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Responsible Senior Program Officer: Gwen Chisholm Smith

Research Results Digest 94

SYNTHESIS OF INFORMATION RELATED TO TRANSIT PROBLEMS

This is a staff digest of the progress and status of TCRP Project J-7, "Synthesis of Information Related to Transit Problems," for which the Transportation Research Board is the agency conducting the research. Individual studies for the project are managed by Donna L. Vlasak, Senior Program Officer, with assistance from Jon Williams, Program Director, Synthesis Studies, serving under the Studies and Special Programs Division of the Transportation Research Board, Stephen R. Godwin, Director.

BACKGROUND

The Transit Cooperative Research Program (TCRP) was established in 1992. The U.S. Department of Transportation proposed the TCRP, and it was authorized in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The program was reauthorized in the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). On May 13, 1992, a memorandum agreement outlining operating procedures was executed by three cooperating organizations: the Federal Transit Administration (FTA); the National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a non-profit educational and research organization established by the American Public Transportation Association (APTA). The memorandum agreement was updated on January 12, 1999.

INTRODUCTION

Transit administrators, engineers, and researchers often face problems for which

Suggestions for synthesis topics may be sent to the TCRP Manager or Synthesis Staff at any time (see address on back). You can submit your recommendation at: **http://www.trb.org/Studies/Synthesis/SynthesesSubmittal.asp** under **"Submit Topics."** Topics suggested must be accompanied by a brief (one or two paragraphs) scope statement, including a discussion of the problem. A title (preferably 10 words or less) and the name and affiliation of the submitter are also necessary. Identification of information sources is appreciated. If a topic is not selected, it must be resubmitted the following year to be considered. Annually, synthesis topics are typically due by the end of March. The TCRP Oversight Panel for the project meets in May or June to select new topics based on funding available.

Interested in writing a synthesis? For details contact Donna L. Vlasak by e-mail at dvlasak@nas.edu or by phone at 202/334-2974 or Jon Williams at jwilliams@nas.edu or by phone at 202/334-3245.

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information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the transit industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire transit community, the Transit Cooperative Research Program Oversight and Project Selection (TOPS) Committee authorized the Transportation Research Board to undertake a continuing study. This study, TCRP Project J-7, "Synthesis of Information Related to Transit Problems," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute a TCRP report series, Synthesis of Transit Practice.

THE SYNTHESIS PROGRAM

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems. To develop these syntheses in a comprehensive manner and to ensure inclusion of significant knowledge, TRB employs a consultant to gather and analyze available information from numerous sources, including a large number of transit agencies. A panel of experts in the subject area is established to guide the consultants in organizing and evaluating data collected on each topic and to review the synthesis report.

For each topic, the project objectives are (1) to locate and assemble documented information; (2) to learn what practice has been used for solving or alleviating problems; (3) to identify all ongoing research; (4) to learn what problems remain largely unsolved; and (5) to organize, evaluate, and document the useful information that is acquired.

Each synthesis is an immediately useful document that records practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As the processes of advancement continue, new knowledge can be expected to be added to that which is now on hand; eventually the synthesis may need to be updated or redone. If you believe that a synthesis should be updated, it would be appreciated if you would contact TRB and let us know.

Selection of Topics

TCRP Project Panel J-7 meets each year (typically in May or June) to select topics for study using funds from the upcoming fiscal year. The membership of this committee is given in Table 1. Current funding allows for initiation of approximately six syntheses per year.

The following factors are considered in the selection process for synthesis topics:

- The problem should be widespread enough to generate broad interest in the synthesis.
- The topic should be timely and critical with respect to economic impact, safety, or social impact.
- The topic is appropriate if current practice is nonuniform or inconsistent from agency to agency, or if the validity of some practices appears to be questionable.
- The quality and quantity of useful available information should indicate a need to organize and compress that which has already been learned and written on the topic.
- The topic should not be one where ongoing research or other activities in progress might be expected to render the synthesis obsolete shortly after completion.

The continued success of this project depends on a constant supply of worthy synthesis topics solicited annually from a variety of sources, including transit officials, equipment and service suppliers, research organizations, FTA, APTA, and TRB committees. The interest of those who have recommended topics is sincerely appreciated, and they are urged to continue.

Conduct of the Studies

Throughout the year, following the J-7 project panel's selection of topics, studies are initiated in the order of priority assigned by the committee. A panel consisting of practitioners and researchers is formed for each topic. At its first meeting, this topic panel thoroughly discusses the topic, refines the tentative scope, suggests sources of information, and selects the

Table 1 TCRP PROJECT PANEL J-7

	Name	Affiliation
Chair	Dwight A. Ferrell	Metropolitan Atlanta Rapid Transit Authority, Atlanta, GA
Member	Debra W. Alexander	Capital Area Transportation Authority, Lansing, MI
Member	Donna DeMartino	San Joaquin Regional Transit District, Stockton, CA
Member	Mark W. Fuhrmann	Metro Transit, Minneapolis/St. Paul, MN
Member	Robert H. Irwin	Consultant, Calgary, AB, Canada
Member	Paul J. Larrousse	Rutgers, The State University of New Jersey, New Brunswick, NJ
Member	David A. Lee	Connecticut Transit, Hartford, CT
Member	Frank T. Martin	PBS&J, Tallahassee, FL
Member	Emeka Moneme	Washington Metropolitan Area Transit Authority, Washington, D.C.
Member	Hayward M. Seymore, III	Q Straint, Shelton, WA
Member	Pam Ward	Ottumwa Transit Authority, Ottumwa, IA
Liaison	Michael Baltes	Federal Transit Administration, Washington, D.C.
Liaison	Lisa Colbert	Federal Transit Administration, Washington, D.C.
Liaison	Peter L. Shaw	Transportation Research Board, Washington, D.C.

consultant based on expression of interest received in response to an industry-wide solicitation.

Following this meeting, an agreement is negotiated with the consultant to gather information on the topic, synthesize it, and draft a report. Typically, the agreement covers a period of 6 months. Information gathering and preparation of the first draft of the synthesis report usually takes 4 months. This draft is then reviewed by the topic panel with the consultant, often at a second panel meeting. Subsequent drafts and a meeting are scheduled if needed, although this rarely occurs.

After the staff is substantially satisfied with the report, a final draft is sent to the members of the TCRP Project Panel J-7 for their approval. At the same time, members from the topic panel have their last chance to review the report. Comments from these reviews are incorporated into the final report, which is usually published as a TCRP Synthesis of Transit Practice.

Studies in Progress as of January 2010

Work is currently under way on the topics listed in Table 2. Questions on these topics should be addressed to the Project Study Manager, Donna L. Vlasak (e-mail: dvlasak@nas.edu and 202/334-2974) or the Synthesis Studies Program Director, Jon Williams (e-mail: jwilliams@nas.edu and 202/334-3245).

Available Publications

The Syntheses of Transit Practice that have been completed under this project are listed in Table 3. Copies of these syntheses can be obtained from the Publications Office, Transportation Research Board, 500 Fifth Street, N.W., Washington, D.C., 20001; by calling 202/334-3213; and through the Internet at: **http://www.trb.org/bookstore**. Please send check orders to: TRB, Lockbox 289, Washington, D.C., 20055 or fax to: 202/334-2519.

Index of Topic Studies

Table 4 is a key word index of published syntheses and studies currently in progress.

Table 2 SYNTHESIS STUDIES—In Progress as of January 2010

No.	Title
SA-22	Bus Arterial and Light Rail Transit Preferential Treatments
SB-17	Innovative Rural Transit Routes
SE-05	Preventive Maintenance Intervals for Transit Buses
SH-09	Greenhouse Gas Emissions Savings from Transit
SH-10	Effective Use of Citizen Advisory Committees for Transit Planning and Operations
SH-11	Pass Fare Arrangements for Public Employees
SH-12	Impact of "Small Starts" (Streetcars and Trolleys) on Land Development

Table 3 PUBLISHED TCRP SYNTHESES

No.	Title/Pages/Price
1	Safe Operating Procedures for Alternative Fuel Buses (1993) 48 pp., $16.00
2	Low-Floor Transit Buses (1994) 43 pp., $12.00
3	Incentive Programs to Improve Transit Employee Performance (1994) 44 pp., $12.00
4	Integration of Bicycles and Transit (1994) 58 pp., $12.00
5	Management Information Systems (1994) 77 pp., $19.00
6	The Role of Performance-Based Measures in Allocating Funding for Transit Operations (1994) 52 pp., $11.00
7	Regulatory Impacts on Design and Retrofit of Bus Maintenance Facilities (1994) 50 pp., $12.00
8	Retrofit of Buses to Meet Clean Air Regulations (1994) 48 pp., $12.00
9	Waste Control Practices at Bus Maintenance Facilities (1995) 26 pp., $10.00
10	Bus Route Evaluation Standards (1995) 54 pp., $12.00
11	System-Specific Spare Bus Ratios (1995) 46 pp., $12.00
12	Transit Bus Service Line and Cleaning Functions (1995) 48 pp., $14.00
13	Risk Management for Small and Medium Transit Agencies (1995) 31 pp., $13.00
14	Innovative Suburb-to-Suburb Transit Practices (1995) 50 pp., $14.00
15	System-Specific Spare Rail Vehicle Ratios (1995) 43 pp., $13.00
16	Changing Roles and Practices of Bus Field Supervisors (1996) 45 pp., $13.00
17	Customer Information at Bus Stops (1996) 64 pp., $18.00
18	Bus Occupant Safety (1996) 55 pp., $15.00
19	Passenger Transfer System Review (1996) 37 pp., $14.00
20	Transit-Focused Development (1997) 55 pp., $16.00
21	Improving Transit Security (1997) 36 pp., $15.00
22	Monitoring Bus Maintenance Performance (1997) 48 pp., $16.00
23	Inspection Policy and Procedures for Rail Transit Tunnels and Underground Structures (1997) 95 pp., $25.00
24	AVL Systems for Bus Transit (1997) 47 pp., $16.00
25	Light Rail Vehicle Compression Requirements (1997) 34 pp., $15.00
26	Bus Transit Fare Collection Practices (1997) 29 pp., $14.00
27	Emergency Preparedness for Transit Terrorism (1997) 73 pp., $21.00
28	Managing Transit Construction Contract Claims (1998) 50 pp., $17.00
29	Passenger Counting Technologies and Procedures (1998) 50 pp., $23.00
30	ADA Paratransit Eligibility Certification Practices (1998) 38 pp., $16.00
31	Paratransit Contracting and Service Delivery Methods (1998) 35 pp., $16.00
32	Transit Advertising Revenue: Traditional and New Sources and Structures (1998) 58 pp., $20.00
33	Practices in Assuring Employee Availability (1999) 69 pp., $27.00
34	Data Analysis for Bus Planning and Monitoring (2000) 62 pp., $27.00
35	Information Technology Update for Transit (2000) 98 pp., $31.00
36	Identifying and Reducing Fraudulent Third Party Tort Claims Against Public Transit Agencies (2000) 58 pp., $25.00
37	Communicating with Persons with Disabilities in a Multimodal Environment (2001) 48 pp., $26.00
38	Electronic Surveillance Technology on Transit Vehicles (2001) 57 pp., $28.00
39	Transportation on College and University Campuses (2001) 62 pp., $28.00
40	A Challenged Employment System: Hiring, Training, Performance Evaluation, and Retention of Bus Operators (2001) 72 pp., $29.00
41	The Use of Small Buses in Transit Service (2002) 72 pp., $15.00
42	Use of Flexible Funds for Transit Under ISTEA and TEA-21 (2002) 40 pp., $15.00
43	Effective Use of Transit Websites (2002) 79 pp., $16.00
44	Training for On-Board Bus Electronics (2002) 63 pp., $15.00
45	Customer-Focused Transit (2002) 100 pp., $17.00
46	Diversity Training Initiatives (2003) 59 pp., $15.00
47	Corporate Culture as the Driver of Transit Leadership Practices (2003) 91 pp., $17.00
48	Real-Time Bus Arrival Information Systems (2003) 61 pp., $15.00

Table 3 (*Continued*)

No.	Title/Pages/Price
49	Yield to Bus Programs—State of the Practice (2003) In Press
50	Use of Rear-Facing Position for Common Wheelchairs on Transit Buses (2003) 42 pp., $14.00
51	Transit Advertising Sales Agreements (2004) 99 pp., $18.00
52	Transit Operator Health and Wellness Programs (2004) 80 pp., $17.00
53	Operational Experiences with Flexible Services in Transit Systems (2004) 57 pp., $16.00
54	Maintenance Productivity Practices (2004) 92 pp., $18.00
55	Geographic Information Systems Applications in Transit (2004) 60 pp., $16.00
56	Performance-Based Measures in Transit Fund Allocation (2004) 74 pp., $16.00
57	Computer-Aided Scheduling and Dispatch in Demand-Responsive Transit Services (2004) 79 pp., $17.00
58	Emergency Response Procedures for Natural Gas Transit Vehicles (2005) 53 pp., $15.00
59	Strategic Planning and Management in Transit Agencies (2005) 44 pp., $15.00
60	Practices in No-Show and Late Cancellation Policies for ADA Paratransit (2005) 49 pp., $16.00
61	Maintenance Staffing Levels for Light Rail Transit (2005) 41 pp., $16.00
62	Integration of Bicycles and Transit (2005) 70 pp., $17.00
63	On-Board and Intercept Transit Survey Techniques (2005) 91 pp., $19.00
64	Bus Use of Shoulders (2006) 91 pp., $35.00
65	Transit Agency Participation in Medicaid Transportation Programs (2006) 48 pp., $31.00
66	Fixed-Route Transit Ridership Forecasting and Service Planning Methods (2006) 51 pp., $31.00
67	Bus Transit Service in Land Development Planning (2006) 62 pp., $32.00
68	Methods of Rider Communication (2006) 95 pp., $35.00
69	Web-Based Survey Techniques (2006) 104 pp., $35.00
70	Mobile Data Terminals (2007) 150 pp., $47.00
71	Paratransit Manager's Skills, Qualifications, and Needs (2007) 52 pp., $36.00
72	Use of Biodiesel in a Transit Fleet (2007) 61 pp., $38.00
73	AVL Systems for Bus Transit Update (2007) 104 pp., $50.00
74	Policies and Practices for Effectively and Efficiently Meeting ADA Paratransit Demand (2008) 54 pp., $40.00
75	Uses of Higher Capacity Buses in Transit Service (2008) 72 pp., $45.00
76	Integration of Paratransit and Fixed-Route Transit Services (2008) 48 pp., $40.00
77	Passenger Counting Systems (2008) 73 pp., $45.00
78	Transit Systems in College and University Communities (2008) 88 pp., $47.00
79	Light Rail Vehicle Collisions with Vehicles at Signalized Intersections (2008) 40 pp., $37.00
80	Transit Security Update (2008) 141 pp., $57.00
Web-Only Document	
43	Track Maintenance Costs on Rail Transit Properties (2009) 66 pp.

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