moving Ahead for Progress in the 21st Century Act (MAP-21)” legislation. The goal of the methodology is to improve the safety and reliability of bridges by focusing inspection efforts where most needed and optimizing the use of resources. The material in this report will be of immediate interest to bridge engineers." -Preface
(212 pages)

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This report is available for free download (10.3 MB):
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_782.pdf

Item 8

Guide for design management on design-build and construction manager/general contractor projects

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

NCHRP Report 787 • 2014

"TRB's National Cooperative Highway Research Program (NCHRP) Report 787: Guide for Design Management on Design-Build and Construction Manager/General Contractor Projects presents guidance for transportation agencies on design management under construction manager/general contractor and design-build project delivery. The guidance includes case studies of projects successfully developed using these alternative procurement strategies."--Publisher description
(215 pages)

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This report is available for free download (17.8 MB):
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_787.pdf

Item 9

Accelerating Implementation of Transportation Research Results: A Synthesis of Highway Practice

TRANSPORTATION RESEARCH BOARD (TRB)

NCHRP Synthesis 461 • 2014

This synthesis examines implementation practices used by public-sector nontransportation agencies, nonprofits, and academia to accelerate practical application of research results. The emphasis is on practices that might be useful for transportation agencies to create more responsive research programs. A series of implementation case examples and practices are presented.
(63 pages)

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This report is available for free download (1.8 MB):
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_461.pdf

Item 10

Guide to establishing monitoring programs for travel time reliability

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

SHRP2 Report S2-L02-RR-2 • 2014

"TRB's second Strategic Highway Research Program (SHRP 2) Report S2-L02-RR-2: Guide to Establishing Monitoring Programs for Travel Time Reliability describes how to develop and use a Travel Time Reliability Monitoring System (TTRMS). The report also explains why such a system is useful, how it helps agencies do a better job of managing network performance, and what a traffic management center (TMC) team needs to do to put a TTRMS in place." --Publisher's description.
(xiii, 149 pages)

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This report is available for free download (86 MB):
http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2_S2-L02-RR-2.pdf

Item 11

Incorporating reliability performance measures into operations and planning modeling tools

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

SHRP2 Report S2-L04-RR-1 • 2014

"This project explored how to address reliability using micro- and mesosimulation models. In addition, it provided guidance on how to address reliability in other modeling systems, namely in traditional demand forecasting models and with activity-based models coupled with dynamic traffic assignment models. Substantial advances were made in this project, both conceptually and in terms of practical products produced. The project focused considerable attention on how micro- and mesosimulation models could address travel time reliability. The essence of the approach is to sandwich a simulation model between a pre- and post-processor such that together, all three components can portray travel time reliability on a network or part of it. The researchers developed two software prototypes that were tested with both a widely used mesosimulation model and a widely used microsimulation model. The first software prototype, the Scenario Manager, consisted of the pre-processor for either type of simulation model. The Scenario Manager produces random scenarios involving various sources of nonrecurring congestion such as traffic incidents, weather, and work zones. It can also address scenarios based on historical data or scenarios previously constructed for planning purposes. The other software prototype is the Trajectory Processor. This post-processor determines the distribution of travel time for every origin-destination pair on a network. Nearly all the travel time reliability metrics, including standard deviation and the Planning Time Index, can be derived from the travel time distribution. This report provides more information about the Scenario Manager and the Trajectory Processor, as well as the project research." --TRID
(135 pages)

This report is available for free download (32.7 MB):
http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2_S2-L04-RR-1.pdf

Item 12

Guide to Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

SHRP2 Report S2-L05-RR-2 • 2014

"[This guide] is an easy-to-read explanation aimed at managers and others about how to incorporate travel time reliability into planning and programming through a collaborative process. The guide introduces the concept of travel time reliability, identifies various reliability measures, explains how to incorporate reliability in policy statements, describes how to evaluate reliability needs and deficiencies, and, finally, offers suggestions on how to incorporate reliability measures into program and project investment decisions" --Foreword
(xvi, 70 pages)

This report is available for free download (3.1 MB):
http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2_S2-L05-RR-2.pdf

Item 13

Design guide for addressing nonrecurrent congestion

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES
SHRP2 Report S2-L07-RR-2 • 2014

"Nonrecurring traffic congestion, which comprises the majority of total congestion, results from random incidents that cause unexpected delays, such as crashes, weather, and work zones. Road users are frustrated by unexpected delays that can make for unreliable arrival times at their destinations. The delivery of travel time reliability is becoming an emerging business activity and performance measure for transportation agencies to meet the increasing expectations of the public and freight industry. The purpose of this guide is to give transportation engineers, designers, planners, and decision makers an understanding and technical reference on how different high-way geometric design elements can be deployed, in new designs or site retrofit actions, to contribute specifically to the reduction of nonrecurring congestion and travel time reliability improvement on both urban and rural freeways. The guide introduces the nonrecurring and travel time reliability topics and metrics, a catalogue of design elements, and a process for selecting candidate design elements to evaluate for a specific site. For individual design elements, example content includes a description of that element, advantages and disadvantages, factors to consider when selecting the element, applicability to nonrecurring congestion, design criteria and practices, safety effectiveness, typical applications, and costs. In addition, there is an evaluation procedure that allows practitioners to compare alternative design treatments and select the best treatment solution for a specific site."TRID
(xii, 153 pages)

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This report is available for free download (11.17 MB):
http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2_S2-L07-RR-2.pdf

Item 14

Using existing pavement in place and achieving long life

TRANSPORTATION RESEARCH BOARD OF THE NATIONAL ACADEMIES

SHRP2 Report S2-R23-RR-1 • 2014

"The goal of this project was to develop reliable procedures and guidelines for identifying when existing pavements can be used in place and the methods necessary to incorporate the original material into the new pavement structure while achieving long life. ?Long life? was defined as 50 years or longer from the time the pavement was renewed or rehabilitated until the next major rehabilitation... The report and guide encourage longer-lasting renewed pavement designs; provide realistic, easy-to-use pavement thickness scoping assessments; and guide users through the data gathering process needed for input into designing and constructing a long-life pavement by using the existing pavement structure. The guide includes the following: project assessment manual; best practices for rehabilitation of flexible pavements and rigid pavements; guide specifications; life-cycle cost analysis; and emerging pavement technology. All the guidance has been incorporated into the web-based pavement design scoping tool, which is meant to complement, not replace, a transportation agency?s normal processes for design and pavement-type selection. The guide and web tool were developed with the support of several transportation agencies, including the Illinois Tollway Authority, Michigan DOT, Minnesota DOT, Missouri DOT, Texas DOT, Virginia DOT, and Washington DOT." --Foreword
(122 pages)

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This report is available for free download (18.2 MB):
http://onlinepubs.trb.org/onlinepubs/shrp2/SHRP2_S2-R23-RR-1.pdf