



Research Digest

FORWARD ALL REQUESTS TO:

The University of Texas at Austin
Center for Transportation Research
LIBRARY

3208 Red River • Suite 115

Austin, Texas 78705-2650

Phone: (512) 232-3126 and (512) 232-3138

Fax: (512) 232-3088

Email: ctrlib@uts.cc.utexas.edu



Research Digest

Item 1

Commercial Truck and Bus Safety Synthesis Program : A Status Report

TRANSPORTATION RESEARCH BOARD

CTBSSP Research Results Digest 5 • 2007

This is a staff digest of the progress and status of the Commercial Truck and Bus Safety Synthesis Program, which is administered by the Transportation Research Board. Individual studies for the program are managed by Christopher W. Jenks, Manager, Commercial Truck and Bus Safety Synthesis Program.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/ctbssp/ctbssp_rrd_5.pdf

Item 2

Effectiveness of Commercial Motor Vehicle Driver Training Curricula and Delivery Methods

TRANSPORTATION RESEARCH BOARD

CTBSSP Synthesis 13 • 2007

This synthesis will be useful to federal and state agencies, commercial truck and bus operators, and others interested in improving commercial vehicle safety. The synthesis summarizes the state of commercial motor vehicle (CMV) operator training in the trucking and motorcoach industries. It captures in detail the experiences of those training programs that are using some combination of simulators and computer-based instruction. It also identifies current measures of training effectiveness being used in the CMV community. The synthesis is based on a comprehensive literature review complemented by a survey of selected truck and bus companies, industry associations, CMV driving schools, and vendors and users of training technologies such as simulators and computer-based training programs.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/ctbssp/ctbssp_syn_13.pdf



Research Digest

Item 3

Short-Term Monitoring for Compliance with Air Quality Standards

TRANSPORTATION RESEARCH BOARD

NCHRP Report 479 • 2007

This report contains the results of research into predicting ambient air quality exceedances at transportation project locations. It is intended to provide transportation and air quality planners and decision makers short-term monitoring procedures that can produce accurate and timely input data for predicting air quality exceedances without requiring the collection of large amounts of monitoring data. During the project, the research team developed and tested a statistical procedure to estimate probability of exceedance of the 8-hour carbon monoxide standard through the collection of a limited amount of data at the project site.

This procedure is intended to reliably estimate peak emission concentrations of carbon monoxide near proposed roadway improvements while obviating the need for extensive collection of monitoring data as prerequisites inputs for dispersion models. Requiring only limited monitoring data from the project location, this approach is intended to be used as a tool in transportation planning and air quality evaluations. Thus, the procedure presented in this report may be useful in reducing the time and resources required to identify and to develop further projects that can meet the requirements of ambient air standards.

The report demonstrates the feasibility of short-term monitoring procedures and identifies a number of important issues in conducting such monitoring. This report should be useful to state Departments of Transportation (DOTs), Metropolitan Planning Organizations (MPOs), and local transportation planners as well as other practitioners concerned with planning, programming, and implementing transportation projects. The report will also be useful as an educational resource into the concepts, tools, and procedures for assessing the air quality implications of transportation projects.

Full-text PDF of this report is available for free download from

http://gulliver.trb.org/publications/nchrp/nchrp_rpt_479.pdf

Item 4

Guidelines for the Selection of Snow and Ice Control Materials to Mitigate Environmental Impacts

TRANSPORTATION RESEARCH BOARD

NCHRP Report 577 • 2007

This report presents guidelines for the selection of snow and ice control materials through an evaluation of their cost, performance, and impacts on the environment and infrastructure. The guidelines should be useful in helping maintenance managers develop a program that will minimize the environmental impacts of snow and ice control without compromising effective maintenance strategies. The guidelines will help highway agencies fill their dual role of providing safe roadways for the driving public while serving as stewards to protect and enhance the natural environment.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_577.pdf



Research Digest

Item 5

Evaluating Air-Entraining Admixtures for Highway Concrete

TRANSPORTATION RESEARCH BOARD

NCHRP Report 578 • 2007

This report presents a recommended procedure for evaluating air-entraining admixtures used in highway concrete. The procedure involves the testing of non-air-entrained concrete and concrete containing the air-entraining admixture under simulated field conditions. Criteria are proposed for acceptance of admixtures for use in either highway pavements or structures. The recommended procedure and acceptance criteria will guide materials engineers in evaluating and selecting air-entraining admixtures that should contribute to appropriate freeze-thaw durability and thus to good performance and long service life. The content of the report will be of immediate interest to materials engineers, researchers, and others concerned with the design of concrete mixtures for use in highway pavements and structures.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_578.pdf

Item 6

Design of Construction Work Zones on High-Speed Highways

TRANSPORTATION RESEARCH BOARD

NCHRP Report 581 • 2007

Under NCHRP Project 3-69, “Design of Construction Work Zones on High-Speed Highways,” researchers at the Pennsylvania State University developed guidance for the design of geometric features, including horizontal and vertical alignment, cross-sectional features, and temporary concrete barrier placement. The research team also developed a work zone speed prediction model that estimates free-flow vehicle speeds through two types of construction work zones on four-lane freeways: single-lane closure and median crossovers.

The research team reviewed the literature and ongoing research related to work zone design and safety. A survey of state DOTs was also conducted. Survey responses and a review of state DOT websites provided substantial information on current DOT work zone design policies and guidelines. The survey also identified priority topics associated with the design of construction work zones, and these priorities guided the research effort. Seventy-five percent of the states responding to the survey ranked improved guidance on traffic barriers and design as the “most important/critical” need. The roadside design and barrier placement guidance includes a discussion of the clear zone concept and its applicability to construction work zones, the identification of work zone hazards that may require treatment or shielding, and the use of benefit-cost analysis for roadside safety treatment decisions.

The subject of speed is inextricably connected to work zones. There is a widely held perception that speed is one of the most significant factors in road crashes. The work zone speed prediction model enables designers to develop a speed profile to detect inconsistencies in construction work zone designs.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_581.pdf



Research Digest

Item 7

State DOT Staff Resources for Administering Federal Public Transportation Programs

TRANSPORTATION RESEARCH BOARD

NCHRP Research Results Digest 314 • 2007

The primary objectives of this research project were to collect information on the staff resources that state departments of transportation (DOTs) devote to public transportation programs and to evaluate the ability of the states to adequately administer existing and emerging Federal Transit Administration (FTA) public transportation programs. A secondary objective of the project was to develop a method for regularly updating the data in future years. It is anticipated that the study results will be used to help state transit managers evaluate the adequacy of staffing levels for the administration of federal and state transit programs within their states. As such, there are two audiences for the report:

1. State departments of transportation. The report documents what is involved in the grants administration function and what resources are devoted to administering transit programs at state DOTs.
2. The FTA. The report should lead to a better understanding of state staffing limitations and the states' ability to hire additional staff.

As discussed in detail in the section on research conclusions, the research suggests that most states do not have the staff resources needed to adequately manage the federal transit programs. Further, state options for hiring staff are limited, even with the availability of additional federal funds. Finally, while there is little staff turnover reported, state DOTs have difficulty attracting new staff to transit positions and may be headed for a crisis as staff members retire.

Full-text PDF of this report is available for free download from
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_314.pdf

Item 8

Centralized Versus Decentralized State Procurement of Paratransit Vehicles for the Federal Section 5310 Program

TRANSPORTATION RESEARCH BOARD

NCHRP Research Results Digest 315 • 2007

This digest summarizes the results of NCHRP Project 20-65(9). The digest was prepared by AECOM Consult, Inc. Nathan Macek, Senior Consultant, AECOM Consult, was the Principal Investigator. He was supported by Scott Baker, Senior Consulting Manager, AECOM Consult.

Input from many states contributed to this report. Among the major contributing state departments of transportation were Arizona, Connecticut, Florida, Idaho, Illinois, Missouri, North Carolina, Ohio, Oregon, Pennsylvania, Texas, Vermont, and Washington. Representatives from an additional 25 states completed web-based surveys for this effort. In addition, several transit agencies, vehicle vendors, and manufacturers participated in telephone interviews.

Full-text PDF of this report is available for free download from
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_315.pdf



Research Digest

Item 9

Using Surface Energy Measurements to Select Materials For HMA Pavements

TRANSPORTATION RESEARCH BOARD

NCHRP Research Results Digest 316 • 2007

The surface energy of an aggregate particle determines its affinity for both inorganic and organic binders as well as for water. The surface energy of an asphalt binder affects its ability to adhere to an aggregate particle surface and, thus, the long-term strength and stability of the composite material. Interactions among aggregate particles, binders, and water can also influence the development and longevity of binder adhesion, most notably, in the stripping of asphalt binder from aggregate by moisture. Therefore, the ability to characterize asphalt binders and aggregates by measurement of their surface energies may lead to improved performance of hot mix asphalt (HMA) pavements through development of (1) application-specific materials selection criteria, (2) project-specific matching of the characteristics of binders and aggregates, and (3) identification of additives or treatments that improve binder-aggregate compatibility.

A micromechanics model developed at the International Center for Aggregates Research (ICAR) at Texas A&M University explains fatigue damage in HMA through the interaction of two competing processes: (1) crack formation and (2) microcrack healing. Both processes are theoretically described by the principles of viscoelastic fracture first set forth by Schapery in 1984. Further, Schapery hypothesized that both fracture and healing are strongly affected by cohesive (within the mastic) surface energy and adhesive (between the aggregate and the asphalt binder or mastic) surface energy.

Full-text PDF of this report is available for free download from
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_316.pdf

Item 10

An Expert System for Recommending Speed Limits in Speed Zones

TRANSPORTATION RESEARCH BOARD

NCHRP Research Results Digest 318 • 2007

This digest describes research conducted to develop a knowledge-based expert system decision-support tool for recommending speed limits in speed zones on highways and local roads that are considered credible and enforceable. The tool is intended to assist responsible authorities in setting speed zone limits to enhance traffic safety and operating efficiency. The system has been designed to be useful for all types of primary roadways, from rural two-lane segments to urban freeway segments. The system does not address statutory limits such as maximum limits set by legislatures for Interstates and other major classes of roadways, temporary or part-time speed limits such as those posted in work zones and school zones, or variable speed limits that change as a function of traffic, weather, and other conditions. The expert system is designed to be implemented as a web-based software application.

Full-text PDF of this report is available for free download from
http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_318.pdf



Research Digest

Item 11

Tribal Transportation Programs

TRANSPORTATION RESEARCH BOARD

NCHRP Synthesis 366 • 2007

This synthesis provides information that will prove useful to tribal governments, and state, local, and federal agencies, in determining the state of tribal transportation programs, and the steps needed to assist tribes in developing the capacity to effectively perform and manage transportation-related functions. The study identifies innovations and model practices among tribal transportation programs. It summarizes the history and legal and administrative evolution of tribal transportation programs within the larger context of issues of tribal sovereignty and relationships with federal, state, and local governments, and local and regional planning agencies. The report serves as a milestone signifying the inclusion of tribal governments as an essential component of the transportation community and assesses future tribal capacity and resource needs.

Overall, 30 tribes of all sizes from across the nation were chosen for surveying and study; at least one from every state with a large number of tribes. The study also examined the extant literature in the field. In addition, extensive interviews were undertaken with directors of Transportation Technical Assistance Program centers, with Tim Penney of FHWA, and with several officials of the Bureau of Indian Affairs.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_366.pdf

Item 12

Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways

TRANSPORTATION RESEARCH BOARD

TCRP Report 117 • 2007

TRB's Transit Cooperative Research Program (TCRP) Report 117: Design, Operation, and Safety of At-Grade Crossings of Exclusive Busways explores planning, designing, and operating various kinds of busways through roadway intersections. The report examines at-grade intersections along busways within arterial street medians; physically separated, side-aligned busways; busways on separate rights-of-way; and bus-only ramps. The intersections highlighted include highway intersections, midblock pedestrian crossings, and bicycle crossings. Appendixes A through I of the contractor's final report were published as TCRP Web-Only Document 36.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_117.pdf



Research Digest

Item 13

Bus Rapid Transit Practitioner's Guide

TRANSPORTATION RESEARCH BOARD

TCRP Report 118 • 2007

TRB's Transit Cooperative Research Program (TCRP) Report 118: Bus Rapid Transit Practitioner's Guide explores the costs, impacts, and effectiveness of implementing selected bus rapid transit (BRT) components. The report examines planning and decision making related to implementing different components of BRT systems, updates some of the information presented in TCRP Report 90: Bus Rapid Transit, and highlights the costs and impacts of implementing various BRT components and their effectiveness.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_118.pdf

Item 14

Performance and Testing Requirements for Portable Track Geometry Inspection Systems

TRANSPORTATION RESEARCH BOARD

TCRP Research Results Digest 83 • 2007

This project investigated portable track geometry measurement systems and their applicability to transit operations and developed performance guidelines and testing requirements for use by transit agencies in evaluating and selecting a portable track geometry system. The research was conducted under TCRP Project D-7 and included the following tasks:

1. A review of portable geometry systems currently available,
2. Discussions with transit agencies to determine industry needs,
3. Development of performance guidelines that can be used by transit agencies to evaluate and validate system performance, and
4. Development of test procedures and requirements that can be used by transit agencies to evaluate and validate system performance.

For purposes of this study, a portable track geometry measurement system is considered to be any track geometry measurement system that is not permanently affixed to a conventional rail vehicle. In practice, this means that the geometry system is either mounted to a hi-rail vehicle, or it is a self-contained pushcart-based system.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rrd_83.pdf



Research Digest

Item 15

Audible Signals for Pedestrian Safety in LRT Environments

TRANSPORTATION RESEARCH BOARD

TCRP Research Results Digest 84 • 2007

This digest provides guidelines for the application of audible signals for pedestrian safety in light rail transit (LRT) environments. The guidelines include descriptions of audible signal systems and associated operating procedures, their integration with other crossing measures, criteria for their use, and their effectiveness and limitations. The guidelines are organized by location of audible warning devices and alignment type.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rrd_84.pdf

Item 16

Mobile Data Terminals : A Synthesis of Transit Practice

TRANSPORTATION RESEARCH BOARD

TCRP Synthesis 70 • 2007

This synthesis reflects state-of-the-practice information from selected transit agencies surveyed across the United States, as well as very specific information on the capability of mobile data computers offered by technology vendors to the industry. The report also contains information about the rapidly changing wireless communications infrastructure that supports mobile data terminal (MDT) deployment in transit. This topic will be of interest to transit planners and managers, information technology staff, and others who work with them in the deployment of MDTs in transit. The topic panel charge to the consultant dealt with educating the transit industry in how to address the technology marketplace as an informed buyer.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_70.pdf

Item 17

Transportation in an Aging Society

TRANSPORTATION RESEARCH BOARD

TRB Conference Proceedings 27 • 2004

TRB's Conference Proceedings 27 -- Transportation in an Aging Society: A Decade of Experience includes the technical papers and reports from a 1999 conference that examined issues associated with achieving safer mobility for older persons. The issues discussed and papers presented at the meeting are judged to be important to the field and are being published so they are available to a broader audience.

Full-text PDF of this report is available for free download from

http://onlinepubs.trb.org/onlinepubs/conf/reports/cp_27.pdf

Please fold along dotted line.

From:

Name: _____
District: _____
Division: _____
Building: _____ Floor: ____ Room: ____
Other agency: _____
Agency address: _____

Please report address corrections to:
ctrlib@uts.cc.utexas.edu



To:
Research Digest

THE UNIVERSITY OF TEXAS AT AUSTIN
CENTER FOR TRANSPORTATION RESEARCH
ATTN: LIBRARY
3208 RED RIVER, SUITE 115
AUSTIN, TX 78705-2650



Research Digest

The University of Texas at Austin
Center for Transportation Research
LIBRARY

3208 Red River • Suite 115 • Austin • Texas • 78705-2650
Phones: (512) 232-3126 and (512) 232-3138 • Fax: (512) 232-3088
Email: ctrlib@uts.cc.utexas.edu

August Issue 07-08

Please check the box for the item(s) you want to borrow.

- | | | | |
|----------------------------|-----------------------------------|-----------------------------|-----------------------------------|
| <input type="checkbox"/> 1 | CTBSSP Research Results Digest 5 | <input type="checkbox"/> 10 | NCHRP Research Results Digest 318 |
| <input type="checkbox"/> 2 | CTBSSP Synthesis 13 | <input type="checkbox"/> 11 | NCHRP Synthesis 366 |
| <input type="checkbox"/> 3 | NCHRP Report 479 | <input type="checkbox"/> 12 | TCRP Report 117 |
| <input type="checkbox"/> 4 | NCHRP Report 577 | <input type="checkbox"/> 13 | TCRP Report 118 |
| <input type="checkbox"/> 5 | NCHRP Report 578 | <input type="checkbox"/> 14 | TCRP Research Results Digest 83 |
| <input type="checkbox"/> 6 | NCHRP Report 581 | <input type="checkbox"/> 15 | TCRP Research Results Digest 84 |
| <input type="checkbox"/> 7 | NCHRP Research Results Digest 314 | <input type="checkbox"/> 16 | TCRP Synthesis 70 |
| <input type="checkbox"/> 8 | NCHRP Research Results Digest 315 | <input type="checkbox"/> 17 | TRB Conference Proceedings 27 |
| <input type="checkbox"/> 9 | NCHRP Research Results Digest 316 | | |

These items are available on a **two-week** loan basis.

Please fill out form completely and use other side of this page to mail in order. Thank you.

NAME _____

D/D/O _____

MAILING
ADDRESS _____

EMAIL _____